DAVID Y. IGE
GOVERNOR

CRAIG K. HIRAI
EXECUTIVE DIRECTOR

FILE COPY

FEB 23 2016

STATE OF HAWAII
DEPARTMENT OF BUSINESS, ECONOMIC DEVELOPMENT AND TOURISM
HAWAII HOUSING FINANCE AND DEVELOPMENT CORPORATION
677 QUEEN STREET, SUITE 300
Honolulu, Hawaii 96813
FAX: (808) 587-0600

IN REPLY REFER TO:

16:PEO/02

February 1, 2016

To: Scott Glenn, Interim Director
Office of Environmental Quality Control

From: Craig K. Hirai
Executive Director

Subject: Draft Environmental Assessment for the Ainahau Vista II Senior Affordable Rental Development at 2428 Tusitala Street and 2423 and 2429 Ala Wai Boulevard, Waikiki, Oahu, Hawaii, Tax Map Key: 2-6-24: 70 and 71

The Hawaii Housing Finance and Development Corporation (HHFDC) has reviewed the Draft Environmental Assessment for the above subject project, and anticipates a Finding of No Significant Impact (FONSI). Please publish the notice in the next available OEQC Environmental Notice.

We have enclosed a completed OEQC Publication Form and one (1) copy of the document in pdf format on a CD (including the OEQC Publication Form); and one (1) hard copy of the Draft EA. Please contact Keith Kurahashi of Kusao and Kurahashi, Inc. at 988-2231, or Stan S. Fujimoto, HHFDC Project Manager at 587-0541 should there be any questions or comments regarding this matter.

Enclosures

OFC. OF ENVIRONMENTAL QUALITY CONTROL
'16 FEB -1 P3:00
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July 2015 Revision

APPLICANT ACTION SECTION 343-5(e), HRS PUBLICATION FORM

FEB 23 2016

Project Name **Ainahau Vista II**
HRS §343-5 Trigger(s): Use within Waikiki Special District and possible use of State and/or City land or funds
Island: Oahu
District: Waikiki
TMK: 2-6-24: 70 and 71
Permits: Waikiki Special District Permit
Grading and Building Permits

Approving Agency:
(*Address, Contact Person, Telephone*)
State of Hawaii
Hawaii Housing Finance &
Development Corporation, Department of Business
Economic Development & Tourism
677 Queen Street
Honolulu, Hawaii 96813
Stan Fujimoto
Phone (808) 587-0541

Applicant:
(*Address, Contact Person, Telephone*)
Hawaii Housing Development Corporation
1288 Ala Moana Blvd, Suite 35A
Honolulu, Hawaii 96826
Mr. Gary S. Furuta, Project Manager
(808) 429-7815

RECEIVED
'16 FEB -1 P3:00
OFC. OF ENVIRONMENTAL
QUALITY CONTROL

Consultant:
(*Address, Contact Person, Telephone*)
Kusao & Kurahashi, Inc.
2752 Woodlawn Drive, Suite 5-217
Honolulu, Hawaii 96822
Keith Kurahashi
Phone (808) 988-2231

Status (check one only):

_X_DEA-AFNSI — Submit the approving agency notice of determination/transmittal on agency letterhead, a hard copy of DEA, a completed OEQC publication form, along with an electronic word processing summary and a PDF copy (you may send both summary and PDF to oeqchawaii@doh.hawaii.gov; a 30-day comment period ensues upon publication in the periodic bulletin.

__FEA-FONSI — Submit the approving agency notice of determination/transmittal on agency letterhead, a hard copy of the FEA, an OEQC publication form, along with an electronic word processing summary and a PDF copy (send both summary and PDF to oeqchawaii@doh.hawaii.gov; no comment period ensues upon publication in the periodic bulletin.

__FEA-EISPN — Submit the approving agency notice of determination/transmittal on agency letterhead, a hard copy of the FEA, an OEQC publication form, along with an electronic word processing summary and PDF copy (you may send both summary and PDF to oeqchawaii@doh.hawaii.gov; a 30-day consultation period ensues upon publication in the periodic bulletin.

__Act 172-12 EISPN	Submit the approving agency notice of determination on agency letterhead, an OEQC publication form, and an electronic word processing summary (you may send the summary to oeqchawaii@doh.hawaii.gov. NO environmental assessment is required and a 30-day consultation period upon publication in the periodic bulletin.
__DEIS	The applicant simultaneously transmits to both the OEQC and the approving agency, a hard copy of the DEIS, a completed OEQC publication form, a distribution list, along with an electronic word processing summary and PDF copy of the DEIS (you may send both the summary and PDF to oeqc@doh.hawaii.gov); a 45-day comment period ensues upon publication in the periodic bulletin.
__FEIS	The applicant simultaneously transmits to both the OEQC and the approving agency, a hard copy of the FEIS, a completed OEQC publication form, a distribution list, along with an electronic word processing summary and PDF copy of the FEIS (you may send both the summary and PDF to oeqc@doh.hawaii.gov); no comment period ensues upon publication in the periodic bulletin.
__ Section 11-200-23 Determination	The approving agency simultaneous transmits its determination of acceptance or nonacceptance (pursuant to Section 11-200-23, HAR) of the FEIS to both OEQC and the applicant. No comment period ensues upon publication in the periodic bulletin.
__Statutory hammer Acceptance	The approving agency simultaneously transmits its notice to both the applicant and the OEQC that it failed to timely make a determination on the acceptance or nonacceptance of the applicant's FEIS under Section 343-5(c), HRS, and that the applicant's FEIS is deemed accepted as a matter of law.
__Section 11-200-27 Determination	The approving agency simultaneously transmits its notice to both the applicant and the OEQC that it has reviewed (pursuant to Section 11-200-27, HAR) the previously accepted FEIS and determines that a supplemental EIS is not required. No EA is required and no comment period ensues upon publication in the periodic bulletin.
__Withdrawal (explain)	

Summary (Provide proposed action and purpose/need in less than 200 words. Please keep the summary brief and on this one page)**:**

The applicant, Hawaii Housing Development Corporation (HHDC), proposes the Ainahau Vista II, a nine-story, approximately 80-foot high, affordable senior rental apartment building in Waikiki, Honolulu, on Oahu (the "Project") on the mauka (north) portion of a lot (comprised of two parcels). Ainahau Vista II will have 62 rental units (47 one-bedroom units and 15 studio units), with 22 parking stalls and one loading stall. The Project will provide 6 affordable rental units to seniors (age 55 and older) earning at or below 60% of the area median income (AMI); 50 units at 50% and below of the AMI; and 6 units at 30% and below of the AMI. The term of affordability will be at least 62 years. The makai (south) portion of the lot is developed with Ainahau Vista, an existing 106-unit affordable senior rental apartment development with 29 at grade parking stalls, 5 accessible stalls and one loading stall.

A Finding of No Significant Impact (FONSI) is anticipated.

DRAFT ENVIRONMENTAL ASSESSMENT

AINAHAU VISTA II AFFORDABLE

SENIOR RENTAL PROJECT

WAIKIKI, HONOLULU, OAHU, HAWAII

Tax Map Key 2-6-24: 70 and 71

APPLICANT

HAWAII HOUSING DEVELOPMENT CORPORATION
1288 ALA MOANA BLVD, SUITE 35A
HONOLULU, HAWAII 96826

AGENT

Kusao & Kurahashi, Inc.
Planning and Zoning Consultants
2752 Woodlawn Drive, Suite 5-217
Honolulu, Hawaii 96822

JANUARY 2016

DRAFT ENVIRONMENTAL ASSESSMENT

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JANUARY 2016

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DRAFT ENVIRONMENTAL ASSESSMENT
AINAHAU VISTA II AFFORDABLE SENIOR RENTAL PROJECT
WAIKIKI, HONOLULU, OAHU, HAWAII
Tax Map Key 2-6-24: 70 and 71

1. GENERAL INFORMATION

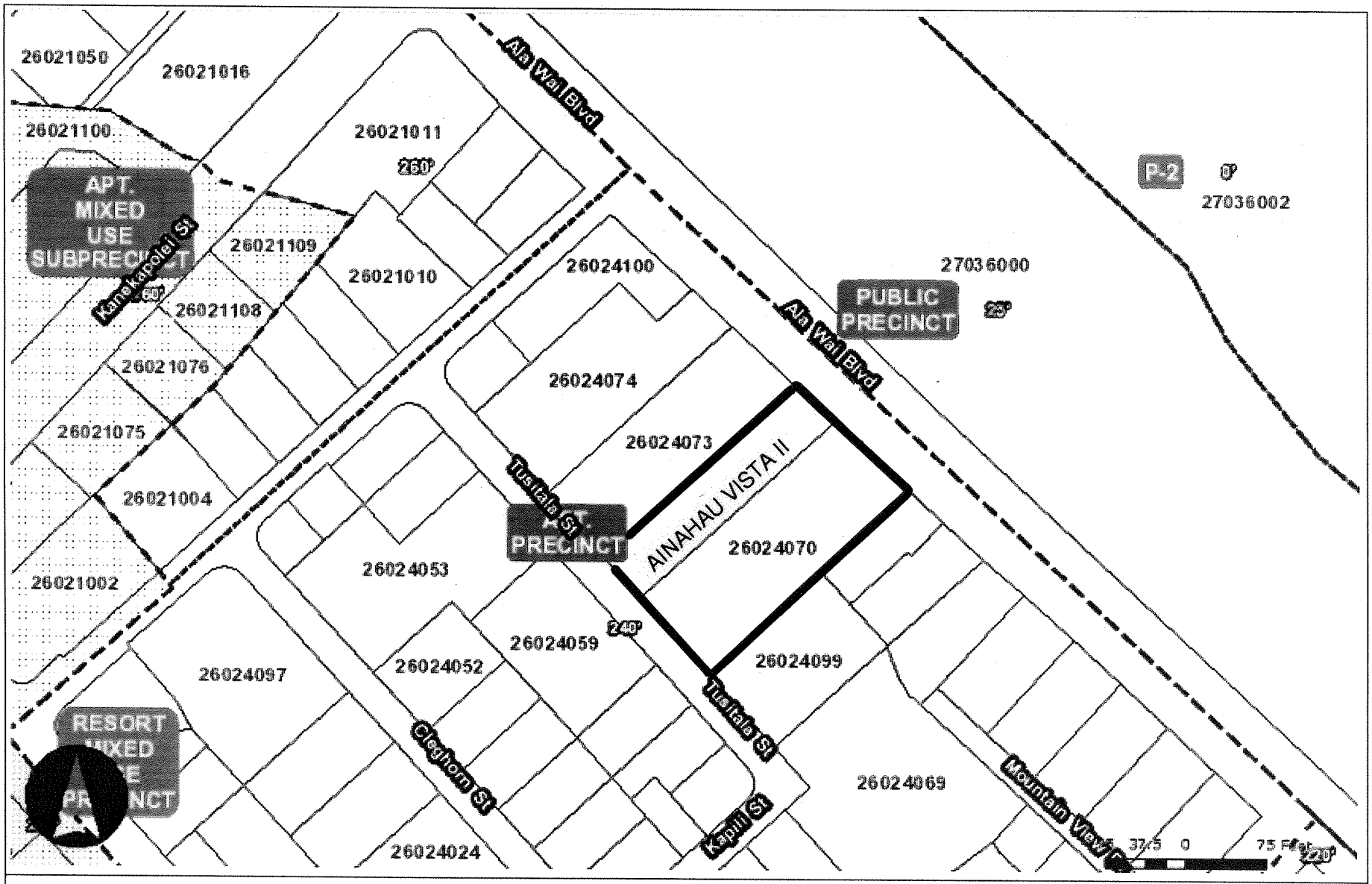
A.	APPLICANT/LESSEE	Hawaii Housing Development Corporation 1288 Ala Moana Blvd, Suite 35A Honolulu, Hawaii 96826 Mr. Gary S. Furuta, Project Manager (808) 429-7815
B.	OWNER	Ainahau Vista II LP c/o GSF LLC 1288 Ala Moana Blvd Apt 35A Honolulu, Hawaii 96814
C.	APPROVING AGENCY	State of Hawaii Hawaii Housing Finance & Development Corporation, Department of Business Economic Development & Tourism 677 Queen Street Honolulu, Hawaii 96813
D.	TAX MAP KEY	2-6-24: 70 and 71
E.	AGENT	Kusao & Kurahashi, Inc. Planning and Zoning Consultants 2752 Woodlawn Drive, Suite 5-217 Honolulu, Hawaii 96822
F.	LOCATION	2428 Tusitala Street 2423 and 2429 Ala Wai Boulevard (Figure 1, Location and Zoning Map)
G.	LOT AREA	35,761 sf
H	ZONING	Apartment Precinct (Figure 1)
I.	STATE LAND USE	Urban
J.	DEVELOPMENT PLAN Land Use Map: Public Infrastructure Map:	 Medium & High Density Residential/Mixed Use (Figure 2) No improvements affecting the Project Site (Figure 3)
K.	SPECIAL DISTRICT	Waikiki Special District (Figure 4)

L.	EXISTING USE	Ainahau Vista on the makai side of this property
M.	AGENCIES CONSULTED PRIOR TO PREPARATION OF DRAFT ENVIRONMENTAL ASSESSMENT	State of Hawaii – Department of Health - Environmental Health Administration Department of Land & Natural Resources General Delivery State Historic Preservation Division Department of Transportation City and County of Honolulu- Board of Water Supply Department of Community Services Department of Design & Construction Department of Environmental Services Department of Facility Maintenance Department of Parks and Recreation Department of Planning & Permitting Site Development Division Planning Division Department of Transportation Services Honolulu Fire Department Honolulu Police Department Waikiki Neighborhood Board Organizations- Hawaiian Electric Company Waikiki Improvement Association

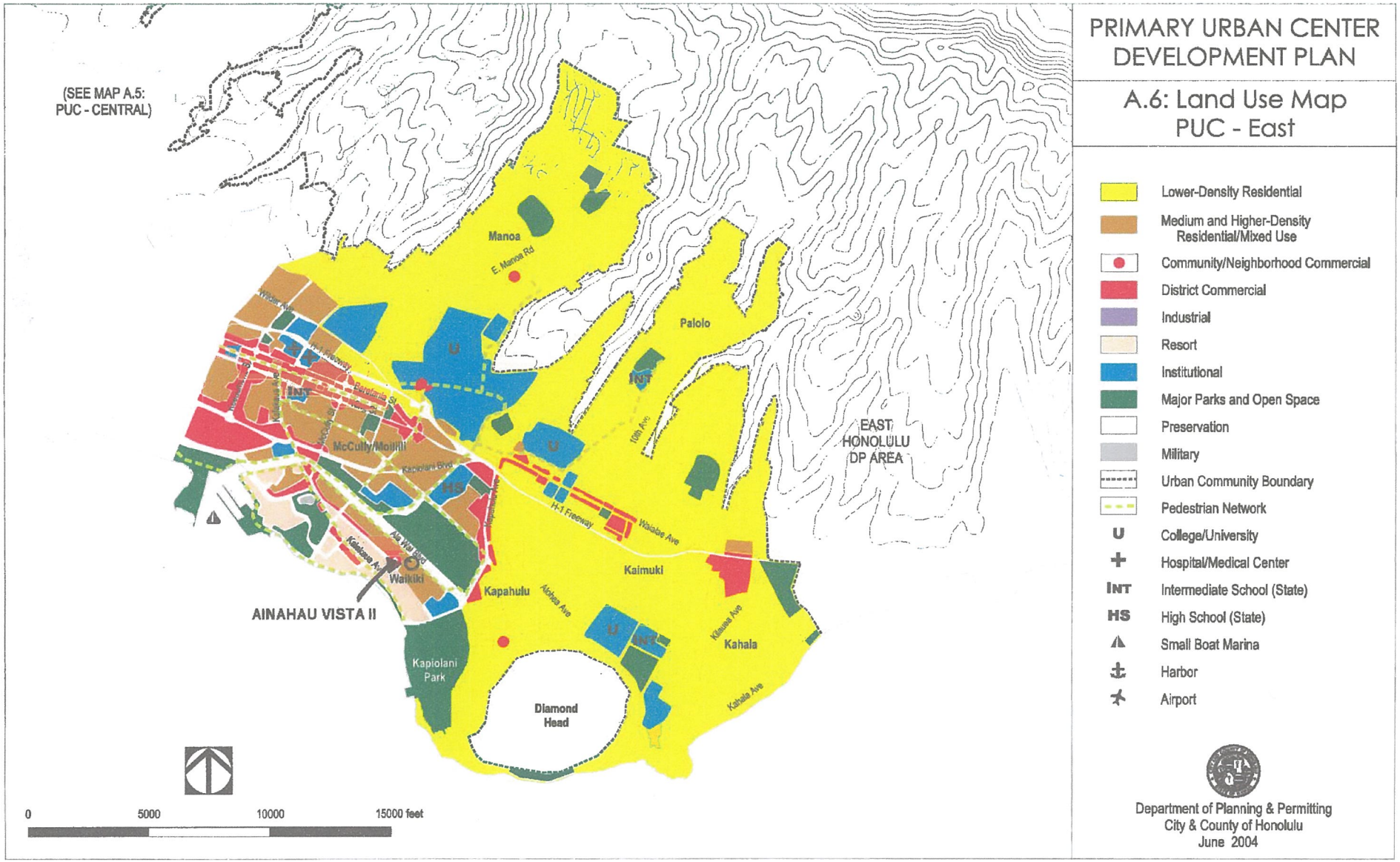
FIGURE 1 LOCATION AND ZONING MAP
FIGURE 2 DEVELOPMENT PLAN LAND USE MAP
FIGURE 3 PUBLIC INFRASTRUCTURE MAP
FIGURE 4 WAIKIKI SPECIAL DISTRICT MAP

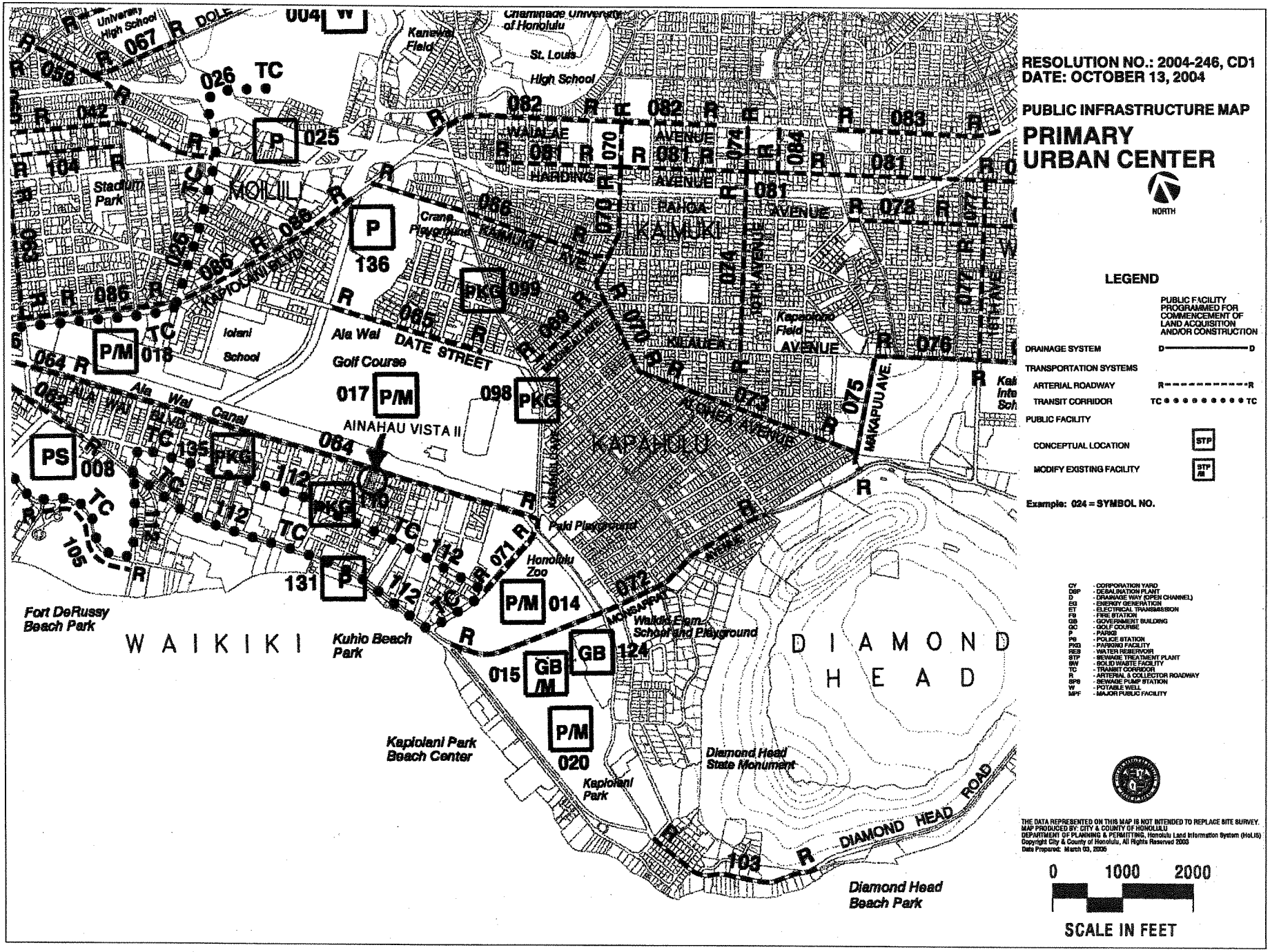
2. PROJECT INFORMATION SUMMARY

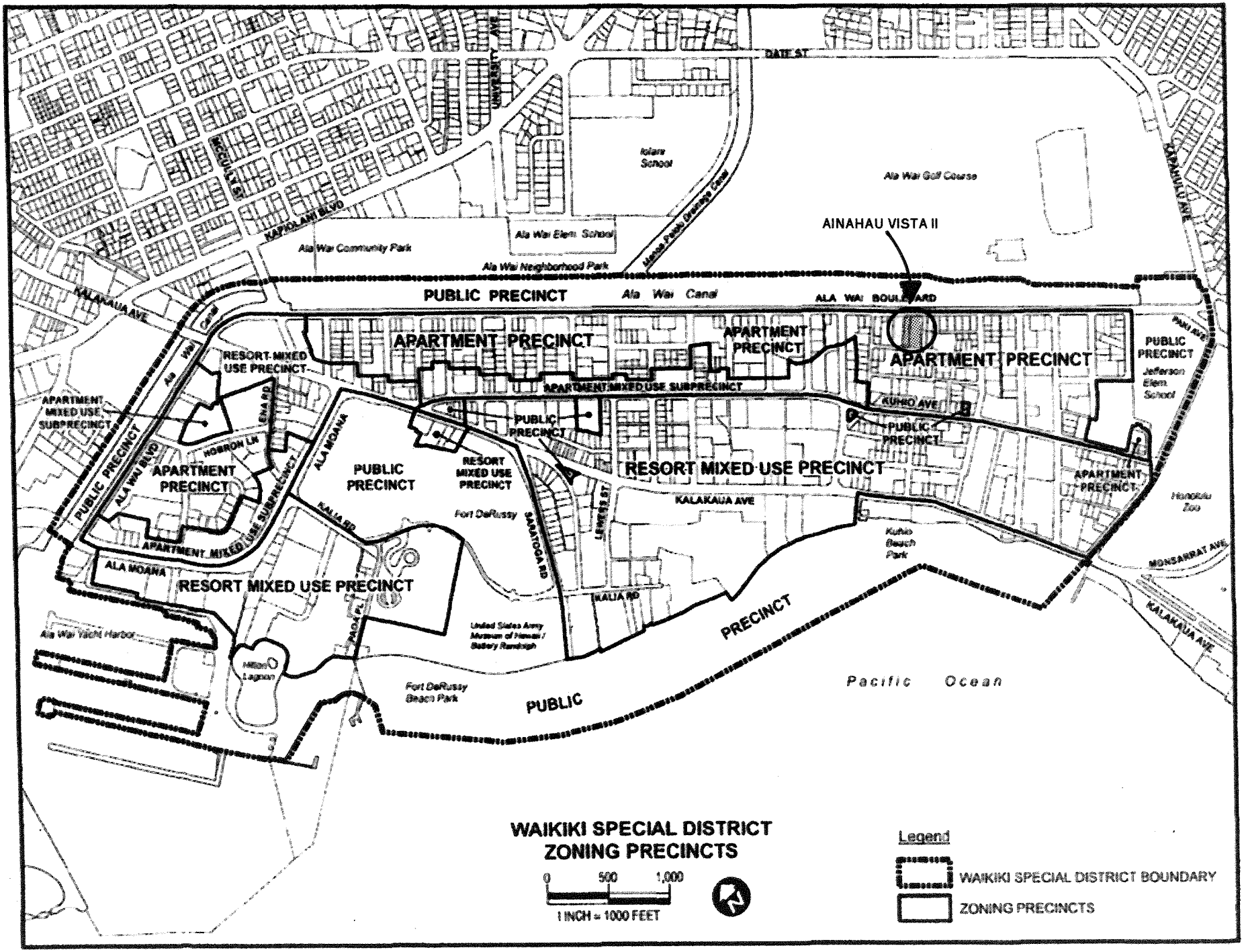
The applicant, Hawaii Housing Development Corporation (HHDC), proposes the Ainahau Vista II, a nine-story, approximately 80-foot high, affordable senior rental apartment building in Waikiki, Honolulu, on Oahu (the "Project") on the mauka (north) portion of a lot (comprised of two parcels). Ainahau Vista II will have 62 rental units (47 one-bedroom units and 15 studio units). The Project will provide 6 affordable rental units to seniors (age 55 and older) earning at or below 60% of the area median income (AMI); 50 units at 50% and below of the AMI; and 6 units at 30% and below of the AMI. The term of affordability will be at least 62 years. The makai (south) portion of the lot is developed with Ainahau Vista, a 106-unit affordable senior rental apartment development with 29 at grade parking stalls, 5 accessible stalls and one loading stall.



AINAHAU VISTA II
LOCATION AND ZONING MAP


PRIMARY URBAN CENTER DEVELOPMENT PLAN
A.6: Land Use Map
PUC - East
(SEE MAP A.5: PUC - CENTRAL)
Manoa
E. Manoa Rd
Paiolo
EAST HONOLULU DP AREA
McCully/Moiliili
Kapiolani Blvd
H-1 Freeway
Waialae Ave
Kaimuki
Kapahulu
Ala Wai Blvd
Waikiki
AINAHAU VISTA II
Kapiolani Park
Diamond Head
Kahala
Kahala Ave
Lower-Density Residential
Medium and Higher-Density Residential/Mixed Use
Community/Neighborhood Commercial
District Commercial
Industrial
Resort
Institutional
Major Parks and Open Space
Preservation
Military
Urban Community Boundary
Pedestrian Network
College/University
Hospital/Medical Center
Intermediate School (State)
High School (State)
Small Boat Marina
Harbor
Airport
0
5000
10000
15000 feet
Department of Planning & Permitting
City & County of Honolulu
June 2004


RESOLUTION NO.: 2004-246, CD1
DATE: OCTOBER 13, 2004
PUBLIC INFRASTRUCTURE MAP
PRIMARY URBAN CENTER
NORTH
LEGEND
PUBLIC FACILITY PROGRAMMED FOR COMMENCEMENT OF LAND ACQUISITION AND/OR CONSTRUCTION
DRAINAGE SYSTEM
TRANSPORTATION SYSTEMS
ARTERIAL ROADWAY
TRANSIT CORRIDOR
PUBLIC FACILITY
CONCEPTUAL LOCATION
MODIFY EXISTING FACILITY
Example: 024 = SYMBOL NO.
CY - CORPORATION YARD
DSP - DESALINATION PLANT
D - DRAINAGE WAY (OPEN CHANNEL)
EG - ENERGY GENERATION
ET - ELECTRICAL TRANSMISSION
FB - FIRE STATION
GB - GOVERNMENT BUILDING
GC - GOLF COURSE
P - PARKS
PS - POLICE STATION
PKG - PARKING FACILITY
RES - WATER RESERVOIR
STP - SEWAGE TREATMENT PLANT
SW - SOLID WASTE FACILITY
TC - TRANSIT CORRIDOR
R - ARTERIAL & COLLECTOR ROADWAY
SPS - SEWAGE PUMP STATION
W - POTABLE WELL
MPF - MAJOR PUBLIC FACILITY
THE DATA REPRESENTED ON THIS MAP IS NOT INTENDED TO REPLACE SITE SURVEY.
MAP PRODUCED BY: CITY & COUNTY OF HONOLULU
DEPARTMENT OF PLANNING & PERMITTING, Honolulu Land Information System (HoLIS)
Copyright City & County of Honolulu, All Rights Reserved 2003
Date Prepared: March 03, 2005
0 1000 2000
SCALE IN FEET
WAIKIKI
DIAMOND HEAD
KAPAHULU
KAIMUKI
MOILILI
Ala Wai Golf Course
AINAHAU VISTA II
Kuhio Beach Park
Fort DeRussy Beach Park
Kapiolani Park Beach Center
Kapiolani Park
Diamond Head State Monument
Diamond Head Beach Park
Honolulu Zoo
Waikiki Elem. School and Playground
Paki Playground
Kapaolono Field
Kanewai Field
St. Louis High School
Chaminade University of Honolulu
University High School
Stadium Park
Iolani School
Crane Playground
Ala Wai Canal
DATE STREET
KALAKAUA AVENUE
MONSARRAT AVENUE
DIAMOND HEAD ROAD
MAKAPUU AVE.
KAPIOLANI BLVD
KAIMUKI AVE
WAIALAE AVENUE
HARDING AVENUE
PAHOA AVENUE
KILAUEA AVENUE
ALOHEA AVENUE
DOLE
P 025
P 136
PKG 099
P/M 018
017 P/M
098 PKG
PS 008
PKG 110
131 P
P/M 014
GB 124
015 GB/M
P/M 020
004 W
026 TC
103



Date Prepared: October 17, 2017

EXHIBIT 21-9.13

HHDC is submitting this Draft Environmental Assessment and has submitted a 201H Permit application for Ainahau Vista II to the Hawaii Housing Finance & Development Corporation, Department of Business, Economic Development & Tourism for processing. HHDC also plans to submit a Waikiki Special District permit application to the Department of Planning and Permitting for the Project. The Project will be located on the mauka portion of a 35,781 square foot site in Waikiki (the "Project Site"). Ainahau Vista II will be developed in accordance with the requirements of Chapter 201H of the Hawaii Revised Statutes (HRS), as amended and the Waikiki Special District.

The Applicant has been awarded federal and state Low Income Housing Tax Credits ("LIHTC") financing of $822,480 and $411,240, respectively, for the project by the state HHFDC. Its application to the state for a Rental Housing Revolving Fund ("RHRF") loan of $8,000,000 is expected to be acted upon in the next month or so. The rental units in the project will remain affordable for a period of 62 years.

Preliminary conceptual plans showing the proposed improvements are provided in **Appendix 1**.

This Draft Environmental Assessment ("DEA") for the Project is prepared pursuant to and in accordance with the requirements of Chapter 343, Hawaii Revised Statutes ("HRS"), Chapter 200 of Title 11, Hawaii Administrative Rules - Environmental Impact Statement Rules. The actions that trigger this DEA are the proposed development in the Waikiki Special District ("WSD") and the proposed use of State and City funds for the proposed affordable rental development.

The proposed affordable senior rental apartment use is permitted in the Apartment Precinct in Waikiki.

2.1 THE PROJECT

The Project will provide 6 affordable rental units to seniors (age 55 and older) earning at or below 60% of the area median income (AMI); 50 units at 50% and below of the AMI; and 6 units at 30% and below of the AMI. The term of affordability will be at least 62 years. The nine-story building will provide 62 rental units (47 one-bedroom and 15 studio units), 22 at grade parking stalls and one loading stall, on a lot shared with Ainahau Vista. The approximately 80-foot high structure will have surface parking below and 8 floors of apartment units above. Floors two to eight will each have six one-bedroom units and two studio units. The ninth floor will have five one-bedroom units, one studio unit, a multi-purpose room with adjoining restroom, and two offices.

Ingress and egress to Ainahau Vista II will be via Tusitala Street, through the existing surface parking at Ainahau Vista.

2.2 PUBLIC BENEFITS

The primary and most significant benefit is that the Project will provide affordable rental units to seniors earning at or below 60% of the AMI, with most of the units at or below 50% of the AMI for a period of at least 62 years.

Other public benefits being offered are:

Ainahau Vista II will offer an economic and job-creating stimulus for the local economy, during the construction period, and when completed it will offer indirect jobs needed to support the Project.

The proposed affordable project implements the City's vision for the PUC, as referenced in Chapter 3, Page ES-4 In-Town Housing Choices – *"Preserve and Expand the Current Inventory of Affordable Rental Housing Units: The City should assure that the current inventory of affordable rental units, whether owned by the City or not, is preserved and retained as affordable and that the inventory of affordable rental units is expanded as needed by the community".*

It further implements the City's vision for the PUC, as referenced in Chapter 3, Page ES-4, In-Town Housing Choices – "*Provide incentives and cost savings for affordable housing: This policy promotes exemptions from regulations, on a case-by-case basis, to make 'affordable' housing available to those needing it".*

The Project will comply with the WSD District - Objectives as stated in the LUO Sec. 21-9.80-1, c, as follows*: "Support the retention of a residential sector in order to provide stability to existing neighborhoods, and provide for a variety of compatible land uses which promote the unique character of Waikiki."*

2.3 POTENTIAL ADVERSE IMPACTS

Potential short term adverse impacts include the following:

2.3.1 Construction Noise

D.L. Adams Associates has prepared the "Environmental Noise Assessment Report Ainahau Vista II, Honolulu, Hawaii" for the Ainahau Vista II Project, Waikiki, Oahu, Hawaii" ("Noise Assessment") dated May 2015. The Noise Assessment in its entirety is provided in **Appendix 2**.

Chapter 5.0. Potential Noise Impacts, from that Noise Assessment, includes a discussion of potential short term noise impacts from the Project that is summarized as follows:

> The various construction phases of the project will generate significant amounts of noise and will need to comply with the requirements of the

Department of Health (DOH). The project will involve excavation, grading, material handling, concrete mixing, and other typical construction activities. Pile driving activities are not planned for this project.

2.3.2 Construction Impact on Air Quality

Short term impacts on air quality are expected to be primarily related to dust generated by the construction activity. Dust will be generated in the course of excavating for foundations and utility lines.

2.3.3 Construction Impact on Traffic and Pedestrians

During the construction phase there will be impacts to pedestrians and vehicular traffic in the area.

Potential long term adverse impacts include the following:

2.3.4 Noise (Acoustical) Long Term Impacts

Noise Assessment, Chapter 5.0. Potential Noise Impacts, from that Noise Assessment, includes a discussion of potential long term noise impacts from the Project that is summarized as follows:

> The Ainahau Vista II development is proposed to be a senior rental development, which will likely incorporate stationary mechanical equipment, including air conditioning (HVAC) equipment, emergency generators, etc. Noise from this mechanical equipment and other equipment must meet the DOH noise regulations.
>
> Existing traffic noise level projections at the project's Ala Wai Boulevard facing façade are expected to approach the FHWA maximum noise limit of 67 dBA Leq(h) at all apartment units up to the 9th floor ("Normally Unacceptable"). Only the 9th floor Leq(h) level is predicted to be below 66 dBA. No noise impacts are expected on the Ewa, Diamond Head, or makai sides of the building ("Acceptable").
>
> Exterior design elements such as glazing and wall construction should be designed to comply with the U.S. Department of Housing and Urban Development (HUD) Ldn 45 dBA noise criteria inside the units.
>
> The Ewa and Diamond Head sides of the building are projected to have noise levels that also exceed HUD noise criteria. However, there are no exterior unit walls with glazing so these areas do not require noise mitigation.
>
> The exterior areas immediately adjacent to Ala Wai Boulevard will experience noise levels that are higher than the established HUD Criteria

but future noise levels are expected to remain the same as the existing ambient noise environment. Since these exterior areas are not intended for recreational purposes or other activities, no additional noise mitigation measures will be required.

2.4 MITIGATION MEASURES

Although impacts from the proposed development are not expected to be significant, the following mitigation measures are planned.

2.4.1. Construction Practices

2.4.1.1 Construction Noise

D.L. Adams Associates has prepared the "Environmental Noise Assessment Report Ainahau Vista II, Honolulu, Hawaii" for the Ainahau Vista II Project, Waikiki, Oahu, Hawaii" ("Noise Assessment") dated May 2015. The Noise Assessment in its entirety is provided in **Appendix 2**.

Chapter 6.0. Noise Impact Mitigation, from that Acoustic Study, includes a discussion of potential short noise mitigation for the Project that is summarized as follows:

> In cases where construction noise exceeds, or is expected to exceed the State's "maximum permissible" property line noise levels, a permit must be obtained from DOH to allow the operation of vehicles, cranes, construction equipment, power tools, etc., which emit noise levels in excess of the "maximum permissible" levels.
>
> The contractor should use reasonable and standard practices to mitigate noise, such as using mufflers on diesel and gasoline engines, using properly tuned and balanced machines, etc.

Compliance with DOH construction noise limits and curfew times, which are applicable throughout the State of Hawaii, will help to mitigate noise from construction activities.

2.4.1.2 Air Quality

Short term impacts on air quality are expected to be primarily related to dust generated by the construction activity. Dust will be generated in the course of excavating for foundations and utility lines. Dust control measures appropriate to the situation will be employed by the contractor during construction, including active work areas will be watered at least twice daily on days without rainfall. Use of wind screens and/or limiting the area that is disturbed at any given time will also help to contain fugitive dust emissions. Dirt-hauling trucks will be

covered when traveling on roadways. A routine road cleaning and/or tire washing program will also help to reduce fugitive dust emissions that may occur as a result of trucks tracking dirt onto paved roadways in the project area.

2.4.1.3 Traffic

HHDC will prepare a construction management plan detailing plans during the construction phase to address impacts to pedestrians and vehicular traffic in the area.

The Department of Transportation (DOT) in a letter dated April 23, 2015 **(Appendix 3 – Agency Pre-Consultation Comments)**, commenting on the proposed DEA indicated that the subject Project is not expected to significantly impact the State highway facility, however a permit from the DOT Highways Division is required for the transport of oversized and/or overweight materials and equipment on State highway facilities.

2.4.2 Traffic Improvements

The proposed 62-unit senior affordable rental project is not expected to have a significant impact on traffic or transportation with only 17 vehicle trips during the AM peak hour and 20 vehicle trips during the PM peak hour. As such, no mitigation measures were recommended by the Traffic Impact Assessment. The Project is located in an improved area with sidewalks along the streets, has public transit service within ¼ mile, and will provide shuttle service for many of the residents' local transportation needs. A full size on-site loading stall will be provided, as recommended by surrounding neighbors.

The Department of Transportation Services (DTS) in a letter dated May 4, 2015 **(Appendix 3 – Agency Pre-Consultation Comments)**, commenting on the proposed DEA indicated that they have no objections or comments on the 201H application. On the DEA, they noted the following:

1. The DEA should discuss traffic impacts due to the project and possible mitigative measures. It should contain a traffic management plan, which should note that during construction, deliveries to the site should be scheduled during off-peak traffic hours (8:30 a.m. to 3:30 p.m.) to minimize any impacts to pedestrians and traffic at or near the proposed project site driveway.

2. The DEA should also provide a discussion on the transit impacts of the project, especially on the City's paratransit (TheHandi-Van) operations.

3. Accommodations for paratransit pick-up/drop-off should be provided on-site. A pick-up/drop-off area on-site should have adequate turning geometrics to provide for the City's TheHandi-Van vehicles.

4. Waikiki Neighborhood Board No. 9, as well as area residents, businesses, emergency personnel, etc., should be kept apprised of the details of the proposed project and the impacts, particularly during construction, the project may have on the adjoining local street area network.

5. A street usage permit from the City's DTS shall be obtained for any construction-related work that may require the temporary closure of any traffic lane on a City street. The 201H Application does not exempt the project from street usage permit fees charged by DTS.

6. Ensure that all access driveways provide safe pedestrian conditions when crossing.

As DTS requested, the DEA does discuss traffic impacts due to the project and possible mitigative measures. As recommended by DTS, the existing access driveway at Tusitala Street has excellent visibility of the sidewalk and pedestrians with a landscaped 15-foot yard on either side of the driveway providing clear view of pedestrians.

TheHandi-Van will be used on occasion, however the residents will also have access to van/shuttle service through the Catholic Charities which provides transportation for residents, including shopping trips and appointments. The Project driveway is located about three blocks from bus stops traveling in the east and west direction on Kuhio Avenue, providing convenient bus service for the Project.

TheHandi-Van pickups can be accommodated in the aisle of the parking lot with turn around area provided at the entry to the parking area under the Ainahau Vista II building.

HHDC will provide updates to the Waikiki Neighborhood Board No. 9 during construction of potential impacts to the adjoining local street network. HHDC will provide occasional project construction updates to surrounding residents and emergency services personnel, no businesses are located nearby.

A street usage permit from the City's DTS will be obtained for any construction-related work that may require the temporary closure of any traffic lane on a City street.

As recommended by DTS, the existing access driveway at Tusitala Street has excellent visibility of the sidewalk and pedestrians with a landscaped 15-foot yard on either side of the driveway providing clear view of pedestrians.

2.4.3 Noise (Acoustical) Long Term Mitigation

Noise Assessment, Chapter 6.0. Noise Impact Mitigation, from that Acoustic Study, includes a discussion of potential long term noise mitigation for the Project that is summarized as follows:

> The design of the Ainahau Vista II building should give consideration to controlling noise emanating from all stationary mechanical equipment such as air-cooled chillers, cooling towers, air-handling units, condensing units, emergency generators, etc. so as to comply with the State of Hawaii Community Noise Control Rules. Noisy equipment should be located away from neighboring properties and residential units, as much as possible. Enclosed mechanical rooms may be required for some equipment.
>
> Units overlooking Ala Wai Boulevard will experience relatively high noise levels due to traffic on Ala Wai Boulevard. The exterior wall should have a minimum rating of STC 50, which is typical of poured concrete in any thickness greater than 4 inches. HHDC construction will utilize 8-inch thick hollow tile wall with all cells filled in that will have a minimum rating of STC 50 as recommended. A minimum STC 35 rated window assembly, typical of a 1" IGU, should be considered to comply with the HUD interior noise design criteria for all units facing Ala Wai Boulevard. The window assembly typically degrades the STC rating of the glazing by 3 points, therefore STC requirements for the glass itself should be a minimum of STC 38. Smaller window sizes may reduce these STC requirements. HHDC will utilize rated window assemblies as recommended here.
>
> The exterior areas immediately adjacent to Ala Wai Boulevard will experience noise levels that are higher than the established HUD Criteria but future noise levels are expected to remain the same as the existing ambient noise environment. Since these exterior areas are not intended for recreational purposes or other activities, no additional noise mitigation measures will be required.

2.5 UNRESOLVED ISSUES

There will be further action required with respect to the following unresolved issues:

- A 201H Application has been submitted to HHFDC and will need to be processed by HHFDC and approved by the City Council. This request includes the following exemptions:

AINAHAU VISTA AND AINAHAU VISTA II – EXEMPTION TO ZONING REQUIRMENTS (LAND USE ORDINANCE)

1. Exemption from Chapter 21, Article 3, Section 21-9.80-5(c)(2), Land Use Ordinance, as amended, relating to transitional height setback: Ainahau Vista - to allow an encroachment into the transitional height setback of 3.67 feet at the roof level to 4.67 feet at the penthouse level (elevator shaft) along the Tusitala Street side above 40 feet and Ainahau Vista II to allow an encroachment into the transitional height setback of 4.92 feet at the top of the parapet wall on the east face of the building to 0 feet at the 40-foot level of the building wall.

2. Exemption from Chapter 21, Article 6, Section 21-6.20, Land Use Ordinance, Table 21-6.3, as amended, relating to the amount of off-street parking, to allow the provision of 46 parking stalls (for residents) rather than the required 169 parking stalls (1 stall per unit). Although no guest parking is required in the Waikiki Special District, 5 guest parking stalls are provided.

3. Exemption from Chapter 21, Article 3, Section 21-9.80-5, Land Use Ordinance, as amended, Table 9.6(B), relating to maximum density, to allow an FAR of 1.82 with the provision of 35% open space rather than the 50% open space required. This would allow 94,842 square feet of floor area, which exceeds the maximum allowable floor area by about 29,894 square feet (based on allowable FAR with 35% open space).

4. Exemption from Chapter 21, Article 9, Section 21-9.80-5(b) and Table 21-9.6(B) related to side yards to allow an encroachment of a loading stall maneuvering space 12-foot wide by 10-foot deep into the west boundary side yard (120-square foot encroachment).

AINAHAU VISTA II – EXEMPTION TO PARK DEDICATION REQUIREMENT

Exemption from the Park Dedication requirements, Chapter 22, Article 7, ROH, including exemption from the Park Dedication permit process, to allow the provision of about 6,430 square feet for park dedication, portions of which encroach into the required side and rear yards. Proposed park dedication includes a private park (3,586 square feet), "Victory Garden" (1,692 square feet), and two multi-purpose recreation rooms (1,152 square feet). The park dedication requirement is 9,484_square feet. (10% of 94,842 square feet, maximum floor area or 169 units x 110 square feet = 18,590 square feet, whichever is less).

AINAHAU VISTA II – OTHER EXEMPTIONS

FEE EXEMPTIONS:

1. Exemption from Section 18-6.2, ROH, to allow exemption from building permit fees.

2. Exemption from Section 18-6.1, ROH, to allow exemption from plan review fees.

3. Exemption from Section 14-12.12(f), ROH, to allow exemption from private storm drainage connection permit fees.

4. Exemption from Section 14-14.4, ROH, to allow exemption from grading and grubbing permit fees.

These fee exemptions are expected to total approximately $120,000.

FEE DEFERRALS:

1. Exemption from Sections 14-10.1 and 14-10.3, ROH, to allow a deferral of payment of wastewater system facilities charges until funding of a construction loan is available.

2. Exemption from Sections 1-102, 2-202(2) and 2-202(3) of the Board of Water Supply Rules and Regulations to allow deferral of payment of Board of Water Supply water system facilities charges until funding of a construction loan is available.

- A WSD Permit, Major application will be submitted for review and approval by the City's DPP after the 201H application is processed.

- Building Permits, Flood Study, Trenching Permit, Grading Permit, Drain Connection Permit, Street Usage Permit, and Construction Plan Approval will be submitted for review and approval by the DPP at a later date.

- Construction Noise Permit application will be submitted for review and approval by the State Department of Health.

2.6 COMPATIBILITY WITH LAND USE PLANS AND POLICIES

2.6.1. State Land Use

The Project Site is situated within the State Urban district. Within that district, lands are characterized by city-like concentrations of people, structures, streets, urban level of services and other related land uses. The Ainahau Vista II planned

use as an affordable senior rental development in Waikiki is consistent with this Urban designation.

2.6.2 General Plan

The Project will comply with Objectives and Policies of the General Plan as follows:

a. *Objective A, Policy 1 – Development programs and controls which will provide decent homes at the least possible cost.*
b. *Objective A, Policy 12 – Encourage the production and maintenance of affordable rental housing.*
c. *Objective A, Policy 13 – Encourage the provision of affordable housing designed for the elderly and the handicapped.*
d. *Objective C, Policy 2 – Encourage the fair distribution of low-and-moderate-income housing throughout the Island.*

Development of Ainahau Vista II is consistent with the above Objectives and Policies of the General Plan by offering an affordable senior development that will provide 62 affordable rental units to seniors earning at or below 60% AMI (6 units), with 50 units at or below 50% AMI, and 6 units at or below 30% AMI.

2.6.3 Primary Urban Center Development Plan (PUCDP)

a. The Project is designated as Higher-Density Residential/Mixed Use on the Primary Urban Center (PUC) Development Plan Land Use Map.

   The Ainahau II Project is consistent with this higher - density residential/mixed use designation.

b. Vision, policies and guidelines of the PUCDP:

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

   The Ainahau Vista II Project will offer in-town housing to our seniors with limited incomes (those who earn 60% or less of the area median income).

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

   HHDC for Ainahau Vista II will follow this policy, requesting exemptions from the zoning code through the processing of a 201H application.

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

The 201H process was established by the Hawaii State Legislature to specifically provide the encouragement of innovative forms of affordable housing for those in need of assistance, including the elderly. Ainahau Vista II will follow the 201H process to create affordable elderly/senior housing.

2.6.4 Zoning

a. The Project will be developed in accordance with development standards of the WSD, with the exception of density, the transitional height setback, and off-street parking. Exemptions will be requested through the 201H process.

b. The Project Site is zoned Apartment Precinct and is consistent with this zoning designation. It is located in a concentrated urban area where public services are centrally located and infrastructure capacities are adequate, except for an off-site sewer line that the HHDC will upgrade. In order to accommodate the provision of 100% of the rental units at affordable rates, Ainahau Vista II will remain affordable for 62 years, and HHDC will be requesting exemptions from certain design standards of the Apartment Precinct in processing of the 201H permit application.

2.7 REQUIRED GOVERNMENTAL PERMITS AND APPROVALS

- **City**: WSD Permit, Minor; Building Permits; Flood Study; Trenching Permit; Grading Permit; Drain Connection Permit; Street Usage Permit; and Construction Plan Approval from the City's DPP.
- **State**: Draft and Final EA; 201H (HRS) Application; and Construction Noise Permit.
- **City Council**: 201H Approval by Resolution.

2.8 ALTERNATIVES CONSIDERED

2.8.1 Alternative I: No Action

This alternative was considered and rejected due to a strong demand for affordable senior rentals in Waikiki and the availability of a vacant portion of the lot for development.

2.8.2 Alternative II: Market Rental Project

This alternative was considered but would result in greater impacts to the surrounding neighborhood, primarily related to traffic. The cost of construction makes it infeasible to develop a market rental development, since market rental income will not be able to provide a return that would cover the mortgage on a construction loan and operating expenses.

2.8.3 Alternative III: Affordable Senior Rental Development **(Preferred Alternative)**

This preferred alternative would provide for the development of a mid-rise senior affordable apartment rental that is feasible with government assisted financing.

The proposed Ainahau Vista II Project is geared toward achieving the goals of the WSD guidelines, including the following: *"Promote a Hawaiian sense of place at every opportunity"*. A Hawaiian sense of place will be incorporated into the design of the building and landscaping.

The Project will provide affordable rental units to seniors earning at or below 60% of the AMI. Other public benefits being offered include:

Ainahau Vista II will offer an economic and job-creating stimulus for the local economy, during the construction period, and when completed it will offer permanent public benefits with the need for required maintenance personnel, management personnel and security personnel.
The proposed affordable Project implements the City's vision for the PUC, as referenced in Chapter 3, Page ES-4 In-Town Housing Choices – *"Preserve and Expand the Current Inventory of Affordable Rental Housing Units: The City should assure that the current inventory of affordable rental units, whether owned by the City or not, is preserved and retained as affordable and that the inventory of affordable rental units is expanded as needed by the community"*.

It further implements the City's vision for the PUC, as referenced in Chapter 3, Page ES-4, In-Town Housing Choices – "*Provide incentives and cost savings for affordable housing: This policy promotes exemptions from regulations, on a case-by-case basis, to make 'affordable' housing available to those needing it"*.

It further supports the goals of the WSD guidelines as follows: *"Support the retention of a residential sector in order to provide stability to existing neighborhoods, and provide for a variety of compatible land uses which promote the unique character of Waikiki."* Ainahau Vista II would meet these visions and goal with the development of an affordable senior rental project on an otherwise vacant lot, therefore providing and adding stability to this neighborhood in Waikiki.

3. PURPOSE OF AND NEED FOR THE PROJECT

Ainahau Vista II will service the needs of the seniors in our community by offering them affordable rental units in the Primary Urban Center of the island, more specifically in the Waikiki area of Oahu. The affordable units will be rented to seniors earning at or below 60% AMI (6 units), with 50 units at or below 50% AMI, and with 6 units to seniors earning at or below 30% AMI.

Relative to the current rental market within the City & County of Honolulu, there does not appear to be a significant or meaningful impediment to the prospect for renting out the 62 proposed units for the second building on the Ainahau Vista site, Ainahau Vista II in Waikiki.

The underlying reasons for coming to this conclusion are as follows:

- The location itself is very central to those goods, services and facilities that are considered vital by senior households, particularly medical, with a fire station down the road and also recreational, social and shopping areas within a mile of the Project.
- The units will be newly constructed, meaning the Project and the dwellings will be modern, well designed and not needing a lot of maintenance.
- There are a few similar projects within a five-mile radius that could be considered comparable, as well as competitive. The few that do exist exhibit high occupancy, low vacancies and very long waiting lists.
- The overall demand or need for quality housing at a reasonable rental rate is quite high in general, and very high in the case of this Project. Referencing a recent rental housing study for HHFDC and the city and county of Honolulu, there are over 600 senior households that would qualify for the 6 units targeted on the 30% of AMI units, almost 500 households qualified for the 50 units targeted on the 50% AMI units and over 200 households qualified for the 6 units targeted on the 60% AMI units.

4. PROJECT DESCRIPTION

4.1 LOCATION

The Project Site is located in the Primary Urban Center of Honolulu and within the Waikiki Special District. The Project will be developed on the vacant mauka portion of a lot that is comprised of two parcels. As stated above, Ainahau Vista is developed on the makai portion of this 35,761 square foot property.

The Project Site is bound by Ala Wai Boulevard to the north, two four-story, low-rise apartment buildings, Dynasty Apartments and Waikiki Bellevue Apartments, to the east, Tusitala Street to the south, and the Ala Wai Townhouse condominium with three parking levels and 17 residential levels to the west.

4.2 GENERAL DESCRIPTION OF THE ACTION

4.2.1 Existing Condition

The 35,761 square foot property is comprised of two parcels, Tax Map Key: 2-6-024: 70 and 71. The makai portion of the lot is developed with Ainahau Vista, a 106-unit affordable senior housing rental development. The mauka portion is a vacant lot, running parallel with Ala Wai Boulevard. There is an existing Conditional Use Permit for Joint Development (DPP File No. 2005/CUP-73) on these two parcels of land.

4.2.2 Proposed Development

HHDC proposes the Ainahau Vista II, a nine-story, approximately 80-foot high, affordable senior rental apartment building in Waikiki, Honolulu, on Oahu on the mauka portion of a lot (comprised of two parcels). The makai portion of the lot is developed with Ainahau Vista, a 106-unit affordable senior housing rental development with 29 at grade parking stalls, 5 accessible stalls and one loading stall. HHDC plans to submit a Draft Environmental Assessment and 201H Permit application for Ainahau Vista II to the HHFDC for processing. HHDC plans to also submit a Waikiki Special District permit application to the Department of Planning and Permitting for the Project. Ainahau Vista II will be developed in accordance with the requirements of Chapter 201H of the Hawaii Revised Statutes (HRS), as amended and the Waikiki Special District.

The Project will provide affordable rental units for seniors earning at or below 60% of the AMI. The nine-story building will provide 62 rental units (47 one-bedroom units and 15 studios), 22 at grade parking stalls, and a loading zone. The 80-foot high structure will have surface parking below and 8 floors of apartment units above. Floors two to eight will each have six one-bedroom units and two studio units. The ninth floor will have five one-bedroom units, one studio unit, a multi-purpose room with adjoining restroom, and two offices.

4.3 USE OF PUBLIC FUNDS OR LANDS

The Applicant has been awarded federal and state Low Income Housing Tax Credits ("LIHTC") financing of $822,480 and $411,240, respectively, for the project by the state HHFDC. Its application to the state for a Rental Housing Revolving Fund ("RHRF") loan of $8,000,000 is expected to be acted upon in the next month or so. The rental units in the project will remain affordable for a period of 62 years.

The Project may involve the upgrade of infrastructure within the existing City right-of-way, including but not limited to about 500± feet for an off-site, 8" sewer line upgrade on Tusitala Street. The potential use of public funds, 201H zoning exemptions and the location of the Project Site in the Waikiki Special District are the triggers for processing this Environmental Assessment.

4.4 PHASING AND TIMING OF ACTION

Development of the Project is estimated to take approximately 18 months to construct.

Construction of the building is anticipated to begin in April 2016, once HHDC receives all required permits and approvals, including acceptance of the Final EA, approval of a 201H application, approval of a WSD from DPP, approval of building permits from DPP, and the securing of project financing. Construction of the off-site sewer line is anticipated to begin in the first quarter of 2016.

4.5 SUMMARY OF TECHNICAL CHARACTERISTICS

4.5.1 Use Characteristics

Ainahau Vista II will share a joint developed property with the existing Ainahau Vista, totaling 35,761 square feet of land in Waikiki. The makai portion of the property is already developed with Ainahau Vista, an elderly affordable rental. Ainahau Vista II is planned for development on the mauka side of the property, bordering Ala Wai Boulevard. Ainahau Vista II will have approximately 33,669 square feet of floor area covering 62 rental units on nine floors. There will be a total of 47 one-bedroom and 15 studio units, 22 at grade parking stalls, and a loading zone, on this lot shared with Ainahau Vista.

Ingress and egress to Ainahau Vista II is expected to be via Tusitala Street, through the existing parking level of Ainahau Vista.

A comparison of the proposed gross rents in relation to the 2015 maximum HUD allowance for rental units at the three AMI categories.

	60% AMI	**50% AMI**	**30% AMI**
HUD Max 1-bed	$1,078	$898	
Proposed rent	6 units at $ 950	41 units at $850	
HUD Max Studio		$838	$503
Proposed rent		9 units at $800	6 units at $503

Maximum 2015 income by household to qualify for the three AMI categories is provided in the following table:

AMI	**1 Person**	**2 Person**
30% AMI	$20,130	$23,010
50% AMI	$33,550	$38,350
60% AMI	$40,260	$46,020

4.5.2 Physical Characteristics

The Project will provide affordable rental units to seniors earning at or below 60% of the AMI. The 80-foot high, nine-story concrete building will provide 62 rental units (47 one-bedroom units and 15 studios) and 22 at grade parking stalls. The 80-foot high structure will have 22 surface parking stalls on the ground floor and 8 floors of apartment units above. Floors two to eight will each have six one-bedroom units and two studio units. The ninth floor will have five one-bedroom units, one studio unit, a multi-purpose room with adjoining restroom, and two offices. A rendering, site plan, floor plans and elevation plans of the nine-story senior rental apartment building are provided in **Appendix 1**.

The ground floor of Ainahau Vista II will include the 22 parking stalls, one full size loading stall, an entry lobby, a utility room, one elevator and stairways on the east and west wing of the entry lobby. Floors 2 thru 8 will each have six one-bedroom units and two studio units and a shared laundry room. The ninth floor will have five one-bedroom units, one studio unit, a multi-purpose room, a full rest-room, storage, two offices and a shared laundry room. The one-bedroom units will measure approximately 420 square feet and the studio units will measure approximately 377 square feet.

A total open space area of approximately 4,980 square feet will be provided on the development site, to include private park, a picnic area, a victory garden and landscaped open spaces for use by the residents. The concept of a victory garden has been used successfully in similar elderly rental developments built by this developer. The well-being of the residents can be greatly enhanced by offering the residents the amenities of such a garden.

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

Ingress and egress to Ainahau Vista II is expected to be via Tusitala Street, through the existing parking level of Ainahau Vista.

4.6 HISTORIC PERSPECTIVE

4.6.1 Archaeological

The Project Site is not listed on the State or Federal Register of Historic Places. An Archaeological Inventory Survey was conducted on the entire property during the development of Ainahau Vista, titled "Archaeological Inventory Survey for the Tusitala Vista Elderly Apartments" (now known as Ainahau Vista), Waikiki, Kona District, O'ahu Island and dated December, 2004. Please refer to **Appendix 4** for complete report prepared by Cultural Surveys Hawaii.

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

"Of the four sites recorded in the project area, SIHP site -6707 is recommended for data recovery, SIHP site -6705 for further monitoring, and SIHP sites -6682 and -6706 for no further work.

1. No Further Work

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

2. Monitoring

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

3. Data Recovery

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

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

   The results of this research should be integrated into available previous archaeological and paleoenvironmental research within Waikiki to aid in

constructing a comprehensive chronology of Hawaiian settlement and agricultural practices in this important ahupua'a.

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

Also included in **Appendix 4** is a copy of a letter from the Department of Land and Natural Resources (DLNR) , dated October 18, 2005, indicating their concurrence with Cultural Surveys Hawaii on their recommendation of "no further work" in regards to SIHP sites -6682, -6706 – 6707. The letter also concurs with the archaeologist recommendation of "monitoring" in view of the discovery of historic properties and fragmental human remains in the fill. Another letter from DLNR, dated November 28, 2005, states their acceptance of burial plans for the non-native Hawaiian fragments of human skeletal remains encountered during the archaeological inventory. On November 29, 2005 two bound copies of the accepted burial treatment plan were delivered to SHPD. The burial treatment plan was approved and a burial site at the northeast corner of the Project was approved.

The SHPD, of the DLNR, in a letter dated June 17, 2015 (**Appendix 3 – Agency Pre-Consultation Comments)**, commenting on the proposed DEA indicated that the submittal will require SHPD review under Hawaii Revised Statutes (HRS) §6E and possibly under the National Historic Preservation Act (NHPA) Section 106. Their letter went on to describe steps that HHDC needs to take to address Section 106 and their other requirements.

HHDC's archaeological consultant, Cultural Surveys Hawaii will work with SHPD to meet their requirements related to HRS §6E and NHPA Section 106 and SHPD's other requirements for the Project.

5. ALTERNATIVES

The Project is not anticipated to have a significant impact on the surrounding area in terms of public services and the environment, primarily because of the greater use of this otherwise vacant unused lot. The development of Ainahau Vista II will offer much needed housing to those less fortunate in our community and will operate in an efficient manner, in pleasant surroundings and as a good neighbor to Ainahau Vista that has been extremely well received in the community.

Positive economic impacts are projected with the development of Ainahau Vista II, with increases in construction jobs while being built. The development will benefit existing service contractors, e.g. elevator maintenance companies, security companies, appliance companies etc. as well as business in the area. The Project will also offer a limited amount of long-term employment for security personnel and maintenance personnel. When completed the Ainahau

Vista II will offer positive economic impacts to the community by contributing to permanent affordable housing to those less fortunate in our community.

5.1 ALTERNATIVE I: NO ACTION

The possibility of taking no action was considered and rejected. The "no action" alternative is not an economically viable alternative; it would mean the empty lot would continue to attract undesirable activity, a detriment to the surrounding neighbors and to the community at large.

5.2 ALTERNATIVE II: DEVELOPMENT OF A MARKET RENTAL DEVELOPMENT

This alternative was briefly considered, but not fit in the development policy of HHDC, which is a nonprofit entity committed to the provision of affordable rental units in the State of Hawaii.

5.3 ALTERNATIVE III: DEVELOPMENT OF AINAHAUA VISTA II (**PREFERRED ALTERNATIVE)**

There is a tremendous demand for affordable rental units in the Waikiki area and in other parts of the island. The property is owned by HHDC and presents a readily available opportunity to increase the number of affordable rental units on the property that will be made available to seniors.

The development of Ainahau Vista II is geared toward achieving the goal of the WSD guidelines. Specific WSD objectives which will be met by the Preferred Alternative, include the following:

"(a) Promote a Hawaiian sense of place at every opportunity.

Where possible and appropriate the design and landscaping of Ainahau Vista II will support the WSD's Hawaiian sense of place.

"(c) Support the retention of a residential sector in order to provide stability to the neighborhoods of Waikiki."

Development of the proposed Ainahau Vista II, and affordable senior apartment units, will meet this Objective of the Waikiki Special District.

"(g) Enable the city to address concerns that development maintain Waikiki's capacity to support adequately, accommodate comfortably, and enhance the variety of worker, resident and visitor needs."

Development of the proposed Ainahau Vista II will meet this objective by offering much needed affordable housing to our local residents. In addition, the Project will result in much needed employment during and after completion.

"(h) Provide opportunities for creative development capable of substantially contributing to rejuvenation and revitalization in the special district, and able to facilitate the desired character of Waikiki for areas susceptible to change."

Development of Ainahau Vista II, a proposed senior affordable apartment development, on this otherwise vacant property, will enhance and contribute to the rejuvenation of this area of Waikiki.

6. ENVIRONMENTAL SETTING

6.1 LOCAL AND REGIONAL PERSPECTIVE

The Project will be located on the mauka portion of a 35,761 square foot lot (comprised of two parcels). The makai portion of the lot is already developed with Ainahau Vista, a 106-unit affordable senior housing rental development with 29 at grade parking stalls, 5 accessible stalls and one loading stall. The 80-foot high Ainahau Vista II will provide 62 rental units (47 one-bedroom units and 15 studio units) and 22 at grade parking stalls. The 80-foot building will have surface parking below and 8 floors of apartment units above. Floors two to eight will each have six one-bedroom units and two studio units. The ninth floor will have five one-bedroom units, one studio unit, a multi-purpose room, and two offices.

The Project Site is located in the Primary Urban Center of Honolulu and within the Waikiki Special District. The Project will be developed on the vacant mauka portion of a lot that is comprised of two parcels. As stated above, Ainahau Vista is developed on the makai portion of this 35,761 square foot property.

The Project Site is bound by Ala Wai Boulevard to the north, two four-story, low-rise apartment buildings, Dynasty Apartments and Waikiki Bellevue Apartments, to the east, Tusitala Street to the south, and the Ala Wai Townhouse condominium with three parking levels and 17 residential levels to the west.

The greater surrounding area includes hotels, commercial centers, condominiums, apartments, the Ala Wai Canal, the Ala Wai Golf Course, the Honolulu Zoo, the Waikiki Shell, Kapiolani Park and Waikiki Beach.

6.2 RARE OR UNIQUE ENVIRONMENTAL RESOURCES

6.2.1 Flora

This "in-fill" urbanized undeveloped lot does not contain any rare or endangered flora, or a species of concern. Existing landscaping consists of introduced species.

6.2.2 Fauna

Common species of cats, rats and mice normally found in urban city environments are probably present on this vacant portion of the property. Further, species common to the area, such as sparrows, mynahs, doves and finches are likely to inhabit the Project Site. The Project Site does not contain any rare or endangered fauna, nor does it contain habitat for rare or endangered fauna.

6.3 RELATED PROJECTS IN THE REGION

In addition to the Project, there are several other projects in the area. Some of them are mentioned below.

6.3.1 Gray's Beach Restoration Project

According to the Environmental Assessment/Environmental Impact Statement Preparation Notice for the "Gray's Beach Restoration Project", Kyo-ya Hotels & Resorts is proposing to restore and stabilize a sandy beach fronting the Sheraton Waikiki Hotel property, approximately 1,500 feet west of the Moana Surfrider Hotel complex. All of the proposed work for this project is located within the State Land Use Conservation District. The proposed work can generally be described as follows:

- Construction of rock T-head groins along the shoreline fronting the Sheraton Waikiki Hotel, with the eastern-most groin replacing the existing Royal Hawaiian groin; and
- Replacement of sand fill between the groins to create a beach with a minimum horizontal crest width of 30-feet at the +5.2 foot elevation extending from the seawall, and a 1V:10H slope from the crest to the sea bottom.

This project is intended to enhance recreational and aesthetic enjoyment of the area and provide protection for the backshore. The restored beach is expected to facilitate lateral access along the shoreline and enhance recreational opportunities. Pending receipt of the required permits and approvals, project construction was expected to begin in early 2011 and be completed by the end of 2011. It is BSC's general understanding that the Gray's Beach Restoration Project has been put on hold, but that permitting for this development could begin again this year or next year.

Long term impacts from beach restoration action are not anticipated to result in any cumulative negative impacts with the Project. If anything, along with other neighboring projects, it will serve to continue the revitalization of the core of Waikīkī in significant ways.

6.3.2 Princess Ka`iulani Renovation & Development and the Replacement of the Moana Surfrider Hotel Diamond Head Tower with a New Tower

The Princess Ka`iulani project includes plans for a tower with 210 condo-hotel suites and 61 fee simple residences, a 2-level podium with retail/restaurants, 187 below grade parking spaces, recreational amenities, and other accessory uses, a parking structure with 625 spaces and condo-hotel accessory uses, an energy saving deep well cooling system and the renovation of the existing 666-room Ainahau Tower.

The Diamond Head Tower development will include a tower with 185 condo-hotel rooms and 40 fee simple residences, a 2-level podium with accessory uses to the condo-hotel, auto court, beach access, public surfboard racks and a 3-foot site elevation.

Impacts include encroachment of the Diamond Head Tower into the 40-foot shoreline setback and the 100-foot coastal building and height setback, impact on infrastructure, loss of older hotel/retail buildings and short-term construction impacts.

Mitigation includes improved public ocean views, upgrade of sewer mains, completion of an archaeological inventory survey, an archaeological monitoring plan, traffic improvements, and mitigation of runoff, construction noise and air quality impacts through best management practices.

In the event the construction periods for the Princess Ka`iulani and Diamond Head Tower Redevelopment Projects overlap with the construction period for the Project, HHDC will communicate with Kyo-ya Hotels & Resorts with the goal of minimizing disruption to surrounding streets during the overlapping construction periods.

Long term impacts from Kyo-ya's resort condo-hotel, condominium, and commercial development will result in cumulative impacts to infrastructure and traffic in relation to the impacts of the Project. However, based on Kyo-ya's Final EIS and this Draft EA, both projects are anticipated to result in minimal impact on the existing level of service of the intersections, surrounding the projects. Other positive long term impacts of the Kyo-ya Project will be increases in employment, GET collections (increase in State tax revenues) and property taxes (increase in City and County tax revenues).

6.3.3 Hilton Hawaiian Village - Village Master Plan

Implementation of the "2010 Village Master Plan" will update and expand the Hilton Hawaiian Village's offering of world class shopping, dining, entertainment and hospitality options. The following improvements are planned:

- Renovation, alteration, and refurbishment (primarily interior and minor exterior projects or above-grade improvements) of existing building facades, common use areas, recreational amenities, and landscaped areas;
- Relocation, realignment, and reallocation of retail and dining areas, recreational amenities, open space, back-of-house space, traffic circulation, pedestrian flow and access within the Hilton Hawaiian Village;
- Construction of two new timeshare towers. The first tower will be located in the mauka corner of the property near Paoa Place and Kalia Road and will be 350 feet tall and include approximately 300 timeshare units, with a portion located above the current bus depot and loading areas. The second tower will be located above the makai corner of the Rainbow Bazaar, will be 260 feet tall, and include approximately 250 timeshare units. Also planned is the reconfiguration of public sidewalk fronting Kalia Road and overall street front improvements that include new landscaping, a new public bus pull-out lane, and trolley pull-out lane, and bus shelter.

The 2010 Village Master Plan is a new plan that carries forward from the existing improvements on the property. Timetable for the major improvements is estimated at roughly ten years, as follows:

- Retail space renovations and improvement of public space amenities are ongoing for projects not requiring land use permitting actions
- The development of the first timeshare tower is planned for 2013-2015
- Expansion of retail and convention space is planned from 2012-2013
- Expansion of the Super Pool and lobby area is planned from 2013-2014
- The development of the second timeshare tower is planned in 2019-2021

This proposed development is located at the far west end of Waikīkī over a mile from the Project Site, thus, the roadways affected by construction at this site should not result in cumulative impacts with the construction occurring at the Project Site. Based on the Hilton schedule, there will not be an overlap in the construction schedules for the Hilton and Ainahau Vista II. Should the first tower be delayed, it's possible that there will be some overlap in construction periods.

Long term impacts from Hilton's proposed timeshare towers will result in cumulative impacts to infrastructure and traffic in relation to the impacts of the Project. The Project's traffic impact assessment indicates there will be no significant impact on traffic. Other positive long term impacts will be increases in employment, GET collections (increase in State tax revenues) and property taxes (increase in City and County tax revenues) from the two developments.

6.3.4 Waikiki Landing

The Waikiki Landing project site currently houses a boatyard repair facility, convenience store and fueling station. The project proposes to renovate and upgrade the existing boatyard facility and the redevelopment of the remainder of

the existing site. The development is expected to include the following improvements:

- Boat yard Building with 10,694 square feet of retail space; 9,287 square feet of restaurant space; and 1,877 square feet of office space.
- Wharf Building with 6,098 square feet of restaurant space and 1,319 square feet of office space.
- Canoe House with 4,094 square feet of space for wedding ceremonies to be held on-site.
- Diamond Vista Building with 3007 square feet of retail space; 1,583 square feet of office space; 6,048 square feet of space for wedding ceremonies to be held on-site.
- At-grade parking

The proposed wedding facilities within the Canoe House and Diamond Vista Building should accommodate up to 6 small weddings a day (with about 12 guests per wedding). The project originally projected for completion by the year 2013. Project continues through the permitting process and should begin construction soon.

This proposed development is located at the far west end of Waikīkī about 1.5 miles from the Project Site. Construction at this site will not result in cumulative construction impacts with the Project.

Long term impacts from the Waikiki Landing will result in cumulative impacts to infrastructure and traffic. Other positive long term impacts will be increases in employment, GET collections (increase in State tax revenues) and property taxes (increase in City tax revenues).

There is some uncertainty that the project will proceed, with the developer filing for bankruptcy and the Department of Land and Natural Resources proposing revocation of their lease.

6.3.5 Royal Hawaiian Market Place

The proposed development is situated on a 7,200 square foot lot at the corner of Royal Hawaiian Avenue and Lauula Street. The Project will replace 20 temporary tarp and plywood retail kiosks about 10 feet by 10 feet in size by a two-story structure with 3,395 square feet on the ground floor and 1,380 square feet on the second floor. This represents a relatively small commercial development with existing retail, dining and an existing 218-foot concrete masonry structure with a money exchange/take-out food shop that will remain.

The proposed development will support many of the existing tenants. The Project is not expected to have a significant impact since it essentially continues the existing commercial use on the project site in a permanent structure. The

applicant plans to begin construction as soon as the applicant receives approval of development permits from the City and the construction is expected to take about four months.

This applicant's schedule should have the project construction completed prior to the anticipated start of construction of the Ainahau Vista II Project and there should be no cumulative construction impacts.

6.3.6 The International Market Place

The International Market Place Redevelopment Project includes the replacement of all existing buildings and structures on the site with a new retail, dining and entertainment center. The redeveloped center will be generally three levels in height, but the mauka end will have a seven-story structure consisting of two levels of retail below five levels of parking.

The Project involves the removal of approximately 213,000 square feet of existing commercial space at the International Market Place and Town Center sites and approximately 286,000 square feet of existing space at the Miramar Hotel site. With a proposed redevelopment of 419,960 square feet of new commercial space across the entire site, the redevelopment will result in a reduction of approximately 79,040 square feet.

Construction recently began, with the first phase being demolition of existing structures. Construction is expected to be completed by spring 2016, with the new International Market Place re-opening at that time.

Construction is expected to be completed before ground breaking occurs on the Ainahau Vista II Project and there should be limited or no overlap in construction.

6.3.7 2121 Kuhio – Ritz Carlton

The applicant, PACREP LLC, proposes to develop the 2121 Kuhio in Waikiki. Although 2100 Kalakaua Avenue and 2139 Kuhio Avenue properties are part of the joint developed lot with 2121 Kuhio Avenue, the area planned for development is on the 2121 Kuhio property, 1.396 acres of vacant land.

The applicant proposes to develop a 37-story, 350-foot structure. The original plan for 2121 Kuhio included a five story podium with the ground floor lobby, three levels of parking and fifth and sixth floor of condo-hotel support uses. The new design is based on an 8-story shared podium with shared resident services, recreational amenities, vehicular access and off-street parking. Above this podium will be a 29-story tower.

2121 Kuhio will include development of 361 condo-hotel units, based on keys (this may include lock-off units which although are treated as separate units in the

361 unit total may be used as one large unit or used as two separate smaller units, with separate keyed entrances from the corridor).

The ground floor development will include a sundry/retail shop, a concierge space, lobby, breezeway, drop-off, porter valet, loading, administrative and back-of-house offices, entry drive, entry plaza, and lush landscaping.

2121 Kuhio broke ground in August of 2013 and completion is expected by mid-2016. Construction is expected to be completed before ground breaking occurs on the Ainahau Vista II Project and there should be limited or no overlap in construction.

6.3.8 2139 Kuhio – Ritz Carlton

The Applicant, PACREP 2 LLC, proposes to develop a 39-story condo-hotel at 2139 Kūhiō Avenue in Waikīkī. The proposed development consists of a tower on podium building with up to 280 units, related building support facilities, resident services, amenities and public streetscape improvements. The new tower will be a stand-alone building with its own mechanical, electrical, and utility infrastructure, and but will share an 8-story building podium with the adjacent 2121 Kūhiō Tower that is currently in development. The building podium will contain shared resident services, recreational amenities, vehicle access and off-street parking.

The Applicant plans to begin construction this year and projects to complete construction by mid-2016. Construction is expected to be completed a few months after ground breaking occurs on the Ainahau Vista II Project and there should be limited or no overlap in construction.

6.3.9 Waikiki Parc Hotel Renovation

The Applicant, Halekulani Corporation, proposes the Waikiki Parc Hotel Renovation Project in Waikīkī. The Project will be located on a 48,411 square foot site and will involve the renovation of the existing Waikiki Parc Hotel including the following:

1. Provide streetscape enhancements, landscaping and special roadway paving along Kalia and Helumoa Roads.
2. Enhance existing pedestrian hotel entrance and drop off fronting Kalia Road and porte cochere on Helumoa Road.
3. Renovate ground floor lobby, restrooms and back-of-house facilities, and improvements to the existing restaurant.
4. Renovate the 8th floor pool deck to include refurbishing of the existing pool, adding a new pool, lounge chairs, poolside dining tables and chairs and renovating the existing pool bar.
5. Renovate the 8th floor by removing guest rooms and providing a new restaurant, kitchen, dining room, fitness center and hospitality room.

6. Renovate the 8th floor outdoor gathering area with landscaped wind screens and retractable roof awning and create a garden with outdoor dining tables and chairs.
7. Renovating the existing 297 rooms into all 1-bedroom and 2-bedroom rooms (reducing the unit count to 126 rooms).
8. Provide a new roof top open-air terrace.
9. Extend elevator and stairs to the roof top.
10. Provide façade improvements to the face of the parking garage, to enhance existing architectural treatment such as post and beam articulation, trellises and canopy extensions.
11. Replacing the exterior glazing of the building façade and change out all hand rails and guard rails.

Construction is anticipated to begin in the fall of 2016, and be completed by 2018. HHDC expects that there will be an overlap in construction periods. There will be limited cumulative impact over the service roads for each development given the one mile distance between the two Projects.

6.3.10 133 Kaiulani Condo-Hotel

The Applicant, MK Development Consulting, LLC (MK), proposes the 133 Kaiulani Condo-Hotel Development in Waikiki. The Project includes the replacement of all existing buildings and structures on the Project Site with a new commercial and parking podium and a condo-hotel tower above.

The new condo-hotel will provide approximately 238 to 260 condo-hotel units. The new structure is planned to have a 350-foot, 33-story tower.

A basement will consist of back of house spaces and the ground floor will be composed of a retail spaces, condo-hotel lobby and support spaces. The condo-hotel reception area, lobby lounge, bar lounge, full-service restaurant as well as multiple event spaces and executive offices will be located on an amenity deck above the parking floors. The tower above the amenity deck will mostly be condo-hotel units.

The project will provide a porte-cochere for valet drop off with loading, trash and vehicular access on the ground floor. The Kaiulani Avenue and Koa Avenue corner of the Project will provide an open-space plaza to serve as the main pedestrian access to both the condo-hotel and retail functions. A paved and landscaped area will connect the plaza, wrapping around Kaiulani Avenue with access to the retail, and connect to the Prince Edward Street side of the property. This pathway will continue and connect to a landscaped pocket park for use by condo-hotel guests, Waikiki residents and the general public.

Construction is anticipated to begin in 2016, and be completed by 2018, approximately 30 months. HHDC expects that there will be an overlap in construction periods. There will be limited cumulative impact over the service

roads for each development except for the Ala Wai Boulevard which both projects will use.

6.4 POPULATION AND GROWTH CHARACTERISTICS

The Project, when completed, will have an impact on the number of permanent residents in Waikiki, adding about 62 residents, given the typical occupancy of the senior units. However, it will not affect the visitor population, as it is planned as an affordable residential project geared to seniors earning at or below 60% of the AMI.

7. RELATIONSHIP TO LAND USE PLANS, POLICIES, AND CONTROLS

7.1 STATE LAND USE

The Project Site lies within the State land use Urban district. Within this district, lands are characterized by city-like concentrations of people, structures, streets, urban level of services and other related land uses. The Project's planned affordable senior rentals are consistent with this Urban designation.

7.1.1 Hawaii State Plan

Goals

(1) A strong, viable economy, characterized by stability, diversity, and growth, that enables the fulfillment of the needs and expectations of Hawaii's present and future generations.

Project replaces an underutilized open space with an affordable senior rental development that will fulfill the housing needs of low income seniors. With at least a 62 year term, this affordable rental will serve several generations of senior citizens.

The Project will provide an economic and job-creating stimulus for the local economy with temporary construction jobs and through secondary impact provide jobs for services in support of the affordable senior rental apartment.

The Project provides much needed affordable senior rentals in Waikiki.

(2) A desired physical environment, characterized by beauty, cleanliness, quiet, stable natural systems, and uniqueness, that enhances the mental and physical well-being of the people.

(3) Physical, social, and economic well-being, for individuals and families in Hawaii, that nourishes a sense of community responsibility, of caring and of participation in community life.

The Project's overall design will create a new living environment with landscaped open space and a victory garden providing for the mental and physical well-being of the senior citizens living in this affordable rental development.

These affordable senior rentals will provide for the physical, social and economic well-being of the senior residents. The senior residents will become part of a senior community and enjoy companionship and activities in the multi-purpose room.

7.1.2 State Functional Plan – Agriculture

The Project in a developed urban area will not affect the objectives, policies and actions recommended in the Agriculture Plan.

7.1.3 State Functional Plan – Conservation Lands

The Project is situated on Urban land within a built environment and will not affect the policies, goals and implementing actions of the Conservation Lands Plan.

7.1.4 State Functional Plan – Education

The Project will not affect the Policies, Goals and Implementing Actions of the Education Plan.

The proposed affordable senior rental development will not allow school age students to reside in the rental apartments.

7.1.5 State Functional Plan – Higher Education

The Project will not affect the Policies, Goals and Implementing Actions of the Higher Education Plan.

7.1.6 State Functional Plan – Economy

The Economy Plan relies heavily on the State's education system and state agencies in the implementing actions to meet the goals and policies of the Plan.

The Project will, however, help in implementing the objectives and policies for the economy described in Appendix C, "§226-6. Objectives and policies for the economy.", specifically:

(1) Increased and diversified employment opportunities to achieve full employment, increased income and job choice, and improved living standards for Hawaii's people.

The Project will provide an economic and job-creating stimulus for the local economy with temporary local construction jobs and through the indirect jobs created that will support the affordable senior rental development.

(9) Foster greater cooperation and coordination between the public and private sectors in developing Hawaii's employment and economic growth opportunities.

The Project requires support from various public agencies in the review and approval of the Project.

7.1.7 State Functional Plan – Energy

The Energy Plan relies heavily on the Department of Business and Economic Development (now Department of Business, Economic Development and Tourism) to take the lead in implementing most action items in support of the objectives and policies of the Energy Plan and encouraging private energy agencies to develop alternate energy systems to reduce dependence on fossil fuels. Other State and County agencies take the lead in remaining action items.
In a smaller scale, the Project will support sustainability and energy conservation on-site as follows:

HHDC intends to design, maintain, and operate the Project employing best practices for energy efficiency and environmental sustainability for projects of its kind. HHDC will review all applicable LEED rating systems, use the certification standards as guidelines, and pursue certification when financially feasible. HHDC will implement low-flow plumbing fixtures, explore waterless urinals, and incorporate efficient landscape irrigation systems in an effort to further reduce wastewater and potable water demands. HHDC will reduce material waste through effective construction and operational recycling programs. LEED (Leadership in Energy and Environmental Design) is an internationally recognized building certification system intended to provide building owners and operators a concise framework for identifying and implementing practical and measurable green building design, construction, operations and maintenance solutions.

7.1.8 State Functional Plan – Health

The Project will not affect the objectives, policies and implementing actions of the Health Plan, which will be implemented by State Agencies and Medical facilities throughout the State.

7.1.9 State Functional Plan – Historic Preservation

In accordance with Implementing Action B.2.c. "*Respond to the discovery of prehistoric/historic burials in a timely and sensitive manner, which takes into consideration cultural concerns.*"

The Project Site is not listed on the State or Federal Register of Historic Places. An Archaeological Inventory Survey was conducted on the entire property during the development of Ainahau Vista, titled "Archaeological Inventory Survey for the Tusitala Vista Elderly Apartments" (now known as Ainahau Vista), Waikiki, Kona District, O'ahu Island and dated December, 2004. Please refer to **Appendix 4** for complete report prepared by Cultural Surveys Hawaii.

Also included in **Appendix 4** is a copy of a letter from the Department of Land and Natural Resources (DLNR) , dated October 18, 2005, indicating their concurrence with Cultural Surveys Hawaii on their recommendation of "no further work" in regards to SIHP sites -6682, -6706 – 6707. The letter also concurs with the archaeologist recommendation of "monitoring" in view of the discovery of historic properties and fragmental human remains in the fill. Another letter from DLNR, dated November 28, 2005, states their acceptance of burial plans for the non-native Hawaiian fragments of human skeletal remains encountered during the archaeological inventory. On November 29, 2005 two bound copies of the accepted burial treatment plan were delivered to SHPD. The burial treatment plan was approved and a burial site at the northeast corner of the Project was approved.

As mentioned earlier, SHPD of the DLNR indicated that the submittal will require SHPD review under Hawaii Revised Statutes (HRS) §6E and possibly under the National Historic Preservation Act (NHPA) Section 106. Their letter went on to describe steps that HHDC needs to take to address Section 106 and their other requirements.

HHDC's archaeological consultant, Cultural Surveys Hawaii will work with SHPD to meet their requirements related to HRS §6E and NHPA Section 106 and SHPD's other requirements for the Project.

7.1.10 State Functional Plan – Housing

The Project will support Objective C, Policy C(1), Implementing Action C(1)(a) and (b) relating to providing rental housing for the elderly and handicapped persons.

7.1.11 State Functional Plan – Human Services

The Project will not affect the Policies, Goals and Implementing Actions of the Human Services Plan, which will primarily be guided by public agencies and private social service agencies.

7.1.12 State Functional Plan – Recreation

The Project will be developed with a victory garden, multi-purpose room and open space areas for on-site recreational opportunities for its residents.

Except for an increase in residents from this Project and an increase in recreational use and facilities on the island, the Project is not expected to affect other Policies, Goals and Implementing Actions of the Recreation Plan.

7.1.13 State Functional Plan – Tourism

The Project with its new affordable senior rental development will not affect the goals, policies and actions of the Tourism Plan.

7.1.14 State Functional Plan – Transportation

The seniors in the affordable rentals are expected to use public transportation and a shuttle service provided by Catholic Charities to minimize use of private automobiles. This will be encouraged by the minimal amount of parking being provided and the requirement that any senior resident that owns a car will have a parking stall on-site. This will be controlled by not allowing new senior residents who own a car to rent in this Project unless there is an available parking stall.

7.2 GENERAL PLAN

7.2.1 Compliance of the Project with the General Plan objectives is discussed as follows:

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

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

- General Plan Objective A, Policy 13 – Encourage the provision of affordable housing designed for the elderly and the handicapped.

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

  Development of Ainahau Vista II is consistent with the above Objectives and Policies of the General Plan by offering an affordable senior rental development that will provide 62 rental units to seniors earning at or below 60% of the area median income.

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

  HHDC will improve and upgrade the existing neighborhood through the development of Ainahau Visa II, providing a new senior affordable rental

apartment. The Project will also include an upgrade to the existing sewer line in Tusitala Street.

7.2.2 Energy

General Plan Objective A - To maintain an adequate, dependable, and economical supply of energy for Oahu residents.

Policy 3 - Support programs and projects which contribute to the attainment of energy self-sufficiency on Oahu.

HHDC intends to design, maintain, and operate the Project employing best practices for energy efficiency and environmental sustainability for projects of its kind. The new development will meet or exceed the energy efficiency code requirements. HHDC will review all applicable LEED rating systems, use the certification standards as guidelines, and pursue certification when financially feasible. HHDC will implement low-flow plumbing fixtures, explore waterless urinals, and incorporate efficient landscape irrigation systems in an effort to further reduce wastewater and potable water demands.

7.2.3 Physical Development and Urban Design

General Plan 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.
Except for an upgraded sewer line in Tusitala Street, other infrastructure is available and adequate to support the Project.

Policy 3 - Phase the construction of new developments so that they do not require more regional supporting services than are available.

Phasing of the Project will not require more supporting services than are available, with the exception of an upgrade to a Tusitala Street sewer line which will be provided by HHDC.

7.3 PUC DEVELOPMENT PLAN

The Project's compliance with the PUC DP is discussed as follows:

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

The proposed Ainahau Vista II will offer in-town housing (Waikiki) to our seniors with limited incomes (those who earn 60% of the area median income or less).

"*Section 3.2 Neighborhood Planning and Improvements – In-town Residential Neighborhoods*"

The proposed Ainahau Vista II will be located in the central area of Waikiki, in an area of mixed residential apartments and will be close to major commercial districts and corridors.

7.3.2 Land Use and Transportation

Visitor Industry

"The need to upgrade Waikiki. Waikiki is competing in the global market and, as a mature destination, needs to be refurbished and improved. In addition to upgrading streets and public spaces, the City and State need to adopt policies that will elicit private reinvestment in Waikiki's physical plant."

Although not directly related to the visitor industry, HHDC proposes to invest approximately $21.6 Million to develop Ainahau Vista II. This reinvestment in Waikiki's physical plant will help to implement this important vision statement of the PUC DP.

7.4 LAND USE MAP PUC – EAST

The Project is designated as Higher-Density Residential/Mixed Use on the Primary Urban Center (PUC) Development Plan Land Use Map. The Project's proposed development of Ainahau Vista II as an affordable senior rental apartment is consistent with this designation.

7.5 LAND USE ORDINANCE (SEC. 21-9.80 WAIKIKI SPECIAL DISTRICT)

The Department of Planning and Permitting (DPP) in a letter dated April 27, 2015 (**Appendix 3 – Agency Pre-Consultation Comments**), commenting on the proposed DEA indicated that the Project will be subject to the rules and regulations of the Waikiki Special District and will require a Special District Permit Major. DPP further asked that the existing Ainahau Vista be considered in the development standard calculations and tabulations and that the DEA discuss how the project will meet the Waikiki Special District objectives and how it will contribute to a Hawaiian sense of place. Finally DPP asked that the DEA show and discuss building massing relationships between the existing and proposed buildings and any shared facilities and operations.

This DEA discusses the development standard calculations and tabulations for both Ainahau Vista buildings. There are sections in the DEA that discuss the Project's conformance to the Waikiki Special District Guidelines and its contribution to the

Hawaiian sense of place. The location of the Ainahau Vista II mauka of the existing Ainahau Vista will help to minimize the perception of the additional mass of the new building when viewed from Ala Wai Boulevard and Tusitala Street. The new building is also a little over half the floor area of the existing building so the mass will be a smaller addition to the existing mass on the property. Shared facilities and operations are discussed in this DEA.

7.5.1 Waikiki Special District Objectives (Sec. 21-9.80-1)

The Project will meet the following objectives:

7.5.1.1 (a) - Promote a Hawaiian Sense of Place

Landscaping and articulation to the front façade of the building will support and promote a Hawaiian Sense of Place in Ainahau Vista II. The building will be developed to complement the existing Ainahau Vista Project with articulation provided at the windows, recessing the windows a couple of feet and creating a low wall which adds to the articulation.

7.5.1.2 (b) - Optimum Community Benefits

Seniors earning at or below 60% of the AMI will benefit from the newly developed Ainahau Vista II in Waikiki, with the addition of 62 affordable rentals units on this vacant under-utilized property in the heart of Waikiki.

7.5.1.3 (c) – Support the retention of a residential sector

The development of AinahauVista II will meet and support this Objective.

7.5.1.4 (d) - Variety of Compatible Land Uses

The Project will provide 62 rental units (47 one-bedroom units and 15 studios) and 22 at grade parking stalls, a development compatible with surrounding land uses in this Apartment Precinct in Waikiki.

7.5.1.5 (g) - Support Visitor and Resident Needs

As stated above, the Project in Waikiki will provide affordable housing to those residents less fortunate in our community. 62 rental units (47 one-bedroom units and 15 studios) and 22 at grade parking stalls will be offered to seniors earning at or below 60% of the AMI.

7.5.1.6 (h) - Rejuvenation and Revitalization in the Special District

The Project will help to rejuvenate and revitalize this area of Waikiki, and will be built on a vacant portion of the property that is currently underutilized. This area

of Waikiki has experienced a normal aging process and a new building at this location will serve to rejuvenate and revitalize this vacant portion of the property.

7.5.1.7 (k) - Diamond Head View from Punchbowl

Ainahau Vista II will be a midrise (9-story) structure located on Ala Wai Boulevard which follows the Ala Wai Canal that will not affect views of Diamond Head from the Punchbowl Lookout.

7.5.2 Prominent View Corridors and Historic Properties (Sec. 21-9.80-4)

7.5.2.1 Significant Public Views

"(1) Intermittent ocean views from Kalia Road across Fort DeRussy Park and from the Ala Wai Bridge on Ala Moana Boulevard;
(2) Continuous ocean views along Kalakaua Avenue, from Kuhio Beach to Kapahulu Avenue;
(3) Ocean views from Ala Wai Yacht Harbor;
(4) Ocean views from Kuhio Beach Park;
(5) Views of Ala Wai Yacht Harbor from Ala Moana Park (Magic Island Park);
(6) Mauka views from the portions of the following streets mauka of Kuhio Avenue:
(A) Nohonani Street;
(B) Nahua Street;
(C) Kanekapolei Street;
(D) Kaiolu Street;
(E) Lewers street;
(F) Walina Street; and
(G) Seaside Avenue;

The Project will not affect any of these significant public views, since the Project Site is located east of the easternmost street, Kanekapolei Street and is situated midblock along the Ala Wai Boulevard, where it does not affect any streets that have mauka views from Kuhio Avenue.

(7) View of Diamond Head from Ala Wai Boulevard between McCully Street and Kapahulu Avenue."

The Project will not affect this significant public view, as it will fall within the profile of the Monte Vista Condominium, when looking east along the Ala Wai Boulevard.

7.5.2.2 Preserve, Maintain, and Enhance These Views

Due to the Project's location, none of these significant public views will be affected by Ainahau Vista II.

7.5.2.3 Historic Properties

"Development should preserve, maintain and enhance historic properties whenever possible. Special district permit applications involving buildings over 50 years old shall be submitted to the state department of land and natural resources for review and comments."

Ainahau Vista is only 8 years old and is not listed as historic on either the State or Federal Register of Historic Properties.

7.5.3 General Requirements and Design Controls (Sec. 21-9.80-4)

HHDC plans to develop a residential apartment building that reflects a Hawaiian sense of place by following the general requirements and design controls as enumerated in the Land Use Ordinance of The City and County of Honolulu Sec. 21-9.80-4; which states: The design of buildings and structures in the Waikiki special district should always reflect a Hawaiian sense of place, as outlined in the design controls of this section. HHDC will achieve this goal by:

- Uses and Structures Allowed in Required Yards and Setbacks
  Wrought iron fences for dwelling uses along Ala Wai Boulevard are being considered in this apartment precinct lot, setback not less than 24 inches from the property line and screened with landscaping per Sec. 21-9.80-4(a)(8).

- No additional curb cuts in accordance with Sec. 21-9.80-4(b) are planned for the project which will share the existing curb cut leading to the parking lot for Ainahau Vista.

- Contributing to Hawaiian sense of place through the use of subdued and natural materials per Sec. 21-9.80-4(c)5. The colors and finishes will be absorptive and not highly reflective.

- Providing human scale at the ground level per Sec. 21-9.80-4(c)6. This will be achieved through the use of landscaping.

- Providing architectural features that promote a Hawaiian sense of place per Sec. 21-9.80-4(c)6. These architectural features will include: recessed windows which act as sunshades for the unit below while also serving the purpose of helping to screen the air-conditioning units.

- HHDC will use other architectural elements that promote a Hawaiian sense of place per Sec. 21-9.80-4(c)6, including decorative metal panels with geometric patterns that screen the face of air-conditioning units (if installed), and open concrete masonry units with geometric patterns that provide light and ventilation into the stairways.

- HHDC will provide exterior building colors that contribute to a tropical resort destination which complement and blend with their surroundings by using neutral colors per Sec. 21-9.80-4(c)7

- The design of Ainahau Vista II will promote a close indoor-outdoor relationship per Sec. 21-9.80-4(c)8(A), by providing the entry lobby with full height glass that also provides for natural ventilation and offering views of the mountains and a visual connection to the Ala Wai Canal. This indoor-outdoor relationship is continued on the upper floors with the use of windows that take advantage of views of the mountains and the Ala Wai Canal.

7.5.4 Design Guidelines.

General Guidelines - The general guideline described in LUO Exhibit 21-9.15 that affects this Project is the 240-foot height limit. Ainahau Vista II is proposed as an 80-foot high building, significantly below the maximum permitted height for the Project Site.

Yards - The 15-foot front yards required per the development standards under the LUO Table 21-9.6(B) will be met.

Utility Installations - Except for antennas, utility installations (if developed) will be designed and installed in an aesthetic manner so as to hide or screen wires and equipment completely from view, including views from above; provided, however, that any antenna located at a height of 40 feet or less from existing grade, visible from a public right-of-way, will take full advantage of stealth technologies in order to be adequately screened from view at ground level without adversely affecting operational capabilities.

Building Materials - HHDC will be utilizing concrete masonry units to match the existing Ainahau Vista development.

Building Scale, Features and Articulation - Recessed windows which act as sunshades for the unit below.

Exterior Building Colors. The use of reflective materials will be limited. Exterior colors will contribute to the tropical resort ambiance. Generally neutral tones are being considered to blend with adjacent buildings.

Ground Level Features.

Outdoor Lighting - Lighting for the Project will be utilized to contribute to public safety and to enhance the nighttime ambiance of the open space areas on the property. Outdoor lighting will be subdued or shielded so as not to provide inappropriate or excessive spillage onto surrounding properties or public rights-of-way.

Landscaping - The landscape planting shall meet the requirements set forth by the WSD and other LUO requirements. All landscape areas will have an adequate irrigation system.

Height Regulations - Ainahau Vista II will be built to a height of 80 feet, well below the 240-foot height limit in this Apartment Precinct.

7.5. 5 Apartment Precinct

7.5.5.1 Permitted Uses

The Apartment Precinct allows as permitted uses the proposed Ainahau Vista II affordable senior rental apartments.

7.5.5.2 Development Standards, Table 21-9.6(B)

Development Standard	**Apartment**	**Ainahau Vista and Ainahau Vista II**
Minimum lot area (square feet)	10,000	35,761 sf
Minimum lot width and depth (feet)	50	144 ft/246 ft
Yards - Front (feet) - Side	15 10	15 ft On the ewa side yard, a loading maneuvering area will encroach for a 12' width and a 10' depth
Maximum Density (FAR) apartment precinct only	20,000 sf or more FAR = 1.9 82,268 sf allowed	NA
Minimum open space (percent of zoning lot)	35% open space – FAR = 1.5 64,948 sf allowed	94,617 sf (FAR = 2.19) 60,948 sf/33,669 sf
Maximum Height (feet)	240 per zoning map	85 ft/80 ft
Transitional Height Setback	1 foot for every 10 feet of height over 40 feet	A maximum 5' encroachment at the ewa/mauka corner of the building

7.5.5.3 Parking

Based on Chapter 21, Article 6, Section 21-6.20, Land Use Ordinance, Table 21-6.1, Ordinance No. 99-12, as amended, the parking requirement for the proposed Ainahau Vista II, based on 62 rental units (47 one-bedroom units and 15 studio units) is 62 stalls. HHDC will be requesting an exemption through the 201H process to allow 22 parking stalls.

Resolution No. 05-218 for Tusitala Vista (now Ainahau Vista) approved 24 parking stalls for residents and 5 guest stalls, in lieu of the 107 parking stalls required.

HHDC proposed to provide 46 parking stalls with 5 guest stalls in lieu of the 169 parking stalls required by the LUO.

7.5.5.4 Loading

Based on Chapter 21, Article 6, Section 21-6.120(b), Land Use Ordinance No. 99-12, as amended, the loading requirement for the Ainahau Vista and proposed Ainahau Vista II is one full size loading stall and one smaller loading stall. HHDC will provide one full size and one smaller loading stall, eliminating the need for the exemption on loading provided by Resolution No. 05-218.

7.6 WAIKIKI SPECIAL DISTRICT GUIDELINES

The existing Ainahau Vista was been designed and constructed to meet the WSD Guidelines. The proposed Ainahau Vista II development will satisfy the objectives and standards of the WSD Guidelines as follows:

7.6.1 Hawaiian Sense of Place

The Project's design will reflect a residential apartment building that reflects a "Hawaiian Sense of Place" by following the general requirements and design controls as enumerated in the Land Use Ordinance of the City and County of Honolulu, Sec. 21-9.80-4, which states: "The design of buildings and structures in the Waikiki special district should always reflect a Hawaiian sense of place, as outlined in the design controls of this section."

HHDC plans to develop a residential apartment building that reflects a Hawaiian sense of place by following the general requirements and design controls as enumerated in the Land Use Ordinance of The City and County of Honolulu Sec. 21-9.80-4; which states: The design of buildings and structures in the Waikiki special district should always reflect a Hawaiian sense of place, as outlined in the design controls of this section. HHDC will achieve this goal by:

- Uses and Structures Allowed in Required Yards and Setbacks
  Wrought iron fences for dwelling uses are being considered in this apartment precinct lot, setback not less than 24 inches from the property line and screened with landscaping per Sec. 21-9.80-4(a)(8).

- No additional curb cuts, in accordance with Sec. 21-9.80-4(b), are planned for the project which will share the existing curb cut leading to the parking lot for Ainahau Vista.

- Contributing to the Hawaiian sense of place through the use of subdued and natural materials per Sec. 21-9.80-4(c)5. The colors and finishes will be absorptive and not highly reflective.

- Providing human scale at the ground level per Sec. 21-9.80-4(c)6. This will be achieved through the use of landscaping.

- Providing architectural features that promote a Hawaiian sense of place per Sec. 21-9.80-4(c)6. These architectural features will include: recessed windows which act as sunshades for the unit below while also serving the purpose of helping to screen the air-conditioning units.

- HHDC will use other architectural elements that promote a Hawaiian sense of place per Sec. 21-9.80-4(c)6, including decorative metal panels with geometric patterns that screen the face of air-conditioning units, and open concrete masonry units with geometric patterns that provide light and ventilation into the stairways.

- HHDC will provide exterior building colors that contribute to a tropical resort destination which complement and blend with their surroundings by using neutral colors per Sec. 21-9.80-4(c)7.

7.6.2 Building Design

7.6.2.1 Orientation & Form

The orientation and form of the proposed Ainahau Vista II, due to the shape of the developable portion of the lot, the 80-foot midrise tower is oriented in an Ewa-Diamond Head direction. The tower is also located so that much of the visual impact of the tower is screened by the existing Ainahau Vista development.

7.6.2.2 Open Space

The open space along the perimeter of the property and fronting the Ala Wai Boulevard will be landscaped in order to achieve a Hawaiian sense of place, per Sec. 21-9.80(c)8(G).

7.6.2.3 Parking Facilities

The parking area is a surface parking lot on the ground floor that will be screened from Ala Wai Boulevard by landscaping.

7.6.2.4 Articulation, Scale, Material Color

The building will feature articulated facades to break up the building bulk per Sec. 21-9.8 (c)6.

The building will be designed to provide human scale at the ground level per Section 21.9.80-4(c)6. This is achieved through the use of landscaping and by providing a small lobby that embraces the occupant while at the same time, with

two sides fully glazed allows the user to survey the tropical environment they inhabit.

The building will provide architectural features that promote a Hawaiian sense of place with recessed windows which act as sunshades for the units below, while also serving the purpose of screening the air-conditioning units.

Other architectural features will include elements that promote a Hawaiian sense of pace such as metal panels with geometric patterns that screen the face of air-conditioning unit, and open concrete masonry units with geometric patterns that provide light and ventilation into the stairways.

The building will reflect a Hawaiian sense of place through the use of subdued and natural materials. Exterior building colors will contribute to a tropical resort destination that will complement and blend with their surroundings by using neutral colors per Sec. 21-9.80(c)7. The colors and finishes will be absorptive and not highly reflective.

7.6.2.5 Entries, Lobbies & Arcades

A small lobby will embrace the occupant while at the same time, with exterior windows fully glazed allowing the user to survey the tropical environment they inhabit.

7.6.2.6 Visual Links

This is achieved by promoting a close indoor-outdoor relationship per Sec. 21-9.80(c)8(A), by providing two sides of the entry lobby with full height glass that also provides for natural ventilation and offers views of the mountains and a visual connection to the Ala Wai Canal. The indoor-outdoor relationship is continued on the upper floors with the use of corridors that are open to the exterior and offer views of the mountains and the Ala Wai Canal.

7.6.2.7 Features in Required Yards

- Walls & Fences – A wrought iron fence is being considered and will meet design guidelines for setback and screening.
- Shading Devices – Recessed windows provide shading for lower floors.
- Outdoor Dining – No outdoor dining is proposed.
- Rooftop Design and Equipment Screening - Rooftop machinery, equipment and utility installations will not exceed the established height limit and will be screened from view, as needed.

7.6.2.8 Landscaping

Landscaping will promote and create a tropical image for this affordable senior rental development.

7.6.2.9 Water Features and Artwork

No water features or artwork are proposed.

7.6.2.10 Sidewalk & Paving

No new sidewalk or paving is planned.

7.6.2.11 Signage

Signage will be designed to meet the requirements of the LUO.

7.6.2.12 Lighting

Outdoor lighting will be subdued or shielded so as not to provide inappropriate or excessive spillage onto surrounding properties or public rights-of-way.

7.6.3 Urban Design Controls

7.6.3.1 Waikiki Gateways and Fort DeRussy

The Project is not situated near any of the five Waikiki Gateways and is located about 0.75 miles away from Fort DeRussy.

7.6.3.2 Major Streets

The Project Site abuts Ala Wai Boulevard on its mauka side.

7.6.3.3 Waikiki Promenade

The Project is situated across the Ala Wai Boulevard from the portion of the Waikiki Promenade that follows the Ala Wai Canal. It will not impact makai views from the Promenade since these views are currently blocked by other buildings, including Ainahau Vista and the Waikiki Townhouse.

7.6.3.4 Coastal Height Setback

The proposed Project is located approximately 0.25 miles from the shoreline and is not subject to a coastal height setback.

7.6.3.5 Mini Parks

No mini parks are planned at the Project.

7.6.3.6 Significant Public Views and Historic Properties (Sec. 21-9.890-3)

"The following streets and locations identify significant public views of Waikiki landmarks, the ocean, and the mountains from public vantage points:

(1) Intermittent ocean views from Kalia Road across Fort DeRussy Park and from the Ala Wai Bridge on Ala Moana Boulevard;

The Project Site, located along Ala Wai Boulevard, between Kaiulani Avenue and Liliuokalani Avenue will not affect any of these intermittent ocean views.

(2) Continuous ocean views along Kalakaua Avenue, from Kuhio Beach to Kapahulu Avenue;

Given the Project's location along the Ala Wai Boulevard, five blocks mauka of Kalakaua Avenue, it will not affect continuous ocean views along Kalakaua Avenue.

(3) Ocean views from Ala Wai Yacht Harbor;

The Project Site located about 1.7 miles east and mauka of the Harbor will not affect this important view.

(4) Ocean views from Kuhio Beach Park;

The Project will not affect this view being situated five blocks mauka of Kuhio Beach Park.

(5) Views of Ala Wai Yacht Harbor from Ala Moana Park (Magic Island Park);

The Project is not in the line of sight between Ala Moana Park and Ala Wai Yacht Harbor and will not affect these views.

(6) Mauka views from the portions of the following streets mauka of Kuhio Avenue:
- *(A) Nohonani Street;*
- *(B) Nahua Street;*
- *(C) Kanekapolei Street;*
- *(D) Kaiolu Street;*
- *(E) Lewers Street;*
- *(F) Walina Street; and*

(G) Seaside Avenue.

The Project will not affect any of these significant public views, since the Project Site is located east of the easternmost street, Kanekapolei Street and is situated midblock along the Ala Wai Boulevard, where it does not affect any streets that have mauka views from Kuhio Avenue.

(7) View of Diamond Head from Ala Wai Boulevard between McCully Street and Kapahulu Avenue."

The Project will not affect this significant public view, as it will fall within the profile of the Monte Vista Condominium, when looking east along the Ala Wai Boulevard.

Historic Structures, Significant Sites and Landmarks - The Project Site is not listed as historic on either the State or Federal Register of Historic Properties.

The Project Site will not affect historic properties and the existing Ainahau Vista is only 8 years old.

7.6.3.7 Public Pedestrian Access

The Project will not provide any public pedestrian access.

7.7 LIST OF NECESSARY APPROVALS

The Project will require a "Finding of No Significant Impact" (FONSI) from the State of Hawaii, Dept. of Business, Economic Development and Tourism, Hawaii Housing Finance and Development Corporation (HHFDC). The following is a preliminary list of the anticipated permits, approvals and reviews that are required prior to construction of the Project.

7.7.1 City and County of Honolulu

- WSD Permit, Minor, City, Department of Planning and Permitting (DPP)
- Building Permits, City, DPP
- Grading Permit, City, DPP
- Drain Connection, City DPP
- Street Usage, City, DPP
- Construction Plan Approval, City, DPP

7.7.2 State of Hawaii

- Draft and Final EA, State of Hawaii
- 201H Application, State of Hawaii
- Construction Noise Permit

8. PROBABLE IMPACTS

8.1 IMPACTS OF THE NATURAL OR HUMAN ENVIRONMENT ON THE PROJECT

Neither the natural nor human environment is anticipated to have an impact on the Project.

8.2 DIRECT AND INDIRECT IMPACTS

The proposed 62-unit senior affordable rental project is not expected to have a significant impact on traffic or transportation. The project is located in an improved area with sidewalks along the streets, has public transit service within ¼ mile, and will provide shuttle service for many of the residents' local transportation needs.

A short term indirect impact will be increased revenues for construction-related industries providing services and supplies to contractors involved in the construction of the Project.

8.3 GENERAL PUBLIC BENEFITS

The Project offers a multitude of public benefits as discussed below:

8.3.1 Economic Boost

Positive economic impacts are projected with the development of Ainahau Vista II, with increases in construction jobs while being built. It will benefit existing service contractors, e.g. elevator maintenance companies, security companies, appliance companies etc. as well as business in the area. The Project will also offer a limited amount of long-term employment for security personnel and maintenance personnel. When completed the Ainahau Vista II will offer positive economic impacts to the community by contributing to permanent affordable housing to those less fortunate in our community.

8.3.2 Sustainable Strategies

HHDC intends to design, maintain, and operate the Project employing best practices for energy efficiency and environmental sustainability for projects of its kind. HHDC will review all applicable LEED rating systems, use the certification standards as guidelines, and pursue certification when financially feasible. HHDC will implement low-flow plumbing fixtures, explore waterless urinals, and incorporate efficient landscape irrigation systems in an effort to further reduce wastewater and potable water demands. HHDC will reduce material waste through effective construction and operational recycling programs. LEED (Leadership in Energy and Design) is an internationally recognized building certification system intended to provide building owners and operators a concise framework for identifying and implementing practical and measurable green building design, construction, operations and maintenance solutions.

8.3.3 Waikiki Special District

The Project will achieve several of the key objectives of the WSD guidelines and result in demonstrable contributions that benefit the community and the stability, function and overall ambiance of Waikiki, as follows

8.3.3.1 Sec. 21-9.80-1(a) - Hawaiian Sense of Place

The Ainahau Vista II design will reflect a "Hawaiian Sense of Place" by adding articulation to the exterior face of the building, where possible, and landscaping at the ground level. The 9th floor will be developed with a recreational multi-purpose room, that will include full kitchen facilities and a restroom, where the residents can enjoy the views of the mountains, Ala Wai Canal and the Ala Wai Golf Course and the tropical ambiance created by these views.

8.3.3.2 Sec.21-9-80-1(c) (d)

Support the retention of a residential sector in order to provide stability to the neighborhoods of Waikiki

Development of Ainahau Vista II, an affordable senior housing development, will support the retention of a residential sector in this area of Waikiki.

8.3.3.3 Sec.21-9-80-1(h)

Provide opportunities for creative development capable of substantially contributing to rejuvenation and revitalization in the special district, and able to facilitate the desired character of Waikiki for areas susceptible to change.

Development of Ainahau Vista II, a senior affordable rental property, will meet the criteria of a creative development that is capable of contributing to revitalization in this area of Waikiki, by offering affordable apartments to our seniors earning at or below 60% of the AMI.

8.3.3.4 Sec.21-9-80-1(k)

Maintain a substantial view of Diamond Head from the Punchbowl lookout by controlling building heights in Waikiki that would impinge on this view corridor.

Ainahau Vista II is proposed as an 80-foot high building, in this Apartment Precinct with a height limit of 240 feet. Ainahau Vista II will not impinge on the Punchbowl to Diamond Head view.

8.4 DEMOGRAPHIC IMPACTS

8.4.1 Residential Population

The Project will have a very positive impact on the residential population in Waikiki as it will offer affordable senior housing (62 rental units, 47 one-bedroom and 15 studios) and 22 at grade parking stalls where none exist on this vacant property.

8.4.2 Visitor Population

The Project will not affect the visitor population, as the proposed development is planned as an affordable senior rental apartment development.

8.4.3 Character or Culture of the Neighborhood

The character and culture of the surrounding neighborhood will not be affected as the proposed affordable rental building will be similar to the many surrounding apartment and condominiums already developed in this "Apartment Precinct" zoned district of Waikiki.

8.4.4 Displacement of Tenants

There will be no displacement of tenants as the proposed Ainahau Vista II will be developed on an existing vacant portion of this property.

8.5 HOUSING IMPACTS

The Project will positively affect housing in this area by adding a total of 62 apartments, consisting of 47 one-bedroom units and 15 studio units on this vacant property.

8.6 PUBLIC SERVICES

8.6.1 Access and Transportation

The "Traffic Assessment for Ainahau Vista II" ("Traffic Impact Assessment") dated February 19, 2015 was prepared by Julian Ng Incorporated, Transportation Engineering Consultant and is provided in its entirety in **Appendix 5**.

8.6.1.1 Area Roadway System

"The project site is a portion of a lot occupied by the existing Ainahau Vista I affordable senior rental development. The lot is north of Tusitala Street, a City-owned public street, and extends to Ala Wai Boulevard, a City Street in a 72-foot wide right-of-way. A single driveway to Tusitala Street serves the existing parking lot; no vehicular connection exists to Ala Wai Boulevard.

"Tusitala Street is in a 32-foot wide public right-of-way that has been improved to a curbed street (4- to 6-foot wide concrete sidewalks on each side, 26 feet for vehicular traffic between curbs). Tusitala Street is a single block in length, operated one-way in the eastbound direction from Kaiulani Avenue to Kapili Street, with parallel parking allowed between driveways only on the north (project) side of the street. Other 32-foot streets in the area that complete the vehicular circulation include Kaiulani Avenue, Cleghorn Street, and Kapuni Street. A portion of Cleghorn Street is operated two-way, allowing vehicular traffic to exit from the area to the east onto Liliuokalani Avenue.

"Concrete sidewalks are provided for pedestrian use on Tusitala Street, Kaiulani Avenue, and the one-way segment of Cleghorn Street. Street crossings at most intersections with the 32-foot roadways are not marked, but marked crosswalks are provided across Kaiulani Avenue and Kuhio Avenue, across the legs where crossing is permitted at that signalized intersection.

"Bus stops for the City public bus system ("TheBus") are located on both sides of Kuhio Avenue near the intersection with Kaiulani Avenue, approximately 2,000 feet from the site entrance. An on-line review of current bus route information (www.thebus.org) shows that eight local bus routes provide service on Kuhio Avenue, and that midday service is provided by 20 buses per hour in each direction, which provides a capacity of more than 1,000 seats per hour (more than 1,500 total, including standees) in each direction. Transit users can access the entire island-wide bus system at these bus stops and transfer at locations where bus routes intersect."

.....

"Vehicular access to the new parking will be through the existing Ainahau Vista I surface parking lot, which has a single driveway to Tusitala Street; stalls provided for residents' use will all be assigned. An expected condition of project approval is that tenants who do not have an assigned parking stall on the project site will not be able to own a car. Based on the experience at other similar Vista projects, the parking ratio of 0.35 parking spaces per affordable elderly rental unit is not unreasonable."

8.6.1.2 Traffic Impacts

The projected trips during the AM (morning) peak hour of Tusitala Street will be 17 vehicles with 7 entering and 10 exiting. The projected trips during the PM (afternoon) peak hour of Tusitala Street will be 20 vehicles with 10 entering and 10 exiting.

The Traffic Impact Assessment's "Conclusion" states:

"The proposed 62-unit senior affordable rental project is not expected to have a significant impact on traffic or transportation. The project is located in an

improved area with sidewalks along the streets, has public transit service within ¼ mile, and will provide shuttle service for many of the residents' local transportation needs."

8.6.1.3 Traffic Mitigation Measures

No mitigation measures were recommended in the Traffic Impact Assessment due to the minimal number of trips generated by the Project. However, due to concerns raised by neighboring residents, a full size loading space is being provided, as required by the LUO.

8.6.2 Water

The Honolulu Board of Water Supply (BWS) currently provides potable water for the Ainahau Vista II development site. There is an existing 8-inch water line on Tusitala Street and an existing 16-inch main line of Ala Wai Boulevard. No off-site water improvements are needed to service the proposed development.

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

The average daily water consumption (demand) per day for the 62-unit apartment building will be approximately 18,600 gallons per day, based on an average daily demand of 300 gallons per unit. City standards assume an occupancy of 2.8 persons per unit, although our experience is that most units will be single occupancy. Additional water used for irrigation of landscaping and ground maintenance will be minimal.

The existing water system is adequate to accommodate the proposed development, according to a BWS letter dated June 12, 2015 (**Appendix 3 – Agency Pre-Consultation Comments**). BWS also commented that the final decision on the availability of water will be confirmed when the building permit is submitted for approval and that when water is made available HHDC will be required to pay the BWS Water System Facilities Charge for resource development, transmission and daily storage.

BWS noted that water conservation measures are required for all proposed developments. HHDC will incorporate low flow fixtures and will consider other feasible conservation measures.

Since this will not be a high-rise building, water hammer arrestors or expansion tanks will not be required.

As recommended by BWS, on-site fire protections requirements will be coordinated with the Fire Prevention Bureau of the Honolulu Fire Department (HFD).

HHDC appreciates that BWS has no objections to the deferral of the applicable WSFC and/or installation charges until the construction loan is available.

HHDC understands that the Project is subject to BWS Cross-Connection Control and Backflow Prevention requirements, prior to the issuance of a building permit.

8.6.3 Wastewater

The average daily wastewater flow is based on 80 gallons per day per person of wastewater. The average daily wastewater flow calculations for the total 62 rental units are as follows:

47 one-bedroom units x 80 gallons/day = 3,760 gallons per day
(based on 1 person per one-bedroom unit)
15 studio units x 80 gallons/day = 1,200 gallons per day
Total: 3,760 + 1,200 = 4,960 gallons per day of wastewater flow.

A sewer connection permit application was approved by the Department of Planning and Permitting on January 8, 2015, subject to upgrading an existing 6-inch line in Tusitala Street to an 8-inch line. (**Appendix 6**)

The Department of Environmental Services (DES) in a letter dated April 23, 2015 (**Appendix 3 – Agency Pre-Consultation Comments**), commenting on the proposed DEA indicated that they have no comments at this time.

8.6.4 Drainage and Storm Water Quality

The property is relatively flat and covered with mostly grass, with a slight makai up-slope. Existing ground elevations range between 4.5 feet to 7.4 feet mean sea level (MSL). The average slope of the site is approximately 3.6 percent.

Much of this area will become hardscape with the planned parking and building improvements. However, the landscaping will be maintained along the perimeter of the site. Storm runoff will sheet flow onto this perimeter landscaping to encourage infiltration and improve storm water quality. The general distribution of storm runoff leaving the site will be maintained.

The Department of Facility Maintenance in a letter dated June 2, 2015 (**Appendix 3 – Agency Pre-Consultation Comments**), provided the following pre-consultation comments on the proposed DEA:

- Once construction phase commence, install approved Best Management Practices (BMP) fronting all drainage facilities that may be affected by construction runoff along Tusitala Street, Ala Wai Boulevard, Kaiulani Avenue, and Kapili Street.

- During construction and upon completion of the Project, any damages/deficiencies to Tusitala Street and Ala Wai Boulevard right-of-ways caused by HHDC or their contractors in the course of construction activities, including deliveries shall be corrected to City standards at the owner's (HHDC) cost.
- The contractor shall be responsible for clearing storm drain facilities to mitigate flooding during construction and remove BMP upon completion of the Project.

HHDC understands and will abide by these comments.

8.6.5 Solid Waste Disposal

The DES, Refuse Collection and Disposal Division manages solid waste disposal facilities for the Island of Oahu. There are two City solid waste disposal facilities: the H-POWER refuse to energy plant at Campbell Industrial Park and Waimānalo Gulch Landfill. PVT Land Company operates a privately owned and operated, licensed, solid waste facility for recovery of recyclable materials and disposal of construction and demolition materials. The PVT Landfill accepts wastes on a pre-arranged basis from haulers and contractors registered with them. Waste loads are screened with recyclable materials removed for sale/reuse and the remaining wastes land filled. The capacity of the PVT Landfill as currently licensed is about 20 years, with expansion areas available.

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

8.6.6 Public Schools

The proposed senior affordable rental development will not impact the local school system since no school age students will be living with the seniors.

The Department of Education (DOE) in a letter dated April 22, 2015 (**Appendix 3 – Agency Pre-Consultation Comments)**, commenting on the proposed DEA indicated that they do not anticipate that this project will have a significant impact on their facilities.

8.6.7 Parks

Kapiolani Regional Park is located approximately 0.7 miles east of the Project Site. Kuhio Beach is located approximately 0.4 miles south of the Project Site. Two mini parks are located close by (each about a quarter mile away), the Princess Kaiulani Triangle Park and an un-named mini park located at Kuhio Avenue and Liliuokalani Avenue. The Ala Wai Golf Course is located directly across the Ala Wai Canal, north of the Project Site. However, the entry to the Ala

Wai Golf Course is approximately 0.75 miles from the Project Site on Kapahulu Avenue.

The Department of Parks and Recreation (DPR) in a letter dated April 16, 2015 (**Appendix 3 – Agency Pre-Consultation Comments**), commenting on the proposed DEA indicated that they have no comment on the DEA and has no objection to the approval of the requested 201H Application. They further noted that as the proposed project will have no impact on any program or facility of the DPR, we may remove them as a consulted party to the balance of the environmental review (DEA/FEA) process.

8.6.8 Police

Initial response will be provided by patrol officers assigned to District 6, which operates out of the Police Substation located at 2405 Kalākaua Avenue next to Kūhiō Beach, approximately 0.6 miles away from the Project Site. The administrative offices for District 6 operate out of the Alapai Headquarters.

The Honolulu Police Department (HPD) in a letter dated April 21, 2015 (**Appendix 3 – Agency Pre-Consultation Comments**), commenting on the proposed DEA indicated that they have no concerns regarding the project at this time.

8.6.9 Fire

The Waikiki Fire Station 7 with its engine and ladder company will provide primary response in case of an emergency. The Waikiki Fire Station is located approximately a half mile away and will be able to quickly respond to a fire on the Project Site by traveling directly to the site on Ala Wai Boulevard.

The Honolulu Fire Department (HFD) in a letter dated April 23, 2015 (**Appendix 3 – Agency Pre-Consultation Comments**), commenting on the proposed DEA indicated that the following shall be met:

1. Fire department access roads shall be provided such that any portion of the facility or any portion of an exterior wall of the first story of the building is located not more than 150 feet from fire department access roads as measured by an approved route around the exterior of the building or facility (National Fire Protection Association [NFPA] 1, Uniform Fire Code [UFC]™, 2006 Edition, Section 18.2.3.2.2)

   A fire department access road shall extend to within 50 feet of at least one exterior door that can be opened from the outside and provides access to the interior of the building. (NFPA 1, UFC™ , 2006 Edition, Section 18.2.3.2.1)

2. A water supply, approved by the County, capable of supplying the required fire flow for fire protection, shall be provided to all premises upon which facilities or buildings or portions thereof, are hereafter constructed, or moved into or within the county. When any portion of a facility or building is in excess of 150 feet from a water supply on a fire apparatus access road, as measured by an approved route around the exterior of the facility or building, on-site fire hydrants and mains capable of supplying the required fire flow shall be provided when required by the AHJ [Authority Having Jurisdiction]. (NFPA 1, UFC™ , 2006 Edition, Section 18.2.3.4.1.1, as amended.)

3. The unobstructed width and unobstructed vertical clearance of a fire apparatus access road shall meet county requirements. (NFPA 1, UFC™ , 2006 Edition, Section 18.2.3.4.1.1, as amended.)

4. Submit civil drawings to HFD for review and approval.

HHDC will meet these four requirements.

8.6.10 Utilities

8.6.10.1 Electricity

HECO has existing power lines serving this area including the Project Site and HHDC will coordinate the timing of the development with HECO to ensure that the power lines will be adequate to support the Project and that HECO facilities are not be adversely impacted.

HHDC intends to design, maintain, and operate the Project employing best practices for energy efficiency and environmental sustainability for projects of its kind. HHDC will review all applicable LEED rating systems, use the certification standards as guidelines, and pursue certification when financially feasible.

8.6.10.2 Telephone

Hawaiian Telcom currently serves the Project Site and has existing utility service lines in the area. It is expected that these existing lines will continue to be used to service the Project.

8.6.10.3 Cable/Satellite Television and High-speed Internet Access

Cable/ television and high-speed internet access service is currently provided to Ainahau Vista and will service Ainahau Vista II.

8.7 ENVIRONMENTAL IMPACTS

8.7.1 Environmentally Sensitive Area

Since there is no endangered flora or fauna on the Project Site and no other environmentally sensitive features on the Project Site, the Project Site, except for potential burials, is not considered to be environmentally sensitive.

8.7.2 Historical and Archaeological Resources

The Project Site is not listed on the State or Federal Register of Historic Places. An Archaeological Inventory Survey was conducted on the entire property during the development of Ainahau Vista, titled "Archaeological Inventory Survey for the Tusitala Vista Elderly Apartments" (now known as Ainahau Vista), Waikiki, Kona District, O'ahu Island and dated December, 2004. Please refer to **Appendix 4** for complete report prepared by Cultural Surveys Hawaii.

Also included in **Appendix 4** is a copy of a letter from the Department of Land and Natural Resources (DLNR) , dated October 18, 2005, indicating their concurrence with Cultural Surveys Hawaii on their recommendation of "no further work" in regards to SIHP sites -6682, -6706 – 6707. The letter also concurs with the archaeologist recommendation of "monitoring" in view of the discovery of historic properties and fragmental human remains in the fill. Another letter from DLNR, dated November 28, 2005, states their acceptance of burial plans for the non-native Hawaiian fragments of human skeletal remains encountered during the archaeological inventory. On November 29, 2005 two bound copies of the accepted burial treatment plan were delivered to SHPD. The burial treatment plan was approved and a burial site at the northeast corner of the Project was approved.

As mentioned earlier, SHPD of the DLNR indicated that the submittal will require SHPD review under Hawaii Revised Statutes (HRS) §6E and possibly under the National Historic Preservation Act (NHPA) Section 106. Their letter went on to describe steps that HHDC needs to take to address Section 106 and their other requirements.

HHDC's archaeological consultant, Cultural Surveys Hawaii will work with SHPD to meet their requirements related to HRS §6E and NHPA Section 106 and SHPD's other requirements for the Project.

8.7.3 Natural Resources

8.7.3.1 Water Resources

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

8.7.3.2 Flood Plain Management

According to FEMA Flood Insurance Rate Map (FIRM) Panel 15003C0368G dated January 19, 2011, the Ainahau Vista II property is subject to FEMA Zone AE flooding with flood elevation of 6 feet. All units will be developed above the six foot elevations.

The Department of Land and Natural Resources, Engineering Division in a memo dated April 27, 2015 (**Appendix 3 – Agency Pre-Consultation Comments**), commented on the proposed DEA noting that the Project must comply with the rules and regulation of the National Flood Insurance Program presented in Title 44 of the Code of Federal Regulations. HHDC will comply with these rules and regulations and confirmed that the Project site is in Zone AE. They further requested that the water demands and infrastructure requirements to meet water demands be included in the DEA and that the water demands and calculations be provided to their division. The DEA will provide this information and a copy will be submitted to the Engineering Division.

8.7.3.3 Wetlands Protection

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

8.7.3.4 Coastal Zone Management

The development site is not within the City's Special Management Area, but is within the Coastal Zone Management area. The Project will not affect coastal resources as discussed in Section 8.8 of this DEA.

8.7.3.5 Unique Natural Features

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

8.7.3.6 Sole Source Aquifers

There is no designated "sole source aquifer" within the vicinity of the proposed Ainahau Vista II apartments. The location of our development falls within the

Nuuanu aquifer system that has a resource of 15 million gallons per day. The Board of Water Supply provides potable water for the development site and the existing water system is adequate to accommodate the proposed apartment building according to a BWS letter dated January 30, 2015.

8.7.3.7 Wild and Scenic Rivers Act – Federal

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

8.7.3.8 Agricultural Lands and Federal Farmland Protection Policy

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

8.7.3.9 Environmental Justice

The Environmental Protection Agency (EPA) defines Environmental Justice (EJ) as the "fair treatment for people of all races, cultures, and incomes, regarding the development of environmental laws, regulations and policies." HHDC will adhere to all the required City, State and Federal environmental laws in the development of Ainahau Vista II, an affordable elderly rental apartment building. Furthermore, the development of this Project is intended to improve the living standards and quality of life for those residents who fall within the 60% and below the area medium income (AMI).

8.7.3.10 Open Space

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

8.7.3.11 Topography and Soils

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

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

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

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

A geotechnical investigation was performed in May 2015 with two borings additional and testing. As expected pile foundations, similar to the first building, are being recommended. The three borings from the soils report and the foundations used for the first building gives comfort that the new building should not have any unexpected foundation surprises. The site is level and with no extraordinary soil conditions.

8.7.3.12 Noise (Acoustical) – Short Term

D.L. Adams Associates has prepared the "Environmental Noise Assessment Report Ainahau Vista II, Honolulu, Hawaii" for the Ainahau Vista II Project, Waikiki, Oahu, Hawaii" ("Noise Assessment") dated May 2015. The Noise Assessment in its entirety is provided in **Appendix 2**.

Chapter 5.0. Potential Noise Impacts, from that Noise Assessment, includes a discussion of potential short term noise impacts from the Project that is summarized as follows:

> The various construction phases of the project will generate significant amounts of noise and will need to comply with the requirements of the Department of Health (DOH). The project will involve excavation, grading, material handling, concrete mixing, and other typical construction activities. Pile driving activities are not planned for this project.

Chapter 6.0. Noise Impact Mitigation, from that Acoustic Study, includes a discussion of potential short noise mitigation for the Project that is summarized as follows:

> In cases where construction noise exceeds, or is expected to exceed the State's "maximum permissible" property line noise levels, a permit must be obtained from DOH to allow the operation of vehicles, cranes, construction equipment, power tools, etc., which emit noise levels in excess of the "maximum permissible" levels.
>
> The contractor should use reasonable and standard practices to mitigate noise, such as using mufflers on diesel and gasoline engines, using properly tuned and balanced machines, etc.

Compliance with DOH construction noise limits and curfew times, which are applicable throughout the State of Hawaii, will help to mitigate noise from construction activities.

8.7.3.13 Air Quality – Short Term

Short term impacts on air quality are expected to be primarily related to dust generated by the construction activity. Dust will be generated in the course of excavating for foundations and utility lines. Dust control measures appropriate to the situation will be employed by the contractor during construction, including active work areas will be watered at least twice daily on days without rainfall. Use of wind screens and/or limiting the area that is disturbed at any given time will also help to contain fugitive dust emissions. Dirt-hauling trucks will be covered when traveling on roadways. A routine road cleaning and/or tire washing program will also help to reduce fugitive dust emissions that may occur as a result of trucks tracking dirt onto paved roadways in the project area.

8.7.3.14 Traffic – Short Term

HHDC will prepare a construction management plan detailing plans during the construction phase to address impacts to pedestrians and vehicular traffic in the area.

8.7.3.15 Traffic Improvements – Long Term

The proposed 62-unit senior affordable rental project is not expected to have a significant impact on traffic or transportation with only 17 vehicle trips during the AM peak hour and 20 vehicle trips during the PM peak hour. As such, no mitigation measures were recommended by the Traffic Impact Assessment. The Project is located in an improved area with sidewalks along the streets, has public transit service within ¼ mile, and will provide shuttle service for many of the residents' local transportation needs. A full size on-site loading stall will be provided, as recommended by surrounding neighbors.

8.7.3.16 Noise (Acoustical) - Long Term Impacts

Chapter 5.0. Potential Noise Impacts, from that Noise Assessment, includes a discussion of potential long term noise impacts from the Project that is summarized as follows:

> The Ainahau Vista II development is proposed to be a senior rental development, which will likely incorporate stationary mechanical equipment, including air conditioning (HVAC) equipment, emergency generators, etc. Noise from this mechanical equipment and other equipment must meet the DOH noise regulations.

> Existing traffic noise level projections at the project's Ala Wai Boulevard facing façade are expected to approach the FHWA maximum noise limit of 67 dBA Leq(h) at all apartment units up to the 9th floor ("Normally Unacceptable"). Only the 9th floor Leq(h) level is predicted to be below 66 dBA. No noise impacts are expected on the Ewa, Diamond Head, or makai sides of the building ("Acceptable").
>
> Exterior design elements such as glazing and wall construction should be designed to comply with the U.S. Department of Housing and Urban Development (HUD) Ldn 45 dBA noise criteria inside the units.
>
> The Ewa and Diamond Head sides of the building are projected to have noise levels that also exceed HUD noise criteria. However, there are no exterior unit walls with glazing so these areas do not require noise mitigation. The exterior areas immediately adjacent to Ala Wai Boulevard will experience noise levels that are higher than the established HUD Criteria but future noise levels are expected to remain the same as the existing ambient noise environment. Since these exterior areas are not intended for recreational purposes or other activities, no additional noise mitigation measures will be required.

Chapter 6.0. Noise Impact Mitigation, from that Acoustic Study, includes a discussion of potential long term noise mitigation for the Project that is summarized as follows:

> The design of the Ainahau Vista II building should give consideration to controlling noise emanating from all stationary mechanical equipment such as air-cooled chillers, cooling towers, air-handling units, condensing units, emergency generators, etc. so as to comply with the State of Hawaii Community Noise Control Rules. Noisy equipment should be located away from neighboring properties and residential units, as much as possible. Enclosed mechanical rooms may be required for some equipment.
>
> Units overlooking Ala Wai Boulevard will experience relatively high noise levels due to traffic on Ala Wai Boulevard. The exterior wall should have a minimum rating of STC 50, which is typical of poured concrete in any thickness greater than 4 inches. HHDC construction will utilize 8-inch thick hollow tile wall with all cells filled in that will have a minimum rating of STC 50 as recommended. A minimum STC 35 rated window assembly, typical of a 1" IGU, should be considered to comply with the HUD interior noise design criteria for all units facing Ala Wai Boulevard. The window assembly typically degrades the STC rating of the glazing by 3 points, therefore STC requirements for the glass itself should be a minimum of STC 38. Smaller window sizes may reduce these STC requirements. HHDC will utilize rated window assemblies as recommended here.

The exterior areas immediately adjacent to Ala Wai Boulevard will experience noise levels that are higher than the established HUD Criteria but future noise levels are expected to remain the same as the existing ambient noise environment. Since these exterior areas are not intended for recreational purposes or other activities, no additional noise mitigation measures will be required.

8.7.4 Department of Health Standard Comments

The Department of Health (DOH) in a letter dated May 7, 2015 (**Appendix 3 – Agency Pre-Consultation Comments)**, commenting on the proposed DEA indicating that it should include a review of the standard comments and available strategies to support sustainable and healthy design. Our comments on the standard comments are listed in the sections that follow. Our comments on sustainable and healthy design are discussed in Section 8.7.4.8. Sustainability and Healthy Design.

8.7.4.1 Clean Air Branch

1. Construction/Demolition Involving Asbestos.

   Since the Project will be built on a vacant portion of the lot, there will be no construction/demolition involving asbestos.

2. Control of Fugitive Dust

   The applicant will prepare a dust control management plan and understands that the plan does not require DOH approval.

   Activities will comply with the provisions of HAR Section 11-60.1-33 on Fugitive Dust.

   The following measures will be considered as appropriate to control fugitive dust:

   a) Planning the different phases of construction, focusing on minimizing the amount of dust-generating materials and activities, centralizing on-site vehicular traffic routes, and locating potential dust-generating equipment in areas of least impact;
   b) Providing an adequate water source at the site prior to construction activities;
   c) Landscaping and providing rapid covering of bare areas, including slopes, starting from the initial grading phase;
   d) Minimizing dust from shoulders and access roads;
   e) Providing adequate dust control measures during weekends, after hours, and prior to daily start-up of construction activities; and
   f) Controlling dust from debris being hauled away from the project site.

8.7.4.2 Clean Water Branch

1. The applicant understands and will comply with applicable requirements of HAR Chapter 11-54.

2. Since the Project does not involve work performed in, over, and under navigable waters of the United States, the Project will not require a Department of the Army Permit and is not expected to require a 401 Water Quality Certification (WQC).

3. The Project will not require a National Pollutant Discharge Elimination System (NPDES) permit since the area of disturbance is anticipated to be less than one acre of total land area.

4. The applicant understands that all discharges related to the Project construction must comply with the State's Water Quality Standards.

5. The applicant understands and will comply with the monitoring requirements, if applicable and further understands the enforcement and penalties that could occur.

6. The applicant does not expect this Project to involve polluted runoff control as outlined in the State's Coastal Nonpoint Pollution Control Management Plan or Hawaii's Implementation Plan for Polluted Runoff Control.

8.7.4.3 Hazard Evaluation & Emergency Response Office

1. Phase I Environmental Site Assessment was performed by Global Environmental Services Group, LLC (GESG) on the Project site and a report prepared on January 29, 2004 **Appendix 7**. Based on the investigation of the property for evidence of recognized environmental conditions, GESG had no immediate recommendations for further assessment or investigations. During construction it is recommended that any subsurface soil excavation be monitored for any abnormal objects or substances.

2. The applicant intends to follow the recommendations made by the DOH in its standard comments, and to comply with applicable sections of Chapter 128D, Environmental Response Law, HRS, and Title 11, Chapter 451 of the Hawaii Administrative rules (HAR) State Contingency Plan.

3. The Project site does not involve lands formerly used in the production of sugar cane.

4. The applicant will seek a "no further action" letter if necessary, prior to permit approval.

8.7.4.4 Noise Radiation & Indoor Air Quality Branch Standard Comments

The Project will comply with applicable requirements of the following Administrative Rules of the Department of Health:

- Chapter 11-39 Air Conditioning and Ventilating
- Chapter 11-45 Radiation Control
- Chapter 11-46 Community Noise Control

8.7.4.5 Safe Drinking Water Branch

The Project does not involve development or actions affecting a public water system, except for a water line lateral (connection) for service off the municipal system. The Project does not involve an underground injection well, nor does it involve development of a Golf Course. Therefore, our understanding is that the standard comments of the Safe Drinking Water Branch are not applicable to the Project.

8.7.4.6 Solid and Hazardous Waste Branch

Hazardous Waste Program

The applicant does not anticipate the Project to involve the handling of hazardous waste. In the event any hazardous waste is involved in any aspect of the Project, the applicant will comply with the regulations set forth in Chapters 11-260 to 11-280 HAR.

Solid Waste Section

The Project will not involve the development of a solid waste disposal, recycling, reclamation or transfer system. The applicant may have a small on-site recycling program. As a generator of solid waste the applicant will ensure that all wastes are delivered to permitted solid waste management facilities.

Office of Solid Waste Management

The applicant will encourage recycling by providing designated trash bins for recycling.
Underground Storage Tanks

The applicant is not currently aware of the need to close or remove any underground storage tanks in connection with the development of the Project, nor does the applicant plan to install an underground storage tank.

8.7.4.7 Wastewater Branch

The Project will be connected to the City's municipal sewer system. The applicant understands that the DOH Wastewater Branch has no comments to offer at this time.

8.7.4.8 Sustainability and Healthy Design

HHDC intends to design, maintain, and operate the Project employing best practices for energy efficiency and environmental sustainability for projects of its kind. HHDC will review all applicable LEED rating systems, use the certification standards as guidelines, and pursue certification when financially feasible. HHDC will implement low-flow plumbing fixtures, explore waterless urinals, and incorporate efficient landscape irrigation systems in an effort to further reduce wastewater and potable water demands. HHDC will reduce material waste through effective construction and operational recycling programs. LEED (Leadership in Energy and Environmental Design) is an internationally recognized building certification system intended to provide building owners and operators a concise framework for identifying and implementing practical and measurable green building design, construction, operations and maintenance solutions.

8.7.4.9 Visual Impacts

The proposed structure will have a finished height of 80 feet which is well below the 240-foot height limit in this Apartment Precinct. Since the Project Site is currently a vacant lot, the proposed Ainahau Vista II will block some mauka and Ala Wai Canal views from existing apartment buildings makai of the subject site, including Ainahau Vista. The proposed development will not affect important public views.

8.8 COASTAL ZONE MANAGEMENT

The Project Site is within the coastal zone management area, but not within the City's Special Management Area. As such, a Special Management Area Use Permit will not be required, and the Project is not subject to permit requirements under Chapter 25, Revised Ordinances of Honolulu.

The Project is located about 1,500 feet from the shoreline between Tusitala Street and Ala Wai Boulevard. The proposed development will not affect protected coastal views, coastal recreation, coastal ecosystems, or coastal hazards.

The following sections provide a description of how the Project complies with the Coastal Zone Management objectives and policies as detailed in HRS § 205A-2:

8.8.1 Objectives

8.8.1.1 Recreational resources

"Provide coastal recreational opportunities accessible to the public."

The Project will not affect coastal recreational opportunities accessible to the public, since the Project Site is located 1,500 feet from the shoreline between Tusitala Street and Ala Wai Boulevard. Extensive public access to the shoreline is provided from the Police Substation on Kalakaua Avenue next to the Diamond Head Tower all the way to the Kaimana Beach Hotel, a distance of about 0.9 miles.

8.8.1.2 Historic resources

"Protect, preserve, and, where desirable, restore those natural and manmade historic and prehistoric resources in the coastal zone management area that are significant in Hawaiian and American history and culture."

The existing apartment building on the Project Site is about 8 years old and is not listed on either the State or Federal Register of Historic Properties, nor are they considered potential candidates for either register.

8.8.1.3 Scenic and open space resources

"Protect, preserve, and, where desirable, restore or improve the quality of coastal scenic and open space resources."

The Project will not affect the quality of coastal scenic and open space resources since the Project Site is located 1,500 feet from the shoreline between Tusitala Street and Ala Wai Boulevard.

8.8.1.4 Coastal ecosystems

"Protect valuable coastal ecosystems, including reefs, from disruption and minimize adverse impacts on all coastal ecosystems."
The Project will not affect the coastal ecosystem since the Project Site is located 1,500 feet from the shoreline between Tusitala Street and Ala Wai Boulevard.

8.8.1.5 Economic uses

"Provide public or private facilities and improvements important to the State's economy in suitable locations."

The Project will provide a new affordable senior rental development in an area of condominium and rental apartments on a lot with an existing affordable senior

rental development. The Project will generate new constructions jobs for the City and State.

8.8.1.6 Coastal hazards

"Reduce hazard to life and property from tsunami, storm waves, stream flooding, erosion, subsidence, and pollution."

According to FEMA Flood Insurance Rate Map (FIRM) Panel 15003C0368G dated January 19, 2011, the Ainahau Vista II property is subject to FEMA Zone AE flooding with flood elevation of 6 feet. All units will be developed above the six foot elevations.

The Project will comply with the rules and regulations of the National Flood Insurance Program presented in Title 44 of the Code of federal Regulations (44CFR). The Project will also comply with applicable flood ordinances of the City.

8.8.1.7 Managing development

"Improve the development review process, communication, and public participation in the management of coastal resources and hazards."

The DEA process provided an opportunity for public participation in the management of coastal resources and hazards.

8.8.1.8 Public Participation

"Stimulate public awareness, education, and participation in coastal management."

This DEA process provided a stimulus for the public to understand and participate in the management of coastal resources and hazards.

8.8.1.9 Beach protection

"Protect beaches for public use and recreation."

The Project located on Ala Wai Boulevard is located about 1,580 feet mauka of the shoreline will not affect the public's use of the beaches and ocean recreation areas.

8.8.1.10 Marine resources

"Promote the protection, use, and development of marine and coastal resources to assure their sustainability."

The seniors that are mobile may enjoy the marine resources at Waikiki and their continued use of these resources will help to assure their sustainability.

8.8.2 Policies

8.8.2.1 Recreational resources

(A) *"Improve coordination and funding of coastal recreational planning and management; and"*

This represents a State action/function which is well served by the Office of State Planning and the Department of Land and Natural Resources.

(B) *"Provide adequate, accessible, and diverse recreational opportunities in the coastal zone management area by:"*

(i) "Protecting coastal resources uniquely suited for recreational activities that cannot be provided in other areas;"
The Project will not affect coastal resources, since it is located 1,580 feet mauka of the shoreline.

(ii) "Requiring replacement of coastal resources having significant recreational value including, but not limited to surfing sites, fishponds, and sand beaches, when such resources will be unavoidably damaged by development; or requiring reasonable monetary compensation to the State for recreation when replacement is not feasible or desirable;"
The Project will not damage coastal resources and will not trigger this requirement for replacement of such resources or monetary compensation.

(iii) "Providing and managing adequate public access, consistent with conservation of natural resources, to and along shorelines with recreational value;"
Extensive public access to the shoreline is provided from the Police Substation on Kalakaua Avenue next to the Diamond Head Tower all the way to the Kaimana Beach Hotel, a distance of about 0.9 miles.

(iv) "Providing an adequate supply of shoreline parks and other recreational facilities suitable for public recreation;"
Shoreline parks and other recreation facilities are provided in Waikiki and along Kuhio Beach, extensive access provides continuous access along the shoreline.

(v) "Ensuring public recreational uses of county, state, and federally owned or controlled shoreline lands and waters having recreational value consistent with public safety standards and conservation of natural resources;"
The State and City have provided excellent beach access and recreational use along this portion of Kuhio Beach.

(vi) "Adopting water quality standards and regulating point and nonpoint sources of pollution to protect, and where feasible, restore the recreational value of coastal waters;"
The State and City have such standards in place and have established such standards and does regulate drainage to protect the quality of coastal waters, particularly in areas where water quality is not up to the desired standard.

(vii) "Developing new shoreline recreational opportunities, where appropriate, such as artificial lagoons, artificial beaches, and artificial reefs for surfing and fishing; and"
The Project located 1,580 feet mauka of the shoreline will not provide new shoreline recreational opportunities.

(viii) "Encouraging reasonable dedication of shoreline areas with recreational value for public use as part of discretionary approvals or permits by the land use commission, board of land and natural resources, and county authorities; and crediting such dedication against the requirements of section 46-6;"
It would not be reasonable to require dedication of a shoreline area for this Project and dedication requirements of section 46-6 would not be triggered in this action.

8.8.2.2 Historic resources

(A) *"Identify and analyze significant archaeological resources;"*

The Project Site is not listed on the State or Federal Register of Historic Places.

An Archaeological Inventory Survey was conducted on the entire property during the development of Ainahau Vista, titled "Archaeological Inventory Survey for the Tusitala Vista Elderly Apartments" (now known as Ainahau Vista), Waikiki, Kona District, O'ahu Island and dated December, 2004. Please refer to **Appendix 4** for complete report prepared by Cultural Surveys Hawaii.

Also included in **Appendix 4** is a copy of a letter from the Department of Land and Natural Resources (DLNR) , dated October 18, 2005, indicating their concurrence with Cultural Surveys Hawaii on their recommendation of "no further work" in regards to SIHP sites -6682, -6706 – 6707. The letter also concurs with the archaeologist recommendation of "monitoring" in view of the discovery of historic properties and fragmental human remains in the fill. Another letter from DLNR, dated November 28, 2005, states their acceptance of burial plans for the non-native Hawaiian fragments of human skeletal remains encountered during the archaeological inventory. On November 29, 2005 two bound copies of the accepted burial treatment plan were delivered to SHPD. The burial

treatment plan was approved and a burial site at the northeast corner of the Project was approved.

As mentioned earlier, SHPD of the DLNR indicated that the submittal will require SHPD review under Hawaii Revised Statutes (HRS) §6E and possibly under the National Historic Preservation Act (NHPA) Section 106. Their letter went on to describe steps that HHDC needs to take to address Section 106 and their other requirements.

HHDC's archaeological consultant, Cultural Surveys Hawaii will work with SHPD to meet their requirements related to HRS §6E and NHPA Section 106 and SHPD's other requirements for the Project.

(B) *"Maximize information retention through preservation of remains and artifacts or salvage operations; and"*

As mentioned earlier, a letter from DLNR, dated November 28, 2005, states their acceptance of burial plans for the non-native Hawaiian fragments of human skeletal remains encountered during the archaeological inventory. On November 29, 2005 two bound copies of the accepted burial treatment plan were delivered to SHPD. The burial treatment plan was approved and a burial site at the northeast corner of the Project was approved.

(C) *"Support state goals for protection, restoration, interpretation, and display of historic resources;"*

HHDC supports these State goals, and has taken this opportunity to find, protect, interpret and reinter historic resources.

8.8.2.3 Scenic and open space resources

(A) *"Identify valued scenic resources in the coastal zone management area;"*

The Project site located 1,580 feet from the shoreline, does not provide or contain any valued scenic resources.

(B) *"Ensure that new developments are compatible with their visual environment by designing and locating such developments to minimize the alteration of natural landforms and existing public views to and along the shoreline;"*

The Project site located 1,580 feet from the shoreline will not affect existing public views to and along the shoreline and being on a fairly level disturbed lot will not result in the alteration of natural landforms.

(C) *"Preserve, maintain, and, where desirable, improve and restore shoreline open space and scenic resources; and"*

The Project will not affect shoreline open space or scenic resources.

(D) *"Encourage those developments that are not coastal dependent to locate in inland areas;"*

This Project is not coastal dependent and is located 1,580 feet inland.

8.8.2.4 Coastal ecosystems

(A) *"Exercise an overall conservation ethic, and practice stewardship in the protection, use, and development of marine and coastal resources;"*

This Project is located 1,580 feet inland from the shoreline and will not affect the protection, use, and development of marine and coastal resources.

(B) Improve the technical basis for natural resource management;

This Project located 1,580 feet inland from the shoreline does not provide an opportunity or nexus for providing technical information on natural resource management.

(C) Preserve valuable coastal ecosystems, including reefs, of significant biological or economic importance;

This Project will not affect the valuable coastal ecosystem, being 1,580 feet inland from the shoreline.

(D) Minimize disruption or degradation of coastal water ecosystems by effective regulation of stream diversions, channelization, and similar land and water uses, recognizing competing water needs; and

This Project does not involve stream diversion, channelization or similar land and water uses involving competing water needs.

(E) Promote water quantity and quality planning and management practices that reflect the tolerance of fresh water and marine ecosystems and maintain and enhance water quality through the development and implementation of point and nonpoint source water pollution control measures;

This Project, has been reviewed by BWS and they have determined that the municipal system is adequate to support the proposed affordable senior rental housing.

8.8.2.5 Economic uses

(A) Concentrate coastal dependent development in appropriate areas;

The Project is not a coastal dependent development and is appropriately located 1,580 feet from the shoreline.

(B) Ensure that coastal dependent development such as harbors and ports, and coastal related development such as visitor industry facilities and energy generating facilities, are located, designed, and constructed to minimize adverse social, visual, and environmental impacts in the coastal zone management area; and

The Project is not a coastal dependent development and is appropriately located 1,580 feet from the shoreline.

(C) Direct the location and expansion of coastal dependent developments to areas presently designated and used for such developments and permit reasonable long-term growth at such areas, and permit coastal dependent development outside of presently designated areas when:

(i) Use of presently designated locations is not feasible;
(ii) Adverse environmental effects are minimized; and
(iii) The development is important to the State's economy;

The Project at its present location is feasible and not located along or near the shoreline (1,580 feet mauka). The Project will result in an economic and job-creating stimulus for the local economy, during the construction period. The Project will also result in an affordable senior rental housing development. Adverse environmental effects are minimized with this development.

8.8.2.6 Coastal hazards;

(A) Develop and communicate adequate information about storm wave, tsunami, flood, erosion, subsidence, and point and nonpoint source pollution hazards;

Waikiki has an emergency warning system, including sirens to announce storm wave, tsunami and flood events. The applicant also has emergency evacuation procedures in the event of one of these events. Subsidence events have occurred in Waikiki and developers and contractors have

developed ways to minimize impacts from subsidence (shifting of the ground from ground water removal). The City and State have policies in place to deal with point and nonpoint source pollution hazards, in the form of required permits.

(B) Control development in areas subject to storm wave, tsunami, flood, erosion, hurricane, wind, subsidence, and point and nonpoint source pollution hazards;

According to FEMA Flood Insurance Rate Map (FIRM) Panel 15003C0368G dated January 19, 2011, the Ainahau Vista II property is subject to FEMA Zone AE flooding with flood elevation of 6 feet. All units will be developed above the six foot elevations.

(C) Ensure that developments comply with requirements of the Federal Flood Insurance Program; and

The Project will comply with the rules and regulations of the National Flood Insurance Program presented in Title 44 of the Code of federal Regulations (44CFR). The Project will also comply with applicable flood ordinances of the City.

(D) Prevent coastal flooding from inland projects;

This Project is not within a coastal flood zone and should not be affected by coastal flooding.

8.8.2.7 Managing development;

(A) Use, implement, and enforce existing law effectively to the maximum extent possible in managing present and future coastal zone development;

The Project will follow existing law in relation to development within the coastal zone management area, and as discussed in this section meets its policies.

(B) Facilitate timely processing of applications for development permits and resolve overlapping or conflicting permit requirements; and

The Project is being processed on a timely basis with the processing of this initial environmental review.

(C) Communicate the potential short and long-term impacts of proposed significant coastal developments early in their life cycle and in terms understandable to the public to facilitate public participation in the planning and review process;

This Project is not a coastal development.

8.8.2.8 Public participation;

(A) Promote public involvement in coastal zone management processes;

This policy is probably directed towards State and County agencies.

(B) Disseminate information on coastal management issues by means of educational materials, published reports, staff contact, and public workshops for persons and organizations concerned with coastal issues, developments, and government activities; and

Again appears to be more a State and County agency responsibility. This DEA provides a discussion of coastal management zone guidelines and policies and the Project's compliance with these in a report that will be available to the public on OEQC's website and at DPP's office.

(C) Organize workshops, policy dialogues, and site-specific mediations to respond to coastal issues and conflicts;

A State and County agency policy. Due to the location of this Project, 1,580 feet from the shoreline, coastal issues and conflicts do not occur.

8.8.2.9 Beach protection;

(A) Locate new structures inland from the shoreline setback to conserve open space, minimize interference with natural shoreline processes, and minimize loss of improvements due to erosion;

The Project with its new affordable senior rental development structure is located 1,580 feet inland from the shoreline and will not affect shoreline processes or potential loss of improvements due to erosion.

(B) Prohibit construction of private erosion-protection structures seaward of the shoreline, except when they result in improved aesthetic and engineering solutions to erosion at the sites and do not interfere with existing recreational and waterline activities;

This Project does not involve erosion-protection structures.

(C) Minimize the construction of public erosion-protection structures seaward of the shoreline;

This Project does not involve erosion-protection structures.

(D) Prohibit private property owners from creating a public nuisance by inducing or cultivating the private property owner's vegetation in a beach transit corridor; and

This Project does not involve inducing or cultivating vegetation in a beach transit corridor.

(E) Prohibit private property owners from creating a public nuisance by allowing the private property owner's unmaintained vegetation to interfere or encroach upon a beach transit corridor;

This Project does not involve a beach transit corridor or any encroachments to such a corridor.

8.8.2.10 Marine resources;

(A) Ensure that the use and development of marine and coastal resources are ecologically and environmentally sound and economically beneficial;

This Project does not involve the use or development of coastal resources.

(B) Coordinate the management of marine and coastal resources and activities to improve effectiveness and efficiency;

This Project does not affect marine and coastal resources or activities.

(C) Assert and articulate the interests of the State as a partner with federal agencies in the sound management of ocean resources within the United States exclusive economic zone;

This policy should be implemented by the State.

(D) Promote research, study, and understanding of ocean processes, marine life, and other ocean resources to acquire and inventory information necessary to understand how ocean development activities relate to and impact upon ocean and coastal resources; and

Another policy that should be implemented by the State.

(E) Encourage research and development of new, innovative technologies for exploring, using, or protecting marine and coastal resources.

Another policy that should be implemented by the State.

8.9 CUMULATIVE IMPACTS WITH OTHER RELATED PROJECTS

Of the projects planned in Waikiki, there are some that are situated quite a distance from the Project site and are not expected to significantly affect the portion of Ala Wai Boulevard that will serve as the major thoroughfare that will provide access to Tusitala Street which serves the project. These include Grays Beach, Hilton Hawaiian Village, Waikiki Landing, 2121 Kuhio and 2139 Kuhio (the two Ritz Carlton developments) and Waikiki Parc Hotel.

The projects located in closer proximity to the Project site and that could utilize the portion of Ala Wai Boulevard that serves this development include Princess Kaiulani and Diamond Head Tower, the Royal Hawaiian Market Place, the International Market Place, and 133 Kaiulani (King's Village) developments. The Royal Hawaiian Market Place is a smaller project located about 0.4 miles away and is not expected to have a significant cumulative impact, even if construction schedules overlap. The International Market Place is currently under construction and is expected to be completed by the time ground breaking occurs for the Project. Princess Kaiulani, Diamond Head Tower and 133 Kaiulani developments could be under construction at the same time as the Project, and if this occurs, HHDC will contact the other developments to coordinate construction activities to manage disruptions to the street system that could occur if major concrete pours or street/lane closures occur at the same time.

8.10 POPULATION AND GROWTH IMPACTS

The Project, when completed, will have an impact on the number of permanent residents in Waikiki, adding about 62 residents, given the typical occupancy of the senior units. However, it will not affect the visitor population, as it is planned as an affordable residential project geared to seniors earning at or below 60% of the AMI.

8.11 CULTURAL IMPACT ASSESSMENT

Cultural Surveys Hawaii, Inc. prepared a "Cultural Impact Evaluation for the Tusitala Vista Elderly Apartments" (now Ainahau Vista), Waikiki, Kona District, Oahu Island, dated December 2004. Please refer to **Appendix 8** of this report. The following is an excerpt from the Section on "Summary and Recommendations":

"None of the community contacts queried for this cultural impact evaluation identified any ongoing cultural practices within the project area.

It is possible that intact prehistoric and early contact cultural deposits are lying undisturbed beneath modern fill layers within the project parcel. Other possible deposits may be associated with nineteenth century Hawaiian royalty.

Based on the above findings, it is recommended that no further cultural impact mitigation measures are warranted."

Previously identified non-Native Hawaiian fragments of human skeletal remains were encountered on this property during the permitting process for Ainahau Vista. HHDC went before the Burial Counsel and a burial treatment plan was approved in a letter from DLNR to Cultural Surveys Hawaii Inc. on November 28, 2006. Please see **Appendix 4**.

Based on the findings and recommendation of the archaeological inventory survey, an archaeological monitoring program will be implemented with on-site and on-call monitoring of initial subsurface impacts.

9. CONFORMANCE WITH SMA GUIDELINES

The Project Site is not within the City's Special Management Area, as such, a Special Management Area Use Permit will not be required for this development.

9.1 TERMS AND CONDITIONS OF DEVELOPMENT

• **Adequate access, by dedication or other means, to publicly owned or used beaches, recreation areas and natural reserves is provided to the extent consistent with sound conservation principles.** The proposed Project will not adversely impact access to any public recreation area or shoreline. Tusitala Street is located about 1,360 feet from the shoreline and will not have an impact on access to the shoreline.

• **Adequate and properly located public recreation areas and wildlife preserves are reserved.** The Project's distance from the shoreline will ensure protection of existing public recreation and access areas along the shoreline. There are no wildlife preserves in close proximity to the Ainahau Vista II.

• **Provisions are made for solid and liquid waste treatment, disposition and management which will minimize adverse effects upon special management area resources.** Ainahau Vista II will not be located within the Special Management Area of the island.

• **Alterations to existing land forms and vegetation, except crops, and construction of structures shall cause minimum adverse effect to water resources and scenic and recreational amenities and minimum danger of floods, landslides, erosion, siltation or failure in the event of earthquake.** The Project is in a highly urbanized area with no significant land forms, water resources or scenic and recreational amenities nearby that would be affected by the Project. The proposed Ainahau Vista II development will not affect the current potential for or impact from floods, landslides, erosion, siltation or failure in the event of earthquake.

9.2 REQUIRED COUNCIL FINDINGS

• **The development will not have any substantial adverse environmental or ecological effect except as such adverse effect is minimized to the extent practicable and clearly outweighed by public health and safety, or compelling public interest.** As discussed throughout this DEA, this nine-story affordable senior apartment development is not expected to have substantial environmental or ecological effects due to (i) its 80-foot

height in an Apartment Precinct with a height limit of 240 feet; and (ii) its location among existing apartment and condominium developments. Drainage impacts during construction of the Project will be mitigated to ensure that no adverse impact to the coastal waters will occur.

• **The development is consistent with the objectives and policies set forth in Section 25-3.1 and area guidelines contained in HRS Section 205A-26.** ROH Sec. 25-3.1 provides that the objectives and policies of ROH Chapter 25 shall be those contained in HRS Section 205A-2. The Project is consistent with policy HRS 205A-2(b)(5)(A), which states "Provide public or private facilities and improvements important to the State's economy in suitable locations." The Project will be important to the State and City's economy in many different respects. It will be located in an Apartment Precinct in Waikiki that is suitable for this development and will assist with the local economy by offering homes the seniors earning 60% or below the AMI. New construction jobs will be created during development, and afterward jobs will be created relating to security, management and numerous maintenance positions.

• **The development is consistent with the county general plan, development plans and zoning.** The proposed Ainahau Vista II will be consistent with the County General Plan, Development Plan and Zoning.

General Plan

The Project's compliance with the objectives and policies of the O'ahu General Plan are provided in Section 7.2 of this DEA.

PUCDP

The Project's compliance with the objectives and policies of the PUCDP and the PUCDP Land Use Map are provided in Sections 7.3 and 7.4, respectively of this DEA.

Zoning

The Project is within the Apartment Precinct with a 240-foot height limit. The proposed use is consistent with this zoning precinct, which allows apartments and condominiums. Conceptual Plans of the Project, providing verification of compliance with the development standards of the Resort Mixed Use Precinct, are provided in **Appendix 1**.

10. RELATIONSHIP BETWEEN LOCAL SHORT-TERM USES OF HUMANITY'S ENVIRONMENT AND THE MAINTENANCE OF LONG-TERM PRODUCTIVITY

The development of Ainahau Vista II for seniors earning at or below 60% of the AMI will contribute to the long-term productivity of this otherwise vacant lot.

11. DESCRIPTION OF IRREVERSIBLE AND IRRETRIEVABLE COMMITMENTS OF RESOURCES

The Project Site has long been designated as an Apartment Precinct. The proposed Ainahau Vista II represents an irreversible and irretrievable commitment of the land as an Apartment Precinct. The existing vacant property is in need of development to ensure its continued economic viability.

12. PROBABLE ADVERSE ENVIRONMENTAL EFFECTS WHICH CANNOT BE AVOIDED

Some of the probable adverse effects which cannot be avoided include the following:

12.1 DISPLACEMENT OF EXISTING TENANTS

Ainahau Vista II will be developed on a vacant lot, therefore there will be no displacement of existing tenants.

12.2 CONSTRUCTION IMPACTS

12.2.1 Construction Noise

D.L. Adams Associates has prepared the "Environmental Noise Assessment Report Ainahau Vista II, Honolulu, Hawaii" for the Ainahau Vista II Project, Waikiki, Oahu, Hawaii" ("Noise Assessment") dated May 2015. The Noise Assessment in its entirety is provided in **Appendix 2**.

Chapter 5.0. Potential Noise Impacts, from that Noise Assessment, includes a discussion of potential short term noise impacts from the Project that is summarized as follows:

> The various construction phases of the project will generate significant amounts of noise and will need to comply with the requirements of the Department of Health (DOH). The project will involve excavation, grading, material handling, concrete mixing, and other typical construction activities. Pile driving activities are not planned for this project.

12.2.2 Construction Impact on Air Quality

Short term impacts on air quality are expected to be primarily related to dust generated by the construction activity. Dust will be generated in the course of excavating for foundations and utility lines.

12.2.3 Construction Impact on Traffic and Pedestrians

During the construction phase there will be impacts to pedestrians and vehicular traffic in the area.

12.3 Noise (Acoustical) Long Term Impacts

Chapter 5.0. Potential Noise Impacts, from that Noise Assessment, includes a discussion of potential long term noise impacts from the Project that is summarized as follows:

The Ainahau Vista II development is proposed to be a senior rental development, which will likely incorporate stationary mechanical equipment, including air conditioning (HVAC) equipment, emergency generators, etc. Noise from this mechanical equipment and other equipment must meet the DOH noise regulations.

Existing traffic noise level projections at the project's Ala Wai Boulevard facing façade are expected to approach the FHWA maximum noise limit of 67 dBA Leq(h) at all apartment units up to the 9th floor ("Normally Unacceptable"). Only the 9th floor Leq(h) level is predicted to be below 66 dBA. No noise impacts are expected on the Ewa, Diamond Head, or makai sides of the building ("Acceptable").

Exterior design elements such as glazing and wall construction should be designed to comply with the U.S. Department of Housing and Urban Development (HUD) Ldn 45 dBA noise criteria inside the units.

The Ewa and Diamond Head sides of the building are projected to have noise levels that also exceed HUD noise criteria. However, there are no exterior unit walls with glazing so these areas do not require noise mitigation.

The exterior areas immediately adjacent to Ala Wai Boulevard will experience noise levels that are higher than the established HUD Criteria but future noise levels are expected to remain the same as the existing ambient noise environment. Since these exterior areas are not intended for recreational purposes or other activities, no additional noise mitigation measures will be required.

13. MITIGATION MEASURES

13.1 CONSTRUCTION PRACTICES

13.1.1 Noise

D.L. Adams Associates has prepared the "Environmental Noise Assessment Report Ainahau Vista II, Honolulu, Hawaii" for the Ainahau Vista II Project, Waikiki, Oahu, Hawaii" ("Noise Assessment") dated May 2015. The Noise Assessment in its entirety is provided in **Appendix 2**.

Chapter 6.0. Noise Impact Mitigation, from that Acoustic Study, includes a discussion of potential short term noise mitigation for the Project that is summarized as follows:

> In cases where construction noise exceeds, or is expected to exceed the State's "maximum permissible" property line noise levels, a permit must be obtained from DOH to allow the operation of vehicles, cranes, construction equipment, power tools, etc., which emit noise levels in excess of the "maximum permissible" levels.
>
> The contractor should use reasonable and standard practices to mitigate noise, such as using mufflers on diesel and gasoline engines, using properly tuned and balanced machines, etc.

Compliance with DOH construction noise limits and curfew times, which are applicable throughout the State of Hawaii, will help to mitigate noise from construction activities.

13.1.2 Air Quality

Short term impacts on air quality are expected to be primarily related to dust generated by the construction activity. Dust will be generated in the course of excavating for foundations and utility lines. Dust control measures appropriate to the situation will be employed by the contractor during construction, including active work areas will be watered at least twice daily on days without rainfall. Use of wind screens and/or limiting the area that is disturbed at any given time will also help to contain fugitive dust emissions. Dirt-hauling trucks will be covered when traveling on roadways. A routine road cleaning and/or tire washing program will also help to reduce fugitive dust emissions, that may occur as a result of trucks tracking dirt onto paved roadways in the project area.

13.1.3 Traffic

HHDC will prepare a construction management plan detailing plans during the construction phase to address impacts to pedestrians and vehicular traffic in the area.

13.2 Noise (Acoustic) Long Term

Chapter 6.0. Noise Impact Mitigation, from that Acoustic Study, includes a discussion of potential long term noise mitigation for the Project that is summarized as follows:

> The design of the Ainahau Vista II building should give consideration to controlling noise emanating from all stationary mechanical equipment such as air-cooled chillers, cooling towers, air-handling units, condensing units, emergency generators, etc. so as to comply with the State of Hawaii Community Noise Control Rules. Noisy

equipment should be located away from neighboring properties and residential units, as much as possible. Enclosed mechanical rooms may be required for some equipment.

Units overlooking Ala Wai Boulevard will experience relatively high noise levels due to traffic on Ala Wai Boulevard. The exterior wall should have a minimum rating of STC 50, which is typical of poured concrete in any thickness greater than 4 inches. HHDC construction will utilize 8-inch thick hollow tile wall with all cells filled in that will have a minimum rating of STC 50 as recommended. A minimum STC 35 rated window assembly, typical of a 1" IGU, should be considered to comply with the HUD interior noise design criteria for all units facing Ala Wai Boulevard. The window assembly typically degrades the STC rating of the glazing by 3 points, therefore STC requirements for the glass itself should be a minimum of STC 38. Smaller window sizes may reduce these STC requirements. HHDC will utilize rated window assemblies as recommended here.

The exterior areas immediately adjacent to Ala Wai Boulevard will experience noise levels that are higher than the established HUD Criteria but future noise levels are expected to remain the same as the existing ambient noise environment. Since these exterior areas are not intended for recreational purposes or other activities, no additional noise mitigation measures will be required.

13.3 TRAFFIC IMPROVEMENTS

The proposed 62-unit senior affordable rental project is not expected to have a significant impact on traffic or transportation with only 17 vehicle trips during the AM peak hour and 20 vehicle trips during the PM peak hour. As such, no mitigation measures were recommended by the Traffic Impact Assessment. The Project is located in an improved area with sidewalks along the streets, has public transit service within ¼ mile, and will provide shuttle service for many of the residents' local transportation needs. A full size on-site loading stall will be provided, as recommended by surrounding neighbors.

14. SUMMARY OF UNRESOLVED ISSUES

There will be further action required with respect to the following unresolved issues:

- A WSD Permit, Minor application will be submitted for review and approval by DPP.
- Building Permit applications will be submitted for review and approval by DPP.
- A Drain Connection application will be submitted for review and approval by DPP.
- A Site Development Division Master Application for Sewer Connection will be submitted for review and approval by DPP.
- A Street Usage application will be submitted for review and approval by DPP.
- A Construction Plan Approval application will be submitted for review and approval by DPP.
- State: Construction Noise Permit application will be submitted for review and approval by the Department of Health.

15. COMMUNITY INPUT

15.1 WAIKIKI NEIGHBORHOOD BOARD

The Project was presented to the Waikiki Neighborhood Board by Keith Kurahashi on the evening of November 18, 2014. Notification letters, to all adjoining property owners, were mailed on November 5, informing them of the upcoming Waikiki Neighborhood Board presentation on Ainahau Vista II (**Appendix 9**). The following comments and questions were presented by Board members and members of the audience:

1. Parking Exemptions: Merz and Smith voiced support for the parking exemption request.
2. Density: Merz noted the sensible use of land is important, and asked how much of a density exemption was asked.
3. Visual of Building: Erteschik asked for a visual representation of the building after exemptions. *This was presented at a follow up Board meeting in January 2015.*
4. Room Size: Williams voiced concern about the small size of the rooms, and Flood voiced concern about noise issues if the rooms were small. *The small rooms (277 square feet) have been eliminated and rooms are now at least 377 square feet in size.*
5. Sacred Land: Resident Grace Chien noted Ainahau is a sacred place for many Hawaiians, and voiced concern about the preservation of the sacred land. Kurahashi noted HHDC will work with DLNR to ensure preservation of any sacred artifacts found on the land. Kurahashi noted for Loo that the sacred statue and plaque were placed there and HHDC will request that they be relocated. A resident voiced agreements with Chien's concerns. (After checking with the applicant, there is no statue, just a plaque with an image of Princess Liliuokalani that was prepared and placed there by HHDC on behalf of another party and HHDC is authorized to relocate it on the property.)
6. Purpose of Housing First: Grace reminded the public and Board that Housing First is geared towards providing services to the chronically homeless population. *The Project has decided not to pursue Housing First funds.*
7. Inconsistency: Erteschik voiced concern about the inconsistency of the Board's opinions about developments, and voiced support for the Ainahua Vista II project.
8. Interior: Adams recommended designing the interior of the apartments to accommodate for the small size. *The small rooms have been eliminated.*
9. Update: Chair Finley requested Kurahashi return to the Waikiki Neighborhood Board No. 09 in January 2015 with an update on the Ainahua Vista II development and with answers to the concerns voiced. *Mr. Kurahashi agreed to return to the Board in January.*

Chair Finley asked and Mr. Kurahashi agreed to return to the Board at a later date, at which time the Board expects to vote on the Project.

The Project was presented to the Waikiki Neighborhood Board by Keith Kurahashi on the evening of January 13, 2015 (minutes in **Appendix 9**). The Board passed a motion to approve the Project by a 15-1-0 vote.

Ainahau Vista II, 2428 Tusitala Street Mr. Kurahashi provided a PowerPoint describing the project and responded to the following concerns presented at the November meeting:

Density: The allowable density with the planned 35% open space is 64,947 square feet and the proposed density will be 94,617 square feet. The project will be 29,670 square feet over the allowable density. However, if calculated with 50% open space provided the project will be 12,349 square feet over the allowable density (Vistas 1 and 2).

Visual of Building: A slide provided a visual representation of the exemptions being requested.

Room Size: The studio units have been increased in size from 275 square feet to 377 square feet. It was noted that the studio units have increased in size.

Sacred Land: Kurahashi will work with the State Department of Land and Natural Resources (DLNR) to ensure preservation of any sacred artifacts found on the land. HHDC will relocate the plaque to allow development of the site.

Questions, comments and concerns followed:

1. Comment: Apaka relayed that tonight's update shows a much better plan.
2. Parking Stalls: Regarding the anticipation of seniors with cars, Kurahashi answered for Apaka that 23 parking stall will be provided with the possibility of a large loading zone area. Apaka added that almost everyone catches the bus.
3. Onsite Security: Kurahashi answered for Flood that there will a security guard on site during the day and guard on duty at night. It is unsure if cameras would be installed.
4. Soundproofing Wall: It was asked if the walls would be soundproofed. *Exterior walls will be hollow tile, which does attenuate sound.*
5. Support: Grace noted the efforts of support and to protect seniors. Grace asked how would the seniors residing in the Ainahau Vista I be protected from lane closures. *Lane closures would probably occur just on several occasions during construction. Very few of the seniors drive, as Catholic Charities provides shuttle service for the seniors.*
6. Current Plan: Erteschik inquired why the current plan is substantially different from the previous plan and much denser than regulations allow. Affordable housing is needed. Kurahashi relayed a concern from the owner and Board is the homeless problem. There is a market for smaller units. It is hopeful that smaller affordable units would be available in the future. *Actually, the current plan is about 5,000 square feet less in floor area than the plan shown at the November meeting (38,588 square feet – 33,669 square feet = 4,919).*
7. Environmental Assessment (EA): Merz pointed out that the EA is not the end. There is still time for concerns and recommendations. Kurahashi noted that the Board would be informed when the public may provide input.

15.2 WAIKIKI IMPROVEMENT ASSOCIATION

A presentation of the Project was made to the Waikiki Improvement Association, Board of Directors on March 18, 2015. The Board of Directors voted to support the Ainahau Vista II Project.

15.3 COUNCILMEMBER TREVOR OZAWA

HHDC's planning consultant met with Councilmember Ozawa and discussed the proposed Ainahau Vista II development. Councilmember Ozawa noted that he looked forward to further discussions on the proposed affordable senior rental development and additional information provided through the DEA process, the 201H process and the Waikiki Special District Major permit process.

16. OTHER AGENCY COMMENTS

The following agencies, organizations and public utilities provided comments on the preparation of the DEA, that were not covered in earlier sections of this DEA:

The Department of Land and Natural Resources, Land Division in a letter dated April 28, 2015 had no comment on the preparation of the DEA.

The Department of Community Services (DCS) in a letter dated April 27, 2015 (**Appendix 3 – Agency Pre-Consultation Comments)**, commenting on the proposed DEA indicated that the proposed project will have no adverse impacts on any DCS activities or project at this time.

The Department of Land and Natural Resources, Commission on Water Resource Management (CWRM) in a letter dated May 6, 2015 commented as follows (their first three standard comment boxes were not checked off):

4. We recommend that water efficient fixtures be installed and water efficient practices implemented throughout the development to reduce the increased demand on the area's freshwater resources. Reducing the water usage of a home or building may earn credit towards Leadership in Energy and Environmental Design (LEED) certification. More information on LEED certification is available at http://www.usgbc.orq/leed. A listing of fixtures certified by the EPA as having high water efficiency can be found at http://www.epa.gov/watersense/.

   HHDC intends to design, maintain, and operate the Project employing best practices for energy efficiency and environmental sustainability for projects of its kind. HHDC will review all applicable LEED rating systems, use the certification standards as guidelines, and pursue certification when financially feasible. HHDC will implement low-flow plumbing fixtures, explore waterless urinals, and incorporate efficient landscape irrigation systems in an effort to further reduce wastewater and potable water demands. HHDC will reduce material waste through effective construction and operational recycling programs. LEED (Leadership in Energy and Environmental Design) is an

internationally recognized building certification system intended to provide building owners and operators a concise framework for identifying and implementing practical and measurable green building design, construction, operations and maintenance solutions.

5. We recommend the use of best management practices (BMP) for stormwater management to minimize the impact of the project to the existing area's hydrology while maintaining on-site infiltration and preventing polluted runoff from storm events. Stormwater management BMPs may earn credit toward LEED certification. More information on stormwater BMPs can be found at http://hawaii.gov/dbedt/czm/initiative/lid.php.

   Once the construction phase begins, HHDC will use approved Best Management Practices (BMP) fronting all drainage facilities that may be affected by construction runoff along Tusitala Street, Ala Wai Boulevard, Kaiulani Avenue, and Kapili Street.

6. We recommend the use of alternative water sources, wherever practicable.

   HHDC will implement low-flow plumbing fixtures, explore waterless urinals, and incorporate efficient landscape irrigation systems in an effort to further reduce wastewater and potable water demands.

7. We recommend participating in the Hawaii Green Business Program, that assists and recognizes businesses that strive to operate in an environmentally and socially responsible manner. The program description can be found online at http://energy.hawaii.gov/green-business-program.

   The Hawaii Green Business Program is geared towards businesses and there was no category available for rental apartment units.

   However, as mentioned earlier, HHDC intends to design, maintain, and operate the Project employing best practices for energy efficiency and environmental sustainability for projects of its kind. HHDC will review all applicable LEED rating systems, use the certification standards as guidelines, and pursue certification when financially feasible. HHDC will implement low-flow plumbing fixtures, explore waterless urinals, and incorporate efficient landscape irrigation systems in an effort to further reduce wastewater and potable water demands. HHDC will reduce material waste through effective construction and operational recycling programs. LEED (Leadership in Energy and Environmental Design) is an internationally recognized building certification system intended to provide building owners and operators a concise framework for identifying and implementing practical and measurable green building design, construction, operations and maintenance solutions.

8. We recommend adopting landscape irrigation conservation best management practices endorsed by the Landscape Industry Council of Hawaii. These practices can be found online at http://www.hawaiiscape.com/wp-content/uploads/2013/04/LICH_Irrigation

Conservation_BMPS.pdf.
HHDC will incorporate efficient landscaping irrigation systems in an effort to reduce potable water demands.

The Department of Design and Construction (DDC) in a letter dated June 12, 2015 (**Appendix 3 – Agency Pre-Consultation Comments)**, commenting on the proposed DEA indicated that they do not have comments to offer.

17. SIGNIFICANCE CRITERIA

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

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

The underutilized development site is surrounded by urban development and represents an infill development. The site was at one time planned for a parking lot, but has remained in open space.

The property is not listed on either the State or Federal Registers of Historic Places and Ainahau Vista built in 2007 does not qualify for inclusion on the either register.

An Archaeological Inventory Survey was conducted on the entire property during the development of Ainahau Vista, titled "Archaeological Inventory Survey for the Tusitala Vista Elderly Apartments". Please refer to ***Appendix 4*** *for complete report prepared by Cultural Surveys Hawaii.*

Also included in ***Appendix 4*** *is a copy of a letter from the Department of Land and Natural Resources (DLNR) , dated October 18, 2005, indicating their concurrence with Cultural Surveys Hawaii on their recommendation of "no further work" in regards to SIHP sites -6682, -6706 – 6707. The letter also concurs with the archaeologist recommendation of "monitoring" in view of the discovery of historic properties and fragmental human remains in the fill. Another letter from DLNR, dated November 28, 2005, states their acceptance of burial plans for the non-native Hawaiian fragments of human skeletal remains encountered during the archaeological inventory. On November 29, 2005 two bound copies of the accepted burial treatment plan were delivered to SHPD. The burial treatment plan was approved and a burial site at the northeast corner of the Project was approved.*

Included in ***Appendix 4****, is a letter from the DLNR, dated December 12, 2008, commenting that "The Data Recovery Report meets the minimum requirements, and is accepted as compliance with 6E-42 and Hawaii Administrative Rules (HAR) § 13-13-278 Rules Governing Standards for Archaeological Data Recovery Studies and Reports."*

*The SHPD, of the DLNR, in a letter dated June 17, 2015 (**Appendix 3 – Agency Pre-Consultation Comments**), commenting on the proposed DEA indicated that the submittal will require SHPD review under Hawaii Revised Statutes (HRS) §6E and possibly under the National Historic Preservation Act (NHPA) Section 106. Their letter went on to describe steps that HHDC needs to take to address Section 106 and their other requirements.*

HHDC's archaeological consultant, Cultural Surveys Hawaii will work with SHPD to meet their requirements related to HRS §6E and NHPA Section 106 and SHPD's other requirements for the Project.

*Cultural Surveys Hawaii, Inc. prepared a "Cultural Impact Evaluation for the Tusitala Vista Elderly Apartments" (now Ainahau Vista), Waikiki, Kona District, Oahu Island, dated December 2004. Please refer to **Appendix 8** of this report. The following is an excerpt from the Section on "Summary and Recommendations":*

"None of the community contacts queried for this cultural impact evaluation identified any ongoing cultural practices within the property area.

It is possible that intact prehistoric and early contact cultural deposits are lying undisturbed beneath modern fill layers within the project parcel. Other possible deposits may be associated with nineteenth century Hawaiian royalty.

Based on the above findings, it is recommended that no further cultural impact mitigation measures are warranted.

In order to address traditional cultural concerns, and given the cultural sensitivity of the entire Waikiki area, it should be noted, however, that subsurface properties associated with former traditional Hawaiian activities in the project area, such as artifacts and cultural layers, may be present despite decades of sugar cultivation activities. As a precautionary measure, personnel involved in future development activities in the area should be informed of the possibility of inadvertent finds, and should be made aware of the appropriate notification measures to follow."

*Previously identified non-Native Hawaiian fragments of human skeletal remains were encountered on this property during the permitting process for Ainahau Vista. HHDC went before the Burial Counsel and a burial treatment plan was approved in a letter from DLNR to Cultural Surveys Hawaii Inc. on November 28, 2006. Please see **Appendix 4**.*

Based on the findings and recommendation of the archaeological inventory survey, an archaeological monitoring program will be implemented with on-site and on-call monitoring of initial subsurface impacts.

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

The proposed development will not curtail, but will instead enhance the range of beneficial uses of the environment. The development site will provide much needed senior affordable rental units to meet the growing housing demands for our rapidly growing senior population.

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

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

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

The development will give a temporary boost to the State's economy with the provision of short-term construction employment and related tax impacts, and a few long-term operational jobs in the form of support services for Ainahau Vista II.

The social welfare of the community would be positively affected by the development of this senior affordable rental development which will serve qualified seniors who otherwise may be unable to rent a home of their own. The Ainahau Vista II affordable senior rental development will offer an attractive living environment for seniors in close proximity to public transit and goods and services.

The senior residents in Ainahau Vista II will have a long term positive economic effect on businesses in the area, by providing a source of new customers.

(5) Substantially affects public health;

The proposed action will not affect public health. The proposed land use is compatible with the surrounding residential condominium and apartment development.

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

The Ainahau Vista II will result in 62 new affordable senior rental units. These new units will result in an increase to the residential population in Waikiki of about 69, since based

on other existing affordable senior rental developments in Honolulu, the average household size is 1.1.

Based on the Department of Planning and Permitting's (DPP's) "Annual Report on the Status of Land Use on O'ahu, Fiscal Year 2010" (Report), the Year 2000 population actual number of housing units in the Primary Urban Center (PUC) was 171,773. This number is expected to grow by 2015 to 184,935 units and by 2025 to 196,197 units. The projected growth from 2000 to 2015 is an increase of 13,162 units and from 2015 to 2025 an increase of 11,262 units. The proposed 62 new affordable units will help support the projected growth in the PUC through the year 2025.

(7) Involves substantial degradation of environmental quality;

The development will not result in a substantial degradation of the environment. Only minimal impact is projected during the construction phase with the planned mitigation measures in place. Long term impacts from traffic and noise will also be minimal with the planned mitigation measures.

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

The proposed development at Ainahau Vista II does not involve a commitment to larger actions nor will it result in cumulative impacts to the environment. The proposed Ainahau Vista II senior affordable rental development will not generate future developments on this site or in the surrounding area that would create a cumulative impact.

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

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

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

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

Short term noise impacts at construction sites are a normal result of construction activity. The State Department of Health administers rules and regulations relating to the hours during which construction is permitted and the noise levels permitted during those hours. The contractor will be required to apply for a permit from the State Department of Health should noise from construction activities exceed regulatory limits. The contractor will abide by the noise regulations incorporated into the permit.

Long term noise impact from the proposed development are expected to be minimal due to the nature of the proposed senior rental apartment and the minimal increase in traffic projected. Long term impacts from traffic noise on Ala Wai Boulevard will be mitigated by the hollow tile structure and design considerations.
Water quality would not be detrimentally affected by the proposed development. The proposed residential development will not have an adverse impact on aquifers or water resources.

(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 Site is in a flood plain, but is not located in other environmentally sensitive area such as a tsunami zone, beach, erosion-prone area, geologically hazardous land, estuary, fresh water, or coastal waters. The flood elevation for this property is six feet and all units will be developed above the six foot elevation.

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

The proposed development will not substantially affect scenic vistas and view planes identified in county or state plans or studies. The property involves an infill development with housing similar to that in the developed surrounding area. The proposed development will be developed at an 80-foot height while Ainahau Vista is 85 feet tall and will not have a significant impact on view planes. The height limit for this property is 240 feet.

(13) Require substantial energy consumption;

HHDC intends to design, maintain, and operate the Project employing best practices for energy efficiency and environmental sustainability for projects of its kind. HHDC will review all applicable LEED rating systems, use the certification standards as guidelines, and pursue certification when financially feasible. HHDC will implement low-flow plumbing fixtures, explore waterless urinals, and incorporate efficient landscape irrigation systems in an effort to further reduce wastewater and potable water demands. HHDC will reduce material waste through effective construction and operational recycling programs. LEED (Leadership in Energy and Environmental Design) is an internationally recognized building certification system intended to provide building owners and operators a concise framework for identifying and implementing practical and measurable green building design, construction, operations and maintenance solutions.

18. DETERMINATION

Based on this Draft Environmental Assessment, a Finding of No Significant Impact (FONSI) for the proposed Ainahau Vista II Affordable Rental Project is anticipated.

19. PERSONS AND FIRMS PREPARING THIS DRAFT EA

Kusao & Kurahashi, Inc.
Planning & Zoning Consultants
2752 Woodlawn Drive, Suite 5-217
Honolulu, Hawai`i 96822

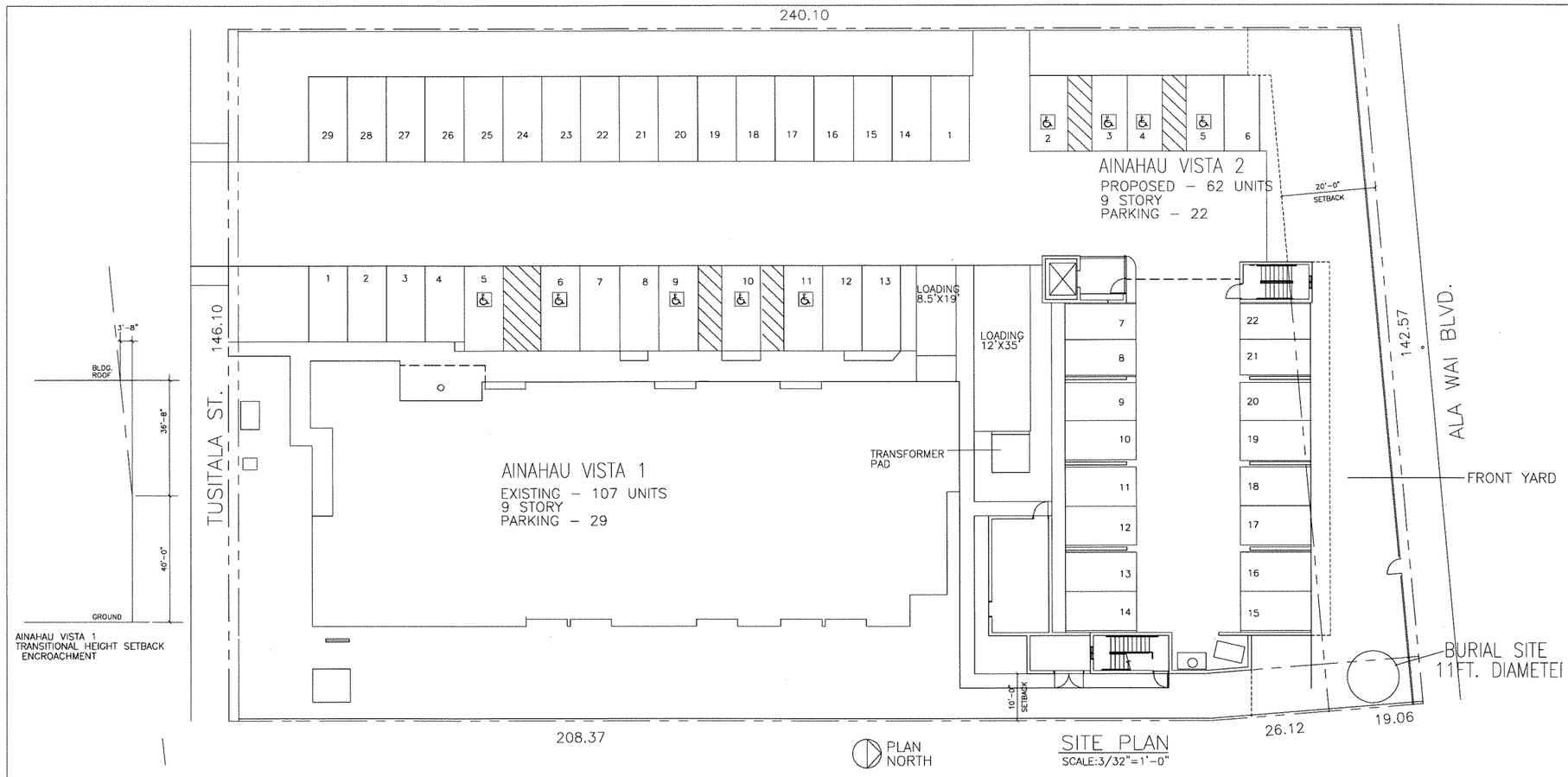
Kazutoshi Yato, AIA
2033 Round Top Terrace
Honolulu, Hawaii 96822

Dean Alcons and Associates Inc.
905 Umi Street, Suite 101
Honolulu, Hawaii 96819

Julian Ng, PE
P.O.Box 816
Kaneohe, Oahu, Hawaii 96744

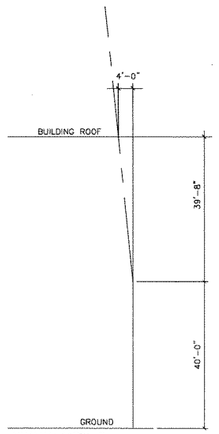
APPENDIX 1

CONCEPTUAL PLANS



SITE PLAN
SCALE:3/32"=1'-0"

AINAHAU VISTA 1
TRANSITIONAL HEIGHT SETBACK
ENCROACHMENT



AINAHAU VISTA 2
TRANSITIONAL HEIGHT SETBACK
ENCROACHMENT

AINAHAU VISTA 1 AND 2 EXEMPTION TO ZONING REQUIREMENT

1. SEC. 21-9.80-5(c)(2) TRANSITIONAL HEIGHT SETBACKS
   AS SHOWN ON THIS SHEET
2. TABLE 21-6.3 OFF STREET PARKING REQUIREMENTS WAIKIKI SPECIAL DISTRICT
   169 REQUIRED AND 46 + 5 GUEST STALLS PROVIDED.
3. TABLE 21-9.6(B) WAIKIKI SPECIAL DISTRICT DEVELOPMENT STANDARDS APARTMENT PRECINCT
   ALLOWABLE FLOOR AREA=1.5X(35761+5346+2192)=64,948SF
   PROPOSED FLOOR AREA=60,948 (EXIST.)+33,894=94,842SF
   OVERAGE OF 29,894SF
4. SECTION 21-9.80-5(b) and TABLE 21-9.6(B) RELATED TP SIDE YARD TO ALLOW
   AN ENCROACHMENT OF A LOADING STALL MANEUVERING SPACE 12-FOOT WIDE BY 10-FOOT DEI
   INTO THE WEST BOUNDARY SIDE YARD (120-SQUARE FOOT ENCROACHMENT).
5. PARK DEDICATION
   REQUIRED=10% OF 94,842SF=9,484SF
   PROVIDED= 3586 (PRIVATE PARK)+1693 (VICTORY GARDEN) +1152 (MULTI-PURPOSE RM)=6431
   SHORTAGE=3053SF

AINAHAU VISTA 1 AND 2 ZONING PROJECT DATA

TMK:2-6-24:70&71
LAND AREA=23,644SF+12,117SF=35,761SF
CUP FILE NO.2005/CUP-75 Jt.Dev.
ZONING: WAIKIKI APARTMENT PRECINCT
FAR=1.5
ALLOWABLE FLOOR AREA=1.5X(35,761+5346+2192)=64,948SF
1/2 STREET FRONTAGE:
ALA WAI=142.57x(.5x75)=5346sf
TUSITALA=146.1x(.5x30)=2192sf
HEIGHT LIMIT=240'

PROPOSED
EXISTING BUILDING (AINAHAU VISTA 1)= 60,948.44SF

AINAHAU VISTA 2
GROUND FLOOR= 1166SF
TYPICAL FLOORS = 8X4091SF=32,728SF
TOTAL=33,894SF

GRAND TOTAL FOR 2 BUILDINGS=94,842SF

OPEN SPACE PROVIDED FOR AINAHAU VISTA 1 & 2
LOT COVERAGE=16,249SF+4,091(BUILDING)+3,109SF=23,449SF
REQUIRED=35%= 12,516SF
PROVIDED=12,547SF (35.1%)

NUMBER OF UNITS:
AINAHAU VISTA 1=107
AINAHAU VISTA 2=62 (47-1BR& 15 STUDIO)
TOTAL=169 UNITS

PARKING
PROVIDED=24 FOR AINAHAU VISTA 1 +5 GUEST STALLS
PROVIDED=22 FOR AINAHAU VISTA 2

BUILDING CODE
TYPE OF CONSTRUCTION– IA

REVISIONS
NO. DATE

KAZUTOSHI YATO
LICENSED PROFESSIONAL ARCHITECT
No.3271
HAWAII, U.S.A.

THIS PROJECT WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY SUPERVISION.

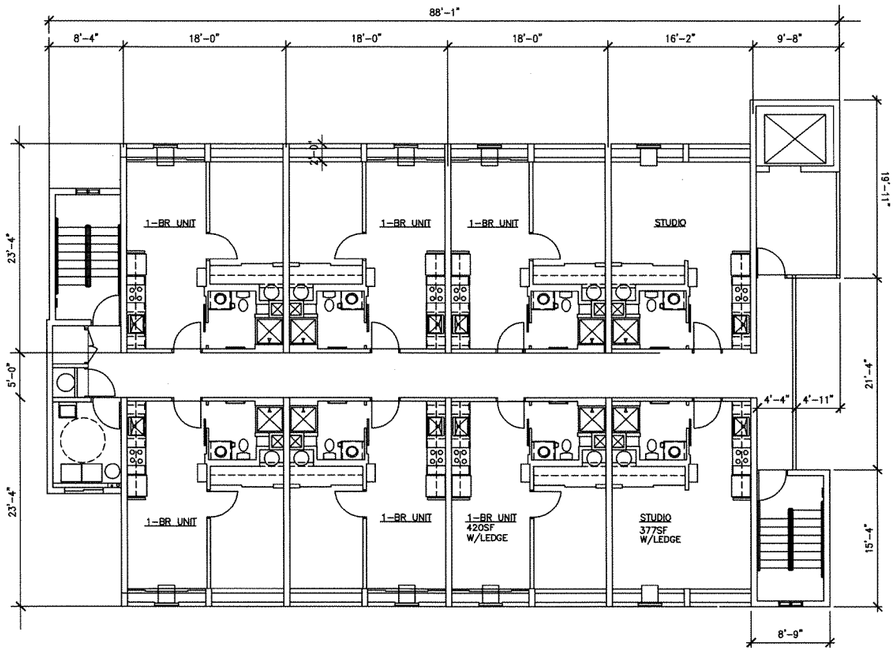
PROJECT
AINAHAU VISTA 1 and 2
TUSITALA STREET
WAIKIKI, HAWAII

SITE PLAN, LAND USE CALC.

KAZU YATO, AIA & ASSOCIATES
2333 BOUNDTOP TERRACE
HONOLULU, HI 96822
TEL: (808) 945-0045
FAX: (808) 945-0041

DATE 10/23/15
DRAWN KY
CHECK KY
FILE

SHEET
A1



TYPICAL FLOOR PLAN (2 THRU 8)

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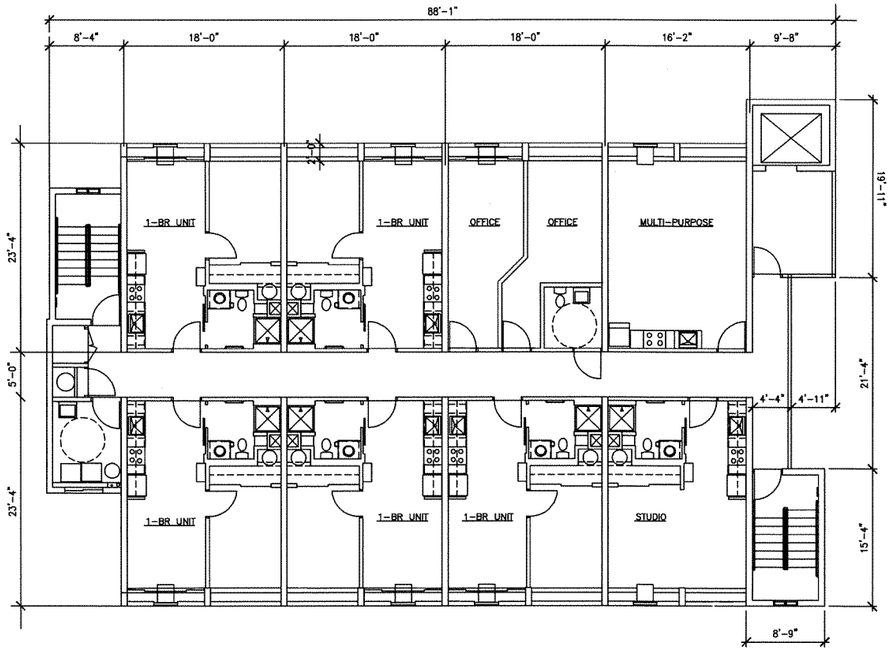
GROSS FLOOR PLATE LESS LEDGE=4133SF



9TH FLOOR PLAN

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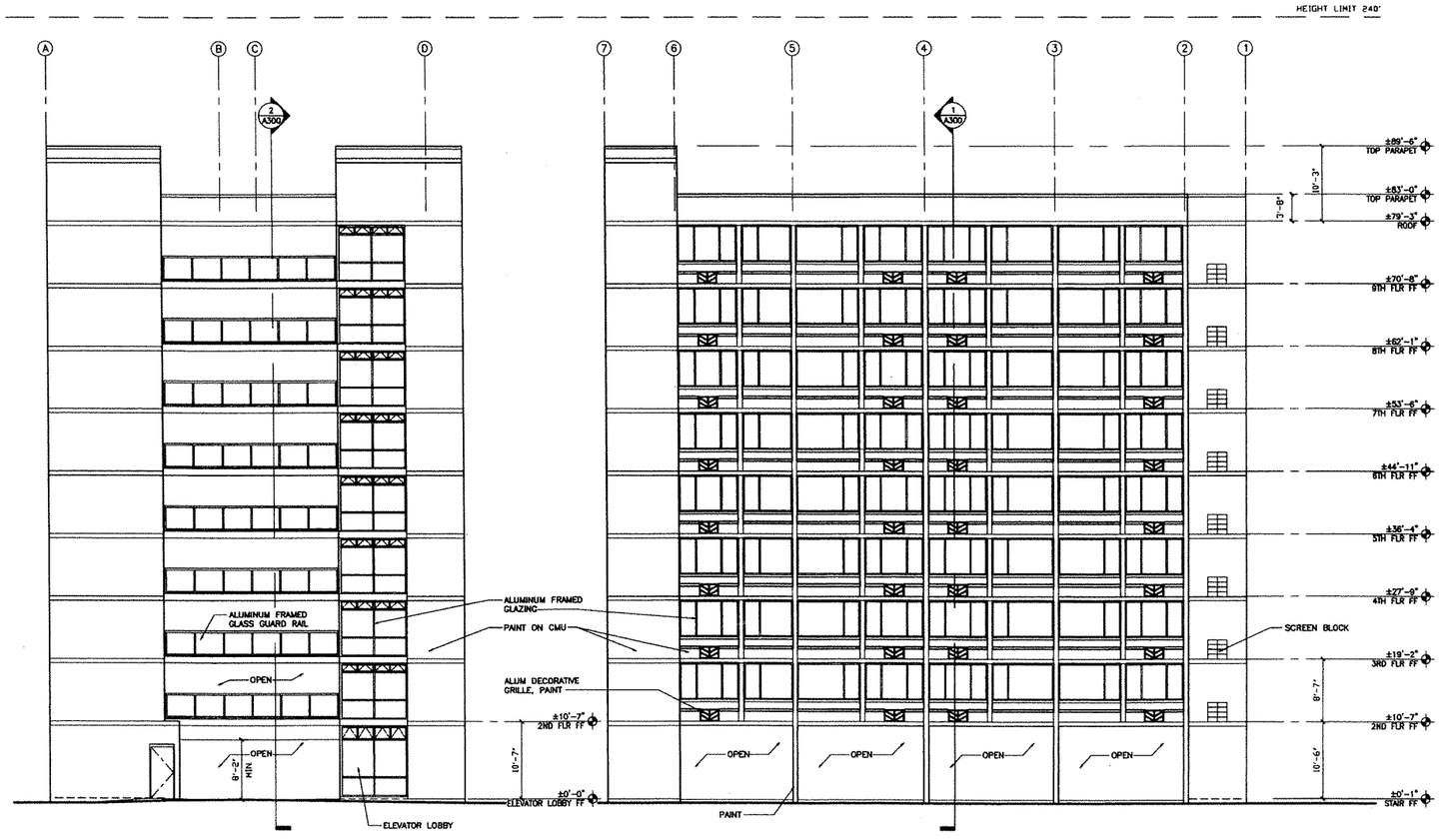
GROSS FLOOR PLATE=4364SF
GROSS FLOOR PLATE LESS LEDGE=4133SF



EWA ELEVATION
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0 8 16 24 32

MAKAI ELEVATION
SCALE 1/8" = 1'-0"

NO.	DATE	REVISIONS

KAZUTOSHI YATO
LICENSED PROFESSIONAL ARCHITECT
No 3271
HAWAII, U.S.A.
Expiration Date 4/30/2014

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AINAHAU VISTA 2

2428 TUSITILA STREET
WAIKIKI, HONOLULU, HAWAII 96815
MAUKA & EWA ELEVATIONS

KAZU YATO, AIA & ASSOCIATES, INC.
2333 KOLIHOTOP TERRACE
HONOLULU, HI 96822
TEL: (808) 945-0940
FAX: (808) 945-0941

DATE: 2.18.2015

SHEET

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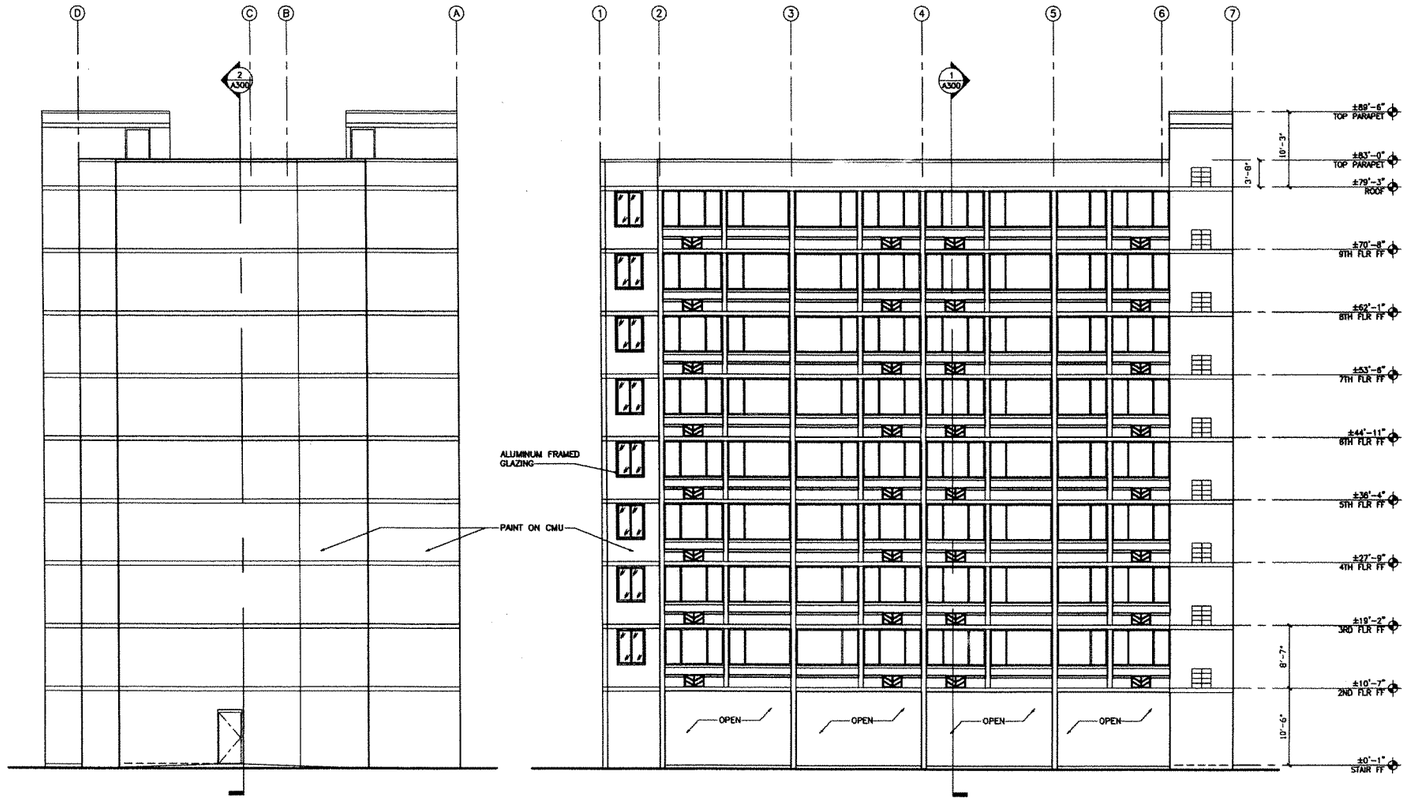

DIAMOND HEAD ELEVATION
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0 8 16 24 32

MAUKA ELEVATION
SCALE 1/8" = 1'-0"

NO.	DATE	REVISIONS

KAZUTOSHI YATO
LICENSED PROFESSIONAL ARCHITECT
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HAWAII, U.S.A.
Expiration Date 4/30/2014

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AINAHAU VISTA 2

2428 TUSITILA STREET
WAIKIKI, HONOLULU, HAWAII 96815

MAKAI & DIAMOND HEAD ELEVATIONS

KAZU YATO, AIA & ASSOCIATES, INC.
1003 BISHOP TERRACE
HONOLULU, HI 96822
TEL: (808) 948-3940
FAX: (808) 948-3941

DATE: 2.18.2015

SHEET

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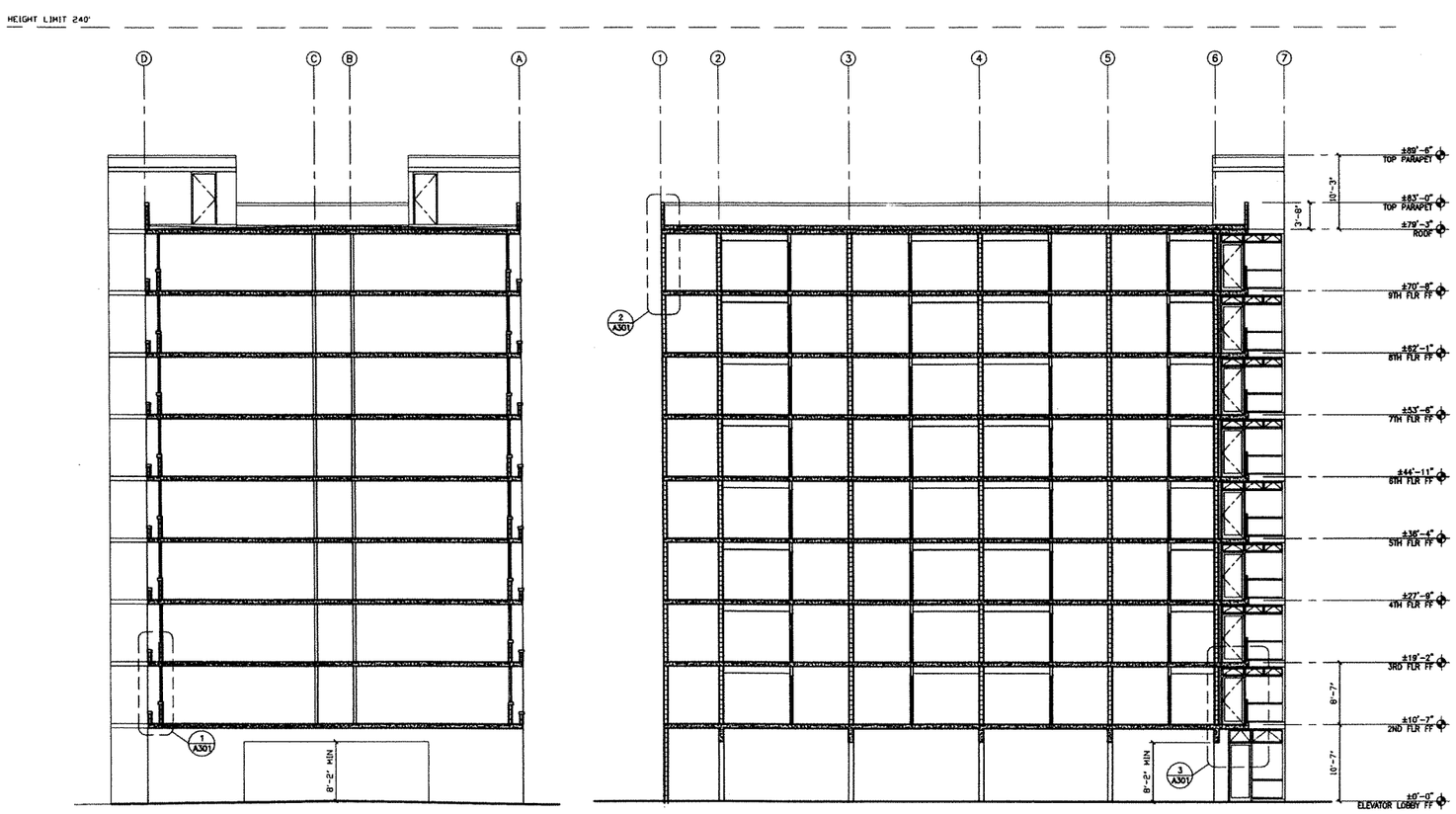

1 BUILDING SECTION
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2 BUILDING SECTION
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NO.	DATE	REVISIONS

KAZUTOSHI YATO
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HAWAII, U.S.A.
Expiration Date 4/30/2014

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AINAHAU VISTA 2

2428 TUSITILA STREET
WAIKIKI, HONOLULU, HAWAII 96815

BUILDING SECTIONS

KAZU YATO, AIA & ASSOCIATES, INC.
1000 BISHOP TERRACE
HONOLULU, HI 96822
TEL: (808) 945-9940
FAX: (808) 945-9941

DATE: 2.18.2015

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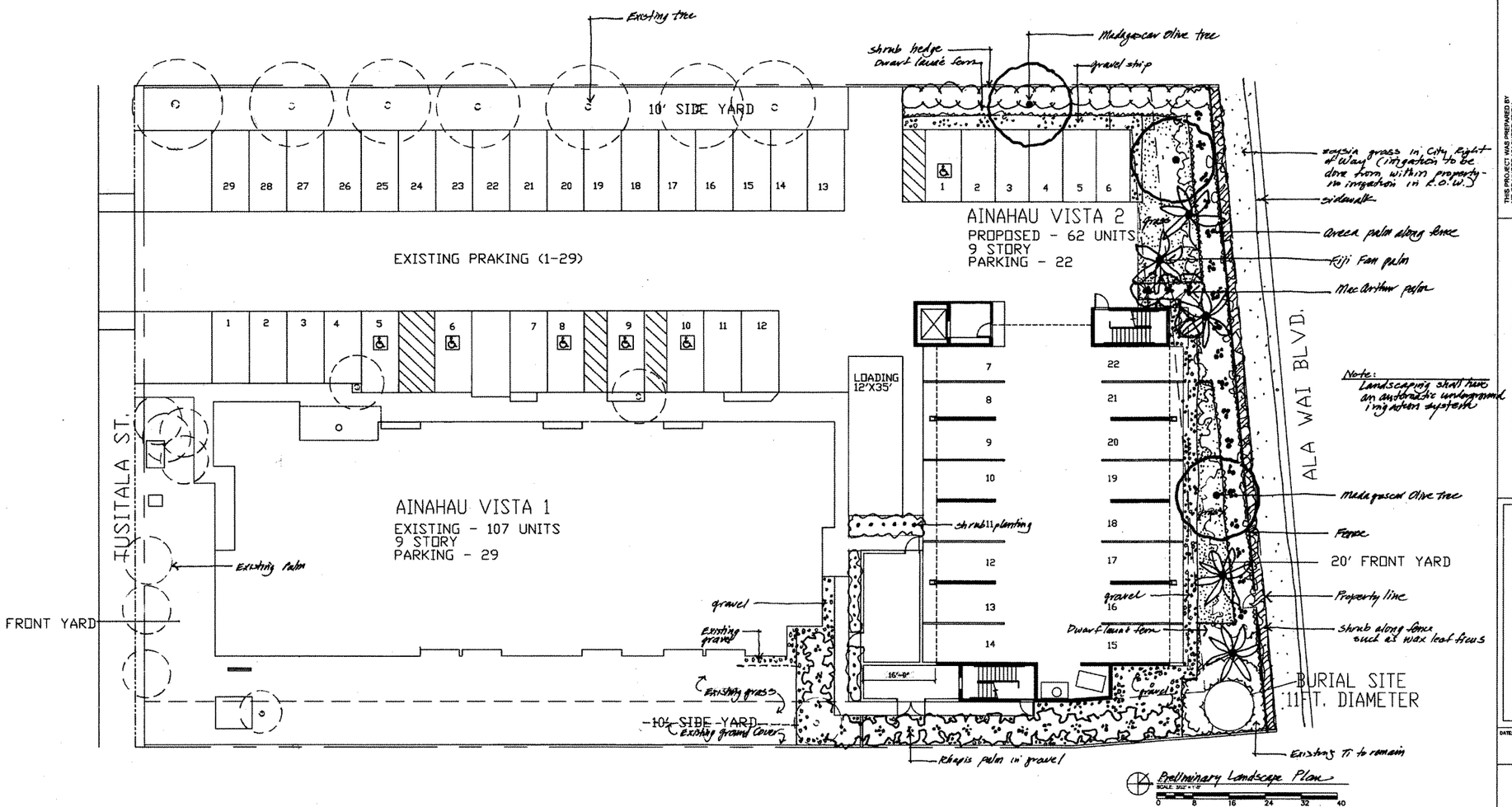


NO.	DATE	REVISIONS

THIS PROJECT WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY SUPERVISION.

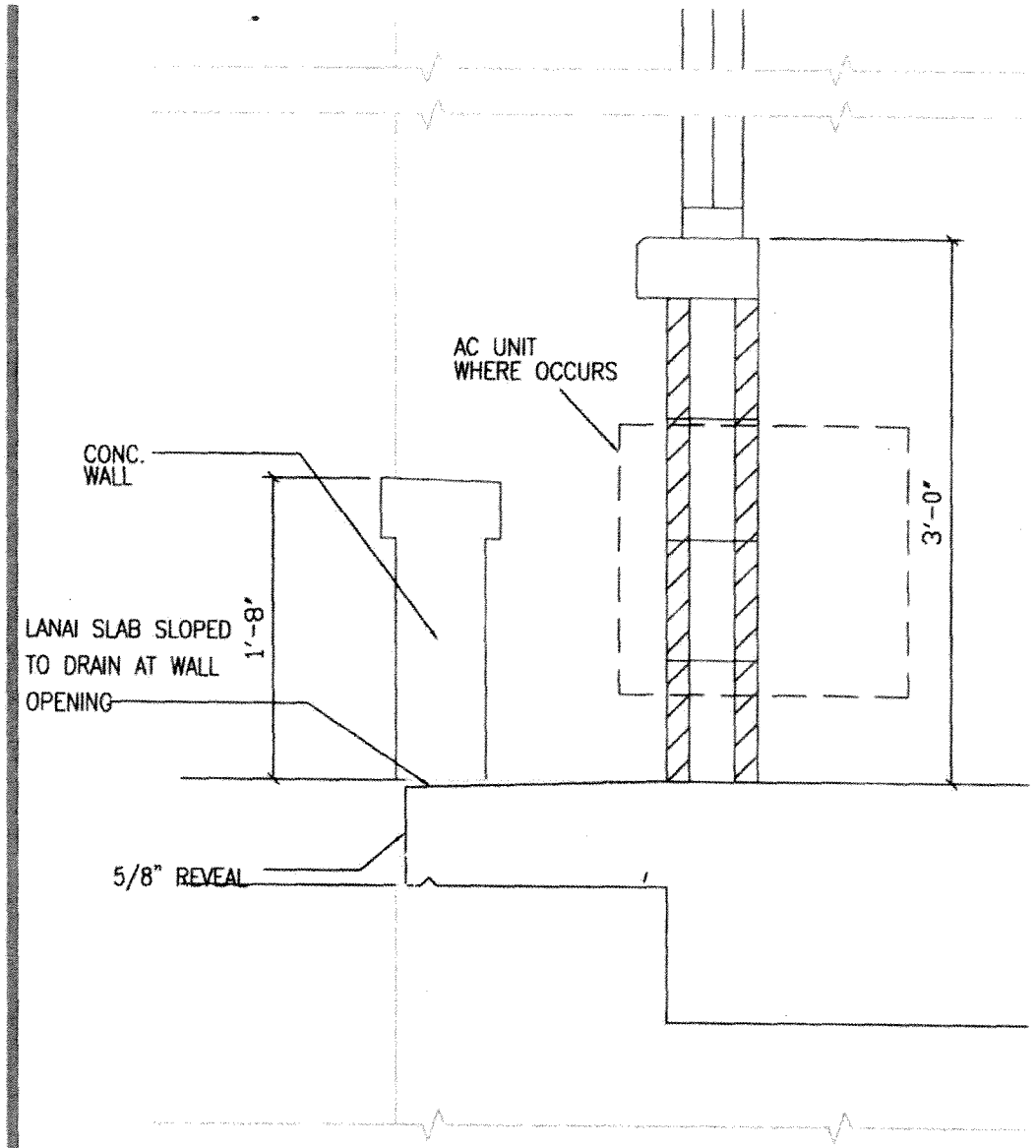
AINAHAU VISTA 2

2428 TUSITILA STREET
WAIKIKI, HONOLULU, HAWAII 96815

KAZU YATO, AIA & ASSOCIATES, INC.

DATE: OCT. 16, 2015

SHEET



1 WALL SECTION
SCALE: 1" = 1'-0"

FRIGIDAIRE

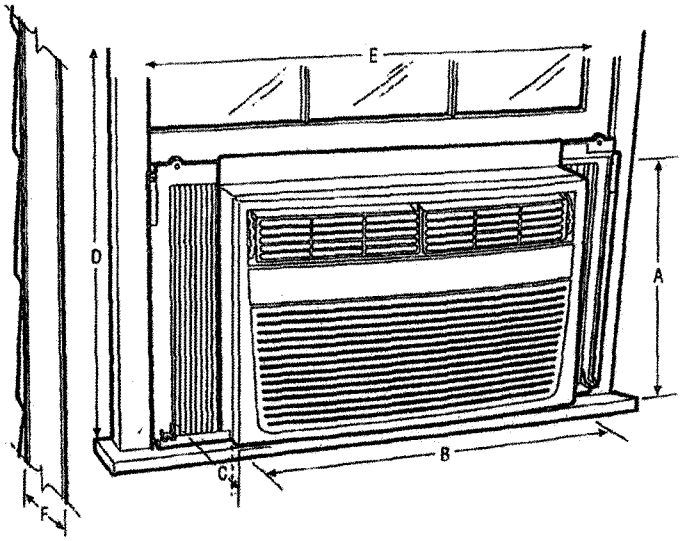
Home Comfort

FRA186MT2 Median Air Conditioner

Performance	
BTU (Cool)	18,500/18,200
Dehumidification (Pints/Hour)	5.5
Cool Area (Sq. Ft.)	1,170
Energy Efficiency Ratio	10.7
Electrical	
Volts	230/208
Amps (Cool)	7.7/8.3
Watts (Cool)	1,730/1,700
Length of Power Cord (Min./Max.)	5'/6'
Plug Type (NEMA)	LCDI (6-15)
Features	
Electronic Controls	Ready-Select® Controls
Fan Speeds (Cool/Fan)	3/3
Low Voltage Start-Up	Yes
Auto Cool Function	Yes
Energy Save	Yes
Sleep Mode	Yes
Filter Check	Yes
24-Hour On/Off Timer	Yes
Clean Air Ionizer	Yes
Remote Control	Full-Function Remote T'Stat
Air CFM (High/Med/Low)	459/406/344
Air Direction Control	8-Way
Fresh Air/Exhaust Vent/Closed	Yes/Yes/Yes
Filter Type	Antibacterial Mesh
Filter Access	Tilt-Out
Slide-Out Chassis	Yes
Window Mounting Kit (Included)	Pleated Quick Mount
Warranty[1]	Yes
Certifications	
ENERGY STAR®	
Performance	AHAM
Specifications	
Refrigerant	R410a
Shipping Weight (Approx.)	124 Lbs.

[1]Warranty 5 year sealed system/1 year full parts and labor.

Plug Type (NEMA)
6-15P



NOTE: For planning purposes only. Always consult local and national electric codes. Refer to Product Installation Guide for detailed installation instructions on the web at frigidaire.com.

c UL us

Product Dimensions	
A - Height	17-7/8"
B - Width	23-5/8"
C - Depth	25-3/8"

Window Dimensions	
D - Height (Min.)	18-1/2"
E - Width (Min./Max.)	26-1/2"/40-1/2"
Wall Cutout Dimensions	
F - Max. Wall Thickness	8"
Height	18"
Width	23-7/8"

Accessories information available on the web at frigidaire.com

FRIGIDAIRE

USA • 10200 David Taylor Drive • Charlotte, NC 28262 • 1-800-FRIGIDAIRE • frigidaire.com
CANADA • 5855 Terry Fox Way • Mississauga, ON L5V 3E4 • 1-800-265-8352 • frigidaire.ca

FRA186MT2 10/13

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Specifications subject to change.

APPENDIX 2

ENVIRONMENTAL NOISE ASSESSMENT REPORT

D. L. ADAMS ASSOCIATES
acoustics | performing arts | technology

970 N. Kalaheo Ave.
Suite A311
Kailua, HI 96734
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Environmental Noise Assessment Report
Ainahau Vista II
Honolulu, Hawaii

July 2015

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1.0 EXECUTIVE SUMMARY

1.1 The Ainahau Vista II project is located in the Waikiki district in Honolulu, Hawaii. The proposed 9 story project includes approximately 62 senior affordable rental units and 22 parking stalls. The project site is located between the current Ainahau Vista building and Ala Wai Boulevard in an area zoned as an Apartment Precinct (zoning code X2).

1.2 The project area is currently exposed to varying daytime and nighttime ambient noise levels, typical of urban Waikiki. Noise measurements taken on the project site show an average day-night level (L_{dn}) of 71 dBA. Daytime noise levels ranged from 66 to 74 dBA. Nighttime noise levels were slightly less and ranged from 57 to 71 dBA. The dominant noise source was vehicular traffic noise from Ala Wai Boulevard.

1.3 During project construction, the dominant noise sources will likely be earth moving equipment, such as bulldozers and diesel powered trucks. Noise from construction activities should be short term and must comply with State Department of Health noise regulations, and a construction noise permit.

1.4 After construction is complete, noise generated from any stationary mechanical equipment on the project site must comply with the Hawaii Department of Health property line noise regulations. Noise mitigation for stationary mechanical equipment should be considered during the design of the project.

1.5 To evaluate existing vehicular traffic noise levels from Ala Wai Boulevard on the project site, traffic noise was calculated in the occupied areas and compared to both the FHWA/HDOT and HUD noise level criteria. Future traffic noise levels were not evaluated. Traffic noise was projected on the full elevation façade of the building and on the exterior area at ground level on the Ainahau Vista II project site. The exterior façade of the apartment units overlooking Ala Wai Boulevard are expected to be exposed to noise levels in excess of the HUD site acceptability standards and the FHWA noise abatement criteria. In order to comply with the HUD noise criteria inside the units, exterior façade elements such as glazing and wall construction should be considered during the design of the project. A noise impact is not expected for the Ewa, Diamond Head, and Makai sides of the building.

1.6 Design of the exterior elements of the building should incorporate features that reduce noise levels to the interior spaces of the apartment unit. These features include concrete exterior walls, minimum STC 35 rated windows, and no window AC or PTAC units installed in the exterior shell of the building.

1.7 The FHWA/HDOT criteria are not regulatory requirements for this project as it has not authority to enforce land use. The criteria are recommended by the FHWA to be used as a guideline for consideration of land use and the impact of traffic noise. It is also important to note that the HUD noise guidelines are also design goals and not enforceable regulations. However, these guidelines and design goals are useful tools for assessing the noise environment. It is important to note that the HUD site acceptability standards must be satisfied for projects involving HUD or federal financing.

2.0 PROJECT DESCRIPTION

2.1 Project Design

The Ainahau Vista II project is located in the Waikiki district in Honolulu, Hawaii. The proposed 9 story project includes approximately 62 rental units and 22 parking stalls. The project site is located between the current Ainahau Vista building and Ala Wai Boulevard in an area zoned as an Apartment Precinct (zoning code X2).

3.0 NOISE STANDARDS

Various local and federal agencies have established guidelines and standards for assessing environmental noise impacts and set noise limits as a function of land use. A brief description of common acoustic terminology used in these guidelines and standards is presented in Appendix A.

3.1 State of Hawaii, Community Noise Control (HDOH)

The State of Hawaii Community Noise Control Rule [Reference 1] defines three classes of zoning districts and specifies corresponding maximum permissible sound levels due to *stationary* noise sources such as air-conditioning units, exhaust systems, generators, compressors, pumps, etc. The Community Noise Control Rule does not address most *moving* sources, such as vehicular traffic noise, aircraft noise, or rail transit noise. However, the Community Noise Control Rule does regulate noise related to agricultural, construction, and industrial activities, which may not be stationary.

The maximum permissible noise levels for stationary mechanical equipment are enforced by the Hawaii Department of Health (HDOH) for any location at or beyond the property line and shall not be exceeded for more than 10% of the time during any 20-minute period. The specified noise limits which apply are a function of the zoning and time of day as shown in Figure 1. With respect to mixed zoning districts, the rule specifies that the primary land use designation shall be used to determine the applicable zoning district class and the maximum permissible sound level. In determining the maximum permissible sound level, the background noise level is taken into account by HDOH.

The criteria for *impulse* or impact noise is separate from stationary noise due to the nature of the sound. HDOH defines impulse noise as " any sound with a rapid rise and decay of sound pressure level, lasting less than one second, caused by sudden contact between two or more surfaces...". Noise from pile driving is considered impulse noise and the maximum permissible noise level is 10 dB above the specified noise limits for stationary sources, as shown in Figure 1.

3.2 U.S. Federal Highway Administration (FHWA)

The FHWA regulation 23 CFR 772 contains highway traffic noise abatement criteria (NAC) for seven land use activity categories and assigns corresponding maximum hourly equivalent sound levels ($L_{eq}(h)$) for traffic noise exposure [Reference 2, 3]. The Noise Abatement Criteria (NAC) for all seven categories are listed in Figure 2. This project is classified under "Category B" for residential activities, which has a maximum $L_{eq}(h)$ of 67 dBA. These limits are viewed as design goals, and all projects meeting these limits are deemed in conformance with FHWA noise standards.

3.3 State of Hawaii Department of Transportation (HDOT)

The HDOT has implemented the requirements of the FHWA's design goals for traffic noise exposure in its noise analysis and abatement policy [Reference 4]. According to the policy, a traffic noise impact occurs when the predicted traffic noise levels "approach" or exceed FHWA's NAC or when the predicted traffic noise levels "substantially exceed the existing noise levels." The policy also states that "approach" is defined as 1 dB less than FHWA's NAC and "substantially exceed" is defined as an increase of at least 15 dB.

3.4 U.S. Department of Housing and Urban Development (HUD)

HUD's environmental noise criteria and standards in 24 CFR 51 [Reference 5] were established for determining housing project site acceptability. These standards are based on day-night equivalent sound levels, L_{dn}, and are not limited to traffic noise exposure. L_{dn} takes into account noise levels from both daytime (15-hour average) and nighttime (9-hour average). The L_{dn} metric is used in areas that are typically occupied during both daytime and nighttime hours, and where people are intended to sleep.

3.4.1 Exterior Noise Design Criteria

The HUD standards applies to locations where quiet outdoor space is required. The HUD Site Acceptability Standards for exterior sound levels are summarized in Table 1. HUD also recommends L_{dn} 55 dBA as a future goal for outdoors in residential areas, however this is rarely achievable in urban environments.

Table 1. HUD Site Acceptability Standards

Category	Site L_{dn}	Comments
Acceptable	≤ 65 dBA	No special acoustical design consideration necessary
Normally Unacceptable	> 65 dBA, ≤ 70 dBA	5 dB additional attenuation required through use of barriers or in design to ensure interior noise levels are acceptable
	> 70 dBA, ≤ 75 dBA	10 dB addition attenuation required through the use of barriers or in design to ensure interior noise levels are acceptable
Unacceptable	> 75 dBA	Attenuation measures must be submitted on a case-by-case basis

3.4.2 Interior Noise Design Criteria

The intent of the above exterior noise criteria is to achieve an interior L_{dn} of 45 dBA. HUD will sometimes allow upgrades to the building shell to meet an interior L_{dn} of 45 dBA in Normally Unacceptable or Unacceptable areas. This can be accomplished by specifying building facades, windows, and doors with a higher STC rating than normal construction.

3.5 Community Response to Change in Noise Level

Human sensitivity to changes in sound pressure level is highly individualized. Sensitivity to sound depends on frequency content, time of occurrence, duration, and psychological factors such as emotions and expectations. However, the average ability of an individual to perceive changes in noise levels is well documented and has been summarized in Table 2 [Reference 6]. These guidelines permit direct estimation of an individual's probable perception of changes in noise levels.

Table 2. Average Ability to Perceive Changes in Noise Level

Sound Level Change (dB)	Human Perception of Sound
0	Imperceptible
3	Just barely perceptible
6	Clearly noticeable
10	Two times (or 1/2) as loud
20	Four times (or 1/4) as loud

4.0 EXISTING ACOUSTICAL ENVIRONMENT

Noise measurements consisted of continuous long-term and short term ambient noise level measurements, as described in the sections below. The noise measurements were conducted between May 15, 2015 and May 18, 2015.

The methodology, location, and results for the measurement are described below and the measurement location is illustrated in Figure 3. Photographs of the measurements locations are provided in Appendix B.

4.1 Long Term Noise Measurements

Continuous long-term ambient noise level measurements were conducted to assess the existing acoustical environment at the project site. Long-term measurements (taken continuously over the course of multiple days) offer a baseline for establishing existing ambient noise levels in the area and are used for estimating future noise levels by adding the ambient levels to other noise levels generated from the proposed project.

4.1.1 Long-Term Noise Measurement Procedure

Hourly equivalent sound levels ($L_{eq}(h)$) were recorded for approximately 4 days. The measurements were taken using a Larson-Davis, Model 831, Type 1 Sound Level Meter together with a Larson Davis, PRM831 Type 1 Microphone. Calibration was checked before and after the measurements with a Larson-Davis Model CAL200 calibrator. Both the sound level meter and the calibrator have been certified by the manufacturer within the recommended 2-year calibration period. The microphone was mounted to a tripod at approximately 5.5 feet above the ground. A windscreen covered the microphone during the entire measurement period. The sound level meter was secured in a weather-resistant case.

4.1.2 Long-Term Noise Measurement Locations

Location L1: The sound level meter was located immediately inside the fence line of the Ainahau Vista property adjacent to Ala Wai Boulevard. The dominant noise source was vehicular traffic from the roadway. Secondary noise sources included birds and wind.

4.1.3 Long-Term Noise Measurement Results

The measured $L_{eq}(h)$ and the 90 percent exceedance level (L_{90}) in dBA are graphically presented in Figure 4. The ambient sound levels were dynamic and depended significantly on the vehicular traffic patterns along Ala Wai Avenue. The range of $L_{eq}(h)$ during the day (7:00 AM to 10:00 PM) and during the night (10:00 PM to 7:00 AM) and average calculated day-night level are summarized for each location in Table 3 below.

Table 3. Summary of Long-Term Noise Measurement Results (dBA)

Measurement Location	7 AM-10 PM $L_{eq(h)}$ Range	10 PM-7 AM $L_{eq(h)}$ Range	Average L_{dn}
Location L1	66-74	57-71	71

4.2 Short Term Noise Measurements

Short term ambient noise level measurements were conducted with corresponding traffic counts of Ala Wai Boulevard during the PM peak traffic hour as identified by the HDOT Traffic Station Survey [Reference 8] for Ala Wai Boulevard near Ohua Avenue. These short term measurements and traffic counts are compared to the predicted levels of a noise model of traffic at the project site to verify the accuracy of the noise model created for the project site.

4.2.1 Short-Term Noise Measurement Procedure

Equivalent sound levels (L_{eq}) were measured for 30 minutes with a simultaneous traffic count of Ala Wai Boulevard being conducted. The measurements were taken using a Larson-Davis, Model 831, Type 1 Sound Level Meter together with a Larson Davis, PRM831 Type 1 Microphone. Calibration was checked before and after the measurements with a Larson-Davis Model CAL200 calibrator. Both the sound level meter and the calibrator have been certified by the manufacturer within the recommended 2-year calibration period. The microphone was mounted to a tripod at approximately 5.5 feet above the ground. A windscreen covered the microphone during the entire measurement period.

4.2.2 Short-Term Noise Measurement Location

Location S1: The sound level meter was approximately 35 feet from the edge of Ala Wai Boulevard inside the fence line of the Ainahau Vista property and 15 feet North East of the properties entry gate on Ala Wai Boulevard.

4.2.3 Short Term Noise Measurement Results

The measured L_{eq} in dBA are presented below in Table 4.

Table 4. Summary of Short-Term Noise Measurement Results

Measurement Location	30 Minute L_{eq}
S1	63 dBA

5.0 POTENTIAL NOISE IMPACTS

5.1 Project Construction Noise and Compliance with HDOH Community Noise Control Rule

The various construction phases of the project will generate significant amounts of noise and will need to comply with the HDOH requirements. Development of the project areas will involve excavation, grading, material handling, concrete mixing, and other typical construction activities during construction. The actual noise levels produced during construction will be a function of the methods employed during each stage of the construction process. Construction stages include site preparation, building construction, etc. Typical ranges of construction equipment noise are shown in Figure 5. Earthmoving equipment, e.g., bulldozers and diesel-powered trucks, will probably be the loudest equipment used during construction, assuming that no impact noise from pile driving occurs. In cases where construction noise is expected to exceed the HDOH maximum permissible property line noise levels, a permit must be obtained to allow the operation of construction equipment. *Pile driving activities are not planned for this project.*

5.2 Project Generated Stationary Mechanical Noise and Compliance with HDOH Community Noise Control Rule

The Ainahau Vista II development is proposed to be a senior rental development, which will likely incorporate stationary mechanical equipment. Expected mechanical equipment may include HVAC equipment, emergency generators, etc. Noise from this mechanical equipment and other equipment must meet the HDOH noise regulations, which stipulate maximum permissible noise limits at the property line. For residential apartment areas, the noise limits are 60 dBA during the day and 50 dBA during the night, as shown in Figure 1. Mitigation of mechanical noise to meet the HDOH noise rules should be incorporated into the project design.

5.3 Traffic Noise at Project Site and Compliance with FHWA/HDOT and HUD Guidelines

To evaluate the project site's ambient noise levels, traffic noise projections in the occupied areas were evaluated and compared to both the FHWA/HDOT $L_{eq}(h)$ and the HUD L_{dn} noise level criteria as described in Sections 3.2-3.4.

The FHWA/HDOT criteria are not regulatory requirements for this project as it has not authority to enforce land use. The criteria are recommended by the FHWA to be used as a guideline for consideration of land use and the impact of traffic noise. It is also important to note that the HUD noise guidelines are also design goals and not enforceable regulations. However, these guidelines and design goals are useful tools for assessing the noise environment. It is important to note that the HUD site acceptability standards must be satisfied for projects involving HUD or federal financing.

5.3.1 Traffic Noise Analysis

A vehicular traffic noise analysis was completed using the DataKustik CadnaA (version 4.5.151) software program [Reference 9] for the existing traffic condition. Future conditions were not evaluated because the Traffics Consultant's future traffic volume projections are deemed not significant per the traffic report [Reference 9].

Traffic volume data was not available for off-peak hours, and was based on the highest peak hour traffic as identified in the HDOT Traffic Station Survey [Reference 8] for Ala Wai Boulevard near Ohua Avenue. Noise model parameters for Ala Wai Boulevard included 2703 vehicles per hour, with 0% heavy truck traffic, average speed of 25 mph, traveling on smooth asphalt. The results produced in the traffic noise model from these parameters correlated with the short term noise measurements and traffic counts taken at the project site. The noise model predictions were also able to accurately reproduce the levels documented at the long term measurement location on the project site.

Day-night level (L_{dn}) is based on a 24-hour measurement with a 10 dB penalty applied to noise level measurements taken during the night time hours of 10 PM to 7 AM. Due to the lack of off-peak hour traffic data, a 24 hour noise model could not be created to determine the projected L_{dn} levels. Because of this, a correction factor based on the difference between the L_{dn} and corresponding peak traffic hour $L_{eq}(h)$ from the long term noise measurements was created and applied to the calculated $L_{eq}(h)$ levels from the model to determine the projected L_{dn} levels.

Based on the long term measurements taken at the site, the 24-hour L_{dn} levels ranged from 2 to 6 dB higher than the $L_{eq}(h)$ levels with the L_{dn} having an overall average of 4 dB higher than the corresponding $L_{eq}(h)$ during the AM peak traffic hours as identified by the HDOT Traffic Station Survey. This 4 dB average was used as the correction factor on the calculated $L_{eq}(h)$ values of the peak traffic noise hour from the noise model to predict the L_{dn} at the building façade.

5.3.2 Projected Traffic Noise

Traffic noise was projected on the full elevation façade of the building and on the exterior area at ground level on the Ainahau Vista II project site. The predicted L_{dn} noise levels on the Ala Wai facing elevation of the building and the adjacent sides are shown in Figure 6 and Figure 7 and the noise levels in the exterior ground level areas are shown in Figure 8.

The results from the model indicate that the façade of the side of the building facing Ala Wai Boulevard will experience L_{dn} levels ranging from 69-72 dBA with the loudest levels on the first three floors and the lowest noise levels experienced on

the highest floors. Therefore, all units facing the roadway are expected to have L_{dn} levels above 65 dBA. The Ewa and Diamond Head sides of the building are expected to have L_{dn} levels that range from below 65 and up to 69 dBA. The makai side of the building has L_{dn} levels projected to be below 65 dBA.

The $L_{eq}(h)$ values for these same areas are expected to be 4 dB quieter than the L_{dn} for the same area, per the adjustment factor from section 5.3.1. Therefore the $L_{eq}(h)$ levels on the Ala Wai Boulevard facing side of the project will range from approximately 65-68 dBA. The Ewa and Diamond Head sides of the building will experience $L_{eq}(h)$ levels that range from 61 to 65 dBA. The makai side of the building is expected to have $L_{eq}(h)$ levels below 61 dBA.

In addition to the noise levels on the façade of the building, the model predicted the L_{dn} at ground level. The exterior areas immediately adjacent to Ala Wai Boulevard are expected to experience L_{dn} levels in the range of 70-75 dBA. On the makai side of the building that is shielded from the traffic noise from the building itself, the noise levels are projected to be 35-40 dBA L_{dn}.

5.3.3 Expected Traffic Noise Impacts

Existing traffic noise level projections of the project's Ala Wai Boulevard facing façade are expected to approach the FHWA maximum noise limit of 67 dBA $L_{eq}(h)$ at all apartment units up to the 9th floor. Only the 9th floor $L_{eq}(h)$ level is predicted to be below 66 dBA. No noise impacts are expected on the the Ewa, Diamond Head, or makai sides of the building.

Existing traffic noise projections at apartment façades range from "Acceptable" to "Normally Unacceptable". Noise levels on the the Ewa, Diamond Head, and makai sides of the building are projected to be below the 65 dBA L_{dn} level set as the HUD criteria for "Acceptable". Noise levels on the Ala Wai Boulevard facing side of the building are expected to exceed L_{dn} 65 dBA and which is considered "Normally Unacceptable" per HUD's exterior noise design criteria. Therefore, exterior façade elements such as glazing and wall construction should be designed to comply with the HUD L_{dn} 45 dBA noise criteria inside the units. These areas of the façade are shown in Figure 9 and mitigation recommendations are described in Section 6.5.1.

The Ewa and Diamond Head sides of the building are projected to have noise levels that also exceed HUD noise criteria. However, there are no exterior unit walls with glazing so these areas do not require noise mitigation.

6.0 NOISE IMPACT MITIGATION

6.1 HDOH Noise Permit for Construction Noise

In cases where construction noise exceeds, or is expected to exceed the State's "maximum permissible" property line noise levels [Reference 1], a permit must be obtained from HDOH to allow the operation of vehicles, cranes, construction equipment, power tools, etc., which emit noise levels in excess of the "maximum permissible" levels.

In order for HDOH to issue a construction noise permit, the contractor must submit a noise permit application to HDOH, which describes the construction activities for the project. Prior to issuing the noise permit, HDOH may require action by the contractor to incorporate noise mitigation into the construction plan. HDOH may also require the contractor to conduct noise monitoring or community meetings inviting the neighboring residents and business owners to discuss construction noise. The contractor should use reasonable and standard practices to mitigate noise, such as using mufflers on diesel and gasoline engines, using properly tuned and balanced machines, etc. However, HDOH may require

additional noise mitigation, such as temporary noise barriers, or time of day usage limits for certain kinds of construction activities.

Specific permit restrictions for construction activities [Reference 1] are:

> "No permit shall allow any construction activities which emit noise in excess of the maximum permissible sound levels ... before 7:00 AM and after 6:00 PM of the same day, Monday through Friday."
>
> "No permit shall allow any construction activities which emit noise in excess of the maximum permissible sound levels... before 9:00 AM and after 6:00 PM on Saturday."
>
> "No permit shall allow any construction activities which emit noise in excess of the maximum permissible sound levels on Sundays and on holidays."

Although not anticipated during construction of the rental apartment development, the use of pile drivers, hoe rams and jack hammers 25 pounds (lbs.) or larger, high pressure sprayers, and chain saws are restricted to 9:00 AM to 5:30 PM, Monday through Friday. In addition, construction equipment and on-site vehicles or devices whose operations involve the exhausting of gas or air, excluding pile hammers and pneumatic hand tools weighing less than 15 pounds (lbs.), must be equipped with mufflers [Reference 1].

The HDOH noise permit does not limit the noise level generated at the construction site, but rather the times at which noisy construction can take place. However, when considering a noise permit application, consideration is also given to any proposed noise mitigation for the project. Therefore, noise mitigation for construction activities should be addressed using project management and the source and path noise control measures discussed in Section 6.3 below.

6.2 HDOH Noise Variance for Construction Noise

In cases where nighttime construction is expected, a variance must be obtained from the HDOH to allow the operation of a noise source which emits noise levels in excess of the maximum permissible levels and which operation does not conform to the requirements of the noise permit (i.e., nighttime construction activities which occur between 6:00 p.m. and 7:00 a.m., Monday through Friday). However, nighttime construction is not anticipated for this project so a variance will not be required.

6.3 Mitigation of Project Construction Noise

6.3.1 Mitigation of Noise Source

Mitigating construction noise at the source is the most effective form of noise control. The source control methods listed in Table 5 below can be applied to most construction equipment.

Table 5. Construction Noise Source Control Methods

Scheduling	Limit activities that generate the most noise to less sensitive time periods (e.g. daytime hours).
Substitution	Use quieter methods/equipment when possible (e.g. low noise generators, smaller excavators, etc.).
Exhaust Mufflers	Install quality mufflers on equipment.
Reduced Power Options	Use smallest size and/or lowest power as required.
Quieter Backup Alarms	Install manual adjustable or ambient sensitive alarms. Do not use backup alarms during night work.
Motors	Insulate or enclose motors
Equipment Selection	Electric equipment is quieter than pneumatic equipment
Equipment Retrofit	Rubber chucks in jackhammers
Equipment Maintenance	Sharpen and balance tools, repair silencing equipment, replace worn parts and open airways
Staging Area	Maximize the distance between the construction staging areas and nearby receptors to the greatest extent possible

In general, a majority of the construction noise mitigation is in the form of scheduling, specifically, limiting the construction hours to the time frame specified by the HDOH.

6.3.2 Mitigation of Noise Path

When source control measures are not sufficient to avoid a noise impact, path control measures must be considered. Non-permanent noise barriers or curtains and equipment enclosures could be installed at the construction site to reduce construction noise in noise sensitive locations. The general contractor could also conduct noise monitoring of construction during noisy or extensive activities at locations close to residential properties.

6.4 Mitigation of Development Noise

The design of the Ainahau Vista II building should give consideration to controlling noise emanating from all stationary mechanical equipment such as air-cooled chillers, cooling towers, air-handling units, condensing units, emergency generators, etc. so as to comply with the State of Hawaii Community Noise Control rules [Reference 1]. Noisy equipment should be located away from neighboring properties and residential units as much as possible. Enclosed mechanical rooms may be required for some equipment.

6.5 Mitigation of Traffic Noise

6.5.1 Residential Interior Spaces of the Development

Units overlooking Ala Wai Boulevard will experience relatively high noise levels due to traffic on Ala Wai Boulevard. The exterior wall should have a minimum rating of STC 50, which is typical of poured concrete in any thickness greater than 4 inches.

A minimum STC 35 rated window assembly, typical of a 1" IGU, should be considered to comply with the HUD interior noise design criteria for all units facing Ala Wai Boulevard. The window assembly typically degrades the STC rating of the glazing by 3 points, therefore STC requirements for the glass itself should be a minimum of STC 38. Smaller window sizes may reduce these STC requirements.

Additionally, no window AC or PTAC ductless HVAC units should be installed as they would degrade the acoustical isolation of the wall and window assembly.

6.5.2 Residential Exterior Spaces of the Development

The exterior areas immediately adjacent to Ala Wai Boulevard will experience noise levels that are higher than the established HUD criteria but future noise levels are expected to remain the same as the existing ambient noise environment. Since these exterior areas are not intended for recreational purposes or other activities, no additional noise mitigation measures will be required.

REFERENCES

1. Chapter 46, *Community Noise Control*, Department of Health, State of Hawaii, Administrative Rules, Title 11, September 23, 1996.

2. *Department of Transportation, Federal Highway Administration Procedures for Abatement of Highway Traffic Noise*, Title 23, CFR, Chapter 1, Subchapter J, Part 772, 38 FR 15953, June 19, 1973; Revised at 75 FR 32820, July 13, 2010.

3. *Highway Traffic Noise: Analysis and Abatement Guidance*, U.S. Department of Transportation, Federal Highways Administration, December 2011.

4. *Highway Noise Policy and Abatement Guidelines*, Department of Transportation, Highways Division, State of Hawaii, November 29, 2011.

5. *Department of Housing and Urban Development Environmental Criteria and Standards*, Title 24, CFR, Part 51, 44 FR 40860, July 12, 1979; Amended by 49 FR 880, January 6, 1984.

6. M. David Egan, *Architectural Acoustics*, McGraw-Hill Book Company, 1998

7. *Department of Transportation, Federal Transit Authority: Transit Noise and Vibration Impact Assessment*, May 2006.

8. *Hawaii DOT 2011 Traffic Station Maps,* Island of Oahu, Station# B72771000000, Hawaii Department of Transportation, Highways Division, Planning Branch, October 2012

9. DataKustik CadnaA software program, Version 4.5.151; DataKustik GmbH, 2015.

10. *Traffic Assessment for Ainahau Vista II,* Julian Ng Incorporated, February 2015

APPENDIX 3

AGENCY PRE-CONSULTATION COMMENTS

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IN REPLY REFER TO:
STP 8.1786

April 23, 2015

Mr. Keith Kurahashi
President
Kusao & Kurahashi, Inc.
Manoa Market Place
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Dear Mr. Kurahashi:

Subject: Ainahau Vista II
Draft Environmental Assessment Pre-Consultation and
201H Application for Affordable Rental Development
Waikiki, Oahu, Hawaii
TMK: (1) 2-6-024: 070 and 071

The subject project is not expected to significantly impact the State highway facility. However, a permit from DOT Highways Division, is required for the transport of oversized and/or overweight materials and equipment on State highway facilities.

If there are any questions, please contact Mr. Norren Kato of the DOT Statewide Transportation Planning Office at telephone number (808) 831-7976.

Sincerely,

FORD N. FUCHIGAMI
Director of Transportation

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KIRK CALDWELL
MAYOR

MICHAEL D. FORMBY
DIRECTOR

MARK N. GARRITY, AICP
DEPUTY DIRECTOR

TP4/15-606038R

May 4, 2015

Mr. Keith Kurahashi
President
Kusao & Kurahashi, Inc.
2752 Woodlawn Drive, Suite 5-217
Honolulu, Hawaii 96822

Dear Mr. Kurahashi:

SUBJECT: 201H Application and Pre-Consultation on a proposed Draft Environmental Assessment (DEA) for Ainahau Vista II, a Senior Affordable Rental Development in Waikiki, Oahu, Hawaii, Tax Map Key No. (1) 2-6-024: 070 & 071

In response to your letters dated April 8, 2015, we have the following comments:

1. No objections or comments concerning your 201H Application.

2. The DEA should discuss traffic impacts due to the project and possible mitigative measures. It should contain a traffic management plan, which should note that during construction, deliveries to the site should be scheduled during off-peak traffic hours (8:30 a.m. to 3:30 p.m.) to minimize any impacts to pedestrians and traffic at or near the proposed project site driveway.

3. The DEA should also provide a discussion on the transit impacts of the project, especially on the City's paratransit (TheHandi-Van) operations.

4. Accommodations for paratransit pick-up/drop-off should be provided on-site. A pick-up/drop-off area on-site should have adequate turning geometrics to provide for the City's Handi-Van vehicles.

5. Waikiki Neighborhood Board No. 9, as well as the area residents, businesses, emergency personnel, etc., should be kept apprised of the details of the proposed project and the impacts, particularly during construction, the project may have on the adjoining local street area network.

6. A street usage permit from the City's Department of Transportation Services (DTS) shall be obtained for any construction-related work that may require the temporary closure of any traffic lane on a City street. Your 201H Application does not exempt the project from street usage permit fees charged by DTS.

7. Ensure that all access driveways provide safe pedestrian conditions when crossing.

We reserve further comment pending submission of the DEA.

Thank you for the opportunity to review this matter. Should you have any further questions, please contact Michael Murphy of my staff at 768-8359.

Very truly yours,

Michael D. Formby
Director

cc: Mr. Stan Fujimoto, Project Manager,
State of Hawaii, Hawaii Housing Finance
and Development Corporation

RECEIVED
LAND DIVISION
2015 JUN 18 PM 1:55
DEPT. OF LAND & NATURAL RESOURCES
STATE OF HAWAII

DAVID Y. IGE
GOVERNOR OF HAWAII

SUZANNE D. CASE
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

KEKOA KALUHIWA
FIRST DEPUTY

W. ROY HARDY
ACTING DEPUTY DIRECTOR - WATER

AQUATIC RESOURCES
BOATING AND OCEAN RECREATION
BUREAU OF CONVEYANCES
COMMISSION ON WATER RESOURCE MANAGEMENT
CONSERVATION AND COASTAL LANDS
CONSERVATION AND RESOURCES ENFORCEMENT
ENGINEERING
FORESTRY AND WILDLIFE
HISTORIC PRESERVATION
KAHOOLAWE ISLAND RESERVE COMMISSION
LAND
STATE PARKS

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES

STATE HISTORIC PRESERVATION DIVISION
KAKUHIHEWA BUILDING
601 KAMOKILA BLVD, STE 555
KAPOLEI, HAWAII 96707

June 17, 2015

Russell Y. Tsuji, Administrator
Land Division
Department of Land and Natural Resources
P.O. Box 621
Honolulu, HI 96809

LOG NO: 2015.01425
DOC NO: 1506GC03
Archaeology, Architecture
History and Culture

Dear Mr. Tsuji:

SUBJECT: **Chapter 6E-8 and National Historic Preservation Act (NHPA) Section 106 Consultation – Ainahau Vista II - Draft EA Pre-Consultation and Ainahau Vista II 201H Application**
Waikīkī Ahupua'a, Honolulu (Kona) District, Island of O'ahu
TMK: (1) 2-6-024: 070 and 071

Thank you for the opportunity to provide comments on the Pre-Consultation phase for a Draft Environmental Assessment (DEA) for the proposed Ainahau Vista II senior affordable rental development in Waikīkī. The Hawaii Housing Development Corporation (applicant) indicates that an environmental review is triggered by the possible use of State and city funds and Federal tax credits to help finance the proposed development. We received this submittal on April 17, 2015, and we apologize for the delayed review.

This submittal will require the State Historic Preservation Division (SHPD) to review the proposed senior affordable rental development under Hawaii Revised Statutes (HRS) §6E and possibly under the National Historic Preservation Act (NHPA) Section 106. The involvement of Federal programs could be the nexus for the NHPA Section 106 review to be triggered. The governing statues to Section 106 is the 36 CFR 800. Attached are steps that the Hawaii Housing Development Corporation needs to address under Section 106:

- Name of the federal and state funding or licensing agency/agencies involved with this project. The State Historic Preservation Officer is required to respond to the federal agency or to the agency's designated authority. Consultants contracted to prepare information, analyses, or recommendations are not recognized as a federally-delegated authority. Every project has a federal funding, licensing, or permitting agency. Please include the name, address, and telephone number of the contact person/s at the federally delegated authority. A federal agency or federally delegated authority contact is mandatory pursuant to 36 CFR §800.2(a);
- A delegation letter from the federal agency that identifies the particular activities and responsibilities they have delegated to you on their behalf;
- Information documenting that the agency has evaluated and determined the project constitutes an undertaking as defined in 36 CFR §800.16(y);
- Information indicating that a thorough and good faith effort has been conducted to identify historic properties (architectural, archaeological, or traditional cultural properties [TCP's]) within the area of potential effect (APE) pursuant to 36 CFR §800.4(a) and 4(b). The identification effort should include consultation efforts with Native Hawaiian Organizations (NHOs) [36 CFR §800.4(a)(4)] and consultation efforts with individuals, organizations and the public with a demonstrated interest in the undertaking [36

CFR §800.2(c)] and should include documentation of the nature of the consultation, the names of the consulted parties and their comments/concerns; and

- A determination of eligibility and significance for any properties or potential historic districts within the APE [36 CFR §800.4(c)]; assessment of project effect [36 CFR §800.4(d)]; and if necessary resolution of adverse effects [36 CFR §800.6] for any sites located within the APE.

In addition to the above, indicate whether the APE boundaries and acreage includes all ingress/egress and staging areas related to the project, and provide information on the anticipated locations and depths of all excavations. Furthermore, the submitted site plan indicates there is a burial site within the 20-foot setback, please provide further information on this site.

We look forward to receiving the federal agency's and/or delegated authority's request to initiate the NHPA Section 106 consultation on this proposed undertaking.

Please contact Ms. Jessica L. Puff at (808) 692-8023 or at Jessica.L.Puff@hawaii.gov if you have any architectural questions or concerns, and Ms. Regina Hilo for any cultural or historical concerns, including burials, at (808) 692-8026 or at Regina.Hilo@hawaii.gov. Please contact Dr. Susan A. Lebo at Susan.A.Lebo@hawaii.gov or at (808) 692-8019 or if you have any questions or concerns regarding archaeological resources or this letter.

Aloha,

Susan A. Lebo

Susan A. Lebo, PhD
Acting Archaeology Branch Chief

Signed for

Alan A. Downer, PhD
Administrator, State Historic Preservation Division
Deputy State Historic Preservation Officer

cc: Steve L. Molmen, DLNR-Land Division (steve.molment@hawaii.gov)
Keith Kurahashi, Kusao & Kurahashi, Inc. (kkurahashi@hawaii.rr.com)

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.honoluludpp.org • CITY WEB SITE: www.honolulu.gov

KIRK CALDWELL
MAYOR

GEORGE I. ATTA, FAICP
DIRECTOR

ARTHUR D. CHALLACOMBE
DEPUTY DIRECTOR

2015/ELOG-694(JY)

April 27, 2015

Mr. Keith Kurahashi
Kusao & Kurahashi, Inc.
2752 Woodlawn Drive, Suite 5-217
Honolulu, Hawaii 96822

Dear Mr. Kurahashi:

SUBJECT: Request for Comments
Chapter 201H Application and
Pre-Consultation for Draft Environmental Assessment
Proposed Ainahau Vista II - Waikiki
Tax Map Key 2-6-24: 70 and 71

This is in response to your request (received April 13, 2015) for comments regarding a proposed senior affordable rental development on the subject site, which is in the Apartment Precinct of the Waikiki Special District with a 240-foot height limit. We understand that the project will include 62 rental units (47 one-bedroom and 15 studio units) in a nine-story building with a height of 80 feet, and 22 parking stalls on the ground floor. This rental housing will be for those seniors that earn at or below the 60% median income.

The project will be subject to the rules and regulations of the Waikiki Special District and will require a Special District Permit (Major). Since the two parcels were joint developed in 2005, be sure to include the existing senior housing project in the development standard calculations and tabulations (i.e., yards, transitional height setbacks, floor area, building area, open space, parking, loading, and park dedication). Discuss how the project will meet the Waikiki Special District objectives, especially how it will contribute to a Hawaiian sense of place. Show and discuss building mass relationships between the existing and proposed buildings. Discuss any shared facilities and operations.

Should you have any further questions on this matter, please contact Joette Yago of our Urban Design Branch at 768-8034 or jyago@honolulu.gov.

Very truly yours,

Anthony X. Ching

FOR George I. Atta, FAICP
Director

Doc 1239534

BOARD OF WATER SUPPLY

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

June 12, 2015

KIRK CALDWELL, MAYOR

DUANE R. MIYASHIRO, Chair
ADAM C. WONG, Vice Chair
THERESIA C. McMURDO
DAVID C. HULIHEE
KAPUA SPROAT

ROSS S. SASAMURA, Ex-Officio
FORD N. FUCHIGAMI, Ex-Officio

ERNEST Y. W. LAU, P.E.
Manager and Chief Engineer

ELLEN E. KITAMURA, P.E.
Deputy Manager and Chief Engineer

Mr. Keith Kurahashi, President
Kusao & Kurahashi, Inc.
Planning and Zoning Consultants
2752 Woodlawn Drive, Suite 5-217
Honolulu, Hawaii 96822

Dear Mr. Kurahashi:

Subject: Your Letter Dated April 8, 2015 Requesting Comments for the Environmental Assessment Pre-Consultation for Ainahau Vista II, a Senior Affordable Rental Development in Waikiki – Tax Map Key: 2-6-024: 070 & 071

Thank you for the opportunity to comment on the proposed senior affordable rental development.

The existing water system is adequate to accommodate the proposed development. However, please be advised that this information is based upon current data, and therefore, the Board of Water Supply (BWS) reserves the right to change any position or information stated herein up until the final approval of the building permit application. The final decision on the availability of water will be confirmed when the building permit application is submitted for approval.

When water is made available, the applicant will be required to pay our Water System Facilities Charges (WSFC) for resource development, transmission and daily storage.

Water conservation measures are required for all proposed developments. These measures include low flow plumbing fixtures, utilization of nonpotable water for irrigation using rain catchment and chiller/air handler condensate, cooling tower conductivity meters and water softening recycling systems, drought tolerant plants, xeriscape landscaping, efficient irrigation systems and the use of Water Sense labeled ultra-low-flow water fixtures and toilets.

High-rise buildings with booster pumps will be required to install water hammer arrestors or expansion tanks to reduce pressure spikes and potential main breaks in our water system.

The on-site fire protection requirements should be coordinated with the Fire Prevention Bureau of the Honolulu Fire Department.

We have no objections to the deferral of the applicable WSFC and/or installation charges until the construction loan is available. Prior to or when the project is ready to go through its permit application process, the developer should submit a letter requesting for the deferral of payment of the applicable charges and indicate in the letter approximately when payment can be made. Also, we will need a contact person and mailing address to send the postdated invoice before we can approve the building permit application.

The proposed project is subject to BWS Cross-Connection Control and Backflow Prevention requirements prior to the issuance of the Building Permit Applications.

If you have any questions, please contact Robert Chun, Project Review Branch of our Water Resources Division at 748-5443.

Very truly yours,

for ERNEST Y. W. LAU, P.E.
Manager and Chief Engineer

cc: Craig Hirai, HHFDC

DEPARTMENT OF ENVIRONMENTAL SERVICES
CITY AND COUNTY OF HONOLULU
1000 ULUOHIA STREET, SUITE 308, KAPOLEI, HAWAII 96707
TELEPHONE: (808) 768-3486 • FAX: (808) 768-3487 • WEBSITE: http://envhonolulu.org

KIRK CALDWELL
MAYOR

LORI M.K. KAHIKINA, P.E.
DIRECTOR

TIMOTHY A. HOUGHTON
DEPUTY DIRECTOR

ROSS S. TANIMOTO, P.E.
DEPUTY DIRECTOR

IN REPLY REFER TO
PRO 15-067

April 23, 2015

Mr. Keith Kurahashi, President
Kusao & Kurahashi, Inc.
Planning and Zoning Consultants
2752 Woodland Drive, Suite 5-217
Honolulu, Hawaii 96822

Dear Mr. Kurahashi:

SUBJECT: Pre-Consultation on a Proposed Draft Environmental Assessment for Ainahau Vista II, a Senior Affordable Rental Development in Waikiki, Oahu, Hawaii
Tax Map Key: (1) 2-6-024:070 & 071

We have reviewed the document as transmitted to us by your letter dated April 8, 2015 regarding the above subject. We have no comments at this time.

Should you have any questions, please call Marisol Olaes, Civil Engineer, at 768-3467.

Sincerely,

Ross S. Tanimoto

Lori M.K. Kahikina, P.E.
Director

DEPARTMENT OF FACILITY MAINTENANCE

CITY AND COUNTY OF HONOLULU

1000 Ulu'ohia Street, Suite 215, Kapolei, Hawaii 96707
Phone: (808) 768-3343 • Fax: (808) 768-3381
Website: www.honolulu.gov

KIRK CALDWELL
MAYOR

ROSS S. SASAMURA, P.E.
DIRECTOR AND CHIEF ENGINEER

EDUARDO P. MANGLALLAN
DEPUTY DIRECTOR

IN REPLY REFER TO:
DRM 15-387

June 2, 2015

Mr. Keith Kurahashi, President
Kusao & Kurahashi, Inc.
Manoa Marketplace
2752 Woodlawn Drive, Suite 5-217
Honolulu, Hawaii 96822

Dear Mr. Kurahashi:

SUBJECT: Pre-Consultation on a Proposed Draft Environmental Assessment for Ainahau Vista II, a Senior Affordable Rental Development in Waikiki, Oahu, Hawaii, Tax Map Key No. (1) 2-6-024: 070 & 071

Thank you for the opportunity to review and provide our input regarding your letter dated April 8, 2015, on the above-subject project documents and the CD ROM.

Our comments are as follows:

- Once construction phase commence, install approved Best Management Practices (BMP) fronting all drainage facilities (Catch Basin/Drainage inlets along Tusitala Street, Ala Wai Boulevard, Kaiulani Avenue, and Kapili Street).

- During construction and upon completion of the project, any damages/deficiencies to Tusitala Street and Ala Wai Boulevard right-of-ways shall be corrected to City standards and at the owner's cost.

- The contractor shall be responsible for clearing storm drain facilities to mitigate flooding during construction and remove BMP upon completion of the project.

If you have any questions, please call Mr. Kyle Oyasato of the Division of Road Maintenance at 768-3697.

Sincerely,

Ross S. Sasamura, P.E.
Director and Chief Engineer

DAVID Y. IGE
GOVERNOR

KATHRYN S. MATAYOSHI
SUPERINTENDENT

STATE OF HAWAI'I
DEPARTMENT OF EDUCATION
P.O. BOX 2360
HONOLULU, HAWAI'I 96804

OFFICE OF SCHOOL FACILITIES AND SUPPORT SERVICES

April 22, 2015

Mr. Keith Kurahashi
Kusao & Kurahashi, Inc.
Planning and Zoning Consultants
2752 Woodlawn Drive, Suite 5-217
Honolulu, Hawaii 96822

Re: 201H Application and Pre-Consultation Draft Environmental Assessment for the Proposed Ainahau Vista II, a Senior Affordable Rental Development in Waikiki, Oahu, Hawaii
TMK: (1) 2-6-024: 070 & 071

Dear Mr. Kurahashi:

The Department of Education (DOE) has reviewed the 201H application and the Draft Environmental Assessment for the proposed senior affordable rental development, Ainahau Vista II.

The DOE does not anticipate that this project will have a significant impact of its facilities.

We appreciate the opportunity to provide comment. If you have any questions, please call Heidi Meeker, of the Facilities Development Branch at 377-8301.

Respectfully,

Kenneth G. Masden II
Public Works Manager
Planning Section

KGM:jmb

c: Craig K. Hirai, Executive Director, Hawaii Housing Finance and Development Corporation

DEPARTMENT OF PARKS & RECREATION

CITY AND COUNTY OF HONOLULU

1000 Uluohia Street, Suite 309, Kapolei, Hawaii 96707
Phone: (808) 768-3003 • Fax: (808) 768-3053
Website: www.honolulu.gov

KIRK CALDWELL
MAYOR

MICHELE K. NEKOTA
DIRECTOR

JEANNE C. ISHIKAWA
DEPUTY DIRECTOR

April 16, 2015

Mr. Keith Kurahashi
Kusao & Kurahashi, Inc.
2752 Woodlawn Drive, Suite 5-217
Honolulu, Hawaii 96707

Dear Mr. Kurahashi:

SUBJECT: Pre-Consultation on a Draft Environmental Assessment
For Ainahau Vista II, Tax Map Key No.: (1) 2-6-024: 070 & 071
and 201H Application for TMK: (1) 2-6-024: 070 & 071

Thank you for the opportunity to review and comment at the pre-consultation stage of the Draft Environmental Assessment and 201H Application for the Hawaii Housing Development Corporation's 62 unit Ainahau Vista II Senior Affordable Rental Development in Waikiki.

The Department of Parks and Recreation (DPR) has no comment on the Draft Environmental Assessment and has no objection to the approval of the requested 201H Application. As the proposed project will have no impact on any program or facility of the DPR. You may remove us as a consulted party to the balance of the EIS process.

Should you have any questions, please contact Mr. John Reid, Planner at 768-3017.

Sincerely,

Michele K. Nekota
Director

MKN:jr
(605787)

cc: Craig Hirai, Executive Director, Hawaii Housing Finance and Development Corporation

POLICE DEPARTMENT

CITY AND COUNTY OF HONOLULU

801 SOUTH BERETANIA STREET · HONOLULU, HAWAII 96813
TELEPHONE: (808) 529-3111 · INTERNET: www.honolulupd.org

KIRK CALDWELL
MAYOR

LOUIS M. KEALOHA
CHIEF

DAVE M. KAJIHIRO
MARIE A. McCAULEY
DEPUTY CHIEFS

OUR REFERENCE MT-DK

April 21, 2015

Mr. Keith Kurahashi, President
Kusao & Kurahashi, Inc.
2752 Woodlawn Drive, Suite 5-217
Honolulu, Hawaii 96822

Dear Mr. Kurahashi:

This is in response to your letter dated April 8, 2014, requesting pre-consultation comments on a proposed Draft Environment Assessment for the Ainahau Vista II, a senior affordable rental development in Waikiki.

The Honolulu Police Department has no concerns regarding the project at this time.

If there are any questions, please call Major Lisa A. Mann of District 6 (Waikiki) at 723-3345.

Thank you for the opportunity to review this project.

Sincerely,

LOUIS M. KEALOHA
Chief of Police

By
MARK TSUYEMURA
Management Analyst VI
Office of the Chief

Serving and Protecting With Aloha

HONOLULU FIRE DEPARTMENT

CITY AND COUNTY OF HONOLULU

636 South Street
Honolulu, Hawaii 96813-5007
Phone: 808-723-7139 Fax: 808-723-7111 Internet: www.honolulu.gov/hfd

KIRK CALDWELL
MAYOR

MANUEL P. NEVES
FIRE CHIEF

LIONEL CAMARA JR.
DEPUTY FIRE CHIEF

April 23, 2015

Mr. Keith Kurahashi, President
Kusao & Kurahashi, Inc.
Manoa Marketplace
2752 Woodlawn Drive, Suite 5-217
Honolulu, Hawaii 96822

Dear Mr. Kurahashi:

Subject: Preconsultation on a Proposed Draft Environmental Assessment
Ainahau Vista II
Tax Map Key: 2-6-024: 070 and 071

In response to your letter dated April 8, 2015, regarding the above-mentioned subject, the Honolulu Fire Department (HFD) requires that the following be complied with:

1. Fire department access roads shall be provided such that any portion of the facility or any portion of an exterior wall of the first story of the building is located not more than 150 feet from fire department access roads as measured by an approved route around the exterior of the building or facility. (National Fire Protection Association [NFPA] 1, Uniform Fire Code [UFC]™, 2006 Edition, Section 18.2.3.2.2.)

   A fire department access road shall extend to within 50 feet of at least one exterior door that can be opened from the outside and provides access to the interior of the building. (NFPA 1, UFC™, 2006 Edition, Section 18.2.3.2.1.)

2. A water supply approved by the county, capable of supplying the required fire flow for fire protection, shall be provided to all premises upon which facilities or buildings, or portions thereof, are hereafter constructed, or moved into or within the county. When any portion of the facility or building is in excess of 150 feet from a water supply on a fire apparatus access road, as measured by an approved route around

the exterior of the facility or building, on-site fire hydrants and mains capable of supplying the required fire flow shall be provided when required by the AHJ [Authority Having Jurisdiction]. (NFPA 1, UFC™, 2006 Edition, Section 18.3.1, as amended.)

3. The unobstructed width and unobstructed vertical clearance of a fire apparatus access road shall meet county requirements. (NFPA 1, UFC™, 2006 Edition, Section 18.2.3.4.1.1, as amended.)

4. Submit civil drawings to the HFD for review and approval.

Should you have questions, please contact Battalion Chief Terry Seelig of our Fire Prevention Bureau at 723-7151 or tseelig@honolulu.gov.

Sincerely,

Socrates D. Bratakos

SOCRATES D. BRATAKOS
Assistant Chief

SDB/SY:bh

DAVID Y. IGE
GOVERNOR OF HAWAII

SUZANNE D. CASE
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

KEKOA KALUHIWA
FIRST DEPUTY

W. ROY HARDY
ACTING DEPUTY DIRECTOR - WATER

AQUATIC RESOURCES
BOATING AND OCEAN RECREATION
BUREAU OF CONVEYANCES
COMMISSION ON WATER RESOURCE MANAGEMENT
CONSERVATION AND COASTAL LANDS
CONSERVATION AND RESOURCES ENFORCEMENT
ENGINEERING
FORESTRY AND WILDLIFE
HISTORIC PRESERVATION
KAHOOLAWE ISLAND RESERVE COMMISSION
LAND
STATE PARKS

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
POST OFFICE BOX 621
HONOLULU, HAWAII 96809

April 28, 2015

Keith Kurahashi, President
Kusao & Kurahashi, Inc.
Planning & Zoning Consultants
2752 Woodlawn Drive, Suite 5-217
Honolulu, HI 96822

Via email: kkurahashi@hawaii.rr.com

Dear Mr. Kurahashi,

SUBJECT: Ainahau Vista II 201H Application; Ainahau Vista II Draft Environmental Assessment Pre-Consultation

Thank you for the opportunity to review and comment on the subject matter. The Department of Land and Natural Resources' (DLNR) Land Division distributed or made available a copy of your report pertaining to the subject matter to DLNR Divisions for their review and comments.

At this time, enclosed are comments from (1) Land Division – Oahu District; and (2) Engineering Division. No other comments were received as of our suspense date. Should you have any questions, please feel free to call Supervising Land Agent Steve Molmen at 587-0439. Thank you.

Sincerely,

Russell Y. Tsuji
Land Administrator

DAVID Y. IGE
GOVERNOR OF HAWAII

CARTY S. CHANG
INTERIM CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

KEKOA KALUHIWA
FIRST DEPUTY

W. ROY HARDY
ACTING DEPUTY DIRECTOR - WATER

AQUATIC RESOURCES
BOATING AND OCEAN RECREATION
BUREAU OF CONVEYANCES
COMMISSION ON WATER RESOURCE MANAGEMENT
CONSERVATION AND COASTAL LANDS
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FORESTRY AND WILDLIFE
HISTORIC PRESERVATION
KAHOOLAWE ISLAND RESERVE COMMISSION
LAND
STATE PARKS

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

April 14, 2015

MEMORANDUM

TO: **DLNR Agencies:**
___Div. of Aquatic Resources
___Div. of Boating & Ocean Recreation
_X_ Engineering Division
___Div. of Forestry & Wildlife
___Div. of State Parks
_X_ Commission on Water Resource Management
_X_ Office of Conservation & Coastal Lands
_X_ Land Division – Oahu District
_X_ Historic Preservation

FROM: Russell Y. Tsuji, Land Administrator
SUBJECT: Ainahau Vista II 201H Application; Ainahau Vista II Draft Environmental Assessment Pre-Consultation
LOCATION: Waikiki, Oahu, Hawaii, Tax Map Key No. (1) 2-6-024: 070 & 071
APPLICANT: Hawaii Housing Development Corporation by its agent Kusao & Kurahashi, Inc.

Transmitted for your review and comment on the above-referenced document. We would appreciate your comments on these documents, a portion of which are attached, and which the remainder can be found here:

1. Go to: https://sp01.ld.dlnr.hawaii.gov/LD
2. Login: Username: LD\Visitor Password: 0pa$$word0 (first and last characters are zeros)
3. Click on: Requests for Comments. Click on the subject file "Ainahau Vista II 201H Application; Ainahau Vista II Draft Environmental Assessment Pre-Consultation", then click on "Files" and "Download a copy". (Any issues accessing the document should be directed to Jonathan Real, Applications/Systems Analyst at 587-0427 or Jonathan.C.Real@hawaii.gov)

Please submit any comments by April 28, 2015. If no response is received by this date, we will assume your agency has no comments. If you have any questions about this request, please contact Supervising Land Agent Steve Molmen at (808) 587-0439. Thank you.

Attachments

( ) We have no objections.
(✓) We have no comments.
( ) Comments are attached.

Signed: T Cha
Print Name: Time Cha
Date: 4/17/2015

DAVID Y. IGE
GOVERNOR OF HAWAII

CARTY S. CHANG
INTERIM CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

KEKOA KALUHIWA
FIRST DEPUTY

W. ROY HARDY
ACTING DEPUTY DIRECTOR - WATER

AQUATIC RESOURCES
BOATING AND OCEAN RECREATION
BUREAU OF CONVEYANCES
COMMISSION ON WATER RESOURCE MANAGEMENT
CONSERVATION AND COASTAL LANDS
CONSERVATION AND RESOURCES ENFORCEMENT
ENGINEERING
FORESTRY AND WILDLIFE
HISTORIC PRESERVATION
KAHOOLAWE ISLAND RESERVE COMMISSION
LAND
STATE PARKS

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

April 14, 2015

'15 APR 16 AM 11:05 ENGINEERING

MEMORANDUM

TO: FR:

DLNR Agencies:
___Div. of Aquatic Resources
___Div. of Boating & Ocean Recreation
_X_ Engineering Division
___Div. of Forestry & Wildlife
___Div. of State Parks
_X_ Commission on Water Resource Management
_X_ Office of Conservation & Coastal Lands
_X_ Land Division – Oahu District
_X_ Historic Preservation

FROM: TO:
Russell Y. Tsuji, Land Administrator
SUBJECT: Ainahau Vista II 201H Application; Ainahau Vista II Draft Environmental Assessment Pre-Consultation
LOCATION: Waikiki, Oahu, Hawaii, Tax Map Key No. (1) 2-6-024: 070 & 071
APPLICANT: Hawaii Housing Development Corporation by its agent Kusao & Kurahashi, Inc.

Transmitted for your review and comment on the above-referenced document. We would appreciate your comments on these documents, a portion of which are attached, and which the remainder can be found here:

1. Go to: https://sp01.ld.dlnr.hawaii.gov/LD
2. Login: Username: LD\Visitor Password: 0pa$$word0 (first and last characters are zeros)
3. Click on: Requests for Comments. Click on the subject file "Ainahau Vista II 201H Application; Ainahau Vista II Draft Environmental Assessment Pre-Consultation", then click on "Files" and "Download a copy". (Any issues accessing the document should be directed to Jonathan Real, Applications/Systems Analyst at 587-0427 or Jonathan.C.Real@hawaii.gov)

Please submit any comments by April 28, 2015. If no response is received by this date, we will assume your agency has no comments. If you have any questions about this request, please contact Supervising Land Agent Steve Molmen at (808) 587-0439. Thank you.

Attachments

( ) We have no objections.
( ) We have no comments.
(✓) Comments are attached.

Signed: _____
Print Name: Carty S. Chang, Chief Engineer
Date: 4/21/15

DEPARTMENT OF LAND AND NATURAL RESOURCES
ENGINEERING DIVISION

LD/ Russell Y. Tsuji
Ref.: 201H Application and Pre-Consultation for DEA for Proposed Ainahau Vista II (Senior Affordable Rental Development), Waikiki
Oahu.024

COMMENTS

( ) We confirm that the project site, according to the Flood Insurance Rate Map (FIRM), is located in Flood Zone ___.

(X) Please take note that the project site according to the Flood Insurance Rate Map (FIRM), is located in Zone AE. The National Flood Insurance Program regulates developments within this zone as indicated in bold letters below.

( ) Please note that the correct Flood Zone Designation for the project site according to the Flood Insurance Rate Map (FIRM) is ___.

(X) Please note that the project must comply with the rules and regulations of the National Flood Insurance Program (NFIP) presented in Title 44 of the Code of Federal Regulations (44CFR), whenever development within a Special Flood Hazard Area is undertaken. If there are any questions, please contact the State NFIP Coordinator, Ms. Carol Tyau-Beam, of the Department of Land and Natural Resources, Engineering Division at (808) 587-0267.

Please be advised that 44CFR indicates the minimum standards set forth by the NFIP. Your Community's local flood ordinance may prove to be more restrictive and thus take precedence over the minimum NFIP standards. If there are questions regarding the local flood ordinances, please contact the applicable County NFIP Coordinators below:

(X) Mr. Mario Siu Li at (808) 768-8098 of the City and County of Honolulu, Department of Planning and Permitting.

( ) Mr. Frank DeMarco at (808) 961-8042 of the County of Hawaii, Department of Public Works.

( ) Mr. Carolyn Cortez at (808) 270-7253 of the County of Maui, Department of Planning.

( ) Mr. Stanford Iwamoto at (808) 241-4896 of the County of Kauai, Department of Public Works.

(X) The applicant should include project water demands and infrastructure required to meet water demands. Please note that the implementation of any State-sponsored projects requiring water service from the Honolulu Board of Water Supply system must first obtain water allocation credits from the Engineering Division before it can receive a building permit and/or water meter.

(X) The applicant should provide the water demands and calculations to the Engineering Division so it can be included in the State Water Projects Plan Update.

( ) Additional Comments: _____

_____

( ) Other: _____

_____

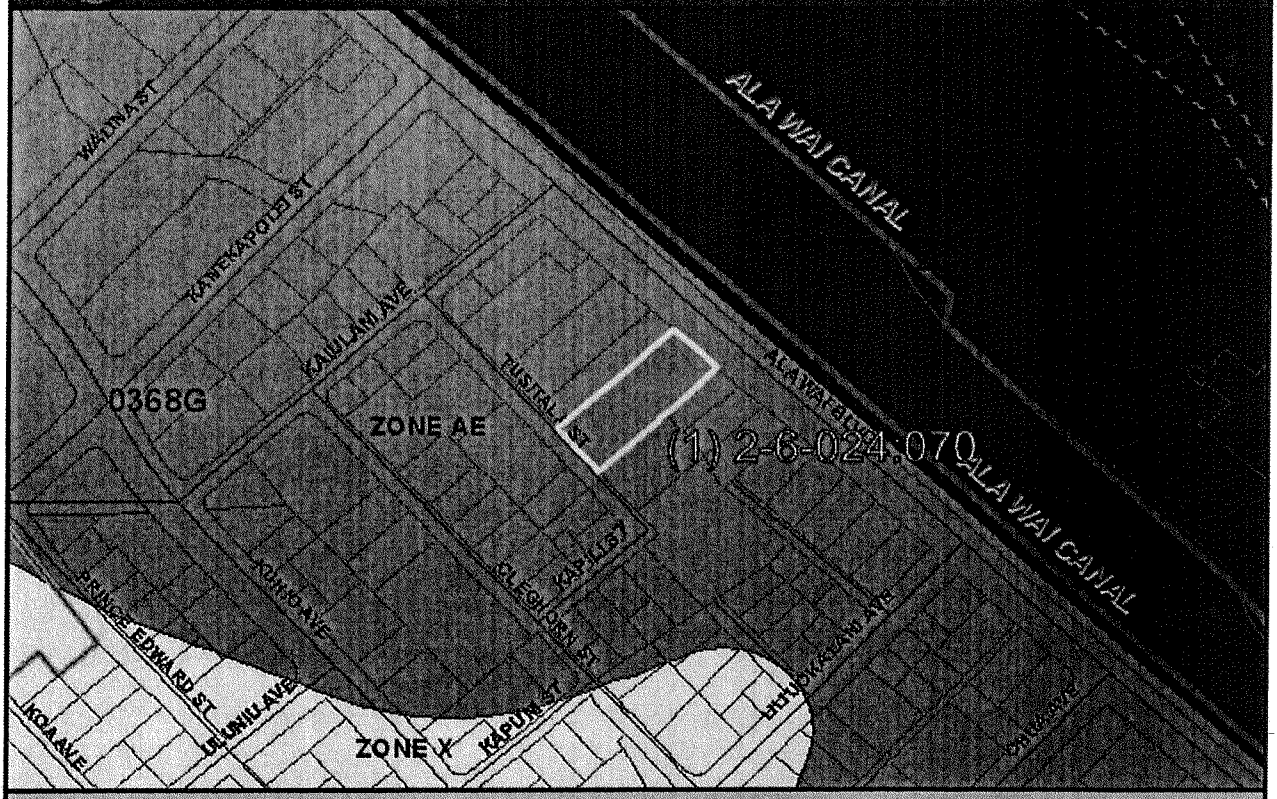
Should you have any questions, please call Mr. Dennis Imada of the Planning Branch at 587-0257.

Signed: _____
CARTY S. CHANG, CHIEF ENGINEER

Date: 4/21/15

State of Hawaii

FLOOD HAZARD ASSESSMENT REPORT



NATIONAL FLOOD INSURANCE PROGRAM

FLOOD ZONE DEFINITIONS

SPECIAL FLOOD HAZARD AREAS SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD – The 1% annual chance flood (100-year flood), also known as the base flood, is the flood that has a 1% chance of being equaled or exceeded in any given year. The Special Flood Hazard is the area subject to flooding by the 1% annual chance flood. Areas of Special Flood Hazard include Zone A, AE, AH, AO, V, and VE. The Base Flood Elevation (BFE) is the water-surface elevation of the 1% annual chance flood. Mandatory flood insurance purchase applies in these zones:

- **Zone A:** No BFE determined.
- **Zone AE:** BFE determined.
- **Zone AH:** Flood depths of 1 to 3 feet (usually areas of ponding); BFE determined.
- **Zone AO:** Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined.
- **Zone V:** Coastal flood zone with velocity hazard (wave action); no BFE determined.
- **Zone VE:** Coastal flood zone with velocity hazard (wave action); BFE determined.
- **Zone AEF:** Floodway areas in Zone AE. The floodway is the channel of stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without increasing the BFE.

NON-SPECIAL FLOOD HAZARD AREA – An area in a low-to-moderate risk flood zone. No mandatory flood insurance purchase requirements apply, but coverage is available in participating communities.

- **Zone XS (X shaded):** Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.
- **Zone X:** Areas determined to be outside the 0.2% annual chance floodplain.

OTHER FLOOD AREAS

- **Zone D:** Unstudied areas where flood hazards are undetermined, but flooding is possible. No mandatory flood insurance purchase requirements apply, but coverage is available in participating communities.

PROPERTY INFORMATION

COUNTY:	HONOLULU
TMK NO:	(1) 2-6-024-070
PARCEL ADDRESS:	2429 ALA WAI BLVD HONOLULU, HI 96815
FIRM INDEX DATE:	NOVEMBER 05, 2014
LETTER OF MAP CHANGE(S):	NONE
FEMA FIRM PANEL(S):	15003C0368G
PANEL EFFECTIVE DATE:	JANUARY 19, 2011

PARCEL DATA FROM:	APRIL 2014
IMAGERY DATA FROM:	MAY 2006

IMPORTANT PHONE NUMBERS

County NFIP Coordinator	
City and County of Honolulu	
Mario Siu-Li, CFM	(808) 768-8098
State NFIP Coordinator	
Carol Tyau-Beam, P.E., CFM	(808) 587-0267

Disclaimer: The Department of Land and Natural Resources (DLNR) assumes no responsibility arising from the use of the information contained in this report. Viewers/Users are responsible for verifying the accuracy of the information and agree to indemnify the DLNR from any liability, which may arise from its use.

If this map has been identified as 'PRELIMINARY' or 'UNOFFICIAL', please note that it is being provided for informational purposes and is not to be used for official/legal decisions, regulatory compliance, or flood insurance rating. Contact your county NFIP coordinator for flood zone determinations to be used for compliance with local floodplain management regulations.

DAVID Y. IGE
GOVERNOR OF HAWAII

VIRGINIA PRESSLER, M.D.
DIRECTOR OF HEALTH

STATE OF HAWAII
DEPARTMENT OF HEALTH
P. O. BOX 3378
HONOLULU, HI 96801-3378

In reply, please refer to:
File:

EPO 15-096

May 7, 2015

Mr. Keith Kurahashi, President
Kusao & Kurahashi
Planning and Zoning Consultants
2752 Woodlawn Drive, Suite 5-217
Honolulu, Hawaii 96822
Via email: kkurahashi@hawaii.rr.com

Dear Mr. Kurahashi:

SUBJECT: Pre-Consultation on a Proposed Draft Environmental Assessment (PC DEA) for Ainahau Vista II, Waikiki, Oahu, TMK: (1) 2-6-024: 070 & 071

The Department of Health (DOH), Environmental Planning Office (EPO), acknowledges receipt of your PC DEA to our office on April 8, 2015. Thank you for allowing us to review and comment on the proposed project. EPO recommends that you review the standard comments and available strategies to support sustainable and healthy design provided at: http://health.hawaii.gov/epo/home/landuse-planning-review-program. Projects are required to adhere to all applicable standard comments.

We encourage you to examine and utilize the Hawaii Environmental Health Portal. The portal provides links to our e-Permitting Portal, Environmental Health Warehouse, Groundwater Contamination Viewer, Hawaii Emergency Response Exchange, Hawaii State and Local Emission Inventory System, Water Pollution Control Viewer, Water Quality Data, Warnings, Advisories and Postings. The Portal is continually updated. Please visit it regularly at: https://eha-cloud.doh.hawaii.gov

You may also wish to review the revised Water Quality Standards Maps that have been updated for all islands. The Water Quality Standards Maps can be found at:
http://health.hawaii.gov/cwb/site-map/clean-water-branch-home-page/water-quality-standards

We request that you utilize all of this information on your proposed project to increase sustainable, innovative, inspirational, transparent and healthy design.

Mahalo nui loa,

Laura Leialoha Phillips McIntyre, AICP
Program Manager, Environmental Planning Office

DEPARTMENT OF COMMUNITY SERVICES
CITY AND COUNTY OF HONOLULU
715 SOUTH KING STREET, SUITE 311 ● HONOLULU, HAWAII 96813 ● AREA CODE 808 ● PHONE: 768-7762 ● FAX: 768-7792

KIRK CALDWELL
MAYOR

GARY K. NAKATA
DIRECTOR DESIGNATE

BARBARA YAMASHITA
DEPUTY DIRECTOR

April 27, 2015

Mr. Keith Kurahashi
Kusao & Kurahashi, Inc.
Manoa Market Place
2752 Woodlawn Drive, Suite 5-217
Honolulu, Hawaii 96822

Dear Mr. Kurahashi:

SUBJECT: Proposed Draft Environmental Assessment Pre-Consultation
Ainahau Vista II, a Senior Affordable Rental Development in Waikiki,
Oahu, Hawaii, Tax Map Key No. (1) 2-6-024: 070 & 071

We have reviewed your letter dated April 8, 2015, and the information provided for this Pre-Consultation on a Proposed Draft Environmental Assessment for Ainahau Vista II.

Our review of the information provided indicates that the proposed project will have no adverse impacts on any Department of Community Services' activities or project at this time.

Thank you for providing us with the opportunity to comment on this matter.

Sincerely,

Gary K. Nakata
Director Designate

GKN:sgk

DEPARTMENT OF DESIGN AND CONSTRUCTION
CITY AND COUNTY OF HONOLULU
650 SOUTH KING STREET, 11TH FLOOR
HONOLULU, HAWAII 96813
Phone: (808) 768-8480 • Fax: (808) 768-4567
Web site: www.honolulu.gov

KIRK CALDWELL
MAYOR

ROBERT J. KRONING, P.E.
DIRECTOR

MARK YONAMINE, P.E.
DEPUTY DIRECTOR

June 12, 2015

Kusao & Kurahashi, Inc.
2752 Woodlawn Drive, Suite 5-217
Honolulu, Hawaii 96822

Attn: Keith Kurahashi

Dear Mr. Kurahashi:

Subject: Pre-Consultation on a Proposed Draft Environmental Assessment for Ainahau Vista II, a Senior Affordable Rental Development in Waikiki, Oahu, Hawaii, Tax Map Key No. (1) 2-6-024: 070 & 071

The Department of Design and Construction does not have comments to offer on the pre-consultation on a proposed draft environmental assessment.

Thank you for the opportunity to review and comment. Should there be any questions, please contact me at 768-8480.

Sincerely,

Robert J. Kroning, P.E.
Director

RJK: cf (605730)

APPENDIX 4

ARCHAEOLOGICAL INVENTORY SURVEY FOR THE TUSITALA VISTA (NOW AINAHAU VISTA)

To David Shideler	From Joe Pyle
Co./Dept.	Co.
Phone #	Phone #
Fax # 262-4950	Fax #

PETER T. YOUNG
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

ROBERT K. MASUDA
DEPUTY DIRECTOR - LAND

DEAN NAKANO
ACTING DEPUTY DIRECTOR - WATER

AQUATIC RESOURCES
BOATING AND OCEAN RECREATION
BUREAU OF CONVEYANCES
COMMISSION ON WATER RESOURCE MANAGEMENT
CONSERVATION AND COASTAL LANDS
CONSERVATION AND RESOURCES ENFORCEMENT
ENGINEERING
FORESTRY AND WILDLIFE
HISTORIC PRESERVATION
KAHOOLAWE ISLAND RESERVE COMMISSION
LAND
STATE PARKS

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES

STATE HISTORIC PRESERVATION DIVISION
601 KAMOKILA BOULEVARD, ROOM 555
KAPOLEI, HAWAII 96707

November 28, 2005

Ms. Constance R. O'Hare
Cultural Surveys Hawaii, Inc.
P.O. Box 1114
Kailua, HI 96734

LOG NO: 2005.2563
DOC NO: 0511SG04

Dear Ms. O'Hare:

SUBJECT: (REVISED) Burial Treatment Plan for the Tusitala Vista Elderly Apartments
Waikiki Ahupuaa, Kona District, Island of Oahu
TMK: (1) 2-6-0247: 070, 071

We are in receipt of the October 2005 revisions to the aforementioned burial treatment plan (plan), which addresses previously identified non-Native Hawaiian fragments of human skeletal remains encountered on the above mentioned parcel during inventory survey. We are also in receipt of additional revisions as submitted in your fax dated November 18, 2005.

We have reviewed your plan as revised and it meets the final requirements under §13-300-34, Hawaii Administrative Rules (HAR) which we requested in our October 20, 2005 letter. Following the receipt of a final revised plan which incorporates the revisions in your November 18, 2005 fax, the department shall approve the plan. The plan provides for the relocation of the remains to the east corner of the project area.

Please submit to the department two copies of the final burial treatment plan. We look forward to receiving copies of the final plan and request your assistance in providing perpetual protection by recording the reburial site in the Bureau of Conveyances when reburial occurs.

Sincerely,

MELANIE A. CHINEN, Administrator
State Historic Preservation Division

c: Kusao & Kurahashi, Inc. (2752 Woodlawn Drive, Ste. 5-202, Honolulu, HI 96822)
Sunny Greer, SHPD Cultural Programs Director
David L. Brown, SHPD Archaeology Branch Chief

LINDA LINGLE
GOVERNOR OF HAWAII

LAURA H. THIELEN
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

RUSSELL Y. TSUJI
FIRST DEPUTY

KEN C. KAWAHARA
DEPUTY DIRECTOR - WATER

AQUATIC RESOURCES
BOATING AND OCEAN RECREATION
BUREAU OF CONVEYANCES
COMMISSION ON WATER RESOURCE MANAGEMENT
CONSERVATION AND COASTAL LANDS
CONSERVATION AND RESOURCES ENFORCEMENT
ENGINEERING
FORESTRY AND WILDLIFE
HISTORIC PRESERVATION
KAHOOLAWE ISLAND RESERVE COMMISSION
LAND
STATE PARKS

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES

STATE HISTORIC PRESERVATION DIVISION
601 KAMOKILA BOULEVARD, ROOM 555
KAPOLEI, HAWAII 96707

December 12, 2008

Mr. Todd Tulchin
Cultural Surveys Hawaii
P. O. Box 1114
Kailua, Hawai'i 96734

LOG NO: 2008.5241
DOC NO: 0812WT31
Archaeology

Dear Mr. Tulchin:

SUBJECT: **Chapter 6E-42 Historic Preservation Review –**
FINAL Data Recovery Report for SIHP 50-80-09-6707, at Tusitala Vista Elderly Apartments, Waikīkī Ahupua'a, Kona District, O'ahu Island, Hawai'i
TMK: (1) 2-6-024: 070, 071, & 089

Thank you for the opportunity to review this revised Data Recovery Report (DRR) received December 8, 2008.

Data recovery efforts concentrated on mitigating impacts to historic property SIHP#50-80-09-6707 a prehistoric buried basalt rock wall associated with wetland taro agriculture recorded during an archaeological inventory survey (AIS) on the approximately 35,761 sq. ft. project area.

Research objectives were aimed at collecting pollen and soil samples to confirm paleoenvironmental change, collect radiocarbon data to determine chronology of man-made alterations of the landscape known to exist during the pre-contact and early post-contact eras. Radiocarbon dates confirm that this site was utilized in the date range of 1380AD to 1450AD, well within the pre-contact period, with initial clearing for wetland agriculture occurring between 1120AD and 1270AD, hypothesized to be the period of initial settlement in the ahupua'a. It is thought that the results of this study could be applied to the ahupua'a of Waikīkī to better understand the chronology of agricultural use, both in the upland reaches, and down in the coastal area, and expand the data utilized in settlement pattern analysis.

The Data Recovery Report meets the minimum requirements, and is accepted as compliance with 6E-42 and Hawaii Administrative Rules (HAR) §13-13-278 *Rules Governing Standards for Archaeological Data Recovery Studies and Reports.*

Please call Wendy Tolleson at (808) 692-8024 if you have any questions or concerns regarding this letter.

Aloha,

Pua'ala'okalani Aiu, Ph.D.
Administrator
State Historic Preservation Division

Archaeological Inventory Survey
for the Tusitala Vista Elderly Apartments in
Waikīkī Ahupua'a, Kona District, O'ahu Island

TMK: 2-6-24: 70, 71

by

Rodney Chiogioji, B.A.,
Uta Rainalter, B.S.,
Sallee D.M. Freeman, M.A.,
and
Hallett H. Hammatt, PhD

Prepared for

Kusao & Kurahashi, Inc.

by

Cultural Surveys Hawai'i, Inc.
December 2004

MANAGEMENT SUMMARY

Title	Archaeological Inventory for the Tusitala Vista Elderly Apartments in Waikīkī, Ahupua'a, Waikīkī, O'ahu
Date	December 2004 (Draft)
Project Number	Cultural Surveys Hawai'i Inc. (CSH) Job No. WAIK 62
Agency	State of Hawai'i Department of Land and Natural Resources / State Historic Preservation Division (DLNR / SHPD)
Permit Number	Fieldwork was performed under CSH's annual archaeological research permit, No. 0404, issued by DLNR / SHPD
Location	The project area comprises TMK 2-6-024:70, 71, bounded by Ala Wai Boulevard to the northeast, Tusitala Street to the southwest, "Ala Wai Townhouse" (at 2421 Ala Wai Blvd.) to the northwest and the "Waikīkī Bellevue Apartments" (at 2427 Ala Wai Blvd.) to the southeast, in the *ahupua'a* of Waikīkī, District of Kona, Island of O'ahu. This area is depicted on the 1998 Honolulu 7.5-minute USGS topographic quadrangle.
Land Jurisdiction	Private, Hawai'i Housing Development Corporation is presently in the process of purchasing the project area land from Starts International Hawai'i, Inc.
Project Acreage	Approximately 1.03 acres
Project Description	The proposed project involves developing the southwest or *makai* half of the currently vacant property into a single 8-story residential apartment complex and the northwest or *mauka* half into a surface parking lot. There will be associated utility installation and landscaping. Most, if not all, of the project area will have subsurface ground disturbance.
Area of Potential Effect (APE) and Inventory Survey Acreage	For this inventory survey investigation, the project's APE is defined as the entire approximately 1-acre footprint of the proposed apartment complex development. The project area's surrounding built environment is urban (paved streets and low rise and high rise buildings) and the proposed apartment construction poses no *additional* auditory or visual impact to any surrounding potential historic properties (for example historic buildings or structures) Accordingly, for the current inventory survey investigation the survey area and the project APE are one and the same.
Document Purpose	At the request of Kusao and Kurahashi, Inc., CSH undertook this archaeological inventory survey. In consultation with SHPD, the inventory survey investigation was designed to fulfill the state requirements for archaeological inventory survey [Hawai'i Administrative Rules (HAR) Chapter 13-276]. This document was prepared to support the proposed project's historic preservation review under HRS Chapter 6E-42 and HAR Chapter 13-284, as well as the project's environmental review under HRS Chapter 343.

Dates, Personnel, and Number of Person-days Required for Field Effort	Jessie York, BA, Jennifer Olson, BA, Daniel Terry BA, Anthony Bush, BA, and Uta Rainalter, BS, assisted project director William Folk, BA, with the field effort, which required 16 person-days to complete. Fieldwork took place 4-8 October 2004 under the general supervision of Hallett H. Hammatt, Ph.D. (principal investigator).
Number of historic properties identified	Four
Historic Properties Recommended Eligible to the Hawai'i Register of Historic Places (Hawai'i Register)	Site -6682, buried A Horizon; 'Āinahau (Cleghorn Estate), habitation, criteria "B" Site -6705, human skeletal fragments in disturbed sediment, criteria "D" and "E" Site -6706, stream bed, believed to be a segment of 'Āpuakēhau Stream, criteria "D" Site -6707, stone retaining wall, criteria "A, B, C, D, E"
Historic Properties Recommended Ineligible for the Hawai'i Register	None
Results of Archaeological Inventory Survey	Prior to the project's fieldwork, an extensive archaeological and historical literature review was conducted to inform on the project area's cultural setting. Fieldwork consisted of the excavation and documentation of 14 backhoe trenches. The historic properties documented within the project area are part of an extensive archaeological landscape, including *'auwai* (irrigation ditches), *lo'i* (pond fields), part of 'Āinahau (the Cleghorn Estate), and other remnants of pre-contact and historic land use. This archaeological landscape has been documented throughout much of Waikīkī. Information regarding the four historic properties currently documented includes historical and archival data, stratigraphic information, geographic locations and areal extents, and the results of radiocarbon dating analysis of selected samples. The findings of this inventory survey were in keeping with the predictive model based on background research. These findings indicate that the project area was the site of extensive traditional Hawaiian land use, both in pre-contact and historic times. Within the current project area traditional land use effectively ended with the dredging and construction of the Ala Wai Canal in the 1920s.
Effect Recommendation	CSH's project specific effect recommendation is "effect with mitigation commitments." The proposed condominium development will adversely affect significant historic properties (SIHP sites -6682, -6705, -6706, and -6707) located with the project's APE. Of the four sites recorded in the project area, SIHP site -6707 is recommended for data recovery, SIHP site -6705 for further monitoring, and SIHP sites -6682 and -6706 for no further work. Because these significant historic properties are subsurface and will be affected by the ground disturbance that is proposed throughout all, or most, of the project area, the recommended mitigation measures will reduce the project's effect to these historic properties.

Mitigation Recommendation	To alleviate the proposed project's adverse effect on significant historic property -6705 (human skeletal fragments), CSH recommends that an SHPD-approved archaeological monitoring package be implemented during the ground disturbing phases of the project. The monitoring methods should be developed in coordination with SHPD and should include appropriate sampling and analytic methods to document additional information from exposed archaeological and/or paleoenvironmental deposits and to facilitate the identification and treatment of any additional burials discovered within the project area. To alleviate the proposed project's adverse effect on significant historic property -6707 (likely a *lo'i* field retaining wall), CSH recommends that an SHPD-approved data recovery plan be implemented. Tentative research goals for a data recovery plan include additional backhoe trenches to better delineate the horizontal extent of SIHP site -6707, likely a *lo'i* field retaining wall.

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I. INTRODUCTION

A. Project Background

At the request of Kusao & Kurahashi, Inc., Cultural Surveys Hawai'i Inc. (CSH) has completed an archaeological inventory survey with subsurface testing of approximately 1.03 acres in Waikīkī Ahupua'a, Kona District, Island of O'ahu. In consultation with the State of Hawai'i Department of Land and Natural Resources State Historic Preservation Division (DLNR / SHPD), the inventory survey investigation was designed to fulfill the state requirements for archaeological inventory survey [Hawai'i Administrative Rules (HAR) Chapter 13-276]. This document was prepared to support the proposed project's historic preservation review under HRS Chapter 6E-42 and HAR Chapter 13-284, as well as the project's environmental review under HRS Chapter 343.

The project area comprises TMK 2-6-024:070 and 071, which are bounded by bounded by Ala Wai Boulevard to the northeast, Tusitala Street to the southwest, "Ala Wai Townhouse" Apartments to the northwest and the "Waikīkī Bellevue Apartments" to the southeast. This area is depicted on the 1998 Honolulu 7.5-minute USGS topographic quadrangle and TMK 2-6-024 (Figures 1, 2). Housing Development Corporation is presently in the process of purchasing the project area land from Starts International Hawai'i, Inc.

For this inventory survey investigation, the project's APE is defined as the entire approximately 1-acre footprint of the proposed apartment complex development. The proposed project involves developing the currently vacant property into a single eight-storied apartment complex and a surface parking lot. There will be associated utility installation and landscaping. Most, if not all, of the project area will have subsurface ground disturbance. The project area's surrounding built environment is urban (paved streets and low rise and high rise buildings) and the proposed condominium construction poses no *additional* auditory or visual impact to any surrounding potential historic properties (for example historic buildings or structures). Accordingly, for the current inventory survey investigation the survey area and the project APE are one and the same.

Jessie York, BA, Jennifer Olson, BA, Daniel Terry, BA, Anthony Bush, BA, and Uta Rainalter, BS assisted project director William Folk, BA, with the field effort, which required 16 person-days to complete. Fieldwork took place between 5 and 8 October 2004 under the general supervision of Hallett H. Hammatt, Ph.D. (principal investigator).

Fieldwork was performed under CSH's annual archaeological research permit, No. 0404, issued by the DLNR / SHPD.

B. Scope of Work

The following archaeological inventory survey scope of work was completed to satisfy the State and County requirements per the State Historic Preservation Division (SHPD) Hawaii Administrative Rules Title 13, Sub-Title 13, Chapter 276 - Rules Governing Standards for Archaeological Inventory Surveys and Reports. The scope of work includes:

1. A complete ground survey of the entire project area for the purpose of site inventory. All sites were located, described, and mapped with evaluation of function, interrelationships, and significance. Documentation included photographs and scale drawings of selected sites and complexes. All sites were assigned SIHP site numbers.

2. Subsurface testing with a backhoe to determine if subsurface deposits are located in the project area, and, evaluation of their significance. When appropriate samples from these excavations were found, they were analyzed for chronological and paleoenvironmental information.
3. Research on historic and archaeological background, including search of historic maps, written records, and Land Commission Award documents. This research focused on the specific area with general background on the *ahupua'a* and district and emphasized settlement patterns.
4. Preparation of a survey report which included the following:
    a. A topographic map, if available, of the survey area showing all archaeological sites and site areas;
    b. Description of all archaeological sites with selected photographs, scale drawings, and discussions of function;
    c. Historical and archaeological background sections summarizing pre-contact and historic land use as they relate to the archaeological features;
    d. A summary of site categories and their significance in an archaeological and historic context;
    e. Recommendations based on all information generated specified what steps should be taken to mitigate impact of development on archaeological resources - such as data recovery (excavation) and preservation of specific areas. These recommendations were developed in consultation with the client and the State agencies.

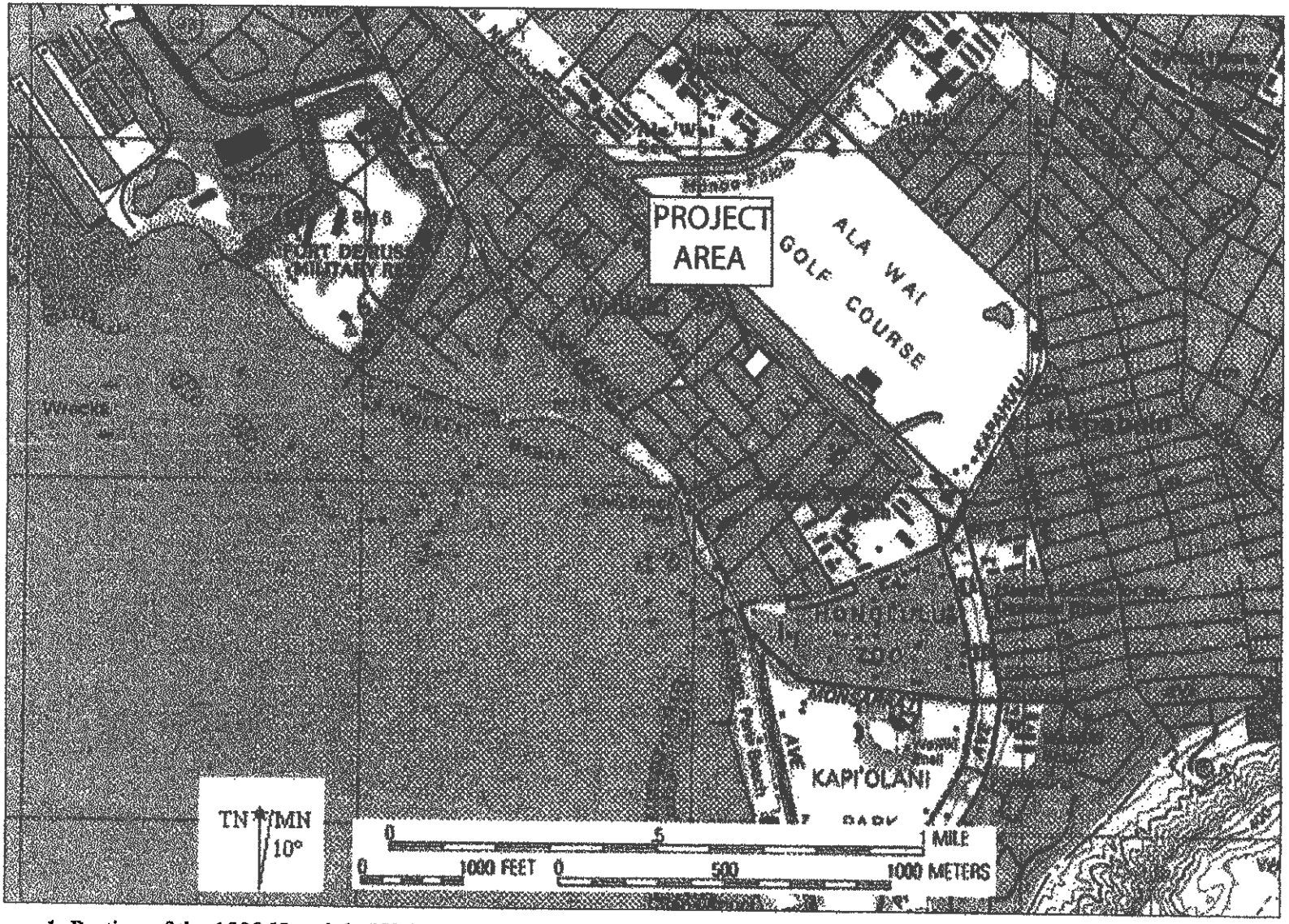

Figure 1. Portion of the 1998 Honolulu USGS 7.5-minute topographic quadrangle showing project area

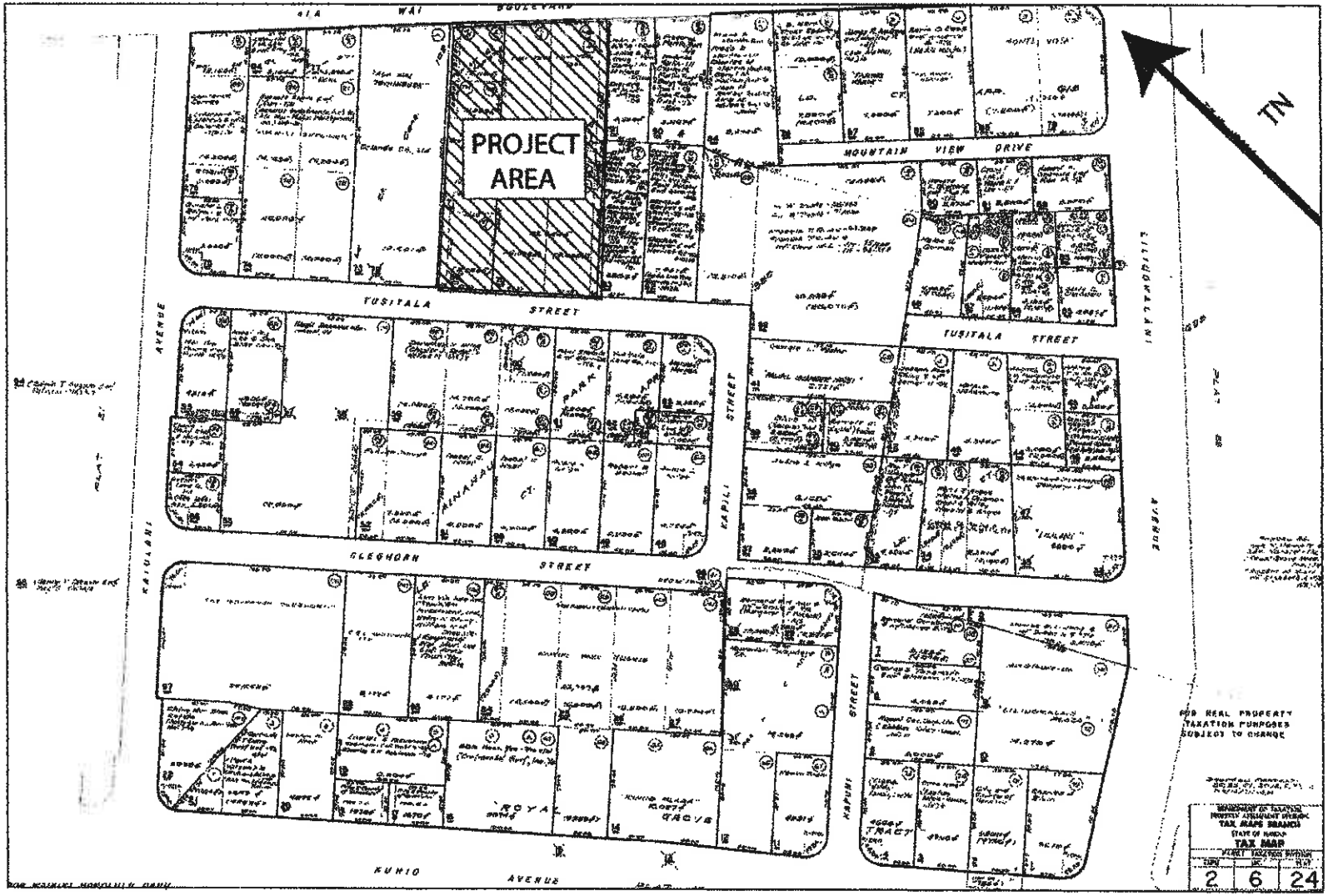

Figure 2. TMK 2-6-24 map showing location of the present project area

This scope of work also includes full coordination with the State Historic Preservation Division (SHPD), and county relating to archaeological matters. This coordination takes place after consent of the landowner or representatives.

C. Methods

1. Fieldwork

The inventory survey field inspection and subsurface testing of the project area took place from October 5th to October 8th, 2004, with four Cultural Surveys Hawai'i archaeologists working under the direction of William Folk, B.A. and Hallett H. Hammatt, Ph.D. Subsurface testing consisted of the excavation of 14 backhoe trenches to document the subsurface nature of the project area. Trenches were placed to test specific questions identified in the background research, as well as to provide adequate coverage of all portions of the project parcel.

In all trenches, the base of excavation was the water table, which was approximately 150 cm below the current land surface. Trenches were generally one bucket width (1-1.4 m) wide and of variable depths (depending on ground water, tide, and the different elevation above sea level of ground surfaces within the project area).

Four archaeologists were on site at all times to monitor the excavation, to document the exposed sections, and to collect sediment samples. One archaeologist was positioned to watch the bucket and the exposed section on one side of the trench. Another was positioned to watch the bucket and the other exposed section. A third archaeologist was positioned to watch the bucket as the excavated material was dumped from the bucket. Trench location, dimensions, and orientation were recorded.

Exposed trench sections were documented with scale section profiles, photographs, sediment descriptions, and, where useful, sediment samples. Sediment descriptions included Munsell color designations, sediment size, inclusions, compactness, and cultural material present. Representative samples of cultural material were collected from sediment sifted through 1/8th inch mesh screens.

Samples and cultural materials were inventoried, catalogued, and in some cases sent for radiocarbon dating.

2. Laboratory work

During the course of backhoe trenching, cultural materials, primarily charcoal samples were collected both *in situ* and through screening. Cultural materials were collected for species analysis and analysis of any indication of pre-contact and/or historic occupation of the lands and if so, the chronological development of the site(s).

A total of 4 samples were submitted for carbon dating from both shallow deposits (less than 30 cm below surface) as well as deeper deposits up to 190 cm below surface. All four of these samples had sufficient mass for radiocarbon dating.

All collected materials and data will be temporarily stored at CSH offices until further notification from the landowner and SHPD of an agreed upon final repository.

3. Background research

Background research included a review of previous archaeological studies on file at the State Historic Preservation Division of the Department of Land and Natural Resources, a review of record at the Bishop Museum archives, and a review of documents and maps at the Cultural Surveys Hawai'i library.

Individuals knowledgeable about the project area's history are being consulted in conjunction with a companion Cultural Impact Assessment document entitled *Cultural Impact Evaluation for the Tusitala Vista Elderly Apartments Waikīkī, Kona District, O'ahu Island (TMK: 2-6-24: 70, 71)*, covering the same project area.

4. Bishop Museum archival research

The OIBC requested that a Cultural Surveys Hawai'i, Inc. (CSH) archaeologist meet with DeSoto Brown, collections manager of the Bishop Museum archives, to examine Dillingham Corporation records to determine if these documents provide information about the origin of the fill material in which the human skeletal fragments were found. One CSH archaeologist researched the Bishop Museum archives on two separate occasions, November 23 and 30, 2004. No conclusive information regarding the fill material was obtained.

The Dillingham Corporation files are located in the Business Archives section of the library. The scope of the files includes the records of the Dillingham Corporation, its predecessors, and related companies (e.g., Lewers & Cooke, O'ahu Railway & Land Company, Hawaiian Dredging Company, Inter-island Steam Navigation Company, and numerous small companies). The Dillingham family personal and business papers present in the records include the papers of Benjamin F. Dillingham (1844-1918), his wife, Emma Lowell (Smith) Dillingham (1844-1920), Walter F. Dillingham (1875-1963), Benjamin F. Dillingham II, and scattered materials of other family members and of the Smith family.

The types of information present in the records include ledgers (payments received and paid, subcontractors), financial journals (purchasing and distribution), invoices, vouchers, financial statements, auditor's reports, taxes information, contracts, agreements, job accounts ledgers, an example of the corporate seal, maps and sketches of project areas, general correspondence, photos, stockholders documents, day books, miscellaneous volumes (sundry ledgers, journals, vessel accounts, cash books), secretary's minutes, title abstracts, and miscellaneous data for the company and related individuals.

D. Natural Setting

1. Modern Geology, Climate, and Vegetation

The plain of Waikīkī is flat and, generally, less than 4.5 m (15 feet) above sea level (Davis 1989:5). Soils in the area are composed solely of Jaucus Sand with 0-15% slopes (JaC) (Foote et al.1972: Map 63). Rainfall averages less than 30 inches of rain per year (Armstrong 1983:62); however, the area receives additional water from the Kālia and Pālolo Streams, as well as rain showers that drift into the area from the mountains and inland valleys (Cleghorn 1996:3). Northeasterly tradewinds prevail throughout the year, although their frequency varies from more than 90% during the summer months to 50% in January. The average annual wind velocity is approximately 10 miles per hour (Okamoto 1998:2-1). Currently, vegetation in the project area is

primarily comprised of a variety of grasses with a few Plumeria and Papaya trees planted along the northern and southern fence lines.

2. Geomorphology

Modern Hawaiian shoreline configuration, including Waikīkī Beach is primarily the result of: 1) rising sea level following the end of the Pleistocene (see Stearns 1978 and McDonald et al. 1983); 2) the mid to late Holocene c. 1.5-2.0 meter high-stand of the sea (see summary in Dye and Athens 2000:18-19); and, 3) pre-contact and historic human landscape modification. At the end of the Pleistocene, between approximately 20,000 and 5-6,000 years ago, water previously locked in glacial ice returned to the world's oceans and sea-level rose over 100 meters to approximately its current level. Rising sea levels flooded the previously dry, earlier Pleistocene reef deposits, which had formed hundreds of thousands of years previously when sea level was comparable to modern levels. In the late Pleistocene/early Holocene, the Waikīkī area was characterized by an expansive delta drainage system which flowed from the Koʻolau Mountains to the sea (Ferrall 1976: plate II).

Land formation was directly related to changes in the sea level, terrigenous sediment load of streams, and reef and marine sediment formation. Lowering sea levels and increased marine sediment load (from reef erosion due to wave action) combined to create a sand accretion barrier along the coast as marine sediments were deposited on the resulting shallower reefs. This created a lagoon environment between the island shoreline and the sand accretion barrier. Terrigenous sediments were carried into this lagoon environment by Mānoa and Pālolo streams. When sea level reached approximately modern levels, the now coastal regions became depositional environments, where for tens of thousands of years previously, during the lower sea levels, they had been erosional environments. This resulted in the deposition of both terrigenous and marine sediments in low-energy estuarine or lagoonal environments, leading to the accumulation of thick deposits of soft/loose sediments along the current coastlines in areas that had formerly been valleys and drainage ways (Geolabs Hawaiʻi Inc. 1993:9). By the time humans occupied the coastal area of Waikīkī, the lagoon had become a wetland (which was used for cultivation) behind the sand accretion barrier (which was used for habitation) (Ferrall 1976: B-2). It is likely that only since the major construction projects of the beachfront hotels has the overall accretion trend of Waikīkī beach been stopped or reversed. The current landform at Waikīkī is largely the result of the historical drainage excavation of the Ala Wai Canal and associated fill deposits.

II. HISTORICAL BACKGROUND

A. Pre-Contact to Early 1800s

By the time of the arrival of Europeans in the Hawaiian Islands during the late eighteenth century, Waikīkī had long been a center of population and political power on O'ahu. According to Martha Beckwith (1940), by the end of the fourteenth century Waikīkī had become "the ruling seat of the chiefs of Oahu." The preeminence of Waikīkī continued into the eighteenth century and is betokened by Kamehameha's decision to reside there upon wresting control of O'ahu by defeating the island's chief, Kalanikūpule. The nineteenth century Hawaiian historian John Papa 'Ī'ī (1959:17), himself a member of the *ali'i* (chiefly class), described the king's Waikīkī residence:

> Kamehameha's houses were at Puaaliilii, makai of the old road, and extended as far as the west side of the sands of 'Āpuakēhau. Within it was Helumoa where Ka'ahumanu mā went to while away the time. The king built a stone house there, enclosed by a fence . . . ('Ī'ī 1959:17).

'Ī'ī further noted that the "place had long been a residence of chiefs. It is said that it had been Kekuapoi's home, through her husband Kahahana, since the time of Kahekili" ('Ī'ī 1959:17).

Chiefly residences, however, were only one element of a complex of features that characterized Waikīkī up to pre-contact times. Beginning in the fifteenth century, a vast system of irrigated taro fields was constructed, extending across the littoral plain from Waikīkī to lower Mānoa and Pālolo valleys. This field system – an impressive feat of engineering the design of which is traditionally attributed to the chief Kalamakua – took advantage of streams descending from Makiki, Mānoa and Pālolo valleys which also provided ample fresh water for the Hawaiians living in the *ahupua'a.* The pioneering nineteenth-century scholar Samuel Mānaiakalani Kamamau recounts Kalamakua's significance for the Hawaiian people:

> Kalamakua-a-Kaipūhōlua was a good chief. He was noted for cultivating, it was he who constructed the large pond fields Ke'okea, Kūalulua, Kalāmanamana, and the other lo'i in Waikīkī. He traveled about his chiefdom with his chiefs and household companions to cultivate the land and gave the produce to the commoners, the maka'āinana. They loved him. Kelea-nui-noho-'ana-'api'api became his wife when he was a mature man. (Kamakau 1991: 45)

Captain George Vancouver (1798:161-164), arriving at "Whyteete" in 1792, captured something of the profusion of taro *lo'i* across Waikīkī in his journals:

> On shores, the villages appeared numerous, large, and in good repair; and the surrounding country pleasingly interspersed with deep, though not extensive valleys; which, with the plains near the sea-side, presented a high degree of cultivation and fertility.
>
> [Our] guides led us to the northward through the village, to an exceedingly well-made causeway, about twelve feet broad, with a ditch on each side.
>
> This opened our view to a spacious plain, which, in the immediate vicinity of the village, had the appearance of the open common fields in England; but, on advancing, the major part appeared to be divided into fields of irregular shape and

> figure, which were separated from each other by low stone walls, and were in a very high state of cultivation. These several portions of land were planted with the eddo or taro root, in different stages of inundation; none being perfectly dry, and some from three to six or seven inches under water. The causeway led us near a mile from the beach, at the end of which was the water we were in quest of. It was a rivulet five or six feet wide, and about two or three feet deep, well banked up, and nearly motionless; some small rills only, finding a passage through the dams that checked the sluggish stream, by which a constant supply was afforded to the taro plantations.
>
> [We] found the plain in a high state of cultivation, mostly under immediate crops of taro; and abounding with a variety of wild fowl, chiefly of the duck kind . . . The sides of the hills, which were at some distance, seemed rocky and barren; the intermediate vallies, which were all inhabited, produced some large trees, and made a pleasing appearance. The plain, however, if we may judge from the labour bestowed on their cultivation, seemed to afford the principal proportion of the different vegetable productions on which the inhabitants depend for their subsistence.

Further details of the exuberant life that must have characterized the Hawaiians use of the lands that included the *ahupua'a* of Waikīkī are given by Archibald Menzies (1920:23-24), a naturalist accompanying Vancouver's expedition:

> The verge of the shore was planted with a large grove of cocoanut palms, affording a delightful shade to the scattered habitations of the natives. Some of those near the beach were raised a few feet from the ground upon a kind of stage, so as to admit the surf to wash underneath them. We pursued a pleasing path back to the plantation, which was nearly level and very extensive, and laid out with great neatness into little fields planted with taro, yams, sweet potatoes and the cloth plant. These, in many cases, were divided by little banks on which grew the sugar cane and a species of Draecena without the aid of much cultivation, and the whole was watered in a most ingenious manner by dividing the general stream into little aqueducts leading in various directions so as to be able to supply the most distant fields at pleasure, and the soil seemed to repay the labour and industry of these people by the luxuriancy of its productions. Here and there we met with ponds of considerable size, and besides being well stocked with fish, they swarmed with water fowl of various kinds such as ducks, coots, water hens, bitterns, plovers and curlews.

The work of chief Kalamakua in Waikīkī will be further detailed in the discussion of the present project area in Section H below.

The traditional Hawaiian focus on Waikīkī as a center of chiefly and agricultural activities on southeastern O'ahu was soon to change – disrupted by the same Euro-American contact that produced the first documentation (including the records cited above) of that traditional life. The *ahupua'a* of Honolulu - with the only sheltered harbor on O'ahu - became the center for trade with visiting foreign vessels, drawing increasing numbers of Hawaiians away from their traditional environments. Kamehameha himself moved his residence from Waikīkī to the coast near Honolulu harbor, likely in order to maintain his control of the lucrative trade in sandalwood

that had developed. By 1828, the missionary Levi Chamberlain (1957:26), describing a journey into Waikīkī, would note:

> Our path led us along the borders of extensive plats of marshy ground, having raised banks on one or more sides, and which were once filled with water, and replenished abundantly with esculent fish; but now overgrown with tall rushes waving in the wind. The land all around for several miles has the appearance of having once been under cultivation. I entered into conversation with the natives respecting this present neglected state. They ascribed it to the decrease of population. (Chamberlain 1957:26)

Tragically, the depopulation of Waikīkī was not simply a result of the attractions of Honolulu (where, by the 1820s, the population was estimated at 6,000 to 7,000) but also of the European diseases that had devastating effects upon the Hawaiian populace.

B. Mid-Nineteenth Century and the Māhele

The depopulation of Waikīkī, however, was not total and the *ahupua'a* continued to sustain Hawaiians living traditionally into the mid-nineteenth century. The Organic Acts of 1845 and 1846 initiated the process of the Māhele (the division of Hawaiian lands) that introduced private property into Hawaiian society. In 1848, the crown (Hawaiian government) and the *ali'i* (royalty) received their land titles. Subsequently in the Māhele, Land Commission Awards (LCAs) for *kuleana* parcels were awarded to commoners and others who could prove residency on and use of the parcels they claimed. Land Commission Award records document awardees continuing to maintain fishponds and irrigated and dryland agricultural plots, though on a greatly reduced scale than had been previously possible with adequate manpower.

A discussion of Land Commission Awards related to the present project area is presented in Section H below.

C. Mid to Late 1800s

As the nineteenth century progressed, Waikīkī was becoming a popular site among foreigners – mostly American – who had settled on O'ahu. An 1865 article in the Pacific Commercial Advertiser mentioned a small community that had developed along the beach. The area continued to be popular with the *ali'i* – the Hawaiian royalty – and several notables had residences there. A visitor to O'ahu in 1873 described Waikīkī as "a hamlet of plain cottages, whither the people of Honolulu go to revel in bathing clothes, mosquitoes, and solitude, at odd times of the year" (Bliss 1873).

Other developments during the second half of the nineteenth century a prelude of changes that would dramatically alter the landscape of Waikīkī during the twentieth century – include the improvement of the road connecting Waikīkī to Honolulu (the route of the present Kalākaua Ave.), the building of a tram line between the two areas, and the opening of Kapi'olani Park on June 11, 1877. Traditional land-uses in Waikīkī were abandoned or modified. By the end of the 19th century most of the fishponds that had previously proliferated had been neglected and allowed to deteriorate. The remaining taro fields were planted in rice to supply the growing numbers of immigrant laborers imported from China and Japan, and for shipment to the west coast of the United States.

As the sugar industry throughout the Hawaiian kingdom expanded in the second half of the nineteenth century, the need for increased numbers of field laborers prompted passage of contract labor laws. In 1852, the first Chinese contract laborers arrived in the islands. Contracts were for five years, and pay was $3 a month plus room and board. Upon completion of their contracts, a number of the immigrants remained in the islands, many becoming merchants or rice farmers. As was happening in other locales, in the 1880s, groups of Chinese began leasing and buying (from the Hawaiians of Waikīkī) former taro lands for conversion to rice farming. The taro lands' availability throughout the islands in the late 1800s reflected the declining demand for taro as the native Hawaiian population diminished.

The Hawaiian Islands were well positioned for rice cultivation. A market for rice in California had developed as increasing numbers of Chinese laborers immigrated there since the mid-nineteenth century. Similarly, as Chinese immigration to the islands also accelerated, a domestic market opened.

> The primary market for both husked rice and paddy raised in all parts of the Hawaiian Islands was in Honolulu. The number of Chinese in the islands created a large home demand.
>
> In 1880 the home market was made more secure by an increase in the duty on rice imported into Hawai'i to 1½ cents on paddy and 2½ cents on hulled rice. It resulted in further checking the importation of foreign rice and giving an immense impetus to the home product. (Coulter and Chun, 1937: 13)

By 1892, Waikīkī had 542 acres planted in rice, representing almost 12% of the total 4,659 acres planted in rice on O'ahu. Most of the former taro *lo'i* converted to rice fields were located *mauka* of the present Ala Wai Boulevard.

D. 1900 to 1920

During the first decade of the twentieth century, the U.S. War Department acquired more than 70 acres in the Kālia portion of Waikīkī for the establishment of a military reservation called Fort DeRussy, named in honor of Brig. Gen. R.E. DeRussy of the Army Corps of Engineers.

> On 12 November 1908, a detachment of the 1st Battalion of Engineers from Fort Mason, California, occupied the new post...
>
> Between 1909 and 1911 the engineers were primarily occupied with mapping the island of O'ahu. At DeRussy other activities also had to be attended to - especially the filling of a portion of the fishponds which covered most of the Fort. This task fell to the Quartermaster Corps, and they accomplished it through the use of an hydraulic dredger which pumped fill from the ocean continuously for nearly a year in order to build up an area on which permanent structures could be built. Thus the Army began the transformation of Waikīkī from wetlands to solid ground. (Hibbard and Franzen 1986:79)

All the fishponds were filled by 1928.

E. 1920s to 1930s

During the 1920s, the Waikīkī landscape would be transformed when the construction of the Ala Wai Drainage Canal, begun in 1921 and completed in 1928, resulted in the draining and filling in of the remaining ponds and irrigated fields of Waikīkī. The canal was one element of a plan to urbanize Waikīkī and the surrounding districts:

> The [Honolulu city] planning commission began by submitting street layout plans for a Waikīkī reclamation district. In January 1922 a Waikīkī improvement commission resubmitted these plans to the board of supervisors, which, in turn, approved them a year later. From this grew a wider plan that eventually reached the Kapahulu, Mō'ili'ili, and McCully districts, as well as lower Makiki and Mānoa...
>
> The standard plan for new neighborhoods, with allowances for local terrain, was to be that of a grid, with 80-foot-wide streets crossing 70-foot-wide avenues at right angles so as to leave blocks of house lots about 260 by 620 feet. Allowing for a 10-foot-wide sidewalk and a 10-foot right-of-way [alley] down the center of each block, there would be twenty house lots, each about 60 by 120 feet, in each block [Johnson 1991:311]

During the course of the Ala Wai Canal's construction, the banana patches and ponds between the canal and the *mauka* side of Kalākaua Avenue were filled and the present grid of streets was laid out. These newly created land tracts spurred a rush to development in the 1930s. An article in the Honolulu Star-Bulletin in 1938 extolled the area's progress:

> The expansion of apartment and private residence construction is no secret. Examination of building permits will show that more projects have been completed during the past year, and more are now underway in this area, than in any other section of the territory.
>
> These developments are being made by island residents who have recognized the fact that Waikīkī presents the unparalleled possibility for safe investment with excellent return. (Newton 1938: 10)

The writer speculated that the "future of Waikīkī is assured."

F. 1940s

The entrance of the United States into World War II following the Japanese bombing of Pearl Harbor on December 7, 1941 put on hold plans for the development of Waikīkī as a tourist destination. Until the war's end in 1945, the tourist trade was non-existent "...since the Navy controlled travel to and from Hawai'i and did not allow pleasure trips" (Brown 1989: 141). For the duration of the war, Waikīkī was transformed into a recreation area for military personnel.

> It was not the same Waikīkī as before the war, though; barbed wire barricades now lined its sands, and there were other changes too. Fort DeRussy became a huge recreation center, with a dance hall called Maluhia that attracted thousands of men at a time. The Moana Hotel continued to function, but many other establishments and private homes in the area were taken over by the military. [Brown 1989:141]

Nearing the war's end, concerns began arising over the future of Waikīkī. An article in the Honolulu Advertiser of July 16, 1945 decried "honky-tonks" that had sprung up in Waikīkī during the course of the war, and asked: "Can anyone look at present-day Kalākaua Ave. – lined

with makeshift curio shops, noisy 'recreation' centers, eyesores that pass under the name of lunchrooms and miscellany of 'joints' – and hope that Waikīkī can stage a comeback [as a tourist destination]?"

G. 1950s

By the mid-1950s there were more than fifty hotels and apartments from the Kālia area to the Diamond Head end of Kapi'olani Park. The Waikīkī population, by the mid-1950s, was not limited to transient tourists but included 11,000 permanent residents living in 4,000 single dwellings and apartments in stucco or frame buildings.

H. Historical Documentation of the Project Area

Beginning at the mid-nineteenth century, the historical record of Waikīkī including the present project area and adjacent lands was established in increasingly detailed documentation including photographs, maps, newspaper articles, and government records. These documents also give insight into pre-contact Waikīkī. During subsequent decades of the twentieth century, abundant documentation of Waikīkī allows a more precise focus on the changes within the project area itself up to the 1950s.

1. 1881 survey map by S.E. Bishop

An 1881 Hawaiian Government survey map by Serrano E. Bishop with locations of LCA parcels provides a detailed record of the physical landscape of Waikīkī before the transformations of the twentieth century. Figure 3 presents a portion of the 1881 map with the location of the current project area indicated. As shown on the map, coursing through the middle of the project area is 'Āpuakēhau Stream which once descended from Mānoa Valley, entering the ocean "near the present Moana Hotel" and which was "probably named for a rain" (Pukui et al. 1974: 13).

The map also shows the project area straddling two Waikīkī *'ili* which appears to be separated by 'Āpuakēhau Stream: the *mauka* portion of the project area is in Kalāmanamana and the *makai* portion is in Auaukai.

As was noted above, according to Samuel Kamakau, Kalāmanamana was one of the areas where the chief Kalamakua constructed the "large pond fields" of taro that once covered the Waikīkī plain. Some of the Kalāmanamana *lo'i* are shown in Figure 3. The complete 1881 map shows a network of *lo'i* (which by the 1880s were being converted to rice fields) extending across present-day McCully and Mō'ili'ili to the foot of Mānoa Valley, suggesting the impressive scale of the field system engineered by Kalamakua.

Also indicated on the map are the *'auwai* created to channel water of streams descending from Pālolo, Mānoa, and Makiki Valleys. The almost 90-degree bend of 'Āpuakēhau Stream into the present project area, as shown on the 1881 map, suggests that the stream was diverted sometime early in the creation of the Waikīkī fields either to direct water to *lo'i* constructed elsewhere or to create a broader expanse of dryland in the *'ili* identified on the map as Auaukai, Kaluaokau, Kapuni and Uluniu. These *'ili* would, in time, come to be identified with *'ali'i* (the Hawaiian royalty) who resided in Waikīkī.

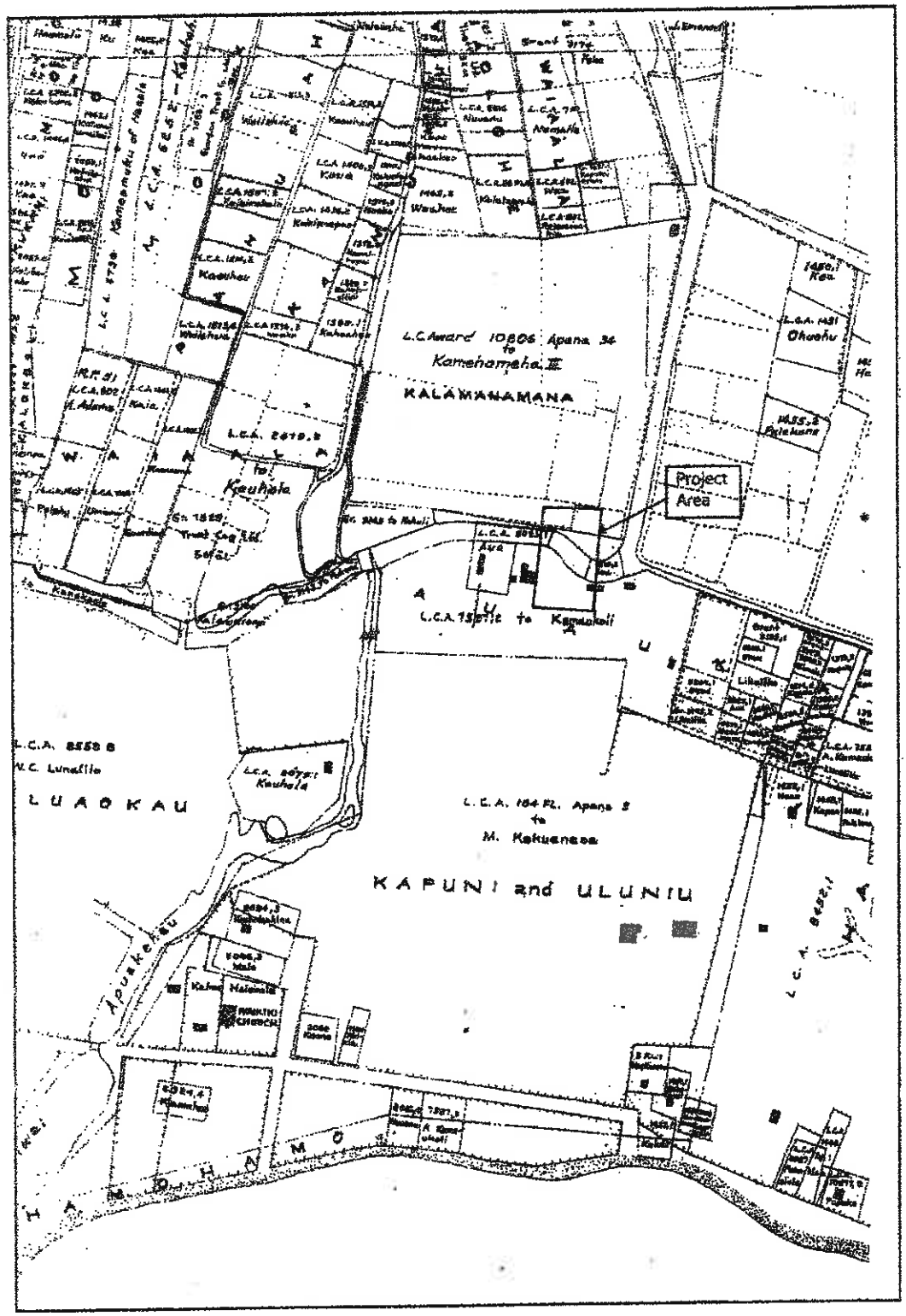

Figure 3. Portion of an 1881 Serrano E. Bishop map showing location of Land Commission Awards with the approximate location of project area indicated

2. Land Commission Award Records

The 1881 map (Figure 3) identifies locations of Land Commission Awards within Waikīkī. Documentation about Māhele awards provides specific details of life within and adjacent to the present project area during the nineteenth century and earlier. Based on the 1881 map, four awards appear to be most relevant to the project area:

LCA 10806, Apana (parcel) 34 awarded to Kauikeaouli, Kamehameha III;

LCA 104 FL (Fort Lands), Apana 5 awarded to Mataio Kekūanaō'a;

LCA 7597, Apana 2 awarded to Kamaukoli; and

LCA 8023, Apana 1 & 2 awarded to Aua.

Information provided in LCA records for these four awards is presented below.

The records for LCA 10806 identify Parcel 34 as Kalamanamana, one of the king's "farms at Waikiki" (Native Register vol. 3, pg. 387-390). Testimonies given in support of the award identify taro *lo'i* (irrigated fields) at Kalāmanamana and the king's other Waikīkī farm lands:

> M. Kekuanaoa, sworn, I had known that these lois: Hohe, Kalamanamana and Keokea are for the King, the kole lois throughout the island of Oahu are also for the King. Some koele patches were given to the konohiki during the land Māhele. They are in the ilis of Hamohamo and Kalia and they have been for the King since the time of Kaahumanu until the time of the land distribution. There are some government portions in here, but these lois are for the King which is complicating to me at this time. It is for the King probably, for the government, perhaps, for whom is it? Kamehameha I had built these farms, Kamehameha III has them now.
>
> Piikoi, sworn, I have seen these places for which the King is demanding. These patches were planted with taro at the time Kinau was governor of Oahu and Kamanawa did the harvesting and S. Kuluwailehua was the tax assessor at the time. It was probably before 1839 and since that time to the Māhele, the King has sent Kaihe to show me the King's interest that I might work in it. It has been that way to the present and I have heard these places are for the King and the claim has been filed. I have also heard that these places have been for the King from the time of Kamehameha I and had been in the care of Kinau and Kaahumanu. (Native Testimony vol. 10, pg.448)

LCA 104 FL was granted to Mataio Kekūanaō'a. Kekūanaō'a, born in Hilo on Hawai'i Island in the 1790s, was governor of O'ahu at the time of the Māhele. He was the father of Alexander Liholiho (King Kamehameha IV), Lot Kamehameha (King Kamehameha V), Princess Victoria Kamāmalu, Princess Ruth Ke'elikolani, and Moses Kekuaiwa. Following his death in November 1868 his lands were inherited by his daughter, Princess Ruth.

The records for LCA 104 FL (Fort Lands) suggest that Apana 4, as indicated on the 1881 map, comprised land associated with Kekūanaō'a's "house site in Kapuni, Waikīkī, Kona, Oahu" (Native Testimony vol. 10, pg. 390). Based on descriptions in the LCA records, the house site itself was located at the coast. The records do not indicate any specific land features or agricultural activity within Apana 4. Records for LCA 7597, Apana 2 awarded to Anederea

Kamaukoli provide detailed information on the parcel and reveal that Kamaukoli was *konohiki* (headman of an *ahupua'a* land division under the chief of the area). Kamaukoli himself testified:

> ...I...hereby state my claim for land, Auaukai, an 'Ili, was given me by Kaahumanu I in the year in which Poki sailed to Nanapua [*i.e.* about 1829] and disappeared. That was when I acquired this 'Ili and from that time I have occupied this land as konohiki. The tenants are living under me, and going to my work days and are ruled by the laws of this time. My own lo'is in Auaukai, an 'ili in the Ahupua'a of Waikiki, are three taro lo'i, one weed-grown kula for planting sweet potatoes and gourd. (Native Register vol. 5, pg. 413-415)

Other records identify the taro in Apana 2 as *puepue* or dryland.

Kamaukoli is identified in Māhele documents as the father-in-law of Aua, the awardee of LCA 8023. Aua testified that he received the land in the "'ili of Auaukai" from Kamaukoli "in the time of [the regency] of Kaahumanu" (Foreign Testimony vol. 14, pg. 475). It appears that the two parcels of LCA 8023 shown on the 1881 map comprise "one pauku [land section] of taro...in the water course and...another pauku of stream" (Native Register vol. 5, pg. 478).

In summary, the Māhele documents indicate that within the present project area at the mid-nineteenth century: the *mauka* section comprised a portion of taro *lo'i* belong to the king; the central section comprised a portion of Apuahekau Stream in which taro was also growing; and the *makai* portion comprised *kula* – a dryland agricultural field where taro, sweet potatoes, and gourd may have been growing. It is likely that these agricultural activities recorded in the documents reflect the continuation into the nineteenth century of the primary traditional Hawaiian land use and cultural activity within the project area and vicinity.

3. 'Āinahau

Historic maps identify the present project area as a portion of 'Āinahau, the Waikīkī estate of Archibald Cleghorn (1835-1910), his wife Princess Miriam Likelike (1851-1887), and their daughter Princess Ka'iulani (1875-1899) – all significant personages in the history of Hawai'i.

> Cleghorn not only beautified Waikīkī through his work at Kapi'olani Park [he had been instrumental in the park's creation and design], but also at his estate, 'Āinahau, which he had purchased in 1872 for $300. Inheriting a love of horticulture from his father, Cleghorn lavishly landscaped this parcel, making it "the most beautiful private estate in the Hawaiian Islands" (Hibbard and Franzen 1986: 12)

A 1917 government survey map – on which the present project area is indicated – shows the boundaries of the 'Āinahau estate and other land owned by Cleghorn immediately *mauka* of 'Āinahau, beyond the *mauka* bank of 'Āpuakēhau Stream (Figure 4). When the 1917 map is studied in tandem with the 1881 map discussed above (Figure 3), it appears that the 'Āinahau estate comprised the entire LCA 7597 Apana 2 and an adjacent portion of LCA 104 FL Apana 5. The portion of LCA 104 FL is probably the land that Princess Ruth Keelikolani gave to Princess Kaiualani as a christening gift.

The structures indicated within LCA 7597 Apana 2 on the 1881 map would appear to be buildings constructed by Cleghorn on the 'Āinahau grounds. Among these buildings, the large structure indicated just outside the present project area is likely the bungalow which was the

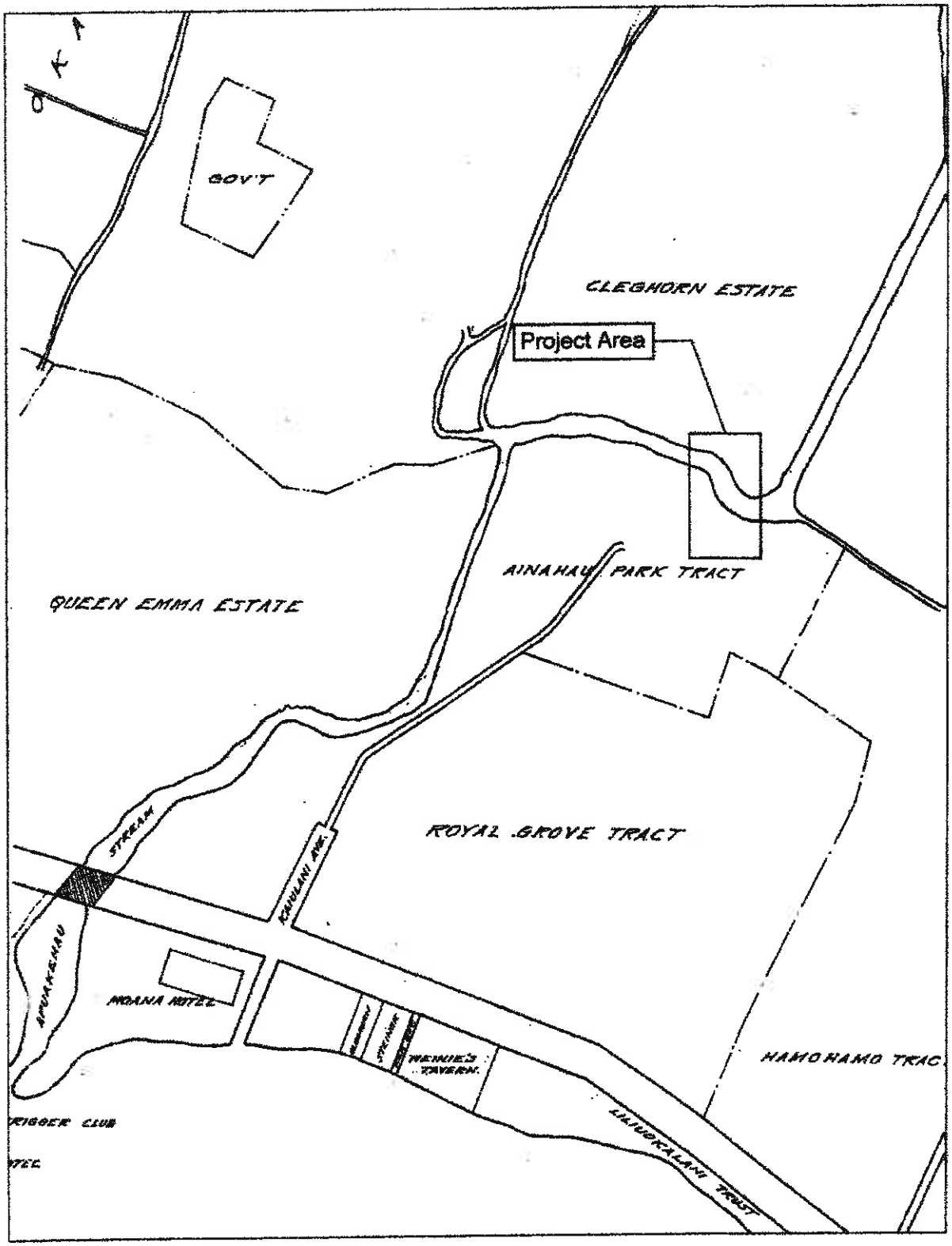

Figure 4. Portion of a 1917 government survey map (Bishop Museum) shows boundaries of the Cleghorn Estate and approximate location of the present project area

Cleghorn family's first residence on the estate. Subsequently, in the 1890s, Cleghorn constructed, immediately adjacent to the bungalow, a large Victorian-style house. A visitor in the 1890s noted:

> The new house was a white frame structure, of two stories, with wings at either end – the favourite form of Honolulu architecture – with a wide verandah extending across the front. The shrubbery had been cut away for several yards in every direction to allow the free circulation of the air, and just beyond the main entrance stood the one incomparable banyan tree, which the owner presently informed me was the handsomest thing he had. (in Stassen-McLaughlin 1986: 127)

Historic photographs indicate that this house was located within the *makai* portion of the present project area.

Two members of the Cleghorn family would not live to see the twentieth century:

> Not only a site of pleasant pastimes, these lands ['Āinahau] also were associated with grief and tragedy. Here, Princess Likelike died on 2 February 1887, at the age of thirty-six, and twelve years later, in 1899, Cleghorn's daughter Ka'iulani, passed away here in the springtime of her life, at the age of twenty-four. (Hibbard and Franzen 1989: 13)

Cleghorn himself would continue to reside at 'Āinahau until his death in 1910. The house would burn down on August 2, 1921 in a fire caused by a gas heater.

4. The Project Area in the Twentieth Century

Seven years following Cleghorn's death, the 'Āinahau estate was put up for sale.

> In 1917 James W. Pratt bought the estate, then sold most of it in 1919 to William Chauncey Wilder. Wilder, along with developer Percy M. Pond, had great plans. The property was offered to the public for subdivision. [Stassen-McLaughlin 1986: 128]

An advertisement appearing in the Pacific Commercial Advertiser on May 5, 1919 shows the residential subdivision developed by Pond (Figure 5). The streets shown on the map, which were constructed for the subdivision, correspond to the present-day Ka'iulani Avenue, Cleghorn Street, Kapili Street, and Tusitala Street.

The map also indicates that 'Āpuakēhau Stream continued to flow in the first decades of the twentieth century and delineated the *mauka* and 'Ewa boundaries of the 'Āinahau subdivision tract. The map suggests that, in 1919, only the *makai* portion of the present project area was developed as a portion of the tract. 'Āpuakēhau Stream and remnants of the pond fields of Waikīkī continued extant in the *mauka* portion of the project area. Additionally, as was noted above, the 'Āinahau residence was still standing in 1919, likely within the present project area, until it burned down in 1921. The 'Āinahau tract subdivision may have excluded the residence and its immediate surroundings from development.

As was also noted above, the construction of the Ala Wai Drainage Canal between1921 and 1928 resulted in the draining and filling in of the Waikīkī fishponds and irrigated fields, and their replacement with the gridwork of streets of present-day Waikīkī. A 1927 fire insurance map shows the Ala Wai Canal and Ala Wai Boulevard immediately *mauka* of the present project area

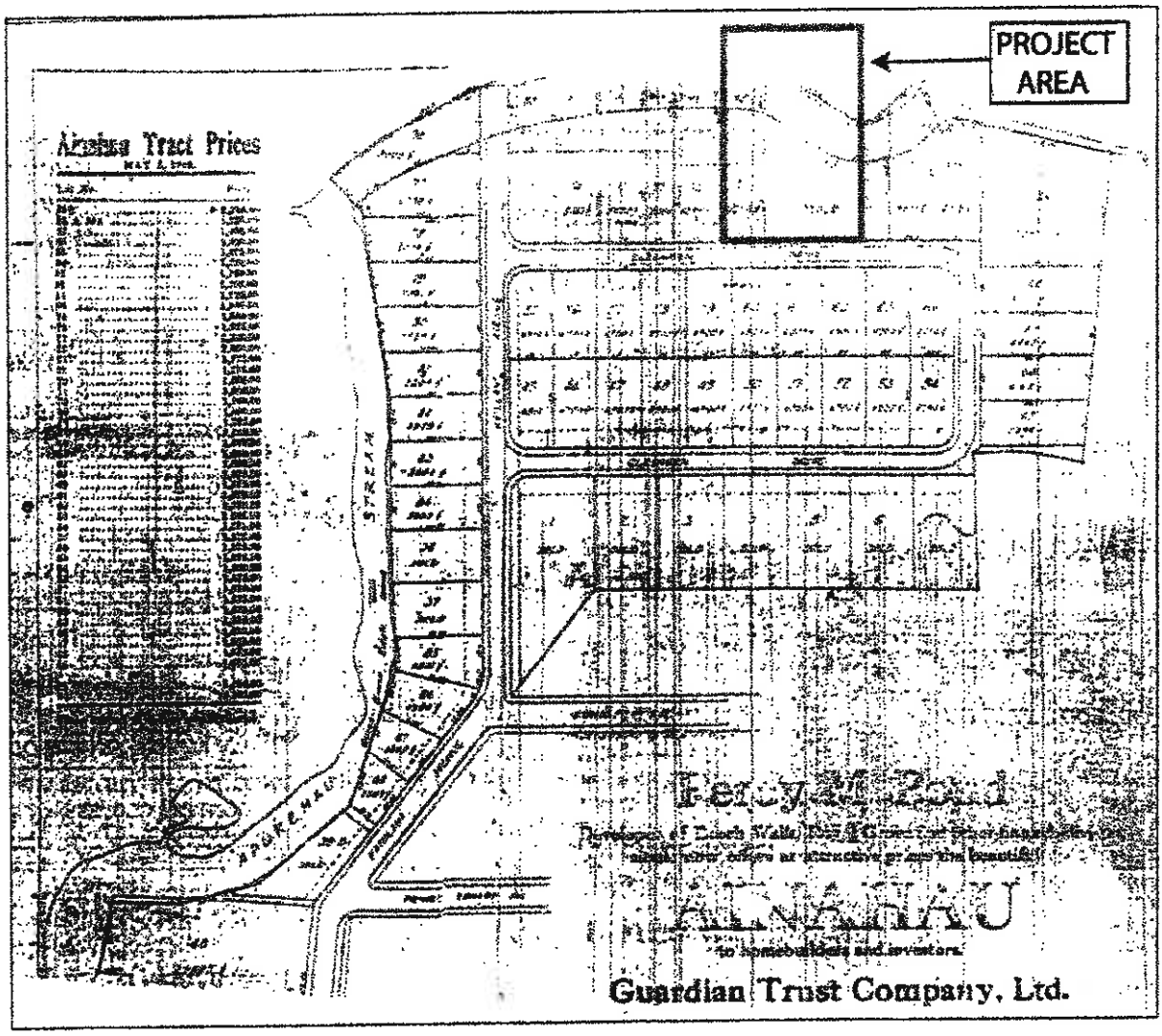

Figure 5. Advertisement in Pacific Commercial Advertiser on May 5, 1919 showing division of ʻĀinahau residential subdivision by Percy Pond with approximate location of present project area indicated

which is now a fully-formed urban block (Figure 6). The map indicates that the project area parcel, like other parcels in the neighborhood, is filled with single-story wooden cottages. These cottages characterized much of Waikīkī during the first half of the twentieth century.

An insight into Waikīkī life in the 1920s and 1930s is provided by Betty Dyer Sorensen whose family lived at the corner of Kalākaua Avenue and Beach Walk. Her parents, John and Mabel Dyer, had bought a 7055-square-foot lot at 290 Beach Walk for $1500 in 1918. Mrs. Sorensen describes the house her parents built there, in which she lived following her birth in 1922 until her marriage in 1946:

> The front porch was on the mauka (mountain) side, and it caught the mountain breezes. It was painted buff with white trim and was in the Twenties bungalow style. (Sorensen 1995: 30-31)

In the 1920s, Waikīkī was a small neighborhood:

> . . . with little cottages, inexpensive apartments and a few nice houses. People liked to live there because it was so close to the ocean and to transportation. The streetcars went down Kalakaua Avenue, Waikiki's main thoroughfare, all the way from Diamond head to the business section of downtown Honolulu, three miles away. The few tourists who visited either stayed with friends for at least a month or they rented a cottage. (Sorensen 1995.:1)

Since the area was documented on the 1927 map, a 1950 fire insurance map (Figure 7) reveals few changes to the cityscape of the present project area and its surrounding neighborhood. This lack of major transformation is in sharp contrast to the rapid urban development of the hotel, retail and residential properties in Waikīkī at this time, in the areas in closer proximity to the shoreline. In the present project area and its neighborhood, single storied wooden houses still predominate, though several of these have either been added on to or divided into duplexes or triplexes. In addition, a handful of new dwellings have been built. The map also shows that the name of the street to the southwest of the project area, Cleghorn Drive, was changed to its current name, Tusitala Street.

Figure 6. Portion of 1927 fire insurance map (Sanborn) with approximate location of the present project area indicated

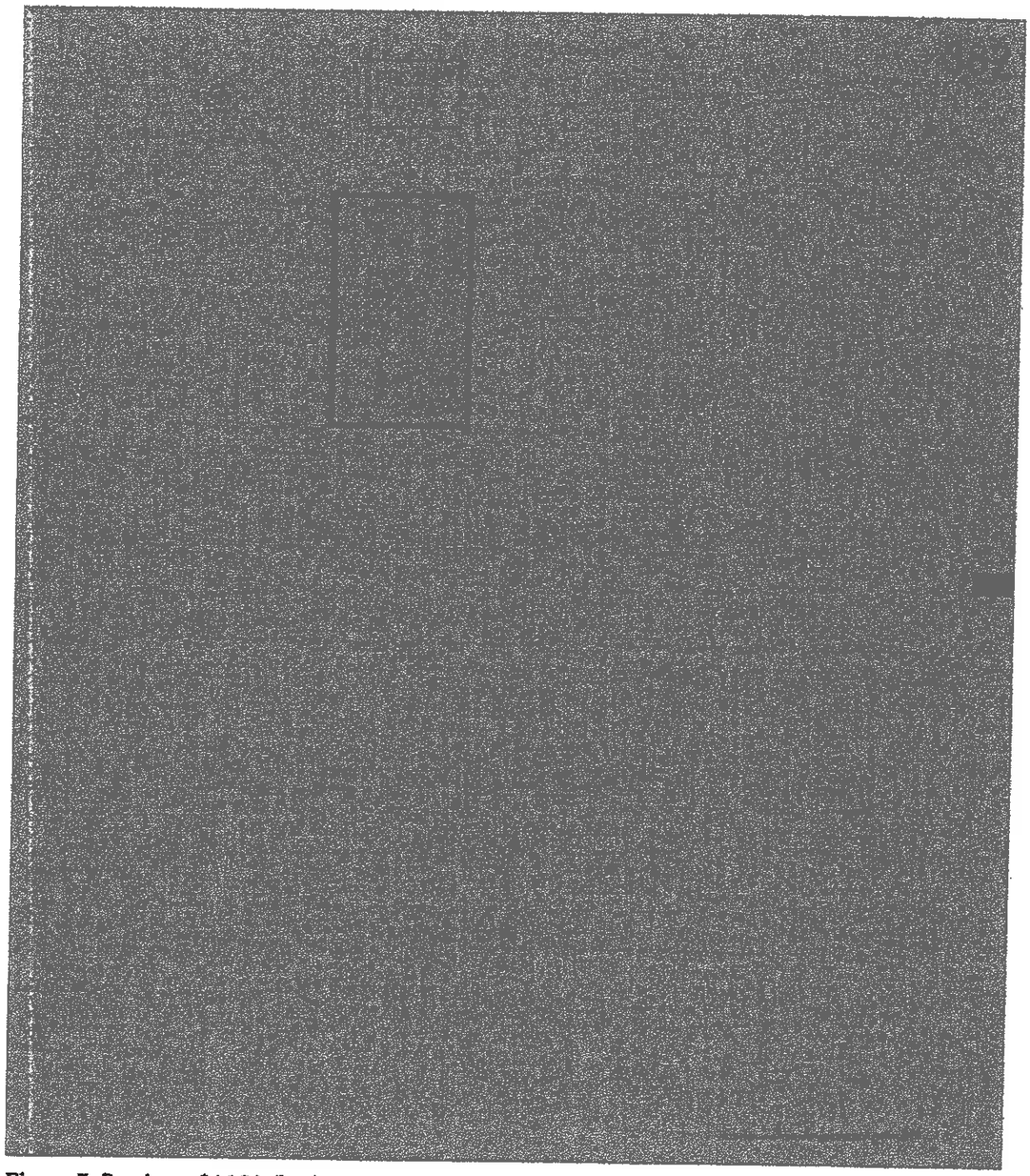

Figure 7. Portion of 1950 fire insurance map (Sanborn) with approximate location of the present project area indicated

III. PREVIOUS ARCHAEOLOGICAL RESEARCH

The *ahupua'a* of Waikīkī, in the centuries before the arrival of Europeans, was an intensely utilized area, with abundant natural and cultivated resources, that supported a large population. In the nineteenth and early twentieth centuries, after a period of depopulation, Waikīkī was reanimated by Hawaiians and foreigners residing there, and by farmers continuing to work the irrigated field system, which had been converted from taro to rice. Farming continued up to the first decades of this century until the Ala Wai Canal drained the remaining ponds and irrigated fields. Remnants of the pre-contact and historical occupation of Waikīkī have been discovered and recorded in archaeological reports, usually in connection with construction activities related to urban development, or infrastructural improvements. These discoveries, which have occurred throughout Waikīkī, have included many human burials, traditional Hawaiian and historic, as well as pre-contact Hawaiian and historic cultural deposits. Location of previously identified sites is shown in Figure 8 and a list of projects conducted in the Waikīkī area is listed in Table 1. A discussion of projects focusing on burials follows.

A. Previous Archaeology in Waikīkī, Focusing on Burials

N.B. Emerson reported on the uncovering of human burials during the summer of 1901 on the property of James B. Castle - site of the present Elks Club - in Waikīkī during excavations for the laying of sewer pipes (Emerson 1902:18-20). Emerson noted:

> The soil was white coral sand mixed with coarse coral debris and sea-shells together with a slight admixture of red earth and perhaps an occasional trace of charcoal. The ground had been trenched to a depth of five or six feet, at about which level a large number of human bones were met with, mostly placed in separate groups apart from each other, as if each group formed the bones of a single skeleton. Many of the skulls and larger bones had been removed by the workmen before my arrival, especially the more perfect ones. [Emerson 1902:18]

Emerson's report on the find describes the remains of at least four individuals, all presumed to be Hawaiian. Associated burial goods were also exposed during excavation; these included "a number of conical beads of whale-teeth such as the Hawaiians formerly made" and "a number of round glass beads of large size". The glass beads "can be assigned with certainty to some date subsequent to the arrival of the white man" (Emerson 1902:19). Also located with the beads was "a small sized *niho-palaoa*, such as was generally appropriated to the use of the chiefs" which had been "carved from the tooth of the sperm-whale" and which was "evidently of great age" (Emerson 1902:19).

In the 1920s and 30s the first systematic archaeological survey of O'ahu was conducted by J. C. McAllister (1933). He recorded four *heiau* (temples), three of which were located at the *mauka* reaches of Waikīkī Ahupua'a in lower Mānoa Valley. The fourth *heiau* – Papa'ena'ena - was located at the foot of Diamond Head crater near the present site of the La Pietra Estates condominium development (2933 Poni Moi Road). Other sources that place the *heiau* at La Pietra, the former mansion of Walter F. Dillingham, now the Hawai'i School for Girls (La Pietra Circle) are incorrect (Weyneth 1991:48). Papa'ena'ena Heiau is traditionally associated with Kamehameha I, who was said to have visited the *heiau* before setting off to battle for Ni'ihau and Kaua'i in 1804. Five years later, according to John Papa 'Ī'ī, Kamehameha placed at

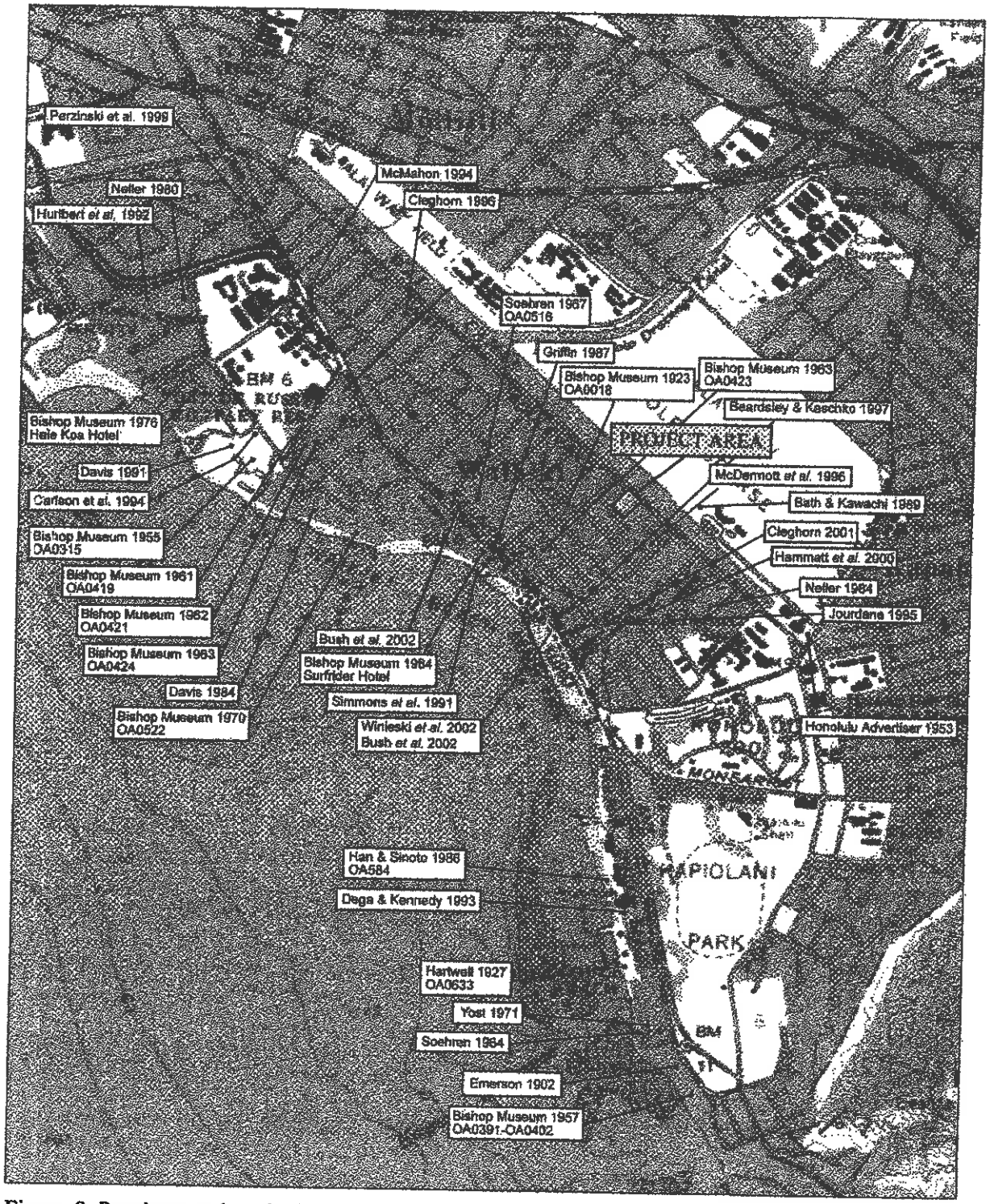

Figure 8. Previous archaeological work in Waikīkī including location of burials and the present project area

Table 1. Previous Archaeological Investigations in Waikīkī Ahupua'a

Reference	Type of Investigation	General Location	Findings
McAllister 1933	Island-wide survey	All of O'ahu	Waikīkī listed as Site 60.
Neller 1980	Monitoring Report	Hilton Hawaiian Village	Kālia Burial Site: Partial recovery of 3 historic Hawaiian burials, trash pit from 1890's
Bishop Museum 1981	Testing, & Monitoring Report	Halekulani Hotel	Intact cultural deposits found.
Neller 1981	Reconnaissance Survey	Halekulani Hotel	Limited background research on area
Davis 1984	Archaeological Investigation	Halekulani Hotel	48 historic and pre-contact features excavated.
Bishop Museum 1984	Burial Remains List	Waikīkī Ahupua'a	Listing of burial remains found in Waikīkī at the Bishop Museum
Neller 1984	Narrative Report	Paoakalani Street	Recovery of human skeletons at construction site
Griffin 1987	Inadvertent Burial Discovery	Kalākaua Ave. near corner of Kai'ulani St.	Bones removed and bagged by construction crew, burial found in *makai* wall of gas pipe excavation.
SHPD 1987	Burial, PA Report	Kalākaua Ave.	From excavation adjacent to Moana Hotel-9901).
Davis 1989	Reconnaissance Survey and Historical Research	Fort DeRussy	Fishponds & other buried features. Sites 4573 thru - 4577 are fishponds, 4570 is a remnant cultural deposit.
Rosendahl 1989	Inventory Survey, Preliminary Report	Fort DeRussy	Historic artifacts, no human remains
Riford 1989	Background Literature Search	TMK: 2-6-014:039	List of literature pertaining to Waikīkī area.
Athens 1990	Letter to SHPD	TMK: 2-6-023:025	List of human remains at IARII lab from Pacific Beach Hotel & Barbers Point Generating Station.
Hurst 1990	Historical Literature	Waikiikian Hotel	Background & planning document. No fieldwork.

Reference	Type of Investigation	General Location	Findings
Chigioji 1991	Assessment	2 parcels, TMK 2-6-24:65-68 and 80-83; 2-6-24:34-40 & 42-45	Formerly part of the ʻĀinahau estate; remainder of parcels, former *ʻauwai*, *kalo*, and rice fields; excavations & sampling strategy recommended.
Davis 1991	Monitoring Report	Fort DeRussy	See also Davis 1989. No groundwater contamination found; subsurface features and material remains date to 1780/1790s through the mid-19th century.
Kennedy 1991b	Monitoring Report	TMK: 2-6-022:014 IMAX theatre location	Pollen and bulk-sediment ^{14}C samples from ponded sediments recovered. 3 ^{14}C dates and the pollen sequence were inverted.
Simons et al. 1991	Monitoring and Data Recovery	Moana Hotel Area	8 pre-contact burials & pre- and post-contact artifacts recovered
Hurlbett 1992	Monitoring Report	TMK: 2-6-008:001	Site -2870 (3 burials) found by Neller in 1980. This report is on testing & monitoring in same area.
Pietrusewsky 1992d	PA Report	Moana Hotel	Right half of human mandible found by hotel guest.
Pietrusewsky 1992e	PA Report	Hamohamo	Human Remains from Hamohamo, Waikīkī, Oʻahu
Rosendahl 1992	Monitoring Report	Hilton Hawaiian Village	12 historic refuse pits, 3 historic to modern trenches; no further work
Streck 1992	Memorandum for Record	Fort DeRussy	Human burial (probably late pre-contact Hawaiian) found during data recovery excavations
Cleghorn 1993	Inadvertent Burial Discovery	Waikīkī Aquarium	Remains of 1 human individual, mandible identified.
Dagher 1993d	Inadvertent Burial Discovery	Waikīkī Aquarium	Remains of at least 1 burial found, excavation recommended.
Dega and Kennedy 1993	Inadvertent Burial Discovery	Waikīkī Aquarium	Discovery of unidentified bones, remains given to SHPD.

Reference	Type of Investigation	General Location	Findings
Hammatt and Chiogioji 1993	Archaeological Assessment	16-Acre Portion of the Ala Wai Golf Course	Pre-contact and early historic occupation layers associated with *lo'i* system intact below modern fill. Burial testing recommended.
Maly et al. 1994	Arch.& Historical Assessment Study	Convention Center Project Area	Recommend subsurface testing to determine presence or absence of cultural deposits and features.
McMahon 1994	Inadvertent Burial Discovery	Kalākaua & Kuamo'o Street	Miscellaneous bones uncovered in back dirt pile during construction.
Hammatt & Shideler 1995	Sub-surface Inventory Surface	1777 Kalākaua Ave.	No further work recommended at Hawai'i Convention Center site.
Jourdane 1995	Inadvertent Burial Discovery	Paoakalani Avenue	Remains discovered in planted strip between street and sidewalk fronting hotel.
Simons et al. 1995	Data Recovery Excavations	Fort DeRussy	Historic & pre-contact artifacts, artifact debris, & midden from 7 occupation layers. 6 pre-contact cultural features; *'auwai* bunds and channels, fishpond walls & sediments, possible *lo'i*, hearths.
Cleghorn 1996	Inventory Survey	TMK: 2-6-016:23, 25, 26, 28, 61, 69	7 backhoe trenches excavated, no sites located.
Grant 1996b	Historical Reference	Waikīkī	Historical information about Waikīkī prior to 1900.
Hammatt and Shideler 1996	Data Recovery	Hawai'i Convention Center	No clear evidence of Kuwili Pond sediments in project area; no further work recommended.
McDermott et al. 1996	Inventory Survey	'Āinahau Estate	Buried remnants of *'auwai* and *lo'i* and human burial found on 'Āinahau Estate, ^{14}C dates
Denham et al. 1997	Data Recovery Report	Fort DeRussy	Excavations conducted at fishponds, ^{14}C dates mid-Seventeenth century
Denham and Pantaleo 1997	Monitoring and Excavations Report	Fort DeRussy	10 subsurface features and 9 burials found. ^{14}C dates; no SHPD recommendations

Reference	Type of Investigation	General Location	Findings
Beardsley and Kaschko 1997	Monitoring & Data Recovery Report	Pacific Beach Hotel Office Annex	Traditional Hawaiian cultural deposits and 2 human burials. 3 ^{14}C dates
Hammatt and Chiogioji 1998b	Assessment	King Kalākaua Plaza Phase II	No surface sites, documented human burials, presence of subsurface pre-contact & historic cultural deposits
Hammatt and McDermott 1999	Burial Disinterment Plan and Report	Kalākaua Avenue	Two human burials found
Perzinski et al. 1999	Monitoring Report	Ala Wai Blvd., Kalākaua Ave., & 'Ena Rd.	2 burials found (1 before monitoring); pockets of undisturbed layers exist
Rosendahl 1999	Interim Report: Inventory Survey	Fort DeRussy	This area is part of the old shoreline.
Hammatt and Chiogioji 2000	Archaeological Assessment	Honolulu Zoo Parcel	Monitoring recommended for SW portion of zoo parcel, which may have significant cultural deposits.
LeSuer et al. 2000	Inventory Survey	King Kalākaua Plaza Phase II	Site -5796 has been adversely affected by land alteration Site -4970 adequately documented.
Perzinski et al. 2000a	Burial Findings	Kalākaua Ave. between Kai'ulani & Monsarrat Ave.	44 sets of human remains; 37 disinterred, 7 left in place; believed to be Native Hawaiian, pre-1820.
Cleghorn 2001a,b	Mitigation	Burger King Site	3 incidents of uncovered human remains while locating a buried sewer-line for the ABC's store.
Corbin 2001	Inventory Survey	Hilton Waikīkīan	No arch. sites were found during excavations
Elmore and Kennedy 2001	Inadvertent Burial Discovery	Royal Hawaiian Hotel	Human remains found during trench excavations for conduit. In situ remains left in place, remains disturbed reentered with others.
McGuire and	Cultural Assessment	Lewers St., Beach Walk, Kālia Rd. &	Waikīkī Beach Walk project; linadvertent burial discovery. Monitoring recommended for all

References	Type of Investigation	General Location	Findings
Hammatt 2001		Saratoga Rd.	subsurface work
Perzinski and Hammatt 2002	Monitoring Report	Kapi'olani Bandstand	A charcoal layer .most on the SW side of the bandstand, observed; recovered a basalt lamp with a handle from SE end.
Perzinski and Hammatt 2001b	Monitoring Report	Kalākaua Ave., Natatorium to Poni Mo'i Road	No cultural layer, artifacts, midden, or human burials were encountered
Rosendahl 2001	Assessment Study	Outrigger Beach Walk	Assessment of previous archaeological & historical literature.
Winieski and Hammatt 2000	Monitoring Report	TMK: 1-2-6-025:000	Possibility that Hawaiian or historic materials and burials may still be present
Borthwick et al. 2002	Inventory Survey	71,000 sq. ft. parcel, TMK: 2-6-016:002	No burials found; absence of dry Jaucus sands indicate that burial finds are unlikely in project area.
Bush and Hammatt 2002	Monitoring Report	Kalākaua Ave., between Ala Moana Blvd. and Kapahulu Ave.	Found 4 human burials, probably pre-contact; several historic trash pits; entire pig within an *imu* pit (c. A.D. 1641-1671); gleyed muck associated with former ponds.
Calis 2002	Monitoring Report	Lemon Road	No historic deposits, major previous disturbance
Elmore and Kennedy 2002	Monitoring Report	Fort DeRussy	No findings.
Mann and Hammatt 2002	Monitoring Report	Lili'uokalani & Uluniu Avenues	5 burial finds of 6 individuals; two historic trash pits.
Putzi and Cleghorn 2002	Monitoring Report	Hilton Hawaiian Village	No findings during monitoring of trench sewer excavations
Winieski et al. 2002a	Monitoring Report	Kalākaua Ave. between Ka'iulani and	44 human burials encountered, 37 disinterred; buried habitation layer identified, with traditional artifacts, midden, hearths, & charcoal; remnant of Honolulu

Reference	Type of Investigation	General Location	Findings
		Monsarrat Avenues.	Transit trolley system (light rail gauge) found; low-energy alluvial sediments associated with the now channelized *muliwai* Kukaunahi
Winieski et al. 2002b	Monitoring Report	Kūhiō Beach	Skeletal remains of 10 individuals, 6 disinterred, only 2 in situ. 4 indigenous artifacts, none in situ. Cultural layer, historic seawall.
Bush et al. 2003	Monitoring Report	International Marketplace	Historic trash found.
Tome & Dega 2003	Monitoring Report	Waikīkī Marriot	No in situ remains, recommends monitoring if more work is done, 1 isolated not in situ possible human bone fragment.
Tulchin and Hammatt 2003	Arch. & Cultural Impact Assessment	2284 Kalākaua Ave.	Possibility of burials in project area; recommends inventory survey & subsurface testing.

Papa'ena'ena the remains of an adulterer - "all prepared in the customary manner of that time" ('Ī'ī 1959:50-51).

In 1963, two human skulls and other human remains were discovered in a construction trench at 2431 Prince Edward St. (Bishop Museum site Oa-A4-23, cited in Neller 1984). Multiple burials were encountered in 1963 during excavation for the construction of the present Outrigger Canoe Club at the Diamond Head end of Kalākaua Avenue. As reported in a newspaper article on Jan. 24, 1963:

> The Outrigger Canoe Club yesterday dedicated its new site [on land adjacent to and leased from the Elks Club], an ancient Hawaiian burial ground in Waikīkī. . . .
>
> Robert Bowen of the Bishop Museum has been working closely with Ernest Souza, Hawaiian Dredging superintendent, on the removal of skeletons unearthed on the site, between the Colony Surf and the Elks Club. . . .
>
> Most of the bodies were buried in the traditional ho'olewa position, with the legs bound tightly against the chest.
>
> One of the skeletons, Bowen said, shows evidence of a successful amputation of the lower forearm, indicating that the Hawaiians knew this kind of operation before the arrival of Europeans.
>
> The ages of the skeletons ranged from children to 40-year-old men and women. The average life span of the Hawaiians at the time was about 32 years [*Honolulu Star-Bulletin*; Jan. 24, 1963: 1A].

A total of 27 burials were encountered (Yost 1971:28). Apparently, no formal archaeological report on the burials was produced.

In 1964, sand dune burials, a traditional Hawaiian mortuary practice, were revealed as beach sand eroded fronting the Surf Rider Hotel (Bishop Museum Site Files).

In 1976, during construction of the Hale Koa Hotel, adjacent to the Hilton Hawaiian Village Hotel, six burials were unearthed, five of apparent pre-contact or early historic age, and one of more recent date (Bishop Museum Site Files).

In 1980, three burials were exposed at the Hilton Hawaiian Village during construction of the hotel's Tapa Tower. Earl Neller of the (then named) State Historic Preservation Program was called in upon discovery of the burials and conducted fieldwork limited to three brief inspection of the project area. Neller's (1980) report noted:

> The bones from three Hawaiian burials were partially recovered; one belonged to a young adult male, one a young adult female, and one was represented by a single bone. An old map showed that rapid shoreline accretion had occurred in the area during the 1800s, and that the beach in the construction area was not very old. It is possible the burials date back to the smallpox epidemic of 1853. It is likely that burials will continue to be found in the area. It is also possible that early Hawaiian sites exist farther inland, beneath Mō'ili'ili, adjacent to where the shoreline would have been 1000 years ago. [Neller 1980:5]

Neller also documented the presence of trash pits, including one from the 1890s which contained "a large percentage of luxury items, including porcelain table wares imported from China, Japan, the United States, and Europe" (Neller 1980:5). He further notes:

> It is suspected that other important historic archaeological sites exist in the highly developed concrete jungle of Waikīkī, with discrete, dateable trash deposits related to the different ethnic and social groups that occupied Waikīkī over the last 200 years [Neller 1980:5].

Between December 1981 and February 1982, archaeologists from the Bishop Museum led by Bertell Davis conducted a program of excavations and monitoring during construction of the new Halekūlani Hotel (Davis 1984). Six human burials were recovered along with "animal burials [and] cultural refuse from pre-contact Hawaiian firepits, and a large collection of bottles, ceramics, and other materials from trash pits and privies dating to the late 19th century" (Davis 1984:i). Age analysis of volcanic glass recovered from the site led Davis to conclude: "For the first time we can now empirically date . . . settlement in Waikīkī to no later than the mid-1600s" (Neller 1980:5). Just as significant to Davis was the collection of historic era material at the Halekūlani site; he states:

> [The] Halekūlani excavations clearly demonstrate...that there is a definite need to consider historic-period archaeology as a legitimate avenue of inquiry in Hawaiian research. Furthermore, archaeology in the urban context can yield results every bit as significant as in less developed areas. Development in the 19th and early 20th centuries clearly has not destroyed all archaeological resources in Waikīkī, Honolulu, or in any of the other urbanized areas of Hawai'i [Neller 1980:5].

In 1983, at the Lili'uokalani Gardens condominium construction site, seven traditional Hawaiian burials were recovered (Neller 1984). This had been the site of a bungalow owned by Queen Lili'uokalani at the end of the nineteenth century. In addition to the burials, the site contained plentiful historic artifacts, and a pre-historic cultural layer pre-dating the burials.

In 1985, International Archaeological Research Institute, Inc. performed archaeological monitoring and data recovery at the Pacific Beach Hotel Office Annex (Beardsley and Kaschko 1997). Two traditional Hawaiian burials were discovered and removed. Intact buried traditional Hawaiian cultural deposits, including a late pre-contact habitation layer, contained pits, firepits, post molds, artifacts, and food debris. The artifacts included basalt and volcanic glass flakes and cores, a basalt adze and adze fragments, worked pearl shells, a coral file and abraders, and a pearl shell fishhook fragment. Additionally, a late nineteenth century trash pit was discovered, which contained a variety of ceramics, bottles, and other materials.

During 1985 and 1986, archaeologists from Paul H. Rosendahl, Ph.D. Inc. conducted archaeological monitoring at the site of the Mechanical Loop Project at the Hilton Hawaiian Village, Waikīkī. Much of this project area was disturbed by historic and modern construction and modification. Fifteen subsurface features were uncovered during the monitoring, all of which were determined to be historic trash pits or trenches. The dating of these features was based on dating the artifactual material they contained. All 15 features are thought to post-date 1881 based on this artifact analysis. The three partial burials reported by Neller (1980) were found within that project area. No further burials were encountered during the PHRI field work (Hurlbett et. al. 1992).

In 1987, a human burial was discovered and removed at the intersection of Kalākaua Avenue and Ka'iulani Street during excavations for a gas pipe fronting the Moana Hotel (Griffin 1987).

In1988, the Moana Hotel Historical Rehabilitation Project (Simons et. al. 1991) encountered human remains that amounted to at least 17 individuals. Based on stratigraphic association these burials were interred over time as the land form at the site changed. The sediment surrounding these burials yielded traditional midden and artifact assemblages. The burials and human remains were found in the Banyan Court and beneath the hotel itself.

Davis' (1989, 1991) excavation and monitoring work at Fort DeRussy documented substantial subsurface archaeological deposits, pre-contact, historic, and modern. These deposits included buried fishpond sediments, *'auwai* [irrigation ditch] sediments, midden, and artifact enriched sediments, structural remains such as post holes and fire pits, historic trash pits, and a human burial. Davis' (1991) report documents human activity in the Fort DeRussy beach front area from the sixteenth century to the present.

The work at Fort DeRussy continued in 1992 when BioSystems researchers built upon Davis' work (Simons et al. 1995). BioSystems research documents the development and expansion of the fishpond and *'auwai* system in this area. The *'auwai* system was entered on the State Inventory of Historic Places (SIHP) as State Site 50-80-14-4970. As indicated on the 1881 map by S. E. Bishop discussed above, this *'auwai* enters the Fort DeRussy grounds through the present project area). Remains of the fishpond and *'auwai* deposits, as well as habitation deposits, were documented below modern fill deposits. This research, along with that of Davis (1991), clearly demonstrates that historical document research can be an effective guide to locating late pre-contact/early historic subsurface deposits, even amidst the development of Waikīkī.

In 1992, Hurlbett et al. (1992) conducted additional monitoring and testing in this same area as Neller (1980). The state site -2870 was given to the three burials first found by Neller. Additional subsurface features, postdating 1881, were found during trenching operations.

The realignment of Kālia Road at Fort DeRussy in 1993 uncovered approximately 40 human burials. A large majority of these remains were recovered in a large communal burial feature (Carlson et. al. 1994). The monitoring and excavations associated with this realignment uncovered a cultural enriched layer which contained post holes.

In 1993, during construction activities at the Waikīkī Aquarium, fragmentary human remains were discovered scattered in a back dirt pile, although no burial pit was identified (Dega and Kennedy 1993).

On April 28, 1994, an inadvertent burial discovery was made during excavation for a water line at the intersection of Kalākaua Avenue and Kuamo'o Street (just *mauka* of Fort. DeRussy). These remains represented a single individual (McMahon 1994).

In 1995, the remains of one individual were discovered in situ during construction activities on Paoakalani Street, fronting the Waikīkī Sunset Hotel (Jourdane 1995).

In 1996, Pacific Legacy, Inc. conducted an archaeological inventory survey of the block bounded by Kalākaua Avenue, Kūhiō Avenue, 'Ōlohana Street, and Kālaimoku Street (Cleghorn 1996). The survey included excavation of seven backhoe trenches. The subsurface testing indicated that:

> . . . this area was extremely wet and probably marshy. This type of environment was not conducive for traditional economic practices. . . . The current project area appears to have been unused because it was too wet and marshy. Several peat deposits, containing the preserved remains of organic plant materials were discovered and sampled. These deposits have the potential to add to our knowledge of the paleoenvironment of the area [Cleghorn 1996:15].

The report concluded that no further archaeological investigations of the parcel were warranted since "no potentially significant traditional sites or deposits were found", but cautioned of the "possibility, however remote in this instance, that human burials may be encountered during large scale excavations" (Cleghorn 1996:15).

In 1996, a traditional Hawaiian burial was discovered and left in place during test excavations on two lots at Lili'uokalani Avenue and Tusitala Street southeast of the current project area (McDermott et al. 1996). Cultural Surveys Hawaii's research suggested that a portion of the study lots -specifically TMK 2-6-24:36-40 - was formerly a corner of the 'Āinahau Estate. A total of 2 indigenous and 15 historic artifacts were collected from the former 'Āinahau Estate portion of the project area. Cultural Surveys Hawaii's research further suggested that the remainder of the present study lots comprise a former 'auwai and taro and rice fields.

In 1997, during archaeological monitoring by CSH for the Waikīkī Force Main Replacement project, scattered human bones were encountered on 'Ōhua Street (Winieski and Hammatt 2000). These included the proximal end and mid-shaft of a human tibia, a patella, and the distal end and mid-shaft of a femur. These remains occurred within a coralline sand matrix which had been heavily disturbed by previous construction, and by the on-going construction project. No precise location for the original burial site was identified.

In April 1999, two human burials were inadvertently encountered near the intersection of Ena Road and Kalākaua Avenue during excavation activities for the first phase of the Waikīkī Anti-Crime Lighting Improvements Project (Perzinski et al. 1999).

From July 1999 to October 2000, four sets of human remains were inadvertently encountered during excavation activities relating to the Waikīkī Anti-Crime Street Lighting Improvement project along portions of Kalākaua Avenue (Bush and Hammatt 2002). The first burial was encountered on Kalākaua Avenue, just before Dukes Lane and assigned State Site 50-80-14-5864. The burial was left in place however, and the light post was repositioned. The second burial was encountered at the intersection of Kalākaua Avenue and Ka'iulani Avenue. Earlier, during archaeological monitoring for the water mains project, two burials were encountered in the immediate area of the second burial find and assigned state site 50-80-14-5856 features A and B. Due to the close proximity to the previously encountered burials, the second burial was assigned the same State Site 50-80-14-5856, and designated feature C. Burials 3 and 4 were recovered at the intersection of Kalākaua and Ke'alohilani Avenues, near an area of concentrated burials assigned State Site 50-80-14-5860 during monitoring for the water mains project. Consequently, burials 3 and 4 were also assigned State Site 50-80-14-5860, features U and V. In addition to human remains, pre-contact deposits, historic and modern rubbish concentrations, and pond sediments were also encountered.

From November, 1999, to May, 2000, 44 human burials, with associated cultural deposits, were encountered during excavation for a waterline project on Kalākaua Avenue between the Ka'iulani and 'Ōhua Avenues (Winieski et al. 2002a). Except for previously disturbed partial

burials in fill, the bulk of the burials were encountered within a coralline sand matrix. Additionally, a major cultural layer was found and documented.

From January, 2000, to October 2000, 10 human burials were encountered during archaeological monitoring of the Kūhiō Beach Extension/Kalākaua Promenade project (Winieski et al. 2002b). Six of these were located within a coralline sand matrix. The four others were partial and previously disturbed within fill. Additionally, a major cultural layer was found and documented, apparently part of the same major cultural layer associated with the waterline project between Ka'iulani and 'Ōhua Avenues.

In April 2001 human remains were inadvertently disturbed during excavations associated with the construction of a spa at the Royal Hawaiian Hotel (Elmore et al. 2001). Archaeological Consultants of the Pacific, Inc was responsible for the documentation of the remainder of the burial and carrying out the instruction of DLNR/ SHPD. The burial and place it was encountered was assigned State Site # 50-80-14-5937. The burial was encountered on the North side of the hotel in the spa garden. The burial was partially disturbed through the thoracic region and anatomical left side. The disturbed remains were wrapped in muslin cloth and placed with the in-situ remains and reburied. The burial was recorded as a post contact burial based on artifacts associated with it. The associated artifacts included one shell button found *in-situ* and three more shell buttons found in the disturbed material. A single drilled dog tooth was found also during excavation but could not be positively associated with the site.

On May 2nd and June 14th, 2001, two in situ and two previously disturbed human burials were encountered at the site of a new Burger King (Cleghorn 2001a) and an adjoining ABC Store (Cleghorn 2001b). The finds were located at the intersection of 'Ōhua Street and Kalākaua Avenue (Cleghorn 2001a and 2001b). Because of their proximity to five burials encountered during the Kalākaua 16" Water Main Installation (Winieski et al. 2002a), they were included in the previously assigned State Site 50-80-14-5861. Three of these burials were recovered, and one was left in place. Volcanic glass fragments were found in association with one of the burials. A cultural layer was also observed which contained moderate to heavy concentrations of charcoal and fragments of volcanic glass. Historic era artifacts, including a bottle fragment, plastic and glass buttons, a ceramic fragment, and metal fragments were also encountered within fill materials.

In 2001 and 2002, CSH (Mann and Hammatt 2002) performed archaeological monitoring for the installation of 8- and 12-inch water mains on Uluniu Avenue and Lili'uokalani Avenue During the course of monitoring, five burials finds, consisting of six individuals, were recorded within the project area. Four burial finds were recorded on Uluniu Avenue; three of these inadvertent finds were found in fill sediment. Due to the nature of the three burial finds in fill, it was concluded that no State Site number(s) be assigned to these three previously disturbed burials. The only primary in situ burial encountered on Uluniu Avenue was assigned State Site #50-80-14-6369. The fifth burial, consisting of two individuals in fill material, was recorded from Lili'uokalani Avenue. Since three burials had been found in the immediate vicinity during a previous project (Winieski et al. 2002b) and had been assigned to Site #50-80-14-5859, the two new individuals were recorded as Feature H of this previously recorded site.

In summary, past archaeological research, from the beginning of the twentieth century to the present has produced evidence that traditional Hawaiian cultural deposits, historic trash deposits, and, most notably, human burials, do exist throughout the breadth of the Waikīkī area.

IV. PREDICTIVE MODEL

The *ahupua'a* of Waikīkī in the centuries before the arrival of Europeans was a well-used locale with abundant natural and cultivated resources – including an expansive system of irrigated taro fields and numerous fishponds – supporting a large population that included the highest-ranking *ali'i* (Hawaiian royalty). In the second half of the nineteenth century, after a period of depopulation and desuetude, Waikīkī was reanimated by the Hawaiian *ali'i* and the foreigners residing there, and by farmers continuing to work the irrigated field system that had been converted from taro to rice. This farming continued up to the first decades of the twentieth century when the newly-constructed Ala Wai Canal drained the remaining ponds and irrigated fields of Waikīkī.

Archaeological reports have documented human burials – both pre-contact Hawaiian and historic – throughout the breadth of Waikīkī as far *mauka* as the Ala Wai Golf Course. Several archaeological studies have recorded the presence within Waikīkī of subsurface cultural deposits of both pre-contact Hawaiian and historic provenance. These deposits had remained intact despite the years of construction activity that have altered the entire Waikīkī area. It is possible that intact pre-contact and early contact cultural deposits are lying undisturbed beneath modern fill layers within the project parcel. Other possible deposits may be associated with nineteenth century Hawaiian royalty.

Based on Māhele documents and information available from nineteenth century maps, the following geography and land use within the present project area at the mid-nineteenth century is indicated: the *mauka* or northeast portion comprised a portion of taro *lo'i* belonging to the king ; the central section comprised a portion of 'Āpuakēhau Stream in which taro was also growing; and the *makai* or southwest half comprised habitation area as well as *kula* – a dryland agricultural field where taro, sweet potatoes, and gourd may have been growing. The map also shows the project area straddling two Waikīkī *'ili* which appear to be separated by 'Āpuakēhau Stream: the *mauka* portion of the project area is in Kalāmanamana and the *makai* portion is in Auaukai. Kalāmanamana was one of the areas where the chief Kalamakua constructed the "large pond fields" of taro that once covered the Waikīkī plain. Some of the Kalāmanamana *lo'i* are shown in Figure 3. It is believed that agricultural land use within the northeast section of the project area, perhaps with former taro fields planted in rice, continued until the construction of the Ala Wai Drainage Canal between1921 and 1928. This portion of the study area could yield datable material associated with the development of irrigated agriculture in the *ahupua'a* of Waikīkī.

Cultural Surveys Hawaii's research also suggests that the *makai* half of the present project area was formerly the site of at least a portion of the main houses of the 'Āinahau estate house, associated with important personages in Hawaiian history. In the final quarter of the nineteenth century the portion of the project area *makai* or southwest of 'Āpuakēhau Stream was purchased by Archibald Cleghorn (1835-1910) and transformed into his estate. It is believed that a portion of the Victorian-style house he built in the 1890s was located in the present project area. Archaeological testing in this area could also uncover significant trash and refuse pits.

V. RESULTS OF FIELDWORK

A. Summary of Trenches

The archaeological inventory survey fieldwork consisted of excavation of 14 backhoe trenches throughout the project area (Figure 9) and documentation of the sediment profiles and archaeological features found. The sediments and features exposed confirmed the presence of historical features recorded in historical texts and on early survey maps. Four general stratigraphic layers were identified within the project area. Each of these primary layers contains sub-layers that are time or activity specific and are described below in the context of associated events.

The uppermost layer (Stratum I) is comprised of various introduced sediments and fill layers that originated off the property being introduced on one hand to raise the level of the property and from another view to dispose of waste material from other locations.

One prominent fill layer is a specific time marker derived from the dredging of the Ala Wai canal that began in 1921 and was completed in 1928. This layer is present in the eastern or *mauka* end of the project area especially filling in the low lying channel of ʻĀpuakēhau Stream (in Trenches 4, 8 and 11 which bisect the stream in "Area II" of Figure 9), and covering the old taro ponds adjacent to the *mauka* side of ʻĀpuakēhau Stream (especially in Trenches 13 and 14 in "Area III" of Figure 9), but not to any significant degree to the *makai* side of the stream. This sediment consists primarily of horizontal microstratigraphic bands of very fine coralline silt with coral pebble inclusions and lenses of coral gravel resulting from hydraulic dredging and pumping episodes.

Additional fill layers comprising at least the upper 0.6 meters of sediment are present across the entire parcel. This fill is of unknown origin. At the west end of the property the fill material is a sandy clay loam (Trenches 1-3 and 5-6) while in the central-west area (Trenches 9 and 10) the fill is a fine loamy sediment full of small boulders of fine grain basalt, cement pieces and some granite. In Trench 10 this fill layer lies upon a concrete slab at about 0.75 m below the present surface. The slab is probably a foundation of the structures shown on the 1927 and 1950 fire insurance maps (refer to Figure 6 and Figure 7). In Trench 9 this same bouldery fill layer extends in a pit to the depth of the ground water at about 1.5 m below the surface and within the upper 0.20 m of the pit fill fragments of human skeletal material was found. These bone fragments, the distal end of an ulna and mid-section of a femur, appear to have been introduced to the project property as part of the bouldery fill in these two trenches. SHPD was notified of this find and the appropriate processes have been initiated following Hawai'i Revised Statutes Chapter 6E-43 and HAR Section 13-300.

The surface of Stratum II has a time line of about 1872 to 1950. A charcoal lens in Trench 4 caps the Stratum II and may be related to disposal of the remains of Cleghorn's homes here that burned down in 1921. The concrete slab from 1927 in Trench 10 lies upon the surface of Stratum II. In Trench 1 the Stratum II layer is overlain by 10 cm of fine wind blown coralline sand, a hiatus of activity marking time very early in the twentieth century at ʻĀinahau.

The Stratum II layer at the western side of the project property is an A horizon approximately 0.50 m to 1.0 m thick developed in a C horizon deposit (Stratum III) of coral sand extending to the underlying coral reef 0.50 m below ground water. A radiocarbon date from charcoal near the bottom of Stratum II in Trench 1 (refer to Figure 10) shows that this cultural layer dates from AD

1290 to 1530 at its inception and continues to the early 20th century as noted above. Although a cultural layer with charcoal flecking and dark staining throughout and a few pit features of possible postholes and small fireplaces the layer is in general lacking in midden and artifacts as might be found in high use areas.

The Stratum II and Stratum III sediments at the east end of the project property (exemplified in Trenches 7 and 12) are very different from the west end. They are comprised of rich, loamy, sediments with iron staining from decomposing basaltic pebbles and cobbles indicative of waterlogged agricultural soils typical of taro cultivation in ponded fields (refer to Figure 16 and Figure 21). Stratum II extends from less than 0.50 m below the present surface to over 1.25 m deep. Stratum III is of similar composition to Stratum II only with more clay and extending below the ground water level to the coarse gley colored coralline sand on the surface of the reef formation (Stratum IV).

Stratum II and III are deltaic sediments derived from the Manoa, Palolo and Makiki Streams and captured by stoneworks of the taro lo'i system put in place between the mountains and Waikīkī probably in the 6th century AD. One of these stoneworks, a 3 to 5 course high wall constructed of small, water rounded, basalt boulders, was found at the base of Trench 4 and 7. The wall, built upon the basal coral reef formation, was part of the original development of these agricultural works. The nineteenth century expression of this stone wall is simply a soil embankment well above the buried wall, but it still serves the same purpose separating the *lo'i* on its *mauka* side from 'Āpuakēhau stream on its *makai* side. The embankment is recorded on the 1881 Bishop map (refer to Figure 3)

'Āpuakēhau Stream is identified easily in Trenches 4, 8, and 11 which bisect portions of the former stream (refer to Figure 9). The stratigraphic profile of the streambed clearly shows a trough-shaped cross section with clayey sediments at a slightly lower elevation than the surface of the agricultural fields to *mauka*. The streambed was filled with fine coralline sediments from the dredging the 1920s of the Ala Wai Canal, which was subsequently covered with other fill of terrestrial origin imported to the project parcel from unknown locations.

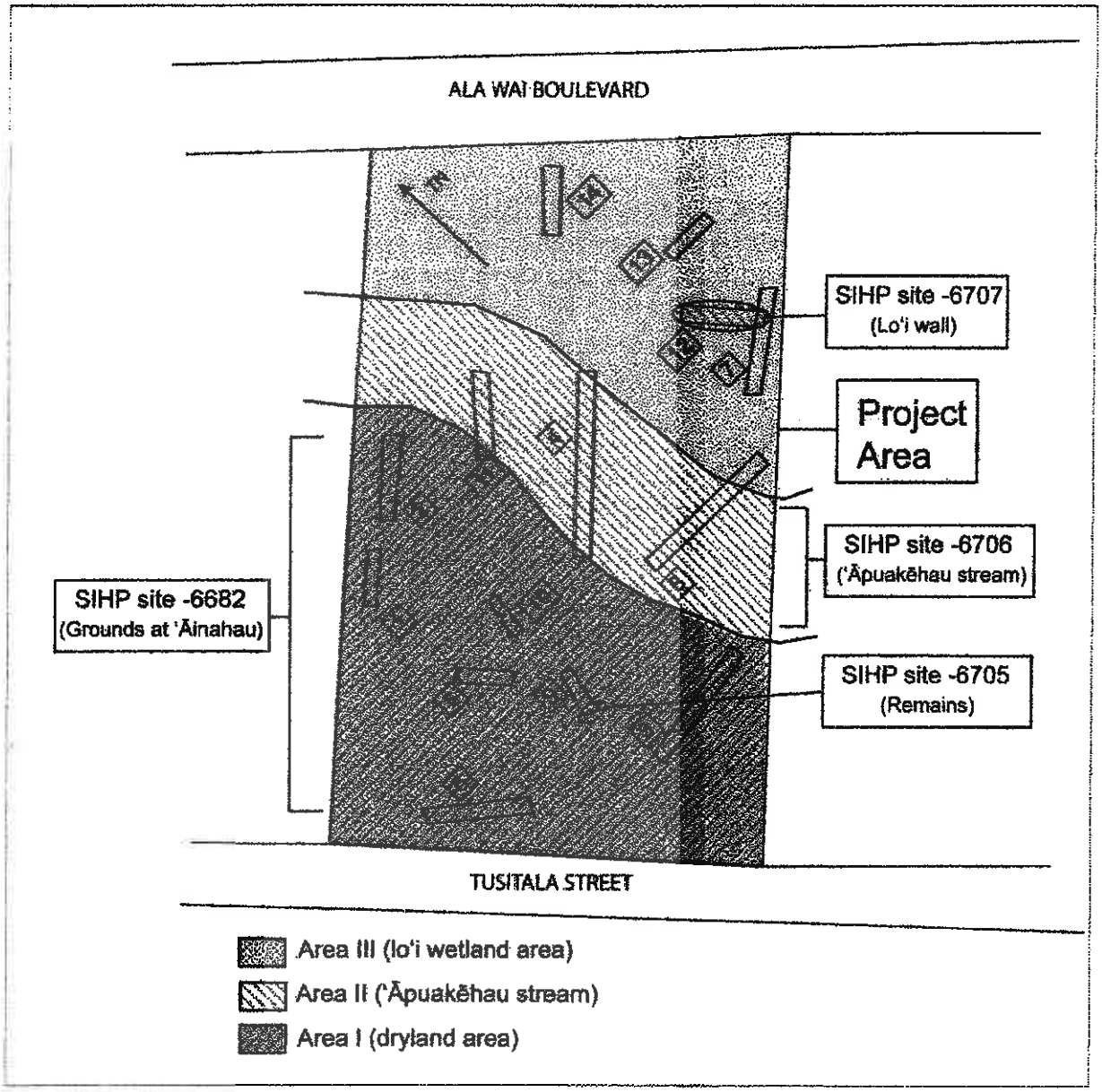

Figure 9. Map of project area showing the locations of the three distinct stratigraphic areas, Trenches 1-14, and SIHP Sites

B. Trench Descriptions

The following is a description of each backhoe trench excavated during the inventory survey. A sidewall profile and an in depth stratigraphic description has been included for each trench. Photographs of the project area (Figure 24) and each trench (Figures 25-39) are included in Section IX, entitled "Photo Appendix."

Trench 1

Trench 1 was excavated in the southwestern corner of the project area (Figure 9). Historic maps and documentation indicate that this trench, as well as Trenches 2, 3, 5, 6, 9, and 10, are in the vicinity of the former Cleghorn estate, 'Āinahau. Trench 1 was excavated to document the stratigraphy of the former 'Āinahau estate and to establish if intact early historic/pre-contact cultural strata and/or features existed.

Trench 1 measured 4.6 m (15.1 feet), had a maximum depth of 160 cm (5.2 feet), a maximum width of 1 m (3.3 ft), and was oriented north-south (37° magnetic north). Three strata were noted and described in the excavation (Figure 10). Stratum I was identified as imported fill. The surface associated with 'Āinahau was documented as the Buried A Horizon, Stratum IIA/IIB. The trench was excavated to the water table.

Two charred wood samples were collected from the Buried A Horizon (Stratum IIA/IIB). Sample #1 was collected at a depth of 110-120 cmbs, weighing 4.6 g. Sample #2, sent for radio carbon dating, was collected at a depth of 90-100 cmbs, weighing 9.5 g. A photograph of Trench 1 (Figure 25) is included in the Photo Appendix.

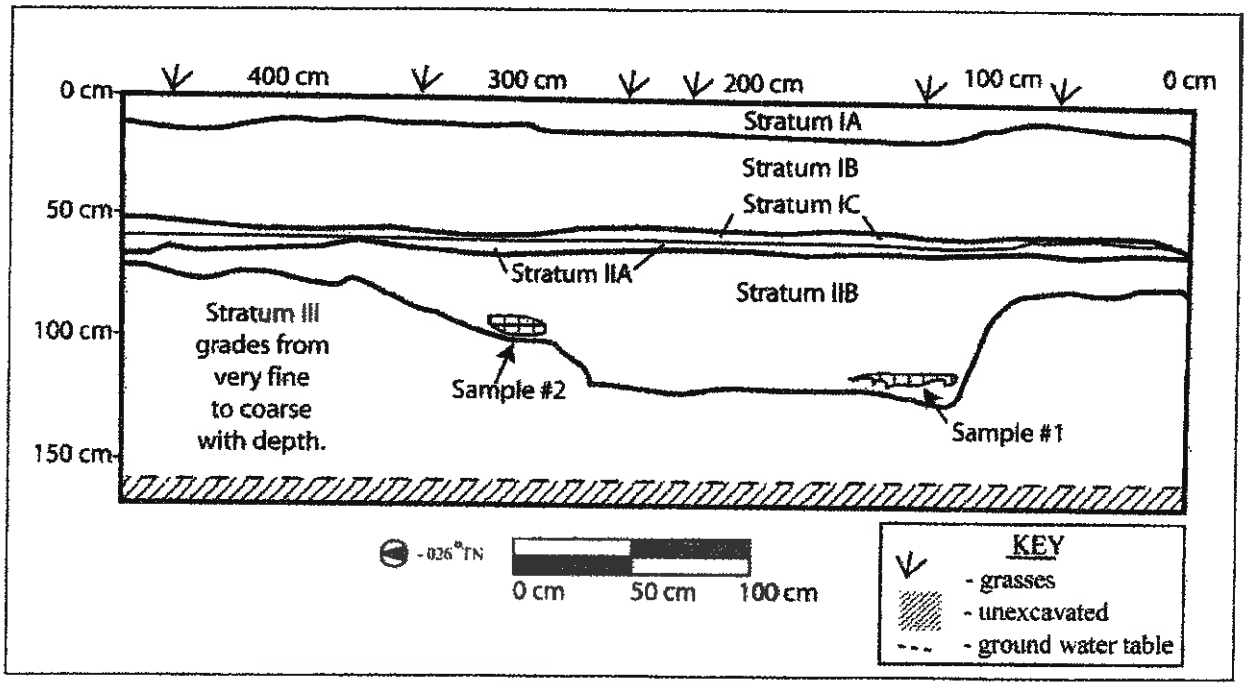

Figure 10. Profile of east wall of Trench 1

Stratum IA: 0-10 cmbs; Modern A Horizon in fill; 10 YR 3/4, dark yellowish brown; silt loam; moderate, fine to medium, subangular blocky structure; weakly coherent dry consistency; slightly sticky wet consistency; slightly plastic; weak cementation; abrupt wavy lower boundary; mixed marine and terrigenous sediments; many rootlets

Stratum IB: 10-55 cmbs; Fill; 10 YR 3/3, dark brown; silty clay loam; strong, fine/medium/coarse, subangular blocky structure; hard dry consistency; slightly sticky wet consistency; slightly plastic; weak cementation; abrupt wavy lower boundary; mixed marine and terrigenous of sediments; few rootlets

Stratum IC: 55-60 cmbs; Eolian sand; 10 YR 6/4, light yellowish brown; fine, structureless, fine, single grain structure; loose dry consistency; non-sticky wet consistency; non-plastic; weak cementation; abrupt wavy lower boundary; mixed marine and terrigenous sediments

Stratum IIA: 60-62 cmbs; Buried A Horizon; 10 YR 3/3, very dark grayish brown; sandy clay; weak, medium, blocky structure; loose dry consistency; sticky wet consistency; plastic; weak cementation; abrupt smooth lower boundary; mixed marine and terrigenous sediments; surface associated with 'Aina Hau

Stratum IIB: 63-125 cmbs; Buried A Horizon; 10 YR 4/2, dark grayish brown to 10 YR 6/2, light brownish gray; loamy sand; medium, single grain structure; loose moist consistency; slightly plastic; very weak; clear wavy lower boundary; mixed marine and terrigenous sediments; basalt flakes common; few charcoal fragments, coral pebbles, very few basalt pebbles; microrootlets common; historic, pre-contact A horizon

Stratum III: 75-160 cmbs; C Horizon; 10 YR 8/3, very pale brown; very fine to coarse, coraline sand; structureless, loose dry consistency; non-plastic; no cementation; Unknown lower boundary; marine marine and terrigenous sediments; sand grades from very fine at the top of the layer to coarse at the ground water level

Trench 2

Adjacent to Trench 1, Trench 2 was also excavated in the southwestern corner of the project area (Figure 9). Historic maps and documentation indicate that this trench, as well as Trenches 1, 3, 5, 6, 9, and 10, are in the vicinity of the former Cleghorn estate. Trench 2 was excavated to document the stratigraphy of the former 'Āinahau estate and to establish if intact early historic/pre-contact cultural strata and/or features existed.

Trench 2 measured 5.0 m (16.4 feet). It had a maximum depth of 170 cm (5.6 feet) and a maximum width of 1 m (3.3 ft). The trench and was oriented north-south (35° magnetic north) and was excavated to the water table. Three strata were noted and described in the excavation (Figure 11). Stratum I was identified as imported historic fill, with the exception of Stratum IC (55-60 cmbs), described as a fine sand "eolian non-conformity." The surface associated with 'Āinahau was documented as the Buried A Horizon, Stratum IIA/IIB. A photograph of Trench 2 (Figure 26) is included in the Photo Appendix.

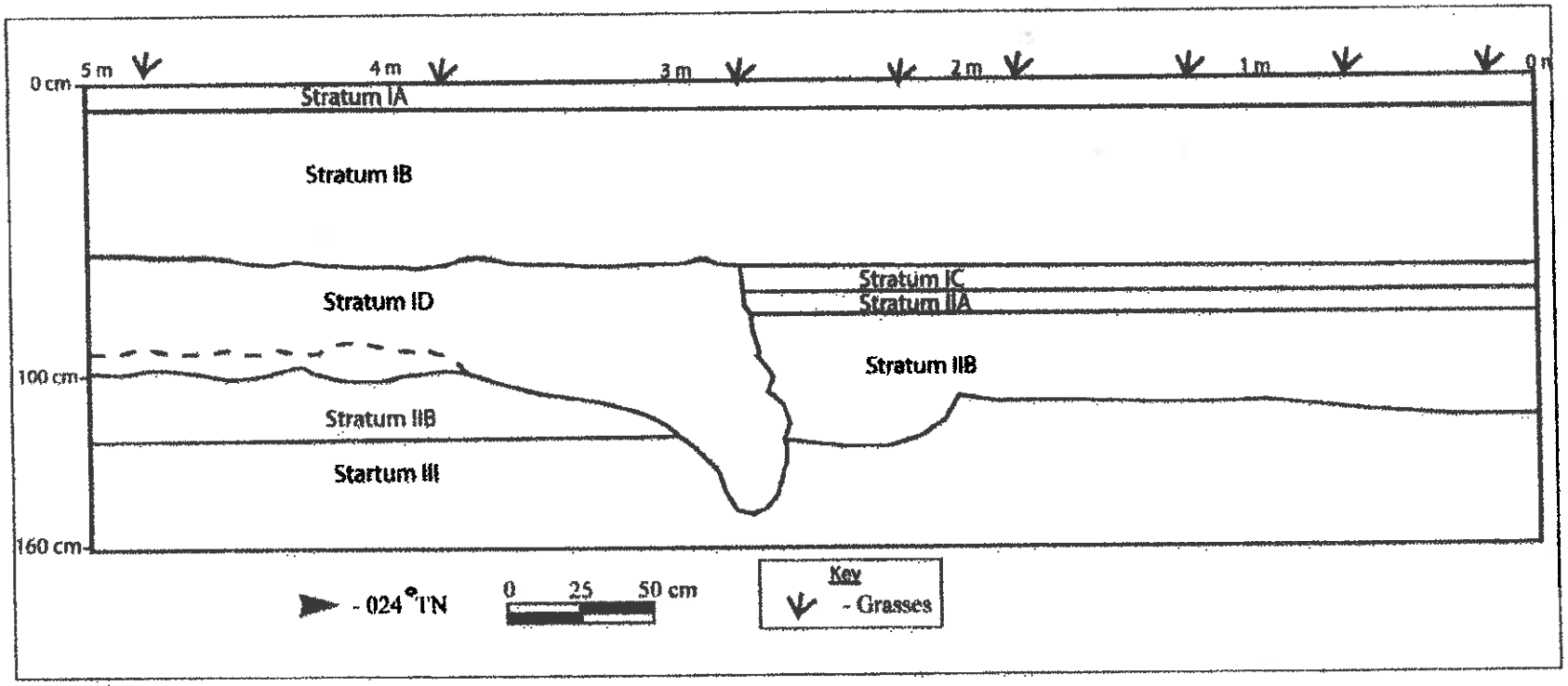

Figure 11. Profile of east wall of Trench 2

Stratum IA: 0-10 cmbs; Modern A Horizon in fill; 10 YR 3/4, dark yellowish brown; silt loam; moderate, fine to medium, subangular blocky structure; weakly coherent dry consistency; slightly sticky wet consistency; slightly plastic; weak cementation; abrupt wavy lower boundary; mixed marine and terrigenous sediments

Stratum IB: 10-65 cmbs; Fill; 10 YR 3/3, dark brown; silty clay loam; strong, fine/medium/coarse, subangular blocky structure; hard dry consistency; slightly sticky wet consistency; slightly plastic; weak cementation; abrupt wavy lower boundary; mixed marine and terrigenous sediments

Stratum IC: 65-75 cmbs; Fill; 10 YR 3/4, dark yellowish brown; sandy clay; weak, fine, subangular blocky structure; friable moist consistency; sticky wet consistency; slightly plastic; no cementation; abrupt smooth lower boundary; mixed marine and terrigenous sediments

Stratum IC: (Lense) 95-100 cmbs; Fill; 10 YR, 6/4, light yellowish brown; fine sand; no structure; dry loose consistency; wet non-sticky consistency; non plastic; no cementation; abrupt wavy lower boundary; mixed marine and terrigenous sediments; coral sand

Stratum ID: 60-95 cmbs; Fill; 10 YR, 3/3, dark brown, to 10 YR, 4/2, dark grayish brown, with large mottles of 10 YR, 3.1, very dark gray, clay; sandy loam; no structure; moist friable consistency; non plastic; weak cementation; abrupt irregular lower boundary; mixed marine and terrigenous sediments

Stratum IIA: 75-80 cmbs; Buried A Horizon; 10 YR, 2/2, very dark brown; sandy clay loam; weak coarse crumb structure; moist friable consistency; wet slightly sticky consistency; slightly plastic; weak cementation; abrupt wavy lower boundary; mixed marine and terrigenous sediments; charcoal bits throughout, few basalt pebbles, few coral pebbles

Stratum IIB: 80-125 cmbs; Buried A Horizon; 10 YR, 4/2, dark grayish brown, to 10 YR, 6/2, light brownish gray; sandy clay loam; no structure; moist friable consistency; wet slightly sticky consistency; slightly plastic; weak cementation; abrupt wavy lower boundary; mixed marine and terrigenous sediments; charcoal particles, coral

Stratum III 117-170 cmbs; C Horizon; 10 YR 8/3, very pale brown; sand, fine-coarse; no structure; moist loose consistency; non plastic; no cementation; abrupt wavy lower boundary; marine marine and terrigenous sediments

Trench 3

Trench 3 was excavated in the southern corner of the project area (Figure 12). Historic maps and documentation indicate that this trench, as well as Trenches 1, 3, 5, 6, 9, and 10, are in the vicinity of the former Cleghorn estate. Trench 3 was excavated to document the stratigraphy of the former ʻĀinahau estate and to establish if intact early historic/pre-contact cultural strata and/or features existed.

Trench 3 measured 9.1 m (29.9 feet), had a maximum depth of 150 cm (4.9 feet) and a maximum width of 1 m (3.3 ft). The trench was oriented southwest-southeast (236° true north) and was excavated to the water table. Three strata were noted and described in the excavation (Figure 12). The stratigraphy was similar to that found in Trenches 1 and 2: Stratum I was identified as imported historic fill; Stratum II as the Buried A Horizon surface associated with 'Ainahau; and Stratum III as sterile coralline sand. A photograph of Trench 3 (Figure 27) is included in the Photo Appendix.

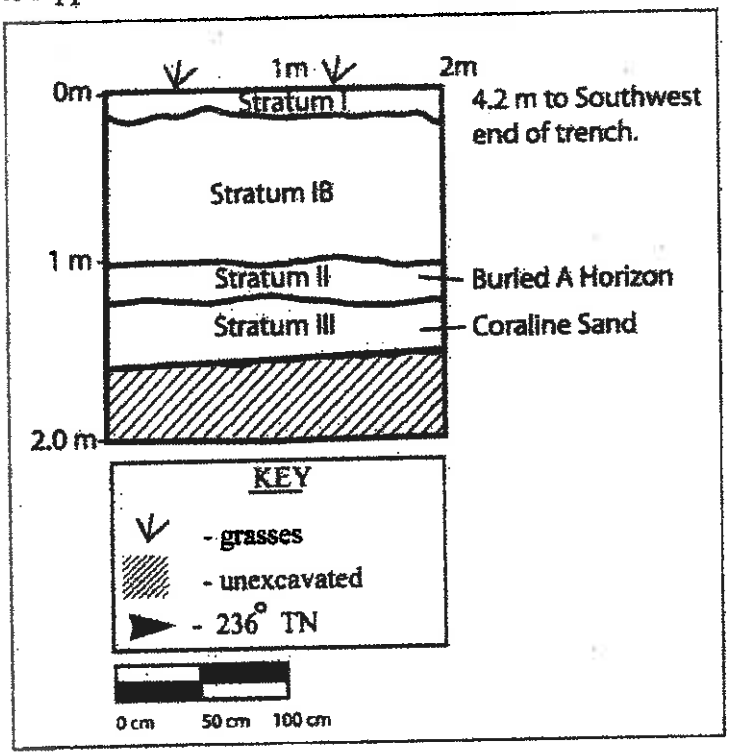

Figure 12. Profile of southeast wall of Trench 3

Stratum IA: 0-5/7 cmbs; Fill; 10 YR 3/2, very dark grayish brown; clay loam; weak, fine/medium, crumb structure; loose dry consistency; slightly plastic; no cementation; clear smooth lower boundary; mixed marine and terrigenous sediments; imported top soil

Stratum IB: 5/7-100 cmbs; Fill; 10 YR 3/3, dark brown; sandy loam; structureless, weakly coherent dry consistency; slightly plastic; no cementation; clear smooth lower boundary; terrestrial marine and terrigenous sediments

Stratum II: 100-119/120 cmbs; Buried A Horizon; 10 YR 3/1, very dark gray; sandy loam; structureless, weakly coherent moist consistency; slightly plastic/plastic; no cementation; abrupt smooth lower boundary; mixed marine and terrigenous sediments; no artifacts observed; amount of C14 not worth sampling

Stratum III: 120-150/153 cmbs; 10 YR 8/3, fine to medium, sand; structureless, loose dry consistency; non-plastic; no cementation; N/A lower boundary; terrestrial marine and terrigenous sediments; unaltered marine shell; sterile coraline beach sand

Trench 4

Trench 4 was excavated in the center of the project area (Figure 9), in the area of the former ʻĀpuakēhau Stream (Figure 9). Historic maps and documentation indicate that this trench, as well as Trenches 8 and 11 are in the vicinity of the former ʻĀpuakēhau Stream. Trench 4 was excavated to document the stratigraphy of the former ʻĀpuakēhau Stream.

Trench 4 measured 17 m (55.7 ft), had a maximum depth of 2.0 m (6.6 ft) and a maximum width of 1.0 m (3.3 ft). It was oriented NE/SW (48° true north) and was excavated to ground water. Six distinct strata were observed in the excavation (Figure 13). Stratum I, II, III, and IV were of historic imported fill, most likely dating to the construction of the Ala Wai canal and subsequent filling of the ʻĀpuakēhau Stream. Microstratigraphic layers were present, particularly in Stratum IV, and are most likely the result of hydraulic dredging episodes during the Ala Wai land reclamation projects. Stratum II contains weathered minerals of yellowish red color, indicative of fluctuating dry and wet conditions.

Three charred wood samples were collected from the elongate semi-horizontal charcoal lense found in Stratum III, one of which was sent for AMS radiocarbon dating. The first sample was collected at a depth of 80-90 cmbs and weighed 103.9 g; the second was collected at a depth of 137 cmbs and weighed 0.3 g; the third, which was sent for radiocarbon dating was collected at a depth of 150 cmbs and weighed 0.1 g. A photograph of Trench 4 (Figure 28) is included in the Photo Appendix.

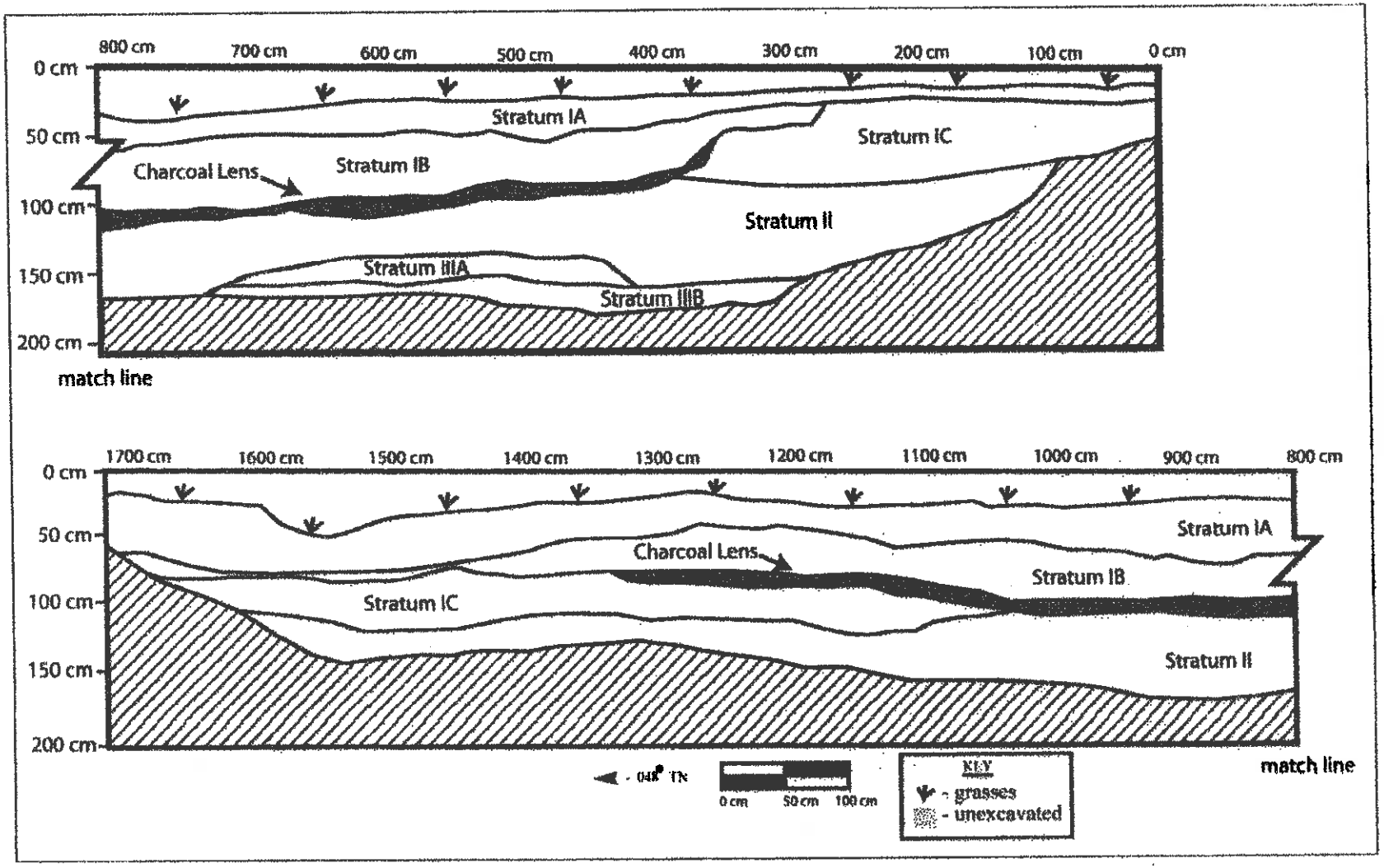

Figure 13. Profile of east wall of Trench 4

Stratum IA: 0-73 cmbs; Modern A Horizon in fill; 10 YR 3/3, dark brown; medium to coarse, sand; structureless, loose dry consistency; slightly plastic; no cementation; diffuse wavy lower boundary; terrestrial marine and terrigenous sediments; roots and rootlets

Stratum IB: 29-110 cmbs; Fill Horizon; 7.5 YR 6/4, light brown; fine, silt; structureless, loose dry consistency; slightly plastic; no cementation; abrupt irregular lower boundary; mixed marine and terrigenous sediments; <2mm sized marine shell; mainly horizontal microlayers

Stratum IC: 24-128 cmbs; Fill; 10 YR 2/2, very dark brown; medium to coarse, silt loam; structureless, loose dry consistency; non-plastic; no cementation; diffuse wavy lower boundary; terrestrial marine and terrigenous sediments; <1% marine shell by volume; contains weathered minerals of 5 YR 5/8 yellowish red color

Stratum II: 74-170 cmbs; Buried A Horizon; 10 YR 3/2, very dark grayish brown; clay loam; structureless, very firm moist consistency; slightly plastic; no cementation; diffuse wavy lower boundary; terrestrial marine and terrigenous sediments; contains elongate semi-horizontal charcoal lens and broken glass bottles

Stratum IIIA: 150-172 cmbs; C Horizon; 10 YR 3/6, dark yellowish brown; fine, sandy clay; structureless, very friable moist consistency; slightly plastic; no cementation; diffuse wavy lower boundary; mixed marine and terrigenous sediments; roots and rootlets

Stratum IIIB: 150-170 cmbs; C Horizon; 5 YR 5/6, yellowish red; fine, sand/sand coralline; structureless, loose moist consistency; non-plastic; no cementation; N/A N/A lower boundary; marine marine and terrigenous sediments; charcoal present in uppermost portion of stratum; roots

Trench 5

Trench 5 was excavated in the southwestern corner of the project area (Figure 9), bordering and approximately parallel to Tusitala Street. Historic maps and documentation indicate that this trench, as well as Trenches 1, 2, 3, 6, 9, and 10, are in the vicinity of the former Cleghorn estate, ʻĀinahau. Trench 5 was excavated to document the stratigraphy of the former ʻĀinahau estate and to establish if intact early historic/pre-contact cultural strata and/or features existed.

Trench 5 measured 8.8 m (28.9 feet), had a maximum depth of 2 m (6.6 feet) and a maximum width of 1 m (3.3 ft). The trench was oriented SW/NE (317° magnetic north) and was excavated to the water table. Three strata were noted and described in the excavation (Figure 14). The stratigraphy was similar to that found in Trenches 1 and 2. Strata IA and IB were identified as imported historic fill; Stratum II was identified as the Buried A Horizon surface associated with ʻĀinahau; Stratum III was identified as sterile coralline sand.

A charred wood lense (Feature 3) was documented on top of the Buried A horizon of Stratum II and a charred wood sample was collected from this lense at a depth 60-65 cmbs with a weight of 140.1 g. In addition, two pit features (Feature 1 and Feature 2), probable post holes, extend from the bottom of Stratum II into the sterile corraline sand of Stratum III. The sediments of the two features are identical to the description of Stratum II. One charcoal sample was collected from each of these features.

The sample from Feature 1, sent for radiocarbon dating, was collected at 85-119 cmbs and weighed 36.5 g; the sample taken from Feature 2 was collected at a depth of 85-128 cmbs and weighed 7.4 g. A photograph of Trench 5 (Figure 29) is included in the Photo Appendix.

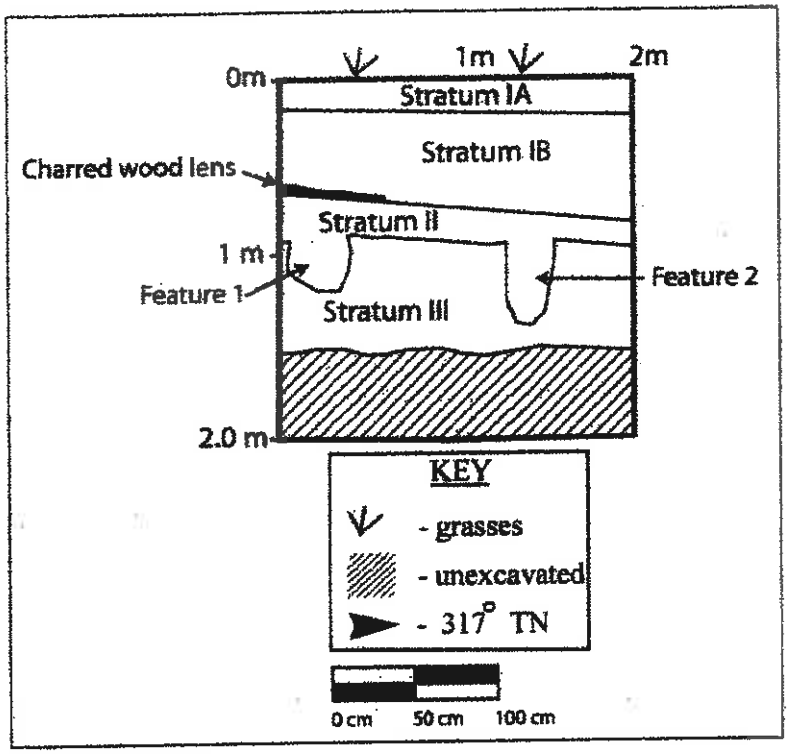

Figure 14. Profile of southwest wall of Trench 5

Stratum IA: 0-11/17 cmbs; Modern A Horizon in fill; 10 YR 3/2, very dark grayish brown; clay loam; weak, fine, crumb structure; loose dry consistency; slightly plastic; no cementation; clear smooth lower boundary; mixed marine and terrigenous sediments; top soil

Stratum IB: 11/17-65/71 cmbs; Fill; 10 YR 3/3, dark brown; clay loam; weak, fine, crumb structure; loose dry consistency; slightly plastic; no cementation; smooth lower boundary; terrestrial marine and terrigenous sediments

Stratum II: 65/71-85 cmbs; Buried A Horizon; 10 YR 3/1, very dark gray; sandy loam; structureless, loose dry consistency; non-plastic; no cementation; abrupt smooth lower boundary; mixed marine and terrigenous sediments; charcoal

Stratum III: 85-145 cmbs; C Horizon; 10 YR 8/3, fine to medium, sand; loose dry consistency; non-plastic; no cementation; N/A N/A lower boundary; terrestrial marine and terrigenous sediments; naturally worn marine shell; sterile coraline sand

Trench 6

Trench 6 was excavated in the southwestern corner of the project area (Figure 9). Historic maps and documentation indicate that this trench, as well as Trenches 1, 2, 3, 5, 9, and 10, are in the vicinity of the former Cleghorn estate, ʻĀinahau. Trench 6 was excavated to document the stratigraphy of the former ʻĀinahau estate and to establish if intact early historic/pre-contact cultural strata and/or features existed.

Trench 6 measured 4.6 m (15.1 feet). It had a maximum depth of 2 m (6.6 feet) and a maximum width of 1 m (3.3 ft). The trench was oriented NW/SE (323° magnetic north) and was excavated to the water table. Three strata were noted and described in the excavation (Figure 15). The stratigraphy was similar to that found in Trenches 1, 2, 3, and 5. Stratum I was identified as imported historic fill; Stratum II as the Buried A Horizon surface associated with ʻĀinahau; and Stratum III as sterile coralline sand.

A pit feature, Feature 1, was observed in Stratum II and III, and was a mottling of the two Strata (the clay loam of Stratum II and the sterile coral sand of Stratum III). A photograph of Trench 6 (Figure 30) is included in the Photo Appendix.

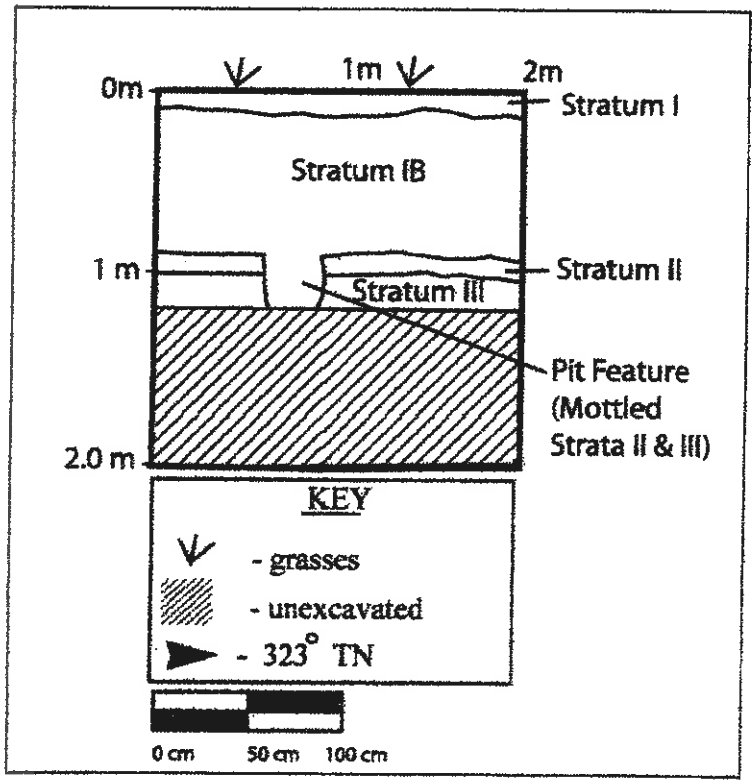

Figure 15. Profile of southwest wall of Trench 6

Stratum IA: 0-10 cmbs; Modern A Horizon in fill; 10 YR 3/2, very dark grayish brown; clay loam; weak, fine, crumb structure; loose dry consistency; very plastic; no cementation; clear smooth lower boundary; mixed marine and terrigenous sediments; top soil

Stratum IB: 10-90 cmbs; Fill; 10 YR 3/3, dark brown; clay loam; weak, fine, crumb structure; loose moist consistency; slightly plastic; no cementation; smooth lower boundary; terrestrial marine and terrigenous sediments slightly plastic; no cementation; coral inclusions; abrupt and smooth lower boundary

Stratum II: 90-100 cmbs; Buried A Horizon; 10 YR 4/2, dark grayish brown; clay loam; weak, fine/medium, crumb structure; loose dry consistency; slightly plastic; no cementation; abrupt wavy lower boundary; mixed marine and terrigenous sediments

Stratum III: 100-107 cmbs; C Horizon; 10 YR 8/3, fine, sand; structureless, loose dry consistency; non-plastic; no cementation; N/A lower boundary; unaltered marine shell; sterile coral sand

Trench 7

Trench 7 was excavated in the northeastern corner of the project area (Figure 9). Historic maps and documentation indicate that this trench (as well as Trenches 12, 13, and 14), is located in what was a former *lo'i* field.

Trench 7 measured 4.4 m (14.4 feet). It had a maximum depth of 161 cm (5.3 feet) and a maximum width of 1 m (3.3 ft). The trench was oriented NE/SW (53° magnetic north) and was excavated to the water table. Three strata were noted and described in the excavation (Figure 16). Strata IA and IB were identified as imported fill. Stratum II was identified as dark gray clay, fine-grained terrigenous alluvial deposits related to *lo'i*. A photograph of Trench 7 (Figure 31) is included in the Photo Appendix.

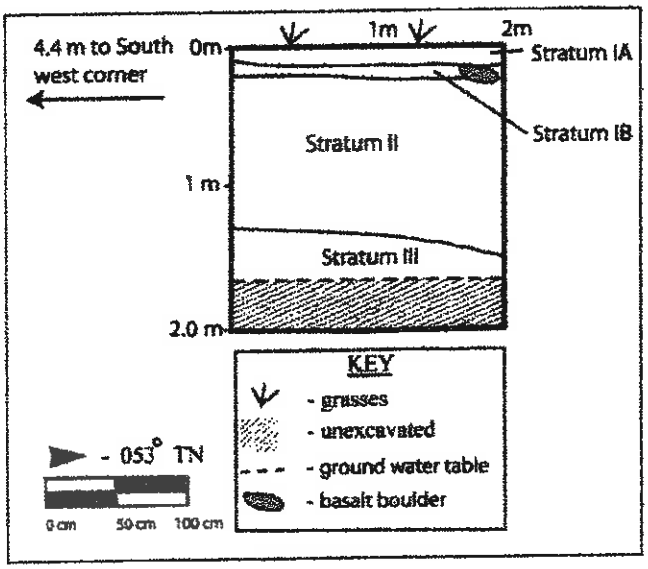

Figure 16. Profile of northwest wall of Trench 7

Stratum IA: 0-9 cmbs; Modern A Horizon infill; 10 YR 3/1, very dark gray clay loam; weak, fine crumb structure; loose dry consistency; slightly plastic; no cementation; clear smooth lower boundary; mixed marine and terrigenous sediments; imported top soil

Stratum IB: 9-122 cmbs; Fill; 10 YR 3/3, dark brown; clay loam; weak, fine, crumb structure; loose dry consistency; slightly plastic; no cementation; mixed marine and terrigenous sediments

Stratum II: 122-147 cmbs; Buried A Horizon; 10 YR 4/1, dark gray; clay; structureless, very friable moist consistency; plastic; no cementation; abrupt wavy lower boundary; terrestrial marine and terrigenous sediments; iron staining, abundant roots; taro patch (*lo'i*) sediment

Stratum III: 147-161 cmbs; C Horizon; 10 YR 3/1, very dark gray; gleyed, sandy clay loam; structureless, sticky wet consistency; slightly plastic; no cementation; N/A lower boundary; mixed marine and terrigenous sediments.

Trench 8

Trench 8 was excavated in the center of the project area (Figure 9), in the area of the former ʻĀpuakēhau Stream (Figure 9). Historic maps and documentation indicate that this trench, as well as Trenches 8 and 11 are in the vicinity of the former ʻĀpuakēhau Stream. Trench 8 was excavated to document the stratigraphy of the former ʻĀpuakēhau Stream.

Trench 8 measured 17 m (55.7 ft), had a maximum depth of 2.0 m (6.6 ft) and a maximum width of 1.0 m (3.3 ft). It was oriented NE/SW (48° true north) and was excavated to ground water. Six distinct strata were observed in the excavation (Figure 17). Stratum I, II, III, and IV were of historic imported fill, most likely dating to the construction of the Ala Wai canal and subsequent filling of the ʻĀpuakēhau Stream. Stratum II contains weathered minerals of yellowish red color, indicative of fluctuating dry and wet conditions. Micro-stratigraphic layers were present, particularly in Stratum IV, and are most likely the result of hydraulic dredging episodes during the Ala Wai land reclamation projects. A photograph of Trench 8 (Figure 32) is included in the Photo Appendix.

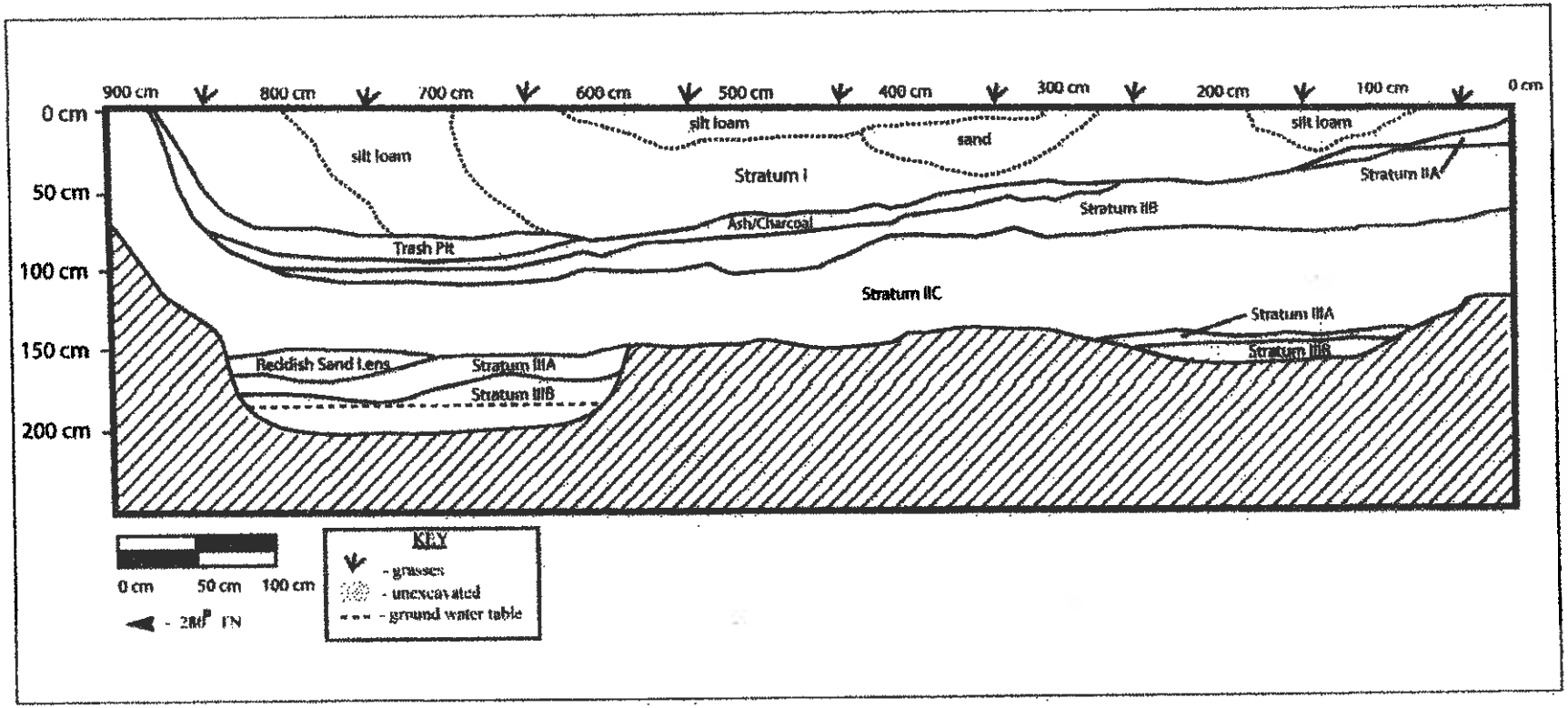

Figure 17. Profile of north wall of Trench 8

Stratum I: 0-80 cmbs; Multiple fill layers; 7.5 YR 6/4, light brown; silt; structureless; loose dry consistency; slightly plastic; no cementation; abrupt irregular boundary; mixed marine and terrigenous sediments; marine shell, microfine layers *'auwai* filled with dredging

10 YR 2/1, black; silt loam; weak, fine, blocky structure; loose dry consistency; non plastic; no cementation; abrupt irregular lower boundary; terrestrial marine and terrigenous sediments

10 YR 3/3, dark brown; silt loam; structureless, firm moist consistency; slightly plastic; weak cementation; diffuse wavy lower boundary; terrestrial marine and terrigenous sediments; marine shell

7.5 YR 6/4, light brown; coarse sand; structureless; dry loose consistency; non plastic; no cementation; abrupt, wavy lower boundary; marine marine and terrigenous sediments; marine shell, "pothole" fill

Stratum IIA: 20-40 cmbs; 10 YR 2/2, very dark brown; fine clay; moderate, medium angular blocky structure; moist friable firm consistency; very plastic; no cementation; clear, smooth lower boundary; mixed marine and terrigenous sediments; rich organic layer, roots and rootlets, high in peds

Stratum IIB 20-90 cmbs; 10 YR 2/2, very dark brown; fine clay; moderate, medium angular blocky structure; moist friable firm consistency; very plastic; no cementation; clear, smooth lower boundary; mixed marine and terrigenous sediments; rich organic layer, roots and rootlets, medium to low peds

Stratum IIC 90-180 cmbs; 10 YR 2/2, very dark brown; fine clay; moderate, medium angular blocky structure; moist friable firm consistency; very plastic; no cementation; clear, smooth lower boundary; mixed marine and terrigenous sediments; straight clay, no more peds

Stratum IIIA 140-190 cmbs; 10 YR 3/1, very dark gray; clay loam; moderate, fine-medium blocky structure; wet sticky consistency; slightly plastic; weak cementation; abrupt, smooth lower boundary; mixed marine and terrigenous sediments; marine shell, organic layer below *'auwai*

Stratum IIIB 150-200 cmbs; 10 YR 3/1, very dark gray; clay loam; moderate, fine-medium blocky structure; wet sticky consistency; slightly plastic; weak cementation; clear, abrupt, irregular boundary; mixed marine and terrigenous sediments; marine shell, continuation of organic layer with 20% sand

Trench 9

Trench 9 was excavated in the southern portion of the project area (Figure 9). Historic maps and documentation indicate that this trench, as well as Trenches 1, 2, 3, 5, 6, and 10, are in the vicinity of the former Cleghorn estate, 'Āinahau. Trench 9 was excavated to document the stratigraphy of the former 'Āinahau estate and to establish if intact early historic/pre-contact cultural strata and/or features existed.

Trench 9 measured 5.9 m (19.4 feet). It had a maximum depth of 2 m (6.6 feet) and a maximum width of 1 m (3.3 ft). The trench was oriented north-south (180° magnetic north) and was excavated to the water table. Three strata were noted and described in the excavation (Figure 18). The stratigraphy was similar to that found in Trenches 1, 2, 3, and 5 in that it does have Strata IA and IB, however, the stratigraphic sequence of Stratum I and II has been altered by the backfilled pit that contained 40% large basalt boulders (Feature I). The fill of the Pit Feature is believed to be historic fill postdating the demolition of the structure shown on Sanborn Fire Maps of 1927 and 1950 (Figures 6 and 7). Feature I contained charcoal, marine shell, pipe elbows, rusted metal fragments, nails, glass, and modern /historic trash.

Fragmentary human skeletal remains, consisting of a distal end ulna shaft and head, femur shaft and other unidentified human skeletal fragments were encountered on October 6, 2004 in the southeast end of Trench 9 at 10 cm below surface in Stratum IA top soil fill. No context or associated goods were found. No evidence of age, era, or provenience was observed. SHPD was promptly notified regarding this burial find and the appropriate notification processes have been implemented following Hawai'i Revised Statutes Chapter 6E-43. All sediment from the skeletal find area was screened through a 1/8-inch screen, and all bone fragments were collected. Except for the two larger fragments listed above, all other bone fragments measured less than 3 cm. Per the request of the SHPD, the layer in which the human skeletal remains were initially found (Stratum IA) was scraped by the backhoe to look for any further remains. None were found. All human remains were placed in a brown paper bag with stones and a pipe marker and reburied in the trench at approximately 50 cmbs. A photograph of Trench 9 (Figure 33) is included in the Photo Appendix.

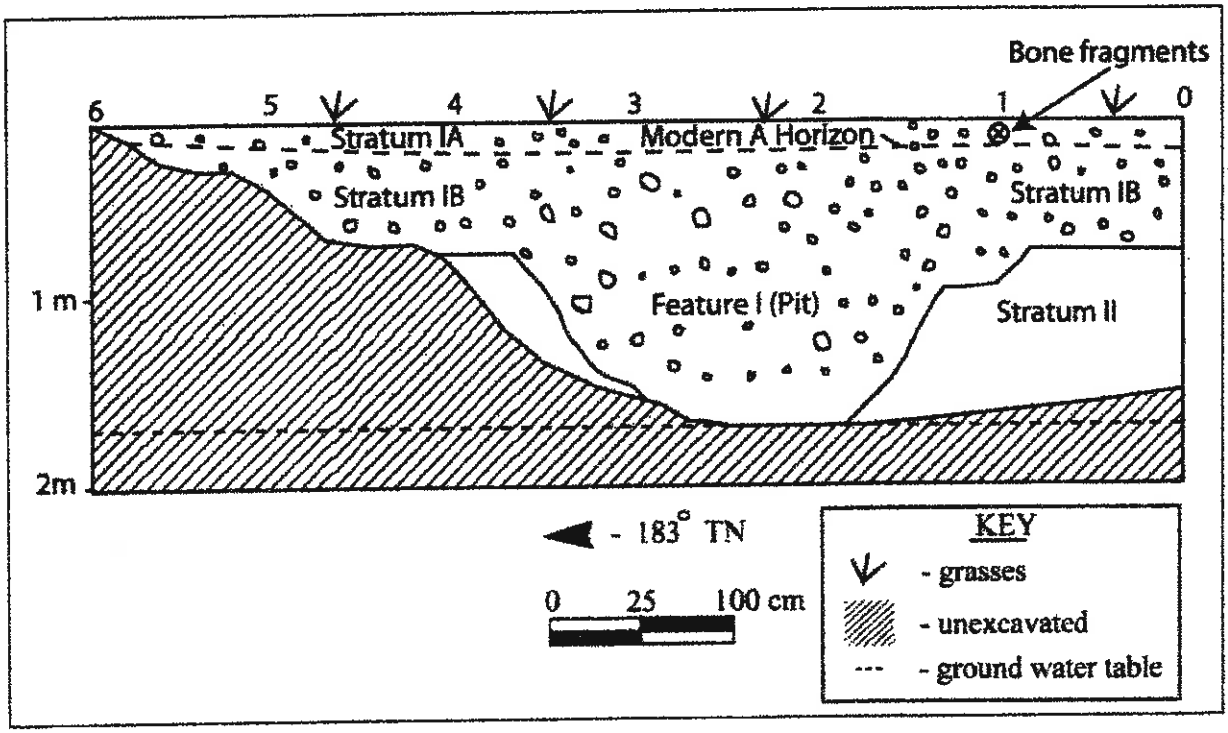

Figure 18. Profile of east wall of Trench 9

Stratum IA: 0-10/12 cmbs; Fill; 10 YR 3/2, very dark grayish brown; clay loam; moderate, fine/medium, platy structure; slightly hard dry consistency; slightly plastic; no cementation; clear smooth lower boundary; mixed marine and terrigenous sediments; glass fragements and nails glass fragements and nails

Stratum IB: 10/12-70/81 cmbs; Fill; 2.5 YR 4/2, clay loam; weak, fine, subangular blocky structure; weakly coherent dry consistency; slightly plastic; no cementation; clear smooth lower boundary; mixed marine and terrigenous sediments; nails, cans nails, cans

Stratum II: 70/81-155 cmbs; 10 YR 5/1, gray; sandy loam; structureless, loose dry consistency; non-plastic; no cementation; clear wavy lower boundary; mixed marine and terrigenous sediments; charcoal, unaltered marine shell; cultural layer with mottles of IB and III charcoal, unaltered marine shell; cultural layer with mottles of IB and III

Stratum III: 145-149 cmbs; C Horizon; 10 YR 6/1, gray; medium, sand; structureless, non-sticky wet consistency; non-plastic; no cementation; N/A N/A lower boundary; terrestrial marine and terrigenous sediments

Trench 10

Trench 10 was excavated in the southwestern corner of the project area (Figure 9). Historic maps and documentation indicate that this trench, as well as Trenches 1, 2, 3, 5, 6, and 9, are in the vicinity of the former Cleghorn estate, ʻĀinahau. Trench 10 was excavated to document the stratigraphy of the former ʻĀinahau estate and to establish if intact early historic/pre-contact cultural strata and/or features existed.

Trench 10 measured 4.8 m (15.7 feet), had a maximum depth of 1 m (3.3 feet) and a maximum width of 1 m (3.3 ft). The trench was oriented approximately north-south (185° magnetic north) and was excavated to the water table. One stratum with two substrata was noted and described in the excavation (Figure 19). The stratigraphy was similar to that found in Trenches 1, 2, 3, and 5. Stratum IA was identified as imported historic fill; Stratum IB was identified as the Buried A Horizon surface associated with ʻĀinahau. Modern to historic trash was observed in Stratum IB.

A concrete slab, a probable remnant of the structure shown on Sanborn Fire Maps of 1927 and 1950 (Figures 6 and 7) was observed below Stratum IB, at approximately 75-95 cmbs. A photograph of Trench 10 (Figure 34) is included in the Photo Appendix.

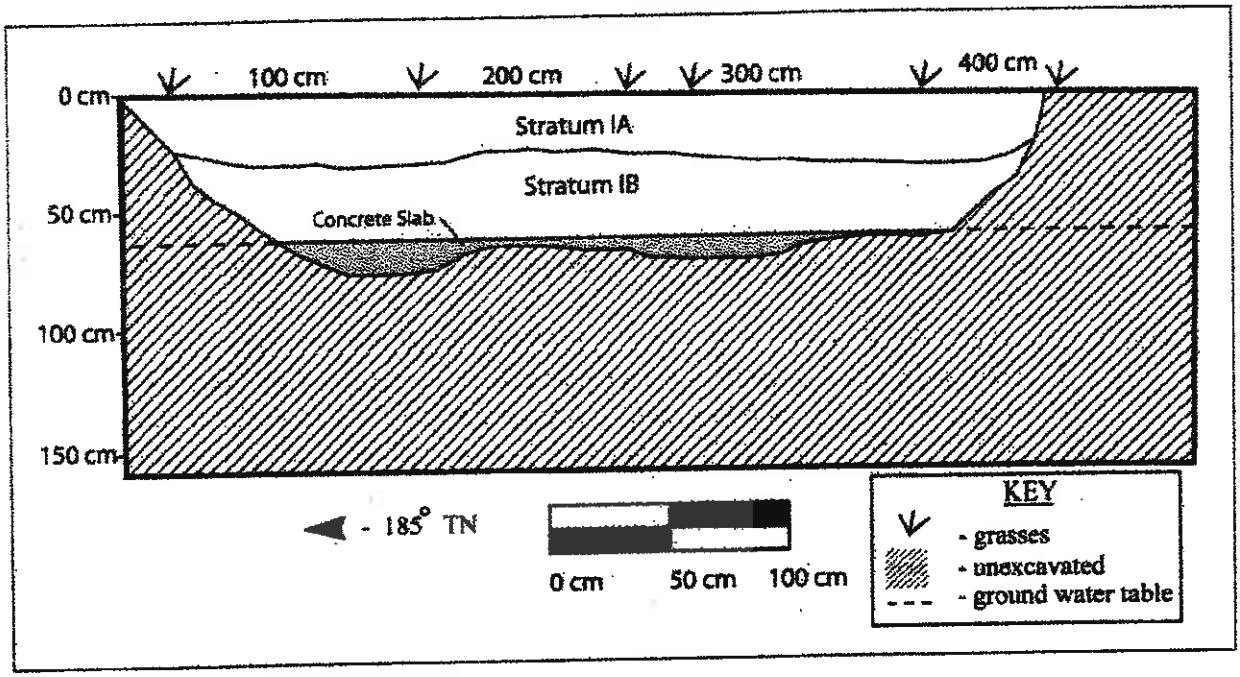

Figure 19. Profile of west wall of Trench 10

Stratum IA: 0-29/33 cmbs; Modern A Horizon in fill; 10 YR 3/2, very dark grayish brown; clay loam; moderate, medium/course, subangular blocky structure; slightly hard dry consistency; slightly plastic; no cementation; clear wavy lower boundary; mixed marine and terrigenous sediments

Stratum IB: 29/33-74/90 cmbs; Fill; 2.5 YR 4/2, loam; structureless, loose dry consistency; non-plastic; no cementation; mixed marine and terrigenous sediments; modern to historic trash

Trench 11

Trench 11 was excavated in the center of the project area (Figure 9). Historic maps and documentation indicate that this trench (as well as Trenches 4 and 8) is in the vicinity of the former ʻĀpuakēhau Stream. Trench 11 was excavated to document the stratigraphy of the former ʻĀpuakēhau Stream.

Trench 11 measured 9.6 m (31.5 ft), had a maximum depth of 167 cm (5.5 ft) and a maximum width of 1.0 m (3.3 ft). It was oriented NE/SW (51° true north) and was excavated to ground water. Four distinct strata were observed in the excavation (Figure 20). Stratum I, II, and IV were of historic imported fill, most likely dating to the construction of the Ala Wai canal and subsequent filling of the ʻĀpuakēhau Stream. Stratum II contains a semi-horizontal charcoal lense and weathered minerals of yellowish red color, indicative of fluctuating dry and wet conditions. Microstratigraphic layers were present, particularly in Stratum IV, and are most likely the result of hydraulic dredging episodes during the Ala Wai land reclamation projects. A photograph of Trench 11 (Figure 35) is included in the Photo Appendix.

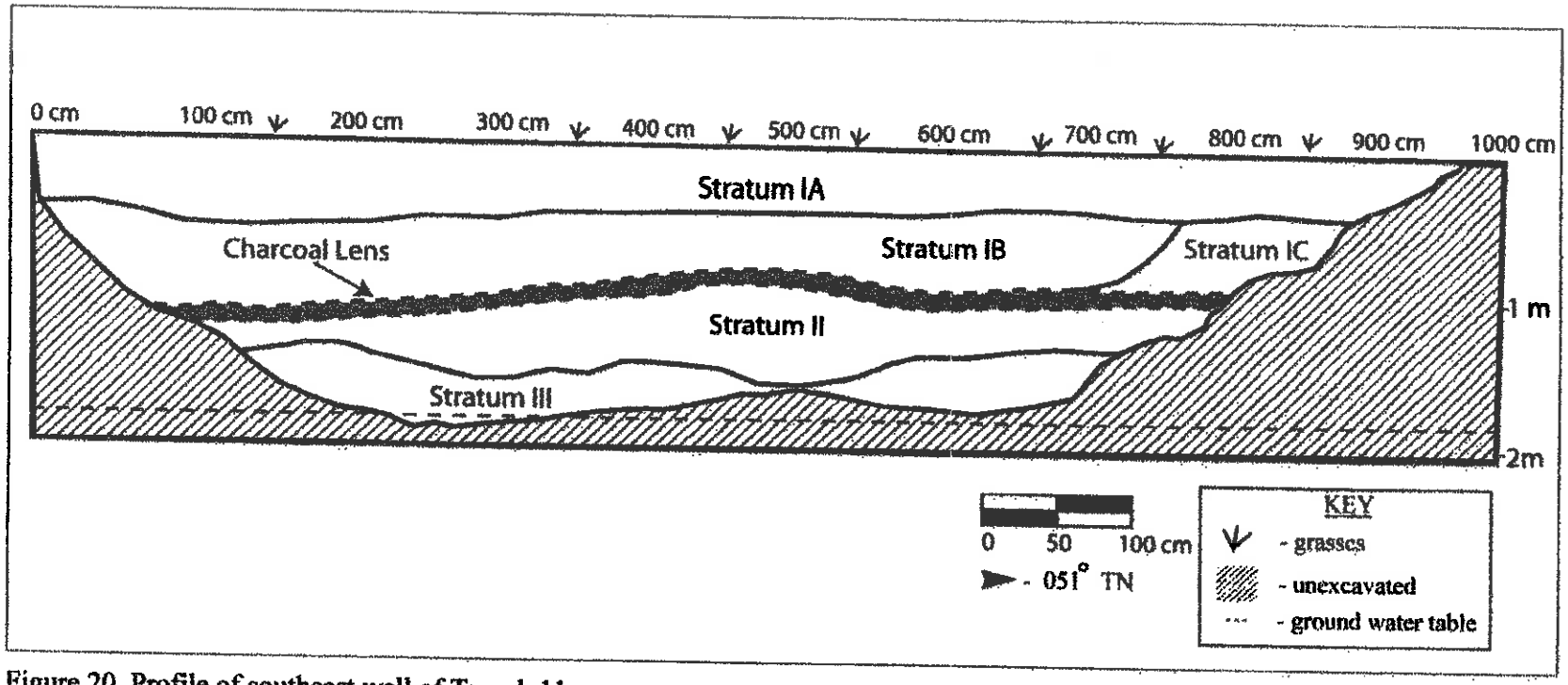

Figure 20. Profile of southeast wall of Trench 11

Stratum IA: 0-52 cmbs; Modern A Horizon in fill; 10 YR 3/3, dark brown; medium to coarse, sand; structureless, loose dry consistency; slightly plastic; no cementation; diffuse wavy lower boundary; terrestrial marine and terrigenous sediments; roots and rootlets

Stratum IB: 37-158 cmbs; Fill; 10 YR 2/2, very dark brown; medium to coarse, silt loam; structureless, loose dry consistency; non-plastic; no cementation; diffuse wavy lower boundary; terrestrial marine and terrigenous sediments; <1% marine shell by volume; contains weathered mineral grains of 5 YR 5/8 yellowish red color and semi horizontal charcoal lense

Stratum II: 80-167 cmbs; Buried A Horizon; 10 YR 3/2, very dark grayish brown; clay loam; structureless, very firm moist consistency; diffuse lower boundary; terrestrial marine and terrigenous sediments; charcoal flakes

Stratum III: 37-110 cmbs; Buried A Horizon; 7.5 YR, 6/4, light brown; fine silt; structureless; dry loose consistency; slight plastic; no cementation; abrupt, irregular lower boundary; mixed marine and terrigenous sediments; marine shell (less than 2 mm in size), semi-horizontal microlayers

Trench 12

Trench 12 was excavated in the northeastern corner of the project area (Figure 9). Historic maps and documentation indicate that this trench, as well as Trenches 7, 13, and 14 (Figure 9), is located in what was a former *lo'i* field. These trenches clearly displayed fine-grained terrigenous alluvial deposits and structural features related to *lo'i* that were once extant.

In the mid-1920s, as part of the excavation of the Ala Wai Canal, dredge sediments were distributed widely between the Ala Wai Canal and Kalākaua Avenue. These historic dredge sediments were observed.

Trench 12 measured 4.4 m (14.4 feet). It had a maximum depth of 161 cm (5.3 feet) and a maximum width of 1 m (3.3 ft). The trench was oriented NE/SW (53° magnetic north) and was excavated to the water table. Three strata were noted and described in the excavation (Figure 21). Strata IA and IB were identified as imported fill. Stratum II was identified as dark gray clay taro patch (*lo'i*) sediment. Photographs of Trench 12 (Figures 36, 37) are included in the Photo Appendix.

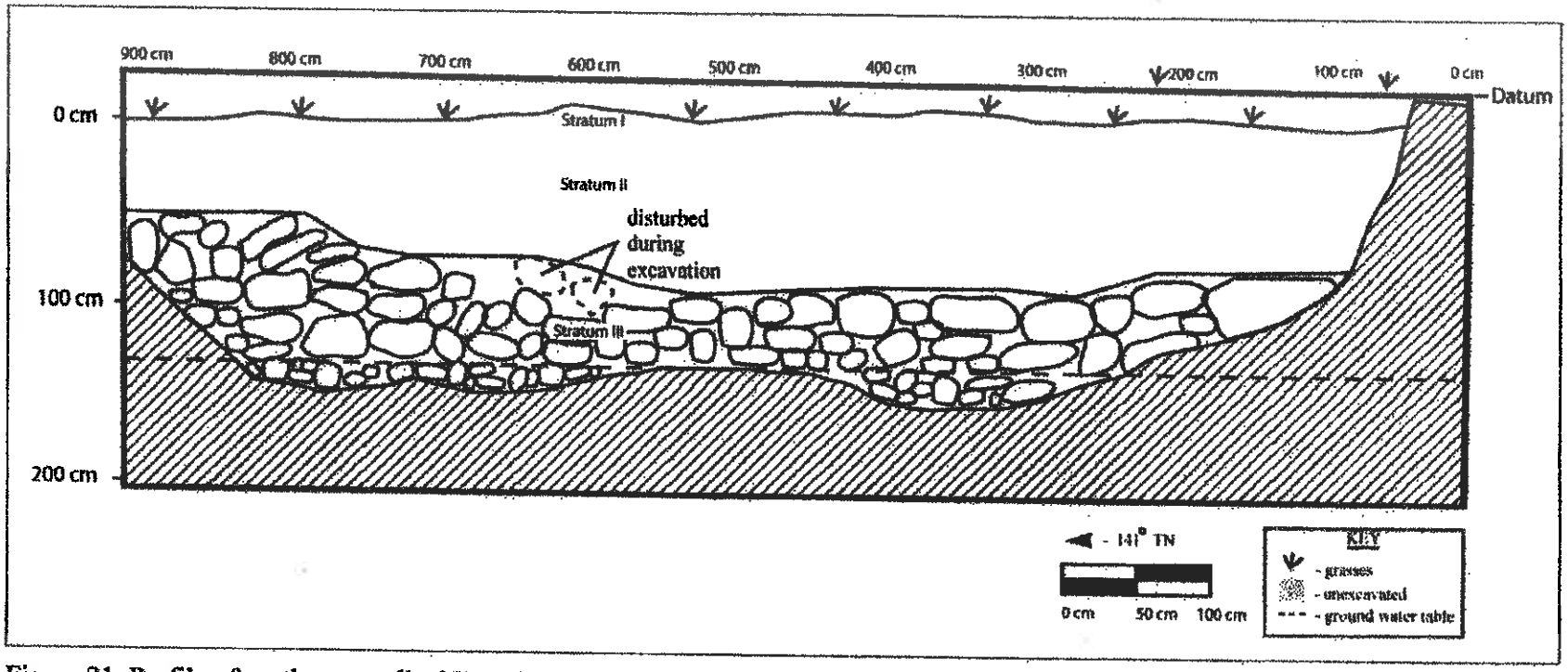

Figure 21. Profile of northwest wall of Trench 12

Stratum I: 0-10 cmbs; Modern A Horizon; 10 YR 4/3, brown; weak fine crumb structure; dry loose consistency; non-plastic; no cementation; clear smooth lower boundary; terrestrial marine and terrigenous sediments; roots and rootlets, topsoil

Stratum II: 10-110 cmbs; Buried A Horizon; 10 YR 3/3, dark brown; clay loam; moderate-strong, medium, blocky structure; moist very firm consistency; plastic; weak cementation; very abrupt, irregular lower boundary; terrestrial marine and terrigenous sediments; historic trash

Stratum III: 100-190 cmbs; Buried A Horizon; 10 YR 2/2, very dark brown; clay; moderate, medium, angular blocky structure; moist firm consistency; very plastic; no cementation; clear, smooth lower boundary; mixed marine and terrigenous sediments

Stratum IV: 160-190 cmbs; C Horizon; Coarse gleyed clayey sand; no structure; wet very sticky consistency; non plastic; no cementation; marine and terrigenous sediments; unsorted

Trench 13

Trench 13 was excavated in the northeastern corner of the project area (Figure 9). Historic maps and documentation indicate that this trench (as well as Trenches 7, 12, and 14), is located in what was a former *lo'i* field.

Trench 13 measured 4.4 m (14.4 feet) and had a maximum depth of 155 cm (5.1 feet) and a maximum width of 1 m (3.3 ft). It was oriented E/W (96° magnetic north) and was excavated to the water table. Three strata were noted and described in the excavation (Figure 22). Strata IA and IB were identified as imported fill. Stratum II was identified as dark gray clay, fine-grained terrigenous alluvial deposits related to *lo'i*. A photograph of Trench 13 (Figure 38) is included in the Photo Appendix.

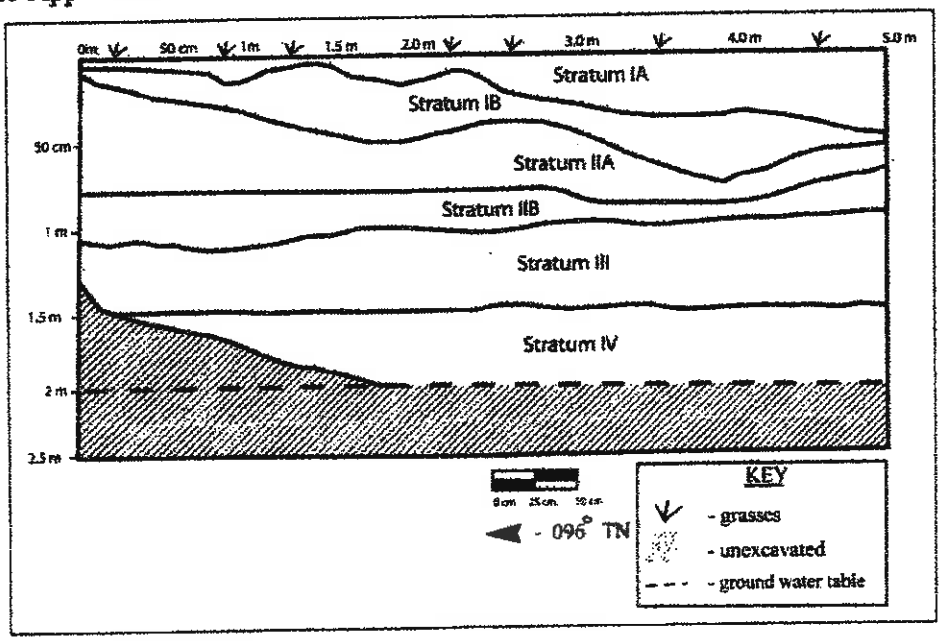

Figure 22. Profile of northwest wall of Trench 13

Stratum IA: 0-52 cmbs; O Horizon; 10 YR 3/3, dark brown; medium-coarse silt loam; structureless; dry loose consistency; slightly plastic; no cementation; clear, irregular lower boundary; terrestrial marine and terrigenous sediments; roots, rootlets

Stratum IB: 8-78 cmbs; Fill; 7.5 YR 6/4, light brown; fine silt; structureless; dry loose consistency; slightly plastic; no cementation; abrupt, irregular lower boundary; mixed marine and terrigenous sediments; abrupt, irregular lower boundary; marine shell (less than 2 mm in size); semi-horizontal micro layers

Stratum IIA: 13-95 cmbs; O Horizon; 10 YR, 2/2, very dark brown; silt loam; structureless; moist firm consistency; slightly plastic; weak cementation; diffuse, wavy lower boundary; terrestrial marine and terrigenous sediments; marine shell (less that 1% by volume), contains weathered minerals of 5 YR, 5/8, yellowish red color.

Stratum IIB: 72-125 cmbs; O Horizon; 10 YR 3/2, very dark grayish brown; clay loam; structureless; moist very firm consistency; slightly plastic; no cementation; diffuse, wavy lower boundary; terrestrial marine and terrigenous sediments; broken glass, bottles

Stratum III: 47-160 cmbs; Buried A Horizon; 10 YR 2/2, very dark brown; fine clay; moderate, medium, blocky angular structure; moist firm consistency; very plastic; no cementation; clear, smooth lower boundary; mixed marine and terrigenous sediments; organic-rich, root remnants, probable former agricultural layer

Stratum IV: 155-water line cmbs; C Horizon; 7.5 YR, 6/0, gray; very coarse sand; structureless; wet non-sticky consistency; non-plastic; no cementation; clear lower boundary; marine marine and terrigenous sediments; large coral fragments, some 7.5 cm, appearance is that of wet cement

Trench 14

Trench 14 was excavated in the northeastern corner of the project area (Figure 9). Historic maps and documentation indicate that this trench (as well as Trenches 7, 12, and 13), is located in what was a former *lo'i* field.

Trench 14 measured 4.6 m (15.1 feet). It had a maximum depth of 120 cm (3.9 feet) and a maximum width of 1 m (3.3 ft). The trench was oriented NE/SW (141° magnetic north) and was excavated to the water table. Three strata were noted and described in the excavation (Figure 23). Strata IA and IB were identified as imported fill. Stratum II was identified as dark gray clay, fine-grained terrigenous alluvial deposits related to *lo'i*. A photograph of Trench 14 (Figure 39) is included in the Photo Appendix.

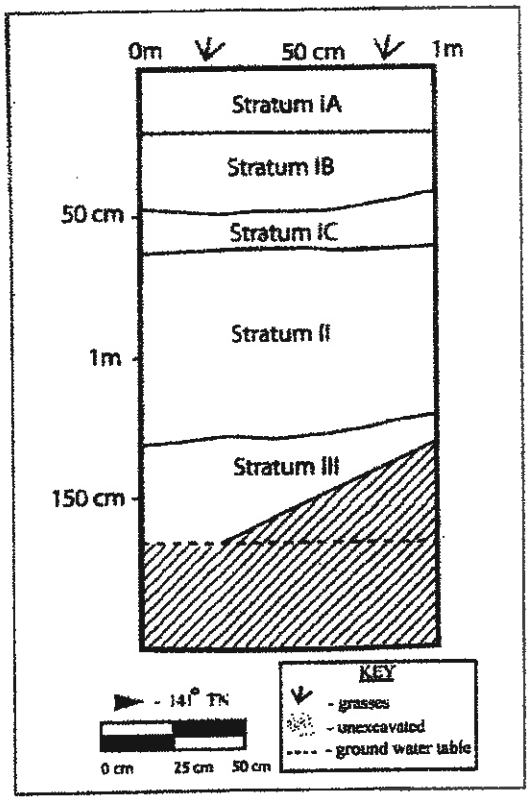

Figure 23. Profile of north wall of Trench 14

Stratum IA: 0-21 cmbs; Modern A Horizon in fill; 10 YR 3/3, dark brown; medium-coarse silt loam; structureless; dry loose consistency; slightly plastic; no cementation; diffuse, wavy lower boundary; terrestrial marine and terrigenous sediments; roots, rootlets, historic rubbish

Stratum IB: 21-49 cmbs; Fill; 7.5 YR 6/4, light brown; fine silt; structureless; dry loose consistency; slightly plastic; no cementation; abrupt, irregular lower boundary; mixed marine and terrigenous sediments; abrupt, irregular lower boundary; marine shell (broken pieces less than 2 mm in size); semi-horizontal micro layers

Stratum IC: 42-64 cmbs; Fill; 10 YR, 2/2, very dark brown; medium-coarse silt loam; structureless; dry loose consistency; non plastic; no cementation; diffuse, clear, wavy lower boundary; terrestrial marine and terrigenous sediments; marine shell and coral fragments (up to 5 cm in size)

Stratum II: 59-130 cmbs; Buried A Horizon; 10 YR 3/2, very dark grayish brown; fine clay loam; structureless; moist very firm consistency; slightly plastic; no cementation; clear, wavy lower boundary; terrestrial marine and terrigenous sediments; charcoal flakes

Stratum III: 120 cmbs -water level; Buried A Horizon; 10 YR 2/2, very dark brown; fine clay; moderate, medium, blocky subangular structure; moist firm consistency; very plastic; no cementation; mixed marine and terrigenous sediments; organic-rich, roots and rootlets, probable former agricultural layer

C. Site Descriptions

Four sites were identified within the project area (Figure 9). The sites included the buried A horizon representative of the nineteenth century ground surface of the structures of the ʻĀinahau estate (SIHP site 50-80-09-6682); human skeletal fragments (observed in Trench 9) in disturbed sediment (SIHP site 50-80-09-6705); 30-foot wide stream bed documented in Trenches 4,8, and 11(SIHP site 50-80-09-6706); and a traditional stone *loʻi* field retaining wall (SIHP site 50-80-09-6707).

Table 2. State Sites Identified Within the Project Area

State Site #	Form	Function	Recommendation
-6682	Buried A Horizon	Habitation	No Further Work
-6705	Human skeletal fragments	Interment	Future Monitoring
-6706	Stream bed	Agriculture	No Further Work
-6707	Stone wall	Agriculture	Data Recovery

*Note prefix for all SIHP sites is 50-80-09

SIHP Site #: 50-80-09-6682

Site Type: Buried A Horizon, ʻĀinahau (Cleghorn Estate)

Function: Habitation

Description: SIHP site -6682 consists of the buried A horizon in coralline sand documented in several trenches in "Area 1" (Figure 9), the historically dryland portion of the project area. This is the nineteenth century ground surface of ʻĀinahau, the Cleghorn Estate. Historic maps identify the present project area as a portion of ʻĀinahau, the Waikīkī estate of Archibald Cleghorn (1835-1910), his wife, Princess Miriam Likelike (1851-1887), and their daughter Princess Kaʻiulani (1875-1899) – all significant personages in the history of Hawaiʻi.

SIHP Site #: 50-80-09-6705

Site Type: Burial (Human skeletal fragments in disturbed sediment)

Function: Interment (at least a secondary interment)

Description: SIHP site -6705 consisted of a distal end ulna shaft and head, femur shaft and other unidentified human skeletal fragments encountered on October 6, 2004 in Trench 9 at 10 cm below surface in Stratum IA top soil fill. No context or associated goods. No evidence of age, era, provenience, etc. SHPD was promptly notified regarding this burial find and the appropriate notification processes have been implemented following Hawaiʻi Revised Statutes Chapter 6E-43.

SIHP Site #: 50-80-09-6706

Site Type: Stream bed

Function: Agriculture (*'auwai* source)

Description: SIHP site -6706 consists of a thirty foot wide stream oriented north-northwest by south-southeast in the Ala Wai portion of the project parcel (Trenches 4, 8, and 11). From research of historical documentation and maps, it is believed that this is the remnant of a segment of 'Āpuakēhau Stream. This stream has an LCA claim in it and separates the dry ground of the 'Āinahau Estate from the taro fields southwest or *mauka* of the stream.

SIHP Site #: 50-80-09-6707

Site Type: Stone wall

Function: Agriculture

Description: SIHP site -6707 consists of a stone wall comprised of five courses of water rounded basalt boulders, believed to be a traditional *lo'i* field retaining wall. The base course of the wall is set on the coral reef deposits 20 cm below the ground water level. This wall is an excellent example of type and method of construction. It is a likely remnant of the extensive Waikīkī network of irrigated taro fields that were constructed beginning in the fifteenth century and traditionally attributed to the chief Kalamakua.

D. Summary of Samples Submitted for Radiocarbon Dates

In total, three charcoal samples and one soil sample were sent to Beta Analytic, Inc. for Radiocarbon (14C) Dating Analyses (Table 3). Samples were selected based on their stratigraphic context and association with presumed indigenous cultural layers.

Table 3. Samples Submitted for Radiocarbon Dating

Beta Analytic ID #	Sample Material	Provenience	Conventional Radiocarbon Age	C13/C12 Ratio	Oxcal Calibrated Calendar Age* (2 sigma)
Beta 197276	Charred material	Trench 1 Stratum IIB 30 cmbs SIHP site –6682	510 +/- 80 BP	-24.3 o/oo	(90.4%) 1290-1530 AD (5.0%) 1580-1630 AD
Beta 197277	Charred material	Trench 4 Stratum III 150 cmbs SIHP site -6706	490 +/- 40 BP	-25.7 o/oo	(90.9%) 1390-1480 AD (4.5%) 1320-1350 AD
Beta 197278	Charred material	Trench 5 Feature 1 (Pit) 85-119 cmbs	670 +/- 60 BP	-25.9 o/oo	(95.4%) 1250-1410 AD

Beta Analytic ID #	Sample Material	Provenience	Conventional Radiocarbon Age	C13/C12 Ratio	Oxcal Calibrated Calendar Age* (2 sigma)
Beta 197279	Organic sediment	Trench 12 Stratum IV 190 cmbs	520 +/- 60 BP	25.3 o/oo	(95.4%) 1300-1480 AD

The provenience of C14 Sample Beta –197276 was Trench 1, Stratum IIB, from approximately 90-100 cmbs (centimeters below surface). The resulting 2-Sigma calibrated results, ca. A.D. 1290 to 1500, provide a clearly pre-contact date related to Native Hawaiian occupation of this portion of Waikīkī.

The second sample, Beta 197277, was from Trench 4, Stratum III, from approximately 150 cmbs. The 2-Sigma calibrated results, ca. A.D. 1410 to 1460, again provide a clearly pre-contact date related to Native Hawaiian occupation of this portion of Waikīkī.

The third sample, Beta 197278, was taken from Trench 5, within the pit feature, from approximately 85-119 cmbs. The sample, 36.5 g, provided 2-Sigma calibrated results, ca. A.D. 1270 to 1420, again provides a clearly pre-contact date related to Native Hawaiian occupation of this portion of Waikīkī.

The fourth sample, Beta 197279, was taken from Trench 12, immediately below the *lo'i* retaining wall, Stratum IX, from approximately 190 cmbs. The resulting 2-Sigma calibrated results, ca. A.D. 1310 to 1370 and A.D. 1380 to 1470, again provides a clearly pre-contact date related to native Hawaiian occupation of this portion of Waikīkī. The *lo'i* retaining wall is presumed to be associated with the vast system of irrigated taro fields that was constructed beginning in the fifteenth century, extending across the littoral plain from Waikīkī to lower Mānoa and Pālolo valleys. This field system is traditionally attributed to the chief Kalamakua. The dates appear to correspond to the development of this presumed agricultural feature.

The resulting calibrated age of samples Beta 197276, Beta 197277, Beta 197278, and Beta 197279 suggests that the Waikīkī wet land agricultural complex and associated construction and use activities (e.g. walls, *'auwai*, berms, fields, limited habitation, etc.) was at least partially developed and presumably expanding by the fifteenth century. Research at For DeRussy has "...*'auwai* and fishpond features...dated to the fifteenth century," though "...expansion of fishpond and 'auwai complex" was posited to be during the"...seventeenth – eighteenth century" (Simmons et al. 1995). The present data may be indicative of a more expansive and intensive Waikīkī plains agricultural complex by the fifteenth century than previously documented. The data does clearly indicate that active traditional Hawaiian use of the parcel from ca. A.D. 1400 – 1500.

VI. SUMMARY

Cultural Surveys Hawai'i completed an archaeological inventory survey with subsurface testing for a 1.03-acre parcel of land in Waikīkī Ahupua'a, Kona District, Island of O'ahu, TMK 2-6-24: 70,71 (Figures 1 & 2). Fieldwork was carried out between the 5th and the 8th of October 2004 under the direction of William Folk, B.A., and Hallett H. Hammatt, Ph.D.

Fieldwork consisted of excavation and documentation of 14 backhoe trenches. The backhoe trenches were placed throughout the project area (Figure 9). They adequately sampled the project area for subsurface cultural deposits and provided representative information regarding the project area's stratigraphy and sedimentary depositional history. Backhoe excavation results were generally consistent with predictions based on information compiled prior to the fieldwork from historic maps and documents as well as previous archaeological investigations in the project area's vicinity. Project area stratigraphy varied distinctly between the northeast and southwest halves of the project area. All findings, however, were consistent with expectations based on background research. In all trenches the base of excavation was the water table, which was generally 150 cm below the current land surface.

Based on Māhele documents and information available from nineteenth century maps, the following geography and land use within the present project area at the mid-nineteenth century is indicated: the *mauka* or northeast half comprised a portion of taro *lo'i* belonging to the king ; the central section comprised a portion of 'Āpuakēhau Stream in which taro was also growing; and the *makai* or southwest half comprised habitation area as well as *kula* – a dryland agricultural field where taro, sweet potatoes, and gourd may have been growing. The map also shows the project area straddling two Waikīkī *'ili* which appear to be separated by 'Āpuakēhau Stream: the *mauka* portion of the project area is in Kalāmanamana and the *makai* portion is in Auaukai. Kalāmanamana was one of the areas where the chief Kalamakua constructed the "large pond fields" of taro that once covered the Waikīkī plain. Some of the Kalāmanamana *lo'i* are shown in Figure 3.

Cultural Surveys Hawaii's research also suggests that the *makai* half of the present project area was formerly the site of at least a portion of the main houses of the 'Āinahau estate house, associated with important personages in Hawaiian history. In the final quarter of the nineteenth century the portion of the project area *makai* or southwest of 'Āpuakēhau Stream was purchased by Archibald Cleghorn (1835-1910) and transformed into his estate. It is believed that a portion of the Victorian-style house he built in the 1890s was located in the present project area. A pronounced charcoal enriched layer observed in many of the project area's trenches is likely related to the fire that raised the 'Āinahau house in 1921.

The subsurface testing results are consistent with this nineteenth century historical reconstruction. Trenches 4, 8 and 11 bisected portions of 'Āpuakēhau Stream. Trenches 7, 12, 13, and 14 clearly displayed fine-grained terrigenous alluvial deposits and structural features related to *lo'i* that were once extant. Trenches 1, 3, and 5, 9, and 10, in the southwest portion of the project area, exposed drier, sandier beach sediments overlain by historic fill. In the mid-1920s, as part of the excavation of the Ala Wai Canal, dredge sediments were distributed widely between the Ala Wai Canal and Kalākaua Avenue. These historic dredge sediments were observed in many of the current project's northeastern or *makai* trenches.

Fragmentary human skeletal remains were observed in Trench 9. These skeletal remains were clearly previously disturbed (prior to the current inventory survey excavations) and were most likely brought into the current project area inadvertently as part of historic fill layers that were noted in this southwestern portion of the project area. SHPD was notified regarding this burial find and the appropriate burial notification procedures were undertaken per the requirements of HRS Chapter 6E-43 and HAR Section 13-300.

The burial was discussed at the October O'ahu Island Burial Council (OIBC) meeting, where the OIBC members made two requests. First, that a soil engineer be contacted to determine whether it is possible to identify the source origination of the fill material in which the human skeletal fragments were found. To fulfill this request, soil engineers at Hirata & Associates, a Geotechnical Engineering firm, were consulted. In a letter to Mr. Gary Furuta from Paul S. Morimoto, P.E. (Ernest K. Hirata & Associates, Inc.) dated November 9, 2004, Mr. Morimoto asserts that "Based on our experience, the fill material is similar to that encountered throughout the Waikīkī area as well as in other areas of Honolulu. Based on our observations, we are unable to determine the vicinity from where the fill material may have originated." Secondly, the OIBC requested that a Cultural Surveys Hawai'i, Inc. (CSH) archaeologist meet with DeSoto Brown, collections manager of the Bishop Museum archives, to examine Dillingham Construction Company records to determine if these documents provide information about the origin of the fill material in which the human skeletal fragments were found. A CSH archaeologist fulfilled this request on November 23 and 30, 2004. No conclusive information regarding the fill material was obtained.

From examination of historic maps as well as the results of stratigraphic profiling during fieldwork, it is believed that the fill material was imported in the years following the demolition of the residential houses shown in the present project area on the fire insurance maps of 1927 and 1950 (Figures 6, 7). Concrete slabs observed in Trench 10, believed to be associated with these residential houses were documented near the location of the burial at a depth of approximately three feet. The bouldery fill material that contained the human skeletal fragments is on top of that layer (at a depth of approximately 10 cm) and therefore, is likely to post date the occupation of these residences.

VII. SIGNIFICANCE AND RECOMMENDATIONS

A. Significance

A total of four historic properties of varied archaeological significance are present in the project area and assigned State Inventory of Historic Places (SIHP) numbers. One of these, the Cleghorn ʻĀinahau Estate has been previously identified and assigned the SIHP number 50-80-14-6682.. Individual significance of the four properties and recommended treatment are specified in Table 4. Sites were evaluated for significance according to the broad criteria established for the National and State Registers. The five criteria are:

A	Site reflects major trends or events in the history of the state or nation.
B	Site is associated with the lives of persons significant in our past.
C	Site is an excellent example of a site type.
D	Site may be likely to yield information important in prehistory or history.
E	Site has cultural significance; probable religious structures and/or burials present.

The initial significance assessments are based on functional interpretations of the sites and site types. All four sites within the project area are considered significant (Figure 9, Table 4).

SIHP Site 50-80-14-6682, assessed with Criteria B, consists of the buried A horizon documented in Trench 1 and other trenches at the west end of the project property. Historic maps identify the present project area as a portion of ʻĀinahau, the Waikīkī estate of Archibald Cleghorn (1835-1910), his wife Prince Miriam Likelike (1851-1887), and their daughter Princess Kaʻiulani (1875-1899) – all significant personages in the history of Hawaiʻi. This cultural horizon represents the nineteenth century ground surface of the yard or gardens surrounding the structures of ʻĀinahau, and is therefore associated with the lives of persons significant in our past. However, the excavations indicate there is little tangible evidence buried here that will provide additional information on this historic property.

SIHP site 50-80-14-6705, assessed with Criteria E, consists of limited human skeletal fragments collected from the disturbed sediments of imported fill material in Trench 9. SHPD was notified regarding this burial find and the appropriate notification processes have been implemented following Hawaiʻi Revised Statutes Chapter 6E-43 and HAR Section 13-300.

SIHP site 50-80-14-6706, assessed with Criteria D, consists of what is clearly the streambed remnant of a segment of ʻĀpuakēhau Stream. As evidenced by historic map documentation, ʻĀpuakēhau Stream was an important source of freshwater; an integral part of Kalamanamana and the other taro planting and irrigation field systems comprising the complex between the foothills of Koolau to Waikīkī.

SIHP site 50-80-14-6707, assessed with Criteria A, B, C, and D, consists of a stone wall comprised of one to five courses of water rounded basalt boulders. The base course of the wall is set on the coral reef deposits 20 cm below the ground water level. This wall is an excellent example of type and method of construction of a traditional *loʻi* field retaining wall. As a likely physical remnant of the extensive Waikīkī network of irrigated taro fields that were constructed beginning in the fifteenth century and traditionally attributed to the chief Kalamakua, it is associated with events and lives of persons important in our past. It is also likely to yield valuable information on the chronology of the system of irrigated fields in this area.

Table 4. Recommendations for SIHP Sites

State Site #	Form	Function	Significance	Recommendation
-6682	Buried A Horizon; grounds of ʻĀinahau (Cleghorn Estate)	Habitation	B	No Further Work
-6705	Human skeletal fragments in disturbed sediment	Burial	E	Future Monitoring
-6706	Stream bed, believed to be a segment of ʻĀpuakēhau Stream	Agriculture	D	No Further Work
-6707	Stone retaining wall	Agriculture	A, B, C, D, E	Data Recovery

*Note prefix for all SIHP sites is 50-80-09

B. Recommendations

Of the four sites recorded in the project area, SIHP site -6707 is recommended for data recovery, SIHP site -6705 for further monitoring, and SIHP sites -6682 and -6706 for no further work.

1. No Further Work

SIHP site -6682 and -6706 are recommended for no further work. The features were mapped, placed on a plan view map and the immediate vicinity was tested for subsurface deposits. Based on the findings of the subsurface testing in these sites and research of historical documentation, it is believed that the information contained in these historic properties within the project property has been acquired and that no further archaeological documentation is necessary.

2. Monitoring

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

3. Data Recovery

Archaeological data recovery is recommended for SIHP site –6707. This is a *loʻi*, (or terraced, ponded, field) retaining wall. It is a remnant of the extensive Moilili-Kapahulu-Waikīkī network of irrigated taro fields constructed beginning in the fifteenth or sixteenth century and

traditionally attributed to the chief Kalamakua, a significant personage in Hawaiian history. This field system, an impressive feat of engineering, took advantage of streams descending from Makiki, Mānoa and Pālolo valleys which also provided ample fresh water for the Hawaiians living in the *ahupua'a*.

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

The results of this research should be integrated into available previous archaeological and paleoenvironmental research within Waikīkī to aid in constructing a comprehensive chronology of Hawaiian settlement and agricultural practices in this important *ahupua'a*.

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

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IX. PHOTO APPENDIX

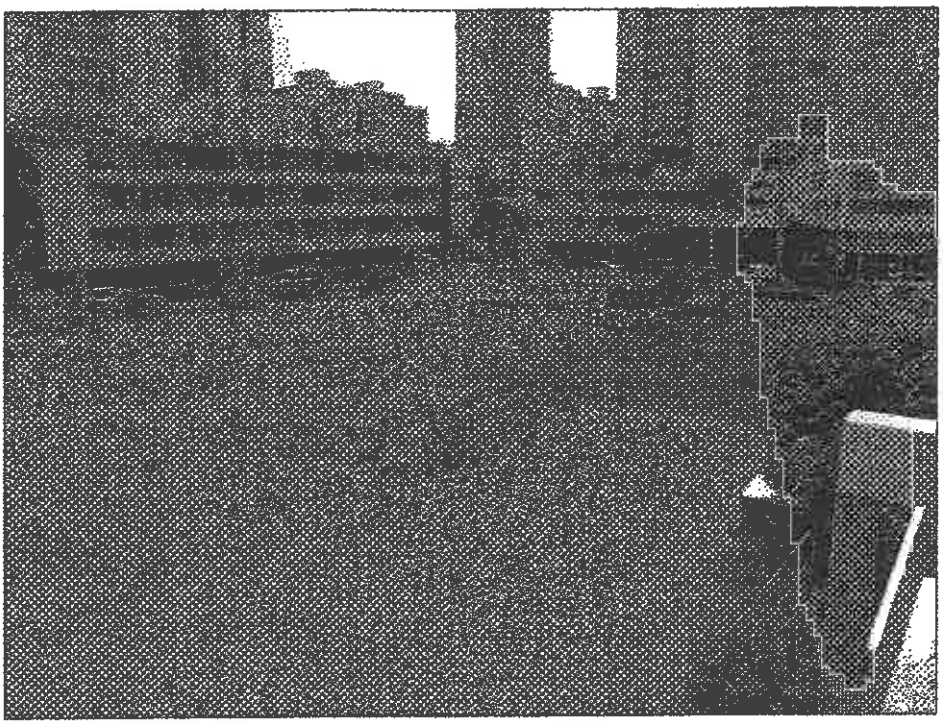


Figure 24. Photograph of project area taken from north corner, view to south

Figure 25. Photograph of Trench 1, east profile showing buried A horizon of 'Ainahau estate

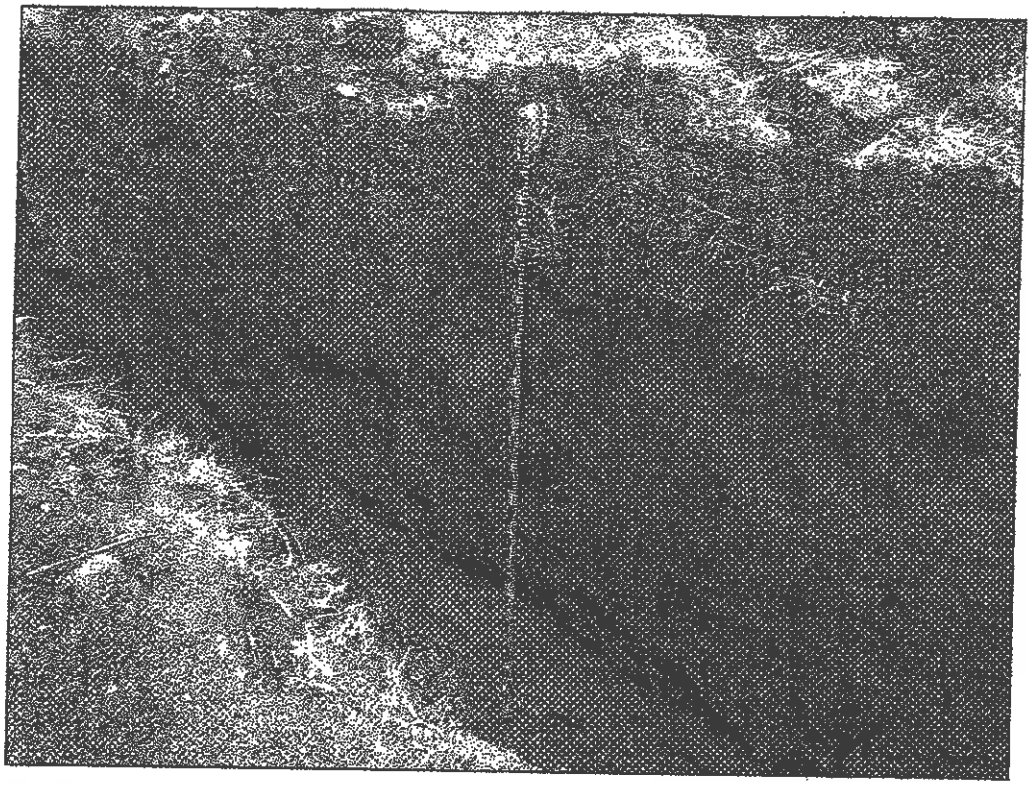


Figure 26. Photograph of Trench 2, east profile

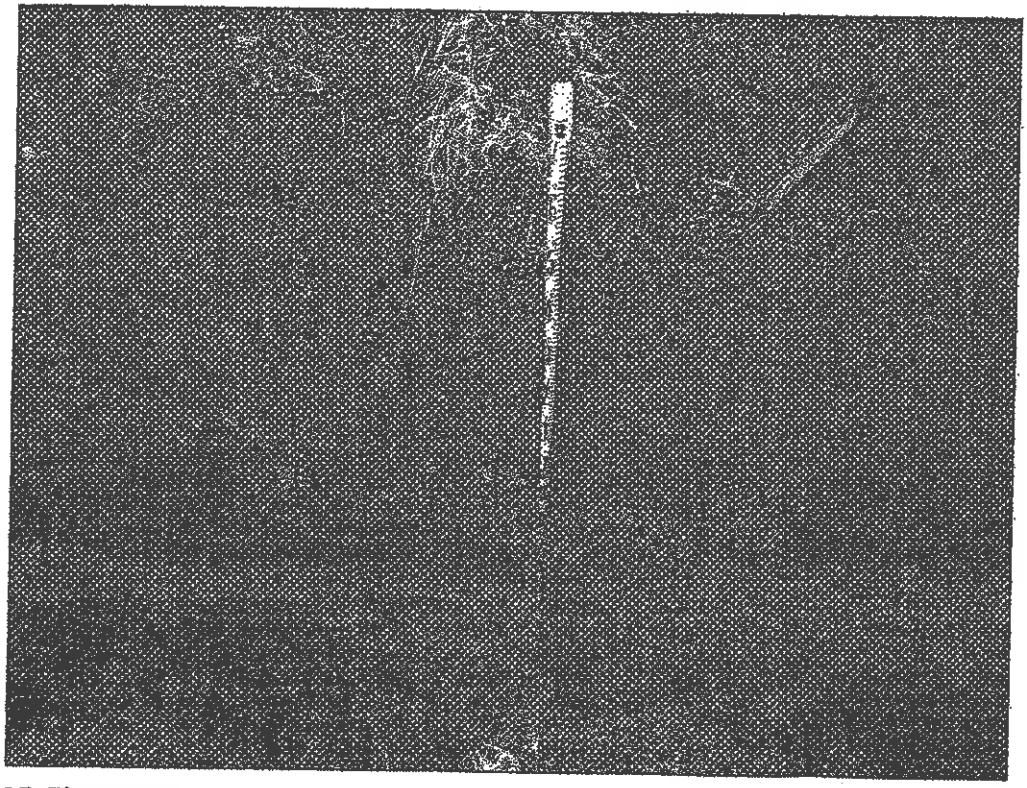


Figure 27. Photograph of Trench 3, southeast profile

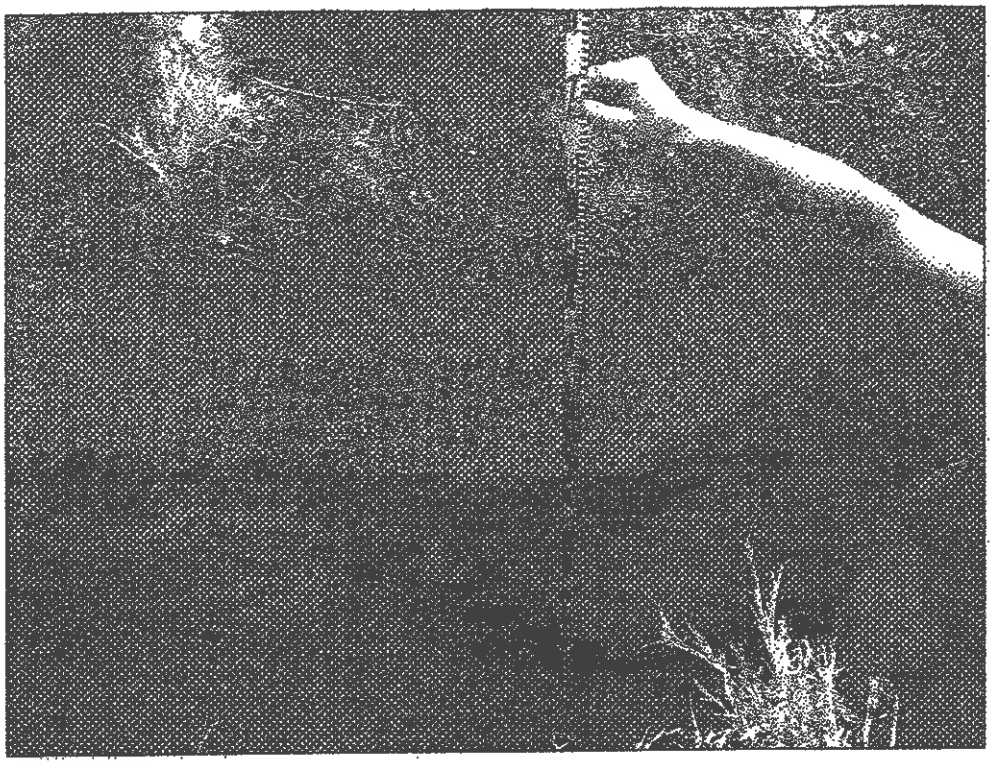


Figure 28. Photograph of Trench 4, southeast profile showing *makai* edge of streambed

Figure 29. Photograph of Trench 5, southwest profile showing pit features 1 and 2

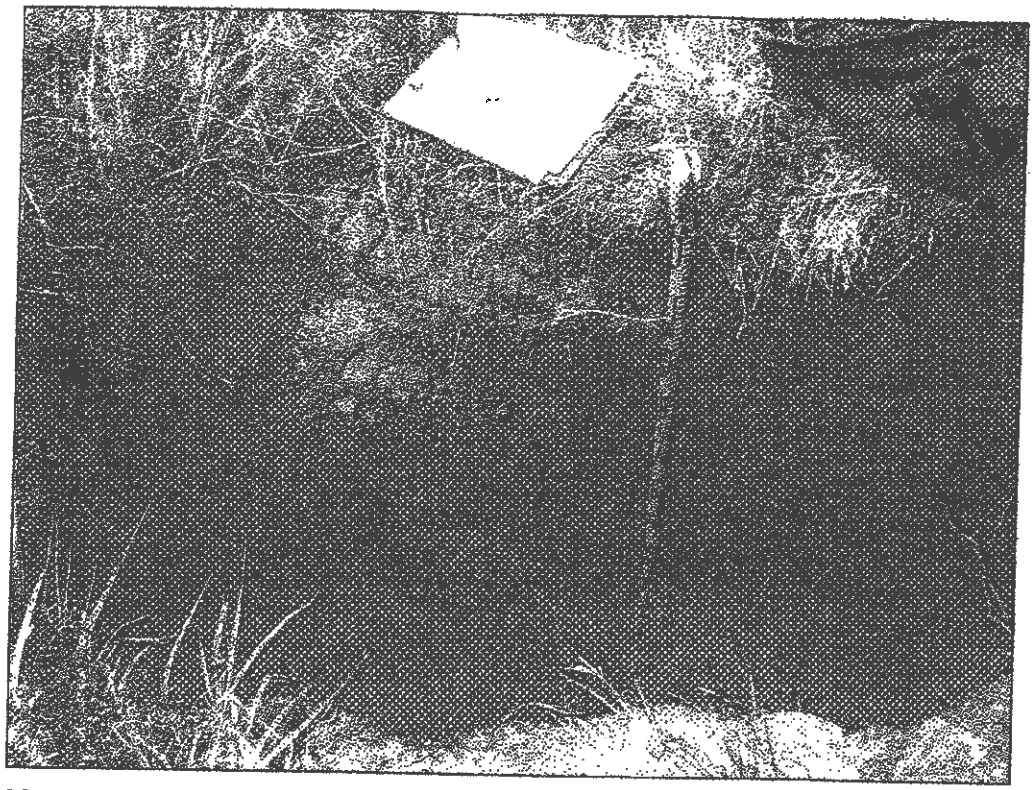


Figure 30. Photograph of Trench 6, southwest profile showing pit feature 1

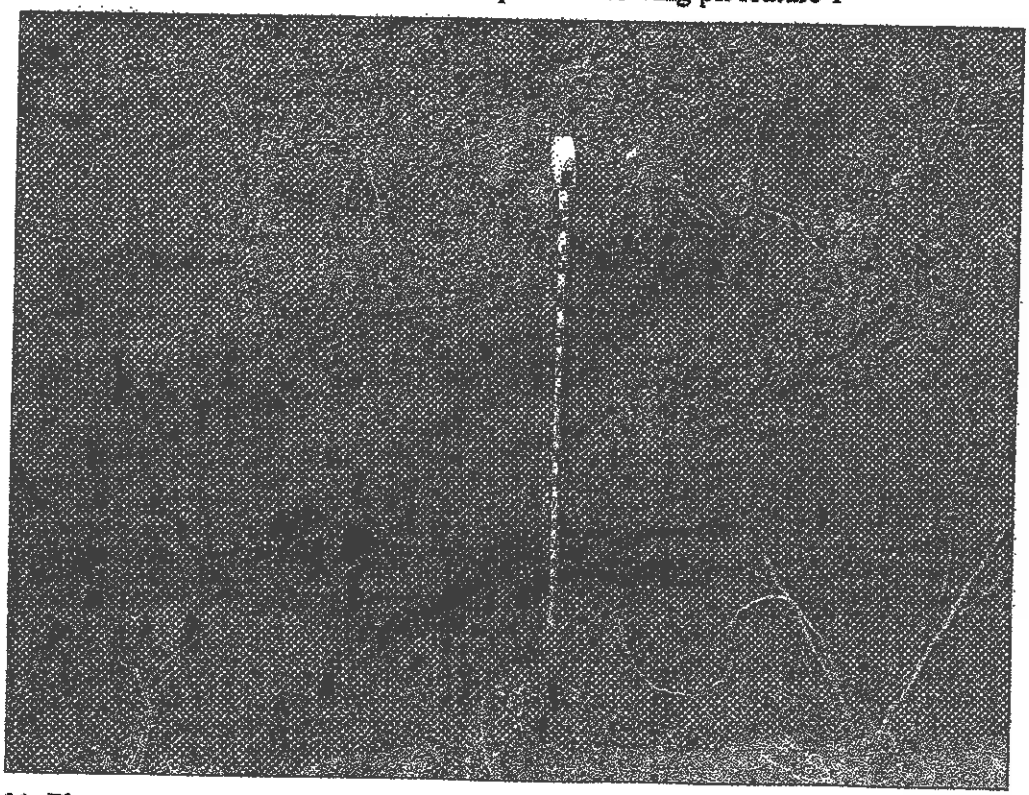


Figure 31. Photograph of Trench 7, northwest profile showing *lo'i* sediments

Figure 32. Photograph of Trench 8, north profile showing charcoal lense

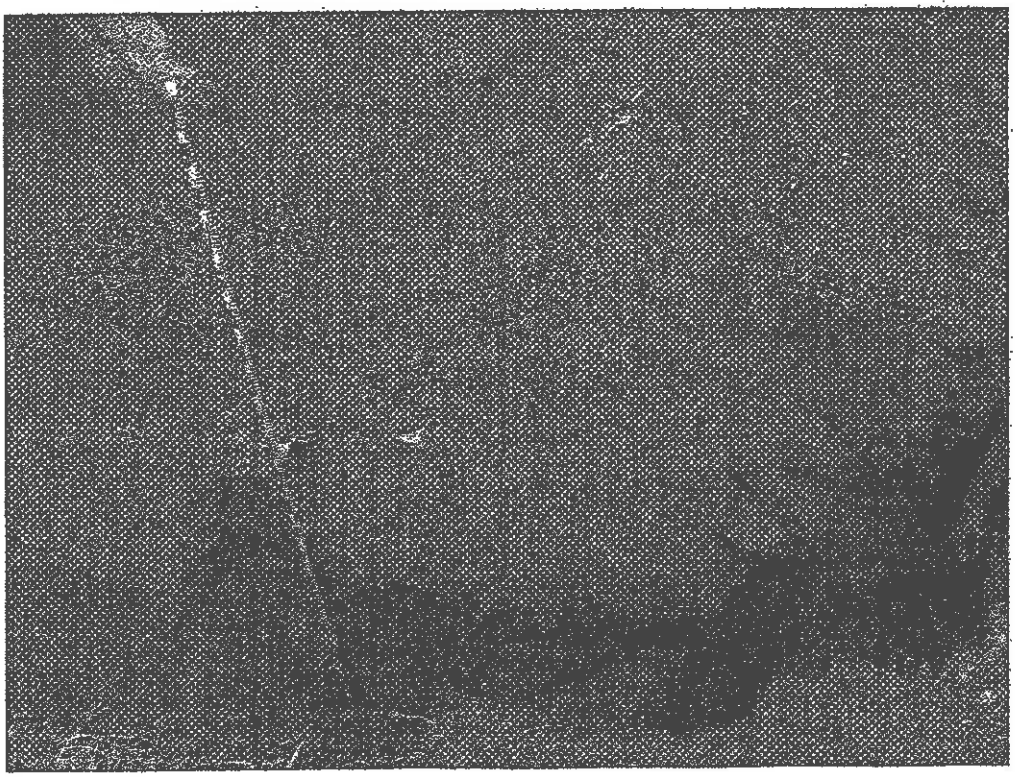


Figure 33. Photograph of Trench 9, east profile

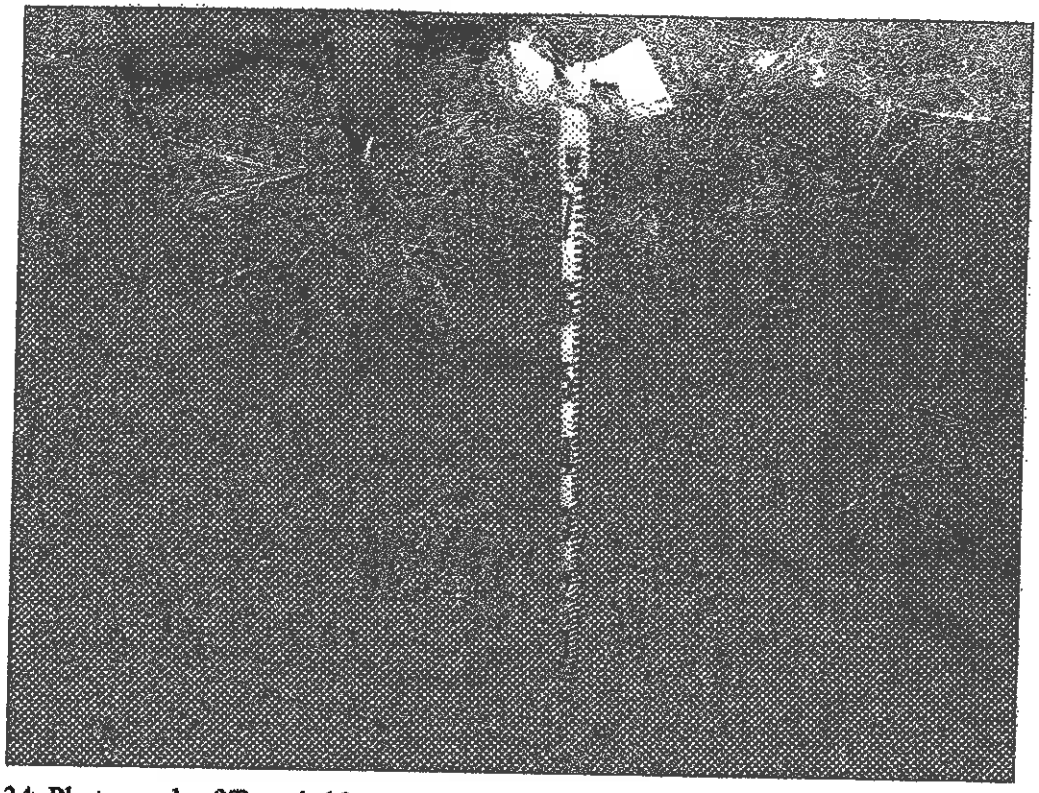


Figure 34. Photograph of Trench 10, west profile

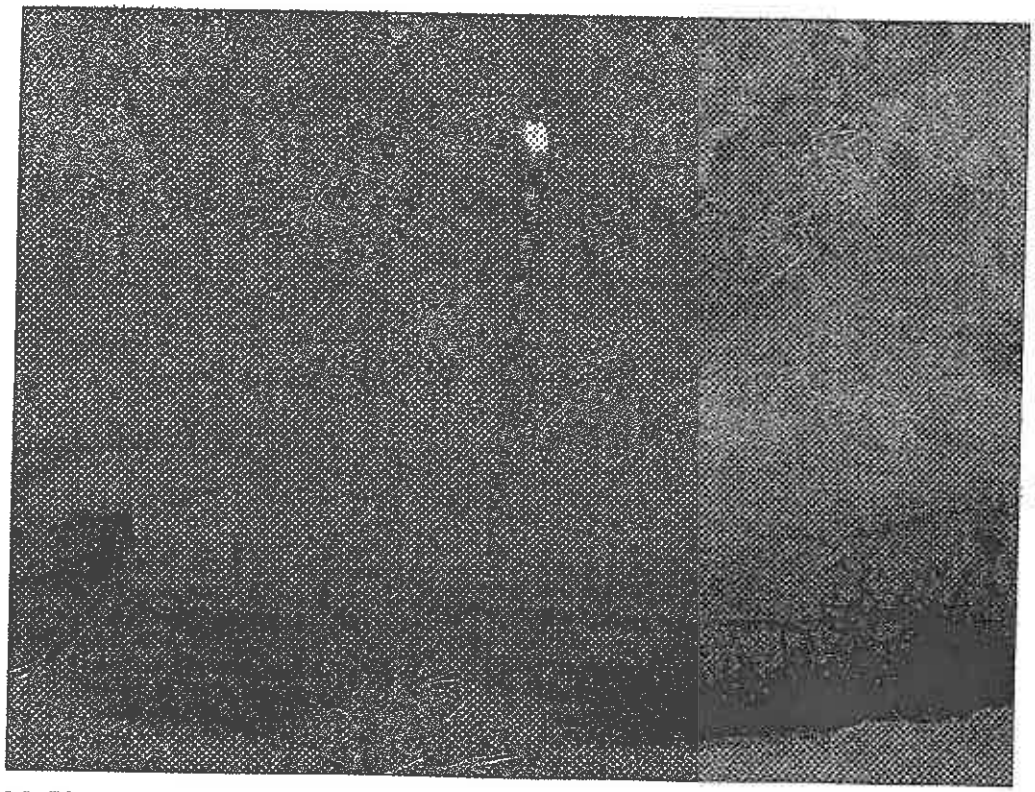


Figure 35. Photograph of Trench 11, northwest profile

Figure 36. Photograph of Trench 12, northeast profile showing remnants of *lo'i* retaining wall

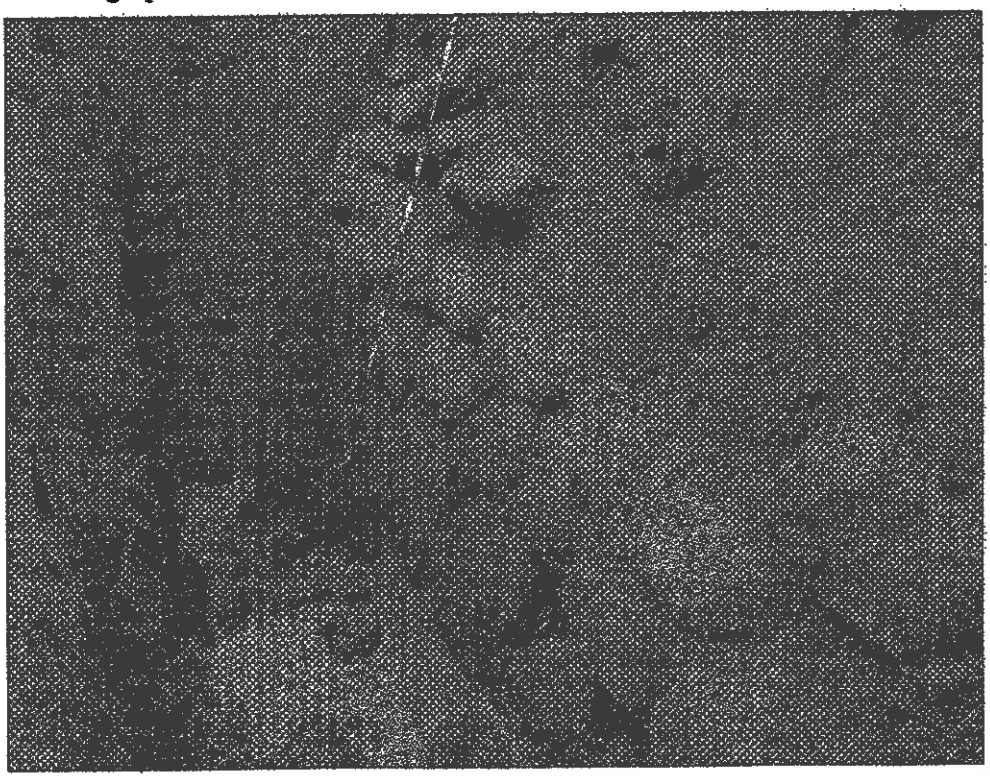


Figure 37. Photograph of Trench 12, close-up of northeast profile showing remnants of *lo'i* retaining wall

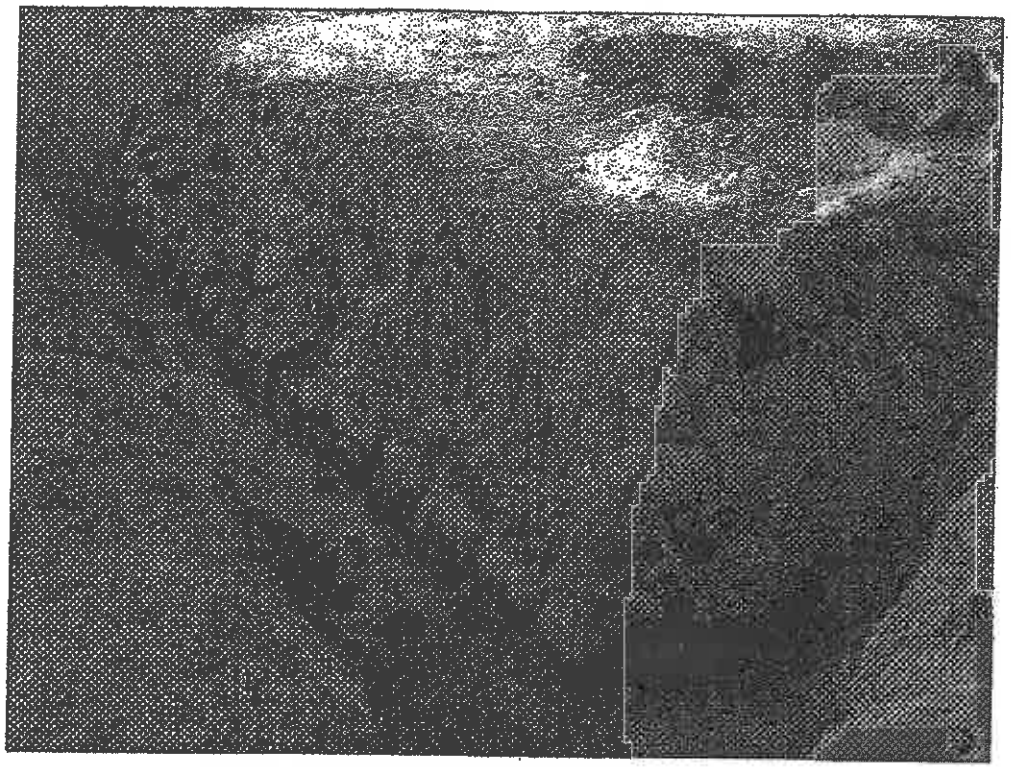


Figure 36. Photograph of Trench 12, northeast profile showing remnants of *lo'i* retaining wall

Figure 37. Photograph of Trench 12, close-up of northeast profile showing remnants of *lo'i* retaining wall

APPENDIX 5

TRAFFIC IMPACT ASSESSMENT

Julian Ng Incorporated
Transportation Engineering Consultant
P. O. Box 816
Kaneohe, Hawaii 96744-0816
email: jnghi@hawaii.rr.com
phone: (808) 236-4325
fax: (808) 235-8869

February 19, 2015

Mr. Gary Furuta, Project Manager
Hawaii Housing Development Corporation
1288 Ala Moana Boulevard, Suite 35A
Honolulu, Hawaii 96826

Subject: Traffic Assessment for Ainahau Vista II
2428 Tusitala Street
Honolulu, Hawaii [TMK 2-6-24: 70 and 71]

Dear Mr. Furuta:

We have reviewed the project information that you have provided and have prepared an assessment of the potential traffic impact of the development. While any development can be expected to increase traffic and other transportation-related demands, the assessment has found that these increases would not be significant.

Existing Transportation Conditions

The project site is a portion of a lot occupied by the existing Ainahau Vista I affordable senior rental development. The lot is north of Tusitala Street, a City-owned public street, and extends to Ala Wai Boulevard, a City Street in a 72-foot wide right-of-way. A single driveway to Tusitala Street serves the existing parking lot; no vehicular connection exists to Ala Wai Boulevard.

Tusitala Street is in a 32-foot wide public right-of-way that has been improved to a curbed street (4- to 6-foot wide concrete sidewalks on each side, 26 feet for vehicular traffic between curbs). Tusitala Street is a single block in length, operated one-way in the eastbound direction from Kaiulani Avenue to Kapili Street, with parallel parking allowed between driveways only on the north (project) side of the street. Other 32-foot streets in the area that complete the vehicular circulation include Kaiulani Avenue, Cleghorn Street, and Kapuni Street. A portion of Cleghorn Street is operated two-way, allowing vehicular traffic to exit from the area to the east onto Liliuokalani Avenue.

Concrete sidewalks are provided for pedestrian use on Tusitala Street, Kaiulani Avenue, and the one-way segment of Cleghorn Street. Street crossings at most intersections with the 32-foot roadways are not marked, but marked crosswalks are provided across Kaiulani Avenue and Kuhio Avenue, across the legs where crossing is permitted at that signalized intersection.

Bus stops for the City public bus system ("TheBus") are located on both sides of Kuhio Avenue near the intersection with Kaiulani Avenue, approximately 2,000 feet from the site entrance. An on-line review of current bus route information (www.thebus.org) shows that eight local bus routes provide service on Kuhio Avenue, and that midday service is provided by 20 buses per hour in each direction, which provides a capacity of more than 1,000 seats

per hour (more than 1,500 total, including standees) in each direction. Transit users can access the entire island-wide bus system at these bus stops and transfer at locations where bus routes intersect.

Project Impact to Transportation

The proposed project will consist of 62 rental units (47 one-bedroom and 15 studio units) and two offices in a nine-story building; 22 parking stalls will be provided at ground level. The rentals will be limited to seniors (elderly persons) with incomes no more than 60% of the average median gross income for the Honolulu area. Residents of the project will have access to a shuttle van that provides transportation service for doctor visits, shopping, or other errands.

Vehicular access to the new parking parking will be through the existing Ainahau Vista I surface parking lot, which has a single driveway to Tusitala Street; stalls provided for residents' use will all be assigned. An expected condition of project approval is that tenants who do not have an assigned parking stall on the project site will not be able to own a car. Based on the experience at other similar Vista projects, the parking ratio of 0.35 parking spaces per affordable elderly rental unit is not unreasonable.

These parameters were used to estimate the project traffic impact. Factors from a commonly used reference shown below (rates for the highest hourly traffic generated if not coincident with the peak hour for other traffic is shown within parentheses) were applied to estimate vehicular trips generated (one "trip" is counted for each entering and exiting vehicle; a round trip counts as two trips).

Traffic Generation Factors

	Average Weekday		AM Peak Hour (generator AM)		PM Peak Hour (generator PM)	
	Average rate	% entering	Average rate	% entering	Average rate	% entering
Senior Adult Housing – attached (per dwelling unit)	3.44	50%	0.20 (0.39)	34% (46%)	0.25 (0.35)	54% (55%)
Apartment (per dwelling unit)	6.65	50%	0.51	20%	0.62	65%
Apartment (per vehicle)	5.10	50%	0.46	n.a.	0.60	n.a.
General office (per 1,000 square feet of floor area)	11.03	50%	1.56	88%	1.46	17%

Source: Institute of Transportation Engineers, *Trip Generation Manual, 9th Edition*, 2012
n.a. = not available

Senior (elderly) housing typically would have less traffic impact during the peak hours of traffic on the nearby streets than apartments, because many of the senior residents would not be commuting to work or school during peak traffic hours. The time-of-day characteristics of traffic generated by senior housing, however, include higher trip generation in non-peak hours, as shown in "()" in the table above. The *Trip Generation Manual* also has rates for apartments based on the number of vehicles owned, and those rates were used in an alternative computation for the traffic generated by the residents. Since no entering percentages were listed with the per-vehicle rates, the percent entering from the line above (per dwelling unit) was used. The general office rates were used to account for staff arrivals and departures and other office-related traffic. The table below shows the computed project traffic volumes.

Driveway Traffic Due to Project

	Average Weekday		AM Peak Hour (generator AM)		PM Peak Hour (generator PM)	
	enter	exit	enter	exit	enter	exit
62 Senior rental apartments	107	107	4 (11)	8 (13)	8 (12)	7 (10)
22 vehicles *	*56*	*56*	*2*	*8*	*9*	*5*
560 square feet office	3	3	1	0	0	1
Shuttle service	30	30	2 (3)	2 (3)	2 (3)	2 (3)
Total **	**140**	**140**	**7 (18)**	**10 (16)**	**10 (15)**	**10 (14)**
Total Traffic, enter + exit	**280**		**17 (34)**		**20 (29)**	

* *alternative computation based on vehicles (not included in total)*

** the total uses the higher numbers of trips computed for residents (between the numbers computed using dwelling units and using vehicles)

The computed daily traffic would be the same as the daily traffic that would have been computed for 42 apartment dwelling units, and peak hour volumes would be similar to that generated by 32 or 33 apartments. As shown in the table above, the daily total traffic (in + out) would be less than 300 vehicle trips per day. Highest peak hour impact would be 20 vehicle trips per hour, with the highest impact occurring during a non-peak morning hour, with a total of 34 vehicle trips per hour.

The project impact to traffic is less than the commonly-used criteria† (100 added vehicles per hour, 1,000 added vehicles per day) for determining when a significant traffic impact would occur and trigger a need to conduct a traffic impact analysis study. The project traffic impact, therefore, is minor and not considered to be significant.

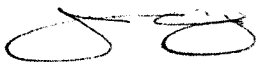
Transit impacts can be expected to occur with the increased elderly population. The nearest bus stops are within ¼ mile of the site entrance and some additional bus use can be expected. The shuttle service provided by Ainahau Vista, however, would be more convenient and will lessen the increase in demand on public transit. An estimate of additional public transit use resulting from the completion and full use of the project was developed from the vehicular traffic estimates. If the numbers of persons using public transit were half of the number vehicles, there would be 70 additional transit riders boarding and 70 alighting each day; at the nearest bus stops, or about a 5% increase at those bus stops, where the City recorded 2,800 persons per day on or off local buses†† in 2010. The time-of-day distribution was assumed to be similar, with greater demand later in the morning rather than during the peak periods of other traffic. The highest hourly increase in bus ridership is estimated to be 10 persons, or approximately 1% of the seating capacity of buses running on Kuhio Avenue. The additional 140 transit users per day would represent about 0.06% of the total transit trips††† on TheBus.

Conclusion

The proposed 62-unit senior affordable rental project is not expected to have a significant impact on traffic or transportation. The project is located in an improved area with sidewalks along the streets, has public transit service within ¼ mile, and will provide shuttle service for many of the residents' local transportation needs. Should you have any questions, please contact me as indicated above.

Sincerely,

JULIAN NG INCORPORATED



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

cc: Keith Kurahashi

† These include:
Institute of Transportation Engineers, *Transportation Impact Analyses for Site Development* (2005)
State of Hawaii, Department of Transportation, Highways Division, Planning Branch. *Best Practices for Traffic Impact Analysis Reports* (proposed in 2011, never adopted)

†† based on information received from City and County of Honolulu, Department of Transportation Services, Public Transit Division

††† www.thebus.org/AboutTheBus/TheBustFacts14_1.pdf shows a Weekday Ridership on TheBus of 229,400

APPENDIX 6

SEWER CONNECTION PERMIT

DEPARTMENT OF PLANNING AND PERMITTING

CITY AND COUNTY OF HONOLULU

650 SOUTH KING STREET * HONOLULU, HAWAII 96813
Phone: (808) 768-8209 * Fax: (808) 768-4210

SEWER CONNECTION APPLICATION

APPLICATION NO.: **2015/SCA-0010** STATUS: **Approved with conditions**

DATE RECEIVED: **01/07/2015** IWDP APP. NO.:

PROJECT NAME: **2015/SCA-0010 Tusitala Vista 2**

$419,059.20
Estimated Wastewater System Facility Charge*

LOCATION:

Zone	Section	Plat	Parcel
2	6	024	071

12,117 Sq. Ft.

Zone	Section	Plat	Parcel
2	6	024	070

23,644 Sq. Ft.

SPECIFIC LOCATION: **2423 and 2439 Ala Wai Blvd.**

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

DEVELOPMENT TYPE: **Dwelling, Multi-family**

SEWER CONNECTION WORK DESIRED:

OTHER USES:

NON-RESIDENTIAL AREA: s.f.

APPROXIMATE DATE OF CONNECTION: **01/05/2017**

PROPOSED UNITS	EXISTING UNITS	UNITS TO BE DEMOLISHED
No. of New Units: **96**	No. of Existing Units: **107**	No. of Units to be Demolished: **0**
Studios: **96**	Studios:	Studios:
1-Bedroom:	1-Bedroom:	1-Bedroom:
2-Bedroom:	2-Bedroom:	2-Bedroom:
3-Bedroom:	3-Bedroom:	3-Bedroom:
4-Bedroom:	4-Bedroom:	4-Bedroom:
5-Bedroom:	5-Bedroom:	5-Bedroom:
6-Bedroom:	6-Bedroom:	6-Bedroom:

REMARKS **The 6-inch offsite sewer segments on Tusitala Street (asset IDs: 437238 and 690650) shall be upgraded to 8-inch lines. The existing 27 units serviced by the holding tank facility may connect directly to the City sewers. Submit construction plans for review and approval.**

APPROVAL DATE: **01/08/2015**

EXPIRATION DATE: **01/07/2017**

Valid 2-years after approval date. Construction plans shall be completed and approved within this 2-year period. Construction shall commence within 1-year after approval of plans.
** Applicable WSFC shall be collected at the prevailing rate in accordance with ROH 1990, Chapter 14, Sections 14-10.3, 14-10.4, 14-10.5 and Appendix 14-D.*

REVIEWED BY: ***Tessa Ching***

Site Development Division, Wastewater Branch

ExternalID: **054202078-001** JobId: **54202078**

Initial Print Date: Thursday January 8, 2015 3:50 pm

APPENDIX 7

PHASE I ENVIRONMENTAL SITE ASSESSMENT

PHASE I
ENVIRONMENTAL SITE ASSESSMENT

TUSITALA VISTA
2423 & 2429 ALA WAI BOULEVARD
HONOLULU, HAWAII 96815

Prepared For:

TUSITALA VISTA L.P.
725 KAPIOLANI BOULEVARD, SUITE C103
Honolulu, Hawaii 96813

GESG PROJECT NUMBER: 3E005

January 29, 2004

Prepared By:

Global Environmental Services Group, LLC
P.O. Box 2254 • Honolulu, HI 96804-2254 • Phone: 808.843.0400/Fax: 808.843.0910

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1. EXECUTIVE SUMMARY

GESG has completed a Phase I Environmental Site Assessment (ESA) of 2423 and 2429 Ala Wai Boulevard, Honolulu, Hawaii. The assessment was performed in general accordance with the scope and limitations of the American Society for Testing and Materials (ASTM) Standard E 1527-00, to comply with the contract between GESG and Tusitala Vista L.P. dated December 15th, 2003. Any exceptions to or deletions from the ASTM E 1527-00 standard of practice are described in Section 2.3 of this report.

The subject site is located at 2423 and 2429 Ala Wai Blvd., Honolulu, Hawaii, and is approximately 35,761 square feet in size. The subject site is not improved and at the time of the site visit was grown in with 1-foot high grass and other vegetation. The vicinity of the subject site can generally be described as residential. Current usage of adjoining property includes the following.

The site north of the subject site is Ala Wai Boulevard and the Ala Wai canal. Immediately south of the subject site is Tusitala Street with the Waikiki Towne House high rise apartments across the street. Further south is numerous high and low rise apartment, condominium and hotel developments up to Waikiki Beach and the Pacific Ocean. To the west of the site is the Ala Wai Towne House High Rise Condominium with other high rise and low rise developments further west. East of the subject site is the Waikiki Bellevue apartments and the Dynasty Apartment Complex. Numerous apartment building developments exist further east.

Review of Sanborn Maps from 1927, the site shows what appears to be residential housing development consisting of seven separate structures. Through viewing aerial photographs, the subject site appears developed 1949. The site appears to be developed with these structures through the mid 1980's. Sometime between 1983 and 1988 all of the structures were removed from the subject site. The site has remained vacant since that time.

During the site reconnaissance nothing was noted on the site that appeared to be of an adverse environmental nature. It was noted that some household trash was deposited along Tusitala Street on the sidewalk immediately adjacent to the site (south).

The EDR database report identifies 2330 Kalakaua Ave., 2080 Kalakaua Ave., and 2002 Kalakaua Ave. as leaking underground storage tank sites (LUST). At this time there is no reason to believe that the surface and subsurface soil and groundwater at the site have been affected due to any of the regulatory listings. Currently, there are no outstanding issues with DOH or EPA for this site.

1.1 PHASE I ESA

In accordance with ASTM Standard E 1527-00, this Phase I Environmental Site Assessment included reconnaissance of the subject and adjoining properties, interviews, and review of historical records and regulatory databases in an effort to identify evidence of recognized environmental conditions that may impact the property.

This assessment has revealed no evidence of recognized environmental conditions in connection with the property.

1.2 RECOMMENDATIONS

Based on investigation of the property for evidence of recognized environmental conditions, GESG has no immediate recommendations for further assessment or investigations. During construction it is recommended that any subsurface soil excavation be monitored for any abnormal objects or substances.

This summary does not contain all the information that is found in the full report. The report should be read in its entirety to obtain a more complete understanding of the information provided, and to aid in any decisions made or actions taken based on this information.

2. INTRODUCTION

2.1 PURPOSE AND SCOPE

This Phase I Environmental Site Assessment (ESA) was performed to search for evidence of recognized environmental conditions that may have an adverse environmental impact upon the property. The assessment included records review, interviews and reconnaissance to evaluate whether such conditions exist in connection with the property. The protocol utilized for this Phase I ESA was in general accordance with the requirements of ASTM Standard E 1527-00 as specified in the assessment contract. This report includes documentation to support the analysis, opinions and conclusions as presented. Authorization to perform this assessment was given on December 15th, 2003 by a signed copy of GESG Proposal Number 3085, between Tusitala Vista L.P. and GESG.

2.2 METHODOLOGY AND EXCEPTIONS

Instructions as to the location of the property, access, and an explanation of the property and facilities to be assessed were provided by Gary Furuta of Tusitala Vista L.P. Interviews were conducted with various persons as noted in the following table. Pertinent information reported by the interviewed parties is discussed in appropriate sections of the report.

NAME	FUNCTION	EMPLOYER	DATE	CONTACT
Gary Furuta	Client Representative	Tusitala Vista L.P.	12/15/03	(808) 529-7300
Edgar Gamiao	Aerial photography contact	RM Towill Corporation	12/19/02	In person
Hanako Hata	Client Representative	Starts, Inc.	12/30/03	email
Receptionist (No records)	DOH Solid & Hazardous Waste	Department of Health, Solid and Hazardous Waste Branch	12/30/02	(808) 586-4228

Ground reconnaissance was conducted on January 8, 2004 by Michael Polkinghorn of GESG. The ground reconnaissance consisted of observing the periphery of the property and viewing the site from accessible adjacent public thoroughfares. Interior portions of the property were systematically traversed to provide an overlapping field of view, wherever possible. Visual reconnaissance of adjoining properties was limited to areas and facilities that were readily observable from the subject property or from public access areas. Photographs were taken to document the features observed during the reconnaissance and environmental conditions of concern, where possible. A photographic log and copies of the photographs are included in Appendix C.

EDR database information was reviewed to help identify evidence of recognized environmental conditions in connection with the property.

A history of the previous uses of the property, and properties in the surrounding area to the extent that this information was revealed in the course of researching the subject property, was developed consistent with practices specified in ASTM Standard E 1527-00 § 7.3. From the standard historical sources specified in the ASTM practice, GESG reviewed: aerial photographs from 1949, 1964, 1970, 1978, 1983, 1988, 1993, and1999 from R.M. Towill Corporation; Sanborn Maps from: 1927, 1949, 1956, 1975, 1977, 1991, and 1993; the United States Geological Survey (USGS) 7.5 minute topographic map titled Honolulu, Hawaii, dated 1998; property tax files for 1933 - 2002 obtained at the City and County Offices of Honolulu; chain of recorded land title records for 1938 - 2002 obtained at the City and County Offices of Honolulu; building department records for 1984 - 2002 obtained at the City and County Offices of Honolulu; and zoning/land use records for 1933 - 2001 obtained at the City and County Offices of Honolulu.

The first obvious developed use of the property identified in this assessment was in or around 1927. Historical information sources researched in this assessment allowed uses of the property to be traced from the present back to 1927. This does not constitute historical failure per ASTM Standard E 1527-00 § 7.3.2.

2.3 LIMITATIONS OF ASSESSMENT

Along with all of the limitations set forth in various sections of the ASTM Standard E 1527-00 protocol, the accuracy and completeness of this report is necessarily limited by the following:

- Access Limitations - None.
- Physical Obstructions to Observations - None.
- Outstanding Information Requests - None.
- Historical Data Source Failure - The historical research performed for the purposes of this Phase I ESA provided information dating back to 1951. This does not meet the ASTM minimum research standard of 1940 and constitutes historical data failure.

This report was prepared in accordance with the contract GESG has with Tusitala Vista L.P. Reliance or any use of this report by anyone other than Tusitala Vista L.P. and HCDCH, for whom it was prepared, is prohibited. Reliance or use by any such third party without explicit authorization does not make said third party a third party beneficiary to GESG's contract with Tusitala Vista L.P. Any such unauthorized reliance on or use of this report, including any of its information or conclusions, will be at the third party's risk. For the same reasons, no warranties or representations, expressed or implied in this report, are made to any such third party.

3. PROPERTY DESCRIPTION AND PHYSICAL SETTING

3.1 LOCATION AND DESCRIPTION

The subject site is located at 2423 and 2429 Ala Wai Blvd. Honolulu, Hawaii, on the island of Oahu. The tax map key for the site is TMK 2-6-24-70 &71. The subject site is located in Waikiki immediately to the south of the Ala Wai Canal. The subject site is located in a mixed setting. The neighborhood is developed predominantly with residential high-rise and low-rise apartment buildings.

The subject site footprint is approximately 35,761 square feet and is undeveloped. Utility systems identified at the property, as specified in ASTM Standard E 1527-00 § 8.4.1 and § 8.4.3 are as follows: Electricity is provided by Hawaiian Company Electric Company. Storm Water, Sewage Disposal, and Potable water at the property is provided through the City and County of Honolulu.

A scaled site plan or survey plat showing boundaries of the site was not provided for our use in the form of a previous Phase I ESA report prepared for the subject site. The subject property's location and site plan are provided in Appendix A. Photographs showing prominent features of the site and adjacent properties are provided in Appendix C.

3.2 CURRENT USES OF THE PROPERTY

The subject site is currently vacant and serving no immediate purposes. The User should refer to Section 6 of this report for additional site reconnaissance details.

3.3 CURRENT USES OF ADJOINING PROPERTIES

To the extent that indications of current and past uses of adjoining properties were identified through reconnaissance observation, interviews, records review or through client provided information, they are described below. Locations of adjoining properties discussed can be found on the site vicinity sketch in Appendix A.

3.4 PHYSICAL SETTING

TOPOGRAPHIC MAP REVIEW

A current United States Geological Survey (USGS) 7.5 minute topographic map (or equivalent) showing the area where the property is located was obtained and reviewed as specified in ASTM Standard E 1527-00 § 7.2.3. The 1998 USGS Honolulu, Hawaii quadrangle map was reviewed. According to the contour lines on the topographic map, the property is located approximately 5 feet above mean sea level. The contour lines in the area of the property indicate the area slopes downward towards the south in the direction of the ocean, which is located approximately a quarter mile away south. No water bodies are evident on the property. The property does not appear on the map as developed.

GEOLOGY AND HYDROGEOLOGY

The soils beneath the subject site are classified as Fill Land Mixed. It consists mainly of material dredged from the ocean or hauled from nearby areas, garbage, and general material from other sources. This type of land is used for urban development including airports, housing areas, and industrial facilities.

According to the results of a regional investigation by Mink and Lau in 1990, the local cap rock and the basal aquifer are located within the Palolo Aquifer System of the Honolulu Aquifer Sector. The aquifer is described as being basal, confined/unconfined, and flank (horizontally extensive lavas)/sedimentary (nonvolcanic) aquifer that has fresh (<250 mg/l chlorides) to brackish (<5,000 mg/l), is of ecological importance as a fresh water source, and has a high to low vulnerability to contamination.

No site-specific information concerning hydrogeology, depth to groundwater, and direction of groundwater flow was obtained for this site, however, based on surface topography, it is assumed that groundwater flows in the direction of decreasing land elevation, towards the south. No data was available for neighboring facilities depth to groundwater at approximately; therefore it is difficult to estimate depth for the subject site.

4. Historical Review

4.1 Aerial Photographs

To the extent that indications of past uses of the property were identified through historical aerial photograph review, they are identified below.

Year	Property Usage
1949	The subject site appears to be developed with residential dwellings.
1964	The subject site appears to be developed with residential dwellings. The adjacent site west appears to be developed with an apartment complex.
1970	The subject site appears to be developed with residential dwellings. Numerous high rise and low rise developments noted throughout the area.
1978	The subject site appears to be developed with residential dwellings.
1983	The subject site has residential dwellings on the north half. The south half has had the dwellings removed.
1988	The subject site has residential dwellings on the north side removed (site vacant).
1993	The subject site appears to have no developments on it.
1999	The subject site appears be undeveloped.

The historical aerial photographic information developed and reviewed for the subject property revealed no evidence of recognized environmental conditions.

4.2 Fire Insurance Maps

Sanborn Fire Insurance Maps were reviewed to assist in determining the previous site usage.

Year	Property Usage
1927	Eleven separate residential structures appear to be present on the site. Tusitala Street is Named Cleghorn Drive #1.
1949	Eleven separate residential structures appear to be present on the site. Tusitala Street appears as Tusitala Street.
1956	Eleven separate residential structures and one apartment building appear to be present on the site.
1975	Eleven separate residential structures and one apartment building appear to be present on the site. Ala Wai Town House is present adjacent to the NW. Dynasty Apts. Appear adjacent to the SE and the Waikiki Bellevue adjacent to the NE.
1977	Eleven separate residential structures and one apartment building appear to be present on the site.
1991	The subject site appears to have no developments on it.
1993	The subject site is vacant.

The historical Sanborn Map information developed and reviewed for the subject property revealed no evidence of recognized environmental conditions.

4.3 Prior Ownership

The site has been owned by numerous families and Trusts up to around 1987 when Starts International acquired the property.

4.4 Local Agency Contacts

The Honolulu Fire Department was contacted on January 5th, 2004 to obtain information regarding complaints, permits, violations, or other pertinent records for the subject site and adjacent properties. No records are on file regarding any recognized environmental conditions for the subject site or adjacent properties.

According to the DOH Hazard Evaluation and Emergency Response (HEER) office, there are no records on file for the subject property.

Hawaiian Electric Company was contacted pertaining transformers in the area. Six pole mounted transformers adjacent to the subject site are all non PCB containing.

4.5 Previous Reports

HIES Performed a Phase I ESA of the subject site in January of 1999. A Copy of the Covers, Table of Contents, and Executive Summary was forwarded to us prior to conducting the investigation. The Executive Summary indicates no recognized environmental conditions associated with the subject site or adjacent properties.

4.6 Historical Summary

The historical information provided in this section has established the use of the site since 1927. The site has remained residential since through the late 1980's. Since the late 1980's the site has been an undeveloped vacant lot. The surrounding area has remained residential since the 1920's. Multi-family residences (low rise apartments) began developing in the 1950's with high-rise development commencing in the late 1960's.

The historical information developed and reviewed for adjoining properties revealed no evidence of recognized environmental conditions in connection with the subject property. The User should refer to Section 6 of this report for additional site reconnaissance information on the current use of adjoining property.

5. ENVIRONMENTAL REGULATORY RECORDS REVIEW

5.1 STANDARD FEDERAL AND STATE ENVIRONMENTAL RECORD SOURCES

A search of available environmental records was conducted by Environmental Data Resources, Inc. (EDR). The report meets the government records search requirements (RSR) of ASTM Standard Practice for Environmental Site Assessments, E 1527-00. Detailed information for sites identified within the RSR's is provided following the table, along with an opinion about the significance of the listing to the analysis of recognized environmental conditions in connection with the subject property. Copies of the EDR research data and a description of the databases are included in Appendix B of this report.

STANDARD FEDERAL & STATE ENVIRONMENTAL DATABASE RECORD SUMMARY					
DATABASE RECORD	RSR (MILES)	TOTAL SITES FOUND	ON ADJ PROP	ON SUBJ PROP	DATA SOURCE
Federal NPL List	1	0	0	0	EDR
Federal CERCLIS List	0.5	0	0	0	EDR
Federal RCRA CORRACTS TSD Facilities List	1	0	0	0	EDR
Federal RCRA Non-CORRACTS TSD Facilities List	0.5	1	1	0	EDR
Federal RCRA Generators List	ADJ	0	0	0	EDR
Federal ERNS List	SITE	0	0	0	EDR
State-Equivalent NPL List	1	0	0	0	EDR
State-Equivalent CERCLIS List	0.5	0	0	0	EDR
State Landfill and/or Solid Waste Disposal Site List	0.5	1	1	0	EDR
State Leaking UST List	0.5	12	0	0	EDR
State Registered UST List	ADJ	7	0	0	EDR

5.2 DISCUSSION OF DATABASE FINDINGS

A total of 19 sites were identified within the RSR's. None of the listed sites pose an immediate environmental concern to subject site. The sites listed are not expected to present an environmental concern to the subject site due to their distance from the subject site or topographic location being downgradient/crossgradient.

A total of 20 unmappable sites are listed in the EDR report. These sites could not be plotted with confidence due to inaccurate or missing information in the environmental database provided by the applicable agency. These sites have been cross referenced by name and address and have been visually verified to not to be within the immediate area of the subject site. None of the unmappable sites pose any potential impact to the subject site at this time.

6. RECONNAISSANCE FINDINGS

6.1 PROPERTY RECONNAISSANCE FINDINGS

A summary of uses and conditions consistent with ASTM Standard E 1527-00 § 8.4 indicating the likelihood of recognized environmental conditions in connection with the property is provided below. For each of the uses or conditions identified on the property, detailed information is discussed following the summary along with an opinion about the significance of the listing to the analysis of recognized environmental conditions in connection with the subject property.

IDENTIFIED YES	NO	
☐	☒	Hazardous Substances In Connection With Property Use
☐	☒	Petroleum Products In Connection With Property Use
☐	☒	Aboveground or Underground Storage Tanks (ASTs/USTs)
☐	☒	Suspect Containers Not In Connection With Property Use
☐	☒	Electrical or Mechanical Equipment Likely To Contain PCBs
☐	☒	Dry Cleaning Operations
☐	☒	Agricultural Use (Pesticides/Herbicides)
☐	☒	Interior Stains or Corrosion
☐	☒	Drains or Sumps
☐	☒	Air Emissions
☐	☒	Wastewater Discharges
☐	☒	Septic or Sewage Tanks
☐	☒	Pits, Ponds or Lagoons
☐	☒	Pools of Liquid or Standing Water
☐	☒	Solid Waste Dumping, Landfills or Suspect Fill Material
☐	☒	Stained Soil or Pavement
☐	☒	Stressed Vegetation
☐	☒	Wells
☐	☒	Odors
☒	☐	Other Uses or Conditions of Concern

OTHER USES OR CONDITIONS OF CONCERN

During the site visit it was noted that household trash items were abandoned outside of the property on the side walk along Tusitala Street. These items included a television set, a computer monitor, and other household furniture. These items are not currently regulated for disposal however additional resources may be required to remove and dispose of them.

6.2 ADJOINING PROPERTY RECONNAISSANCE FINDINGS

A summary of uses and conditions identified on adjoining properties consistent with ASTM Standard E 1527-00 § 8.4 indicating the likelihood of recognized environmental conditions in connection with the subject property is provided below. For each of the uses or conditions identified on adjoining properties, detailed information is discussed following the summary along with an opinion about the significance of the listing to the analysis of recognized environmental conditions in connection with the subject property.

IDENTIFIED YES	IDENTIFIED NO	
☐	☒	Hazardous Substances In Connection With Property Use
☐	☒	Petroleum Products In Connection With Property Use
☐	☒	Aboveground or Underground Storage Tanks (ASTs/USTs)
☐	☒	Suspect Containers Not In Connection With Property Use
☐	☒	Electrical or Mechanical Equipment Likely To Contain PCBs
☐	☒	Dry Cleaning Operations
☐	☒	Agricultural Use (Pesticides/Herbicides)
☐	☒	Interior Stains or Corrosion
☐	☒	Drains or Sumps
☐	☒	Air Emissions
☐	☒	Wastewater Discharges
☐	☒	Septic or Sewage Tanks
☐	☒	Pits, Ponds or Lagoons
☐	☒	Pools of Liquid or Standing Water
☐	☒	Solid Waste Dumping, Landfills or Suspect Fill Material
☐	☒	Stained Soil or Pavement
☐	☒	Stressed Vegetation
☐	☒	Wells
☐	☒	Odors
☐	☒	Other Uses or Conditions of Concern

No recognized environmental conditions were discovered in association with the adjoining properties.

7. SUMMARY AND CONCLUSIONS

7.1 PHASE I ENVIRONMENTAL SITE ASSESSMENT

GESG has performed a Phase I Environmental Site Assessment in general conformance with the scope and limitations of the ASTM Standard E 1527-00 protocol of 2423/2429 Ala Wai Blvd. Honolulu, Hawaii. Exceptions to or deletions from this protocol are discussed earlier in this report.

This assessment has revealed no evidence of recognized environmental conditions as defined by ASTM, in connection with the property.

7.2 RECOMMENDATIONS

Based on investigation of the property for evidence of recognized environmental conditions, GESG has no further recommendations for further assessment at the site at this time.

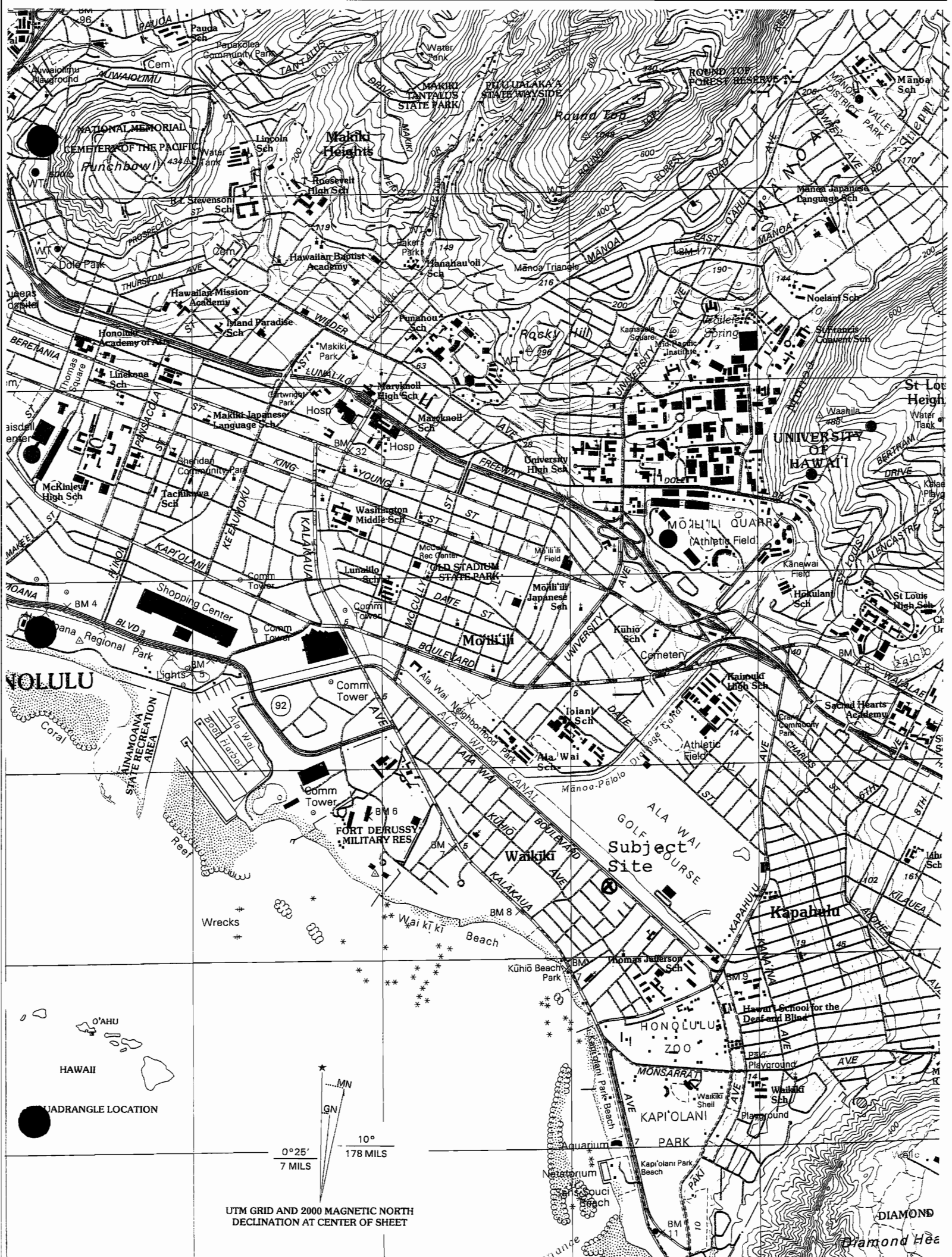
8. WARRANTY

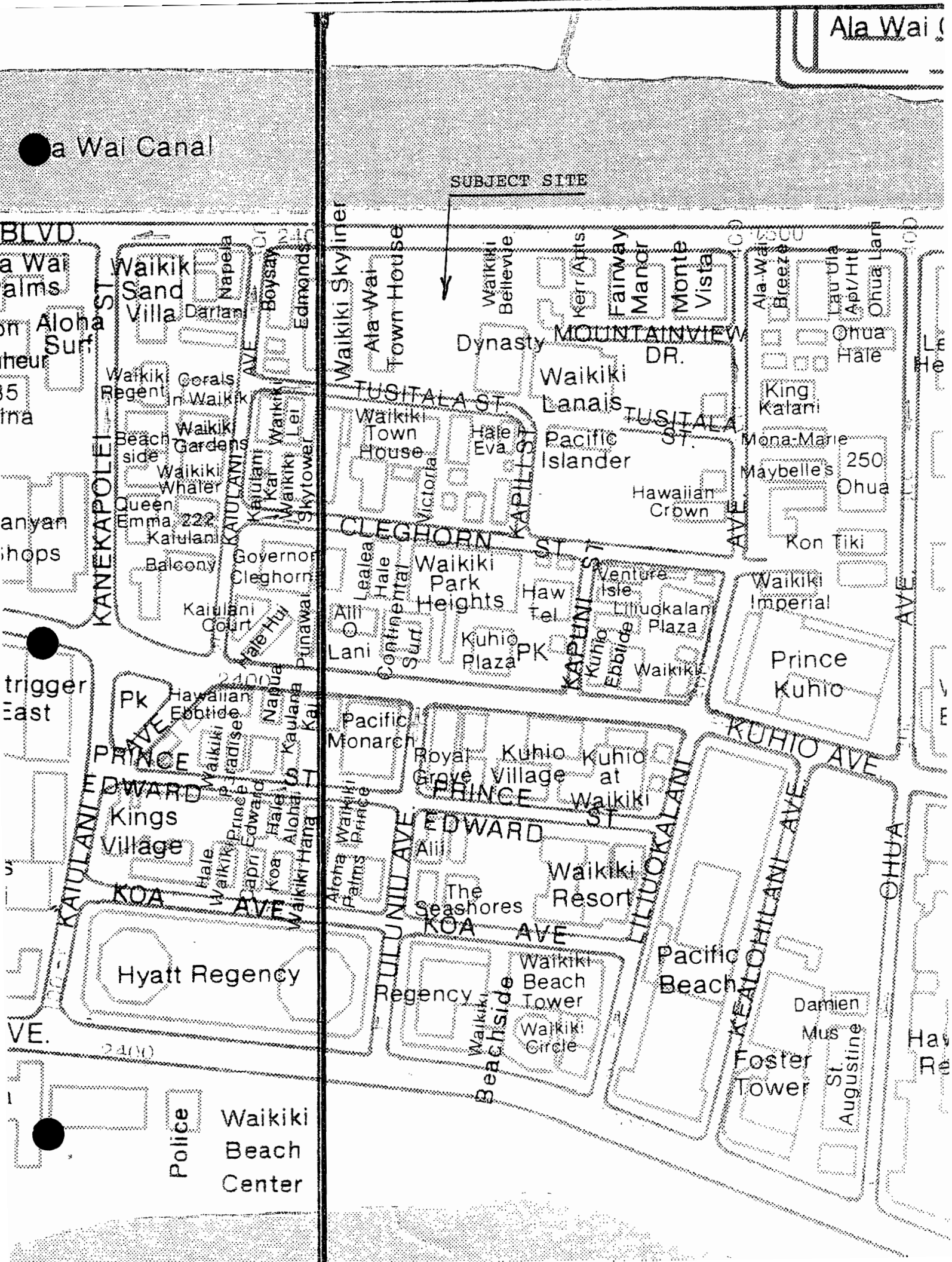
GESG warrants that the findings and conclusions contained herein were accomplished in accordance with the methodologies set forth in the ASTM Standard E 1527-00 protocol. These methodologies are described by the standard as representing good commercial and customary practice for conducting an Environmental Site Assessment of a parcel of property for the purpose of identifying recognized environmental conditions.

These findings and conclusions contain limitations inherent in these methodologies which are referred to in the protocol. There is a possibility that even with proper application of these methodologies, conditions may exist on the property that could not be identified within the scope of the assessment or that were not reasonably identifiable from the available information.

GESG believes that the information obtained from the records review and the interviews concerning the property is reliable. GESG does not warrant or guarantee that the information provided by these sources is accurate or complete. The methodologies of this assessment are not intended to produce all inclusive or comprehensive results. They are intended to provide the client with information regarding apparent suspicions of existing and potential adverse environmental conditions relating to the subject property.

APPENDIX A - MAPS AND SKETCHES


Subject Site
HAWAII
O'AHU
QUADRANGLE LOCATION
MN
GN
0°25'
7 MILS
10°
178 MILS
UTM GRID AND 2000 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET
Punchbowl
Makiki Heights
Round Top
Rocky Hill
Mānoa Valley
Waikīkī
Kapahulu
Mōʻiliʻili
Kapiʻolani Park
Diamond Head
Ala Wai Canal
Ala Wai Golf Course
Waikīkī Beach
Fort DeRussy Military Res
Kūhiō Beach Park
Ala Wai Boat Harbor
Ala Wai Neighborhood Park
Kapiʻolani Park Beach
Waikīkī Shell
Honolulu Zoo
Athletic Field
Mōʻiliʻili Quarry
Old Stadium State Park
Punahou Sch
Lunalilo Sch
Washington Middle Sch
McKinley High Sch
Roosevelt High Sch
Lincoln Sch
Maryknoll High Sch
Maryknoll Sch
Makiki Japanese Language Sch
Mānoa Japanese Language Sch
University High Sch
Hawaiian Mission Academy
Hawaiian Baptist Academy
Island Paradise Sch
Linekona Sch
Tachikawa Sch
Mōʻiliʻili Japanese Sch
Kaimukī High Sch
Iolani Sch
Ala Wai Sch
Thomas Jefferson Sch
Hawaii School for the Deaf and Blind
Waikīkī Sch
Kūhiō Sch
Hokulani Sch
St Louis High Sch
Sacred Hearts Academy
Noelani Sch
St Francis Convent Sch
Mid-Pacific Institute
Kamanaka Square
Kānewai Field
Mōʻiliʻili Field
Athletic Field
Cemetery
Shopping Center
Ala Moana Regional Park
McCully Rec Center
Sheridan Community Park
Dole Park
Thomas Square
Cartwright Park
Makiki Park
Baker's Park
Manoa Triangle
Kapiʻolani Park
Aquarium
Natatorium
Sans Souci Beach
Kaimuki Park Playground
Waikīkī Park Playground
Kuilei Spring
Water Tank
Comm Tower
Lights
Reef
Wrecks
Coral
Hosp
Cem
Pauoa Sch
Pepakolea Community Park
Kuwaiolimu Playground
Manoa Sch
Waahila
UNIVERSITY OF HAWAII
ROUND TOP FOREST RESERVE
MAKIKI TANTALUS STATE PARK
PUU UALAKAA STATE WAYSIDE
NATIONAL MEMORIAL CEMETERY OF THE PACIFIC
Manoa Valley District Park
Kilauea Ave
Kapahulu Ave
Monsarrat Ave
Kalakaua Ave
Kuhio Boulevard
Ala Wai Boulevard
Kapiolani Blvd
King St
Beretania St
Wilder Ave
Punahou St
Lunalilo St
Young St
Date St
McCully St
University Ave
Manoa Rd
Round Top Drive
Makiki St
Pensacola St
Keeaumoku St
Piikoi St
Freeway
Manoa-Palolo Drainage Canal
Ala Wai Canal



Ala Wai Canal
SUBJECT SITE
Ala Wai
BLVD.
Waikiki Sand Villa
Napela
Darlani
Boysay
Edmonds
Waikiki Skyliner
Ala Wai Town House
Waikiki Bellevue
Kerr Apts
Fairway Manor
Monte Vista
Ala Wai Breeze
Lau Ula Apt/Htl
Ohua Lani
Aloha Surf
Dynasty
MOUNTAINVIEW DR.
Ohua Hale
Waikiki Regent
Corals in Waikiki
TUSITALA ST.
Waikiki Lanais
King Kalani
Waikiki Town House
Hale Eva
Pacific Islander
Mona-Marie
Maybelle's
250 Ohua
Beach side
Waikiki Gardens
Waikiki Whaler
Queen Emma 222
Kaiulani
Kaiulani Kai
Waikiki Lei
Waikiki Skytower
Victoria
KAPILI ST.
Hawaiian Crown
KANEKAPOLEI ST.
CLEGHORN ST.
Kon Tiki
Balcony
Governor Cleghorn
Lealea
Hale
Waikiki Park Heights
Haw Tel
Venture Isle
Waikiki Imperial
Kaiulani Court
Hale Hui
Punawai
Alii O Lani
Continental Surf
Kuhio Plaza
PK
KAPUNI ST.
Kuhio Ebbtide
Liliuokalani Plaza
Waikiki
Prince Kuhio
Pk
Hawaiian Ebbtide
Napua
Kaulana Kai
Pacific Monarch
KUHIO AVE
PRINCE EDWARD ST.
Royal Grove
Kuhio Village
Kuhio at Waikiki
Kings Village
Prince Edward
Hale Aloha
Waikiki Prince
Alii
Waikiki Resort
Hale Waikiki
Capri
Koa
Waikiki Hana
Aloha Palms
The Seashores
KOA AVE
LILIUOKALANI AVE
KEALOHILANI AVE
OHUA
Hyatt Regency
Regency
Waikiki Beach Tower
Waikiki Beachside
Waikiki Circle
Pacific Beach
Damien
Mus
Foster Tower
St. Augustine
Police
Waikiki Beach Center

APPENDIX B - REGULATORY SEARCH REPORTS

Environmental Data Resources, Inc.

"Linking Technology with Tradition"

Sanborn® Map Report

Ship To: Mike Polkinghorn
Global Env. Svcs. Group
105 Puuhale Road
Honolulu, HI 96819

Order Date: 12/19/2003 **Completion Date:** 12/22/2003
Inquiry #: 1102348.3S
P.O. #: 3e005
Site Name: Tusital Vista
Address: 2423 ALA WAI BLVD
City/State: Honolulu, HI 96813
Cross Streets:

Customer Project: 3e005
8014928MER 808-843-0400

Based on client-supplied information, fire insurance maps for the following years were identified

1927 - 1 Map
1949 - 1 Map
1956 - 1 Map
1975 - 1 Map
1977 - 1 Map
1991 - 1 Map
1993 - 1 Map

Limited Permission to Photocopy Total Maps: 7

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Electronic Sanborn Map Images
USER'S GUIDE

Thank you for your interest in electronic Sanborn Map images. The following are guidelines for accessing the images and for transferring them to your system. If you have any questions about the use of electronic Sanborn Map images, contact your EDR Account Executive at 1-800-352-0050.

Organization of Electronic Sanborn Image File

- First Page — Sanborn Map Report, listing years of coverage
- Second Page — Electronic Sanborn Map Images USER'S GUIDE
- Third Page — Oldest Sanborn Map Image
- Last Page — Most recent Sanborn Map Image

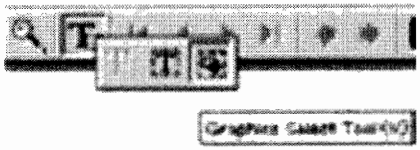
Navigating the Electronic Sanborn Image File

- Open file on screen.
- Identify TP (Target Property) on the most recent map.
- Find TP on older printed images.
- Using Acrobat, zoom to 250% in order to view more clearly.
  - 200-250% is the approximate equivalent scale of hardcopy Sanborn Maps.
- Zooming in on an image:
  - On the menu bar, click "View" and then zoom.
  - Use the magnifying tool and drag a box around the TP area.

Printing a Sanborn Map from the Electronic File

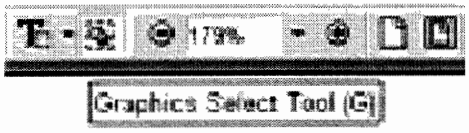
- EDR recommends printing all images at 300 dpi (300 dpi prints faster than 600 dpi).
- To print only the TP area, cut and paste the area from Adobe Acrobat to your word processor.

Acrobat Version 4



- Go to the Menu bar
- Press and hold the "T" button
- Choose the Graphics Select Tool
- Draw a box around the area selected
- Go to "Menu"
- Hightlight "Edit"
- Hightlight "Copy"
- Go to a word processor such as Microsoft Word, paste and print.

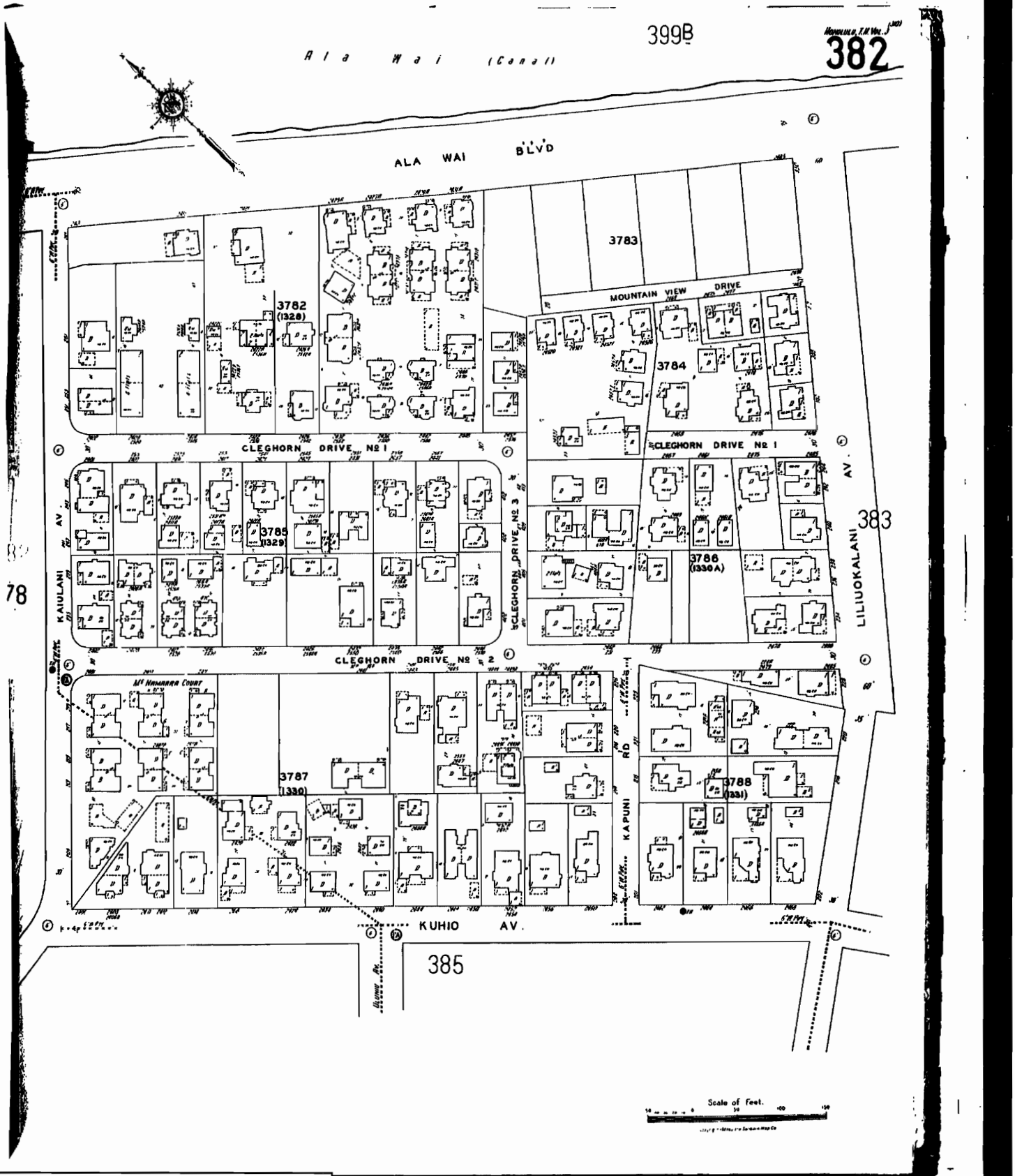
Acrobat Version 5



- Go to the Menu bar
- Click the "Graphics Select Tool"
- Draw a box around the area selected
- Go to "Menu"
- Highlight "Edit"
- Highlight "Copy"
- Go to a word processor such as Microsoft Word, paste and print.

Important Information about Email Delivery of Electronic

- Images are grouped intro one file, up to 2MB.
- In cases where in excess of 6-7 map years are available, the file size typically exceeds 2MB. In these cases, you will receive multiple files, labeled as 1 of 3, 2 of 3, etc. including all available map years.
- Due to file size limitations, certain ISPs, including AOL, may occasionally delay or decline to deliver files. Please contact your ISP to identify their specific file size limitations.



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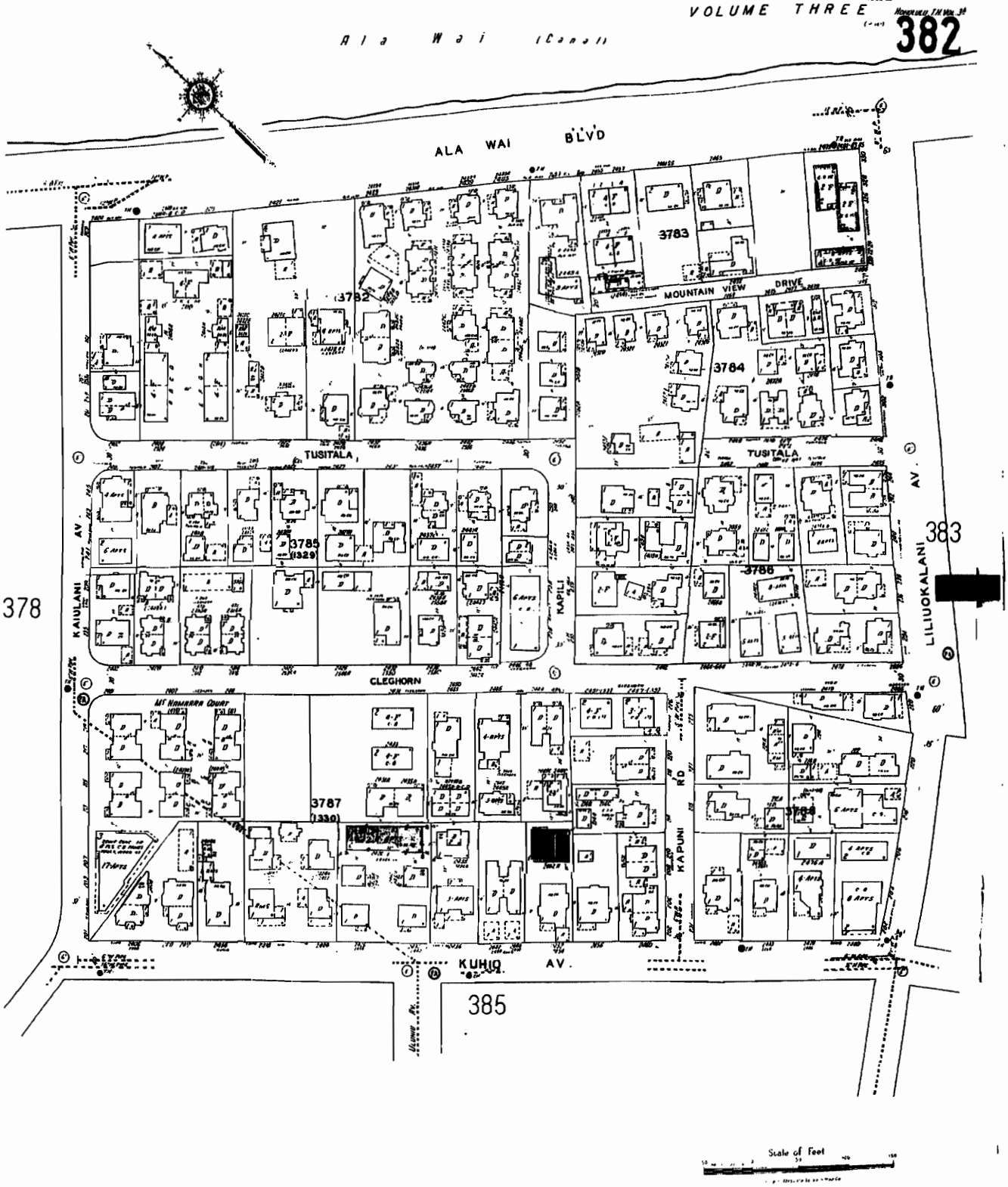

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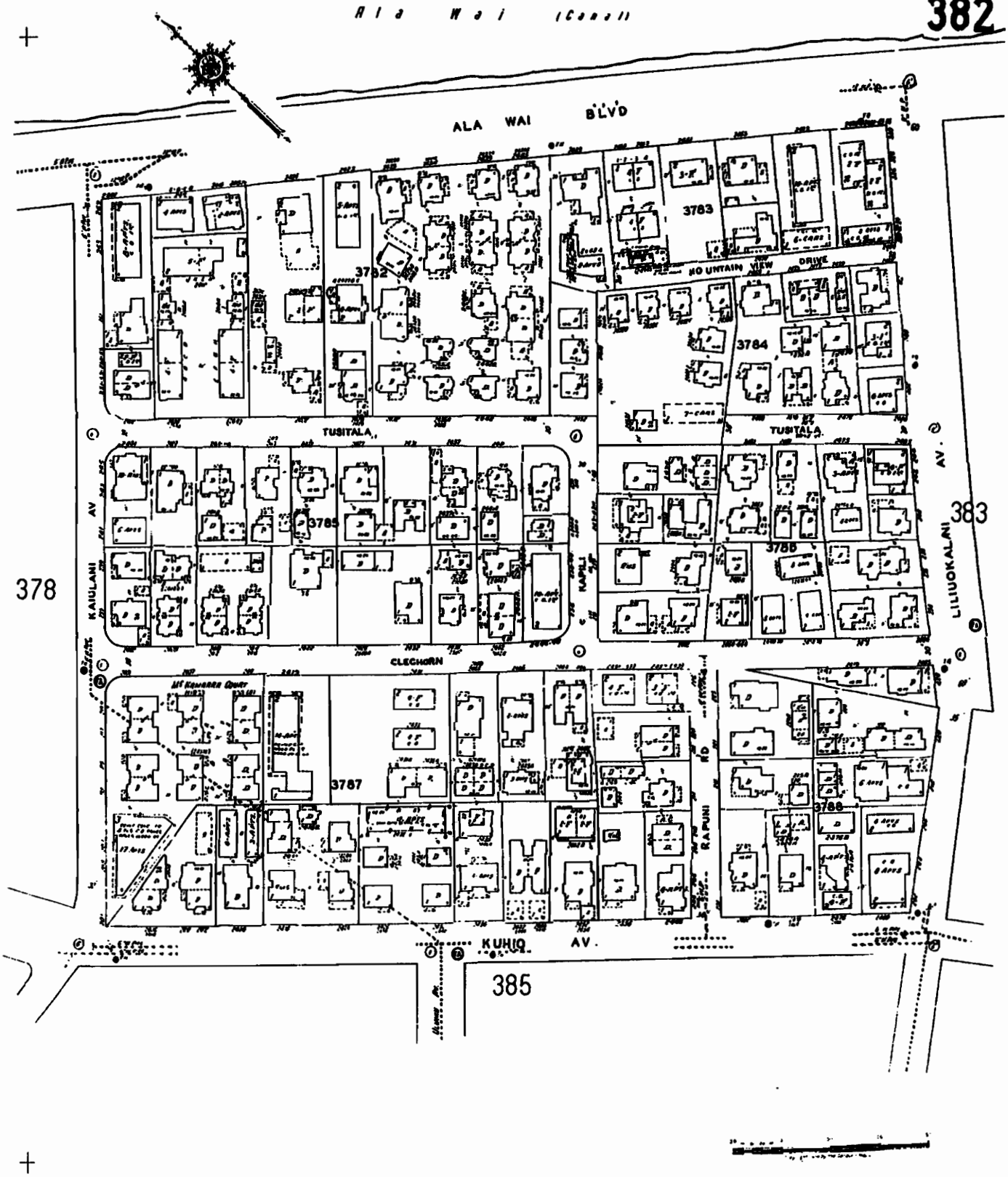

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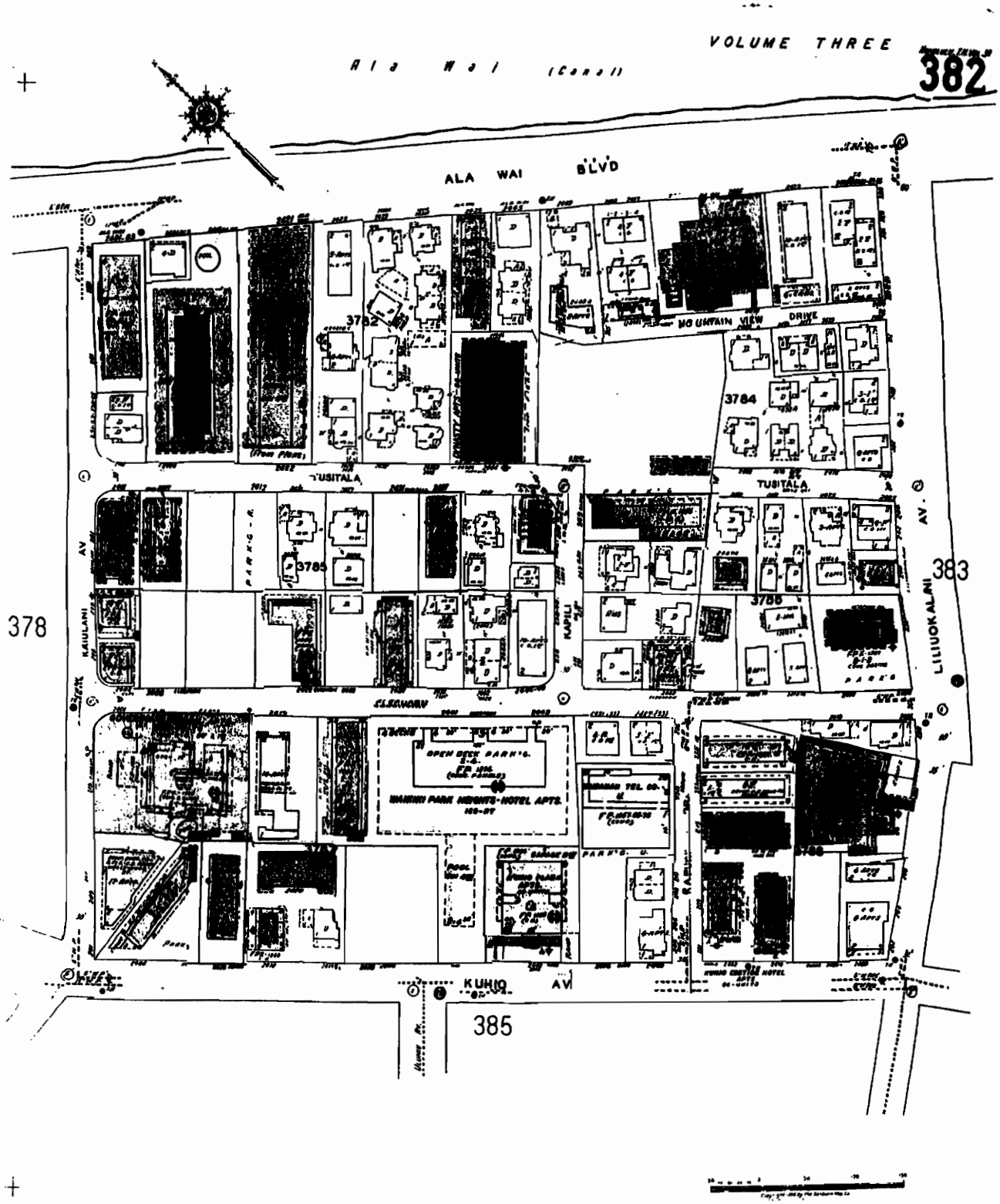

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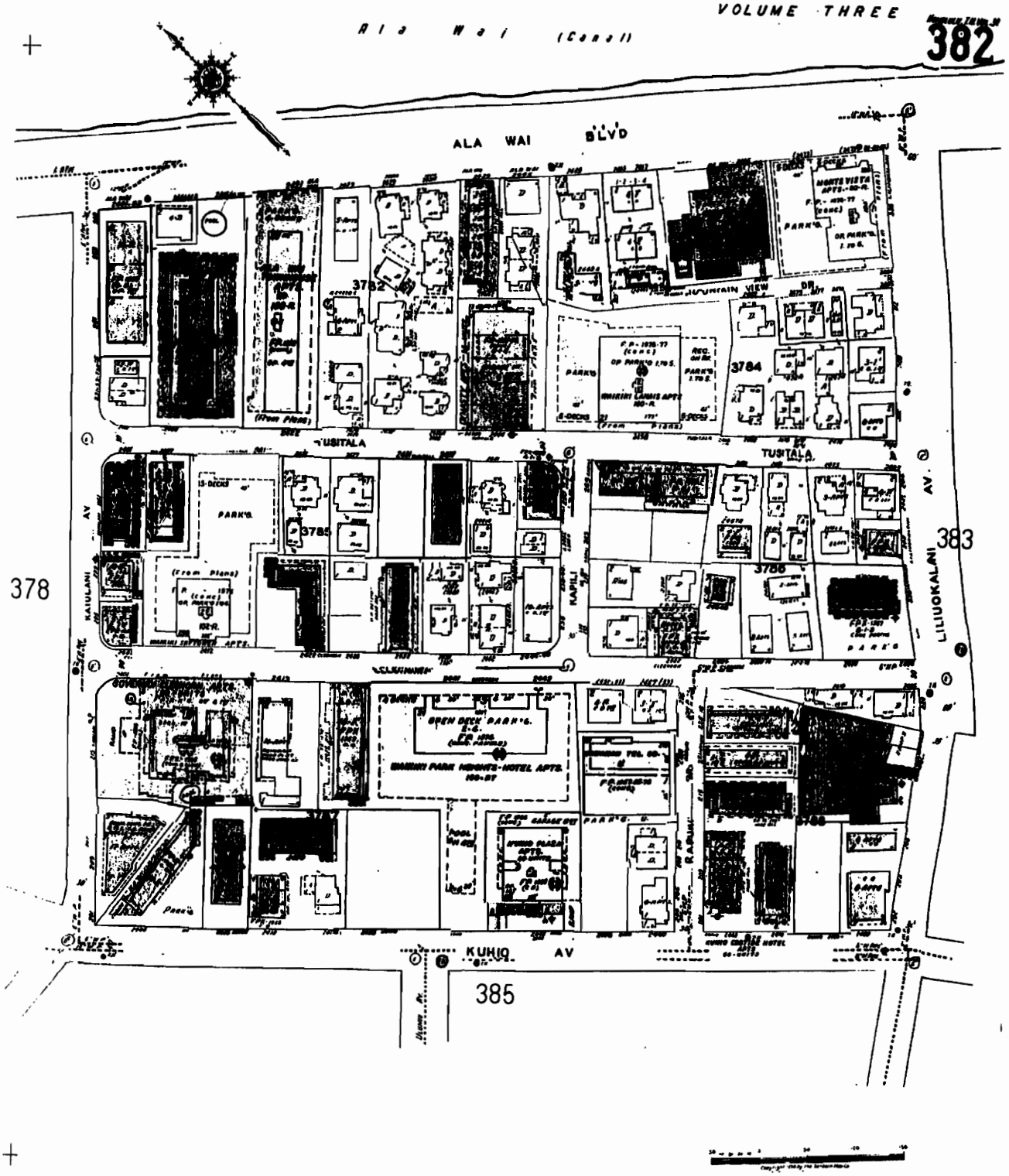

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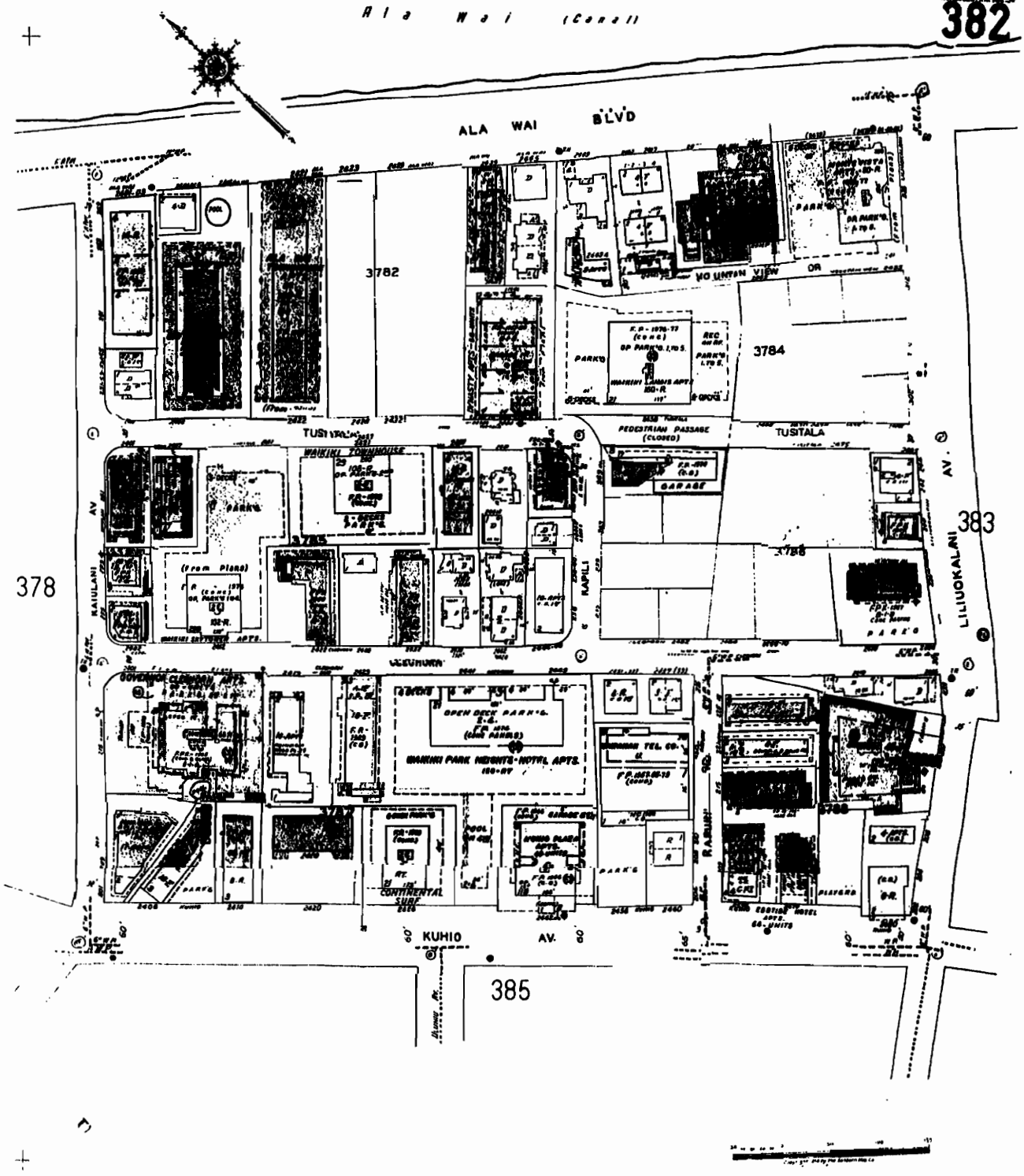

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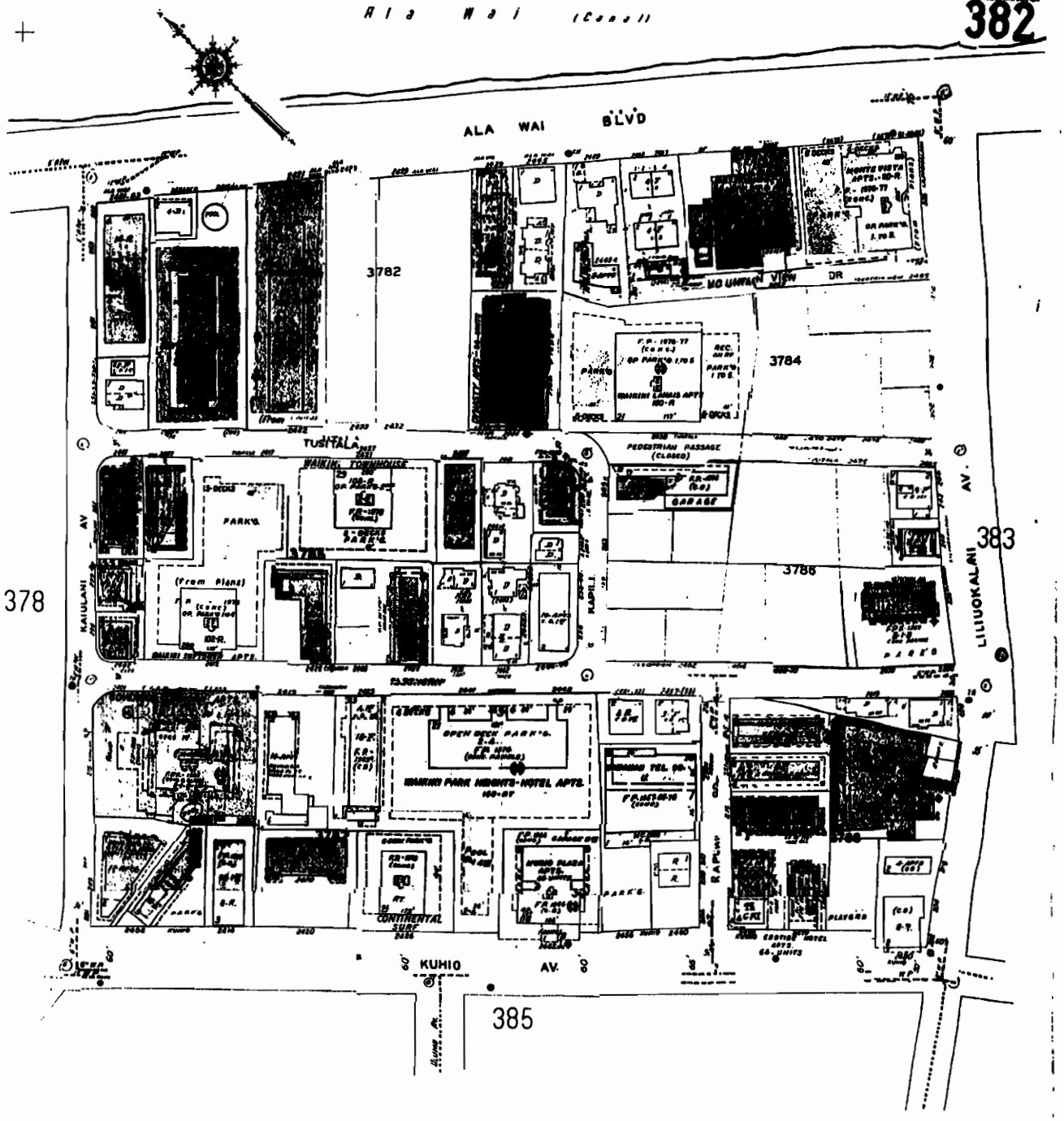

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The EDR Radius Map
with GeoCheck®

Tusitala Vista
2423/2429 Ala Wai Blvd
Honolulu, HI 96813

Inquiry Number: 01102348.2r

December 19, 2003

Environmental Data Resources, Inc.

***The* Source For Environmental Risk Management Data**

3530 Post Road
Southport, Connecticut 06890

Nationwide Customer Service

Telephone: 1-800-352-0050
Fax: 1-800-231-6802
Internet: www.edrnet.com

FORM-MER

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EXECUTIVE SUMMARY

A search of available environmental records was conducted by Environmental Data Resources, Inc. (EDR). The report meets the government records search requirements of ASTM Standard Practice for Environmental Site Assessments, E 1527-00. Search distances are per ASTM standard or custom distances requested by the user.

TARGET PROPERTY INFORMATION

ADDRESS

2423/2429 ALA WAI BLVD
HONOLULU, HI 96813

COORDINATES

Latitude (North):	21.278100 - 21° 16' 41.2"
Longitude (West):	157.822100 - 157° 49' 19.6"
Universal Tranverse Mercator:	Zone 4
UTM X (Meters):	622197.9
UTM Y (Meters):	2353243.5
Elevation:	3 ft. above sea level

USGS TOPOGRAPHIC MAP ASSOCIATED WITH TARGET PROPERTY

Target Property:	21157-C7 HONOLULU, HI
Source:	USGS 7.5 min quad index

TARGET PROPERTY SEARCH RESULTS

The target property was not listed in any of the databases searched by EDR.

DATABASES WITH NO MAPPED SITES

No mapped sites were found in EDR's search of available ("reasonably ascertainable ") government records either on the target property or within the ASTM E 1527-00 search radius around the target property for the following databases:

FEDERAL ASTM STANDARD

NPL ---------- National Priority List
Proposed NPL ---------- Proposed National Priority List Sites
CERCLIS ---------- Comprehensive Environmental Response, Compensation, and Liability Information System
CERC-NFRAP ---------- CERCLIS No Further Remedial Action Planned
CORRACTS ---------- Corrective Action Report
RCRIS-TSD ---------- Resource Conservation and Recovery Information System
ERNS ---------- Emergency Response Notification System

STATE ASTM STANDARD

SWF/LF ---------- Permitted Landfills in the State of Hawaii

VCP..... Voluntary Response Program Sites

FEDERAL ASTM SUPPLEMENTAL

CONSENT..... Superfund (CERCLA) Consent Decrees
ROD..... Records Of Decision
Delisted NPL..... National Priority List Deletions
FINDS..... Facility Index System/Facility Identification Initiative Program Summary Report
HMIRS..... Hazardous Materials Information Reporting System
MLTS..... Material Licensing Tracking System
MINES..... Mines Master Index File
NPL Liens..... Federal Superfund Liens
PADS..... PCB Activity Database System
US BROWNFIELDS..... A Listing of Brownfields Sites
DOD..... Department of Defense Sites
RAATS..... RCRA Administrative Action Tracking System
TRIS..... Toxic Chemical Release Inventory System
TSCA..... Toxic Substances Control Act
SSTS..... Section 7 Tracking Systems
FTTS INSP..... FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)

STATE OR LOCAL ASTM SUPPLEMENTAL

SPILLS..... Release Notifications

EDR PROPRIETARY HISTORICAL DATABASES

Coal Gas..... Former Manufactured Gas (Coal Gas) Sites

BROWNFIELDS DATABASES

US BROWNFIELDS..... A Listing of Brownfields Sites
BROWNFIELDS..... Brownfields Sites
VCP..... Voluntary Response Program Sites

SURROUNDING SITES: SEARCH RESULTS

Surrounding sites were identified.

Elevations have been determined from the USGS Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified. Sites with an elevation equal to or higher than the target property have been differentiated below from sites with an elevation lower than the target property.
Page numbers and map identification numbers refer to the EDR Radius Map report where detailed data on individual sites can be reviewed.

Sites listed in ***bold italics*** are in multiple databases.

Unmappable (orphan) sites are not considered in the foregoing analysis.

EXECUTIVE SUMMARY

FEDERAL ASTM STANDARD

RCRIS: Resource Conservation and Recovery Information System. RCRIS includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Conditionally exempt small quantity generators (CESQGs): generate less than 100 kg of hazardous waste, or less than 1 kg of acutely hazardous waste per month. Small quantity generators (SQGs): generate between 100 kg and 1,000 kg of hazardous waste per month. Large quantity generators (LQGs): generate over 1,000 kilograms (kg) of hazardous waste, or over 1 kg of acutely hazardous waste from the generator off-site to a facility that can recycle, treat, store, or dispose of the waste. TSDFs treat, store, or dispose of the waste.

A review of the RCRIS-LQG list, as provided by EDR, and dated 09/10/2003 has revealed that there is 1 RCRIS-LQG site within approximately 0.25 miles of the target property.

Equal/Higher Elevation	Address	Dist / Dir	Map ID	Page
KUHIO VILLAGE RESORT AOAO	*2463 KUHIO AVE*	*1/8 - 1/4 S*	*A3*	*7*

RCRIS: Resource Conservation and Recovery Information System. RCRIS includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Conditionally exempt small quantity generators (CESQGs): generate less than 100 kg of hazardous waste, or less than 1 kg of acutely hazardous waste per month. Small quantity generators (SQGs): generate between 100 kg and 1,000 kg of hazardous waste per month. Large quantity generators (LQGs): generate over 1,000 kilograms (kg) of hazardous waste, or over 1 kg of acutely hazardous waste from the generator off-site to a facility that can recycle, treat, store, or dispose of the waste. TSDFs treat, store, or dispose of the waste.

A review of the RCRIS-SQG list, as provided by EDR, and dated 09/10/2003 has revealed that there are 2 RCRIS-SQG sites within approximately 0.25 miles of the target property.

Equal/Higher Elevation	Address	Dist / Dir	Map ID	Page
AZABU USA CORP DBA KINGS VILLA	*131 KAIULANI AVE*	*1/8 - 1/4 WSW*	*B8*	*10*
PACIFIC BEACH HOTEL	*2490 KALAKAUA AVE*	*1/8 - 1/4 SSW*	*12*	*12*

STATE ASTM STANDARD

SHWS: The State Hazardous Waste Sites records are the states' equivalent to CERCLIS. These sites may or may not already be listed on the federal CERCLIS list. Priority sites planned for cleanup using state funds (state equivalent of Superfund) are identified along with sites where cleanup will be paid for by potentially responsible parties. The data come from the Department of Health.

A review of the SHWS list, as provided by EDR, and dated 07/12/2001 has revealed that there are 3 SHWS sites within approximately 1 mile of the target property.

Equal/Higher Elevation	Address	Dist / Dir	Map ID	Page
STAN SHINKAWA CO.	2330 KALAKAUA AVE	1/4 - 1/2 W	14	13

EXECUTIVE SUMMARY

Equal/Higher Elevation	Address	Dist / Dir	Map ID	Page
KING KALAKAUA PLAZA	***2080 KALAKAUA AVE***	***1/2 - 1 WNW***	***22***	***21***
CHEVRON U.S.A., INC.	***2002 KALAKAUA AVE***	***1/2 - 1 NW***	***23***	***22***

LUST: The Leaking Underground Storage Tank Incident Reports contain an inventory of reported leaking underground storage tank incidents. The data come from the Department of Health's Active Leaking Underground Storage Tank Log Listing.

A review of the LUST list, as provided by EDR, and dated 08/01/2003 has revealed that there are 12 LUST sites within approximately 0.5 miles of the target property.

Equal/Higher Elevation	Address	Dist / Dir	Map ID	Page
WAIKIKI CENTRAL OFFICE	***220 KAPUNI ST***	***1/8 - 1/4 SSW***	***A1***	***6***
AVIS RENT-A-CAR	***148 KAIULANI AVE***	***1/8 - 1/4 WSW***	***B4***	***8***
KING'S VILLAGE SHOPPING CENTER	131 KAIULANI AVE	1/8 - 1/4 WSW	B6	9
OUTRIGGER PRINCE KUHIO HOTEL	***2500 KUHIO AVE***	***1/8 - 1/4 S***	***10***	***10***
MOANA SURFRIDER HOTEL	***2365 KALAKAUA AVE***	***1/4 - 1/2 WSW***	***13***	***13***
ROYAL KUHIO CONDOMINIUMS	***2240 KUHIO AVE***	***1/4 - 1/2 WNW***	***D15***	***15***
MATSUSHITA INVESTMENT AND DEVE	2237 KUHIO AVE	1/4 - 1/2 WNW	D16	15
ROYAL HAWAIIAN HOTEL	2259 KALAKAUA AVE	1/4 - 1/2 W	E17	15
SHERATON WAIKIKI HOTEL	***2255 KALAKAUA AVE***	***1/4 - 1/2 W***	***E18***	***15***
ALA WAI SERVICE	***407 KAPAHULU AVE***	***1/4 - 1/2 SE***	***19***	***17***
ALA WAI GOLF COURSE	***484 KAPAHULU AVE***	***1/4 - 1/2 ESE***	***20***	***19***
CONCOPHILLIPS 254573 (PREV: GE	***505 KAPAHULU AVE***	***1/4 - 1/2 ESE***	***21***	***19***

UST: The Underground Storage Tank database contains registered USTs. USTs are regulated under Subtitle I of the Resource Conservation and Recovery Act (RCRA). The data come from the Department of Health's Listing of Underground Storage Tanks.

A review of the UST list, as provided by EDR, and dated 08/01/2003 has revealed that there are 7 UST sites within approximately 0.25 miles of the target property.

Equal/Higher Elevation	Address	Dist / Dir	Map ID	Page
WAIKIKI CENTRAL OFFICE	***220 KAPUNI ST***	***1/8 - 1/4 SSW***	***A1***	***6***
ABC STORE #21	2394 KUHIO AVE	1/8 - 1/4 W	2	6
AVIS RENT-A-CAR	***148 KAIULANI AVE***	***1/8 - 1/4 WSW***	***B4***	***8***
MIRAMAR HOTEL HAWAII, INC.	2345 KUHIO AVE	1/8 - 1/4 WNW	C5	9
KING'S VILLAGE SHOPPING CENTER	131 KAIULANI AVE	1/8 - 1/4 WSW	B7	9
HONOLULU PRINCE	415 NAHUA ST	1/8 - 1/4 WNW	C9	10
BUDGET RENT-A-CAR SYSTEMS, INC	2330 KUHIO AVE	1/8 - 1/4 WNW	C11	12

EXECUTIVE SUMMARY

Due to poor or inadequate address information, the following sites were not mapped:

Site Name	Database(s)
KAWAILOA LANDFILL	SHWS, LUST
CARTWRIGHT NEIGHBORHOOD PARK	SHWS
ELLIOT STREET DRAINAGE CANAL	SHWS, SPILLS
HONOLULU SHIPYARD, INC. (EWA OF PIE	SHWS
HONOLULU SHIPYARD, INC.	SHWS
HAWAII INSTRUMENTATION & CONTROLS,	SHWS
KING KALAKAUA PLAZA (WAIKIKI GATEWA	SHWS, SPILLS
NIMITZ HIGHWAY RELIEF SEWER	SHWS
BHP, PIER 38	SHWS
SCRAP METAL PILE	SHWS
BHP TANK FARM, SAND ISLAND	SHWS, SPILLS
BARBERS POINT HARBOR EXPANSION	SHWS
TRIPLER ARMY MEDICAL CENTER, BUILDI	SHWS
HAWAII BITUMULS & PAVING CO	SHWS
MCAS KANEOHE LF (KMCAS LF-0041-95)	SWF/LF, SPILLS
NEW MILILANI LANDFILL	SWF/LF
OLD MILILANI LANDFILL	SWF/LF
AOAO YACHT HARBOR TOWERS	RCRIS-SQG, FINDS
PACIFIC CRUISES	RCRIS-SQG, FINDS
SHERATON PRINCESS KAIULANI	RCRIS-SQG, FINDS

OVERVIEW MAP - 01102348.2r - Global Env. Svcs. Group

★ Target Property

▲ Sites at elevations higher than or equal to the target property

◆ Sites at elevations lower than the target property

♟ Coal Gasification Sites

National Priority List Sites

Landfill Sites

Dept. Defense Sites

Oil & Gas pipelines

100-year flood zone

500-year flood zone

Federal Wetlands

TARGET PROPERTY:	Tusitala Vista	CUSTOMER:	Global Env. Svcs. Group
ADDRESS:	2423/2429 Ala Wai Blvd	CONTACT:	Mike Polkinghorn
CITY/STATE/ZIP:	Honolulu HI 96813	INQUIRY #:	01102348.2r
LAT/LONG:	21.2781 / 157.8221	DATE:	December 19, 2003 4:35 pm

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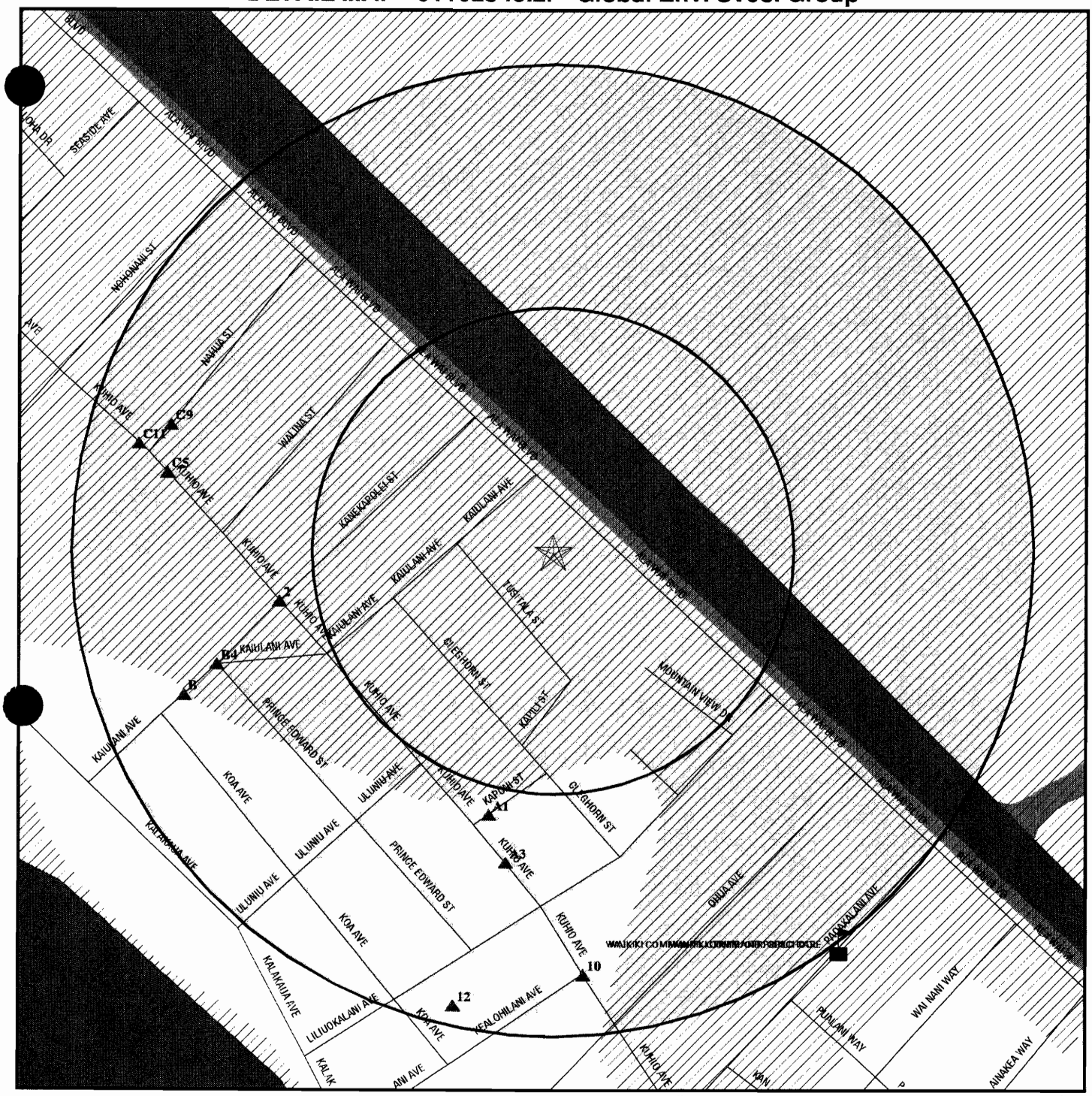
DETAIL MAP - 01102348.2r - Global Env. Svcs. Group



- ★ Target Property
- ▲ Sites at elevations higher than or equal to the target property
- ◆ Sites at elevations lower than the target property
- ♟ Coal Gasification Sites
- Sensitive Receptors
- National Priority List Sites
- Landfill Sites
- Dept. Defense Sites

- Oil & Gas pipelines
- 100-year flood zone
- 500-year flood zone
- Federal Wetlands

TARGET PROPERTY:	Tusitala Vista	CUSTOMER:	Global Env. Svcs. Group
ADDRESS:	2423/2429 Ala Wai Blvd	CONTACT:	Mike Polkinghorn
CITY/STATE/ZIP:	Honolulu HI 96813	INQUIRY #:	01102348.2r
LAT/LONG:	21.2781 / 157.8221	DATE:	December 19, 2003 4:35 pm

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MAP FINDINGS SUMMARY

Database	Target Property	Search Distance (Miles)	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
FEDERAL ASTM STANDARD								
NPL		1.000	0	0	0	0	NR	0
Proposed NPL		1.000	0	0	0	0	NR	0
CERCLIS		0.500	0	0	0	NR	NR	0
CERC-NFRAP		0.250	0	0	NR	NR	NR	0
CORRACTS		1.000	0	0	0	0	NR	0
RCRIS-TSD		0.500	0	0	0	NR	NR	0
RCRIS Lg. Quan. Gen.		0.250	0	1	NR	NR	NR	1
RCRIS Sm. Quan. Gen.		0.250	0	2	NR	NR	NR	2
ERNS		TP	NR	NR	NR	NR	NR	0
STATE ASTM STANDARD								
SHWS		1.000	0	0	1	2	NR	3
State Landfill		0.500	0	0	0	NR	NR	0
LUST		0.500	0	4	8	NR	NR	12
UST		0.250	0	7	NR	NR	NR	7
VCP		0.500	0	0	0	NR	NR	0
FEDERAL ASTM SUPPLEMENTAL								
CONSENT		1.000	0	0	0	0	NR	0
ROD		1.000	0	0	0	0	NR	0
Delisted NPL		1.000	0	0	0	0	NR	0
FINDS		TP	NR	NR	NR	NR	NR	0
HMIRS		TP	NR	NR	NR	NR	NR	0
MLTS		TP	NR	NR	NR	NR	NR	0
MINES		0.250	0	0	NR	NR	NR	0
NPL Liens		TP	NR	NR	NR	NR	NR	0
PADS		TP	NR	NR	NR	NR	NR	0
US BROWNFIELDS		0.500	0	0	0	NR	NR	0
DOD		1.000	0	0	0	0	NR	0
RAATS		TP	NR	NR	NR	NR	NR	0
TRIS		TP	NR	NR	NR	NR	NR	0
TSCA		TP	NR	NR	NR	NR	NR	0
SSTS		TP	NR	NR	NR	NR	NR	0
FTTS		TP	NR	NR	NR	NR	NR	0
STATE OR LOCAL ASTM SUPPLEMENTAL								
SPILLS		TP	NR	NR	NR	NR	NR	0
EDR PROPRIETARY HISTORICAL DATABASES								
Coal Gas		1.000	0	0	0	0	NR	0
BROWNFIELDS DATABASES								
US BROWNFIELDS		0.500	0	0	0	NR	NR	0

MAP FINDINGS SUMMARY

Database	Target Property	Search Distance (Miles)	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
BROWNFIELDS		0.500	0	0	0	NR	NR	0
VCP		0.500	0	0	0	NR	NR	0

NOTES:

AQUIFLOW - see EDR Physical Setting Source Addendum

TP = Target Property

NR = Not Requested at this Search Distance

Sites may be listed in more than one database

Coal Gas Site Search: No site was found in a search of Real Property Scan's ENVIROHAZ database.

A1
SSW
1/8-1/4
737 ft.

WAIKIKI CENTRAL OFFICE
220 KAPUNI ST
HONOLULU, HI 96815

UST **U001235201**
LUST **N/A**

Site 1 of 2 in cluster A

Relative:
Equal

Actual:
3 ft.

LUST:

Facility ID:	9-100535
Alternate Event ID:	970023
Facility Status Date:	09/24/1998
Facility Status:	Site Cleanup Completed
Project Officer:	Takaba

UST:

Facility ID:	9-100535	Tank ID:	R-1
Tank Status:	Permanently Out of Use		
Tank Capacity:	560	Installed:	3/1/1970
Date Closed:	11/12/1996	Substance:	Diesel
Owner:	VERIZON HAWAII 1177 BISHOP ST. P.O. BOX 2200 Hon.HI 96841 Honolulu, HI 96815		

Facility ID:	9-100535	Tank ID:	R-2
Tank Status:	Permanently Out of Use		
Tank Capacity:	550	Installed:	5/7/1984
Date Closed:	11/12/1996	Substance:	Diesel
Owner:	VERIZON HAWAII 1177 BISHOP ST. P.O. BOX 2200 Hon.HI 96841 Honolulu, HI 96815		

Facility ID:	9-100535	Tank ID:	M-1
Tank Status:	Currently In Use		
Tank Capacity:	600	Installed:	12/1/1996
Date Closed:	Not reported	Substance:	Diesel
Owner:	VERIZON HAWAII 1177 BISHOP ST. P.O. BOX 2200 Hon.HI 96841 Honolulu, HI 96815		

2
West
1/8-1/4
763 ft.

ABC STORE #21
2394 KUHIO AVE
HONOLULU, HI 96813

UST **U001235205**
N/A

Relative:
Equal

Actual:
3 ft.

UST:

Facility ID:	9-100728	Tank ID:	P-2
Tank Status:	Permanently Out of Use		
Tank Capacity:	0	Installed:	Not reported
Date Closed:	1/1/1974	Substance:	Other
Owner:	MNS, LTD. 766 POHUKAINA ST Honolulu, HI 96813		

Facility ID:	9-100728	Tank ID:	P-1
Tank Status:	Permanently Out of Use		
Tank Capacity:	0	Installed:	Not reported
Date Closed:	1/1/1974	Substance:	Other
Owner:	MNS, LTD.		

ABC STORE #21 (Continued) **U001235205**

766 POHUKAINA ST
Honolulu, HI 96813

A3 **KUHIO VILLAGE RESORT AOAO** **RCRIS-LQG 1001112108**
South **2463 KUHIO AVE** **FINDS HIR000000802**
1/8-1/4 **HONOLULU, HI 96815** **SPILLS**
856 ft.

Site 2 of 2 in cluster A

Relative:
Equal

Actual:
3 ft.

RCRIS:
Owner: KVR INC
(808) 531-1621
EPA ID: HIR000000802
Contact: JIM MESSINGER
(808) 926-3242
Classification: Large Quantity Generator
TSDF Activities: Not reported

Violation Status: No violations found

FINDS:
Other Pertinent Environmental Activity Identified at Site:
Resource Conservation and Recovery Act Information system (RCRAINFO)

HI SPILLS:

Reported Date:	Not reported
Case Number:	19951106-2
Island:	Oahu
Incident Description:	Oil from garage Sump pumped onto street. A pedestrian slipped on the oil.
Cause:	
Substances:	Oil, Waste
Quantity:	Not reported
Media Affected:	Storm Drain
Reportable Quantity:	Not reported
Category:	Not reported
Spill ?:	Yes
Reported By:	Not reported
Reporters Affiliation:	Not reported
ERNS Number:	Not reported
Responder:	
Responder Affiliation:	
Initial Response:	Penco hired.
Release Date:	11/03/96
Time of Release:	Not reported
Duration:	Not reported
Input By:	Marsha Mealey
Date Input:	8/20/96
Staff 1:	Bill Perry
Staff 2:	Not reported
Emergency Response:	Not reported
Initial Site Screening Team Rank:	Not reported
No Further Action:	Not reported
Priority:	NFA
Comments:	The HEER Office has no record of the inital verbal notification.
File Section:	Single
Type:	Not reported
Department 1:	Not reported

KUHIO VILLAGE RESORT AOAO (Continued) **1001112108**

Department 2:	Not reported
Department 3:	Not reported
Cost Recovery:	Not reported
Official Notification:	Yes
Written Report:	11/10/95
Confirmation Number:	Not reported
Pounds:	Not reported
Responsible Party:	Not reported
Manifest Document Number:	Not reported
Units:	Not reported
Standard Cause:	Not reported
Numerical Quantity:	Not reported
Zip id:	Not reported
Initial Notification:	Not reported
Written Notification:	Not reported
Imminent And Substantial:	Not reported
Lat/Lon:	Not reported
Verification of source:	Not reported
Potential Quantity Amount:	Not reported
Potential Quantity Unit:	Not reported
Verification of source:	Not reported
Source Id:	Not reported
Responsible Party Name:	Not reported
RP Address:	Not reported
	Not reported
RP Contact:	Not reported
RP Phone Number:	Not reported
Verification Of RP:	Not reported
Responsible Party ID:	Not reported
Contractor Amount:	Not reported
Personnel Amount:	Not reported
Equipment Amount:	Not reported
Travel Amount:	Not reported
Miscallenous Amount:	Not reported
Federal Project Number:	Not reported
Pollution Removal Funding Auth:	Not reported
Authorization Date:	Not reported
Authorization Ceiling:	Not reported
Identfier:	Not reported
Total Environment Revolving Response Fund:	0

B4 **AVIS RENT-A-CAR** **UST U001235079**
WSW **148 KAIULANI AVE** **LUST N/A**
1/8-1/4 **HONOLULU, HI 96815**
973 ft.

Site 1 of 4 in cluster B

Relative:
Equal

LUST:

Facility ID:	9-100173
Alternate Event ID:	920032
Facility Status Date:	11/21/1994
Facility Status:	Site Cleanup Completed
Project Officer:	Seid

Actual:
3 ft.

UST:

Facility ID:	9-100173	Tank ID:	R-1
Tank Status:	Permanently Out of Use		
Tank Capacity:	1500	Installed:	4/14/1972
Date Closed:	Not reported	Substance:	Gasoline

AVIS RENT-A-CAR (Continued) **U001235079**

Owner: AVIS RENT A CAR
6 SYLVAN WAY DEPT 29-093-36
Honolulu, HI 96815

C5 **MIRAMAR HOTEL HAWAII, INC.** **UST** **U001235536**
WNW **2345 KUHIO AVE** **N/A**
1/8-1/4 **HONOLULU, HI 96815**
1080 ft.

Site 1 of 3 in cluster C

Relative:
Equal

Actual:
3 ft.

UST:

Facility ID:	9-101531	Tank ID:	R-1
Tank Status:	Permanently Out of Use		
Tank Capacity:	2000	Installed:	5/21/1976
Date Closed:	10/27/1992	Substance:	Gasoline
Owner:	MIRAMAR HOTEL HAWAII, INC. 2345 KUHIO AVENUE Honolulu, HI 96815		

Facility ID:	9-101531	Tank ID:	R-2
Tank Status:	Permanently Out of Use		
Tank Capacity:	5000	Installed:	5/22/1983
Date Closed:	11/23/1992	Substance:	Diesel
Owner:	MIRAMAR HOTEL HAWAII, INC. 2345 KUHIO AVENUE Honolulu, HI 96815		

B6 **KING'S VILLAGE SHOPPING CENTER** **LUST** **S104241265**
WSW **131 KAIULANI AVE** **N/A**
1/8-1/4 **HONOLULU, HI 96819**
1084 ft.

Site 2 of 4 in cluster B

Relative:
Equal

Actual:
3 ft.

LUST:

Facility ID:	9-103611
Alternate Event ID:	000038
Facility Status Date:	12/13/1999
Facility Status:	Site Cleanup Completed
Project Officer:	Takaba

B7 **KING'S VILLAGE SHOPPING CENTER** **UST** **U003711757**
WSW **131 KAIULANI AVE** **N/A**
1/8-1/4 **HONOLULU, HI 96819**
1084 ft.

Site 3 of 4 in cluster B

Relative:
Equal

Actual:
3 ft.

UST:

Facility ID:	9-103611	Tank ID:	R-1
Tank Status:	Permanently Out of Use		
Tank Capacity:	6000	Installed:	Not reported
Date Closed:	11/26/1999	Substance:	Gasoline
Owner:	KING'S VILLAGE SHOPPING CENTER 131 KAIULANI AVE Honolulu, HI 96819		

KING'S VILLAGE SHOPPING CENTER (Continued) — **U003711757**

B8 **AZABU USA CORP DBA KINGS VILLAGE** — **RCRIS-SQG** **1004688997**
WSW **131 KAIULANI AVE** — **FINDS** **HIR000069344**
1/8-1/4 **HONOLULU, HI 96815**
1084 ft.

Site 4 of 4 in cluster B

Relative: **Equal**

Actual: **3 ft.**

RCRIS:
Owner: AZABU USA CORP
(808) 944-6855
EPA ID: HIR000069344
Contact: LARRY GILL
(808) 924-7395
Classification: Conditionally Exempt Small Quantity Generator
TSDF Activities: Not reported

Violation Status: No violations found

FINDS:
Other Pertinent Environmental Activity Identified at Site:
Hawaii Underground Storage Tank (HI-UST)
Resource Conservation and Recovery Act Information system (RCRAINFO)

C9 **HONOLULU PRINCE** — **UST** **U003154821**
WNW **415 NAHUA ST** — **N/A**
1/8-1/4 **HONOLULU, HI 96815**
1104 ft.

Site 2 of 3 in cluster C

Relative: **Equal**

Actual: **3 ft.**

UST:

Facility ID:	9-103092	Tank ID:	R-1
Tank Status:	Permanently Out of Use		
Tank Capacity:	550	Installed:	8/1/1961
Date Closed:	6/27/1995	Substance:	Diesel

Owner: KOEI USA ENTERPRISE, INC.
415 NAHUA ST
Honolulu, HI 96815

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10 **OUTRIGGER PRINCE KUHIO HOTEL** — **SPILLS** **U003154553**
South **2500 KUHIO AVE** — **LUST** **N/A**
1/8-1/4 **HONOLULU, HI 96815**
1153 ft.

Relative: **Equal**

Actual: **3 ft.**

LUST:
Facility ID: 9-102154
Alternate Event ID: 880021
Facility Status Date: 09/25/1991
Facility Status: Case Transferred to HEER
Project Officer: HEER

HI SPILLS:
Reported Date: Not reported
Case Number: 19950307-2
Island: Oahu
Incident Description: Between 4:00 a.m. and 5:30 a.m., failure occurred of valve between day tank and main tank. Boiler is used for hot water heater. Day tanks are located on the 9th and 10th

OUTRIGGER PRINCE KUHIO HOTEL (Continued) **U003154553**

	floors. The spill went down the side of building and into a sanitar
Cause:	overflow of day tank
Substances:	diesel
Quantity:	50 gallons
Media Affected:	sewer system
Reportable Quantity:	Not reported
Category:	Not reported
Spill ?:	Not reported
Reported By:	Mike Devich
Reporters Affiliation:	Senior VP of property purchases
ERNS Number:	Not reported
Responder:	
Responder Affiliation:	
Initial Response:	pump shut off. Muranaka Environmental hire to assess clean-up efforts
Release Date:	03/07/95
Time of Release:	Not reported
Duration:	Not reported
Input By:	TKC
Date Input:	04/21/95
Staff 1:	Chris Takeno
Staff 2:	Not reported
Emergency Response:	Not reported
Initial Site Screening Team Rank:	Not reported
No Further Action:	NFA
Priority:	NFA
Comments:	
File Section:	Central
Type:	Private
Department 1:	Not reported
Department 2:	Not reported
Department 3:	Not reported
Cost Recovery:	Not reported
Official Notification:	Not reported
Written Report:	Not reported
Confirmation Number:	Not reported
Pounds:	Not reported
Responsible Party:	Not reported
Manifest Document Number:	Not reported
Units:	Gallons
Standard Cause:	Not reported
Numerical Quantity:	Not reported
Zip id:	Not reported
Initial Notification:	Not reported
Written Notification:	Not reported
Imminent And Substantial:	Not reported
Lat/Lon:	Not reported
Verification of source:	Not reported
Potential Quantity Amount:	Not reported
Potential Quantity Unit:	Not reported
Verification of source:	Not reported
Source Id:	Not reported
Responsible Party Name:	Not reported
RP Address:	Not reported
	Not reported
RP Contact:	Not reported
RP Phone Number:	Not reported

OUTRIGGER PRINCE KUHIO HOTEL (Continued) **U003154553**

Verification Of RP:	Not reported
Responsible Party ID:	Not reported
Contractor Amount:	Not reported
Personnel Amount:	Not reported
Equipment Amount:	Not reported
Travel Amount:	Not reported
Miscallenous Amount:	Not reported
Federal Project Number:	Not reported
Pollution Removal Funding Auth:	Not reported
Authorization Date:	Not reported
Authorization Ceiling:	Not reported
Identfier:	Not reported
Total Environment Revolving Response Fund:	Not reported

C11 **BUDGET RENT-A-CAR SYSTEMS, INC.** **UST** **U001235453**
WNW **2330 KUHIO AVE** **N/A**
1/8-1/4 **HONOLULU, HI 96815**
1175 ft.

Site 3 of 3 in cluster C

Relative: **Equal**

Actual: **3 ft.**

UST:

Facility ID:	9-101361	Tank ID:	2
Tank Status:	Permanently Out of Use		
Tank Capacity:	6000	Installed:	1/1/1983
Date Closed:	6/24/1993	Substance:	Gasoline
Owner:	BUDGET RENT-A-CAR SYSTEMS, INC. P.O. BOX 15188 Honolulu, HI 96815		

Facility ID:	9-101361	Tank ID:	1
Tank Status:	Permanently Out of Use		
Tank Capacity:	6000	Installed:	1/1/1983
Date Closed:	6/24/1993	Substance:	Gasoline
Owner:	BUDGET RENT-A-CAR SYSTEMS, INC. P.O. BOX 15188 Honolulu, HI 96815		

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12 **PACIFIC BEACH HOTEL** **RCRIS-SQG** **1001485083**
SSW **2490 KALAKAUA AVE** **FINDS** **HIR000050740**
1/8-1/4 **HONOLULU, HI 96815**
1264 ft.

Relative: **Equal**

Actual: **3 ft.**

RCRIS:

Owner:	PACIFIC BEACH CORP (808) 922-1233
EPA ID:	HIR000050740
Contact:	BRUCE ARAI (808) 921-6126
Classification:	Small Quantity Generator
TSDF Activities:	Not reported

PACIFIC BEACH HOTEL (Continued) **1001485083**

Violation Status: No violations found

FINDS:
Other Pertinent Environmental Activity Identified at Site:
Resource Conservation and Recovery Act Information system (RCRAINFO)

13
WSW
1/4-1/2
1563 ft.

MOANA SURFRIDER HOTEL **UST U001236002**
2365 KALAKAUA AVE **LUST N/A**
HONOLULU, HI 96815

Relative:
Equal

Actual:
3 ft.

LUST:

Facility ID:	9-102647
Alternate Event ID:	930059
Facility Status Date:	10/17/1997
Facility Status:	Site Cleanup Completed
Project Officer:	Okoji

UST:

Facility ID:	9-102647	Tank ID:	R-1
Tank Status:	Permanently Out of Use		
Tank Capacity:	4000	Installed:	12/30/1970
Date Closed:	11/30/1992	Substance:	Diesel
Owner:	KYO-YA COMPANY, INC 2255 KALAKAUA AVE, 2ND FLOOR Honolulu, HI 96815		

Facility ID:	9-102647	Tank ID:	1
Tank Status:	Currently In Use		
Tank Capacity:	2500	Installed:	12/30/1992
Date Closed:	Not reported	Substance:	Diesel
Owner:	KYO-YA COMPANY, INC 2255 KALAKAUA AVE, 2ND FLOOR Honolulu, HI 96815		

14
West
1/4-1/2
1752 ft.

STAN SHINKAWA CO. **SHWS 1000306067**
2330 KALAKAUA AVE **N/A**
HONOLULU, HI 96815

Relative:
Equal

Actual:
3 ft.

SHWS:

File Section :	Central
Type :	Private
Department 1 :	Not reported
Department 2 :	Not reported
Department 3 :	Not reported
Table :	Sitelist
Island :	Oahu
Zip :	Not reported
Discovery Assesment and Remediation :	Not reported
Initial Site Screening Team Lead :	Not reported
ISST Assigned :	Not reported
ISST Date :	3/25/96
ISST Priority :	NFA
ISST Letter :	Not reported
Env Justice Eligible :	Not reported
Preliminary Assesment :	No
PA Lead :	Not reported

STAN SHINKAWA CO. (Continued) **1000306067**

PA Date :	Not reported
PA Result :	Not reported
Site Investigation :	No
SI Lead :	Not reported
SI Date :	Not reported
SI Result :	Not reported
Remediation Action Planned :	Not reported
VRP :	Not reported
Brownfields :	Not reported
Agreement :	Not reported
Remedial Investigation :	Not reported
RAA :	Not reported
Response Action Memo :	Not reported
REM Lead :	Not reported
REM Date :	Not reported
REM Last Update :	12/01/93
Input By :	Adia/Tom
Case :	Not reported
Fed Id :	HID980497325
UST :	Not reported
Permits :	Not reported
RCRA :	Not reported
Program :	Not reported
Priority :	Not reported
Lat/Long :	Not reported
Cost :	Not reported
CU QNTY Site :	Not reported
Enforcement :	Not reported
CU Method :	Not reported
Ownership :	Private-Stan Shinkawa rents site from Waikiki Development corp.
Tax Map Key :	Not reported
Form :	Tom/Tricia
EPCRA :	Not reported
EPCRA FIL :	Not reported
Pathways :	Not reported
Targets :	Not reported
Manager :	Not reported
REM Result :	Not reported
Identifier :	Not reported
Site Code :	Not reported
Event :	Not reported
Event Type :	DS1 02/01/80 PA1 09/01/84
Notes :	Not reported
Site :	Not reported
Site_ :	Jewelry Manufacturing - Precious Metals (Gold)
Operator :	Stan Shinkawa, Inc. 2030 Kalakaua Ave, Honolulu, Hi 96815 Stan or Helen Shinkawa - Owners (808) 923-3510
Current :	Not reported
Compounds :	Not reported
Oname :	Waikiki Development Corp.

D15 **ROYAL KUHIO CONDOMINIUMS** **UST** **U003711723**
WNW **2240 KUHIO AVE** **LUST** **N/A**
1/4-1/2 **HONOLULU, HI 96815**
1936 ft.

Site 1 of 2 in cluster D

Relative: **Equal**

Actual: **3 ft.**

LUST:

Facility ID:	9-103574
Alternate Event ID:	000065
Facility Status Date:	04/02/2001
Facility Status:	Site Cleanup Completed
Project Officer:	Li

UST:

Facility ID:	9-103574	Tank ID:	R-M-1
Tank Status:	Permanently Out of Use		
Tank Capacity:	550	Installed:	Not reported
Date Closed:	2/21/2000	Substance:	Diesel
Owner:	ROYAL KUHIO CONDOMINIUM ASSOCIATION OF APT OWNERS 2240 KUHIO AVE Honolulu, HI 96815		

D16 **MATSUSHITA INVESTMENT AND DEVELO** **LUST** **U003154815**
WNW **2237 KUHIO AVE** **N/A**
1/4-1/2 **HONOLULU, HI 96815**
1984 ft.

Site 2 of 2 in cluster D

Relative: **Equal**

Actual: **3 ft.**

LUST:

Facility ID:	9-103083
Alternate Event ID:	960007
Facility Status Date:	03/11/1996
Facility Status:	Site Cleanup Completed
Project Officer:	Ruiz

E17 **ROYAL HAWAIIAN HOTEL** **LUST** **1000601227**
West **2259 KALAKAUA AVE** **N/A**
1/4-1/2 **HONOLULU, HI 96815**
2224 ft.

Site 1 of 2 in cluster E

Relative: **Equal**

Actual: **3 ft.**

LUST:

Facility ID:	9-102646
Alternate Event ID:	930047
Facility Status Date:	05/17/1993
Facility Status:	Site Cleanup Completed
Project Officer:	Assigned

E18 **SHERATON WAIKIKI HOTEL** **UST** **U001236003**
West **2255 KALAKAUA AVE** **SPILLS** **N/A**
1/4-1/2 **HONOLULU, HI 96815** **LUST**
2252 ft.

Site 2 of 2 in cluster E

Relative: **Equal**

Actual: **3 ft.**

LUST:

Facility ID:	9-102650
Alternate Event ID:	930027
Facility Status Date:	09/03/1997
Facility Status:	Site Cleanup Completed
Project Officer:	Ichinotsubo

SHERATON WAIKIKI HOTEL (Continued) **U001236003**

HI SPILLS:

Reported Date:	Not reported
Case Number:	19930830-1
Island:	Oahu
Incident Description:	On 08/25/93, at about 10:45PM, the Sheraton Waikiki Hotel experienced a minor oil spill. Approximately 1.5 Gals of #2 Diesel spilled from a vent onto the Hotel's roadway connecting Kalia Rd & Helumoa Rd. The Vent is connected to 100
Cause:	Overflow from Vent System
Substances:	#2 Diesel Fuel
Quantity:	1.5 Gals
Media Affected:	Asphalt & Concrete-Land & Roadway
Reportable Quantity:	Not reported
Category:	Not reported
Spill ?:	Not reported
Reported By:	David R. Lee
Reporters Affiliation:	Chief Engineer, Sheraton Waikiki Hotel
ERNS Number:	Not reported
Responder:	HFD, Hotel Security & Housekeeping Depts
Responder Affiliation:	Unitek, Hotel Engineering Dept, HFD
Initial Response:	Hotel Security responded by calling HPD. HFD & Hotel Housekeeping Dept used absorbents to clean up the spill. Spill was confined to Roadway. Unitek was to be called in to properly dispose of absorbents. Hotel Engineering was investig
Release Date:	08/25/93
Time of Release:	Not reported
Duration:	Not reported
Input By:	Adia/Tom
Date Input:	12/01/93
Staff 1:	Not reported
Staff 2:	Not reported
Emergency Response:	Not reported
Initial Site Screening Team Rank:	Not reported
No Further Action:	Not reported
Priority:	NFA
Comments:	
File Section:	Single
Type:	Not reported
Department 1:	Not reported
Department 2:	Not reported
Department 3:	Not reported
Cost Recovery:	Not reported
Official Notification:	Not reported
Written Report:	Not reported
Confirmation Number:	Not reported
Pounds:	Not reported
Responsible Party:	Not reported
Manifest Document Number:	Not reported
Units:	Gallons
Standard Cause:	Not reported
Numerical Quantity:	Not reported
Zip id:	Not reported
Initial Notification:	Not reported
Written Notification:	Not reported
Imminent And Substantial:	Not reported
Lat/Lon:	Not reported
Verification of source:	Not reported

SHERATON WAIKIKI HOTEL (Continued) **U001236003**

Potential Quantity Amount:	Not reported
Potential Quantity Unit:	Not reported
Verification of source:	Not reported
Source Id:	Not reported
Responsible Party Name:	Not reported
RP Address:	Not reported
	Not reported
RP Contact:	Not reported
RP Phone Number:	Not reported
Verification Of RP:	Not reported
Responsible Party ID:	Not reported
Contractor Amount:	Not reported
Personnel Amount:	Not reported
Equipment Amount:	Not reported
Travel Amount:	Not reported
Miscallenous Amount:	Not reported
Federal Project Number:	Not reported
Pollution Removal Funding Auth:	Not reported
Authorization Date:	Not reported
Authorization Ceiling:	Not reported
Identfier:	Not reported
Total Environment Revolving Response Fund:	Not reported

UST:

Facility ID:	9-102650	Tank ID:	4
Tank Status:	Currently In Use		
Tank Capacity:	2500	Installed:	12/30/1992
Date Closed:	Not reported	Substance:	Diesel
Owner:	KYO-YA COMPANY, INC 2255 KALAKAUA AVE, 2ND FLOOR Honolulu, HI 96815		

Facility ID:	9-102650	Tank ID:	R-M-1
Tank Status:	Permanently Out of Use		
Tank Capacity:	1000	Installed:	12/30/1971
Date Closed:	11/9/1992	Substance:	Diesel
Owner:	KYO-YA COMPANY, INC 2255 KALAKAUA AVE, 2ND FLOOR Honolulu, HI 96815		

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19 **ALA WAI SERVICE** **LUST 1000601445**
SE **407 KAPAHULU AVE** **UST N/A**
1/4-1/2 **HONOLULU, HI 96815**
2545 ft.

Relative:
Higher

Actual:
7 ft.

LUST:

Facility ID:	9-101211
Alternate Event ID:	880018
Facility Status Date:	08/26/1999
Facility Status:	Site Cleanup Completed
Project Officer:	Maniulit

UST:

Facility ID:	9-101211	Tank ID:	R-3
Tank Status:	Permanently Out of Use		
Tank Capacity:	5000	Installed:	10/1/1968
Date Closed:	1/1/1982	Substance:	Gasoline
Owner:	CHEVRON PRODUCTS COMPANY 91-480 MALAKOLE ST Honolulu, HI 96815		

ALA WAI SERVICE (Continued) **1000601445**

Facility ID:	9-101211	Tank ID:	R-2
Tank Status:	Permanently Out of Use		
Tank Capacity:	10000	Installed:	10/1/1968
Date Closed:	1/1/1982	Substance:	Gasoline
Owner:	CHEVRON PRODUCTS COMPANY 91-480 MALAKOLE ST Honolulu, HI 96815		

Facility ID:	9-101211	Tank ID:	R-4A
Tank Status:	Permanently Out of Use		
Tank Capacity:	1000	Installed:	10/1/1968
Date Closed:	1/1/1982	Substance:	Used Oil
Owner:	CHEVRON PRODUCTS COMPANY 91-480 MALAKOLE ST Honolulu, HI 96815		

Facility ID:	9-101211	Tank ID:	R-1
Tank Status:	Permanently Out of Use		
Tank Capacity:	10000	Installed:	10/1/1968
Date Closed:	1/1/1982	Substance:	Gasoline
Owner:	CHEVRON PRODUCTS COMPANY 91-480 MALAKOLE ST Honolulu, HI 96815		

Facility ID:	9-101211	Tank ID:	R-4B
Tank Status:	Permanently Out of Use		
Tank Capacity:	1000	Installed:	7/18/1982
Date Closed:	11/18/1994	Substance:	Used Oil
Owner:	CHEVRON PRODUCTS COMPANY 91-480 MALAKOLE ST Honolulu, HI 96815		

Facility ID:	9-101211	Tank ID:	92
Tank Status:	Currently In Use		
Tank Capacity:	10000	Installed:	7/18/1982
Date Closed:	Not reported	Substance:	Gasoline
Owner:	CHEVRON PRODUCTS COMPANY 91-480 MALAKOLE ST Honolulu, HI 96815		

Facility ID:	9-101211	Tank ID:	89
Tank Status:	Currently In Use		
Tank Capacity:	10000	Installed:	7/18/1982
Date Closed:	Not reported	Substance:	Gasoline
Owner:	CHEVRON PRODUCTS COMPANY 91-480 MALAKOLE ST Honolulu, HI 96815		

Facility ID:	9-101211	Tank ID:	87
Tank Status:	Currently In Use		
Tank Capacity:	10000	Installed:	7/18/1982
Date Closed:	Not reported	Substance:	Gasoline
Owner:	CHEVRON PRODUCTS COMPANY 91-480 MALAKOLE ST Honolulu, HI 96815		

ALA WAI SERVICE (Continued) **1000601445**

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20 ESE 1/4-1/2 2579 ft. **ALA WAI GOLF COURSE**
484 KAPAHULU AVE
HONOLULU, HI 96816

UST U003154701
LUST N/A

Relative: Higher

Actual: 9 ft.

LUST:

Facility ID:	9-102885
Alternate Event ID:	940034
Facility Status Date:	11/05/2001
Facility Status:	Site Cleanup Completed
Project Officer:	Sutterfield

UST:

Facility ID:	9-102885	Tank ID:	R-3
Tank Status:	Permanently Out of Use		
Tank Capacity:	250	Installed:	Not reported
Date Closed:	11/16/1993	Substance:	Used Oil
Owner:	C&C OF HNL - ALA WAI GOLF COURSE 484 KAPAHULU AVENUE Honolulu, HI 96816		

Facility ID:	9-102885	Tank ID:	R-2
Tank Status:	Permanently Out of Use		
Tank Capacity:	1000	Installed:	Not reported
Date Closed:	10/25/1993	Substance:	Diesel
Owner:	C&C OF HNL - ALA WAI GOLF COURSE 484 KAPAHULU AVENUE Honolulu, HI 96816		

Facility ID:	9-102885	Tank ID:	R-1
Tank Status:	Permanently Out of Use		
Tank Capacity:	3000	Installed:	Not reported
Date Closed:	10/25/1993	Substance:	Gasoline
Owner:	C&C OF HNL - ALA WAI GOLF COURSE 484 KAPAHULU AVENUE Honolulu, HI 96816		

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21 ESE 1/4-1/2 2618 ft. **CONCOPHILLIPS 254573 (PREV: GEORGE'S UNION SERVICE**
505 KAPAHULU AVE
HONOLULU, HI 96815

UST U001235048
LUST N/A

Relative: Higher

Actual: 10 ft.

LUST:

Facility ID:	9-100103
Alternate Event ID:	930015
Facility Status Date:	10/22/2002
Facility Status:	Site Cleanup Completed
Project Officer:	Takaba

UST:

Facility ID:	9-100103	Tank ID:	4573-5
Tank Status:	Currently In Use		
Tank Capacity:	12000	Installed:	12/31/1988
Date Closed:	Not reported	Substance:	Gasoline
Owner:	CONOCOPHILLIPS COMPANY P.O. BOX 52085 Honolulu, HI 96815		

CONCOPHILLIPS 254573 (PREV: GEORGE'S UNION SERVICE (Continued) **U001235048**

Facility ID:	9-100103	Tank ID:	4573-6
Tank Status:	Currently In Use		
Tank Capacity:	12000	Installed:	12/31/1988
Date Closed:	Not reported	Substance:	Gasoline
Owner:	CONOCOPHILLIPS COMPANY P.O. BOX 52085 Honolulu, HI 96815		

Facility ID:	9-100103	Tank ID:	R-4573-4
Tank Status:	Permanently Out of Use		
Tank Capacity:	500	Installed:	3/26/1960
Date Closed:	11/18/1987	Substance:	Used Oil
Owner:	CONOCOPHILLIPS COMPANY P.O. BOX 52085 Honolulu, HI 96815		

Facility ID:	9-100103	Tank ID:	R-4573-2
Tank Status:	Permanently Out of Use		
Tank Capacity:	8000	Installed:	3/26/1981
Date Closed:	1/1/1987	Substance:	Gasoline
Owner:	CONOCOPHILLIPS COMPANY P.O. BOX 52085 Honolulu, HI 96815		

Facility ID:	9-100103	Tank ID:	R-4573-1-3
Tank Status:	Permanently Out of Use		
Tank Capacity:	4000	Installed:	3/26/1960
Date Closed:	1/1/1987	Substance:	Gasoline
Owner:	CONOCOPHILLIPS COMPANY P.O. BOX 52085 Honolulu, HI 96815		

Facility ID:	9-100103	Tank ID:	R-4573-1-2
Tank Status:	Permanently Out of Use		
Tank Capacity:	5000	Installed:	3/26/1960
Date Closed:	1/1/1987	Substance:	Gasoline
Owner:	CONOCOPHILLIPS COMPANY P.O. BOX 52085 Honolulu, HI 96815		

Facility ID:	9-100103	Tank ID:	R-4573-1-1
Tank Status:	Permanently Out of Use		
Tank Capacity:	4000	Installed:	3/26/1960
Date Closed:	1/1/1987	Substance:	Gasoline
Owner:	CONOCOPHILLIPS COMPANY P.O. BOX 52085 Honolulu, HI 96815		

Facility ID:	9-100103	Tank ID:	R-4573-7
Tank Status:	Permanently Out of Use		
Tank Capacity:	550	Installed:	12/31/1988
Date Closed:	11/18/1997	Substance:	Used Oil
Owner:	CONOCOPHILLIPS COMPANY P.O. BOX 52085 Honolulu, HI 96815		

CONCOPHILLIPS 254573 (PREV: GEORGE'S UNION SERVICE (Continued) **U001235048**

22 WNW 1/2-1 3471 ft.

KING KALAKAUA PLAZA
2080 KALAKAUA AVE
HONOLULU, HI 96815

UST U003154872
SHWS N/A
LUST

Relative: Equal

Actual: 3 ft.

SHWS:

File Section :	Central
Type :	Private
Department 1 :	Not reported
Department 2 :	Not reported
Department 3 :	Not reported
Table :	Sitelist
Island :	Oahu
Zip :	Not reported
Discovery Assesment and Remediation :	Not reported
Initial Site Screening Team Lead :	Not reported
ISST Assigned :	Not reported
ISST Date :	Not reported
ISST Priority :	Not reported
ISST Letter :	Not reported
Env Justice Eligible :	Not reported
Preliminary Assesment :	Not reported
PA Lead :	Not reported
PA Date :	Not reported
PA Result :	Not reported
Site Investigation :	Not reported
SI Lead :	Not reported
SI Date :	Not reported
SI Result :	Not reported
Remediation Action Planned :	Not reported
VRP :	Not reported
Brownfields :	Not reported
Agreement :	Not reported
Remedial Investigation :	Not reported
RAA :	Not reported
Response Action Memo :	Not reported
REM Lead :	Not reported
REM Date :	Not reported
REM Last Update :	Not reported
Input By :	Not reported
Case :	Not reported
Fed Id :	Not reported
UST :	Not reported
Permits :	Not reported
RCRA :	Not reported
Program :	Not reported
Priority :	Not reported
Lat/Long :	Not reported
Cost :	Not reported
CU QNTY Site :	Not reported
Enforcement :	Not reported
CU Method :	Not reported
Ownership :	Not reported
Tax Map Key :	Not reported
Form :	Not reported
EPCRA :	Not reported
EPCRA FIL :	Not reported
Pathways :	Not reported

KING KALAKAUA PLAZA (Continued) **U003154872**

Targets :	Not reported
Manager :	Not reported
REM Result :	Not reported
Identifier :	Not reported
Site Code :	CS
Event :	Not reported
Event Type :	Not reported
Notes :	Not reported
Site :	Not reported
Site_ :	Not reported
Operator :	Not reported
Current :	Not reported
Compounds :	Not reported
Oname :	Not reported

LUST:

Facility ID:	9-103235
Alternate Event ID:	960085
Facility Status Date:	03/17/2000
Facility Status:	Site Cleanup Completed
Project Officer:	Maniulit

UST:

Facility ID:	9-103235	Tank ID:	R-1
Tank Status:	Permanently Out of Use		
Tank Capacity:	300	Installed:	Not reported
Date Closed:	7/24/1996	Substance:	Diesel
Owner:	K. YOUNG KALAKAUA PARTNERS INC. 841 BISHOP ST, SUITE 2250 Honolulu, HI 96815		

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23 **CHEVRON U.S.A., INC.** **UST** **U001235436**
NW **2002 KALAKAUA AVE** **SHWS** **N/A**
1/2-1 **HONOLULU, HI 96815** **LUST**
4083 ft.

Relative:
Equal

Actual:
3 ft.

SHWS:

File Section :	Central
Type :	Private
Department 1 :	Not reported
Department 2 :	Not reported
Department 3 :	Not reported
Table :	Sitelist
Island :	Oahu
Zip :	Not reported
Discovery Assesment and Remediation :	Not reported
Initial Site Screening Team Lead :	Not reported
ISST Assigned :	Not reported
ISST Date :	10/1/97
ISST Priority :	NFA
ISST Letter :	Not reported
Env Justice Eligible :	Not reported
Preliminary Assesment :	No
PA Lead :	Not reported
PA Date :	Not reported
PA Result :	Not reported
Site Investigation :	No
SI Lead :	Not reported
SI Date :	Not reported
SI Result :	Not reported

CHEVRON U.S.A., INC. (Continued) **U001235436**

Remediation Action Planned :	No
VRP :	Not reported
Brownfields :	Not reported
Agreement :	Not reported
Remedial Investigation :	Not reported
RAA :	Not reported
Response Action Memo :	Not reported
REM Lead :	Not reported
REM Date :	Not reported
REM Last Update :	3/22/00
Input By :	Bryce
Case :	Not reported
Fed Id :	Not reported
UST :	Not reported
Permits :	Not reported
RCRA :	N/A
Program :	HEER
Priority :	Not reported
Lat/Long :	Not reported
Cost :	Not reported
CU QNTY Site :	Not reported
Enforcement :	Not reported
CU Method :	Not reported
Ownership :	Not reported
Tax Map Key :	Not reported
Form :	Not reported
EPCRA :	Not reported
EPCRA FIL :	Not reported
Pathways :	Not reported
Targets :	Not reported
Manager :	Not reported
REM Result :	Not reported
Identifier :	Not reported
Site Code :	Not reported
Event :	Not reported
Event Type :	Not reported
Notes :	Not reported
Site :	Not reported
Site_ :	Not reported
Operator :	Not reported
Current :	Not reported
Compounds :	Not reported
Oname :	Not reported

LUST:

Facility ID:	9-101266
Alternate Event ID:	920073
Facility Status Date:	06/10/1997
Facility Status:	Site Cleanup Completed
Project Officer:	Okoji

UST:

Facility ID:	9-101266	Tank ID:	R-1
Tank Status:	Permanently Out of Use		
Tank Capacity:	10000	Installed:	Not reported
Date Closed:	Not reported	Substance:	Gasoline
Owner:	DAIO USA CORP		
	CENTURY CENTER, SUITE 705 / 1750 KALAKAUA AVE		

CHEVRON U.S.A., INC. (Continued) **U001235436**

Honolulu, HI 96815

Facility ID:	9-101266	Tank ID:	R-4
Tank Status:	Permanently Out of Use		
Tank Capacity:	1000	Installed:	Not reported
Date Closed:	Not reported	Substance:	Used Oil
Owner:	DAIO USA CORP CENTURY CENTER, SUITE 705 / 1750 KALAKAUA AVE Honolulu, HI 96815		

Facility ID:	9-101266	Tank ID:	R-2
Tank Status:	Permanently Out of Use		
Tank Capacity:	10000	Installed:	Not reported
Date Closed:	Not reported	Substance:	Gasoline
Owner:	DAIO USA CORP CENTURY CENTER, SUITE 705 / 1750 KALAKAUA AVE Honolulu, HI 96815		

Facility ID:	9-101266	Tank ID:	R-3
Tank Status:	Permanently Out of Use		
Tank Capacity:	5000	Installed:	Not reported
Date Closed:	Not reported	Substance:	Gasoline
Owner:	DAIO USA CORP CENTURY CENTER, SUITE 705 / 1750 KALAKAUA AVE Honolulu, HI 96815		

ORPHAN SUMMARY

City	EDR ID	Site Name	Site Address	Zip	Database(s)
HALEIWA	1000146720	KAWAILOA LANDFILL	KAWAILOA RD	96813	SHWS, LUST
HONOLULU	1004688961	AOAO YACHT HARBOR TOWERS	1600_1650 ALA MOANA BLVD	96815	RCRIS-SQG, FINDS
HONOLULU	1006806688	PACIFIC CRUISES	181 ALA MOANA BLVD PIER 7A	96813	RCRIS-SQG, FINDS
HONOLULU	S104534112	CARTWRIGHT NEIGHBORHOOD PARK	CORNER OF KEEAUMOKU ST. / MATLOCK A	96814	SHWS
HONOLULU	S104534136	ELLIOT STREET DRAINAGE CANAL	ELLIOT ST		SHWS, SPILLS
HONOLULU	S104657434	HONOLULU SHIPYARD, INC. (EWA OF PIE	EWA OF PIER 40	96813	SHWS
HONOLULU	S104534209	HONOLULU SHIPYARD, INC.	EWA OF PIER 40		SHWS
HONOLULU	S104657419	HAWAII INSTRUMENTATION & CONTROLS,	822 HALKAUWILA ST	96813	SHWS
HONOLULU	1004688907	SHERATON PRINCESS KAIULANI	120 KAIULANI AUCNUE	96815	RCRIS-SQG, FINDS
HONOLULU	S104657451	KING KALAKAUA PLAZA (WAIKIKI GATEWA	KALAKAUA AND KALAIMOKU STREETS		SHWS, SPILLS
HONOLULU	S104657484	NIMITZ HIGHWAY RELIEF SEWER	N. NIMITZ HWY AND HART ST	96813	SHWS
HONOLULU	S104534100	BHP, PIER 38	PIER 38		SHWS
HONOLULU	S104657508	SCRAP METAL PILE	PIER 34-35, NIMITZ HWY		SHWS
HONOLULU	S104534098	BHP TANK FARM, SAND ISLAND	SAND ISLAND		SHWS, SPILLS
HONOLULU	S104534082	BARBERS POINT HARBOR EXPANSION	TMK 9-1-14: PORTION OF 24 AND PORTI		SHWS
HONOLULU	S104657520	TRIPLER ARMY MEDICAL CENTER, BUILDI	TRIPLER ARMY MEDICAL CENTER, BUILDI		SHWS
HONOLULU COUNTY	S103763651	MCAS KANEOHE LF (KMCAS LF-0041-95)	KANEOHE BAY		SWF/LF, SPILLS
HONOLULU COUNTY	S103763647	NEW MILILANI LANDFILL	WAIPIO		SWF/LF
HONOLULU COUNTY	S103763648	OLD MILILANI LANDFILL	WAIPIO		SWF/LF
MOKULEIA	S104534174	HAWAII BITUMULS & PAVING CO	FARRINGTON HWY	96826	SHWS

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

To maintain currency of the following federal and state databases, EDR contacts the appropriate governmental agency on a monthly or quarterly basis, as required.

Elapsed ASTM days: Provides confirmation that this EDR report meets or exceeds the 90-day updating requirement of the ASTM standard.

FEDERAL ASTM STANDARD RECORDS

NPL: National Priority List
Source: EPA
Telephone: N/A
National Priorities List (Superfund). The NPL is a subset of CERCLIS and identifies over 1,200 sites for priority cleanup under the Superfund Program. NPL sites may encompass relatively large areas. As such, EDR provides polygon coverage for over 1,000 NPL site boundaries produced by EPA's Environmental Photographic Interpretation Center (EPIC) and regional EPA offices.

Date of Government Version: 10/21/03
Date Made Active at EDR: 12/08/03
Database Release Frequency: Semi-Annually

Date of Data Arrival at EDR: 11/03/03
Elapsed ASTM days: 35
Date of Last EDR Contact: 11/03/03

NPL Site Boundaries

Sources:

EPA's Environmental Photographic Interpretation Center (EPIC)
Telephone: 202-564-7333

EPA Region 1
Telephone 617-918-1143

EPA Region 6
Telephone: 214-655-6659

EPA Region 3
Telephone 215-814-5418

EPA Region 8
Telephone: 303-312-6774

EPA Region 4
Telephone 404-562-8033

Proposed NPL: Proposed National Priority List Sites
Source: EPA
Telephone: N/A

Date of Government Version: 10/14/03
Date Made Active at EDR: 12/08/03
Database Release Frequency: Semi-Annually

Date of Data Arrival at EDR: 12/01/03
Elapsed ASTM days: 7
Date of Last EDR Contact: 11/03/03

CERCLIS: Comprehensive Environmental Response, Compensation, and Liability Information System
Source: EPA
Telephone: 703-413-0223
CERCLIS contains data on potentially hazardous waste sites that have been reported to the USEPA by states, municipalities, private companies and private persons, pursuant to Section 103 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). CERCLIS contains sites which are either proposed to or on the National Priorities List (NPL) and sites which are in the screening and assessment phase for possible inclusion on the NPL.

Date of Government Version: 09/11/03
Date Made Active at EDR: 10/29/03
Database Release Frequency: Quarterly

Date of Data Arrival at EDR: 09/24/03
Elapsed ASTM days: 35
Date of Last EDR Contact: 09/24/03

CERCLIS-NFRAP: CERCLIS No Further Remedial Action Planned
Source: EPA
Telephone: 703-413-0223
As of February 1995, CERCLIS sites designated "No Further Remedial Action Planned" (NFRAP) have been removed from CERCLIS. NFRAP sites may be sites where, following an initial investigation, no contamination was found, contamination was removed quickly without the need for the site to be placed on the NPL, or the contamination was not serious enough to require Federal Superfund action or NPL consideration. EPA has removed approximately 25,000 NFRAP sites to lift the unintended barriers to the redevelopment of these properties and has archived them as historical records so EPA does not needlessly repeat the investigations in the future. This policy change is part of the EPA's Brownfields Redevelopment Program to help cities, states, private investors and affected citizens to promote economic redevelopment of unproductive urban sites.

Date of Government Version: 09/11/03
Date Made Active at EDR: 10/29/03
Database Release Frequency: Quarterly
Date of Data Arrival at EDR: 09/24/03
Elapsed ASTM days: 35
Date of Last EDR Contact: 09/24/03

CORRACTS: Corrective Action Report
Source: EPA
Telephone: 800-424-9346
CORRACTS identifies hazardous waste handlers with RCRA corrective action activity.

Date of Government Version: 09/17/03
Date Made Active at EDR: 11/11/03
Database Release Frequency: Semi-Annually
Date of Data Arrival at EDR: 10/01/03
Elapsed ASTM days: 41
Date of Last EDR Contact: 09/08/03

RCRIS: Resource Conservation and Recovery Information System
Source: EPA
Telephone: 800-424-9346
Resource Conservation and Recovery Information System. RCRIS includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Conditionally exempt small quantity generators (CESQGs): generate less than 100 kg of hazardous waste, or less than 1 kg of acutely hazardous waste per month. Small quantity generators (SQGs): generate between 100 kg and 1,000 kg of hazardous waste per month. Large quantity generators (LQGs): generate over 1,000 kilograms (kg) of hazardous waste, or over 1 kg of acutely hazardous waste per month. Transporters are individuals or entities that move hazardous waste from the generator off-site to a facility that can recycle, treat, store, or dispose of the waste. TSDFs treat, store, or dispose of the waste.

Date of Government Version: 09/10/03
Date Made Active at EDR: 10/01/03
Database Release Frequency: Varies
Date of Data Arrival at EDR: 09/11/03
Elapsed ASTM days: 20
Date of Last EDR Contact: 11/18/03

ERNS: Emergency Response Notification System
Source: National Response Center, United States Coast Guard
Telephone: 202-260-2342
Emergency Response Notification System. ERNS records and stores information on reported releases of oil and hazardous substances.

Date of Government Version: 12/31/02
Date Made Active at EDR: 02/03/03
Database Release Frequency: Annually
Date of Data Arrival at EDR: 01/27/03
Elapsed ASTM days: 7
Date of Last EDR Contact: 10/27/03

FEDERAL ASTM SUPPLEMENTAL RECORDS

BRS: Biennial Reporting System
Source: EPA/NTIS
Telephone: 800-424-9346
The Biennial Reporting System is a national system administered by the EPA that collects data on the generation and management of hazardous waste. BRS captures detailed data from two groups: Large Quantity Generators (LQG) and Treatment, Storage, and Disposal Facilities.

Date of Government Version: 12/01/01
Database Release Frequency: Biennially
Date of Last EDR Contact: 10/01/03
Date of Next Scheduled EDR Contact: 12/15/03

CONSENT: Superfund (CERCLA) Consent Decrees
Source: EPA Regional Offices
Telephone: Varies
Major legal settlements that establish responsibility and standards for cleanup at NPL (Superfund) sites. Released periodically by United States District Courts after settlement by parties to litigation matters.

Date of Government Version: N/A
Database Release Frequency: Varies
Date of Last EDR Contact: N/A
Date of Next Scheduled EDR Contact: N/A

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

ROD: Records Of Decision
Source: EPA
Telephone: 703-416-0223
Record of Decision. ROD documents mandate a permanent remedy at an NPL (Superfund) site containing technical and health information to aid in the cleanup.

Date of Government Version: 07/09/03
Database Release Frequency: Annually

Date of Last EDR Contact: 10/08/03
Date of Next Scheduled EDR Contact: 01/05/04

DELISTED NPL: National Priority List Deletions
Source: EPA
Telephone: N/A
The National Oil and Hazardous Substances Pollution Contingency Plan (NCP) establishes the criteria that the EPA uses to delete sites from the NPL. In accordance with 40 CFR 300.425.(e), sites may be deleted from the NPL where no further response is appropriate.

Date of Government Version: 10/21/03
Database Release Frequency: Quarterly

Date of Last EDR Contact: 11/03/03
Date of Next Scheduled EDR Contact: 02/02/04

FINDS: Facility Index System/Facility Identification Initiative Program Summary Report
Source: EPA
Telephone: N/A
Facility Index System. FINDS contains both facility information and 'pointers' to other sources that contain more detail. EDR includes the following FINDS databases in this report: PCS (Permit Compliance System), AIRS (Aerometric Information Retrieval System), DOCKET (Enforcement Docket used to manage and track information on civil judicial enforcement cases for all environmental statutes), FURS (Federal Underground Injection Control), C-DOCKET (Criminal Docket System used to track criminal enforcement actions for all environmental statutes), FFIS (Federal Facilities Information System), STATE (State Environmental Laws and Statutes), and PADS (PCB Activity Data System).

Date of Government Version: 10/23/03
Database Release Frequency: Quarterly

Date of Last EDR Contact: 10/07/03
Date of Next Scheduled EDR Contact: 01/05/04

HMIRS: Hazardous Materials Information Reporting System
Source: U.S. Department of Transportation
Telephone: 202-366-4555
Hazardous Materials Incident Report System. HMIRS contains hazardous material spill incidents reported to DOT.

Date of Government Version: 08/11/03
Database Release Frequency: Annually

Date of Last EDR Contact: 10/23/03
Date of Next Scheduled EDR Contact: 01/19/04

MLTS: Material Licensing Tracking System
Source: Nuclear Regulatory Commission
Telephone: 301-415-7169
MLTS is maintained by the Nuclear Regulatory Commission and contains a list of approximately 8,100 sites which possess or use radioactive materials and which are subject to NRC licensing requirements. To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 10/16/03
Database Release Frequency: Quarterly

Date of Last EDR Contact: 10/07/03
Date of Next Scheduled EDR Contact: 01/05/04

MINES: Mines Master Index File
Source: Department of Labor, Mine Safety and Health Administration
Telephone: 303-231-5959

Date of Government Version: 08/27/03
Database Release Frequency: Semi-Annually

Date of Last EDR Contact: 10/01/03
Date of Next Scheduled EDR Contact: 12/29/03

NPL LIENS: Federal Superfund Liens
Source: EPA
Telephone: 202-564-4267
Federal Superfund Liens. Under the authority granted the USEPA by the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) of 1980, the USEPA has the authority to file liens against real property in order to recover remedial action expenditures or when the property owner receives notification of potential liability. USEPA compiles a listing of filed notices of Superfund Liens.

Date of Government Version: 10/15/91
Database Release Frequency: No Update Planned
Date of Last EDR Contact: 11/21/03
Date of Next Scheduled EDR Contact: 02/23/04

PADS: PCB Activity Database System
Source: EPA
Telephone: 202-564-3887
PCB Activity Database. PADS Identifies generators, transporters, commercial storers and/or brokers and disposers of PCB's who are required to notify the EPA of such activities.

Date of Government Version: 06/30/03
Database Release Frequency: Annually
Date of Last EDR Contact: 11/12/03
Date of Next Scheduled EDR Contact: 02/09/04

DOD: Department of Defense Sites
Source: USGS
Telephone: 703-648-5920
This data set consists of federally owned or administered lands, administered by the Department of Defense, that have any area equal to or greater than 640 acres of the United States, Puerto Rico, and the U.S. Virgin Islands.

Date of Government Version: 10/01/03
Database Release Frequency: Semi-Annually
Date of Last EDR Contact: 11/12/03
Date of Next Scheduled EDR Contact: 02/09/04

STORMWATER: Storm Water General Permits
Source: Environmental Protection Agency
Telephone: 202 564-0746
A listing of all facilities with Storm Water General Permits.

Date of Government Version: N/A
Database Release Frequency: Quarterly
Date of Last EDR Contact: N/A
Date of Next Scheduled EDR Contact: N/A

US BROWNFIELDS: A Listing of Brownfields Sites
Source: Environmental Protection Agency
Telephone: 202-566-2777
Included in the listing are brownfields properties addresses by Cooperative Agreement Recipients and brownfields properties addressed by Targeted Brownfields Assessments. Targeted Brownfields Assessments-EPA's Targeted Brownfields Assessments (TBA) program is designed to help states, tribes, and municipalities--especially those without EPA Brownfields Assessment Demonstration Pilots--minimize the uncertainties of contamination often associated with brownfields. Under the TBA program, EPA provides funding and/or technical assistance for environmental assessments at brownfields sites throughout the country. Targeted Brownfields Assessments supplement and work with other efforts under EPA's Brownfields Initiative to promote cleanup and redevelopment of brownfields. Cooperative Agreement Recipients-States, political subdivisions, territories, and Indian tribes become BCRLF cooperative agreement recipients when they enter into BCRLF cooperative agreements with the U.S. EPA. EPA selects BCRLF cooperative agreement recipients based on a proposal and application process. BCRLF cooperative agreement recipients must use EPA funds provided through BCRLF cooperative agreement for specified brownfields-related cleanup activities.

Date of Government Version: 07/15/03
Database Release Frequency: Semi-Annually
Date of Last EDR Contact: 09/15/03
Date of Next Scheduled EDR Contact: 12/15/03

RMP: Risk Management Plans
Source: Environmental Protection Agency
Telephone: 202-564-8600
When Congress passed the Clean Air Act Amendments of 1990, it required EPA to publish regulations and guidance for chemical accident prevention at facilities using extremely hazardous substances. The Risk Management Program Rule (RMP Rule) was written to implement Section 112(r) of these amendments. The rule, which built upon existing industry codes and standards, requires companies of all sizes that use certain flammable and toxic substances to develop a Risk Management Program, which includes a(n): Hazard assessment that details the potential effects of an accidental release, an accident history of the last five years, and an evaluation of worst-case and alternative accidental releases; Prevention program that includes safety precautions and maintenance, monitoring, and employee training measures; and Emergency response program that spells out emergency health care, employee training measures and procedures for informing the public and response agencies (e.g the fire department) should an accident occur.

Date of Government Version: N/A
Database Release Frequency: N/A

Date of Last EDR Contact: N/A
Date of Next Scheduled EDR Contact: N/A

RAATS: RCRA Administrative Action Tracking System
Source: EPA
Telephone: 202-564-4104
RCRA Administration Action Tracking System. RAATS contains records based on enforcement actions issued under RCRA pertaining to major violators and includes administrative and civil actions brought by the EPA. For administration actions after September 30, 1995, data entry in the RAATS database was discontinued. EPA will retain a copy of the database for historical records. It was necessary to terminate RAATS because a decrease in agency resources made it impossible to continue to update the information contained in the database.

Date of Government Version: 04/17/95
Database Release Frequency: No Update Planned

Date of Last EDR Contact: 09/08/03
Date of Next Scheduled EDR Contact: 12/08/03

TRIS: Toxic Chemical Release Inventory System
Source: EPA
Telephone: 202-260-1531
Toxic Release Inventory System. TRIS identifies facilities which release toxic chemicals to the air, water and land in reportable quantities under SARA Title III Section 313.

Date of Government Version: 12/31/01
Database Release Frequency: Annually

Date of Last EDR Contact: 09/23/03
Date of Next Scheduled EDR Contact: 12/22/03

TSCA: Toxic Substances Control Act
Source: EPA
Telephone: 202-260-5521
Toxic Substances Control Act. TSCA identifies manufacturers and importers of chemical substances included on the TSCA Chemical Substance Inventory list. It includes data on the production volume of these substances by plant site.

Date of Government Version: 12/31/98
Database Release Frequency: Every 4 Years

Date of Last EDR Contact: 09/02/03
Date of Next Scheduled EDR Contact: 12/08/03

FTTS INSP: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
Source: EPA
Telephone: 202-564-2501

Date of Government Version: 10/16/03
Database Release Frequency: Quarterly

Date of Last EDR Contact: 09/23/03
Date of Next Scheduled EDR Contact: 12/22/03

SSTS: Section 7 Tracking Systems
Source: EPA
Telephone: 202-564-5008
Section 7 of the Federal Insecticide, Fungicide and Rodenticide Act, as amended (92 Stat. 829) requires all registered pesticide-producing establishments to submit a report to the Environmental Protection Agency by March 1st each year. Each establishment must report the types and amounts of pesticides, active ingredients and devices being produced, and those having been produced and sold or distributed in the past year.

Date of Government Version: 12/31/01
Database Release Frequency: Annually

Date of Last EDR Contact: 10/20/03
Date of Next Scheduled EDR Contact: 01/19/04

FTTS: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
Source: EPA/Office of Prevention, Pesticides and Toxic Substances
Telephone: 202-564-2501
FTTS tracks administrative cases and pesticide enforcement actions and compliance activities related to FIFRA, TSCA and EPCRA (Emergency Planning and Community Right-to-Know Act). To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 10/16/03
Database Release Frequency: Quarterly

Date of Last EDR Contact: 09/23/03
Date of Next Scheduled EDR Contact: 12/22/03

STATE OF HAWAII ASTM STANDARD RECORDS

SHWS: Sites List
Source: Department of Health
Telephone: 808-586-4249
Facilities, sites or areas in which the Office of Hazard Evaluation and Emergency Response has an interest, has investigated or may investigate under HRS 128D (includes CERCLIS sites).

Date of Government Version: 07/12/01
Date Made Active at EDR: 10/16/01
Database Release Frequency: Semi-Annually

Date of Data Arrival at EDR: 09/24/01
Elapsed ASTM days: 22
Date of Last EDR Contact: 09/23/03

SWF/LF: Permitted Landfills in the State of Hawaii
Source: Department of Health
Telephone: 808-586-4245
Solid Waste Facilities/Landfill Sites. SWF/LF type records typically contain an inventory of solid waste disposal facilities or landfills in a particular state. Depending on the state, these may be active or inactive facilities or open dumps that failed to meet RCRA Subtitle D Section 4004 criteria for solid waste landfills or disposal sites.

Date of Government Version: 05/03/99
Date Made Active at EDR: 05/25/99
Database Release Frequency: Varies

Date of Data Arrival at EDR: 05/10/99
Elapsed ASTM days: 15
Date of Last EDR Contact: 10/27/03

LUST: Leaking Underground Storage Tank Database
Source: Department of Health
Telephone: 808-586-4228
Leaking Underground Storage Tank Incident Reports. LUST records contain an inventory of reported leaking underground storage tank incidents. Not all states maintain these records, and the information stored varies by state.

Date of Government Version: 08/01/03
Date Made Active at EDR: 09/17/03
Database Release Frequency: Semi-Annually

Date of Data Arrival at EDR: 09/02/03
Elapsed ASTM days: 15
Date of Last EDR Contact: 09/02/03

UST: Underground Storage Tank Database
Source: Department of Health
Telephone: 808-586-4228
Registered Underground Storage Tanks. UST's are regulated under Subtitle I of the Resource Conservation and Recovery Act (RCRA) and must be registered with the state department responsible for administering the UST program. Available information varies by state program.

Date of Government Version: 08/01/03
Date Made Active at EDR: 09/11/03
Database Release Frequency: Semi-Annually

Date of Data Arrival at EDR: 09/02/03
Elapsed ASTM days: 9
Date of Last EDR Contact: 09/02/03

VCP: Voluntary Response Program Sites
Source: Department of Health
Telephone: 808-586-4249

Date of Government Version: 10/10/03
Date Made Active at EDR: 10/21/03
Database Release Frequency: Varies

Date of Data Arrival at EDR: 10/13/03
Elapsed ASTM days: 8
Date of Last EDR Contact: 09/23/03

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

STATE OF HAWAII ASTM SUPPLEMENTAL RECORDS

SPILLS: Release Notifications
Source: Department of Health
Telephone: 808-586-4249
Releases of hazardous substances to the environment reported to the Office of Hazard Evaluation and Emergency Response since 1988.

Date of Government Version: 09/01/00
Database Release Frequency: Varies

Date of Last EDR Contact: 09/23/03
Date of Next Scheduled EDR Contact: 12/22/03

EDR PROPRIETARY HISTORICAL DATABASES

Former Manufactured Gas (Coal Gas) Sites: The existence and location of Coal Gas sites is provided exclusively to EDR by Real Property Scan, Inc. ©Copyright 1993 Real Property Scan, Inc. For a technical description of the types of hazards which may be found at such sites, contact your EDR customer service representative.

Disclaimer Provided by Real Property Scan, Inc.

The information contained in this report has predominantly been obtained from publicly available sources produced by entities other than Real Property Scan. While reasonable steps have been taken to insure the accuracy of this report, Real Property Scan does not guarantee the accuracy of this report. Any liability on the part of Real Property Scan is strictly limited to a refund of the amount paid. No claim is made for the actual existence of toxins at any site. This report does not constitute a legal opinion.

BROWNFIELDS DATABASES

BROWNFIELDS: Brownfields Sites
Source: Department of Health
Telephone: 808-586-4249

Date of Government Version: 10/10/03
Database Release Frequency: Varies

Date of Last EDR Contact: 09/23/03
Date of Next Scheduled EDR Contact: 12/22/03

VCP: Voluntary Response Program Sites
Source: Department of Health
Telephone: 808-586-4249

Date of Government Version: 10/04/03
Database Release Frequency: Varies

Date of Last EDR Contact: 09/23/03
Date of Next Scheduled EDR Contact: 12/22/03

US BROWNFIELDS: A Listing of Brownfields Sites
Source: Environmental Protection Agency
Telephone: 202-566-2777
Included in the listing are brownfields properties addresses by Cooperative Agreement Recipients and brownfields properties addressed by Targeted Brownfields Assessments. Targeted Brownfields Assessments-EPA's Targeted Brownfields Assessments (TBA) program is designed to help states, tribes, and municipalities--especially those without EPA Brownfields Assessment Demonstration Pilots--minimize the uncertainties of contamination often associated with brownfields. Under the TBA program, EPA provides funding and/or technical assistance for environmental assessments at brownfields sites throughout the country. Targeted Brownfields Assessments supplement and work with other efforts under EPA's Brownfields Initiative to promote cleanup and redevelopment of brownfields. Cooperative Agreement Recipients-States, political subdivisions, territories, and Indian tribes become BCRLF cooperative agreement recipients when they enter into BCRLF cooperative agreements with the U.S. EPA. EPA selects BCRLF cooperative agreement recipients based on a proposal and application process. BCRLF cooperative agreement recipients must use EPA funds provided through BCRLF cooperative agreement for specified brownfields-related cleanup activities.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: N/A
Database Release Frequency: Semi-Annually

Date of Last EDR Contact: N/A
Date of Next Scheduled EDR Contact: N/A

OTHER DATABASE(S)

Depending on the geographic area covered by this report, the data provided in these specialty databases may or may not be complete. For example, the existence of wetlands information data in a specific report does not mean that all wetlands in the area covered by the report are included. Moreover, the absence of any reported wetlands information does not necessarily mean that wetlands do not exist in the area covered by the report.

Oil/Gas Pipelines: This data was obtained by EDR from the USGS in 1994. It is referred to by USGS as GeoData Digital Line Graphs from 1:100,000-Scale Maps. It was extracted from the transportation category including some oil, but primarily gas pipelines.

Electric Power Transmission Line Data
Source: PennWell Corporation
Telephone: (800) 823-6277
This map includes information copyrighted by PennWell Corporation. This information is provided on a best effort basis and PennWell Corporation does not guarantee its accuracy nor warrant its fitness for any particular purpose. Such information has been reprinted with the permission of PennWell.

Sensitive Receptors: There are individuals deemed sensitive receptors due to their fragile immune systems and special sensitivity to environmental discharges. These sensitive receptors typically include the elderly, the sick, and children. While the location of all sensitive receptors cannot be determined, EDR indicates those buildings and facilities - schools, daycares, hospitals, medical centers, and nursing homes - where individuals who are sensitive receptors are likely to be located.

AHA Hospitals:
Source: American Hospital Association, Inc.
Telephone: 312-280-5991
The database includes a listing of hospitals based on the American Hospital Association's annual survey of hospitals.

Medical Centers: Provider of Services Listing
Source: Centers for Medicare & Medicaid Services
Telephone: 410-786-3000
A listing of hospitals with Medicare provider number, produced by Centers of Medicare & Medicaid Services, a federal agency within the U.S. Department of Health and Human Services.

Nursing Homes
Source: National Institutes of Health
Telephone: 301-594-6248
Information on Medicare and Medicaid certified nursing homes in the United States.

Public Schools
Source: National Center for Education Statistics
Telephone: 202-502-7300
The National Center for Education Statistics' primary database on elementary and secondary public education in the United States. It is a comprehensive, annual, national statistical database of all public elementary and secondary schools and school districts, which contains data that are comparable across all states.

Private Schools
Source: National Center for Education Statistics
Telephone: 202-502-7300
The National Center for Education Statistics' primary database on private school locations in the United States.

Flood Zone Data: This data, available in select counties across the country, was obtained by EDR in 1999 from the Federal Emergency Management Agency (FEMA). Data depicts 100-year and 500-year flood zones as defined by FEMA.

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002 from the U.S. Fish and Wildlife Service.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

STREET AND ADDRESS INFORMATION

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GEOCHECK®- PHYSICAL SETTING SOURCE ADDENDUM

TARGET PROPERTY ADDRESS

TUSITALA VISTA
2423/2429 ALA WAI BLVD
HONOLULU, HI 96813

TARGET PROPERTY COORDINATES

Latitude (North):	21.278099 - 21° 16' 41.2"
Longitude (West):	157.822098 - 157° 49' 19.6"
Universal Tranverse Mercator:	Zone 4
UTM X (Meters):	622197.9
UTM Y (Meters):	2353243.5
Elevation:	3 ft. above sea level

EDR's GeoCheck Physical Setting Source Addendum has been developed to assist the environmental professional with the collection of physical setting source information in accordance with ASTM 1527-00, Section 7.2.3. Section 7.2.3 requires that a current USGS 7.5 Minute Topographic Map (or equivalent, such as the USGS Digital Elevation Model) be reviewed. It also requires that one or more additional physical setting sources be sought when (1) conditions have been identified in which hazardous substances or petroleum products are likely to migrate to or from the property, and (2) more information than is provided in the current USGS 7.5 Minute Topographic Map (or equivalent) is generally obtained, pursuant to local good commercial or customary practice, to assess the impact of migration of recognized environmental conditions in connection with the property. Such additional physical setting sources generally include information about the topographic, hydrologic, hydrogeologic, and geologic characteristics of a site, and wells in the area.

Assessment of the impact of contaminant migration generally has two principle investigative components:

1. Groundwater flow direction, and
2. Groundwater flow velocity.

Groundwater flow direction may be impacted by surface topography, hydrology, hydrogeology, characteristics of the soil, and nearby wells. Groundwater flow velocity is generally impacted by the nature of the geologic strata. EDR's GeoCheck Physical Setting Source Addendum is provided to assist the environmental professional in forming an opinion about the impact of potential contaminant migration.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

GROUNDWATER FLOW DIRECTION INFORMATION

Groundwater flow direction for a particular site is best determined by a qualified environmental professional using site-specific well data. If such data is not reasonably ascertainable, it may be necessary to rely on other sources of information, such as surface topographic information, hydrologic information, hydrogeologic data collected on nearby properties, and regional groundwater flow information (from deep aquifers).

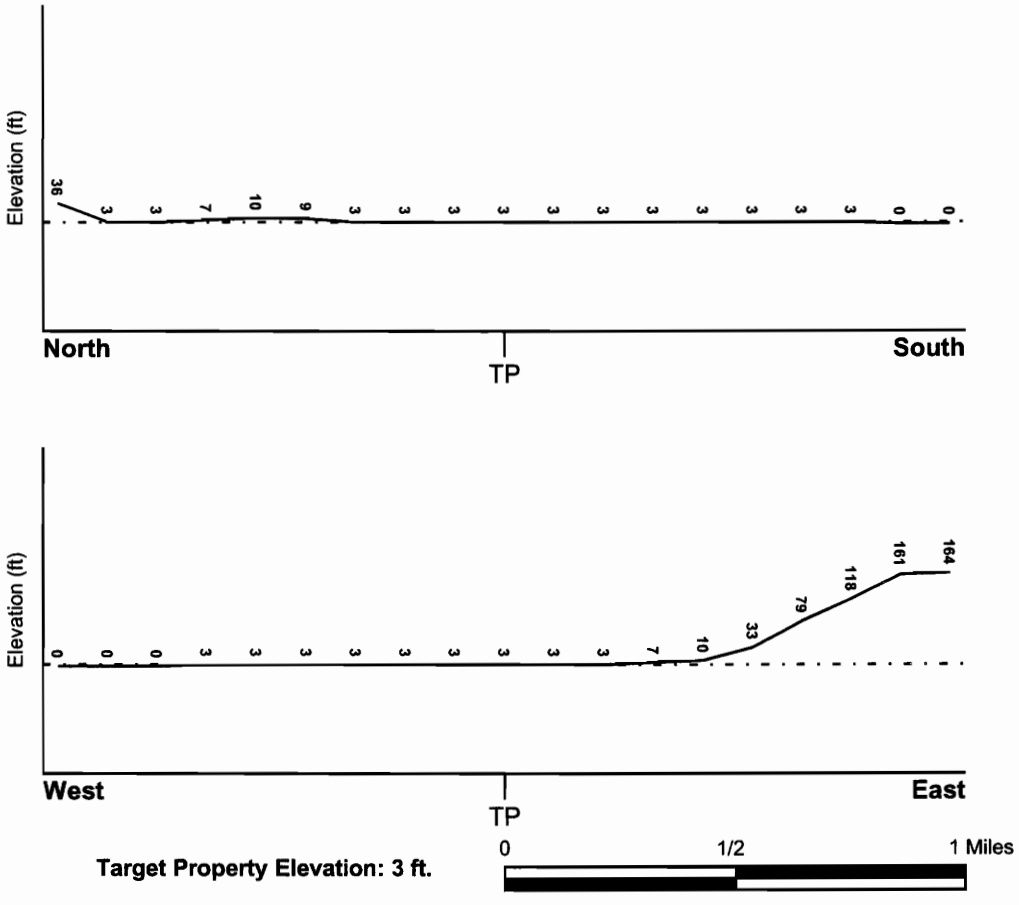
TOPOGRAPHIC INFORMATION

Surface topography may be indicative of the direction of surficial groundwater flow. This information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

TARGET PROPERTY TOPOGRAPHY

USGS Topographic Map:	21157-C7 HONOLULU, HI
General Topographic Gradient:	Undeterminable
Source:	USGS 7.5 min quad index

SURROUNDING TOPOGRAPHY: ELEVATION PROFILES



Source: Topography has been determined from the USGS 7.5' Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

HYDROLOGIC INFORMATION

Surface water can act as a hydrologic barrier to groundwater flow. Such hydrologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

Refer to the Physical Setting Source Map following this summary for hydrologic information (major waterways and bodies of water).

FEMA FLOOD ZONE

Target Property County	FEMA Flood Electronic Data
HONOLULU, HI	YES - refer to the Overview Map and Detail Map

Flood Plain Panel at Target Property: 1500010120C

Additional Panels in search area: Not Reported

NATIONAL WETLAND INVENTORY

NWI Quad at Target Property	NWI Electronic Data Coverage
HONOLULU	YES - refer to the Overview Map and Detail Map

HYDROGEOLOGIC INFORMATION

Hydrogeologic information obtained by installation of wells on a specific site can often be an indicator of groundwater flow direction in the immediate area. Such hydrogeologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

AQUIFLOW®

Search Radius: 1.000 Mile.

EDR has developed the AQUIFLOW Information System to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted by environmental professionals to regulatory authorities at select sites and has extracted the date of the report, groundwater flow direction as determined hydrogeologically, and the depth to water table.

MAP ID	LOCATION FROM TP	GENERAL DIRECTION GROUNDWATER FLOW
Not Reported		

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

GROUNDWATER FLOW VELOCITY INFORMATION

Groundwater flow velocity information for a particular site is best determined by a qualified environmental professional using site specific geologic and soil strata data. If such data are not reasonably ascertainable, it may be necessary to rely on other sources of information, including geologic age identification, rock stratigraphic unit and soil characteristics data collected on nearby properties and regional soil information. In general, contaminant plumes move more quickly through sandy-gravelly types of soils than silty-clayey types of soils.

GEOLOGIC INFORMATION IN GENERAL AREA OF TARGET PROPERTY

Geologic information can be used by the environmental professional in forming an opinion about the relative speed at which contaminant migration may be occurring.

ROCK STRATIGRAPHIC UNIT

Era: -
System: -
Series: -
Code: N/A *(decoded above as Era, System & Series)*

GEOLOGIC AGE IDENTIFICATION

Category: -

Geologic Age and Rock Stratigraphic Unit Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - a digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

DOMINANT SOIL COMPOSITION IN GENERAL AREA OF TARGET PROPERTY

The U.S. Department of Agriculture's (USDA) Soil Conservation Service (SCS) leads the National Cooperative Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. Soil maps for STATSGO are compiled by generalizing more detailed (SSURGO) soil survey maps. The following information is based on Soil Conservation Service STATSGO data.

Soil Component Name:	LITHIC USTORTHENTS
Soil Surface Texture:	variable
Hydrologic Group:	Class D - Very slow infiltration rates. Soils are clayey, have a high water table, or are shallow to an impervious layer.
Soil Drainage Class:	Well drained. Soils have intermediate water holding capacity. Depth to water table is more than 6 feet.

Hydric Status: Soil does not meet the requirements for a hydric soil.

Corrosion Potential - Uncoated Steel: HIGH

Depth to Bedrock Min: > 40 inches

Depth to Bedrock Max: > 60 inches

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Soil Layer Information							
	Boundary			Classification			
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil	Permeability Rate (in/hr)	Soil Reaction (pH)
1	0 inches	6 inches	variable	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit 50% or more), Elastic silt.	Max: 2.00 Min: 0.20	Max: 7.30 Min: 6.10
2	6 inches	60 inches	stratified	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit 50% or more), Elastic silt.	Max: 2.00 Min: 0.20	Max: 7.30 Min: 6.10
3	60 inches	64 inches	unweathered bedrock	Not reported	Not reported	Max: 2.00 Min: 0.06	Max: 0.00 Min: 0.00

OTHER SOIL TYPES IN AREA

Based on Soil Conservation Service STATSGO data, the following additional subordinant soil types may appear within the general area of target property.

Soil Surface Textures: sand
silty clay loam

Surficial Soil Types: sand
silty clay loam

Shallow Soil Types: No Other Soil Types

Deeper Soil Types: sand
coarse sand

ADDITIONAL ENVIRONMENTAL RECORD SOURCES

According to ASTM E 1527-00, Section 7.2.2, "one or more additional state or local sources of environmental records may be checked, in the discretion of the environmental professional, to enhance and supplement federal and state sources... Factors to consider in determining which local or additional state records, if any, should be checked include (1) whether they are reasonably ascertainable, (2) whether they are sufficiently useful, accurate, and complete in light of the objective of the records review (see 7.1.1), and (3) whether they are obtained, pursuant to local, good commercial or customary practice." One of the record sources listed in Section 7.2.2 is water well information. Water well information can be used to assist the environmental professional in assessing sources that may impact groundwater flow direction, and in forming an opinion about the impact of contaminant migration on nearby drinking water wells.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

WELL SEARCH DISTANCE INFORMATION

DATABASE	SEARCH DISTANCE (miles)
Federal USGS	1.000
Federal FRDS PWS	Nearest PWS within 1 mile
State Database	1.000

FEDERAL USGS WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
A1	USGS0224169	0 - 1/8 Mile WNW
B3	USGS0224105	0 - 1/8 Mile SSE
C5	USGS0224171	1/8 - 1/4 Mile WNW
D8	USGS0224098	1/4 - 1/2 Mile SSW
E9	USGS0224104	1/4 - 1/2 Mile ESE
F12	USGS0224106	1/4 - 1/2 Mile WSW
E14	USGS0224103	1/4 - 1/2 Mile ESE
G16	USGS0224173	1/4 - 1/2 Mile ENE
E18	USGS0224099	1/4 - 1/2 Mile ESE
G21	USGS0224172	1/4 - 1/2 Mile ENE
H23	USGS0224112	1/4 - 1/2 Mile NE
I26	USGS0224183	1/4 - 1/2 Mile North
I27	USGS0224117	1/2 - 1 Mile North
J30	USGS0224175	1/2 - 1 Mile ENE
I31	USGS0224116	1/2 - 1 Mile North
I33	USGS0224119	1/2 - 1 Mile North
I35	USGS0224121	1/2 - 1 Mile NNE
K37	USGS0224167	1/2 - 1 Mile SE
L40	USGS0224110	1/2 - 1 Mile ENE
M42	USGS0224122	1/2 - 1 Mile NNE
N44	USGS0224182	1/2 - 1 Mile NE
N45	USGS0224181	1/2 - 1 Mile NE
N46	USGS0224180	1/2 - 1 Mile NE
O47	USGS0224118	1/2 - 1 Mile NNE
N49	USGS0224179	1/2 - 1 Mile NE
P52	USGS0224164	1/2 - 1 Mile SSE
M53	USGS0224124	1/2 - 1 Mile NNE
Q56	USGS0224177	1/2 - 1 Mile NE
57	USGS0224165	1/2 - 1 Mile SE
R58	USGS0224128	1/2 - 1 Mile North
S61	USGS0224163	1/2 - 1 Mile SE
T63	USGS0224130	1/2 - 1 Mile North
U67	USGS0224127	1/2 - 1 Mile NE
V68	USGS0224174	1/2 - 1 Mile NNE
W70	USGS0224159	1/2 - 1 Mile South
U82	USGS0224190	1/2 - 1 Mile NE
U83	USGS0224189	1/2 - 1 Mile NE
U84	USGS0224186	1/2 - 1 Mile NE
U85	USGS0224188	1/2 - 1 Mile NE
U86	USGS0224187	1/2 - 1 Mile NE
U87	USGS0224191	1/2 - 1 Mile NE

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

FEDERAL USGS WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
U88	USGS0224192	1/2 - 1 Mile NE
U89	USGS0224193	1/2 - 1 Mile NE
U90	USGS0224194	1/2 - 1 Mile NE
U91	USGS0224125	1/2 - 1 Mile NE
U92	USGS0224126	1/2 - 1 Mile NE
X93	USGS0224160	1/2 - 1 Mile SSE
V96	USGS0224133	1/2 - 1 Mile NNE
Y99	USGS0224111	1/2 - 1 Mile WNW
Z100	USGS0224195	1/2 - 1 Mile NNE
AA102	USGS0224132	1/2 - 1 Mile NE

FEDERAL FRDS PUBLIC WATER SUPPLY SYSTEM INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
65	HI0000331	1/2 - 1 Mile SSW

Note: PWS System location is not always the same as well location.

STATE DATABASE WELL INFORMATION

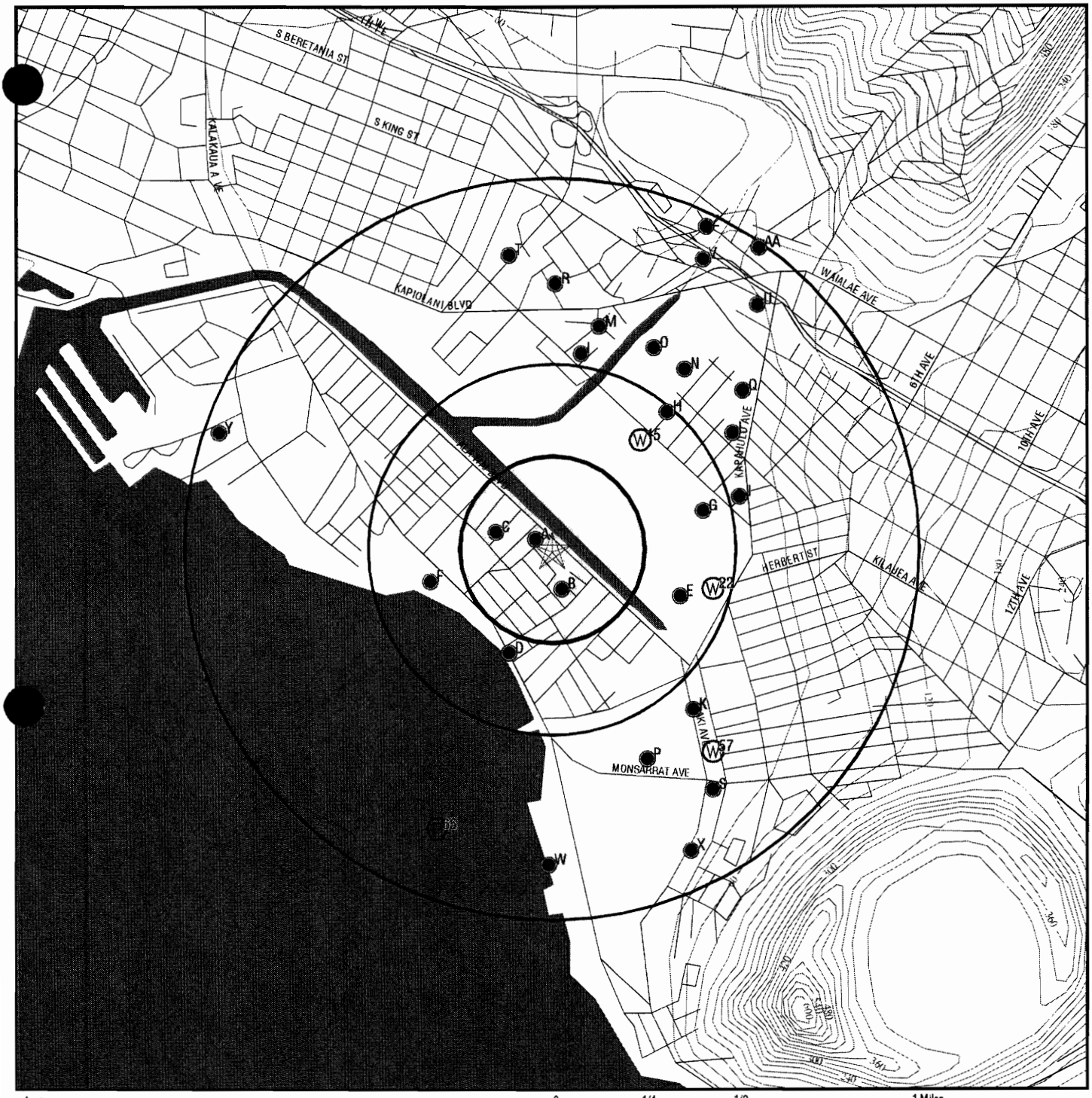
MAP ID	WELL ID	LOCATION FROM TP
A2	3-1649-008	0 - 1/8 Mile WNW
B4	3-1649-001	0 - 1/8 Mile SSE
C6	3-1649-009	1/8 - 1/4 Mile WNW
D7	3-1649-007	1/4 - 1/2 Mile SSW
E10	3-1649-004	1/4 - 1/2 Mile ESE
F11	3-1649-012	1/4 - 1/2 Mile WSW
E13	3-1649-003	1/4 - 1/2 Mile ESE
15	3-1749-023	1/4 - 1/2 Mile NE
G17	3-1649-006	1/4 - 1/2 Mile ENE
E19	3-1649-002	1/4 - 1/2 Mile ESE
G20	3-1649-005	1/4 - 1/2 Mile ENE
22	3-1649-018	1/4 - 1/2 Mile ESE
H24	3-1749-008	1/4 - 1/2 Mile NE
I25	3-1749-017	1/4 - 1/2 Mile North
I28	3-1749-012	1/2 - 1 Mile North
J29	3-1749-009	1/2 - 1 Mile ENE
I32	3-1749-002	1/2 - 1 Mile North
I34	3-1749-013	1/2 - 1 Mile North
I36	3-1749-010	1/2 - 1 Mile NNE
K38	3-1649-014	1/2 - 1 Mile SE
L39	3-1749-016	1/2 - 1 Mile ENE
M41	3-1749-011	1/2 - 1 Mile North
N43	3-1749-007	1/2 - 1 Mile NE
O48	3-1749-014	1/2 - 1 Mile NNE
N50	3-1749-022	1/2 - 1 Mile NE
P51	3-1649-011	1/2 - 1 Mile SSE
M54	3-1749-001	1/2 - 1 Mile NNE

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

STATE DATABASE WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
Q55	3-1749-018	1/2 - 1 Mile NE
R59	3-1749-005	1/2 - 1 Mile North
S60	3-1649-013	1/2 - 1 Mile SE
S62	3-1649-015	1/2 - 1 Mile SSE
T64	3-1749-003	1/2 - 1 Mile North
U66	3-1749-015	1/2 - 1 Mile NE
V69	3-1749-019	1/2 - 1 Mile NNE
W71	3-1649-010	1/2 - 1 Mile South
U72	3-1748-005	1/2 - 1 Mile NE
U73	3-1748-006	1/2 - 1 Mile NE
U74	3-1748-003	1/2 - 1 Mile NE
U75	3-1748-004	1/2 - 1 Mile NE
U76	3-1748-007	1/2 - 1 Mile NE
U77	3-1748-011	1/2 - 1 Mile NE
U78	3-1748-014	1/2 - 1 Mile NE
U79	3-1748-010	1/2 - 1 Mile NE
U80	3-1748-008	1/2 - 1 Mile NE
U81	3-1748-009	1/2 - 1 Mile NE
X94	3-1649-016	1/2 - 1 Mile SSE
V95	3-1749-006	1/2 - 1 Mile NNE
X97	3-1649-017	1/2 - 1 Mile SSE
Y98	3-1750-006	1/2 - 1 Mile WNW
Z101	3-1749-004	1/2 - 1 Mile NNE
AA103	3-1748-002	1/2 - 1 Mile NE

PHYSICAL SETTING SOURCE MAP - 01102348.2r



- County Boundary
- Major Roads
- Contour Lines
- Earthquake epicenter, Richter 5 or greater
- Water Wells
- Public Water Supply Wells
- Cluster of Multiple Icons

- Groundwater Flow Direction
- GI Indeterminate Groundwater Flow at Location
- GV Groundwater Flow Varies at Location

TARGET PROPERTY:	Tusitala Vista	CUSTOMER:	Global Env. Svcs. Group
ADDRESS:	2423/2429 Ala Wai Blvd	CONTACT:	Mike Polkinghorn
CITY/STATE/ZIP:	Honolulu HI 96813	INQUIRY #:	01102348.2r
LAT/LONG:	21.2781 / 157.8221	DATE:	December 19, 2003 4:35 pm

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GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance
Elevation

	Database	EDR ID Number
A1 **WNW** **0 - 1/8 Mile** **Higher**	**FED USGS**	**USGS0224169**

Agency:	USGS	Site ID:	211654157493201
Site Name:	3-1649-08 W19 WAIKIK		
Dec. Latitude:	21.2785		
Dec. Longitude:	-157.82281		
Coord Sys:	NAD83		
State:	HI		
County:	Honolulu County		
Altitude:	5.00		
Hydrologic code:	20060000		
Topographic:	Not Reported		
Site Type:	Ground-water other than Spring		
Const Date:	19000101	Inven Date:	Not Reported
Well Type:	Single well, other than collector or Ranney type		
Primary Aquifer:	Not Reported		
Aquifer type:	Not Reported		
Well depth:	666		
Hole depth:	Not Reported	Source:	Not Reported
Project no:	Not Reported		

Ground-water levels, Number of Measurements: 0

	Database	EDR ID Number
A2 **WNW** **0 - 1/8 Mile** **Higher**	**HI WELLS**	**3-1649-008**

Wid:	3-1649-008	Island Code:	3
Island Name:	Oahu	Well no:	1649-08
Well name:	Waikiki	Old name:	Not Reported
Yr drilled:	1900	Driller:	AI
Quad_map:	13	Latitude:	211654
Longitude:	1574932	UTM:	Y
Gps:	N	Owner/user:	Guardian Trus
Old number:	19-	Well_type:	Not Reported
Type:	Not Reported	Casing dia:	8
Ground Elev:	5	Well depth:	666
Solid casing Depth:	608	Perf casing Depth:	Not Reported
Use:	SLD	Use Desc:	Sealed
Use year:	28	Water Top Elev:	0
Chloride value:	0	Test date:	Not Reported
Pumping Test rate:	Not Reported	Drop in water Lvl:	Not Reported
Chloride Test:	Not Reported	Temperature:	Not Reported
Units:	Not Reported	Pump Capacity:	0
Annual Draft:	Not Reported	Static Water Lvl:	20.5
Geology:	Not Reported	Geology desc:	Not Reported
Installed:	Not Reported	Last Measured:	Not Reported

Max chlorides:	Not Reported	Max Cl year:	Not Reported
Min chlorides:	Not Reported	Min Cl year:	Not Reported
Bot_hole depth:	-661	bot_solid depth:	-603
Bot_perf depth:	Not Reported	Well Capacity:	Not Reported
Pump Capacity:	Not Reported	Draft (mgd):	Not Reported
Tax map key:	Not Reported	Aquifer code:	30101
Latest head mmt:	20.5	Cur head mmt:	Not Reported
Current Cl mmt:	Not Reported	Const. Date:	01/02/1900 00:00:00
Pump Inst. Date:	Not Reported	Surveyor:	Not Reported
Transmissivity:	0	Pump intake elev:	Not Reported
Pump depth:	Not Reported		

B3
SSE
0 - 1/8 Mile
Higher

FED USGS **USGS0224105**

Agency:	USGS	Site ID:	211647157492801
Site Name:	3-1649-01 W21 WAIKIK		
Dec. Latitude:	21.27656		
Dec. Longitude:	-157.8217		
Coord Sys:	NAD83		
State:	HI		
County:	Honolulu County		
Altitude:	5.00		
Hydrologic code:	20060000		
Topographic:	Not Reported		
Site Type:	Ground-water other than Spring		
Const Date:	18820101	Inven Date:	Not Reported
Well Type:	Single well, other than collector or Ranney type		
Primary Aquifer:	Not Reported		
Aquifer type:	Not Reported		
Well depth:	856		
Hole depth:	Not Reported	Source:	Not Reported
Project no:	Not Reported		

Ground-water levels, Number of Measurements: 0

B4
SSE
0 - 1/8 Mile
Higher

HI WELLS **3-1649-001**

Wid:	3-1649-001	Island Code:	3
Island Name:	Oahu	Well no:	1649-01
Well name:	Waikiki	Old name:	Not Reported
Yr drilled:	1882	Driller:	Not Reported
Quad_map:	13	Latitude:	211647
Longitude:	1574928	UTM:	Y
Gps:	N	Owner/user:	Lucas G
Old number:	21-	Well_type:	Not Reported
Type:	Not Reported	Casing dia:	8
Ground Elev:	5	Well depth:	856

Solid casing Depth:	856	Perf casing Depth:	Not Reported
Use:	SLD	Use Desc:	Sealed
Use year:	27	Water Top Elev:	7
Chloride value:	0	Test date:	Not Reported
Pumping Test rate:	Not Reported	Drop in water Lvl:	Not Reported
Chloride Test:	Not Reported	Temperature:	Not Reported
Units:	Not Reported	Pump Capacity:	0
Annual Draft:	Not Reported	Static Water Lvl:	7.0
Geology:	TKB	Geology desc:	Tertiary Koolau basalt
Installed:	Not Reported	Last Measured:	00
Max chlorides:	Not Reported	Max Cl year:	0
Min chlorides:	Not Reported	Min Cl year:	0
Bot_hole depth:	-851	bot_solid depth:	-851
Bot_perf depth:	Not Reported	Well Capacity:	Not Reported
Pump Capacity:	Not Reported	Draft (mgd):	Not Reported
Tax map key:	Not Reported	Aquifer code:	30101
Latest head mmt:	7	Cur head mmt:	Not Reported
Current Cl mmt:	Not Reported	Const. Date:	01/01/1882 00:00:00
Pump Inst. Date:	Not Reported	Surveyor:	Not Reported
Transmissivity:	0	Pump intake elev:	Not Reported
Pump depth:	Not Reported		

C5
WNW
1/8 - 1/4 Mile
Higher

FED USGS **USGS0224171**

Agency:	USGS	Site ID:	211655157493801
Site Name:	3-1649-09 W23 WAIKIK		
Dec. Latitude:	21.27878		
Dec. Longitude:	-157.82448		
Coord Sys:	NAD83		
State:	HI		
County:	Honolulu County		
Altitude:	4.00		
Hydrologic code:	20060000		
Topographic:	Not Reported		
Site Type:	Ground-water other than Spring		
Const Date:	19140101	Inven Date:	Not Reported
Well Type:	Single well, other than collector or Ranney type		
Primary Aquifer:	Not Reported		
Aquifer type:	Not Reported		
Well depth:	810		
Hole depth:	Not Reported	Source:	Not Reported
Project no:	Not Reported		

Ground-water levels, Number of Measurements: 0

C6
WNW
1/8 - 1/4 Mile
Higher

HI WELLS **3-1649-009**

Wid:	3-1649-009	Island Code:	3
Island Name:	Oahu	Well no:	1649-09
Well name:	Waikiki	Old name:	Not Reported
Yr drilled:	1914	Driller:	Not Reported
Quad_map:	13	Latitude:	211655
Longitude:	1574938	UTM:	Y
Gps:	N	Owner/user:	Matson Nav Co
Old number:	23-	Well_type:	Not Reported
Type:	Not Reported	Casing dia:	12
Ground Elev:	4	Well depth:	810
Solid casing Depth:	781	Perf casing Depth:	Not Reported
Use:	SLD	Use Desc:	Sealed
Use year:	28	Water Top Elev:	0
Chloride value:	0	Test date:	Not Reported
Pumping Test rate:	Not Reported	Drop in water Lvl:	Not Reported
Chloride Test:	Not Reported	Temperature:	Not Reported
Units:	Not Reported	Pump Capacity:	0
Annual Draft:	Not Reported	Static Water Lvl:	9.6
Geology:	TKB	Geology desc:	Tertiary Koolau basalt
Installed:	Not Reported	Last Measured:	Not Reported
Max chlorides:	Not Reported	Max Cl year:	Not Reported
Min chlorides:	Not Reported	Min Cl year:	Not Reported
Bot_hole depth:	-806	bot_solid depth:	-777
Bot_perf depth:	Not Reported	Well Capacity:	Not Reported
Pump Capacity:	Not Reported	Draft (mgd):	Not Reported
Tax map key:	Not Reported	Aquifer code:	30101
Latest head mmt:	9.6	Cur head mmt:	Not Reported
Current Cl mmt:	Not Reported	Const. Date:	01/01/1914 00:00:00
Pump Inst. Date:	Not Reported	Surveyor:	Not Reported
Transmissivity:	0	Pump intake elev:	Not Reported
Pump depth:	Not Reported		

D7
SSW
1/4 - 1/2 Mile
Higher

HI WELLS **3-1649-007**

Wid:	3-1649-007	Island Code:	3
Island Name:	Oahu	Well no:	1649-07
Well name:	Waikiki	Old name:	Not Reported
Yr drilled:	1892	Driller:	MCCANDLESS
Quad_map:	13	Latitude:	211638
Longitude:	1574936	UTM:	Y
Gps:	N	Owner/user:	State Of Haw
Old number:	22-	Well_type:	Not Reported
Type:	Not Reported	Casing dia:	10
Ground Elev:	5	Well depth:	941
Solid casing Depth:	Not Reported	Perf casing Depth:	Not Reported
Use:	SLD	Use Desc:	Sealed
Use year:	27	Water Top Elev:	0
Chloride value:	0	Test date:	Not Reported
Pumping Test rate:	Not Reported	Drop in water Lvl:	Not Reported
Chloride Test:	Not Reported	Temperature:	Not Reported
Units:	Not Reported	Pump Capacity:	0
Annual Draft:	Not Reported	Static Water Lvl:	5.5
Geology:	Not Reported	Geology desc:	Not Reported
Installed:	Not Reported	Last Measured:	Not Reported

Max chlorides:	Not Reported	Max Cl year:	Not Reported
Min chlorides:	Not Reported	Min Cl year:	Not Reported
Bot_hole depth:	-936	bot_solid depth:	Not Reported
Bot_perf depth:	Not Reported	Well Capacity:	Not Reported
Pump Capacity:	Not Reported	Draft (mgd):	Not Reported
Tax map key:	Not Reported	Aquifer code:	30101
Latest head mmt:	5.5	Cur head mmt:	Not Reported
Current Cl mmt:	Not Reported	Const. Date:	01/01/1892 00:00:00
Pump Inst. Date:	Not Reported	Surveyor:	Not Reported
Transmissivity:	0	Pump intake elev:	Not Reported
Pump depth:	Not Reported		

D8
SSW
1/4 - 1/2 Mile
Higher

FED USGS **USGS0224098**

Agency:	USGS	Site ID:	211638157493601
Site Name:	3-1649-07 W22 WAIKIK		
Dec. Latitude:	21.27406		
Dec. Longitude:	-157.82393		
Coord Sys:	NAD83		
State:	HI		
County:	Honolulu County		
Altitude:	5.00		
Hydrologic code:	20060000		
Topographic:	Not Reported		
Site Type:	Ground-water other than Spring		
Const Date:	18920101	Inven Date:	Not Reported
Well Type:	Single well, other than collector or Ranney type		
Primary Aquifer:	Not Reported		
Aquifer type:	Not Reported		
Well depth:	941		
Hole depth:	Not Reported	Source:	Not Reported
Project no:	Not Reported		

Ground-water levels, Number of Measurements: 0

E9
ESE
1/4 - 1/2 Mile
Higher

FED USGS **USGS0224104**

Agency:	USGS	Site ID:	211647157491201
Site Name:	3-1649-04 W17 ALAWAI		
Dec. Latitude:	21.27656		
Dec. Longitude:	-157.81726		
Coord Sys:	NAD83		
State:	HI		
County:	Honolulu County		
Altitude:	4.00		
Hydrologic code:	20060000		
Topographic:	Not Reported		
Site Type:	Ground-water other than Spring		
Const Date:	18830101	Inven Date:	Not Reported
Well Type:	Single well, other than collector or Ranney type		

Primary Aquifer:	Not Reported		
Aquifer type:	Not Reported		
Well depth:	825		
Hole depth:	Not Reported	Source:	Not Reported
Project no:	Not Reported		

Ground-water levels, Number of Measurements: 0

E10
ESE
1/4 - 1/2 Mile
Higher

HI WELLS **3-1649-004**

Wid:	3-1649-004	Island Code:	3
Island Name:	Oahu	Well no:	1649-04
Well name:	Waikiki	Old name:	Not Reported
Yr drilled:	1883	Driller:	Not Reported
Quad_map:	13	Latitude:	211647
Longitude:	1574912	UTM:	Y
Gps:	N	Owner/user:	Campbell Est
Old number:	17-	Well_type:	Not Reported
Type:	Not Reported	Casing dia:	6
Ground Elev:	4	Well depth:	825
Solid casing Depth:	Not Reported	Perf casing Depth:	Not Reported
Use:	SLD	Use Desc:	Sealed
Use year:	25	Water Top Elev:	0
Chloride value:	0	Test date:	Not Reported
Pumping Test rate:	Not Reported	Drop in water Lvl:	Not Reported
Chloride Test:	Not Reported	Temperature:	Not Reported
Units:	Not Reported	Pump Capacity:	0
Annual Draft:	Not Reported	Static Water Lvl:	7.5
Geology:	Not Reported	Geology desc:	Not Reported
Installed:	Not Reported	Last Measured:	Not Reported
Max chlorides:	Not Reported	Max Cl year:	Not Reported
Min chlorides:	Not Reported	Min Cl year:	Not Reported
Bot_hole depth:	-821	bot_solid depth:	Not Reported
Bot_perf depth:	Not Reported	Well Capacity:	Not Reported
Pump Capacity:	Not Reported	Draft (mgd):	Not Reported
Tax map key:	Not Reported	Aquifer code:	30101
Latest head mmt:	7.5	Cur head mmt:	Not Reported
Current Cl mmt:	Not Reported	Const. Date:	01/01/1883 00:00:00
Pump Inst. Date:	Not Reported	Surveyor:	Not Reported
Transmissivity:	0	Pump intake elev:	Not Reported
Pump depth:	Not Reported		

F11
WSW
1/4 - 1/2 Mile
Higher

HI WELLS **3-1649-012**

Wid:	3-1649-012	Island Code:	3
Island Name:	Oahu	Well no:	1649-12
Well name:	Waikiki	Old name:	Not Reported
Yr drilled:	1967	Driller:	NAT WHITON
Quad_map:	13	Latitude:	211648
Longitude:	1574948	UTM:	Y
Gps:	N	Owner/user:	Kyo Ya Ltd
Old number:	23-1	Well_type:	Not Reported
Type:	Not Reported	Casing dia:	12
Ground Elev:	Not Reported	Well depth:	105
Solid casing Depth:	54	Perf casing Depth:	Not Reported
Use:	OTH	Use Desc:	Other
Use year:	74	Water Top Elev:	0
Chloride value:	0	Test date:	Not Reported
Pumping Test rate:	200	Drop in water Lvl:	0.2
Chloride Test:	Not Reported	Temperature:	Not Reported
Units:	Not Reported	Pump Capacity:	0
Annual Draft:	Not Reported	Static Water Lvl:	Not Reported
Geology:	RS	Geology desc:	Unconsolidated marine calcareous sediments
Installed:	Not Reported	Last Measured:	Not Reported
Max chlorides:	Not Reported	Max Cl year:	0
Min chlorides:	Not Reported	Min Cl year:	0
Bot_hole depth:	Not Reported	bot_solid depth:	Not Reported
Bot_perf depth:	Not Reported	Well Capacity:	1000
Pump Capacity:	Not Reported	Draft (mgd):	Not Reported
Tax map key:	2-6-001:013	Aquifer code:	30101
Latest head mmt:	0	Cur head mmt:	Not Reported
Current Cl mmt:	Not Reported	Const. Date:	01/01/1967 00:00:00
Pump Inst. Date:	Not Reported	Surveyor:	Not Reported
Transmissivity:	0	Pump intake elev:	Not Reported
Pump depth:	Not Reported		

F12
WSW
1/4 - 1/2 Mile
Higher

FED USGS **USGS0224106**

Agency:	USGS	Site ID:	211648157494801
Site Name:	3-1649.01 -01/W23-1		
Dec. Latitude:	21.27684		
Dec. Longitude:	-157.82726		
Coord Sys:	NAD83		
State:	HI		
County:	Honolulu County		
Altitude:	8.00		
Hydrologic code:	20060000		
Topographic:	Not Reported		
Site Type:	Ground-water other than Spring		
Const Date:	19671001	Inven Date:	Not Reported
Well Type:	Drain dug to water table or potentiometric surface to either lower ground-water level or serve as a water supply		
Primary Aquifer:	Not Reported		
Aquifer type:	Not Reported		
Well depth:	105		
Hole depth:	105	Source:	Not Reported
Project no:	Not Reported		

Ground-water levels, Number of Measurements: 0

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance
Elevation

Database	EDR ID Number
HI WELLS	**3-1649-003**

E13
ESE
1/4 - 1/2 Mile
Higher

Wid:	3-1649-003	Island Code:	3
Island Name:	Oahu	Well no:	1649-03
Well name:	Waikiki	Old name:	Not Reported
Yr drilled:	1883	Driller:	Not Reported
Quad_map:	13	Latitude:	211646
Longitude:	1574910	UTM:	Y
Gps:	N	Owner/user:	Campbell Est
Old number:	16-	Well_type:	Not Reported
Type:	Not Reported	Casing dia:	6
Ground Elev:	4	Well depth:	746
Solid casing Depth:	Not Reported	Perf casing Depth:	Not Reported
Use:	SLD	Use Desc:	Sealed
Use year:	25	Water Top Elev:	0
Chloride value:	0	Test date:	Not Reported
Pumping Test rate:	Not Reported	Drop in water Lvl:	Not Reported
Chloride Test:	Not Reported	Temperature:	Not Reported
Units:	Not Reported	Pump Capacity:	0
Annual Draft:	Not Reported	Static Water Lvl:	5.8
Geology:	Not Reported	Geology desc:	Not Reported
Installed:	Not Reported	Last Measured:	Not Reported
Max chlorides:	Not Reported	Max Cl year:	Not Reported
Min chlorides:	Not Reported	Min Cl year:	Not Reported
Bot_hole depth:	-742	bot_solid depth:	Not Reported
Bot_perf depth:	Not Reported	Well Capacity:	Not Reported
Pump Capacity:	Not Reported	Draft (mgd):	Not Reported
Tax map key:	Not Reported	Aquifer code:	30101
Latest head mmt:	5.8	Cur head mmt:	Not Reported
Current Cl mmt:	Not Reported	Const. Date:	01/01/1883 00:00:00
Pump Inst. Date:	Not Reported	Surveyor:	Not Reported
Transmissivity:	0	Pump intake elev:	Not Reported
Pump depth:	Not Reported		

E14
ESE
1/4 - 1/2 Mile
Higher

Database	EDR ID Number
FED USGS	**USGS0224103**

Agency:	USGS	Site ID:	211646157491001
Site Name:	3-1649-03 W16 ALAWAI		
Dec. Latitude:	21.27628		
Dec. Longitude:	-157.8167		
Coord Sys:	NAD83		
State:	HI		
County:	Honolulu County		
Altitude:	4.00		
Hydrologic code:	20060000		
Topographic:	Not Reported		
Site Type:	Ground-water other than Spring		
Const Date:	18830101	Inven Date:	Not Reported
Well Type:	Single well, other than collector or Ranney type		

Primary Aquifer:	Not Reported		
Aquifer type:	Not Reported		
Well depth:	746		
Hole depth:	Not Reported	Source:	Not Reported
Project no:	Not Reported		

Ground-water levels, Number of Measurements: 0

15
NE
1/4 - 1/2 Mile
Higher

HI WELLS **3-1749-023**

Wid:	3-1749-023	Island Code:	3
Island Name:	Oahu	Well no:	1749-23
Well name:	Ala Wai Pit 5	Old name:	Not Reported
Yr drilled:	1964	Driller:	Not Reported
Quad_map:	13	Latitude:	211708
Longitude:	1574916	UTM:	Y
Gps:	N	Owner/user:	C&C Pks&Rec
Old number:	Not Reported	Well_type:	Not Reported
Type:	Not Reported	Casing dia:	18
Ground Elev:	Not Reported	Well depth:	12
Solid casing Depth:	4	Perf casing Depth:	Not Reported
Use:	IRR	Use Desc:	Irrigation
Use year:	Not Reported	Water Top Elev:	0
Chloride value:	0	Test date:	Not Reported
Pumping Test rate:	Not Reported	Drop in water Lvl:	Not Reported
Chloride Test:	Not Reported	Temperature:	Not Reported
Units:	Not Reported	Pump Capacity:	700
Annual Draft:	Not Reported	Static Water Lvl:	Not Reported
Geology:	Not Reported	Geology desc:	Not Reported
Installed:	Not Reported	Last Measured:	Not Reported
Max chlorides:	01/01/1987 00:00:00	Max Cl year:	87
Min chlorides:	Not Reported	Min Cl year:	87
Bot_hole depth:	Not Reported	bot_solid depth:	Not Reported
Bot_perf depth:	Not Reported	Well Capacity:	Not Reported
Pump Capacity:	1.008	Draft (mgd):	Not Reported
Tax map key:	2-7-036:002	Aquifer code:	30101
Latest head mmt:	0	Cur head mmt:	Not Reported
Current Cl mmt:	Not Reported	Const. Date:	01/01/1964 00:00:00
Pump Inst. Date:	Not Reported	Surveyor:	Not Reported
Transmissivity:	0	Pump intake elev:	Not Reported
Pump depth:	Not Reported		

G16
ENE
1/4 - 1/2 Mile
Higher

FED USGS **USGS0224173**

Agency:	USGS	Site ID:	211658157490801
Site Name:	3-1649-06 W14 ALAWAI		
Dec. Latitude:	21.27961		
Dec. Longitude:	-157.81615		
Coord Sys:	NAD83		
State:	HI		
County:	Honolulu County		
Altitude:	4.00		
Hydrologic code:	20060000		
Topographic:	Not Reported		
Site Type:	Ground-water other than Spring		
Const Date:	18910101	Inven Date:	Not Reported
Well Type:	Single well, other than collector or Ranney type		
Primary Aquifer:	Not Reported		
Aquifer type:	Not Reported		
Well depth:	516		
Hole depth:	Not Reported	Source:	Not Reported
Project no:	Not Reported		

Ground-water levels, Number of Measurements: 0

G17
ENE
1/4 - 1/2 Mile
Higher

HI WELLS **3-1649-006**

Wid:	3-1649-006	Island Code:	3
Island Name:	Oahu	Well no:	1649-06
Well name:	Waikiki	Old name:	Not Reported
Yr drilled:	1891	Driller:	Not Reported
Quad_map:	13	Latitude:	211658
Longitude:	1574908	UTM:	Y
Gps:	N	Owner/user:	State Of Haw
Old number:	14-	Well_type:	Not Reported
Type:	Not Reported	Casing dia:	6
Ground Elev:	4	Well depth:	516
Solid casing Depth:	507	Perf casing Depth:	Not Reported
Use:	SLD	Use Desc:	Sealed
Use year:	28	Water Top Elev:	0
Chloride value:	0	Test date:	Not Reported
Pumping Test rate:	Not Reported	Drop in water Lvl:	Not Reported
Chloride Test:	Not Reported	Temperature:	Not Reported
Units:	Not Reported	Pump Capacity:	0
Annual Draft:	Not Reported	Static Water Lvl:	24.2
Geology:	Not Reported	Geology desc:	Not Reported
Installed:	Not Reported	Last Measured:	Not Reported
Max chlorides:	Not Reported	Max Cl year:	0
Min chlorides:	Not Reported	Min Cl year:	0
Bot_hole depth:	-512	bot_solid depth:	-503
Bot_perf depth:	Not Reported	Well Capacity:	Not Reported
Pump Capacity:	Not Reported	Draft (mgd):	Not Reported
Tax map key:	Not Reported	Aquifer code:	30101
Latest head mmt:	24.2	Cur head mmt:	Not Reported
Current Cl mmt:	Not Reported	Const. Date:	01/01/1891 00:00:00
Pump Inst. Date:	Not Reported	Surveyor:	Not Reported
Transmissivity:	0	Pump intake elev:	Not Reported
Pump depth:	Not Reported		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance
Elevation

	Database	EDR ID Number
E18 **ESE** **1/4 - 1/2 Mile** **Higher**	**FED USGS**	**USGS0224099**

Agency:	USGS	Site ID:	211645157490801
Site Name:	3-1649-02 W15 ALAWAI		
Dec. Latitude:	21.276		
Dec. Longitude:	-157.81615		
Coord Sys:	NAD83		
State:	HI		
County:	Honolulu County		
Altitude:	5.00		
Hydrologic code:	20060000		
Topographic:	Not Reported		
Site Type:	Ground-water other than Spring		
Const Date:	18830101	Inven Date:	Not Reported
Well Type:	Single well, other than collector or Ranney type		
Primary Aquifer:	Not Reported		
Aquifer type:	Not Reported		
Well depth:	860		
Hole depth:	Not Reported	Source:	Not Reported
Project no:	Not Reported		

Ground-water levels, Number of Measurements: 0

	Database	EDR ID Number
E19 **ESE** **1/4 - 1/2 Mile** **Higher**	**HI WELLS**	**3-1649-002**

Wid:	3-1649-002	Island Code:	3
Island Name:	Oahu	Well no:	1649-02
Well name:	Waikiki	Old name:	Not Reported
Yr drilled:	1883	Driller:	Not Reported
Quad_map:	13	Latitude:	211645
Longitude:	1574908	UTM:	Y
Gps:	N	Owner/user:	State Of Haw
Old number:	15-	Well_type:	Not Reported
Type:	Not Reported	Casing dia:	4
Ground Elev:	5	Well depth:	860
Solid casing Depth:	640	Perf casing Depth:	Not Reported
Use:	SLD	Use Desc:	Sealed
Use year:	26	Water Top Elev:	0
Chloride value:	0	Test date:	Not Reported
Pumping Test rate:	Not Reported	Drop in water Lvl:	Not Reported
Chloride Test:	Not Reported	Temperature:	Not Reported
Units:	Not Reported	Pump Capacity:	0
Annual Draft:	Not Reported	Static Water Lvl:	19.3
Geology:	Not Reported	Geology desc:	Not Reported
Installed:	Not Reported	Last Measured:	Not Reported

Max chlorides:	Not Reported	Max Cl year:	Not Reported
Min chlorides:	Not Reported	Min Cl year:	Not Reported
Bot_hole depth:	-855	bot_solid depth:	-635
Bot_perf depth:	Not Reported	Well Capacity:	Not Reported
Pump Capacity:	Not Reported	Draft (mgd):	Not Reported
Tax map key:	Not Reported	Aquifer code:	30101
Latest head mmt:	19.3	Cur head mmt:	Not Reported
Current Cl mmt:	Not Reported	Const. Date:	01/01/1883 00:00:00
Pump Inst. Date:	Not Reported	Surveyor:	Not Reported
Transmissivity:	0	Pump intake elev:	Not Reported
Pump depth:	Not Reported		

G20
ENE
1/4 - 1/2 Mile
Higher

HI WELLS **3-1649-005**

Wid:	3-1649-005	Island Code:	3
Island Name:	Oahu	Well no:	1649-05
Well name:	Waikiki	Old name:	Not Reported
Yr drilled:	1884	Driller:	Not Reported
Quad_map:	13	Latitude:	211658
Longitude:	1574905	UTM:	Y
Gps:	N	Owner/user:	State Of Haw
Old number:	13-	Well_type:	Not Reported
Type:	Not Reported	Casing dia:	8
Ground Elev:	8	Well depth:	586
Solid casing Depth:	448	Perf casing Depth:	Not Reported
Use:	SLD	Use Desc:	Sealed
Use year:	28	Water Top Elev:	0
Chloride value:	0	Test date:	Not Reported
Pumping Test rate:	Not Reported	Drop in water Lvl:	Not Reported
Chloride Test:	Not Reported	Temperature:	Not Reported
Units:	Not Reported	Pump Capacity:	0
Annual Draft:	Not Reported	Static Water Lvl:	24.0
Geology:	Not Reported	Geology desc:	Not Reported
Installed:	Not Reported	Last Measured:	Not Reported
Max chlorides:	Not Reported	Max Cl year:	Not Reported
Min chlorides:	Not Reported	Min Cl year:	Not Reported
Bot_hole depth:	-578	bot_solid depth:	-440
Bot_perf depth:	Not Reported	Well Capacity:	Not Reported
Pump Capacity:	Not Reported	Draft (mgd):	Not Reported
Tax map key:	Not Reported	Aquifer code:	30101
Latest head mmt:	24	Cur head mmt:	Not Reported
Current Cl mmt:	Not Reported	Const. Date:	01/01/1884 00:00:00
Pump Inst. Date:	Not Reported	Surveyor:	Not Reported
Transmissivity:	0	Pump intake elev:	Not Reported
Pump depth:	Not Reported		

G21
ENE
1/4 - 1/2 Mile
Higher

FED USGS **USGS0224172**

Agency:	USGS	Site ID:	211658157490501
Site Name:	3-1649-05 W13 ALAWAI		
Dec. Latitude:	21.27961		
Dec. Longitude:	-157.81531		
Coord Sys:	NAD83		
State:	HI		
County:	Honolulu County		
Altitude:	8.00		
Hydrologic code:	20060000		
Topographic:	Not Reported		
Site Type:	Ground-water other than Spring		
Const Date:	18840101	Inven Date:	Not Reported
Well Type:	Single well, other than collector or Ranney type		
Primary Aquifer:	Not Reported		
Aquifer type:	Not Reported		
Well depth:	586		
Hole depth:	Not Reported	Source:	Not Reported
Project no:	Not Reported		

Ground-water levels, Number of Measurements: 0

22
ESE
1/4 - 1/2 Mile
Higher

HI WELLS **3-1649-018**

Wid:	3-1649-018	Island Code:	3
Island Name:	Oahu	Well no:	1649-18
Well name:	Ala Wai Pit 2	Old name:	Not Reported
Yr drilled:	1934	Driller:	Not Reported
Quad_map:	13	Latitude:	211647
Longitude:	1574905	UTM:	Y
Gps:	N	Owner/user:	C&C Pks&Rec
Old number:	Not Reported	Well_type:	DUG
Type:	Dug Well	Casing dia:	Not Reported
Ground Elev:	Not Reported	Well depth:	10
Solid casing Depth:	Not Reported	Perf casing Depth:	Not Reported
Use:	IRR	Use Desc:	Irrigation
Use year:	Not Reported	Water Top Elev:	0
Chloride value:	0	Test date:	Not Reported
Pumping Test rate:	Not Reported	Drop in water Lvl:	Not Reported
Chloride Test:	Not Reported	Temperature:	Not Reported
Units:	Not Reported	Pump Capacity:	300
Annual Draft:	Not Reported	Static Water Lvl:	Not Reported
Geology:	Not Reported	Geology desc:	Not Reported
Installed:	Not Reported	Last Measured:	Not Reported
Max chlorides:	Not Reported	Max Cl year:	0
Min chlorides:	Not Reported	Min Cl year:	0
Bot_hole depth:	Not Reported	bot_solid depth:	Not Reported
Bot_perf depth:	Not Reported	Well Capacity:	Not Reported
Pump Capacity:	.432	Draft (mgd):	Not Reported
Tax map key:	2-7-036:002	Aquifer code:	30101
Latest head mmt:	0	Cur head mmt:	Not Reported
Current Cl mmt:	Not Reported	Const. Date:	01/01/1934 00:00:00
Pump Inst. Date:	Not Reported	Surveyor:	Not Reported
Transmissivity:	0	Pump intake elev:	Not Reported
Pump depth:	Not Reported		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID Direction Distance Elevation		Database	EDR ID Number
H23 **NE** **1/4 - 1/2 Mile** **Higher**		**FED USGS**	**USGS0224112**

Agency:	USGS	Site ID:	211712157491201
Site Name:	3-1749-08 W24 PALOLO		
Dec. Latitude:	21.2835		
Dec. Longitude:	-157.81726		
Coord Sys:	NAD83		
State:	HI		
County:	Honolulu County		
Altitude:	11.00		
Hydrologic code:	20060000		
Topographic:	Not Reported		
Site Type:	Ground-water other than Spring		
Const Date:	18880101	Inven Date:	Not Reported
Well Type:	Single well, other than collector or Ranney type		
Primary Aquifer:	Not Reported		
Aquifer type:	Not Reported		
Well depth:	411		
Hole depth:	411	Source:	Not Reported
Project no:	Not Reported		

Ground-water levels, Number of Measurements: 0

H24 **NE** **1/4 - 1/2 Mile** **Higher**		**HI WELLS**	**3-1749-008**

Wid:	3-1749-008	Island Code:	3
Island Name:	Oahu	Well no:	1749-08
Well name:	Kapahulu	Old name:	Not Reported
Yr drilled:	1888	Driller:	Not Reported
Quad_map:	13	Latitude:	211712
Longitude:	1574912	UTM:	Y
Gps:	N	Owner/user:	Chang Kim
Old number:	24-	Well_type:	Not Reported
Type:	Not Reported	Casing dia:	4
Ground Elev:	10	Well depth:	410
Solid casing Depth:	196	Perf casing Depth:	Not Reported
Use:	Not Reported	Use Desc:	Not Reported
Use year:	74	Water Top Elev:	20.1
Chloride value:	51	Test date:	Not Reported
Pumping Test rate:	Not Reported	Drop in water Lvl:	Not Reported
Chloride Test:	Not Reported	Temperature:	Not Reported
Units:	Not Reported	Pump Capacity:	0
Annual Draft:	11	Static Water Lvl:	26.5
Geology:	Not Reported	Geology desc:	Not Reported
Installed:	Not Reported	Last Measured:	Not Reported

Max chlorides:	Not Reported	Max Cl year:	0
Min chlorides:	Not Reported	Min Cl year:	0
Bot_hole depth:	-400	bot_solid depth:	-186
Bot_perf depth:	Not Reported	Well Capacity:	Not Reported
Pump Capacity:	Not Reported	Draft (mgd):	0.0
Tax map key:	2-7-035:069	Aquifer code:	30101
Latest head mmt:	26.5	Cur head mmt:	Not Reported
Current Cl mmt:	Not Reported	Const. Date:	01/01/1888 00:00:00
Pump Inst. Date:	Not Reported	Surveyor:	Not Reported
Transmissivity:	0	Pump intake elev:	Not Reported
Pump depth:	Not Reported		

I25
North
1/4 - 1/2 Mile
Higher

HI WELLS **3-1749-017**

Wid:	3-1749-017	Island Code:	3
Island Name:	Oahu	Well no:	1749-17
Well name:	Kapahulu	Old name:	Not Reported
Yr drilled:	1917	Driller:	MCCANDLESS
Quad_map:	13	Latitude:	211718
Longitude:	1574925	UTM:	Y
Gps:	N	Owner/user:	Hawn Hotels
Old number:	29-	Well_type:	Not Reported
Type:	Not Reported	Casing dia:	10
Ground Elev:	11	Well depth:	468
Solid casing Depth:	402	Perf casing Depth:	Not Reported
Use:	SLD	Use Desc:	Sealed
Use year:	71	Water Top Elev:	18.5
Chloride value:	83	Test date:	Not Reported
Pumping Test rate:	Not Reported	Drop in water Lvl:	Not Reported
Chloride Test:	Not Reported	Temperature:	Not Reported
Units:	Not Reported	Pump Capacity:	0
Annual Draft:	Not Reported	Static Water Lvl:	12.7
Geology:	Not Reported	Geology desc:	Not Reported
Installed:	Not Reported	Last Measured:	Not Reported
Max chlorides:	Not Reported	Max Cl year:	Not Reported
Min chlorides:	Not Reported	Min Cl year:	Not Reported
Bot_hole depth:	-457	bot_solid depth:	-391
Bot_perf depth:	Not Reported	Well Capacity:	Not Reported
Pump Capacity:	Not Reported	Draft (mgd):	Not Reported
Tax map key:	Not Reported	Aquifer code:	30101
Latest head mmt:	12.7	Cur head mmt:	Not Reported
Current Cl mmt:	Not Reported	Const. Date:	01/01/1917 00:00:00
Pump Inst. Date:	Not Reported	Surveyor:	Not Reported
Transmissivity:	0	Pump intake elev:	Not Reported
Pump depth:	Not Reported		

I26
North
1/4 - 1/2 Mile
Higher

FED USGS **USGS0224183**

Agency:	USGS	Site ID:	211718157492501
Site Name:	3-1749-17 W29 PALOLO		
Dec. Latitude:	21.28517		
Dec. Longitude:	-157.82087		
Coord Sys:	NAD83		
State:	HI		
County:	Honolulu County		
Altitude:	11.00		
Hydrologic code:	20060000		
Topographic:	Not Reported		
Site Type:	Ground-water other than Spring		
Const Date:	19170101	Inven Date:	Not Reported
Well Type:	Single well, other than collector or Ranney type		
Primary Aquifer:	Not Reported		
Aquifer type:	Not Reported		
Well depth:	468		
Hole depth:	Not Reported	Source:	Not Reported
Project no:	Not Reported		

Ground-water levels, Number of Measurements: 0

I27
North
1/2 - 1 Mile
Higher

FED USGS **USGS0224117**

Agency:	USGS	Site ID:	211720157492701
Site Name:	3-1749-12 W33 PALOLO		
Dec. Latitude:	21.28572		
Dec. Longitude:	-157.82142		
Coord Sys:	NAD83		
State:	HI		
County:	Honolulu County		
Altitude:	12.00		
Hydrologic code:	20060000		
Topographic:	Not Reported		
Site Type:	Ground-water other than Spring		
Const Date:	18890101	Inven Date:	Not Reported
Well Type:	Single well, other than collector or Ranney type		
Primary Aquifer:	Not Reported		
Aquifer type:	Not Reported		
Well depth:	521		
Hole depth:	Not Reported	Source:	Not Reported
Project no:	Not Reported		

Ground-water levels, Number of Measurements: 0

I28
North
1/2 - 1 Mile
Higher

HI WELLS **3-1749-012**

Wid:	3-1749-012	Island Code:	3
Island Name:	Oahu	Well no:	1749-12
Well name:	Kapahulu	Old name:	Not Reported
Yr drilled:	1889	Driller:	Not Reported
Quad_map:	13	Latitude:	211720
Longitude:	1574927	UTM:	Y
Gps:	N	Owner/user:	Char Y T
Old number:	33-	Well_type:	Not Reported
Type:	Not Reported	Casing dia:	6
Ground Elev:	12	Well depth:	521
Solid casing Depth:	418	Perf casing Depth:	Not Reported
Use:	SLD	Use Desc:	Sealed
Use year:	49	Water Top Elev:	19.9
Chloride value:	240	Test date:	Not Reported
Pumping Test rate:	Not Reported	Drop in water Lvl:	Not Reported
Chloride Test:	Not Reported	Temperature:	Not Reported
Units:	Not Reported	Pump Capacity:	0
Annual Draft:	Not Reported	Static Water Lvl:	24.4
Geology:	Not Reported	Geology desc:	Not Reported
Installed:	Not Reported	Last Measured:	Not Reported
Max chlorides:	Not Reported	Max Cl year:	Not Reported
Min chlorides:	Not Reported	Min Cl year:	Not Reported
Bot_hole depth:	-509	bot_solid depth:	-406
Bot_perf depth:	Not Reported	Well Capacity:	Not Reported
Pump Capacity:	Not Reported	Draft (mgd):	Not Reported
Tax map key:	Not Reported	Aquifer code:	30101
Latest head mmt:	24.4	Cur head mmt:	Not Reported
Current Cl mmt:	Not Reported	Const. Date:	01/01/1889 00:00:00
Pump Inst. Date:	Not Reported	Surveyor:	Not Reported
Transmissivity:	0	Pump intake elev:	Not Reported
Pump depth:	Not Reported		

J29
ENE
1/2 - 1 Mile
Higher

HI WELLS **3-1749-009**

Wid:	3-1749-009	Island Code:	3
Island Name:	Oahu	Well no:	1749-09
Well name:	Kapahulu	Old name:	Not Reported
Yr drilled:	1889	Driller:	Not Reported
Quad_map:	13	Latitude:	211700
Longitude:	1574901	UTM:	Y
Gps:	N	Owner/user:	C&C Honolulu
Old number:	12-	Well_type:	Not Reported
Type:	Not Reported	Casing dia:	6
Ground Elev:	12	Well depth:	510
Solid casing Depth:	470	Perf casing Depth:	Not Reported
Use:	SLD	Use Desc:	Sealed
Use year:	28	Water Top Elev:	21
Chloride value:	74	Test date:	Not Reported
Pumping Test rate:	Not Reported	Drop in water Lvl:	Not Reported
Chloride Test:	Not Reported	Temperature:	Not Reported
Units:	Not Reported	Pump Capacity:	0
Annual Draft:	Not Reported	Static Water Lvl:	22.3
Geology:	Not Reported	Geology desc:	Not Reported
Installed:	Not Reported	Last Measured:	Not Reported

Max chlorides:	Not Reported	Max Cl year:	0
Min chlorides:	Not Reported	Min Cl year:	0
Bot_hole depth:	-498	bot_solid depth:	-458
Bot_perf depth:	Not Reported	Well Capacity:	Not Reported
Pump Capacity:	Not Reported	Draft (mgd):	Not Reported
Tax map key:	Not Reported	Aquifer code:	30101
Latest head mmt:	22.3	Cur head mmt:	Not Reported
Current Cl mmt:	Not Reported	Const. Date:	01/01/1889 00:00:00
Pump Inst. Date:	Not Reported	Surveyor:	Not Reported
Transmissivity:	0	Pump intake elev:	Not Reported
Pump depth:	Not Reported		

J30
ENE
1/2 - 1 Mile
Higher

FED USGS **USGS0224175**

Agency:	USGS	Site ID:	211700157490102
Site Name:	3-1749-09 W12 PALOLO		
Dec. Latitude:	21.28017		
Dec. Longitude:	-157.8142		
Coord Sys:	NAD83		
State:	HI		
County:	Honolulu County		
Altitude:	12.00		
Hydrologic code:	20060000		
Topographic:	Not Reported		
Site Type:	Ground-water other than Spring		
Const Date:	18890101	Inven Date:	Not Reported
Well Type:	Single well, other than collector or Ranney type		
Primary Aquifer:	Not Reported		
Aquifer type:	Not Reported		
Well depth:	510		
Hole depth:	Not Reported	Source:	Not Reported
Project no:	Not Reported		

Ground-water levels, Number of Measurements: 0

I31
North
1/2 - 1 Mile
Higher

FED USGS **USGS0224116**

Agency:	USGS	Site ID:	211720157492401
Site Name:	3-1749-02 W28 PALOLO		
Dec. Latitude:	21.28572		
Dec. Longitude:	-157.82059		
Coord Sys:	NAD83		
State:	HI		
County:	Honolulu County		
Altitude:	13.00		
Hydrologic code:	20060000		
Topographic:	Not Reported		
Site Type:	Ground-water other than Spring		
Const Date:	18810101	Inven Date:	Not Reported
Well Type:	Single well, other than collector or Ranney type		

Primary Aquifer:	Not Reported		
Aquifer type:	Not Reported		
Well depth:	428		
Hole depth:	Not Reported	Source:	Not Reported
Project no:	Not Reported		

Ground-water levels, Number of Measurements: 0

I32
North
1/2 - 1 Mile
Higher

HI WELLS **3-1749-002**

Wid:	3-1749-002	Island Code:	3
Island Name:	Oahu	Well no:	1749-02
Well name:	Kapahulu	Old name:	Not Reported
Yr drilled:	1881	Driller:	Not Reported
Quad_map:	13	Latitude:	211720
Longitude:	1574924	UTM:	Y
Gps:	N	Owner/user:	Shee Y C
Old number:	28-	Well_type:	Not Reported
Type:	Not Reported	Casing dia:	6
Ground Elev:	13	Well depth:	428
Solid casing Depth:	Not Reported	Perf casing Depth:	Not Reported
Use:	SLD	Use Desc:	Sealed
Use year:	38	Water Top Elev:	0
Chloride value:	0	Test date:	Not Reported
Pumping Test rate:	Not Reported	Drop in water Lvl:	Not Reported
Chloride Test:	Not Reported	Temperature:	Not Reported
Units:	Not Reported	Pump Capacity:	0
Annual Draft:	Not Reported	Static Water Lvl:	Not Reported
Geology:	TKB	Geology desc:	Tertiary Koolau basalt
Installed:	Not Reported	Last Measured:	Not Reported
Max chlorides:	Not Reported	Max Cl year:	Not Reported
Min chlorides:	Not Reported	Min Cl year:	Not Reported
Bot_hole depth:	-415	bot_solid depth:	Not Reported
Bot_perf depth:	Not Reported	Well Capacity:	Not Reported
Pump Capacity:	Not Reported	Draft (mgd):	Not Reported
Tax map key:	Not Reported	Aquifer code:	30101
Latest head mmt:	0	Cur head mmt:	Not Reported
Current Cl mmt:	Not Reported	Const. Date:	01/01/1881 00:00:00
Pump Inst. Date:	Not Reported	Surveyor:	Not Reported
Transmissivity:	0	Pump intake elev:	Not Reported
Pump depth:	Not Reported		

I33
North
1/2 - 1 Mile
Higher

FED USGS **USGS0224119**

Agency:	USGS	Site ID:	211721157492601
Site Name:	3-1749-13 W34 PALOLO		
Dec. Latitude:	21.286		
Dec. Longitude:	-157.82115		
Coord Sys:	NAD83		
State:	HI		
County:	Honolulu County		
Altitude:	14.00		
Hydrologic code:	20060000		
Topographic:	Not Reported		
Site Type:	Ground-water other than Spring		
Const Date:	18890101	Inven Date:	Not Reported
Well Type:	Single well, other than collector or Ranney type		
Primary Aquifer:	Not Reported		
Aquifer type:	Not Reported		
Well depth:	500		
Hole depth:	Not Reported	Source:	Not Reported
Project no:	Not Reported		

Ground-water levels, Number of Measurements: 0

I34
North
1/2 - 1 Mile
Higher

HI WELLS **3-1749-013**

Wid:	3-1749-013	Island Code:	3
Island Name:	Oahu	Well no:	1749-13
Well name:	Kapahulu	Old name:	Not Reported
Yr drilled:	1889	Driller:	Not Reported
Quad_map:	13	Latitude:	211721
Longitude:	1574926	UTM:	Y
Gps:	N	Owner/user:	Whee L Y
Old number:	34-	Well_type:	Not Reported
Type:	Not Reported	Casing dia:	8
Ground Elev:	14	Well depth:	500
Solid casing Depth:	430	Perf casing Depth:	Not Reported
Use:	SLD	Use Desc:	Sealed
Use year:	28	Water Top Elev:	23
Chloride value:	216	Test date:	Not Reported
Pumping Test rate:	Not Reported	Drop in water Lvl:	Not Reported
Chloride Test:	Not Reported	Temperature:	Not Reported
Units:	Not Reported	Pump Capacity:	0
Annual Draft:	Not Reported	Static Water Lvl:	20.8
Geology:	Not Reported	Geology desc:	Not Reported
Installed:	Not Reported	Last Measured:	Not Reported
Max chlorides:	Not Reported	Max Cl year:	Not Reported
Min chlorides:	Not Reported	Min Cl year:	Not Reported
Bot_hole depth:	-486	bot_solid depth:	-416
Bot_perf depth:	Not Reported	Well Capacity:	Not Reported
Pump Capacity:	Not Reported	Draft (mgd):	Not Reported
Tax map key:	Not Reported	Aquifer code:	30101
Latest head mmt:	20.8	Cur head mmt:	Not Reported
Current Cl mmt:	Not Reported	Const. Date:	01/01/1889 00:00:00
Pump Inst. Date:	Not Reported	Surveyor:	Not Reported
Transmissivity:	0	Pump intake elev:	Not Reported
Pump depth:	Not Reported		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance
Elevation

	Database	EDR ID Number
I35 **NNE** **1/2 - 1 Mile** **Higher**	**FED USGS**	**USGS0224121**

Agency:	USGS	Site ID:	211722157492301
Site Name:	3-1749-10 W31 PALOLO		
Dec. Latitude:	21.28628		
Dec. Longitude:	-157.82031		
Coord Sys:	NAD83		
State:	HI		
County:	Honolulu County		
Altitude:	13.00		
Hydrologic code:	20060000		
Topographic:	Not Reported		
Site Type:	Ground-water other than Spring		
Const Date:	18890101	Inven Date:	Not Reported
Well Type:	Single well, other than collector or Ranney type		
Primary Aquifer:	Not Reported		
Aquifer type:	Not Reported		
Well depth:	463		
Hole depth:	Not Reported	Source:	Not Reported
Project no:	Not Reported		

Ground-water levels, Number of Measurements: 0

	Database	EDR ID Number
I36 **NNE** **1/2 - 1 Mile** **Higher**	**HI WELLS**	**3-1749-010**

Wid:	3-1749-010	Island Code:	3
Island Name:	Oahu	Well no:	1749-10
Well name:	Kapahulu	Old name:	Not Reported
Yr drilled:	1889	Driller:	Not Reported
Quad_map:	13	Latitude:	211722
Longitude:	1574923	UTM:	Y
Gps:	N	Owner/user:	Tsumoto F Y
Old number:	31-	Well_type:	Not Reported
Type:	Not Reported	Casing dia:	12
Ground Elev:	13	Well depth:	463
Solid casing Depth:	424	Perf casing Depth:	Not Reported
Use:	SLD	Use Desc:	Sealed
Use year:	40	Water Top Elev:	23.2
Chloride value:	47	Test date:	Not Reported
Pumping Test rate:	Not Reported	Drop in water Lvl:	Not Reported
Chloride Test:	Not Reported	Temperature:	Not Reported
Units:	Not Reported	Pump Capacity:	0
Annual Draft:	Not Reported	Static Water Lvl:	24.4
Geology:	Not Reported	Geology desc:	Not Reported
Installed:	Not Reported	Last Measured:	Not Reported

Max chlorides:	Not Reported	Max Cl year:	Not Reported
Min chlorides:	Not Reported	Min Cl year:	Not Reported
Bot_hole depth:	-450	bot_solid depth:	-411
Bot_perf depth:	Not Reported	Well Capacity:	Not Reported
Pump Capacity:	Not Reported	Draft (mgd):	Not Reported
Tax map key:	Not Reported	Aquifer code:	30101
Latest head mmt:	24.4	Cur head mmt:	Not Reported
Current Cl mmt:	Not Reported	Const. Date:	01/01/1889 00:00:00
Pump Inst. Date:	Not Reported	Surveyor:	Not Reported
Transmissivity:	0	Pump intake elev:	Not Reported
Pump depth:	Not Reported		

K37
SE
1/2 - 1 Mile
Higher

FED USGS **USGS0224167**

Agency:	USGS	Site ID:	211630157490801
Site Name:	3-1649-14 KAPIOLANI PARK		
Dec. Latitude:	21.27184		
Dec. Longitude:	-157.81615		
Coord Sys:	NAD83		
State:	HI		
County:	Honolulu County		
Altitude:	10.		
Hydrologic code:	20060000		
Topographic:	Flat surface		
Site Type:	Ground-water other than Spring		
Const Date:	1983	Inven Date:	19881125
Well Type:	Single well, other than collector or Ranney type		
Primary Aquifer:	Not Reported		
Aquifer type:	Not Reported		
Well depth:	Not Reported		
Hole depth:	Not Reported	Source:	Not Reported
Project no:	Not Reported		

Ground-water levels, Number of Measurements: 0

K38
SE
1/2 - 1 Mile
Higher

HI WELLS **3-1649-014**

Wid:	3-1649-014	Island Code:	3
Island Name:	Oahu	Well no:	1649-14
Well name:	Kapiolani 2	Old name:	Not Reported
Yr drilled:	1983	Driller:	FOUNDATN INTL
Quad_map:	13	Latitude:	211630
Longitude:	1574908	UTM:	Y
Gps:	N	Owner/user:	C&C Pks&Rec
Old number:	Not Reported	Well_type:	Not Reported
Type:	Not Reported	Casing dia:	16
Ground Elev:	9	Well depth:	35

Solid casing Depth:	15	Perf casing Depth:	35
Use:	IRR	Use Desc:	Irrigation
Use year:	Not Reported	Water Top Elev:	0
Chloride value:	0	Test date:	Not Reported
Pumping Test rate:	150	Drop in water Lvl:	Not Reported
Chloride Test:	1300	Temperature:	Not Reported
Units:	Not Reported	Pump Capacity:	0
Annual Draft:	Not Reported	Static Water Lvl:	Not Reported
Geology:	QLS	Geology desc:	Quaternary limestone deposits
Installed:	Not Reported	Last Measured:	Not Reported
Max chlorides:	Not Reported	Max Cl year:	0
Min chlorides:	Not Reported	Min Cl year:	0
Bot_hole depth:	-26	bot_solid depth:	-6
Bot_perf depth:	-26	Well Capacity:	Not Reported
Pump Capacity:	Not Reported	Draft (mgd):	Not Reported
Tax map key:	3-1-043:002	Aquifer code:	30101
Latest head mmt:	0	Cur head mmt:	Not Reported
Current Cl mmt:	Not Reported	Const. Date:	01/01/1983 00:00:00
Pump Inst. Date:	Not Reported	Surveyor:	Not Reported
Transmissivity:	0	Pump intake elev:	Not Reported
Pump depth:	Not Reported		

L39
ENE
1/2 - 1 Mile
Higher

HI WELLS **3-1749-016**

Wid:	3-1749-016	Island Code:	3
Island Name:	Oahu	Well no:	1749-16
Well name:	Kapahulu	Old name:	Not Reported
Yr drilled:	1911	Driller:	WRIGHT
Quad_map:	13	Latitude:	211709
Longitude:	1574902	UTM:	Y
Gps:	N	Owner/user:	U S Army
Old number:	11-	Well_type:	Not Reported
Type:	Not Reported	Casing dia:	10
Ground Elev:	8	Well depth:	420
Solid casing Depth:	344	Perf casing Depth:	Not Reported
Use:	SLD	Use Desc:	Sealed
Use year:	67	Water Top Elev:	22
Chloride value:	53	Test date:	Not Reported
Pumping Test rate:	Not Reported	Drop in water Lvl:	Not Reported
Chloride Test:	Not Reported	Temperature:	Not Reported
Units:	Not Reported	Pump Capacity:	0
Annual Draft:	Not Reported	Static Water Lvl:	28.1
Geology:	TKB	Geology desc:	Tertiary Koolau basalt
Installed:	Not Reported	Last Measured:	Not Reported
Max chlorides:	Not Reported	Max Cl year:	Not Reported
Min chlorides:	Not Reported	Min Cl year:	Not Reported
Bot_hole depth:	-412	bot_solid depth:	-336
Bot_perf depth:	Not Reported	Well Capacity:	Not Reported
Pump Capacity:	Not Reported	Draft (mgd):	Not Reported
Tax map key:	Not Reported	Aquifer code:	30101
Latest head mmt:	28.1	Cur head mmt:	Not Reported
Current Cl mmt:	Not Reported	Const. Date:	01/01/1911 00:00:00
Pump Inst. Date:	Not Reported	Surveyor:	Not Reported
Transmissivity:	0	Pump intake elev:	Not Reported
Pump depth:	Not Reported		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance
Elevation

	Database	EDR ID Number
L40 **ENE** **1/2 - 1 Mile** **Higher**	**FED USGS**	**USGS0224110**

Agency:	USGS	Site ID:	211709157490201
Site Name:	3-1749-16 W11 PALOLO		
Dec. Latitude:	21.28267		
Dec. Longitude:	-157.81448		
Coord Sys:	NAD83		
State:	HI		
County:	Honolulu County		
Altitude:	8.00		
Hydrologic code:	20060000		
Topographic:	Not Reported		
Site Type:	Ground-water other than Spring		
Const Date:	19110101	Inven Date:	Not Reported
Well Type:	Single well, other than collector or Ranney type		
Primary Aquifer:	Not Reported		
Aquifer type:	Not Reported		
Well depth:	420		
Hole depth:	Not Reported	Source:	Not Reported
Project no:	Not Reported		

Ground-water levels, Number of Measurements: 0

	Database	EDR ID Number
M41 **North** **1/2 - 1 Mile** **Higher**	**HI WELLS**	**3-1749-011**

Wid:	3-1749-011	Island Code:	3
Island Name:	Oahu	Well no:	1749-11
Well name:	Kapahulu	Old name:	Not Reported
Yr drilled:	1889	Driller:	Not Reported
Quad_map:	13	Latitude:	211723
Longitude:	1574923	UTM:	Y
Gps:	N	Owner/user:	Dumae S S
Old number:	32-	Well_type:	Not Reported
Type:	Not Reported	Casing dia:	10
Ground Elev:	14	Well depth:	475
Solid casing Depth:	420	Perf casing Depth:	Not Reported
Use:	SLD	Use Desc:	Sealed
Use year:	45	Water Top Elev:	24
Chloride value:	47	Test date:	Not Reported
Pumping Test rate:	Not Reported	Drop in water Lvl:	Not Reported
Chloride Test:	Not Reported	Temperature:	Not Reported
Units:	Not Reported	Pump Capacity:	0
Annual Draft:	Not Reported	Static Water Lvl:	24.8
Geology:	Not Reported	Geology desc:	Not Reported
Installed:	Not Reported	Last Measured:	Not Reported

Max chlorides:	Not Reported	Max Cl year:	Not Reported
Min chlorides:	Not Reported	Min Cl year:	Not Reported
Bot_hole depth:	-461	bot_solid depth:	-406
Bot_perf depth:	Not Reported	Well Capacity:	Not Reported
Pump Capacity:	Not Reported	Draft (mgd):	Not Reported
Tax map key:	Not Reported	Aquifer code:	30101
Latest head mmt:	24.8	Cur head mmt:	Not Reported
Current Cl mmt:	Not Reported	Const. Date:	01/01/1889 00:00:00
Pump Inst. Date:	Not Reported	Surveyor:	Not Reported
Transmissivity:	0	Pump intake elev:	Not Reported
Pump depth:	Not Reported		

M42
NNE
1/2 - 1 Mile
Higher

FED USGS **USGS0224122**

Agency:	USGS	Site ID:	211723157492201
Site Name:	3-1749-11 W32 PALOLO		
Dec. Latitude:	21.28656		
Dec. Longitude:	-157.82004		
Coord Sys:	NAD83		
State:	HI		
County:	Honolulu County		
Altitude:	14.00		
Hydrologic code:	20060000		
Topographic:	Not Reported		
Site Type:	Ground-water other than Spring		
Const Date:	18890101	Inven Date:	Not Reported
Well Type:	Single well, other than collector or Ranney type		
Primary Aquifer:	Not Reported		
Aquifer type:	Not Reported		
Well depth:	435		
Hole depth:	475	Source:	Not Reported
Project no:	Not Reported		

Ground-water levels, Number of Measurements: 0

N43
NE
1/2 - 1 Mile
Higher

HI WELLS **3-1749-007**

Wid:	3-1749-007	Island Code:	3
Island Name:	Oahu	Well no:	1749-07
Well name:	Kapahulu	Old name:	Not Reported
Yr drilled:	1885	Driller:	Not Reported
Quad_map:	13	Latitude:	211718
Longitude:	1574910	UTM:	Y
Gps:	N	Owner/user:	State Of Haw
Old number:	25-	Well_type:	Not Reported
Type:	Not Reported	Casing dia:	8
Ground Elev:	18	Well depth:	625

Solid casing Depth:	309	Perf casing Depth:	Not Reported
Use:	OBS	Use Desc:	Observation
Use year:	74	Water Top Elev:	25
Chloride value:	56	Test date:	Not Reported
Pumping Test rate:	Not Reported	Drop in water Lvl:	Not Reported
Chloride Test:	Not Reported	Temperature:	Not Reported
Units:	Not Reported	Pump Capacity:	0
Annual Draft:	219	Static Water Lvl:	27.1
Geology:	Not Reported	Geology desc:	Not Reported
Installed:	Not Reported	Last Measured:	Not Reported
Max chlorides:	Not Reported	Max Cl year:	0
Min chlorides:	Not Reported	Min Cl year:	0
Bot_hole depth:	-607	bot_solid depth:	-291
Bot_perf depth:	Not Reported	Well Capacity:	Not Reported
Pump Capacity:	Not Reported	Draft (mgd):	0.6
Tax map key:	2-7-024:001	Aquifer code:	30101
Latest head mmt:	27.1	Cur head mmt:	Not Reported
Current Cl mmt:	Not Reported	Const. Date:	01/01/1885 00:00:00
Pump Inst. Date:	Not Reported	Surveyor:	Not Reported
Transmissivity:	0	Pump intake elev:	Not Reported
Pump depth:	Not Reported		

N44
NE
1/2 - 1 Mile
Higher

FED USGS **USGS0224182**

Agency:	USGS	Site ID:	211718157491002
Site Name:	3-1749-07 W25 TB D		
Dec. Latitude:	21.28517		
Dec. Longitude:	-157.8167		
Coord Sys:	NAD83		
State:	HI		
County:	Honolulu County		
Altitude:	14.30		
Hydrologic code:	20060000		
Topographic:	Flat surface		
Site Type:	Ground-water other than Spring		
Const Date:	19510801	Inven Date:	Not Reported
Well Type:	Single well, other than collector or Ranney type		
Primary Aquifer:	Not Reported		
Aquifer type:	Not Reported		
Well depth:	459		
Hole depth:	625	Source:	other government (other than USGS)
Project no:	Not Reported		

Ground-water levels, Number of Measurements: 1

Date	Feet below Surface	Feet to Sealevel
1972-01-24	-11.20	

N45
NE
1/2 - 1 Mile
Higher

FED USGS **USGS0224181**

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Agency:	USGS	Site ID:	211718157491001
Site Name:	3-1749-07 W25 TB E		
Dec. Latitude:	21.28517		
Dec. Longitude:	-157.8167		
Coord Sys:	NAD83		
State:	HI		
County:	Honolulu County		
Altitude:	14.35		
Hydrologic code:	20060000		
Topographic:	Flat surface		
Site Type:	Ground-water other than Spring		
Const Date:	19510801	Inven Date:	Not Reported
Well Type:	Single well, other than collector or Ranney type		
Primary Aquifer:	Not Reported		
Aquifer type:	Not Reported		
Well depth:	393		
Hole depth:	625	Source:	other government (other than USGS)
Project no:	Not Reported		

Ground-water levels, Number of Measurements: 20

Date	Feet below Surface	Feet to Sealevel	Date	Feet below Surface	Feet to Sealevel
1980-01-17	11.71				
Note: Other conditions existed that would affect the measured water level.					
1979-11-23	10.46				
Note: Other conditions existed that would affect the measured water level.					
1979-10-22	10.07				
Note: Other conditions existed that would affect the measured water level.					
1979-08-31	9.81				
Note: Other conditions existed that would affect the measured water level.					
1979-07-18	11.26				
Note: Other conditions existed that would affect the measured water level.					
1979-06-13	11.45				
Note: Other conditions existed that would affect the measured water level.					
1979-04-24	10.49				
Note: Other conditions existed that would affect the measured water level.					
1979-03-20	10.78				
Note: Other conditions existed that would affect the measured water level.					
1979-02-02	10.10				
Note: Other conditions existed that would affect the measured water level.					
1978-12-21	10.29				
Note: Other conditions existed that would affect the measured water level.					
1978-09-19	8.36				
Note: Other conditions existed that would affect the measured water level.					
1978-08-02	8.08				
Note: Other conditions existed that would affect the measured water level.					
1978-07-03	8.82				
Note: Other conditions existed that would affect the measured water level.					
1978-05-22	8.43				
Note: Other conditions existed that would affect the measured water level.					
1978-03-31	7.90				
Note: Other conditions existed that would affect the measured water level.					
1978-02-14	8.01				
Note: Other conditions existed that would affect the measured water level.					
1978-01-09	8.72				
Note: Other conditions existed that would affect the measured water level.					
1977-11-28	9.40				
Note: Other conditions existed that would affect the measured water level.					

Ground-water levels, continued.

Date	Feet below Surface	Feet to Sealevel	Date	Feet below Surface	Feet to Sealevel
1977-10-13	7.85				
Note: Other conditions existed that would affect the measured water level.					
1964-07-31	-9.15				

N46
NE
1/2 - 1 Mile
Higher

FED USGS **USGS0224180**

Agency:	USGS	Site ID:	211718157491000
Site Name:	3-1749-07 W25		
Dec. Latitude:	21.28517		
Dec. Longitude:	-157.8167		
Coord Sys:	NAD83		
State:	HI		
County:	Honolulu County		
Altitude:	14.30		
Hydrologic code:	20060000		
Topographic:	Flat surface		
Site Type:	Ground-water other than Spring		
Const Date:	18850101	Inven Date:	Not Reported
Well Type:	Single well, other than collector or Ranney type		
Primary Aquifer:	Not Reported		
Aquifer type:	Not Reported		
Well depth:	338		
Hole depth:	338	Source:	Not Reported
Project no:	Not Reported		

Ground-water levels, Number of Measurements: 1

Date	Feet below Surface	Feet to Sealevel
1911-09-17	-10.70	

O47
NNE
1/2 - 1 Mile
Higher

FED USGS **USGS0224118**

Agency:	USGS	Site ID:	211721157491401
Site Name:	3-1749-14 W26 PALOLO		
Dec. Latitude:	21.286		
Dec. Longitude:	-157.81781		
Coord Sys:	NAD83		
State:	HI		
County:	Honolulu County		
Altitude:	13.00		
Hydrologic code:	20060000		
Topographic:	Not Reported		
Site Type:	Ground-water other than Spring		
Const Date:	18910101	Inven Date:	Not Reported
Well Type:	Single well, other than collector or Ranney type		
Primary Aquifer:	Not Reported		
Aquifer type:	Not Reported		
Well depth:	417		
Hole depth:	Not Reported	Source:	Not Reported
Project no:	Not Reported		

Ground-water levels, Number of Measurements: 0

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance
Elevation | Database | EDR ID Number

O48
NNE
1/2 - 1 Mile
Higher | **HI WELLS** | **3-1749-014**

Wid:	3-1749-014	Island Code:	3
Island Name:	Oahu	Well no:	1749-14
Well name:	Kaimuki High Sch	Old name:	Not Reported
Yr drilled:	1891	Driller:	Not Reported
Quad_map:	13	Latitude:	211721
Longitude:	1574914	UTM:	Y
Gps:	N	Owner/user:	Honolulu Bws
Old number:	26-	Well_type:	Not Reported
Type:	Not Reported	Casing dia:	8
Ground Elev:	13	Well depth:	417
Solid casing Depth:	282	Perf casing Depth:	Not Reported
Use:	OBS	Use Desc:	Observation
Use year:	74	Water Top Elev:	24.8
Chloride value:	57	Test date:	Not Reported
Pumping Test rate:	Not Reported	Drop in water Lvl:	Not Reported
Chloride Test:	Not Reported	Temperature:	Not Reported
Units:	Not Reported	Pump Capacity:	0
Annual Draft:	Not Reported	Static Water Lvl:	21.3
Geology:	Not Reported	Geology desc:	Not Reported
Installed:	Not Reported	Last Measured:	Not Reported
Max chlorides:	01/01/1987 00:00:00	Max Cl year:	87
Min chlorides:	01/01/1987 00:00:00	Min Cl year:	87
Bot_hole depth:	-404	bot_solid depth:	-269
Bot_perf depth:	Not Reported	Well Capacity:	Not Reported
Pump Capacity:	Not Reported	Draft (mgd):	Not Reported
Tax map key:	2-7-024:001	Aquifer code:	30101
Latest head mmt:	21.3	Cur head mmt:	Not Reported
Current Cl mmt:	Not Reported	Const. Date:	01/01/1891 00:00:00
Pump Inst. Date:	Not Reported	Surveyor:	Not Reported
Transmissivity:	0	Pump intake elev:	Not Reported
Pump depth:	Not Reported		

N49
NE
1/2 - 1 Mile
Higher | **FED USGS** | **USGS0224179**

Agency:	USGS	Site ID:	211718157490801
Site Name:	3-1749-22 W25-1A PAL		
Dec. Latitude:	21.28517		
Dec. Longitude:	-157.81615		
Coord Sys:	NAD83		
State:	HI		
County:	Honolulu County		
Altitude:	14.34		
Hydrologic code:	20060000		
Topographic:	Not Reported		
Site Type:	Ground-water other than Spring		
Const Date:	19701001	Inven Date:	Not Reported
Well Type:	Single well, other than collector or Ranney type		

Primary Aquifer:	Not Reported		
Aquifer type:	Not Reported		
Well depth:	911		
Hole depth:	Not Reported	Source:	Not Reported
Project no:	Not Reported		

Ground-water levels, Number of Measurements: 0

N50
NE
1/2 - 1 Mile
Higher

HI WELLS **3-1749-022**

Wid:	3-1749-022	Island Code:	3
Island Name:	Oahu	Well no:	1749-22
Well name:	Kaimuki Mon	Old name:	Not Reported
Yr drilled:	1970	Driller:	LAYNE INT
Quad_map:	13	Latitude:	211718
Longitude:	1574908	UTM:	Y
Gps:	N	Owner/user:	Honolulu Bws
Old number:	25-1A	Well_type:	ROT
Type:	Rotary Drill	Casing dia:	8
Ground Elev:	14	Well depth:	911
Solid casing Depth:	305	Perf casing Depth:	Not Reported
Use:	OBS	Use Desc:	Observation
Use year:	74	Water Top Elev:	23.4
Chloride value:	145	Test date:	Not Reported
Pumping Test rate:	Not Reported	Drop in water Lvl:	Not Reported
Chloride Test:	Not Reported	Temperature:	24.0
Units:	C	Pump Capacity:	0
Annual Draft:	Not Reported	Static Water Lvl:	23.6
Geology:	Not Reported	Geology desc:	Not Reported
Installed:	Not Reported	Last Measured:	Not Reported
Max chlorides:	Not Reported	Max Cl year:	0
Min chlorides:	Not Reported	Min Cl year:	0
Bot_hole depth:	-897	bot_solid depth:	-291
Bot_perf depth:	Not Reported	Well Capacity:	Not Reported
Pump Capacity:	Not Reported	Draft (mgd):	Not Reported
Tax map key:	2-7-024:001	Aquifer code:	30101
Latest head mmt:	23.6	Cur head mmt:	Not Reported
Current Cl mmt:	Not Reported	Const. Date:	01/01/1970 00:00:00
Pump Inst. Date:	Not Reported	Surveyor:	Not Reported
Transmissivity:	0	Pump intake elev:	Not Reported
Pump depth:	Not Reported		

P51
SSE
1/2 - 1 Mile
Higher

HI WELLS **3-1649-011**

Wid:	3-1649-011	Island Code:	3
Island Name:	Oahu	Well no:	1649-11
Well name:	Honolulu Zoo	Old name:	Not Reported
Yr drilled:	1967	Driller:	LAYNE INT
Quad_map:	13	Latitude:	211623
Longitude:	1574915	UTM:	Y
Gps:	N	Owner/user:	C&C Pks&Rec
Old number:	Not Reported	Well_type:	ROT
Type:	Rotary Drill	Casing dia:	12
Ground Elev:	5	Well depth:	85
Solid casing Depth:	40	Perf casing Depth:	Not Reported
Use:	OTH	Use Desc:	Other
Use year:	74	Water Top Elev:	1.9
Chloride value:	1367	Test date:	Not Reported
Pumping Test rate:	Not Reported	Drop in water Lvl:	Not Reported
Chloride Test:	Not Reported	Temperature:	Not Reported
Units:	Not Reported	Pump Capacity:	300
Annual Draft:	Not Reported	Static Water Lvl:	1.9
Geology:	RA	Geology desc:	Recent alluvium (unconsolidated non-calcareous deposits)
Installed:	Not Reported	Last Measured:	Not Reported
Max chlorides:	Not Reported	Max Cl year:	0
Min chlorides:	Not Reported	Min Cl year:	0
Bot_hole depth:	-80	bot_solid depth:	-35
Bot_perf depth:	Not Reported	Well Capacity:	Not Reported
Pump Capacity:	.432	Draft (mgd):	Not Reported
Tax map key:	3-1-043:001	Aquifer code:	30101
Latest head mmt:	1.9	Cur head mmt:	Not Reported
Current Cl mmt:	Not Reported	Const. Date:	01/01/1967 00:00:00
Pump Inst. Date:	Not Reported	Surveyor:	Not Reported
Transmissivity:	0	Pump intake elev:	Not Reported
Pump depth:	Not Reported		

P52
SSE
1/2 - 1 Mile
Higher

FED USGS **USGS0224164**

Agency:	USGS	Site ID:	211623157491501
Site Name:	3-1649-11 W20-1 KAPI		
Dec. Latitude:	21.26989		
Dec. Longitude:	-157.81809		
Coord Sys:	NAD83		
State:	HI		
County:	Honolulu County		
Altitude:	8.00		
Hydrologic code:	20060000		
Topographic:	Not Reported		
Site Type:	Ground-water other than Spring		
Const Date:	19670901	Inven Date:	Not Reported
Well Type:	Single well, other than collector or Ranney type		
Primary Aquifer:	Not Reported		
Aquifer type:	Not Reported		
Well depth:	60.0		
Hole depth:	Not Reported	Source:	Not Reported
Project no:	Not Reported		

Ground-water levels, Number of Measurements: 1

Date	Feet below Surface	Feet to Sealevel
1967-10-05	3.10	

M53
NNE
1/2 - 1 Mile
Higher

FED USGS **USGS0224124**

Agency:	USGS	Site ID:	211725157492201
Site Name:	3-1749-01 W27 PALOLO		
Dec. Latitude:	21.28711		
Dec. Longitude:	-157.82004		
Coord Sys:	NAD83		
State:	HI		
County:	Honolulu County		
Altitude:	15.00		
Hydrologic code:	20060000		
Topographic:	Not Reported		
Site Type:	Ground-water other than Spring		
Const Date:	18810101	Inven Date:	Not Reported
Well Type:	Single well, other than collector or Ranney type		
Primary Aquifer:	Not Reported		
Aquifer type:	Not Reported		
Well depth:	407		
Hole depth:	Not Reported	Source:	Not Reported
Project no:	Not Reported		

Ground-water levels, Number of Measurements: 0

M54
NNE
1/2 - 1 Mile
Higher

HI WELLS **3-1749-001**

Wid:	3-1749-001	Island Code:	3
Island Name:	Oahu	Well no:	1749-01
Well name:	Kapahulu	Old name:	Not Reported
Yr drilled:	1881	Driller:	Not Reported
Quad_map:	13	Latitude:	211725
Longitude:	1574922	UTM:	Y
Gps:	N	Owner/user:	Spencer C K
Old number:	27-	Well_type:	Not Reported
Type:	Not Reported	Casing dia:	6
Ground Elev:	15	Well depth:	407
Solid casing Depth:	Not Reported	Perf casing Depth:	Not Reported
Use:	SLD	Use Desc:	Sealed
Use year:	72	Water Top Elev:	22.7
Chloride value:	28	Test date:	Not Reported
Pumping Test rate:	Not Reported	Drop in water Lvl:	Not Reported
Chloride Test:	Not Reported	Temperature:	Not Reported
Units:	Not Reported	Pump Capacity:	0
Annual Draft:	Not Reported	Static Water Lvl:	22.9
Geology:	TKB	Geology desc:	Tertiary Koolau basalt
Installed:	Not Reported	Last Measured:	Not Reported

Max chlorides:	Not Reported	Max Cl year:	0
Min chlorides:	Not Reported	Min Cl year:	0
Bot_hole depth:	-392	bot_solid depth:	Not Reported
Bot_perf depth:	Not Reported	Well Capacity:	Not Reported
Pump Capacity:	Not Reported	Draft (mgd):	Not Reported
Tax map key:	Not Reported	Aquifer code:	30101
Latest head mmt:	22.9	Cur head mmt:	Not Reported
Current Cl mmt:	Not Reported	Const. Date:	01/01/1881 00:00:00
Pump Inst. Date:	Not Reported	Surveyor:	Not Reported
Transmissivity:	0	Pump intake elev:	Not Reported
Pump depth:	Not Reported		

Q55
NE
1/2 - 1 Mile
Higher

HI WELLS **3-1749-018**

Wid:	3-1749-018	Island Code:	3
Island Name:	Oahu	Well no:	1749-18
Well name:	Kapahulu	Old name:	Not Reported
Yr drilled:	1921	Driller:	SAMSON-SMOCK
Quad_map:	13	Latitude:	211715
Longitude:	1574901	UTM:	Y
Gps:	N	Owner/user:	Gouveia Trust
Old number:	9-	Well_type:	Not Reported
Type:	Not Reported	Casing dia:	4
Ground Elev:	16	Well depth:	269
Solid casing Depth:	255	Perf casing Depth:	Not Reported
Use:	UNU	Use Desc:	Unused
Use year:	93	Water Top Elev:	22.6
Chloride value:	32	Test date:	Not Reported
Pumping Test rate:	Not Reported	Drop in water Lvl:	Not Reported
Chloride Test:	Not Reported	Temperature:	Not Reported
Units:	Not Reported	Pump Capacity:	0
Annual Draft:	22	Static Water Lvl:	22.0
Geology:	TKB	Geology desc:	Tertiary Koolau basalt
Installed:	Not Reported	Last Measured:	Not Reported
Max chlorides:	Not Reported	Max Cl year:	0
Min chlorides:	Not Reported	Min Cl year:	0
Bot_hole depth:	-253	bot_solid depth:	-239
Bot_perf depth:	Not Reported	Well Capacity:	Not Reported
Pump Capacity:	Not Reported	Draft (mgd):	0.1
Tax map key:	2-7-032:036	Aquifer code:	30101
Latest head mmt:	22	Cur head mmt:	Not Reported
Current Cl mmt:	Not Reported	Const. Date:	01/01/1921 00:00:00
Pump Inst. Date:	Not Reported	Surveyor:	Not Reported
Transmissivity:	0	Pump intake elev:	Not Reported
Pump depth:	Not Reported		

Q56
NE
1/2 - 1 Mile
Higher

FED USGS **USGS0224177**

Agency:	USGS	Site ID:	211715157490001
Site Name:	3-1749-18 W9 PALOLO		
Dec. Latitude:	21.28434		
Dec. Longitude:	-157.81392		
Coord Sys:	NAD83		
State:	HI		
County:	Honolulu County		
Altitude:	16.00		
Hydrologic code:	20060000		
Topographic:	Flat surface		
Site Type:	Ground-water other than Spring		
Const Date:	19210101	Inven Date:	Not Reported
Well Type:	Single well, other than collector or Ranney type		
Primary Aquifer:	Not Reported		
Aquifer type:	Not Reported		
Well depth:	269		
Hole depth:	Not Reported	Source:	Not Reported
Project no:	Not Reported		

Ground-water levels, Number of Measurements: 0

57
SE
1/2 - 1 Mile
Higher

FED USGS **USGS0224165**

Agency:	USGS	Site ID:	211624157490501
Site Name:	3-1649-15 KAPIOLANI PARK WELL A		
Dec. Latitude:	21.27017		
Dec. Longitude:	-157.81531		
Coord Sys:	NAD83		
State:	HI		
County:	Honolulu County		
Altitude:	10.		
Hydrologic code:	20060000		
Topographic:	Flat surface		
Site Type:	Ground-water other than Spring		
Const Date:	198407	Inven Date:	19881125
Well Type:	Single well, other than collector or Ranney type		
Primary Aquifer:	Not Reported		
Aquifer type:	Not Reported		
Well depth:	31.		
Hole depth:	31.	Source:	other government (other than USGS)
Project no:	Not Reported		

Ground-water levels, Number of Measurements: 1

Date	Feet below Surface	Feet to Sealevel
1985-01-15	9.14	

R58
North
1/2 - 1 Mile
Higher

FED USGS **USGS0224128**

Agency:	USGS	Site ID:	211730157492901
Site Name:	3-1749-05 W35 PALOLO		
Dec. Latitude:	21.2885		
Dec. Longitude:	-157.82198		
Coord Sys:	NAD83		
State:	HI		
County:	Honolulu County		
Altitude:	8.00		
Hydrologic code:	20060000		
Topographic:	Not Reported		
Site Type:	Ground-water other than Spring		
Const Date:	18830101	Inven Date:	Not Reported
Well Type:	Single well, other than collector or Ranney type		
Primary Aquifer:	Not Reported		
Aquifer type:	Not Reported		
Well depth:	587		
Hole depth:	Not Reported	Source:	Not Reported
Project no:	Not Reported		

Ground-water levels, Number of Measurements: 0

R59
North
1/2 - 1 Mile
Higher

HI WELLS **3-1749-005**

Wid:	3-1749-005	Island Code:	3
Island Name:	Oahu	Well no:	1749-05
Well name:	Kapahulu	Old name:	Not Reported
Yr drilled:	1883	Driller:	Not Reported
Quad_map:	13	Latitude:	211730
Longitude:	1574929	UTM:	Y
Gps:	N	Owner/user:	Ung T Y
Old number:	35-	Well_type:	Not Reported
Type:	Not Reported	Casing dia:	6
Ground Elev:	8	Well depth:	587
Solid casing Depth:	564	Perf casing Depth:	Not Reported
Use:	SLD	Use Desc:	Sealed
Use year:	45	Water Top Elev:	24.8
Chloride value:	37	Test date:	Not Reported
Pumping Test rate:	Not Reported	Drop in water Lvl:	Not Reported
Chloride Test:	Not Reported	Temperature:	Not Reported
Units:	Not Reported	Pump Capacity:	0
Annual Draft:	Not Reported	Static Water Lvl:	24.8
Geology:	Not Reported	Geology desc:	Not Reported
Installed:	Not Reported	Last Measured:	Not Reported
Max chlorides:	Not Reported	Max Cl year:	Not Reported
Min chlorides:	Not Reported	Min Cl year:	Not Reported
Bot_hole depth:	-579	bot_solid depth:	-556
Bot_perf depth:	Not Reported	Well Capacity:	Not Reported
Pump Capacity:	Not Reported	Draft (mgd):	Not Reported
Tax map key:	Not Reported	Aquifer code:	30101
Latest head mmt:	24.8	Cur head mmt:	Not Reported
Current Cl mmt:	Not Reported	Const. Date:	01/01/1883 00:00:00
Pump Inst. Date:	Not Reported	Surveyor:	Not Reported
Transmissivity:	0	Pump intake elev:	Not Reported
Pump depth:	Not Reported		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance
Elevation

Database	EDR ID Number
HI WELLS	**3-1649-013**

S60
SE
1/2 - 1 Mile
Higher

Wid:	3-1649-013	Island Code:	3
Island Name:	Oahu	Well no:	1649-13
Well name:	Kapiolani 1	Old name:	Not Reported
Yr drilled:	1983	Driller:	FOUNDATN INTL
Quad_map:	13	Latitude:	211619
Longitude:	1574905	UTM:	Y
Gps:	N	Owner/user:	C&C Pks&Rec.
Old number:	Not Reported	Well_type:	ROT
Type:	Rotary Drill	Casing dia:	16
Ground Elev:	12	Well depth:	35
Solid casing Depth:	15	Perf casing Depth:	35
Use:	IRR	Use Desc:	Irrigation
Use year:	Not Reported	Water Top Elev:	0
Chloride value:	0	Test date:	Not Reported
Pumping Test rate:	100	Drop in water Lvl:	Not Reported
Chloride Test:	800	Temperature:	Not Reported
Units:	Not Reported	Pump Capacity:	0
Annual Draft:	Not Reported	Static Water Lvl:	Not Reported
Geology:	QLS	Geology desc:	Quaternary limestone deposits
Installed:	Not Reported	Last Measured:	Not Reported
Max chlorides:	01/01/1985 00:00:00	Max Cl year:	85
Min chlorides:	Not Reported	Min Cl year:	Not Reported
Bot_hole depth:	-23	bot_solid depth:	-3
Bot_perf depth:	-23	Well Capacity:	Not Reported
Pump Capacity:	Not Reported	Draft (mgd):	Not Reported
Tax map key:	3-1-043:002	Aquifer code:	30101
Latest head mmt:	0	Cur head mmt:	Not Reported
Current Cl mmt:	Not Reported	Const. Date:	01/01/1983 00:00:00
Pump Inst. Date:	Not Reported	Surveyor:	Not Reported
Transmissivity:	0	Pump intake elev:	Not Reported
Pump depth:	Not Reported		

Database	EDR ID Number
FED USGS	**USGS0224163**

S61
SE
1/2 - 1 Mile
Higher

Agency:	USGS	Site ID:	211619157490501
Site Name:	3-1649-13 KAPIOLANI PARK		
Dec. Latitude:	21.26878		
Dec. Longitude:	-157.81531		
Coord Sys:	NAD83		
State:	HI		
County:	Honolulu County		
Altitude:	10.		
Hydrologic code:	20060000		
Topographic:	Flat surface		
Site Type:	Ground-water other than Spring		
Const Date:	1983	Inven Date:	19881125
Well Type:	Single well, other than collector or Ranney type		

Primary Aquifer:	Not Reported		
Aquifer type:	Not Reported		
Well depth:	Not Reported		
Hole depth:	Not Reported	Source:	other government (other than USGS)
Project no:	Not Reported		

Ground-water levels, Number of Measurements: 0

S62
SSE
1/2 - 1 Mile
Higher

HI WELLS **3-1649-015**

Wid:	3-1649-015	Island Code:	3
Island Name:	Oahu	Well no:	1649-15
Well name:	Kapiolani A	Old name:	Not Reported
Yr drilled:	1984	Driller:	FOUNDATN INTL
Quad_map:	13	Latitude:	211618
Longitude:	1574905	UTM:	Y
Gps:	N	Owner/user:	C&C Pks&Rec
Old number:	Not Reported	Well_type:	ROT
Type:	Rotary Drill	Casing dia:	12
Ground Elev:	Not Reported	Well depth:	31
Solid casing Depth:	11	Perf casing Depth:	31
Use:	UNU	Use Desc:	Unused
Use year:	85	Water Top Elev:	0
Chloride value:	0	Test date:	01/18/1985 00:00:00
Pumping Test rate:	100	Drop in water Lvl:	3.4
Chloride Test:	320	Temperature:	26.7
Units:	C	Pump Capacity:	0
Annual Draft:	Not Reported	Static Water Lvl:	Not Reported
Geology:	QLS	Geology desc:	Quaternary limestone deposits
Installed:	Not Reported	Last Measured:	Not Reported
Max chlorides:	Not Reported	Max Cl year:	0
Min chlorides:	Not Reported	Min Cl year:	0
Bot_hole depth:	Not Reported	bot_solid depth:	Not Reported
Bot_perf depth:	Not Reported	Well Capacity:	29
Pump Capacity:	Not Reported	Draft (mgd):	Not Reported
Tax map key:	3-1-043:001	Aquifer code:	30101
Latest head mmt:	0	Cur head mmt:	Not Reported
Current Cl mmt:	Not Reported	Const. Date:	07/01/1984 00:00:00
Pump Inst. Date:	Not Reported	Surveyor:	Not Reported
Transmissivity:	0	Pump intake elev:	Not Reported
Pump depth:	Not Reported		

T63
North
1/2 - 1 Mile
Higher

FED USGS **USGS0224130**

Agency:	USGS	Site ID:	211734157493601
Site Name:	3-1749-03 W40 PALOLO		
Dec. Latitude:	21.28961		
Dec. Longitude:	-157.82392		
Coord Sys:	NAD83		
State:	HI		
County:	Honolulu County		
Altitude:	10.00		
Hydrologic code:	20060000		
Topographic:	Not Reported		
Site Type:	Ground-water other than Spring		
Const Date:	18820101	Inven Date:	Not Reported
Well Type:	Single well, other than collector or Ranney type		
Primary Aquifer:	Not Reported		
Aquifer type:	Not Reported		
Well depth:	730		
Hole depth:	Not Reported	Source:	Not Reported
Project no:	Not Reported		

Ground-water levels, Number of Measurements: 0

T64
North
1/2 - 1 Mile
Higher

HI WELLS **3-1749-003**

Wid:	3-1749-003	Island Code:	3
Island Name:	Oahu	Well no:	1749-03
Well name:	Kapahulu	Old name:	Not Reported
Yr drilled:	1882	Driller:	COOKE-PEDDLER
Quad_map:	13	Latitude:	211734
Longitude:	1574936	UTM:	Y
Gps:	N	Owner/user:	Magoon Trust
Old number:	40-	Well_type:	Not Reported
Type:	Not Reported	Casing dia:	Not Reported
Ground Elev:	10	Well depth:	730
Solid casing Depth:	Not Reported	Perf casing Depth:	Not Reported
Use:	OTH	Use Desc:	Other
Use year:	74	Water Top Elev:	0
Chloride value:	0	Test date:	Not Reported
Pumping Test rate:	Not Reported	Drop in water Lvl:	Not Reported
Chloride Test:	Not Reported	Temperature:	Not Reported
Units:	Not Reported	Pump Capacity:	0
Annual Draft:	Not Reported	Static Water Lvl:	Not Reported
Geology:	Not Reported	Geology desc:	Not Reported
Installed:	Not Reported	Last Measured:	Not Reported
Max chlorides:	Not Reported	Max Cl year:	Not Reported
Min chlorides:	Not Reported	Min Cl year:	Not Reported
Bot_hole depth:	-720	bot_solid depth:	Not Reported
Bot_perf depth:	Not Reported	Well Capacity:	Not Reported
Pump Capacity:	Not Reported	Draft (mgd):	Not Reported
Tax map key:	Not Reported	Aquifer code:	30101
Latest head mmt:	0	Cur head mmt:	Not Reported
Current Cl mmt:	Not Reported	Const. Date:	01/01/1882 00:00:00
Pump Inst. Date:	Not Reported	Surveyor:	Not Reported
Transmissivity:	0	Pump intake elev:	Not Reported
Pump depth:	Not Reported		

Map ID Direction Distance Elevation	Database	EDR ID Number
65 SSW 1/2 - 1 Mile Lower	**FRDS PWS**	**HI0000331**

PWS ID: HI0000331 PWS Status: Not Reported
Date Initiated: Not Reported Date Deactivated: Not Reported
PWS Name: HONOLULU-WINDWARD-PEARL HARBOR
630 S BERETANIA STREET
630 SOUTH BERETANIA
HONOLULU, OANU, HI 96843

Treatment Objective: DISINFECTION
Treatment Process: GASEOUS CHLORINATION, POST
Source: Ground water

Addressee / Facility: System Owner/Responsible Party
MR. KAZU HAYASHIDA
BOARD OF WATER SUPPLY
630 SOUTH BERETANIA STREET
HONOLULU, HI 96843

Facility Latitude:	21 12 17.0000	Facility Longitude:	157 48 58.0000
Facility Latitude:	21 16 13.0000	Facility Longitude:	157 49 47.0000
Facility Latitude:	21 17 7.0000	Facility Longitude:	157 46 17.0000
Facility Latitude:	21 17 13.0000	Facility Longitude:	157 46 53.0000
Facility Latitude:	21 17 19.0000	Facility Longitude:	157 47 36.0000
Facility Latitude:	21 17 27.0000	Facility Longitude:	157 48 58.0000
Facility Latitude:	21 17 53.0000	Facility Longitude:	157 45 19.0000
Facility Latitude:	21 18 13.0000	Facility Longitude:	157 49 47.0000
Facility Latitude:	21 18 31.0000	Facility Longitude:	157 51 20.0000
Facility Latitude:	21 18 31.0000	Facility Longitude:	157 51 43.0000
Facility Latitude:	21 18 33.0000	Facility Longitude:	157 51 23.0000
Facility Latitude:	21 18 37.0000	Facility Longitude:	157 47 29.0000
Facility Latitude:	21 19 36.0000	Facility Longitude:	157 46 27.0000
Facility Latitude:	21 19 53.0000	Facility Longitude:	157 52 27.0000
Facility Latitude:	21 19 58.0000	Facility Longitude:	157 43 58.0000
Facility Latitude:	21 19 59.0000	Facility Longitude:	157 47 33.0000
Facility Latitude:	21 19 59.0000	Facility Longitude:	157 48 18.0000
Facility Latitude:	21 20 2.0000	Facility Longitude:	157 52 8.0000
Facility Latitude:	21 20 7.0000	Facility Longitude:	157 44 44.0000
Facility Latitude:	21 20 11.0000	Facility Longitude:	157 45 12.0000
Facility Latitude:	21 20 12.0000	Facility Longitude:	157 44 55.0000
Facility Latitude:	21 20 14.0000	Facility Longitude:	157 45 1.0000
Facility Latitude:	21 20 52.0000	Facility Longitude:	157 52 36.0000
Facility Latitude:	21 21 16.0000	Facility Longitude:	157 49 14.0000
Facility Latitude:	21 21 17.0000	Facility Longitude:	157 48 40.0000
Facility Latitude:	21 21 19.0000	Facility Longitude:	157 53 54.0000
Facility Latitude:	21 21 20.0000	Facility Longitude:	157 53 54.0000
Facility Latitude:	21 21 20.0000	Facility Longitude:	157 53 55.0000
Facility Latitude:	21 21 27.0000	Facility Longitude:	157 49 5.0000
Facility Latitude:	21 21 52.0000	Facility Longitude:	157 48 11.0000
Facility Latitude:	21 22 14.0000	Facility Longitude:	157 50 11.0000
Facility Latitude:	21 22 28.0000	Facility Longitude:	157 49 49.0000

Facility Latitude:	21 22 35.0000	Facility Longitude:	157 49 55.0000
Facility Latitude:	21 22 56.0000	Facility Longitude:	157 49 35.0000
Facility Latitude:	21 22 57.0000	Facility Longitude:	157 55 14.0000
Facility Latitude:	21 22 58.0000	Facility Longitude:	157 49 35.0000
Facility Latitude:	21 23 5.0000	Facility Longitude:	157 48 31.0000
Facility Latitude:	21 23 5.0000	Facility Longitude:	157 54 26.0000
Facility Latitude:	21 23 13.0000	Facility Longitude:	127 55 35.0000
Facility Latitude:	21 23 13.0000	Facility Longitude:	157 55 35.0000
Facility Latitude:	21 23 20.0000	Facility Longitude:	157 56 3.0000
Facility Latitude:	21 23 22.0000	Facility Longitude:	157 48 52.0000
Facility Latitude:	21 23 22.0000	Facility Longitude:	157 55 3.0000
Facility Latitude:	21 23 27.0000	Facility Longitude:	157 56 43.0000
Facility Latitude:	21 23 27.0000	Facility Longitude:	157 56 47.0000
Facility Latitude:	21 23 37.0000	Facility Longitude:	157 55 53.0000
Facility Latitude:	21 23 37.0000	Facility Longitude:	157 57 25.0000
Facility Latitude:	21 23 37.0000	Facility Longitude:	157 57 27.0000
Facility Latitude:	21 23 38.0000	Facility Longitude:	157 55 54.0000
Facility Latitude:	21 23 38.0000	Facility Longitude:	157 55 55.0000
Facility Latitude:	21 23 38.0000	Facility Longitude:	157 56 49.0000
Facility Latitude:	21 23 39.0000	Facility Longitude:	157 55 53.0000
Facility Latitude:	21 23 39.0000	Facility Longitude:	157 55 54.0000
Facility Latitude:	21 23 39.0000	Facility Longitude:	157 55 55.0000
Facility Latitude:	21 23 42.0000	Facility Longitude:	157 49 9.0000
Facility Latitude:	21 23 42.0000	Facility Longitude:	157 56 47.0000
Facility Latitude:	21 23 48.0000	Facility Longitude:	157 56 22.0000
Facility Latitude:	21 23 49.0000	Facility Longitude:	157 56 22.0000
Facility Latitude:	21 24 7.0000	Facility Longitude:	157 58 25.0000
Facility Latitude:	21 24 10.0000	Facility Longitude:	157 56 45.0000
Facility Latitude:	21 24 11.0000	Facility Longitude:	157 56 46.0000
Facility Latitude:	21 24 12.0000	Facility Longitude:	157 56 47.0000
Facility Latitude:	21 24 12.0000	Facility Longitude:	158 57 23.0000
Facility Latitude:	21 24 13.0000	Facility Longitude:	157 58 12.0000
Facility Latitude:	21 24 13.0000	Facility Longitude:	158 57 24.0000
Facility Latitude:	21 24 14.0000	Facility Longitude:	157 57 6.0000
Facility Latitude:	21 24 14.0000	Facility Longitude:	158 57 25.0000
Facility Latitude:	21 24 35.0000	Facility Longitude:	157 50 2.0000
Facility Latitude:	21 24 37.0000	Facility Longitude:	157 50 8.0000
Facility Latitude:	21 24 39.0000	Facility Longitude:	157 57 59.0000
Facility Latitude:	21 25 7.0000	Facility Longitude:	157 49 41.0000
Facility Latitude:	21 25 53.0000	Facility Longitude:	157 57 31.0000
Facility Latitude:	21 26 16.0000	Facility Longitude:	157 51 23.0000
Facility Latitude:	21 26 16.0000	Facility Longitude:	157 51 32.0000
Facility Latitude:	21 26 39.0000	Facility Longitude:	157 52 12.0000
Facility Latitude:	21 26 58.0000	Facility Longitude:	157 51 40.0000
Facility Latitude:	21 27 2.0000	Facility Longitude:	157 51 41.0000
Facility Latitude:	21 27 3.0000	Facility Longitude:	157 51 38.0000
Facility Latitude:	21 33 14.0000	Facility Longitude:	157 53 8.0000
Facility Latitude:	21 33 15.0000	Facility Longitude:	157 53 11.0000
Facility Latitude:	21 34 39.0000	Facility Longitude:	157 53 47.0000
Facility Latitude:	21 34 41.0000	Facility Longitude:	157 49 17.0000
Facility Latitude:	21 34 41.0000	Facility Longitude:	157 53 44.0000
Facility Latitude:	21 34 50.0000	Facility Longitude:	157 53 12.0000
Facility Latitude:	21 35 17.0000	Facility Longitude:	157 53 46.0000
Facility Latitude:	21 35 17.0000	Facility Longitude:	157 53 49.0000
Facility Latitude:	21 35 22.0000	Facility Longitude:	157 53 53.0000
Facility Latitude:	21 35 27.0000	Facility Longitude:	157 53 59.0000

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Facility Latitude:	21 36 39.0000	Facility Longitude:	157 52 12.0000
City Served:	AIEA		
City Served:	HONO-WINDW-PEAR		
City Served:	HONOLULU		
City Served:	KAILUA		
City Served:	KANEOHE		
City Served:	PEARL CITY		
Treatment Class:	Mixed (treated and untreated)	Population:	645741

PWS currently has or had major violation(s) or enforcement: No

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U66
NE
1/2 - 1 Mile
Higher

HI WELLS **3-1749-015**

Wid:	3-1749-015	Island Code:	3
Island Name:	Oahu	Well no:	1749-15
Well name:	Kapahulu	Old name:	Not Reported
Yr drilled:	1892	Driller:	MCCANDLESS
Quad_map:	13	Latitude:	211727
Longitude:	1574901	UTM:	Y
Gps:	N	Owner/user:	Nakano D S
Old number:	8-	Well_type:	Not Reported
Type:	Not Reported	Casing dia:	6
Ground Elev:	19	Well depth:	165
Solid casing Depth:	122	Perf casing Depth:	Not Reported
Use:	SLD	Use Desc:	Sealed
Use year:	40	Water Top Elev:	17.3
Chloride value:	44	Test date:	Not Reported
Pumping Test rate:	Not Reported	Drop in water Lvl:	Not Reported
Chloride Test:	Not Reported	Temperature:	Not Reported
Units:	Not Reported	Pump Capacity:	0
Annual Draft:	Not Reported	Static Water Lvl:	27.0
Geology:	Not Reported	Geology desc:	Not Reported
Installed:	Not Reported	Last Measured:	Not Reported
Max chlorides:	Not Reported	Max Cl year:	Not Reported
Min chlorides:	Not Reported	Min Cl year:	Not Reported
Bot_hole depth:	-146	bot_solid depth:	-103
Bot_perf depth:	Not Reported	Well Capacity:	Not Reported
Pump Capacity:	Not Reported	Draft (mgd):	Not Reported
Tax map key:	Not Reported	Aquifer code:	30101
Latest head mmt:	27	Cur head mmt:	Not Reported
Current Cl mmt:	Not Reported	Const. Date:	01/01/1892 00:00:00
Pump Inst. Date:	Not Reported	Surveyor:	Not Reported
Transmissivity:	0	Pump intake elev:	Not Reported
Pump depth:	Not Reported		

U67
NE
1/2 - 1 Mile
Higher

FED USGS **USGS0224127**

Agency:	USGS	Site ID:	211727157490101
Site Name:	3-1749-15 W8 PALOLO		
Dec. Latitude:	21.28767		
Dec. Longitude:	-157.8142		
Coord Sys:	NAD83		
State:	HI		
County:	Honolulu County		
Altitude:	19.00		
Hydrologic code:	20060000		
Topographic:	Not Reported		
Site Type:	Ground-water other than Spring		
Const Date:	18920101	Inven Date:	Not Reported
Well Type:	Single well, other than collector or Ranney type		
Primary Aquifer:	Not Reported		
Aquifer type:	Not Reported		
Well depth:	165		
Hole depth:	Not Reported	Source:	Not Reported
Project no:	Not Reported		

Ground-water levels, Number of Measurements: 0

V68
NNE
1/2 - 1 Mile
Higher

FED USGS **USGS0224174**

Agency:	USGS	Site ID:	211700157490101
Site Name:	3-1749-19 Princess Kaiulani Palolo Oahu HI		
Dec. Latitude:	21.28894		
Dec. Longitude:	-157.81608		
Coord Sys:	NAD83		
State:	HI		
County:	Honolulu County		
Altitude:	21		
Hydrologic code:	20060000		
Topographic:	Flat surface		
Site Type:	Ground-water other than Spring		
Const Date:	19270801	Inven Date:	Not Reported
Well Type:	Single well, other than collector or Ranney type		
Primary Aquifer:	120KLLF		
Aquifer type:	Confined single aquifer		
Well depth:	276		
Hole depth:	276	Source:	driller
Project no:	Not Reported		

Ground-water levels, Number of Measurements: 0

V69
NNE
1/2 - 1 Mile
Higher

HI WELLS **3-1749-019**

Wid:	3-1749-019	Island Code:	3
Island Name:	Oahu	Well no:	1749-19
Well name:	Kapahulu	Old name:	Not Reported
Yr drilled:	1927	Driller:	MCCANDLESS
Quad_map:	13	Latitude:	211732
Longitude:	1574908	UTM:	Y
Gps:	N	Owner/user:	Kokusai Kogyo
Old number:	6-	Well_type:	Not Reported
Type:	Not Reported	Casing dia:	12
Ground Elev:	21	Well depth:	276
Solid casing Depth:	175	Perf casing Depth:	Not Reported
Use:	MUN	Use Desc:	Municipal
Use year:	74	Water Top Elev:	24.7
Chloride value:	24	Test date:	Not Reported
Pumping Test rate:	Not Reported	Drop in water Lvl:	Not Reported
Chloride Test:	Not Reported	Temperature:	Not Reported
Units:	Not Reported	Pump Capacity:	500
Annual Draft:	128	Static Water Lvl:	27.1
Geology:	TKB	Geology desc:	Tertiary Koolau basalt
Installed:	89	Last Measured:	Not Reported
Max chlorides:	Not Reported	Max Cl year:	0
Min chlorides:	Not Reported	Min Cl year:	0
Bot_hole depth:	-255	bot_solid depth:	-154
Bot_perf depth:	Not Reported	Well Capacity:	Not Reported
Pump Capacity:	.720	Draft (mgd):	0.4
Tax map key:	2-7-027:002	Aquifer code:	30101
Latest head mmt:	27.1	Cur head mmt:	Not Reported
Current Cl mmt:	Not Reported	Const. Date:	01/01/1927 00:00:00
Pump Inst. Date:	08/10/1989 00:00:00	Surveyor:	Not Reported
Transmissivity:	0	Pump intake elev:	-9
Pump depth:	30		

W70
South
1/2 - 1 Mile
Higher

FED USGS **USGS0224159**

Agency:	USGS	Site ID:	211608157493001
Site Name:	3-1649-10 W20 KAPIOL		
Dec. Latitude:	21.26573		
Dec. Longitude:	-157.82226		
Coord Sys:	NAD83		
State:	HI		
County:	Honolulu County		
Altitude:	2.00		
Hydrologic code:	20060000		
Topographic:	Not Reported		
Site Type:	Ground-water other than Spring		
Const Date:	19541023	Inven Date:	Not Reported
Well Type:	Single well, other than collector or Ranney type		
Primary Aquifer:	Not Reported		
Aquifer type:	Not Reported		
Well depth:	85.0		
Hole depth:	Not Reported	Source:	Not Reported
Project no:	Not Reported		

Ground-water levels, Number of Measurements: 1

Date	Feet below Surface	Feet to Sealevel
1954-10-22	7.50	

W71
South
1/2 - 1 Mile
Higher

HI WELLS **3-1649-010**

Wid:	3-1649-010	Island Code:	3
Island Name:	Oahu	Well no:	1649-10
Well name:	Waikiki	Old name:	Not Reported
Yr drilled:	1954	Driller:	NAT WHITON
Quad_map:	13	Latitude:	211608
Longitude:	1574930	UTM:	Y
Gps:	N	Owner/user:	State Of Haw
Old number:	20-	Well_type:	Not Reported
Type:	Not Reported	Casing dia:	12
Ground Elev:	Not Reported	Well depth:	85
Solid casing Depth:	46	Perf casing Depth:	Not Reported
Use:	OTH	Use Desc:	Other
Use year:	74	Water Top Elev:	0
Chloride value:	19500	Test date:	Not Reported
Pumping Test rate:	1150	Drop in water Lvl:	2.7
Chloride Test:	Not Reported	Temperature:	Not Reported
Units:	Not Reported	Pump Capacity:	0
Annual Draft:	Not Reported	Static Water Lvl:	Not Reported
Geology:	RS	Geology desc:	Unconsolidated marine calcareous sediments
Installed:	Not Reported	Last Measured:	Not Reported
Max chlorides:	Not Reported	Max Cl year:	0
Min chlorides:	Not Reported	Min Cl year:	0
Bot_hole depth:	Not Reported	bot_solid depth:	Not Reported
Bot_perf depth:	Not Reported	Well Capacity:	426
Pump Capacity:	Not Reported	Draft (mgd):	Not Reported
Tax map key:	3-1-031:006	Aquifer code:	30101
Latest head mmt:	0	Cur head mmt:	Not Reported
Current Cl mmt:	Not Reported	Const. Date:	01/01/1954 00:00:00
Pump Inst. Date:	Not Reported	Surveyor:	Not Reported
Transmissivity:	0	Pump intake elev:	Not Reported
Pump depth:	Not Reported		

U72
NE
1/2 - 1 Mile
Higher

HI WELLS **3-1748-005**

Wid:	3-1748-005	Island Code:	3
Island Name:	Oahu	Well no:	1748-05
Well name:	Kaimuki Pump Sta	Old name:	Not Reported
Yr drilled:	1912	Driller:	MCCANDLESS
Quad_map:	13	Latitude:	211727
Longitude:	1574858	UTM:	Y
Gps:	N	Owner/user:	Honolulu Bws
Old number:	7-G	Well_type:	Not Reported
Type:	Not Reported	Casing dia:	12
Ground Elev:	37	Well depth:	250

Solid casing Depth:	100	Perf casing Depth:	Not Reported
Use:	MUN	Use Desc:	Municipal
Use year:	74	Water Top Elev:	22.3
Chloride value:	0	Test date:	Not Reported
Pumping Test rate:	Not Reported	Drop in water Lvl:	Not Reported
Chloride Test:	Not Reported	Temperature:	22.5
Units:	C	Pump Capacity:	0
Annual Draft:	Not Reported	Static Water Lvl:	27.2
Geology:	TKB	Geology desc:	Tertiary Koolau basalt
Installed:	Not Reported	Last Measured:	Not Reported
Max chlorides:	Not Reported	Max Cl year:	Not Reported
Min chlorides:	Not Reported	Min Cl year:	Not Reported
Bot_hole depth:	-213	bot_solid depth:	-63
Bot_perf depth:	Not Reported	Well Capacity:	Not Reported
Pump Capacity:	Not Reported	Draft (mgd):	Not Reported
Tax map key:	2-7-030:012	Aquifer code:	30101
Latest head mmt:	27.2	Cur head mmt:	Not Reported
Current Cl mmt:	Not Reported	Const. Date:	01/01/1912 00:00:00
Pump Inst. Date:	Not Reported	Surveyor:	Not Reported
Transmissivity:	0	Pump intake elev:	Not Reported
Pump depth:	Not Reported		

U73
NE
1/2 - 1 Mile
Higher

HI WELLS **3-1748-006**

Wid:	3-1748-006	Island Code:	3
Island Name:	Oahu	Well no:	1748-06
Well name:	Kaimuki Pump Sta	Old name:	Not Reported
Yr drilled:	1912	Driller:	MCCANDLESS
Quad_map:	13	Latitude:	211727
Longitude:	1574858	UTM:	Y
Gps:	N	Owner/user:	Honolulu Bws
Old number:	7-H	Well_type:	Not Reported
Type:	Not Reported	Casing dia:	12
Ground Elev:	27	Well depth:	250
Solid casing Depth:	100	Perf casing Depth:	Not Reported
Use:	MUN	Use Desc:	Municipal
Use year:	74	Water Top Elev:	24
Chloride value:	0	Test date:	Not Reported
Pumping Test rate:	Not Reported	Drop in water Lvl:	Not Reported
Chloride Test:	Not Reported	Temperature:	22.5
Units:	C	Pump Capacity:	0
Annual Draft:	Not Reported	Static Water Lvl:	27.2
Geology:	TKB	Geology desc:	Tertiary Koolau basalt
Installed:	Not Reported	Last Measured:	Not Reported
Max chlorides:	Not Reported	Max Cl year:	Not Reported
Min chlorides:	Not Reported	Min Cl year:	Not Reported
Bot_hole depth:	-223	bot_solid depth:	-73
Bot_perf depth:	Not Reported	Well Capacity:	Not Reported
Pump Capacity:	Not Reported	Draft (mgd):	Not Reported
Tax map key:	2-7-030:012	Aquifer code:	30101
Latest head mmt:	27.2	Cur head mmt:	Not Reported
Current Cl mmt:	Not Reported	Const. Date:	01/01/1912 00:00:00
Pump Inst. Date:	Not Reported	Surveyor:	Not Reported
Transmissivity:	0	Pump intake elev:	Not Reported
Pump depth:	Not Reported		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance
Elevation

Database	EDR ID Number
HI WELLS	3-1748-003

U74
NE
1/2 - 1 Mile
Higher

Wid:	3-1748-003	Island Code:	3
Island Name:	Oahu	Well no:	1748-03
Well name:	Kaimuki Pump Sta	Old name:	Not Reported
Yr drilled:	1898	Driller:	MCCANDLESS
Quad_map:	13	Latitude:	211727
Longitude:	1574858	UTM:	Y
Gps:	N	Owner/user:	Honolulu Bws
Old number:	7-A	Well_type:	Not Reported
Type:	Not Reported	Casing dia:	12
Ground Elev:	25	Well depth:	260
Solid casing Depth:	Not Reported	Perf casing Depth:	Not Reported
Use:	MUN	Use Desc:	Municipal
Use year:	74	Water Top Elev:	25.2
Chloride value:	0	Test date:	Not Reported
Pumping Test rate:	Not Reported	Drop in water Lvl:	Not Reported
Chloride Test:	Not Reported	Temperature:	22.5
Units:	C	Pump Capacity:	0
Annual Draft:	1288	Static Water Lvl:	27.1
Geology:	TKB	Geology desc:	Tertiary Koolau basalt
Installed:	Not Reported	Last Measured:	Not Reported
Max chlorides:	Not Reported	Max Cl year:	Not Reported
Min chlorides:	Not Reported	Min Cl year:	Not Reported
Bot_hole depth:	-235	bot_solid depth:	Not Reported
Bot_perf depth:	Not Reported	Well Capacity:	Not Reported
Pump Capacity:	Not Reported	Draft (mgd):	3.5
Tax map key:	2-7-030:012	Aquifer code:	30101
Latest head mmt:	27.1	Cur head mmt:	Not Reported
Current Cl mmt:	Not Reported	Const. Date:	01/01/1898 00:00:00
Pump Inst. Date:	Not Reported	Surveyor:	Not Reported
Transmissivity:	0	Pump intake elev:	Not Reported
Pump depth:	Not Reported		

Database	EDR ID Number
HI WELLS	3-1748-004

U75
NE
1/2 - 1 Mile
Higher

Wid:	3-1748-004	Island Code:	3
Island Name:	Oahu	Well no:	1748-04
Well name:	Kaimuki Pump Sta	Old name:	Not Reported
Yr drilled:	1898	Driller:	MCCANDLESS
Quad_map:	13	Latitude:	211727
Longitude:	1574858	UTM:	Y
Gps:	N	Owner/user:	Honolulu Bws
Old number:	7-B	Well_type:	Not Reported
Type:	Not Reported	Casing dia:	12
Ground Elev:	26	Well depth:	260

Solid casing Depth:	Not Reported	Perf casing Depth:	Not Reported
Use:	MUN	Use Desc:	Municipal
Use year:	74	Water Top Elev:	0
Chloride value:	0	Test date:	Not Reported
Pumping Test rate:	Not Reported	Drop in water Lvl:	Not Reported
Chloride Test:	Not Reported	Temperature:	22.5
Units:	C	Pump Capacity:	0
Annual Draft:	Not Reported	Static Water Lvl:	27.1
Geology:	TKB	Geology desc:	Tertiary Koolau basalt
Installed:	Not Reported	Last Measured:	Not Reported
Max chlorides:	Not Reported	Max Cl year:	Not Reported
Min chlorides:	Not Reported	Min Cl year:	Not Reported
Bot_hole depth:	-234	bot_solid depth:	Not Reported
Bot_perf depth:	Not Reported	Well Capacity:	Not Reported
Pump Capacity:	Not Reported	Draft (mgd):	Not Reported
Tax map key:	2-7-030:012	Aquifer code:	30101
Latest head mmt:	27.1	Cur head mmt:	Not Reported
Current Cl mmt:	Not Reported	Const. Date:	01/01/1898 00:00:00
Pump Inst. Date:	Not Reported	Surveyor:	Not Reported
Transmissivity:	0	Pump intake elev:	Not Reported
Pump depth:	Not Reported		

U76
NE
1/2 - 1 Mile
Higher

HI WELLS **3-1748-007**

Wid:	3-1748-007	Island Code:	3
Island Name:	Oahu	Well no:	1748-07
Well name:	Kaimuki Pump Sta	Old name:	Not Reported
Yr drilled:	1925	Driller:	MCCANDLESS
Quad_map:	13	Latitude:	211727
Longitude:	1574858	UTM:	Y
Gps:	N	Owner/user:	Honolulu Bws
Old number:	7-C	Well_type:	Not Reported
Type:	Not Reported	Casing dia:	12
Ground Elev:	29	Well depth:	301
Solid casing Depth:	95	Perf casing Depth:	Not Reported
Use:	MUN	Use Desc:	Municipal
Use year:	74	Water Top Elev:	24.9
Chloride value:	41	Test date:	Not Reported
Pumping Test rate:	Not Reported	Drop in water Lvl:	Not Reported
Chloride Test:	Not Reported	Temperature:	22.5
Units:	C	Pump Capacity:	0
Annual Draft:	Not Reported	Static Water Lvl:	27.2
Geology:	TKB	Geology desc:	Tertiary Koolau basalt
Installed:	Not Reported	Last Measured:	Not Reported
Max chlorides:	Not Reported	Max Cl year:	0
Min chlorides:	Not Reported	Min Cl year:	0
Bot_hole depth:	-272	bot_solid depth:	-66
Bot_perf depth:	Not Reported	Well Capacity:	Not Reported
Pump Capacity:	Not Reported	Draft (mgd):	Not Reported
Tax map key:	2-7-030:012	Aquifer code:	30101
Latest head mmt:	27.2	Cur head mmt:	Not Reported
Current Cl mmt:	Not Reported	Const. Date:	01/01/1925 00:00:00
Pump Inst. Date:	Not Reported	Surveyor:	Not Reported
Transmissivity:	0	Pump intake elev:	Not Reported
Pump depth:	Not Reported		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance
Elevation

Database	EDR ID Number
HI WELLS	3-1748-011

U77
NE
1/2 - 1 Mile
Higher

Wid:	3-1748-011	Island Code:	3
Island Name:	Oahu	Well no:	1748-11
Well name:	Kaimuki Mon 1	Old name:	Not Reported
Yr drilled:	1960	Driller:	PACIFIC DRLG
Quad_map:	13	Latitude:	211727
Longitude:	1574858	UTM:	Y
Gps:	N	Owner/user:	Honolulu Bws
Old number:	T86-	Well_type:	Not Reported
Type:	Not Reported	Casing dia:	6
Ground Elev:	29	Well depth:	1404
Solid casing Depth:	114	Perf casing Depth:	Not Reported
Use:	OBS	Use Desc:	Observation
Use year:	60	Water Top Elev:	0
Chloride value:	0	Test date:	Not Reported
Pumping Test rate:	Not Reported	Drop in water Lvl:	Not Reported
Chloride Test:	Not Reported	Temperature:	Not Reported
Units:	Not Reported	Pump Capacity:	0
Annual Draft:	Not Reported	Static Water Lvl:	Not Reported
Geology:	TKB	Geology desc:	Tertiary Koolau basalt
Installed:	Not Reported	Last Measured:	Not Reported
Max chlorides:	Not Reported	Max Cl year:	0
Min chlorides:	Not Reported	Min Cl year:	0
Bot_hole depth:	-1375	bot_solid depth:	-85
Bot_perf depth:	Not Reported	Well Capacity:	Not Reported
Pump Capacity:	Not Reported	Draft (mgd):	Not Reported
Tax map key:	2-7-030:012	Aquifer code:	30101
Latest head mmt:	0	Cur head mmt:	Not Reported
Current Cl mmt:	Not Reported	Const. Date:	01/01/1960 00:00:00
Pump Inst. Date:	Not Reported	Surveyor:	Not Reported
Transmissivity:	0	Pump intake elev:	Not Reported
Pump depth:	Not Reported		

Database	EDR ID Number
HI WELLS	3-1748-014

U78
NE
1/2 - 1 Mile
Higher

Wid:	3-1748-014	Island Code:	3
Island Name:	Oahu	Well no:	1748-14
Well name:	Kaimuki Mon 2	Old name:	Not Reported
Yr drilled:	1986	Driller:	WAT RES INTL
Quad_map:	13	Latitude:	211727
Longitude:	1574858	UTM:	Y
Gps:	N	Owner/user:	Honolulu Bws
Old number:	Not Reported	Well_type:	ROT
Type:	Rotary Drill	Casing dia:	9
Ground Elev:	26	Well depth:	1203

Solid casing Depth:	123	Perf casing Depth:	Not Reported
Use:	OBS	Use Desc:	Observation
Use year:	86	Water Top Elev:	0
Chloride value:	0	Test date:	Not Reported
Pumping Test rate:	Not Reported	Drop in water Lvl:	Not Reported
Chloride Test:	Not Reported	Temperature:	Not Reported
Units:	Not Reported	Pump Capacity:	0
Annual Draft:	Not Reported	Static Water Lvl:	Not Reported
Geology:	Not Reported	Geology desc:	Not Reported
Installed:	Not Reported	Last Measured:	Not Reported
Max chlorides:	01/01/1987 00:00:00	Max Cl year:	87
Min chlorides:	01/01/1987 00:00:00	Min Cl year:	87
Bot_hole depth:	-1177	bot_solid depth:	-97
Bot_perf depth:	Not Reported	Well Capacity:	Not Reported
Pump Capacity:	Not Reported	Draft (mgd):	Not Reported
Tax map key:	2-7-030:012	Aquifer code:	30101
Latest head mmt:	23.95	Cur head mmt:	Not Reported
Current Cl mmt:	Not Reported	Const. Date:	01/01/1986 00:00:00
Pump Inst. Date:	Not Reported	Surveyor:	Not Reported
Transmissivity:	0	Pump intake elev:	Not Reported
Pump depth:	Not Reported		

U79
NE
1/2 - 1 Mile
Higher

HI WELLS **3-1748-010**

Wid:	3-1748-010	Island Code:	3
Island Name:	Oahu	Well no:	1748-10
Well name:	Kaimuki Pump Sta	Old name:	Not Reported
Yr drilled:	1928	Driller:	MCCANDLESS
Quad_map:	13	Latitude:	211727
Longitude:	1574858	UTM:	Y
Gps:	N	Owner/user:	Honolulu Bws
Old number:	7-F	Well_type:	Not Reported
Type:	Not Reported	Casing dia:	12
Ground Elev:	32	Well depth:	308
Solid casing Depth:	101	Perf casing Depth:	Not Reported
Use:	MUN	Use Desc:	Municipal
Use year:	74	Water Top Elev:	25
Chloride value:	0	Test date:	Not Reported
Pumping Test rate:	Not Reported	Drop in water Lvl:	Not Reported
Chloride Test:	Not Reported	Temperature:	22.5
Units:	C	Pump Capacity:	0
Annual Draft:	Not Reported	Static Water Lvl:	27.2
Geology:	TKB	Geology desc:	Tertiary Koolau basalt
Installed:	Not Reported	Last Measured:	Not Reported
Max chlorides:	Not Reported	Max Cl year:	0
Min chlorides:	Not Reported	Min Cl year:	0
Bot_hole depth:	-276	bot_solid depth:	-69
Bot_perf depth:	Not Reported	Well Capacity:	Not Reported
Pump Capacity:	Not Reported	Draft (mgd):	Not Reported
Tax map key:	2-7-030:012	Aquifer code:	30101
Latest head mmt:	27.2	Cur head mmt:	Not Reported
Current Cl mmt:	Not Reported	Const. Date:	01/01/1928 00:00:00
Pump Inst. Date:	Not Reported	Surveyor:	Not Reported
Transmissivity:	0	Pump intake elev:	Not Reported
Pump depth:	Not Reported		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance
Elevation

Database	EDR ID Number
HI WELLS	3-1748-008

U80
NE
1/2 - 1 Mile
Higher

Wid:	3-1748-008	Island Code:	3
Island Name:	Oahu	Well no:	1748-08
Well name:	Kaimuki Pump Sta	Old name:	Not Reported
Yr drilled:	1925	Driller:	MCCANDLESS
Quad_map:	13	Latitude:	211727
Longitude:	1574858	UTM:	Y
Gps:	N	Owner/user:	Honolulu Bws
Old number:	7-D	Well_type:	Not Reported
Type:	Not Reported	Casing dia:	12
Ground Elev:	28	Well depth:	304
Solid casing Depth:	101	Perf casing Depth:	Not Reported
Use:	MUN	Use Desc:	Municipal
Use year:	74	Water Top Elev:	23.9
Chloride value:	46	Test date:	Not Reported
Pumping Test rate:	Not Reported	Drop in water Lvl:	Not Reported
Chloride Test:	Not Reported	Temperature:	22.5
Units:	C	Pump Capacity:	0
Annual Draft:	Not Reported	Static Water Lvl:	27.2
Geology:	TKB	Geology desc:	Tertiary Koolau basalt
Installed:	Not Reported	Last Measured:	Not Reported
Max chlorides:	Not Reported	Max Cl year:	0
Min chlorides:	Not Reported	Min Cl year:	0
Bot_hole depth:	-276	bot_solid depth:	-73
Bot_perf depth:	Not Reported	Well Capacity:	Not Reported
Pump Capacity:	Not Reported	Draft (mgd):	Not Reported
Tax map key:	2-7-030:012	Aquifer code:	30101
Latest head mmt:	27.2	Cur head mmt:	Not Reported
Current Cl mmt:	Not Reported	Const. Date:	01/01/1925 00:00:00
Pump Inst. Date:	Not Reported	Surveyor:	Not Reported
Transmissivity:	0	Pump intake elev:	Not Reported
Pump depth:	Not Reported		

U81
NE
1/2 - 1 Mile
Higher

Database	EDR ID Number
HI WELLS	3-1748-009

Wid:	3-1748-009	Island Code:	3
Island Name:	Oahu	Well no:	1748-09
Well name:	Kaimuki Pump Sta	Old name:	Not Reported
Yr drilled:	1925	Driller:	MCCANDLESS
Quad_map:	13	Latitude:	211727
Longitude:	1574858	UTM:	Y
Gps:	N	Owner/user:	Honolulu Bws
Old number:	7-E	Well_type:	Not Reported
Type:	Not Reported	Casing dia:	12
Ground Elev:	28	Well depth:	302

Solid casing Depth:	101	Perf casing Depth:	Not Reported
Use:	MUN	Use Desc:	Municipal
Use year:	74	Water Top Elev:	24.8
Chloride value:	0	Test date:	Not Reported
Pumping Test rate:	Not Reported	Drop in water Lvl:	Not Reported
Chloride Test:	Not Reported	Temperature:	22.5
Units:	Not Reported	Pump Capacity:	0
Annual Draft:	Not Reported	Static Water Lvl:	27.3
Geology:	TKB	Geology desc:	Tertiary Koolau basalt
Installed:	Not Reported	Last Measured:	Not Reported
Max chlorides:	Not Reported	Max Cl year:	87
Min chlorides:	01/01/1987 00:00:00	Min Cl year:	87
Bot_hole depth:	-274	bot_solid depth:	-73
Bot_perf depth:	Not Reported	Well Capacity:	Not Reported
Pump Capacity:	Not Reported	Draft (mgd):	Not Reported
Tax map key:	2-7-030:012	Aquifer code:	30101
Latest head mmt:	27.3	Cur head mmt:	Not Reported
Current Cl mmt:	Not Reported	Const. Date:	01/01/1925 00:00:00
Pump Inst. Date:	Not Reported	Surveyor:	Not Reported
Transmissivity:	0	Pump intake elev:	Not Reported
Pump depth:	Not Reported		

U82
NE
1/2 - 1 Mile
Higher

FED USGS **USGS0224190**

Agency:	USGS	Site ID:	211727157485804
Site Name:	3-1748-06 W7-H PALOL		
Dec. Latitude:	21.28767		
Dec. Longitude:	-157.81337		
Coord Sys:	NAD83		
State:	HI		
County:	Honolulu County		
Altitude:	27.00		
Hydrologic code:	20060000		
Topographic:	Not Reported		
Site Type:	Ground-water other than Spring		
Const Date:	19120101	Inven Date:	Not Reported
Well Type:	Single well, other than collector or Ranney type		
Primary Aquifer:	Not Reported		
Aquifer type:	Not Reported		
Well depth:	250		
Hole depth:	Not Reported	Source:	Not Reported
Project no:	Not Reported		

Ground-water levels, Number of Measurements: 0

U83
NE
1/2 - 1 Mile
Higher

FED USGS **USGS0224189**

Agency:	USGS	Site ID:	211727157485803
Site Name:	3-1748-05 W7-G PALOL		
Dec. Latitude:	21.28767		
Dec. Longitude:	-157.81337		
Coord Sys:	NAD83		
State:	HI		
County:	Honolulu County		
Altitude:	27.00		
Hydrologic code:	20060000		
Topographic:	Not Reported		
Site Type:	Ground-water other than Spring		
Const Date:	19120101	Inven Date:	Not Reported
Well Type:	Single well, other than collector or Ranney type		
Primary Aquifer:	Not Reported		
Aquifer type:	Not Reported		
Well depth:	250		
Hole depth:	Not Reported	Source:	Not Reported
Project no:	Not Reported		

Ground-water levels, Number of Measurements: 0

U84
NE
1/2 - 1 Mile
Higher

FED USGS **USGS0224186**

Agency:	USGS	Site ID:	211727157485800
Site Name:	3-1748-03 TO 10		
Dec. Latitude:	21.28767		
Dec. Longitude:	-157.81337		
Coord Sys:	NAD83		
State:	HI		
County:	Honolulu County		
Altitude:	29.00		
Hydrologic code:	20060000		
Topographic:	Not Reported		
Site Type:	Ground-water other than Spring		
Const Date:	Not Reported	Inven Date:	Not Reported
Well Type:	Multiple wells (a group of wells that are pumped through a single header)		
Primary Aquifer:	Not Reported		
Aquifer type:	Not Reported		
Well depth:	Not Reported		
Hole depth:	Not Reported	Source:	Not Reported
Project no:	Not Reported		

Ground-water levels, Number of Measurements: 0

U85
NE
1/2 - 1 Mile
Higher

FED USGS **USGS0224188**

Agency:	USGS	Site ID:	211727157485802
Site Name:	3-1748-04 W7-B PALOL		
Dec. Latitude:	21.28767		
Dec. Longitude:	-157.81337		
Coord Sys:	NAD83		
State:	HI		
County:	Honolulu County		
Altitude:	26.00		
Hydrologic code:	20060000		
Topographic:	Not Reported		
Site Type:	Ground-water other than Spring		
Const Date:	18980101	Inven Date:	Not Reported
Well Type:	Single well, other than collector or Ranney type		
Primary Aquifer:	Not Reported		
Aquifer type:	Not Reported		
Well depth:	260		
Hole depth:	Not Reported	Source:	Not Reported
Project no:	Not Reported		

Ground-water levels, Number of Measurements: 0

U86
NE
1/2 - 1 Mile
Higher

FED USGS **USGS0224187**

Agency:	USGS	Site ID:	211727157485801
Site Name:	3-1748-03 W7-A PALOL		
Dec. Latitude:	21.28767		
Dec. Longitude:	-157.81337		
Coord Sys:	NAD83		
State:	HI		
County:	Honolulu County		
Altitude:	25.00		
Hydrologic code:	20060000		
Topographic:	Not Reported		
Site Type:	Ground-water other than Spring		
Const Date:	18980101	Inven Date:	Not Reported
Well Type:	Single well, other than collector or Ranney type		
Primary Aquifer:	Not Reported		
Aquifer type:	Not Reported		
Well depth:	260		
Hole depth:	Not Reported	Source:	Not Reported
Project no:	Not Reported		

Ground-water levels, Number of Measurements: 0

U87
NE
1/2 - 1 Mile
Higher

FED USGS **USGS0224191**

Agency:	USGS	Site ID:	211727157485805
Site Name:	3-1748-07 W7-C PALOL		
Dec. Latitude:	21.28767		
Dec. Longitude:	-157.81337		
Coord Sys:	NAD83		
State:	HI		
County:	Honolulu County		
Altitude:	29.00		
Hydrologic code:	20060000		
Topographic:	Not Reported		
Site Type:	Ground-water other than Spring		
Const Date:	19250101	Inven Date:	Not Reported
Well Type:	Single well, other than collector or Ranney type		
Primary Aquifer:	Not Reported		
Aquifer type:	Not Reported		
Well depth:	301		
Hole depth:	Not Reported	Source:	Not Reported
Project no:	Not Reported		

Ground-water levels, Number of Measurements: 0

U88
NE
1/2 - 1 Mile
Higher

FED USGS **USGS0224192**

Agency:	USGS	Site ID:	211727157485806
Site Name:	3-1748-08 W7-D PALOL		
Dec. Latitude:	21.28767		
Dec. Longitude:	-157.81337		
Coord Sys:	NAD83		
State:	HI		
County:	Honolulu County		
Altitude:	28.00		
Hydrologic code:	20060000		
Topographic:	Not Reported		
Site Type:	Ground-water other than Spring		
Const Date:	19250101	Inven Date:	Not Reported
Well Type:	Single well, other than collector or Ranney type		
Primary Aquifer:	Not Reported		
Aquifer type:	Not Reported		
Well depth:	304		
Hole depth:	Not Reported	Source:	Not Reported
Project no:	Not Reported		

Ground-water levels, Number of Measurements: 0

U89
NE
1/2 - 1 Mile
Higher

FED USGS **USGS0224193**

Agency:	USGS	Site ID:	211727157485807
Site Name:	3-1748-09 W7-E PALOL		
Dec. Latitude:	21.28767		
Dec. Longitude:	-157.81337		
Coord Sys:	NAD83		
State:	HI		
County:	Honolulu County		
Altitude:	28.00		
Hydrologic code:	20060000		
Topographic:	Not Reported		
Site Type:	Ground-water other than Spring		
Const Date:	19250101	Inven Date:	Not Reported
Well Type:	Single well, other than collector or Ranney type		
Primary Aquifer:	Not Reported		
Aquifer type:	Not Reported		
Well depth:	302		
Hole depth:	Not Reported	Source:	Not Reported
Project no:	Not Reported		

Ground-water levels, Number of Measurements: 0

U90
NE
1/2 - 1 Mile
Higher

FED USGS **USGS0224194**

Agency:	USGS	Site ID:	211727157485808
Site Name:	3-1748-10 W7-F PALOL		
Dec. Latitude:	21.28767		
Dec. Longitude:	-157.81337		
Coord Sys:	NAD83		
State:	HI		
County:	Honolulu County		
Altitude:	32.00		
Hydrologic code:	20060000		
Topographic:	Not Reported		
Site Type:	Ground-water other than Spring		
Const Date:	19280101	Inven Date:	Not Reported
Well Type:	Single well, other than collector or Ranney type		
Primary Aquifer:	Not Reported		
Aquifer type:	Not Reported		
Well depth:	308		
Hole depth:	Not Reported	Source:	Not Reported
Project no:	Not Reported		

Ground-water levels, Number of Measurements: 1

Date	Feet below Surface	Feet to Sealevel
1928-04-13	7.00	

U91
NE
1/2 - 1 Mile
Higher

FED USGS **USGS0224125**

Agency:	USGS	Site ID:	211727157485809
Site Name:	3-1748-11 T86 PALOLO		
Dec. Latitude:	21.28767		
Dec. Longitude:	-157.81337		
Coord Sys:	NAD83		
State:	HI		
County:	Honolulu County		
Altitude:	29.00		
Hydrologic code:	20060000		
Topographic:	Not Reported		
Site Type:	Ground-water other than Spring		
Const Date:	19600101	Inven Date:	Not Reported
Well Type:	Single well, other than collector or Ranney type		
Primary Aquifer:	Not Reported		
Aquifer type:	Not Reported		
Well depth:	1404		
Hole depth:	Not Reported	Source:	Not Reported
Project no:	Not Reported		

Ground-water levels, Number of Measurements: 0

U92
NE
1/2 - 1 Mile
Higher

FED USGS **USGS0224126**

Agency:	USGS	Site ID:	211727157485810
Site Name:	3-1748-14 KAIMUKI MW 2		
Dec. Latitude:	21.28767		
Dec. Longitude:	-157.81337		
Coord Sys:	NAD83		
State:	HI		
County:	Honolulu County		
Altitude:	26.		
Hydrologic code:	20060000		
Topographic:	Flat surface		
Site Type:	Ground-water other than Spring		
Const Date:	1986	Inven Date:	19881128
Well Type:	Single well, other than collector or Ranney type		
Primary Aquifer:	Not Reported		
Aquifer type:	Not Reported		
Well depth:	1203.		
Hole depth:	1203.	Source:	other government (other than USGS)
Project no:	Not Reported		

Ground-water levels, Number of Measurements: 0

X93
SSE
1/2 - 1 Mile
Higher

FED USGS **USGS0224160**

Agency:	USGS	Site ID:	211611157490901
Site Name:	3-1649-17 KAPIOLANI PARK WELL C		
Dec. Latitude:	21.26656		
Dec. Longitude:	-157.81643		
Coord Sys:	NAD83		
State:	HI		
County:	Honolulu County		
Altitude:	10.		
Hydrologic code:	20060000		
Topographic:	Flat surface		
Site Type:	Ground-water other than Spring		
Const Date:	1984	Inven Date:	19881125
Well Type:	Single well, other than collector or Ranney type		
Primary Aquifer:	Not Reported		
Aquifer type:	Not Reported		
Well depth:	34.		
Hole depth:	34.	Source:	other government (other than USGS)
Project no:	Not Reported		

Ground-water levels, Number of Measurements: 0

X94
SSE
1/2 - 1 Mile
Higher

HI WELLS **3-1649-016**

Wid:	3-1649-016	Island Code:	3
Island Name:	Oahu	Well no:	1649-16
Well name:	Kapiolani B	Old name:	Not Reported
Yr drilled:	1984	Driller:	FOUNDATN INTL
Quad_map:	13	Latitude:	211611
Longitude:	1574907	UTM:	Y
Gps:	N	Owner/user:	C&C Pks&Rec
Old number:	Not Reported	Well_type:	ROT
Type:	Rotary Drill	Casing dia:	12
Ground Elev:	Not Reported	Well depth:	32
Solid casing Depth:	12	Perf casing Depth:	32
Use:	UNU	Use Desc:	Unused
Use year:	87	Water Top Elev:	0
Chloride value:	0	Test date:	01/24/1985 00:00:00
Pumping Test rate:	125	Drop in water Lvl:	8.0
Chloride Test:	190	Temperature:	26.7
Units:	C	Pump Capacity:	0
Annual Draft:	Not Reported	Static Water Lvl:	Not Reported
Geology:	QLS	Geology desc:	Quaternary limestone deposits
Installed:	Not Reported	Last Measured:	Not Reported
Max chlorides:	Not Reported	Max Cl year:	Not Reported
Min chlorides:	Not Reported	Min Cl year:	Not Reported
Bot_hole depth:	Not Reported	bot_solid depth:	Not Reported
Bot_perf depth:	Not Reported	Well Capacity:	16
Pump Capacity:	Not Reported	Draft (mgd):	Not Reported
Tax map key:	3-1-043:001	Aquifer code:	30101
Latest head mmt:	0	Cur head mmt:	Not Reported
Current Cl mmt:	Not Reported	Const. Date:	07/01/1984 00:00:00
Pump Inst. Date:	Not Reported	Surveyor:	Not Reported
Transmissivity:	0	Pump intake elev:	Not Reported
Pump depth:	Not Reported		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance
Elevation

	Database	EDR ID Number
V95 **NNE** **1/2 - 1 Mile** **Higher**	**HI WELLS**	**3-1749-006**

Wid:	3-1749-006	Island Code:	3
Island Name:	Oahu	Well no:	1749-06
Well name:	Kapahulu	Old name:	Not Reported
Yr drilled:	1884	Driller:	Not Reported
Quad_map:	13	Latitude:	211735
Longitude:	1574905	UTM:	Y
Gps:	N	Owner/user:	Bishop Estate
Old number:	5-	Well_type:	Not Reported
Type:	Not Reported	Casing dia:	10
Ground Elev:	22	Well depth:	162
Solid casing Depth:	125	Perf casing Depth:	Not Reported
Use:	SLD	Use Desc:	Sealed
Use year:	30	Water Top Elev:	23.3
Chloride value:	34	Test date:	Not Reported
Pumping Test rate:	Not Reported	Drop in water Lvl:	Not Reported
Chloride Test:	Not Reported	Temperature:	Not Reported
Units:	Not Reported	Pump Capacity:	0
Annual Draft:	Not Reported	Static Water Lvl:	23.7
Geology:	Not Reported	Geology desc:	Not Reported
Installed:	Not Reported	Last Measured:	Not Reported
Max chlorides:	Not Reported	Max Cl year:	Not Reported
Min chlorides:	Not Reported	Min Cl year:	Not Reported
Bot_hole depth:	-140	bot_solid depth:	-103
Bot_perf depth:	Not Reported	Well Capacity:	Not Reported
Pump Capacity:	Not Reported	Draft (mgd):	Not Reported
Tax map key:	Not Reported	Aquifer code:	30101
Latest head mmt:	23.7	Cur head mmt:	Not Reported
Current Cl mmt:	Not Reported	Const. Date:	01/01/1884 00:00:00
Pump Inst. Date:	Not Reported	Surveyor:	Not Reported
Transmissivity:	0	Pump intake elev:	Not Reported
Pump depth:	Not Reported		

	Database	EDR ID Number
V96 **NNE** **1/2 - 1 Mile** **Higher**	**FED USGS**	**USGS0224133**

Agency:	USGS	Site ID:	211735157490501
Site Name:	3-1749-06 W5 PALOLO		
Dec. Latitude:	21.28989		
Dec. Longitude:	-157.81531		
Coord Sys:	NAD83		
State:	HI		
County:	Honolulu County		
Altitude:	22.00		
Hydrologic code:	20060000		
Topographic:	Not Reported		
Site Type:	Ground-water other than Spring		
Const Date:	18840101	Inven Date:	Not Reported
Well Type:	Single well, other than collector or Ranney type		

Primary Aquifer:	Not Reported		
Aquifer type:	Not Reported		
Well depth:	162		
Hole depth:	Not Reported	Source:	Not Reported
Project no:	Not Reported		

Ground-water levels, Number of Measurements: 0

X97
SSE
1/2 - 1 Mile
Higher

HI WELLS **3-1649-017**

Wid:	3-1649-017	Island Code:	3
Island Name:	Oahu	Well no:	1649-17
Well name:	Kapiolani C	Old name:	Not Reported
Yr drilled:	1984	Driller:	FOUNDATN INTL
Quad_map:	13	Latitude:	211608
Longitude:	1574909	UTM:	Y
Gps:	N	Owner/user:	C&C Pks&Rec
Old number:	Not Reported	Well_type:	ROT
Type:	Rotary Drill	Casing dia:	12
Ground Elev:	Not Reported	Well depth:	35
Solid casing Depth:	15	Perf casing Depth:	35
Use:	UNU	Use Desc:	Unused
Use year:	85	Water Top Elev:	0
Chloride value:	0	Test date:	01/31/1985 00:00:00
Pumping Test rate:	95	Drop in water Lvl:	5.2
Chloride Test:	262	Temperature:	26.4
Units:	C	Pump Capacity:	0
Annual Draft:	Not Reported	Static Water Lvl:	Not Reported
Geology:	QLS	Geology desc:	Quaternary limestone deposits
Installed:	Not Reported	Last Measured:	Not Reported
Max chlorides:	Not Reported	Max Cl year:	0
Min chlorides:	Not Reported	Min Cl year:	0
Bot_hole depth:	Not Reported	bot_solid depth:	Not Reported
Bot_perf depth:	Not Reported	Well Capacity:	18
Pump Capacity:	Not Reported	Draft (mgd):	Not Reported
Tax map key:	3-1-043:001	Aquifer code:	30101
Latest head mmt:	0	Cur head mmt:	Not Reported
Current Cl mmt:	Not Reported	Const. Date:	07/01/1984 00:00:00
Pump Inst. Date:	Not Reported	Surveyor:	Not Reported
Transmissivity:	0	Pump intake elev:	Not Reported
Pump depth:	Not Reported		

Y98
WNW
1/2 - 1 Mile
Higher

HI WELLS **3-1750-006**

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Wid:	3-1750-006	Island Code:	3
Island Name:	Oahu	Well no:	1750-06
Well name:	Waikiki	Old name:	Not Reported
Yr drilled:	1955	Driller:	SAMSON-SMOCK
Quad_map:	13	Latitude:	211709
Longitude:	1575020	UTM:	Y
Gps:	N	Owner/user:	Hilton Hotel
Old number:	30-	Well_type:	Not Reported
Type:	Not Reported	Casing dia:	8
Ground Elev:	Not Reported	Well depth:	122
Solid casing Depth:	93	Perf casing Depth:	Not Reported
Use:	UNU	Use Desc:	Unused
Use year:	74	Water Top Elev:	0
Chloride value:	0	Test date:	Not Reported
Pumping Test rate:	Not Reported	Drop in water Lvl:	Not Reported
Chloride Test:	Not Reported	Temperature:	Not Reported
Units:	Not Reported	Pump Capacity:	0
Annual Draft:	Not Reported	Static Water Lvl:	Not Reported
Geology:	Not Reported	Geology desc:	Not Reported
Installed:	Not Reported	Last Measured:	Not Reported
Max chlorides:	Not Reported	Max Cl year:	Not Reported
Min chlorides:	Not Reported	Min Cl year:	Not Reported
Bot_hole depth:	Not Reported	bot_solid depth:	Not Reported
Bot_perf depth:	Not Reported	Well Capacity:	Not Reported
Pump Capacity:	Not Reported	Draft (mgd):	Not Reported
Tax map key:	2-6-008:034	Aquifer code:	30101
Latest head mmt:	0	Cur head mmt:	Not Reported
Current Cl mmt:	Not Reported	Const. Date:	01/01/1955 00:00:00
Pump Inst. Date:	Not Reported	Surveyor:	Not Reported
Transmissivity:	0	Pump intake elev:	Not Reported
Pump depth:	Not Reported		

Y99
WNW
1/2 - 1 Mile
Higher

FED USGS **USGS0224111**

Agency:	USGS	Site ID:	211709157502001
Site Name:	3-1750-06 W30 DERUSY		
Dec. Latitude:	21.28267		
Dec. Longitude:	-157.83615		
Coord Sys:	NAD83		
State:	HI		
County:	Honolulu County		
Altitude:	5.00		
Hydrologic code:	20060000		
Topographic:	Not Reported		
Site Type:	Ground-water other than Spring		
Const Date:	19550607	Inven Date:	Not Reported
Well Type:	Single well, other than collector or Ranney type		
Primary Aquifer:	Not Reported		
Aquifer type:	Not Reported		
Well depth:	122		
Hole depth:	Not Reported	Source:	Not Reported
Project no:	Not Reported		

Ground-water levels, Number of Measurements: 0

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance
Elevation

	Database	EDR ID Number
Z100 **NNE** **1/2 - 1 Mile** **Higher**	**FED USGS**	**USGS0224195**

Agency:	USGS	Site ID:	211738157490601
Site Name:	3-1749-04 W4 PALOLO		
Dec. Latitude:	21.29072		
Dec. Longitude:	-157.81559		
Coord Sys:	NAD83		
State:	HI		
County:	Honolulu County		
Altitude:	28.00		
Hydrologic code:	20060000		
Topographic:	Not Reported		
Site Type:	Ground-water other than Spring		
Const Date:	18830101	Inven Date:	Not Reported
Well Type:	Single well, other than collector or Ranney type		
Primary Aquifer:	Not Reported		
Aquifer type:	Not Reported		
Well depth:	286		
Hole depth:	Not Reported	Source:	Not Reported
Project no:	Not Reported		

Ground-water levels, Number of Measurements: 0

	Database	EDR ID Number
Z101 **NNE** **1/2 - 1 Mile** **Higher**	**HI WELLS**	**3-1749-004**

Wid:	3-1749-004	Island Code:	3
Island Name:	Oahu	Well no:	1749-04
Well name:	Kapahulu	Old name:	Not Reported
Yr drilled:	1883	Driller:	Not Reported
Quad_map:	13	Latitude:	211738
Longitude:	1574906	UTM:	Y
Gps:	N	Owner/user:	State Of Haw
Old number:	4-	Well_type:	Not Reported
Type:	Not Reported	Casing dia:	8
Ground Elev:	28	Well depth:	286
Solid casing Depth:	190	Perf casing Depth:	Not Reported
Use:	SLD	Use Desc:	Sealed
Use year:	26	Water Top Elev:	0
Chloride value:	0	Test date:	Not Reported
Pumping Test rate:	Not Reported	Drop in water Lvl:	Not Reported
Chloride Test:	Not Reported	Temperature:	Not Reported
Units:	Not Reported	Pump Capacity:	0
Annual Draft:	Not Reported	Static Water Lvl:	25.1
Geology:	TKB	Geology desc:	Tertiary Koolau basalt
Installed:	Not Reported	Last Measured:	Not Reported

Max chlorides:	Not Reported	Max Cl year:	Not Reported
Min chlorides:	Not Reported	Min Cl year:	Not Reported
Bot_hole depth:	-258	bot_solid depth:	-162
Bot_perf depth:	Not Reported	Well Capacity:	Not Reported
Pump Capacity:	Not Reported	Draft (mgd):	Not Reported
Tax map key:	Not Reported	Aquifer code:	30101
Latest head mmt:	25.1	Cur head mmt:	Not Reported
Current Cl mmt:	Not Reported	Const. Date:	01/01/1883 00:00:00
Pump Inst. Date:	Not Reported	Surveyor:	Not Reported
Transmissivity:	0	Pump intake elev:	Not Reported
Pump depth:	Not Reported		

AA102
NE
1/2 - 1 Mile
Higher

FED USGS **USGS0224132**

Agency:	USGS	Site ID:	211735157485801
Site Name:	3-1748-02 W3 PALOLO		
Dec. Latitude:	21.28989		
Dec. Longitude:	-157.81337		
Coord Sys:	NAD83		
State:	HI		
County:	Honolulu County		
Altitude:	29.00		
Hydrologic code:	20060000		
Topographic:	Not Reported		
Site Type:	Ground-water other than Spring		
Const Date:	18960101	Inven Date:	Not Reported
Well Type:	Single well, other than collector or Ranney type		
Primary Aquifer:	Not Reported		
Aquifer type:	Not Reported		
Well depth:	159		
Hole depth:	Not Reported	Source:	Not Reported
Project no:	Not Reported		

Ground-water levels, Number of Measurements: 0

AA103
NE
1/2 - 1 Mile
Higher

HI WELLS **3-1748-002**

Wid:	3-1748-002	Island Code:	3
Island Name:	Oahu	Well no:	1748-02
Well name:	Palolo	Old name:	Not Reported
Yr drilled:	1896	Driller:	MCCANDLESS
Quad_map:	13	Latitude:	211735
Longitude:	1574858	UTM:	Y
Gps:	N	Owner/user:	Booth E K
Old number:	3-	Well_type:	Not Reported
Type:	Not Reported	Casing dia:	10
Ground Elev:	29	Well depth:	159

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Solid casing Depth:	100	Perf casing Depth:	Not Reported
Use:	SLD	Use Desc:	Sealed
Use year:	28	Water Top Elev:	0
Chloride value:	0	Test date:	Not Reported
Pumping Test rate:	Not Reported	Drop in water Lvl:	Not Reported
Chloride Test:	Not Reported	Temperature:	Not Reported
Units:	Not Reported	Pump Capacity:	0
Annual Draft:	Not Reported	Static Water Lvl:	22.5
Geology:	Not Reported	Geology desc:	Not Reported
Installed:	Not Reported	Last Measured:	Not Reported
Max chlorides:	Not Reported	Max Cl year:	0
Min chlorides:	Not Reported	Min Cl year:	0
Bot_hole depth:	-130	bot_solid depth:	-71
Bot_perf depth:	Not Reported	Well Capacity:	Not Reported
Pump Capacity:	Not Reported	Draft (mgd):	Not Reported
Tax map key:	Not Reported	Aquifer code:	30101
Latest head mmt:	22.5	Cur head mmt:	Not Reported
Current Cl mmt:	Not Reported	Const. Date:	01/01/1896 00:00:00
Pump Inst. Date:	Not Reported	Surveyor:	Not Reported
Transmissivity:	0	Pump intake elev:	Not Reported
Pump depth:	Not Reported		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS
RADON

AREA RADON INFORMATION

Federal EPA Radon Zone for HONOLULU County: 3

Note: Zone 1 indoor average level > 4 pCi/L.
: Zone 2 indoor average level >= 2 pCi/L and <= 4 pCi/L.
: Zone 3 indoor average level < 2 pCi/L.

Federal Area Radon Information for Zip Code: 96813

Number of sites tested: 3

Area	Average Activity	% <4 pCi/L	% 4-20 pCi/L	% >20 pCi/L
Living Area - 1st Floor	0.067 pCi/L	100%	0%	0%
Living Area - 2nd Floor	Not Reported	Not Reported	Not Reported	Not Reported
Basement	0.350 pCi/L	100%	0%	0%

PHYSICAL SETTING SOURCE RECORDS SEARCHED

TOPOGRAPHIC INFORMATION

USGS 7.5' Digital Elevation Model (DEM)
Source: United States Geologic Survey
EDR acquired the USGS 7.5' Digital Elevation Model in 2002. 7.5-Minute DEMs correspond to the USGS 1:24,000- and 1:25,000-scale topographic quadrangle maps.

HYDROLOGIC INFORMATION

Flood Zone Data: This data, available in select counties across the country, was obtained by EDR in 1999 from the Federal Emergency Management Agency (FEMA). Data depicts 100-year and 500-year flood zones as defined by FEMA.

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002 from the U.S. Fish and Wildlife Service.

HYDROGEOLOGIC INFORMATION

AQUIFLOW[R] Information System
Source: EDR proprietary database of groundwater flow information
EDR has developed the AQUIFLOW Information System (AIS) to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted to regulatory authorities at select sites and has extracted the date of the report, hydrogeologically determined groundwater flow direction and depth to water table information.

GEOLOGIC INFORMATION

Geologic Age and Rock Stratigraphic Unit
Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - A digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

STATSGO: State Soil Geographic Database
Source: Department of Agriculture, Natural Resources Conservation Services
The U.S. Department of Agriculture's (USDA) Natural Resources Conservation Service (NRCS) leads the national Conservation Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. Soil maps for STATSGO are compiled by generalizing more detailed (SSURGO) soil survey maps.

ADDITIONAL ENVIRONMENTAL RECORD SOURCES

FEDERAL WATER WELLS

PWS: Public Water Systems
Source: EPA/Office of Drinking Water
Telephone: 202-564-3750
Public Water System data from the Federal Reporting Data System. A PWS is any water system which provides water to at least 25 people for at least 60 days annually. PWSs provide water from wells, rivers and other sources.

PWS ENF: Public Water Systems Violation and Enforcement Data
Source: EPA/Office of Drinking Water
Telephone: 202-564-3750
Violation and Enforcement data for Public Water Systems from the Safe Drinking Water Information System (SDWIS) after August 1995. Prior to August 1995, the data came from the Federal Reporting Data System (FRDS).

USGS Water Wells: USGS National Water Inventory System (NWIS)
This database contains descriptive information on sites where the USGS collects or has collected data on surface water and/or groundwater. The groundwater data includes information on wells, springs, and other sources of groundwater.

PHYSICAL SETTING SOURCE RECORDS SEARCHED

STATE RECORDS

Ground Water Wells
Source: Department of Land and Natural Resources
Telephone: 808-587-0242

RADON

Area Radon Information
Source: USGS
Telephone: 703-356-4020
The National Radon Database has been developed by the U.S. Environmental Protection Agency (USEPA) and is a compilation of the EPA/State Residential Radon Survey and the National Residential Radon Survey. The study covers the years 1986 - 1992. Where necessary data has been supplemented by information collected at private sources such as universities and research institutions.

EPA Radon Zones
Source: EPA
Telephone: 703-356-4020
Sections 307 & 309 of IRAA directed EPA to list and identify areas of U.S. with the potential for elevated indoor radon levels.

OTHER

Airport Landing Facilities: Private and public use landing facilities
Source: Federal Aviation Administration, 800-457-6656

Epicenters: World earthquake epicenters, Richter 5 or greater
Source: Department of Commerce, National Oceanic and Atmospheric Administration

APPENDIX C - RECONNAISSANCE PHOTOGRAPHS

PHOTOGRAPH LOG

1. View of 2423 & 2429 Ala Wai Blvd. from the north across Ala Wai Blvd. looking to the south.

2. View of 2423 & 2429 Ala Wai Blvd. from the north across Ala Wai Blvd. looking to the southwest.

3. View of 2423 & 2429 Ala Wai Blvd. from the north across Ala Wai Blvd. looking to the southwest.

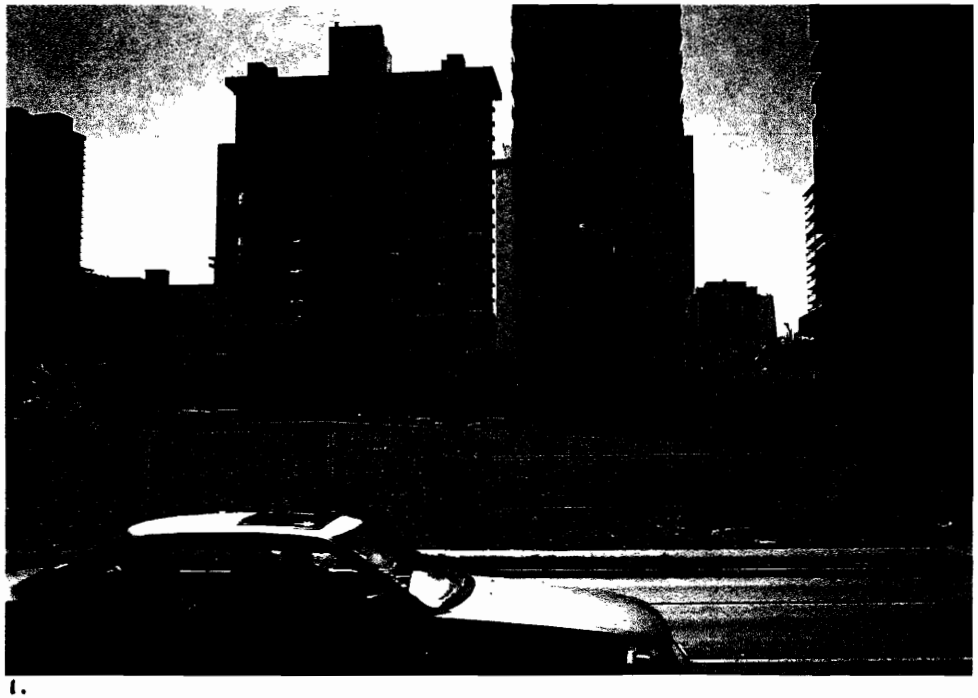
4. View of the subject site from the east looking to the west.

5. South side of the site. Note the discarded items along the fence line on the sidewalk.

6. View of 2423 & 2429 Ala Wai Blvd. from the south looking to the north.

7. View of the southern section of the site looking at Tusitala Street.

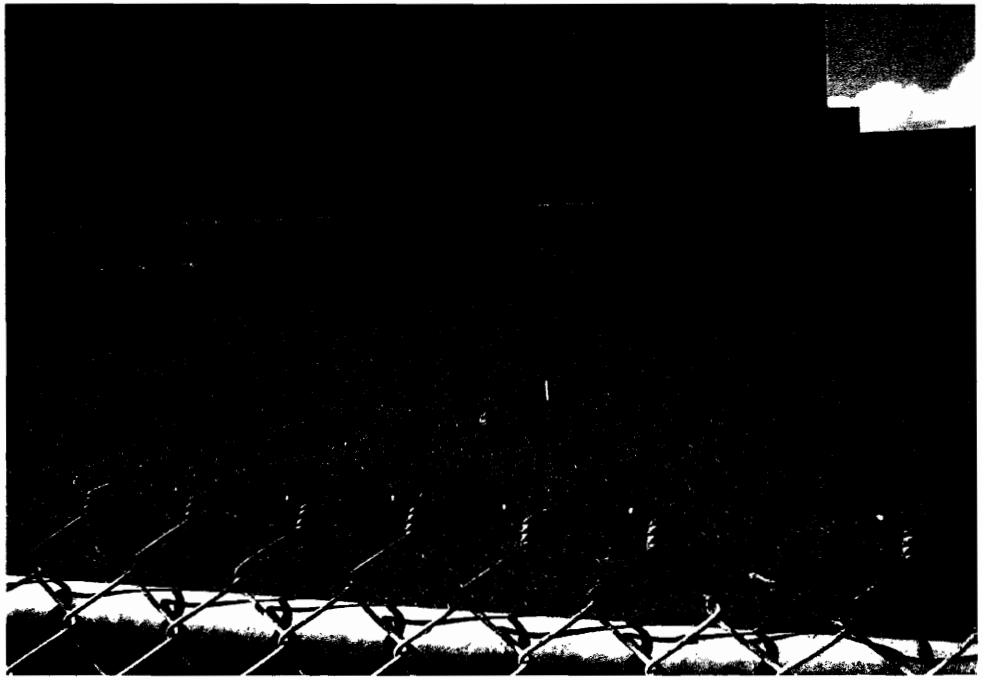
8. View of 2423 & 2429 Ala Wai Blvd. from the south looking to the north.



1.

2.

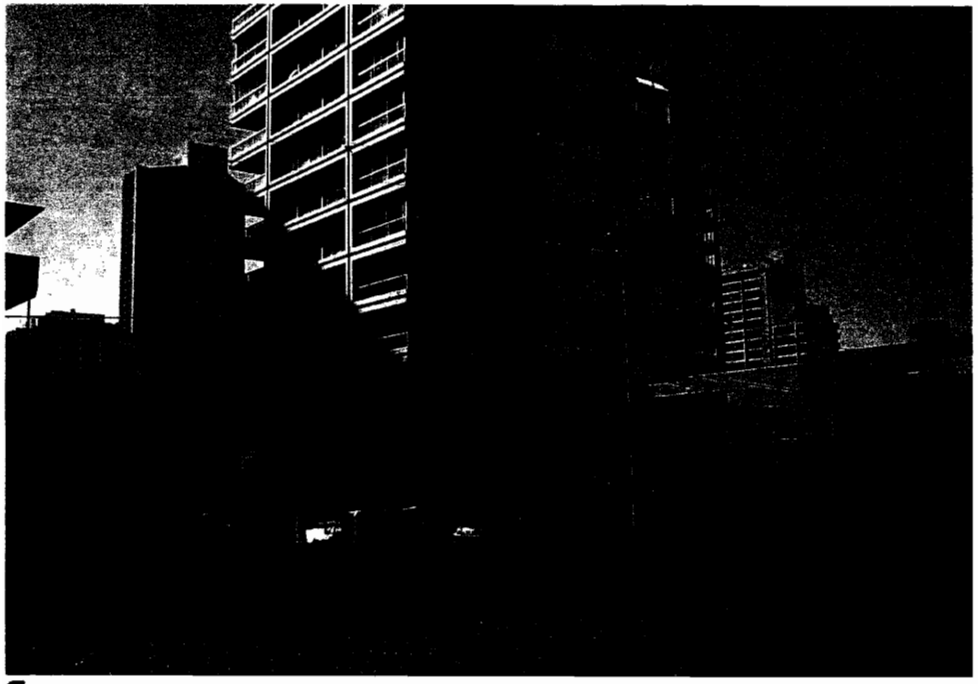
3.



4.

5.

6.



7.

8.

APPENDIX D - REFERENCES & SOURCES

References and Sources

1. Tusitala Vista L.P., Mr. Gary Furuta - Developer
2. Starts, Inc., Hanako Hata - Current Site Owner Representative
3. R.M. Towill, Edgar Gaiamo - Aerial Photo Review
4. USGS Topographic Map Honolulu Quadrangle 1998
5. Aquifer Identification and Classification for Oahu: Groundwater Protection Strategy for Hawaii, Technical Report No. 179
6. City & County of Honolulu Real Property Assessment Division: Ownership Documentation and Tax Maps.
7. Sanborn Fire Insurance Maps
8. EDR Radius Map Reports - Regulatory Data Base
9. Soil Survey of the Islands of Kauai, Oahu, Maui, Molokai, and Lanai State of Hawaii. USDA 1972.
10. Sate of Hawaii Department of Health UST Database, HEER Office Database.

APPENDIX E - CREDENTIALS

Michael W. Polkinghorn
Technical Director, Honolulu, Hawaii

EDUCATION

BS in Geology/Petroleum Engineering, 1981, Michigan State University

CERTIFICATIONS/REGISTRATIONS/TECHNICAL TRAINING

Environmental Professional - #103129PSI
Professional Geologist - PG3199 - Wyoming 1998
EPA AHERA Asbestos Inspector / Management Planner, HIASB-0184
EPA AHERA Asbestos Contractor Supervisor / Project Designer, HIASB-0184
OSHA 29 CFR 1910.120 HAZWOPER, Supervisor

PROFESSIONAL EXPERIENCE

Mr. Polkinghorn, Technical Director for GESG is responsible for the successful completion of all elements of a project. He supervises compliance for all Federal, State, and local environmental and industrial hygiene regulations. He possesses extensive experience with Phase I/II/III Environmental Site Assessments, soil and groundwater remediation, and has a working knowledge of optical mineralogy, microscopy. He has supervised and performed numerous asbestos surveys, lead paint surveys, and overseen the clean-up operations. He has extensive experience with UST removal and site remediation. He also is in charge of the META Hawaii EPA/Hawaii Accredited Asbestos Training Program which includes numerous OSHA/HIOSH training program certifications such as confined space entry and HAZWOPER training.

REPRESENTATIVE ENVIRONMENTAL SERVICES AND INDUSTRIAL HYGIENE PROJECTS

- Castle & Cooke Properties; Hawaii.
- City & County of Honolulu; Hawaii.
- County of Hawaii; Hawaii.
- County of Kauai; Hawaii.
- County of Maui; Hawaii.
- First Hawaiian Center Demolition Survey; Hawaii.
- Hickam AFB; Hawaii.
- Kamehameha Schools; Hawaii.
- NAS Barbers Point; Hawaii.
- Pearl Harbor; Hawaii.
- Punahou School; Hawaii.
- Schofield Barracks; Hawaii.
- Sheraton Hotels; Hawaii.
- State of Hawaii; Hawaii.
- Territory of Guam; Guam.
- Wilcox Memorial Hospital; Hawaii.

YEARS EXPERIENCE WITH OTHER FIRMS: 21

YEAR STARTED WITH GESG: 2003

APPENDIX 8

CULTURAL IMPACT ASSESSMENT

Cultural Impact Evaluation for the Tusitala Vista Elderly Apartments

Waikīkī, Kona District, O'ahu Island

TMK: 2-6-24: 70, 71

by

Auli'i Mitchell, B.A.,
and
Hallett H. Hammatt, Ph.D.

Prepared for
Kusao & Kurahashi, Inc.

by
Cultural Surveys Hawai'i, Inc.
December 2004

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I. INTRODUCTION

A. Project Background

At the request of Kusao & Kurahashi, Inc., Cultural Surveys Hawai'i Inc. (CSH), has completed a cultural impact evaluation of 1.03 acres in Waikīkī Ahupua'a, Kona District, Island of O'ahu, TMK 2-6-24:70, 71. The project area is a rectangular shaped parcel bounded by Ala Wai Boulevard to the north, Tusitala Street to the south, Ka'iulani Avenue to the west and Lili'uokalani Avenue to the east (Figures 1, 2 and 3). Hawai'i Housing Development Corporation is presently in the process of purchasing the project area land from Starts International Hawai'i, Inc.

B. Scope of Work

The scope of work for the cultural impact evaluation is summarized as follows:

1) Examination of historical documents, Land Commission Awards, historic maps, and previously documented oral histories, with the specific purpose of identifying traditional Hawaiian activities including gathering of plant, animal and other resources or agricultural pursuits as may be indicted in the historic record.

2) A review of the existing archaeological information pertaining to the sites on the property as they may allow us to reconstruct traditional land use activities and identify and describe the cultural resources, practices and beliefs associated with the parcel and identify present uses, if appropriate.

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

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

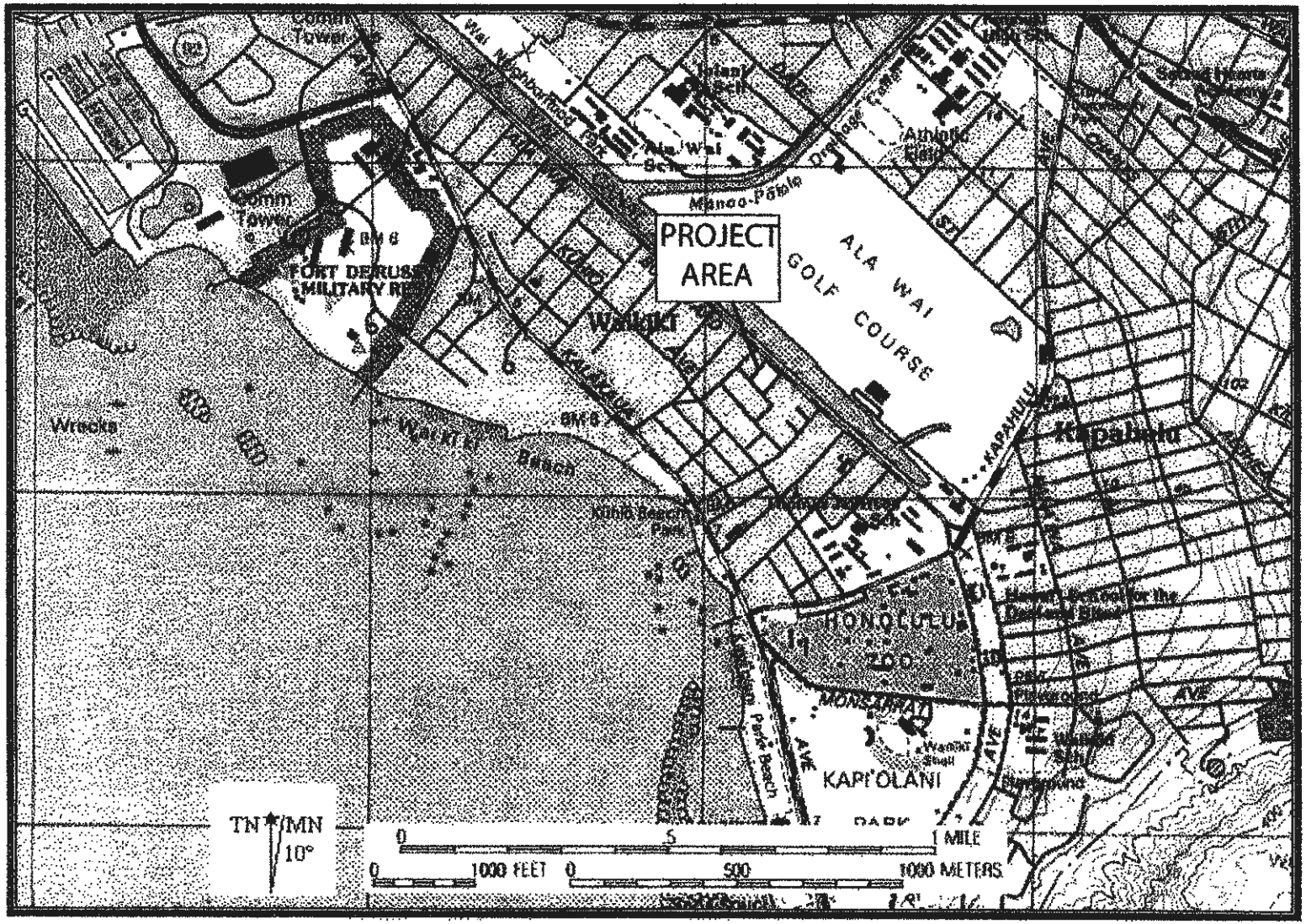

Figure 1 Portion of USGS Honolulu Quad (1998) map showing project area

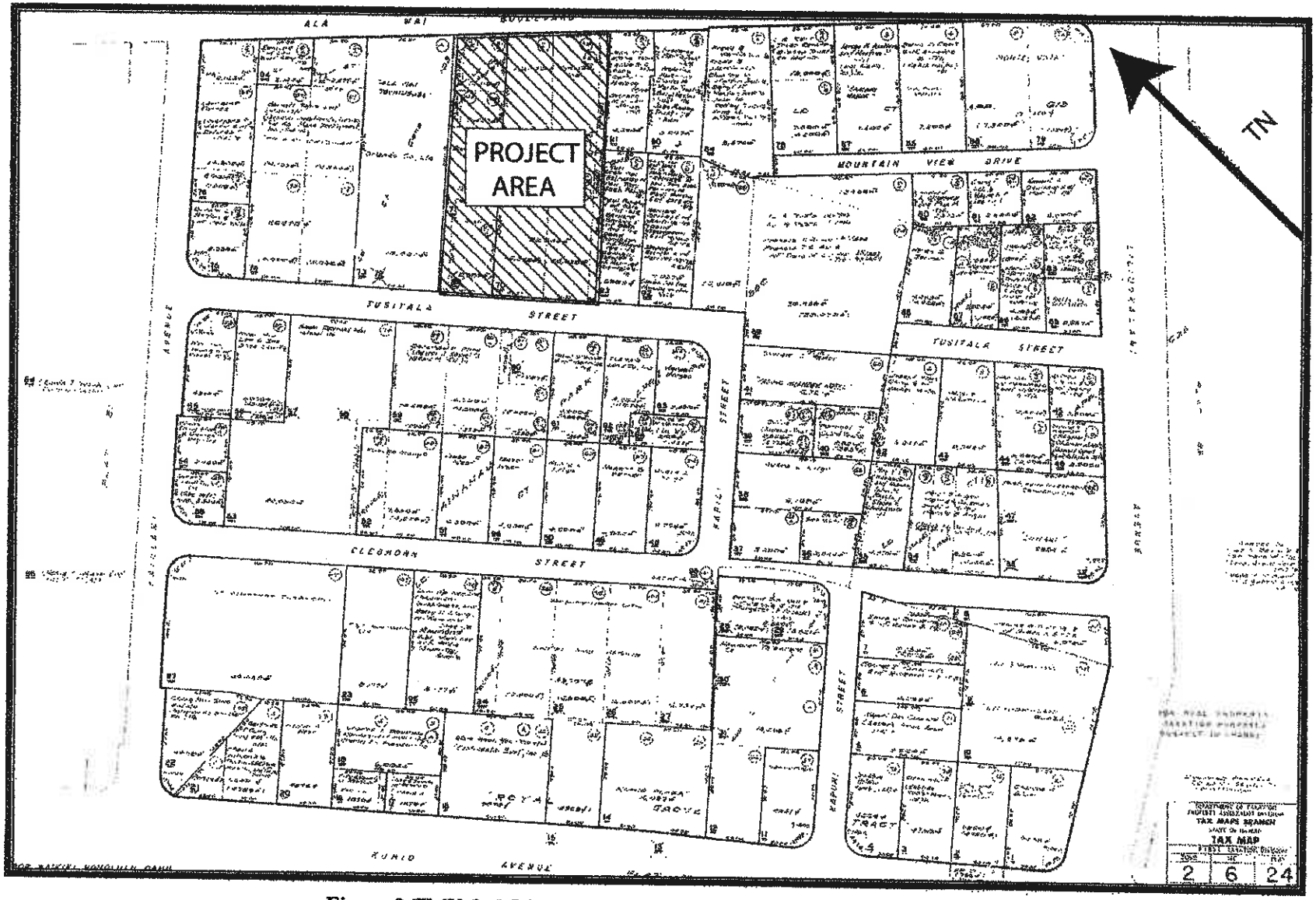

Figure 2 TMK 2-6-24 map showing location of present project area

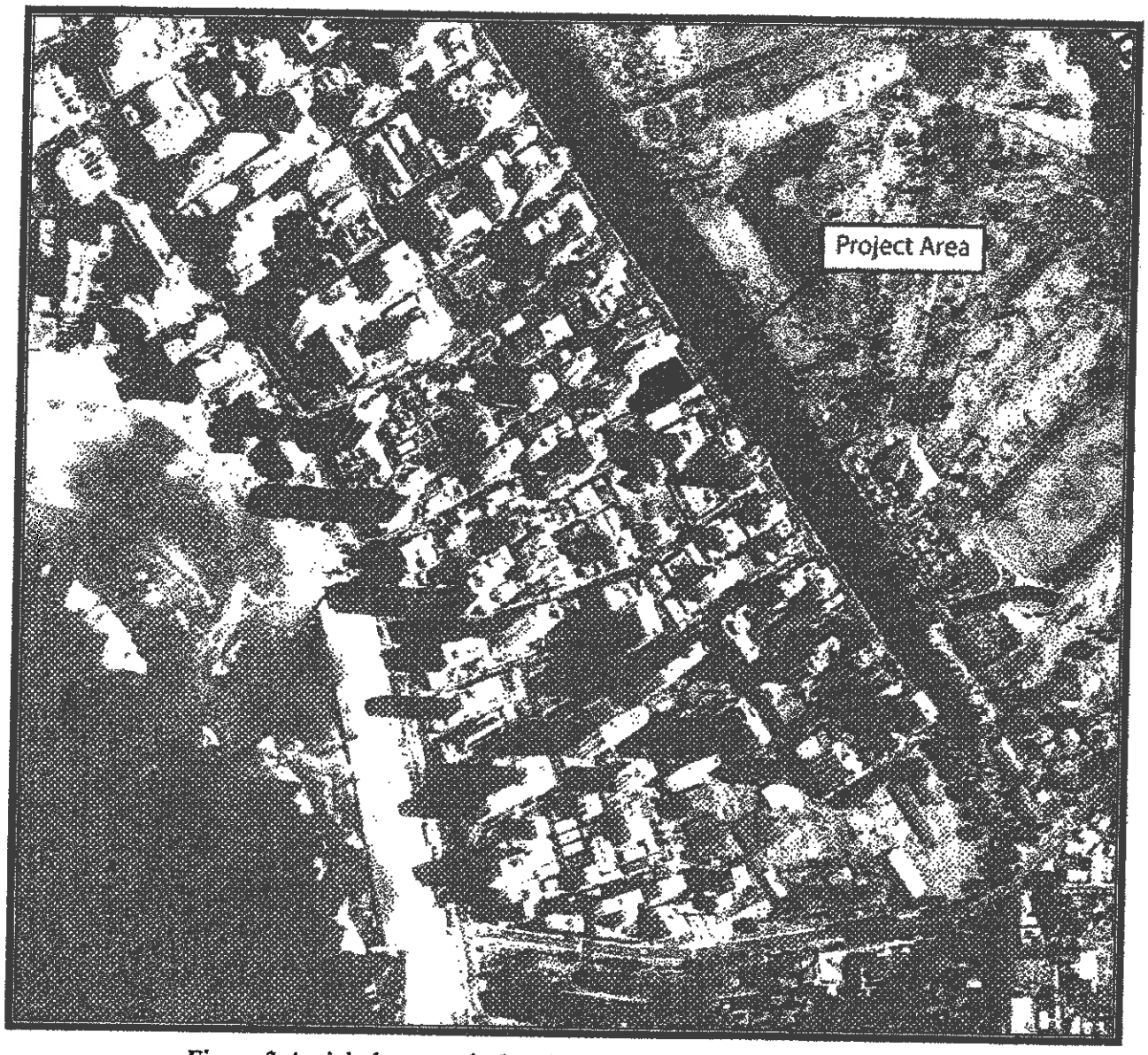

Figure 3 Aerial photograph showing location of the project area

C. Work Accomplished

Historical documents, maps, and photographs were researched at: the Hawai'i State Archives; the Survey Office of the Department of Accounting and General Services; the Hawai'i State Library; the Bernice Pauahi Bishop Museum Archives and Library; Hamilton Library at the University of Hawai'i at Mānoa; the Mission Houses Museum Library; the State Historic Preservation Division (SHPD) Library; and the Library of Cultural Surveys Hawai'i.

Hawaiian organizations, government agencies, community members and recognized cultural descendants with ties to Waikīkī were contacted to: 1) identify potentially knowledgeable individuals with cultural expertise and knowledge of the project area and the surrounding vicinity, and 2) identify cultural concerns and potential impacts within the project area. Results of the community contact process are presented in Table 2.

D. Natural Setting

The plain of Waikīkī is flat and, generally, less than 4.5 m (15 feet) above sea level (Davis 1989:5). Soils in the area are composed solely of Jaucus Sand with 0-15% slopes (JaC) (Foote et al.1972: Map 63). Rainfall averages less than 30 inches of rain per year (Armstrong 1983:62); however, the area receives additional water from the Kālia and Pālolo Streams, as well as rain showers that drift into the area from the mountains and inland valleys (Cleghorn 1996:3). Northeasterly trade winds prevail throughout the year, although their frequency varies from more than 90% during the summer months to 50% in January; the average annual wind velocity is approximately 10 miles per hour (Okamoto 1998:2-1). Currently, vegetation in the project area includes a variety of grasses and a few Plumeria and Papaya trees along the northern and southern fence lines.

Modern Hawaiian shoreline configuration, including Waikīkī Beach is primarily the result of: 1) rising sea level following the end of the Pleistocene (see Stearns 1978 and McDonald et al. 1983); 2) the mid to late Holocene c. 1.5-2.0 meter high-stand of the sea (see summary in Dye and Athens 2000:18-19); and, 3) prehistoric and historic human landscape modification. At the end of the Pleistocene, between approximately 20,000 and 5-6,000 years ago, water previously locked in glacial ice returned to the world's oceans and sea-level rose over 100 meters to approximately its current level. Rising sea levels flooded the previously dry, earlier Pleistocene reef deposits, which had formed hundreds of thousands of years previously when sea level was comparable to modern levels. In the late Pleistocene/early Holocene, the Waikīkī area was characterized by an expansive delta drainage system which flowed from the Ko'olau Mountains to the sea (Ferrall 1976: plate II).

Land formation was directly related to changes in the sea level, terrigenous sediment load of streams, and reef and marine sediment formation. Lowering sea levels and increased marine sediment load (from reef erosion due to wave action) combined to create a sand accretion barrier along the coast as marine sediments were deposited on the resulting shallower reefs. This created a lagoon environment between the island shoreline and the sand accretion barrier. Terrigenous sediments were carried into this lagoon environment by Mānoa and Pālolo streams. When sea level reached approximately modern levels, the now coastal regions became depositional environments, where for tens of thousands of years previously, during the lower sea levels, they had been erosional environments. This resulted in the deposition of both terrigenous and marine sediments in low-energy estuarine or lagoonal environments, leading to the

accumulation of thick deposits of soft/loose sediments along the current coastlines in areas that had formerly been valleys and drainage ways (Geolabs Hawai'i Inc. 1993:9). By the time humans occupied the coastal area of Waikīkī, the lagoon had become a wetland (which was used for cultivation) behind the sand accretion barrier (which was used for habitation) (Ferrall 1976: B-2). It is likely that only since the major construction projects of the beachfront hotels has the overall accretion trench of Waikīkī beach been stopped or reversed. The current landform at Waikīkī is largely the result of the historical drainage excavation of the Ala Wai Canal and fill deposits.

II. TRADITIONAL ACCOUNTS OF WAIKĪKĪ

Waikīkī had a previous life, long before the first tourist arrived or the first hotel was built. Rekindling a love for Waikīkī's past has been the passion of author/historian Dr. George Kanahele. Histories are intended to give meaning to events, and then all histories are stories, for stories are about meaning, which explain why things could have happened in a certain way. Traditionally, for Hawaiians, the *mo'olelo* (story) sought to do more than explain: it sought to re-enchant the mind and spirit. In his book *Waikīkī 100 B. C. to 1900 A.D. An Untold Story*, Dr. Kanahele sums up the following legends of Waikīkī reflecting the elements of water that once flourished in the lands of Waikīkī and who's rolling surf still breaks upon the shores of Waikīkī (Kanahele 1995:1).

1. Kamō'ili'ili (the pebble lizard)

Waikīkī's earliest *mo'o* god was probably *Kamō'ili'ili* (literally, the pebble lizard) who was slain by Hi'iaka, Pele's sister. The legend relates that:

> Hi'iaka and Wahine'ōma'o were escorting Lohi'au (Pele's lover-prince) back to Pele on the island of Hawai'i. During the return journey they left their canoe at Waikīkī and walked up toward Kamō'ili'ili. When they arrived at the particular spot (said to be where the old stone church stood in the 1920s), a heavy gust of wind blew, and Wahine'ōma'o and Lohi'au felt invisible hands pulling their ears back. They called to Hi'iaka for help. She knew that it was the lizard god, Kamō'ili'ili, who did it and told the other gods to keep closely behind her. A short distance away, they met Kamō'ili'ili who wanted to fight. Hi'iaka removed her outside skirt which concealed bolts of lightning and struck him with them. His body was cut to pieces and the peices turned into the long, low hill across from Waikīkī's Kūhiō School. [Kanahele 1995:42]

2. The Shark God Ka'ehu

Shark stories accompany surfing stories in myth as well as in real life because the man-eating shark is the most feared element in surfing. One legend that is popular even today is about the little yellow shark Ka'ehu of Pearl Harbor who was endowed with magical power by his ancestor Kamohoa'li'i, the shark god and brother of Pele. Yearning to see his parents off the Puna coast on the island of Hawai'i:

> One day Ka'ehu called his shark friends to accompany him to Puna. On the way they stopped at Waikīkī where they met Pehu, a mean-eating shark from Maui, who was swimming back and forth at Kalehuawehe in wait for an unsuspecting surfer.
>
> Ka'ehu asked what Pehu was doing there and he replied, "I'm catching a crab for my breakfast." "We'll help you catch your crab," Ka'ehu said, and told him to go near the coral reef while he and his friends would drive them shoreward, allowing Pehu to catch this crab easily. He was pleased with the plan and swam close to the reef where he hid himself in its shadows.
>
> Then Ka'ehu told his friends, "We must kill this man-eater because he is destroying our people. Let's try to push him into the shallow water."

> Soon two surfers appeared and when Pehu leaps to catch one, Ka'ehu and his friends pushed the surfer aside and hurled Pehu over the reef into a deep hole in the coral. The more he thrashed about to escape, the more trapped he became.
>
> When the surfers saw what had happened, they were not as afraid of Pehu and moved to the hole to kill him. As they cut into his body they discovered the remains of their own people. Out of respect, they delivered them to Pele'ula (an area with many healing *heiau* located in Kou, now downtown Honolulu) and burned the remains. Ka'ehu had many more adventures that had a similar objective, the punishment of other man-eaters from the great sea. [Kanahele 1995:58-59]

3. Surfing with Kelea

Surfing was one of the principal attractions of Waikīkī to both chiefs and commoners. So important was surfing that a major *heiau* dedicated to the *nalu* or surf, and its riders. Here at the "surfing *heiau*" of Papa'ena'ena, a terraced structure built at the foot of Diamond Head, is where surfers came to offer their sacrifices in order to obtain *mana* and knowledge of the surf. The site overlooked what surfers call today "First Break," the start of the Kalehuawehe surfing course which extended to Kawewehi (the deep, dark surf) at Kālia. Although everyone, including women and children, surfed, it was the chiefs who dominated the sport, and one of the best among Waikīkī's chiefs was Kalamakua. He came from a long ancestry of champion surfers whose knowledge, skill and *mana* were handed down and passed on from generation to generation. The story of his romantic meeting with Keleanuinoho'ana'api'api ("Great Kelea who flutters,") has been preserved as a reminder of the role that surfing played in the history of Waikīkī (Kanahele 1995:56-58):

> One day this beautiful chiefess with "clear skin and sparkling eyes," who then resided in Wahiawā (in Central O'ahu), was visiting Waikīkī with a few of her ladies-in waiting. She entered the coconut grove and beach of Kawehewehe which was located just east of the Halekūlani Hotel. Here is where the sick came to bathe and to be healed. They would wear *limu kala* (seaweed) leis and leave them in the water as a request to the gods for forgiveness of past wrongs which was the cause of much illness.
>
> The residents welcomed Keleanuinoho'ana'api'api and offered her coconuts to eat. She remarked that Waikīkī was "the most pleasant place we have seen," to which her hosts replied, "This is a place for enjoyment. Over there is the *kou* grove of Kahaloa where one may view the surfing of the chiefs and of the *ali'i nui* Kalamakua." Kahaloa, or "Long Place," was also a beach area located today between the Royal Hawaiian and Halekūlani hotels and noted for its fragrant *līpoa* seaweed. When she asked if she could borrow a surfboard, the Waikīkīans were surprised because they thought people from Waihiawā were only adept at "slicing *mo'okilau* ferns and *pōpolo* stalks," not at surfing. They did not know that their visitor was originally from Maui where she surfed with all the chiefs. She was too beautiful to refuse and someone gave her a board.

Before she entered the water, she "rubbed off the red dirt of 'Ewa from her feet so as to look fresh," and then paddled off like an expert, moving easily and noiselessly without the least heeling over. Instead of starting at the first break where *kama'āina* (native born) surfers congregated, she went beyond and waiting for a large wave. She let the first, second and third waves pass, and rode the fourth one all the way to shore. The chiefs and commoners were so impressed with her skill and grace that they immediately joined in loud cheers of admiration.

Meahwhile, Kalamakua, who was working in his taro fields nearby asked his men who was causing the commotion. They replied that the people were amazed at the performance of a female surfer. A skilled surfer himself, Kalamakua rushed to the edge of the beach to see for himself. He recognized Kelea at once as the chiefess from Maui famed for her surfing prowess.

When she reached shore, he took hold of her board and asked, "Are you Kelea?" "Yes," she answered. As she stood up, in naked splendor, he removed his feathered shoulder cap and wrapped it around her. Then he guided her to a *kapu* place and made her his *ali'i wahine mō'ī*, or queen. [Kanahele 1995:56-58]

III. HISTORICAL ACCOUNTS

A. Pre-Contact to Early 1800s

By the time of the arrival of Europeans in the Hawaiian Islands during the late eighteenth century, Waikīkī had long been a center of population and political power on O'ahu. According to Martha Beckwith (1940), by the end of the fourteenth century Waikīkī had become "the ruling seat of the chiefs of Oahu." The preeminence of Waikīkī continued into the eighteenth century and is betokened by Kamehameha's decision to reside there upon wresting control of O'ahu by defeating the island's chief, Kalanikūpule. The nineteenth century Hawaiian historian John Papa 'Ī'ī (1959:17), himself a member of the *ali'i* (chiefly class), described the king's Waikīkī residence:

> Kamehameha's houses were at Puaaliilii, *makai* of the old road, and extended as far as the west side of the sands of 'Apuakehau. Within it was Helumoa where Ka'ahumanu *mā* went to while away the time. The king built a stone house there, enclosed by a fence . . . ('Ī'ī 1959:17).

'Ī'ī further noted that the "place had long been a residence of chiefs. It is said that it had been Kekuapoi's home, through her husband Kahahana, since the time of Kahekili" ('Ī'ī 1959:17).

Chiefly residences, however, were only one element of a complex of features that characterized Waikīkī up to pre-contact times. Beginning in the fifteenth century, a vast system of irrigated taro fields was constructed, extending across the littoral plain from Waikīkī to lower Mānoa and Pālolo valleys. This field system – an impressive feat of engineering the design of which is traditionally attributed to the chief Kalamakua – took advantage of streams descending from Makiki, Mānoa and Pālolo valleys which also provided ample fresh water for the Hawaiians living in the *ahupua'a*. The pioneering nineteenth-century scholar Samuel Mānaiakalani Kamamau recounts Kalamakua's significance for the Hawaiian people:

> Kalamakua-a-Kaipūhōlua was a good chief. He was noted for cultivating, it was he who constructed the large pond fields Ke'ōkea, Kūalulua, Kalāmanamana, and the other *lo'i* in Waikīkī. He traveled about his chiefdom with his chiefs and household companions to cultivate the land and gave the produce to the commoners, the *maka'āinana*. They loved him. Kelea-nui-noho-'ana-'api'api became his wife when he was a mature man. (Kamakau 1991: 45)

Captain George Vancouver (1798:161-164), arriving at "Whyteete" in 1792, captured something of the profusion of taro *lo'i* across Waikīkī in his journals:

> On shores, the villages appeared numerous, large, and in good repair; and the surrounding country pleasingly interspersed with deep, though not extensive valleys; which, with the plains near the sea-side, presented a high degree of cultivation and fertility.
>
> [Our] guides led us to the northward through the village, to an exceedingly well-made causeway, about twelve feet broad, with a ditch on each side.
>
> This opened our view to a spacious plain, which, in the immediate vicinity of the village, had the appearance of the open common fields in England; but, on advancing, the major part appeared to be divided into fields of irregular shape and

> figure, which were separated from each other by low stone walls, and were in a very high state of cultivation. These several portions of land were planted with the eddo or taro root, in different stages of inundation; none being perfectly dry, and some from three to six or seven inches under water. The causeway led us near a mile from the beach, at the end of which was the water we were in quest of. It was a rivulet five or six feet wide, and about two or three feet deep, well banked up, and nearly motionless; some small rills only, finding a passage through the dams that checked the sluggish stream, by which a constant supply was afforded to the taro plantations.
>
> [We] found the plain in a high state of cultivation, mostly under immediate crops of taro; and abounding with a variety of wild fowl, chiefly of the duck kind . . . The sides of the hills, which were at some distance, seemed rocky and barren; the intermediate vallies, which were all inhabited, produced some large trees, and made a pleasing appearance. The plain, however, if we may judge from the labour bestowed on their cultivation, seemed to afford the principal proportion of the different vegetable productions on which the inhabitants depend for their subsistence.

Further details of the exuberant life that must have characterized the Hawaiians use of the lands that included the *ahupua'a* of Waikīkī are given by Archibald Menzies (1920:23-24), a naturalist accompanying Vancouver's expedition:

> The verge of the shore was planted with a large grove of cocoanut palms, affording a delightful shade to the scattered habitations of the natives. Some of those near the beach were raised a few feet from the ground upon a kind of stage, so as to admit the surf to wash underneath them. We pursued a pleasing path back to the plantation, which was nearly level and very extensive, and laid out with great neatness into little fields planted with taro, yams, sweet potatoes and the cloth plant. These, in many cases, were divided by little banks on which grew the sugar cane and a species of Draecena without the aid of much cultivation, and the whole was watered in a most ingenious manner by dividing the general stream into little aqueducts leading in various directions so as to be able to supply the most distant fields at pleasure, and the soil seemed to repay the labour and industry of these people by the luxuriancy of its productions. Here and there we met with ponds of considerable size, and besides being well stocked with fish, they swarmed with water fowl of various kinds such as ducks, coots, water hens, bitterns, plovers and curlews.

The work of chief Kalamakua in Waikīkī will be further detailed in the discussion of the present project area in Section H below.

The traditional Hawaiian focus on Waikīkī as a center of chiefly and agricultural activities on southeastern O'ahu was soon to change – disrupted by the same Euro-American contact that produced the first documentation (including the records cited above) of that traditional life. The *ahupua'a* of Honolulu - with the only sheltered harbor on O'ahu - became the center for trade with visiting foreign vessels, drawing increasing numbers of Hawaiians away from their traditional environments. Kamehameha himself moved his residence from Waikīkī to the coast near Honolulu harbor, likely in order to maintain his control of the lucrative trade in sandalwood

that had developed. By 1828, the missionary Levi Chamberlain (1957:26), describing a journey into Waikīkī, would note:

> Our path led us along the borders of extensive plats of marshy ground, having raised banks on one or more sides, and which were once filled with water, and replenished abundantly with esculent fish; but now overgrown with tall rushes waving in the wind. The land all around for several miles has the appearance of having once been under cultivation. I entered into conversation with the natives respecting this present neglected state. They ascribed it to the decrease of population. (Chamberlain 1957:26)

Tragically, the depopulation of Waikīkī was not simply a result of the attractions of Honolulu (where, by the 1820s, the population was estimated at 6,000 to 7,000) but also of the European diseases that had devastating effects upon the Hawaiian populace.

B. Mid-Nineteenth Century and the *Mahele*

The depopulation of Waikīkī, however, was not total and the *ahupua'a* continued to sustain Hawaiians living traditionally into the mid-nineteenth century. The Organic Acts of 1845 and 1846 initiated the process of the *Mahele* (the division of Hawaiian lands) that introduced private property into Hawaiian society. In 1848, the crown (Hawaiian government) and the *ali'i* (royalty) received their land titles. Subsequently in the *Mahele*, Land Commission Awards (LCAs) for *kuleana* parcels were awarded to commoners and others who could prove residency on and use of the parcels they claimed. Land Commission Award records document awardees continuing to maintain fishponds and irrigated and dryland agricultural plots, though on a greatly reduced scale than had been previously possible with adequate manpower.

A discussion of Land Commission Awards related to the present project area is presented in Section H below.

C. Mid to Late 1800s

As the nineteenth century progressed, Waikīkī was becoming a popular site among foreigners – mostly American – who had settled on O'ahu. An 1865 article in the Pacific Commercial Advertiser mentioned a small community that had developed along the beach. The area continued to be popular with the *ali'i* – the Hawaiian royalty – and several notables had residences there. A visitor to O'ahu in 1873 described Waikīkī as "a hamlet of plain cottages, whither the people of Honolulu go to revel in bathing clothes, mosquitoes, and solitude, at odd times of the year" (Bliss 1873).

Other developments during the second half of the nineteenth century a prelude of changes that would dramatically alter the landscape of Waikīkī during the twentieth century – include the improvement of the road connecting Waikīkī to Honolulu (the route of the present Kalākaua Ave.), the building of a tram line between the two areas, and the opening of Kapi'olani Park on June 11, 1877. Traditional land-uses in Waikīkī were abandoned or modified. By the end of the 19th century most of the fishponds that had previously proliferated had been neglected and allowed to deteriorate. The remaining taro fields were planted in rice to supply the growing numbers of immigrant laborers imported from China and Japan, and for shipment to the west coast of the United States.

As the sugar industry throughout the Hawaiian kingdom expanded in the second half of the nineteenth century, the need for increased numbers of field laborers prompted passage of contract labor laws. In 1852, the first Chinese contract laborers arrived in the islands. Contracts were for five years, and pay was $3 a month plus room and board. Upon completion of their contracts, a number of the immigrants remained in the islands, many becoming merchants or rice farmers. As was happening in other locales, in the 1880s, groups of Chinese began leasing and buying (from the Hawaiians of Waikīkī) former taro lands for conversion to rice farming. The taro lands' availability throughout the islands in the late 1800s reflected the declining demand for taro as the native Hawaiian population diminished.

The Hawaiian Islands were well positioned for rice cultivation. A market for rice in California had developed as increasing numbers of Chinese laborers immigrated there since the mid-nineteenth century. Similarly, as Chinese immigration to the islands also accelerated, a domestic market opened.

> The primary market for both husked rice and paddy raised in all parts of the Hawaiian Islands was in Honolulu. The number of Chinese in the islands created a large home demand.
>
> In 1880 the home market was made more secure by an increase in the duty on rice imported into Hawai'i to 1½ cents on paddy and 2½ cents on hulled rice. It resulted in further checking the importation of foreign rice and giving an immense impetus to the home product [Coulter and Chun, 1937: 13] m.

By 1892, Waikīkī had 542 acres planted in rice, representing almost 12% of the total 4,659 acres planted in rice on O'ahu. Most of the former taro *lo'i* converted to rice fields were located *mauka* of the present Ala Wai Boulevard.

D. 1900 to 1920

During the first decade of the twentieth century, the U.S. War Department acquired more than 70 acres in the Kālia portion of Waikīkī for the establishment of a military reservation called Fort DeRussy, named in honor of Brig. Gen. R.E. DeRussy of the Army Corps of Engineers.

> On 12 November 1908, a detachment of the 1st Battalion of Engineers from Fort Mason, California, occupied the new post...
>
> Between 1909 and 1911 the engineers were primarily occupied with mapping the island of O'ahu. At DeRussy other activities also had to be attended to - especially the filling of a portion of the fishponds which covered most of the Fort. This task fell to the Quartermaster Corps, and they accomplished it through the use of an hydraulic dredger which pumped fill from the ocean continuously for nearly a year in order to build up an area on which permanent structures could be built. Thus the Army began the transformation of Waikīkī from wetlands to solid ground, [Hibbard and Franzen 1986:79].
>
> All the fishponds were filled by 1928.

E. 1920s to 1930s

During the 1920s, the Waikīkī landscape would be transformed when the construction of the Ala Wai Drainage Canal, begun in 1921 and completed in 1928, resulted in the draining and filling in of the remaining ponds and irrigated fields of Waikīkī. The canal was one element of a plan to urbanize Waikīkī and the surrounding districts:

> The [Honolulu city] planning commission began by submitting street layout plans for a Waikīkī reclamation district. In January 1922 a Waikīkī improvement commission resubmitted these plans to the board of supervisors, which, in turn, approved them a year later. From this grew a wider plan that eventually reached the Kapahulu, Mō'ili'ili, and McCully districts, as well as lower Makiki and Mānoa...
>
> The standard plan for new neighborhoods, with allowances for local terrain, was to be that of a grid, with 80-foot-wide streets crossing 70-foot-wide avenues at right angles so as to leave blocks of house lots about 260 by 620 feet. Allowing for a 10-foot-wide sidewalk and a 10-foot right-of-way [alley] down the center of each block, there would be twenty house lots, each about 60 by 120 feet, in each block. [Johnson 1991:311]

During the course of the Ala Wai Canal's construction, the banana patches and ponds between the canal and the *mauka* side of Kalākaua Avenue were filled and the present grid of streets was laid out. These newly created land tracts spurred a rush to development in the 1930s. An article in the Honolulu Star-Bulletin in 1938 extolled the area's progress:

> The expansion of apartment and private residence construction is no secret. Examination of building permits will show that more projects have been completed during the past year, and more are now underway in this area, than in any other section of the territory.
>
> These developments are being made by island residents who have recognized the fact that Waikīkī presents the unparalleled possibility for safe investment with excellent return. (Newton 1938: 10)

The writer speculated that the "future of Waikīkī is assured."

F. 1940s

The entrance of the United States into World War II following the Japanese bombing of Pearl Harbor on December 7, 1941 put on hold plans for the development of Waikīkī as a tourist destination. Until the war's end in 1945, the tourist trade was non-existent "...since the Navy controlled travel to and from Hawai'i and did not allow pleasure trips" (Brown 1989: 141). For the duration of the war, Waikīkī was transformed into a recreation area for military personnel.

> It was not the same Waikīkī as before the war, though; barbed wire barricades now lined its sands, and there were other changes too. Fort DeRussy became a huge recreation center, with a dance hall called Maluhia that attracted thousands of men at a time. The Moana Hotel continued to function, but many other establishments and private homes in the area were taken over by the military. [Brown 1989:141]

Nearing the war's end, concerns began arising over the future of Waikīkī. An article in the Honolulu Advertiser of July 16, 1945 decried "honky-tonks" that had sprung up in Waikīkī

during the course of the war, and asked: "Can anyone look at present-day Kalākaua Ave. – lined with makeshift curio shops, noisy 'recreation' centers, eyesores that pass under the name of lunchrooms and miscellany of 'joints' – and hope that Waikīkī can stage a comeback [as a tourist destination]?"

G. 1950s

By the mid-1950s there were more than fifty hotels and apartments from the Kālia area to the Diamond Head end of Kapi'olani Park. The Waikīkī population, by the mid-1950s, was not limited to transient tourists but included 11,000 permanent residents living in 4,000 single dwellings and apartments in stucco or frame buildings.

H. Historical Documentation of the Project Area

Beginning at the mid-nineteenth century, the historical record of Waikīkī including the present project area and adjacent lands was established in increasingly detailed documentation including photographs, maps, newspaper articles, and government records. These documents also give insight into pre-contact Waikīkī. During subsequent decades of the twentieth century, abundant documentation of Waikīkī allows a more precise focus on the changes within the project area itself up to the 1950s.

1. 1881 survey map by S.E. Bishop

An 1881 a portion of the Hawaiian Government survey map by Serrano E. Bishop with locations of LCA parcels provides a detailed record of the physical landscape of Waikīkī before the transformations of the twentieth century (Figure 4). As shown on the map, coursing through the middle of the project area is 'Āpuakēhau Stream which once descended from Mānoa Valley, entering the ocean "near the present Moana Hotel" and which was "probably named for a rain" (Pukui *et al.* 1974: 13).

The map also shows the project area straddling two Waikīkī *'ili* which appears to be separated by 'Āpuakēhau Stream: the *mauka* portion of the project area is in Kalāmanamana and the *makai* portion is in 'Au'aukai.

As was noted above, according to Samuel Kamakau, Kalāmanamana was one of the areas where the chief Kalamakua constructed the "large pond fields" of taro that once covered the Waikīkī plain. Some of the Kalāmanamana *lo'i* are shown in Figure 4. The complete 1881 map shows a network of *lo'i* (which by the 1880s were being converted to rice fields) extending across present-day McCully and Mō'ili'ili to the foot of Mānoa Valley, suggesting the impressive scale of the field system engineered by Kalamakua.

Also indicated on the map are the *'auwai* created to channel water of streams descending from Pālolo, Mānoa, and Makiki Valleys. The almost 90-degree bend of 'Āpuakēhau Stream into the present project area, as shown on the 1881 map, suggests that the stream was diverted sometime early in the creation of the Waikīkī fields either to direct water to *lo'i* constructed elsewhere or to create a broader expanse of dryland in the *'ili* identified on the map as 'Au'aukai, Kaluaokau, Kapuni and Uluniu. These *'ili* would, in time, come to be identified with *'ali'i* (the Hawaiian royalty) who resided in Waikīkī.

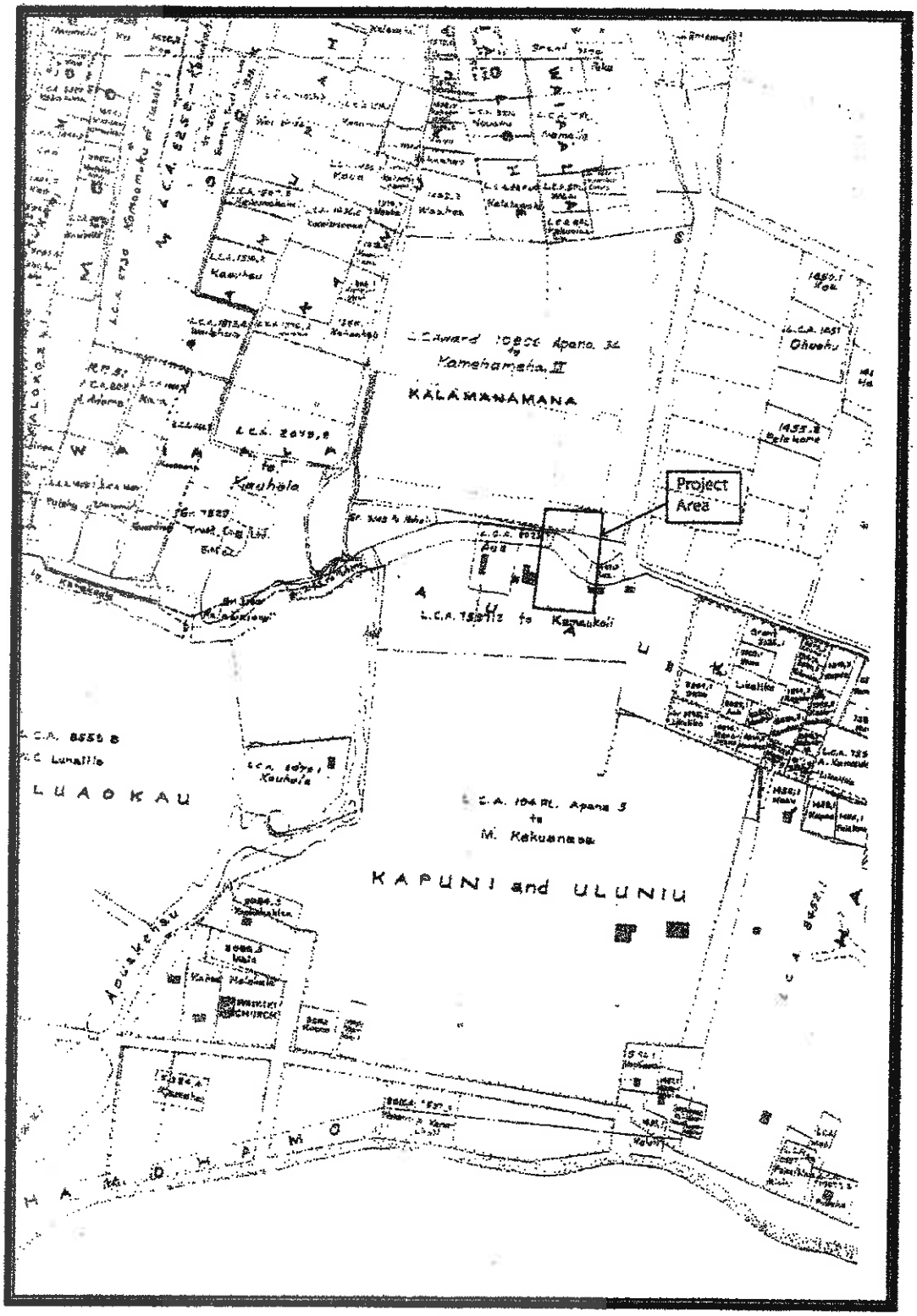

Figure 4 Portion of an 1881 Serrano E. Bishop map showing of Land Commission Awards with the approximate location of project area indicated in red

2. Land Commission Award Records

The 1881 map (Figure 4) identifies locations of Land Commission Awards within Waikīkī. Documentation about *Mahele* awards provides specific details of life within and adjacent to the present project area during the nineteenth century and earlier. Based on the 1881 map, four awards appear to be most relevant to the project area:

LCA 10806, Apana (parcel) 34 awarded to Kauikeaouli, Kamehameha III;

LCA 104 FL (Fort Lands), Apana 5 awarded to Mataio Kekūanaō'a;

LCA 7597, Apana 2 awarded to Kamaukoli; and

LCA 8023, Apana 1 & 2 awarded to Aua.

Information provided in LCA records for these four awards is presented below.

The records for LCA 10806 identify Parcel 34 as Kalāmanamana, one of the king's "farms at Waikiki" (Native Register vol. 3, pg. 387-390). Testimonies given in support of the award identify taro *lo'i* (irrigated fields) at Kalāmanamana and the king's other Waikīkī farm lands:

> M. Kekuanaoa, sworn, I had known that these *lois*: Hohe, Kalamanamana and Keokea are for the King, the *kole lois* throughout the island of Oahu are also for the King. Some *koele* patches were given to the *konohiki* during the land Māhele. They are in the *ilis* of Hamohamo and Kalia and they have been for the King since the time of Kaahumanu until the time of the land distribution. There are some government portions in here, but these lois are for the King which is complicating to me at this time. It is for the King probably, for the government, perhaps, for whom is it? Kamehameha I had built these farms, Kamehameha III has them now.
>
> Piikoi, sworn, I have seen these places for which the King is demanding. These patches were planted with taro at the time Kinau was governor of Oahu and Kamanawa did the harvesting and S. Kuluwailehua was the tax assessor at the time. It was probably before 1839 and since that time to the *Mahele*, the King has sent Kaihe to show me the King's interest that I might work in it. It has been that way to the present and I have heard these places are for the King and the claim has been filed. I have also heard that these places have been for the King from the time of Kamehameha I and had been in the care of Kinau and Kaahumanu. (Native Testimony vol. 10, pg.448)

LCA 104 FL was granted to Mataio Kekūanaō'a. Kekūanaō'a, born in Hilo on Hawai'i Island in the 1790s, was governor of O'ahu at the time of the *Mahele*. He was the father of Alexander Liholiho (King Kamehameha IV), Lot Kamehameha (King Kamehameha V), Princess Victoria Kamāmalu, Princess Ruth Ke'elikolani, and Moses Kekuaiwa. Following his death in November 1868 his lands were inherited by his daughter, Princess Ruth.

The records for LCA 104 FL (Fort Lands) suggest that Apana 4, as indicated on the 1881 map, comprised land associated with Kekūanaō'a's "house site in Kapuni, Waikīkī, Kona, Oahu" (Native Testimony vol. 10, pg. 390). Based on descriptions in the LCA records, the house site itself was located at the coast. The records do not indicate any specific land features or agricultural activity within Apana 4. Records for LCA 7597, Apana 2 awarded to Anederea

Kamaukoli provide detailed information on the parcel and reveal that Kamaukoli was *konohiki* (headman of an *ahupua'a* land division under the chief of the area. Kamaukoli himself testified:

> ...I...hereby state my claim for land, Auaukai, an *'ili*, was given me by Kaahumanu I in the year in which Poki sailed to Nanapua [*i.e.* about 1829] and disappeared. That was when I acquired this *'ili* and from that time I have occupied this land as *konohiki*. The tenants are living under me, and going to my work days and are ruled by the laws of this time. My own *lo'is* in Auaukai, an *'ili* in the Ahupua'a of Waikiki, are three taro *lo'i*, one weed-grown *kula* for planting sweet potatoes and gourd. (Native Register vol. 5, pg. 413-415)

Other records identify the taro in Apana 2 as *puepue* or dryland.

Kamaukoli is identified in *Mahele* documents as the father-in-law of Aua, the awardee of LCA 8023. Aua testified that he received the land in the "*ili* of 'Au'aukai" from Kamaukoli "in the time of [the regency] of Kaahumanu" (Foreign Testimony vol. 14, pg. 475). It appears that the two parcels of LCA 8023 shown on the 1881 map comprise "one pauku [land section] of taro...in the water course and...another *pauku* of stream" (Native Register vol. 5, pg. 478).

In summary, the *Mahele* documents indicate that within the present project area at the mid-nineteenth century: the *mauka* section comprised a portion of taro *lo'i* belong to the king; the central section comprised a portion of 'Āpuahēkau Stream in which taro was also growing; and the *makai* portion comprised *kula* – a dryland agricultural field where taro, sweet potatoes, and gourd may have been growing. It is likely that these agricultural activities recorded in the documents reflect the continuation into the nineteenth century of the primary traditional Hawaiian land use and cultural activity within the project area and vicinity.

3. 'Āinahau

Historic maps identify the present project area as a portion of 'Āinahau, the Waikīkī estate of Archibald Cleghorn (1835-1910), his wife Prince Miriam Likelike (1851-1887), and their daughter Princess Ka'iulani (1875-1899) – all significant personages in the history of Hawai'i.

> Cleghorn not only beautified Waikīkī through his work at Kapi'olani Park [he had been instrumental in the park's creation and design], but also at his estate, 'Āinahau, which he had purchased in 1872 for $300. Inheriting a love of horticulture from his father, Cleghorn lavishly landscaped this parcel, making it "the most beautiful private estate in the Hawaiian Islands". (Hibbard and Franzen 1986: 12)

A 1917 government survey map – on which the present project area is indicated – shows the boundaries of the 'Āinahau Estate and other land owned by Cleghorn immediately *mauka* of 'Āinahau, beyond the *mauka* bank of 'Āpuakēhau Stream (Figure 5). When the 1917 map is studied in tandem with the 1881 map discussed above (Figure 4), it appears that the 'Āinahau estate comprised the entire LCA 7597 Apana 2 and an adjacent portion of LCA 104 FL Apana 5. The portion of LCA 104 FL is probably the land that Princess Ruth Ke'elikōlani gave to Princess Ka'iualani as a christening gift.

The structures indicated within LCA 7597 Apana 2 on the 1881 map would appear to be buildings constructed by Cleghorn on the 'Āinahau grounds. Among these buildings, the large structure indicated just outside the present project area is likely the bungalow which was the

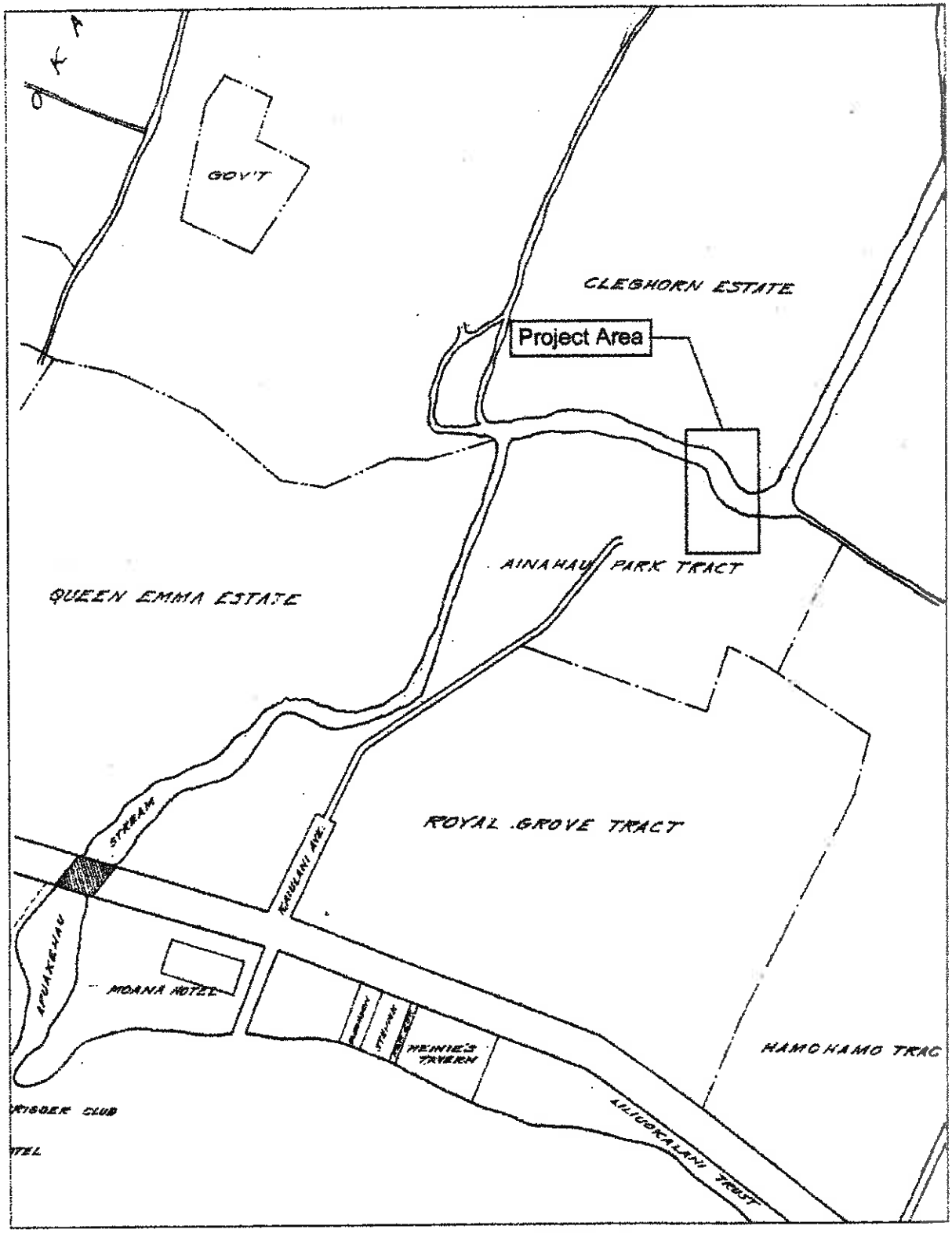

Figure 5 Portion of a 1917 government survey map (Bishop Museum) shows boundaries of the Cleghorn Estate and approximate location of the present project area

Cleghorn family's first residence on the estate. Subsequently, in the 1890s, Cleghorn constructed, immediately adjacent to the bungalow, a large Victorian-style house. A visitor in the 1890s noted:

> The new house was a white frame structure, of two stories, with wings at either end – the favorite form of Honolulu architecture – with a wide verandah extending across the front. The shrubbery had been cut away for several yards in every direction to allow the free circulation of the air, and just beyond the main entrance stood the one incomparable banyan tree, which the owner presently informed me was the handsomest thing he had. (In Stassen-McLaughlin 1986: 127)

Historic photographs indicate that this house was located within the *makai* portion of the present project area.

Two members of the Cleghorn family would not live to see the twentieth century:

> Not only a site of pleasant pastimes, these lands ['Āinahau] also were associated with grief and tragedy. Here, Princess Likelike died on 2 February 1887, at the age of thirty-six, and twelve years later, in 1899, Cleghorn's daughter Ka'iulani, passed away here in the springtime of her life, at the age of twenty-four. (Hibbard and Franzen 1989: 13)

Cleghorn himself would continue to reside at 'Āinahau until his death in 1910. The house would burn down on August 2, 1921 in a fire caused by a gas heater.

4. The Project Area in the Twentieth Century

Seven years following Cleghorn's death, the ʻĀinahau estate was put up for sale.

> In 1917 James W. Pratt bought the estate, then sold most of it in 1919 to William Chauncey Wilder. Wilder, along with developer Percy M. Pond had great plans. The property was offered to the public for subdivision. (Stassen-McLaughlin 1986: 128)

An advertisement appearing in the Pacific Commercial Advertiser on May 5, 1919 shows the residential subdivision developed by Pond (Figure 6). The streets shown on the map, which were constructed for the subdivision, correspond to the present-day Kaʻiulani Avenue, Cleghorn Street, Kapili Street, and Tusitala Street.

The map also indicates that ʻĀpuakēhau Stream continued to flow in the first decades of the 20th century and delineated the *mauka* and ʻEwa boundaries of the ʻĀinahau subdivision tract. The map suggests that, in 1919, only the *makai* portion of the present project area was developed as a portion of the tract. ʻĀpuakēhau Stream and remnants of the pond fields of Waikīkī continued extant in the *mauka* portion of the project area. Additionally, as was noted above, the ʻĀinahau residence was still standing in 1919, likely within the present project area, until it burned down in 1921. The ʻĀinahau tract subdivision may have excluded the residence and its immediate surroundings from development.

As was also noted above, the construction of the Ala Wai Drainage Canal between1921 and 1928 resulted in the draining and filling in of the Waikīkī fishponds and irrigated fields, and their replacement with the grid work of streets of present-day Waikīkī. A 1927 fire insurance map shows the Ala Wai Canal and Ala Wai Boulevard immediately *mauka* of the present project area

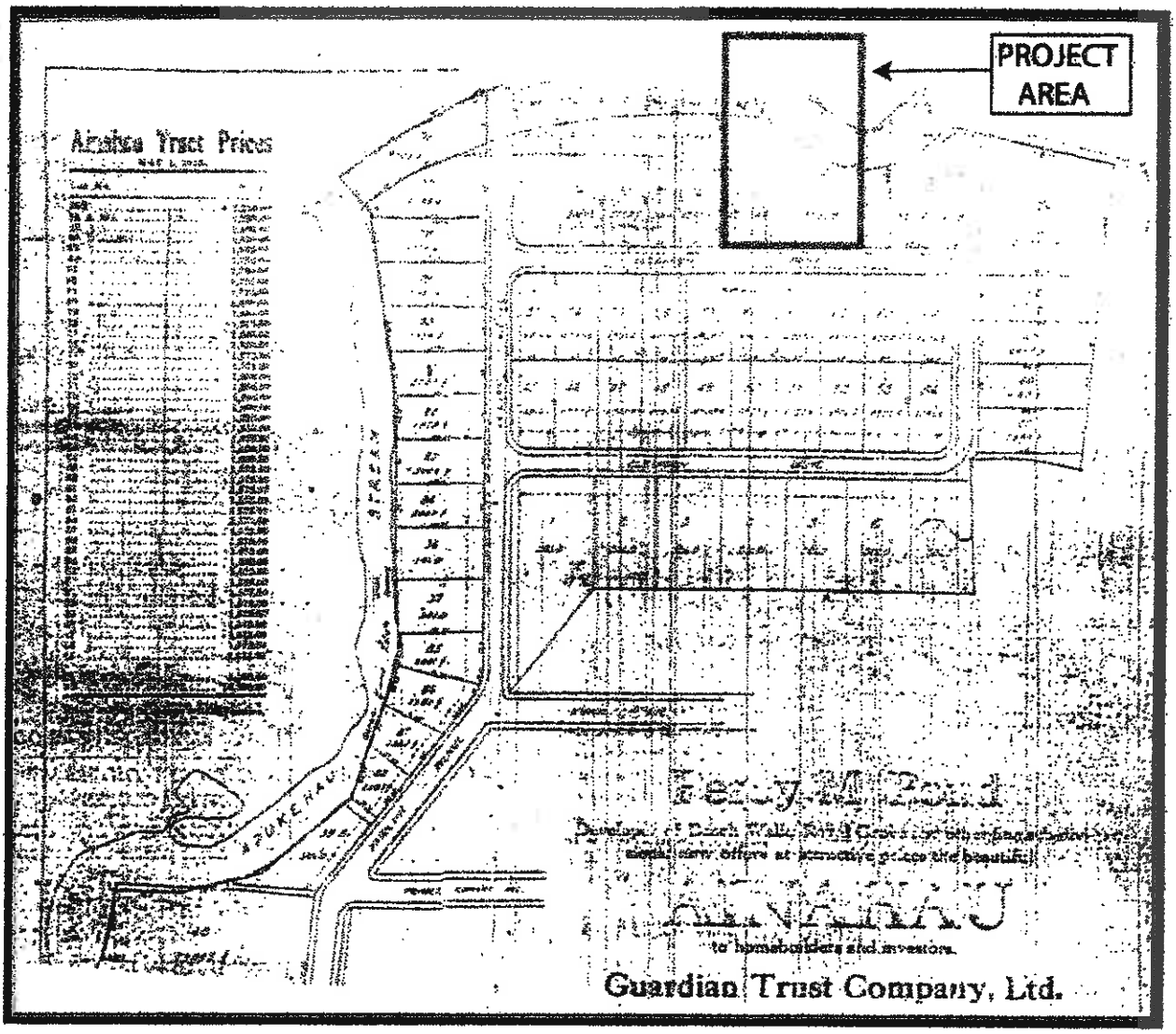

Figure 6 Advertisement in Pacific Commercial Advertiser on May 5, 1919 showing division of ʻĀinahau residential subdivision by Percy Pond with approximate location of present project area indicated in red

which is now a fully-formed urban block (Figure 7). The map indicates that the project area parcel, like other parcels in the neighborhood, is filled with single-story wooden cottages. These cottages characterized much of Waikīkī during the first half of the twentieth century.

An insight into Waikīkī life in the 1920s and 1930s is provided by Betty Dyer Sorensen whose family lived at the corner of Kalākaua Avenue and Beach Walk. Her parents, John and Mabel Dyer, had bought a 7055-square-foot lot at 290 Beach Walk for $1500 in 1918. Mrs. Sorensen describes the house her parents built there, in which she lived following her birth in 1922 until her marriage in 1946:

> The front porch was on the *mauka* (mountain) side, and it caught the mountain breezes. It was painted buff with white trim and was in the Twenties bungalow style. (Sorensen 1995: 30-31)

In the 1920s, Waikīkī was a small neighborhood:

> ...with little cottages, inexpensive apartments and a few nice houses. People liked to live there because it was so close to the ocean and to transportation. The streetcars went down Kalākaua Avenue, Waikīkī's main thoroughfare, all the way from Diamond Head to the business section of downtown Honolulu, three miles away. The few tourists who visited either stayed with friends for at least a month or they rented a cottage. (Sorensen 1995:1)

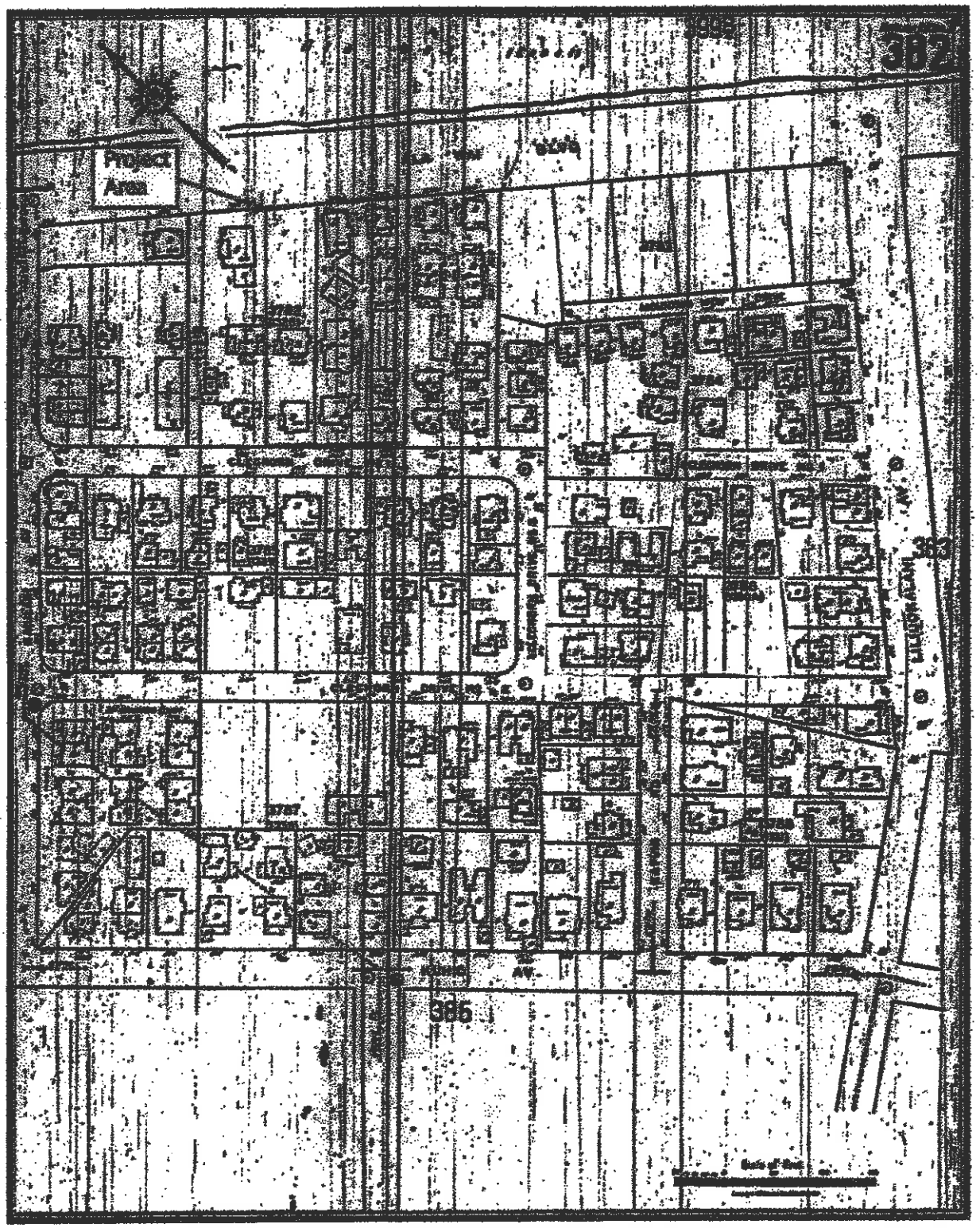

Figure 7 Portion of 1927 fire insurance map (Sanborn) with approximate location of the present project area indicated in red

IV. ARCHAEOLOGICAL RESEARCH

The *ahupua'a* of Waikīkī, in the centuries before the arrival of Europeans, was an intensely utilized area, with abundant natural and cultivated resources, that supported a large population. In the nineteenth and early twentieth centuries, after a period of depopulation, Waikīkī was reanimated by Hawaiians and foreigners residing there, and by farmers continuing to work the irrigated field system, which had been converted from taro to rice. Farming continued up to the first decades of this century until the Ala Wai Canal drained the remaining ponds and irrigated fields. Remnants of the pre-contact and historical occupation of Waikīkī have been discovered and recorded in archaeological reports, usually in connection with construction activities related to urban development, or infrastructural improvements. These discoveries, which have occurred throughout Waikīkī, have included many human burials, traditional Hawaiian and historic, as well as pre-contact Hawaiian and historic cultural deposits. Location of previously identified sites is shown in Figure 8 and full list of projects conducted in the Waikīkī area is listed in Table 1.

A. Previous Archaeology in Waikīkī, Focusing on Burials

N.B. Emerson reported on the uncovering of human burials during the summer of 1901 on the property of James B. Castle - site of the present Elks Club - in Waikīkī during excavations for the laying of sewer pipes (Emerson 1902:18-20). Emerson noted:

> The soil was white coral sand mixed with coarse coral debris and sea-shells together with a slight admixture of red earth and perhaps an occasional trace of charcoal. The ground had been trenched to a depth of five or six feet, at about which level a large number of human bones were met with, mostly placed in separate groups apart from each other, as if each group formed the bones of a single skeleton. Many of the skulls and larger bones had been removed by the workmen before my arrival, especially the more perfect ones. [Emerson 1902:18]

Emerson's report on the find describes the remains of at least four individuals, all presumed to be Hawaiian. Associated burial goods were also exposed during excavation; these included "a number of conical beads of whale-teeth such as the Hawaiians formerly made" and "a number of round glass beads of large size". The glass beads "can be assigned with certainty to some date subsequent to the arrival of the white man" (Emerson 1902:19). Also located with the beads was "a small sized *niho-palaoa*, such as was generally appropriated to the use of the chiefs" which had been "carved from the tooth of the sperm-whale" and which was "evidently of great age" (Emerson 1902:19).

In the 1920s and 30s the first systematic archaeological survey of O'ahu was conducted by J. C. McAllister (1933). He recorded four *heiau* (temples), three of which were located at the *mauka* reaches of Waikīkī Ahupua'a in lower Mānoa Valley. The fourth *heiau* – Papa'ena'ena - was located at the foot of Diamond Head crater near the present site of the La Pietra Estates condominium development (2933 Poni Moi Road). Other sources that place the *heiau* at La Pietra, the former mansion of Walter F. Dillingham, now the Hawai'i School for Girls (La Pietra Circle) are incorrect (Weyneth 1991:48). Papa'ena'ena Heiau is traditionally associated with Kamehameha I, who was said to have visited the *heiau* before setting off to battle for Ni'ihau and Kaua'i in 1804. Five years later, according to John Papa 'Ī'ī, Kamehameha placed at

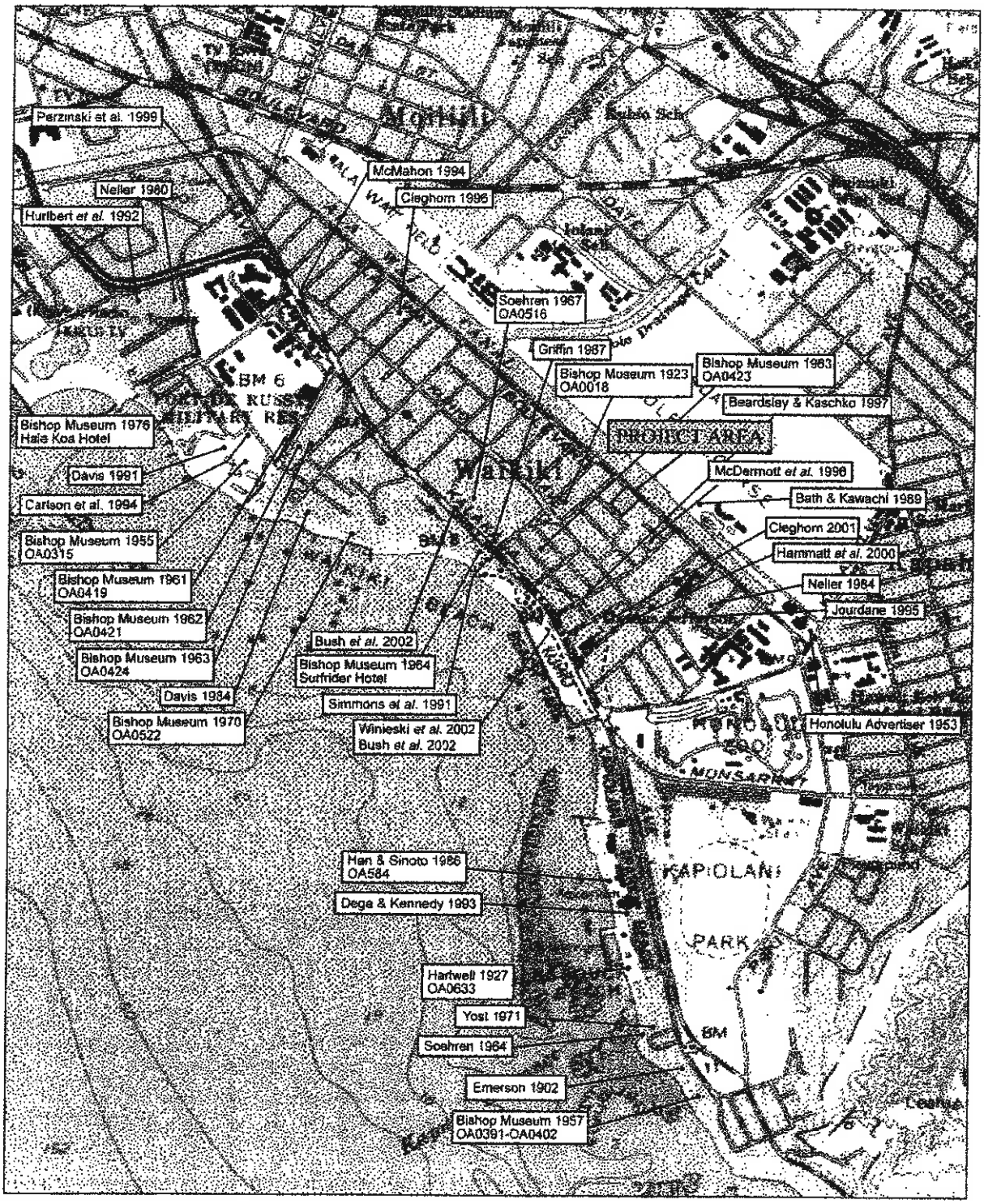

Figure 8 Previous archaeological work in Waikīkī including location of burials and the present project area

Papa'ena'ena the remains of an adulterer - "all prepared in the customary manner of that time" ('Ī'ī 1959:50-51).

In 1963, two human skulls and other human remains were discovered in a construction trench at 2431 Prince Edward St. (Bishop Museum site Oa-A4-23, cited in Neller 1984). Multiple burials were encountered in 1963 during excavation for the construction of the present Outrigger Canoe Club at the Diamond Head end of Kalākaua Avenue. As reported in a newspaper article on Jan. 24, 1963:

> The Outrigger Canoe Club yesterday dedicated its new site [on land adjacent to and leased from the Elks Club], an ancient Hawaiian burial ground in Waikīkī. . . .
>
> Robert Bowen of the Bishop Museum has been working closely with Ernest Souza, Hawaiian Dredging superintendent, on the removal of skeletons unearthed on the site, between the Colony Surf and the Elks Club. . . .
>
> Most of the bodies were buried in the traditional *ho'olewa* position, with the legs bound tightly against the chest.
>
> One of the skeletons, Bowen said, shows evidence of a successful amputation of the lower forearm, indicating that the Hawaiians knew this kind of operation before the arrival of Europeans.
>
> The ages of the skeletons ranged from children to 40-year-old men and women. The average life span of the Hawaiians at the time was about 32 years [*Honolulu Star-Bulletin*; Jan. 24, 1963: 1A].

A total of 27 burials were encountered (Yost 1971:28). Apparently, no formal archaeological report on the burials was produced.

In 1964, sand dune burials, a traditional Hawaiian mortuary practice, were revealed as beach sand eroded fronting the Surf Rider Hotel (Bishop Museum Site Files).

In 1976, during construction of the Hale Koa Hotel, adjacent to the Hilton Hawaiian Village Hotel, six burials were unearthed, five of apparent prehistoric or early historic age, and one of more recent date (Bishop Museum Site Files).

In 1980, three burials were exposed at the Hilton Hawaiian Village during construction of the hotel's Tapa Tower. Earl Neller of the (then named) State Historic Preservation Program was called in upon discovery of the burials and conducted fieldwork limited to three brief inspection of the project area. Neller's (1980) report noted:

> The bones from three Hawaiian burials were partially recovered; one belonged to a young adult male, on a young adult female, and one was represented by a single bone. An old map showed that rapid shoreline accretion had occurred in the area during the 1800s, and that the beach in the construction area was not very old. It is possible the burials date back to the smallpox epidemic of 1853. It is likely that burials will continue to be found in the area. It is also possible that early Hawaiian sites exist farther inland, beneath Mō'ili'ili, adjacent to where the shoreline would have been 1000 years ago. [Neller 1980:5]

Neller also documented the presence of trash pits, including one from the 1890s which contained "a large percentage of luxury items, including porcelain table wares imported from China, Japan, the United States, and Europe" (Neller 1980:5). He further notes:

> It is suspected that other important historic archaeological sites exist in the highly developed concrete jungle of Waikīkī, with discrete, dateable trash deposits related to the different ethnic and social groups that occupied Waikīkī over the last 200 years [Neller 1980:5].

Between December 1981 and February 1982, archaeologists from the Bishop Museum led by Bertell Davis conducted a program of excavations and monitoring during construction of the new Halekūlani Hotel (Davis 1984). Six human burials were recovered along with "animal burials [and] cultural refuse from prehistoric Hawaiian firepits, and a large collection of bottles, ceramics, and other materials from trash pits and privies dating to the late 19th century" (Davis 1984:i). Age analysis of volcanic glass recovered from the site led Davis to conclude: "For the first time we can now empirically date . . . settlement in Waikīkī to no later than the mid-1600s" (Neller 1980:5). Just as significant to Davis was the collection of historic era material at the Halekūlani site; he states:

> [The] Halekūlani excavations clearly demonstrate...that there is a definite need to consider historic-period archaeology as a legitimate avenue of inquiry in Hawaiian research. Furthermore, archaeology in the urban context can yield results every bit as significant as in less developed areas. Development in the 19th and early 20th centuries clearly has not destroyed all archaeological resources in Waikīkī, Honolulu, or in any of the other urbanized areas of Hawai'i [Neller 1980:5].

In 1983, at the Lili'uokalani Gardens condominium construction site, seven traditional Hawaiian burials were recovered (Neller 1984). This had been the site of a bungalow owned by Queen Lili'uokalani at the end of the nineteenth century. In addition to the burials, the site contained plentiful historic artifacts, and a pre-historic cultural layer pre-dating the burials.

In 1985, International Archaeological Research Institute, Inc. performed archaeological monitoring and data recovery at the Pacific Beach Hotel Office Annex (Beardsley and Kaschko 1997). Two traditional Hawaiian burials were discovered and removed. Intact buried traditional Hawaiian cultural deposits, including a late pre-contact habitation layer, contained pits, firepits, post molds, artifacts, and food debris. The artifacts included basalt and volcanic glass flakes and cores, a basalt adze and adze fragments, worked pearl shells, a coral file and abraders, and a pearl shell fishhook fragment. Additionally, a late nineteenth century trash pit was discovered, which contained a variety of ceramics, bottles, and other materials.

During 1985 and 1986, archaeologists from Paul H. Rosendahl, Ph.D. Inc. conducted archaeological monitoring at the site of the Mechanical Loop Project at the Hilton Hawaiian Village, Waikīkī. Much of this project area was disturbed by historic and modern construction and modification. Fifteen subsurface features were uncovered during the monitoring, all of which were determined to be historic trash pits or trenches. The dating of these features was based on dating the artifactual material they contained. All 15 features are thought to post-date 1881 based on this artifact analysis. The three partial burials reported by Neller (1980) were found within that project area. No further burials were encountered during the PHRI field work (Hurlbett et. al. 1992).

In 1987, a human burial was discovered and removed at the intersection of Kalākaua Avenue and Ka'iulani Street during excavations for a gas pipe fronting the Moana Hotel (Griffin 1987).

In1988, the Moana Hotel Historical Rehabilitation Project (Simons et. al. 1991) encountered human remains that amounted to at least 17 individuals. Based on stratigraphic association these burials were interred over time as the land form at the site changed. The sediment surrounding these burials yielded traditional midden and artifact assemblages. The burials and human remains were found in the Banyan Court and beneath the hotel itself.

Davis' (1989, 1991) excavation and monitoring work at Fort DeRussy documented substantial subsurface archaeological deposits, prehistoric, historic, and modern. These deposits included buried fishpond sediments, *'auwai* [irrigation ditch] sediments, midden, and artifact enriched sediments, structural remains such as post holes and fire pits, historic trash pits, and a human burial. Davis' (1991) report documents human activity in the Fort DeRussy beach front area from the sixteenth century to the present.

The work at Fort DeRussy continued in 1992 when BioSystems researchers built upon Davis' work (Simons et al. 1995). BioSystems research documents the development and expansion of the fishpond and *'auwai* system in this area. The *'auwai* system was entered on the State Inventory of Historic Places (SIHP) as State Site 50-80-14-4970. As indicated on the 1881 map by S. E. Bishop discussed above, this *'auwai* enters the Fort DeRussy grounds through the present project area). Remains of the fishpond and *'auwai* deposits, as well as habitation deposits, were documented below modern fill deposits. This research, along with that of Davis (1991), clearly demonstrates that historical document research can be an effective guide to locating late prehistoric/early historic subsurface deposits, even amidst the development of Waikīkī.

In 1992, Hurlbett et al. (1992) conducted additional monitoring and testing in this same area as Neller (1980). The state site -2870 was given to the three burials first found by Neller. Additional subsurface features, postdating 1881, were found during trenching operations.

The realignment of Kālia Road at Fort DeRussy in 1993 uncovered approximately 40 human burials. A large majority of these remains were recovered in a large communal burial feature (Carlson et. al. 1994). The monitoring and excavations associated with this realignment uncovered a cultural enriched layer which contained post holes.

In 1993, during construction activities at the Waikīkī Aquarium, fragmentary human remains were discovered scattered in a back dirt pile, although no burial pit was identified (Dega and Kennedy 1993).

On April 28, 1994, an inadvertent burial discovery was made during excavation for a water line at the intersection of Kalākaua Avenue and Kuamo'o Street (just *mauka* of Fort. DeRussy). These remains represented a single individual (McMahon 1994).

In 1995, the remains of one individual were discovered in situ during construction activities on Paoakalani Street, fronting the Waikīkī Sunset Hotel (Jourdane 1995).

In 1996, Pacific Legacy, Inc. conducted an archaeological inventory survey of the block bounded by Kalākaua Avenue, Kūhiō Avenue, 'Ōlohana Street, and Kālaimoku Street (Cleghorn 1996). The survey included excavation of seven backhoe trenches. The subsurface testing indicated that:

> . . . this area was extremely wet and probably marshy. This type of environment was not conducive for traditional economic practices. . . . The current project area appears to have been unused because it was too wet and marshy. Several peat deposits, containing the preserved remains of organic plant materials were discovered and sampled. These deposits have the potential to add to our knowledge of the paleoenvironment of the area [Cleghorn 1996:15].

The report concluded that no further archaeological investigations of the parcel were warranted since "no potentially significant traditional sites or deposits were found", but cautioned of the "possibility, however remote in this instance, that human burials may be encountered during large scale excavations" (Cleghorn 1996:15).

In 1996, a traditional Hawaiian burial was discovered and left in place during test excavations on two lots at Lili'uokalani Avenue and Tusitala Street southeast of the current project area (McDermott et al. 1996). Cultural Surveys Hawaii's research suggested that a portion of the study lots -specifically TMK 2-6-24:36-40 - was formerly a corner of the 'Āinahau Estate. A total of 2 indigenous and 15 historic artifacts were collected from the former 'Āinahau Estate portion of the project area. Cultural Surveys Hawaii's research further suggested that the remainder of the present study lots comprise a former *'auwai* and taro and rice fields.

In 1997, during archaeological monitoring by CSH for the Waikīkī Force Main Replacement project, scattered human bones were encountered on 'Ōhua Street (Winieski and Hammatt 2000). These included the proximal end and mid-shaft of a human tibia, a patella, and the distal end and mid-shaft of a femur. These remains occurred within a coralline sand matrix which had been heavily disturbed by previous construction, and by the on-going construction project. No precise location for the original burial site was identified.

In April 1999, two human burials were inadvertently encountered near the intersection of 'Ena Road and Kalākaua Avenue during excavation activities for the first phase of the Waikīkī Anti-Crime Lighting Improvements Project (Perzinski et al. 1999).

From July 1999 to October 2000, four sets of human remains were inadvertently encountered during excavation activities relating to the Waikīkī Anti-Crime Street Lighting Improvement project along portions of Kalākaua Avenue (Bush and Hammatt 2002). The first burial was encountered on Kalākaua Avenue, just before Dukes Lane and assigned State Site 50-80-14-5864. The burial was left in place however, and the light post was repositioned. The second burial was encountered at the intersection of Kalākaua Avenue and Ka'iulani Avenue. Earlier, during archaeological monitoring for the water mains project, two burials were encountered in the immediate area of the second burial find and assigned state site 50-80-14-5856 features A and B. Due to the close proximity to the previously encountered burials, the second burial was assigned the same State Site 50-80-14-5856, and designated feature C. Burials 3 and 4 were recovered at the intersection of Kalākaua and Ke'alohilani Avenues, near an area of concentrated burials assigned State Site 50-80-14-5860 during monitoring for the water mains project. Consequently, burials 3 and 4 were also assigned State Site 50-80-14-5860, features U and V. In addition to human remains, pre-contact deposits, historic and modern rubbish concentrations, and pond sediments were also encountered.

From November, 1999, to May, 2000, 44 human burials, with associated cultural deposits, were encountered during excavation for a waterline project on Kalākaua Avenue between the Ka'iulani and 'Ōhua Avenues (Winieski et al. 2002a). Except for previously disturbed partial

burials in fill; the bulk of the burials were encountered within a coralline sand matrix. Additionally, a major cultural layer was found and documented.

From January, 2000, to October 2000, 10 human burials were encountered during archaeological monitoring of the Kūhiō Beach Extension/Kalākaua Promenade project (Winieski et al. 2002b). Six of these were located within a coralline sand matrix. The four others were partial and previously disturbed within fill. Additionally, a major cultural layer was found and documented, apparently part of the same major cultural layer associated with the waterline project between Ka'iulani and 'Ōhua Avenues.

In April 2001 human remains were inadvertently disturbed during excavations associated with the construction of a spa at the Royal Hawaiian Hotel (Elmore et al. 2001). Archaeological Consultants of the Pacific, Inc was responsible for the documentation of the remainder of the burial and carrying out the instruction of DLNR/ SHPD. The burial and place it was encountered was assigned State Site # 50-80-14-5937. The burial was encountered on the North side of the hotel in the spa garden. The burial was partially disturbed through the thoracic region and anatomical left side. The disturbed remains were wrapped in muslin cloth and placed with the in-situ remains and reburied. The burial was recorded as a post contact burial based on artifacts associated with it. The associated artifacts included one shell button found *in-situ* and three more shell buttons found in the disturbed material. A single drilled dog tooth was found also during excavation but could not be positively associated with the site.

On May 2nd and June 14th, 2001, two in situ and two previously disturbed human burials were encountered at the site of a new Burger King (Cleghorn 2001a) and an adjoining ABC Store (Cleghorn 2001b). The finds were located at the intersection of 'Ōhua Street and Kalākaua Avenue (Cleghorn 2001a and 2001b). Because of their proximity to five burials encountered during the Kalākaua 16" Water Main Installation (Winieski et al. 2002a), they were included in the previously assigned State Site 50-80-14-5861. Three of these burials were recovered, and one was left in place. Volcanic glass fragments were found in association with one of the burials. A cultural layer was also observed which contained moderate to heavy concentrations of charcoal and fragments of volcanic glass. Historic era artifacts, including a bottle fragment, plastic and glass buttons, a ceramic fragment, and metal fragments were also encountered within fill materials.

In 2001 and 2002, CSH (Mann and Hammatt 2002) performed archaeological monitoring for the installation of 8- and 12-inch water mains on Uluniu Avenue and Lili'uokalani Avenue During the course of monitoring, five burials finds, consisting of six individuals, were recorded within the project area. Four burial finds were recorded on Uluniu Avenue; three of these inadvertent finds were found in fill sediment. Due to the nature of the three burial finds in fill, it was concluded that no State Site number(s) be assigned to these three previously disturbed burials. The only primary in situ burial encountered on Uluniu Avenue was assigned State Site #50-80-14-6369. The fifth burial, consisting of two individuals in fill material, was recorded from Lili'uokalani Avenue. Since three burials had been found in the immediate vicinity during a previous project (Winieski et al. 2002b) and had been assigned to Site #50-80-14-5859, the two new individuals were recorded as Feature H of this previously recorded site.

In summary, past archaeological research, from the beginning of the twentieth century to the present has produced evidence that traditional Hawaiian cultural deposits, historic trash deposits, and, most notably, human burials, do exist throughout the breadth of the Waikīkī area.

Table 1. Previous archaeological investigations in Waikīkī Ahupua'a

Reference	Type of Investigation	General Location	Findings
McAllister 1933	Island-wide survey	All of O'ahu	Waikīkī listed as Site 60.
Neller 1980	Monitoring Report	Hilton Hawaiian Village	Kālia Burial Site: Partial recovery of 3 historic Hawaiian burials, trash pit from 1890's
Bishop Museum 1981	Testing, & Monitoring Report	Halekūlani Hotel	Intact cultural deposits found.
Neller 1981	Reconnaissance Survey	Halekūlani Hotel	Limited background research on area
Davis 1984	Archaeological Investigation	Halekūlani Hotel	48 historic and prehistoric features excavated.
Bishop Museum 1984	Burial Remains List	Waikīkī Ahupua'a	Listing of burial remains found in Waikīkī at the Bishop Museum
Neller 1984	Narrative Report	Paoakalani Street	Recovery of human skeletons at construction site
Griffin 1987	Inadvertent Burial Discovery	Kalākaua Ave. near corner of Kai'ulani St.	Bones removed and bagged by construction crew, burial found in *makai* wall of gas pipe excavation.
SHPD 1987	Burial, PA Report	Kalākaua Ave.	From excavation adjacent to Moana Hotel-9901).
Davis 1989	Reconnaissance Survey and Historical Research	Fort DeRussy	Fishponds & other buried features. Sites 4573 thru - 4577 are fishponds, 4570 is a remnant cultural deposit.
Rosendahl 1989	Inventory Survey, Preliminary Report	Fort DeRussy	Historic artifacts, no human remains
Riford 1989	Background Literature Search	TMK: 2-6-014:039	List of literature pertaining to Waikīkī area.
Athens 1990	Letter to SHPD	TMK: 2-6-023:025	List of human remains at IARII lab from Pacific Beach Hotel & Barbers Point Generating Station.
Hurst 1990	Historical Literature	Waikiikian Hotel	Background & planning document. No fieldwork.

Reference	Type of Investigation	General Location	Findings
Chigioji 1991	Assessment	2 parcels, TMK 2-6-24:65-68 and 80-83; 2-6-24:34-40 & 42-45	Formerly part of the ʻĀinahau estate; remainder of parcels, former *ʻauwai*, *kalo*, and rice fields: excavations & sampling strategy recommended.
Davis 1991	Monitoring Report	Fort DeRussy	See also Davis 1989. No groundwater contamination found; subsurface features and material remains date to 1780/1790s through the mid-19th century.
Kennedy 1991b	Monitoring Report	TMK: 2-6-022:014 IMAX theatre location	Pollen and bulk-sediment ^{14}C samples from ponded sediments recovered. 3 ^{14}C dates and the pollen sequence were inverted.
Simons et al. 1991	Monitoring and Data Recovery	Moana Hotel Area	8 pre-contact burials & pre- and post-contact artifacts recovered
Hurlbett 1992	Monitoring Report	TMK: 2-6-008:001	Site -2870 (3 burials) found by Neller in 1980. This report is on testing & monitoring in same area.
Pietrusewsky 1992d	PA Report	Moana Hotel	Right half of human mandible found by hotel guest.
Pietrusewsky 1992e	PA Report	Hamohamo	Human Remains from Hamohamo, Waikīkī, Oʻahu
Rosendahl 1992	Monitoring Report	Hilton Hawaiian Village	12 historic refuse pits, 3 historic to modern trenches; no further work
Streck 1992	Memorandum for Record	Fort DeRussy	Human burial (probably late pre-contact Hawaiian) found during data recovery excavations
Cleghorn 1993	Inadvertent Burial Discovery	Waikīkī Aquarium	Remains of 1 human individual, mandible identified.
Dagher 1993d	Inadvertent Burial Discovery	Waikīkī Aquarium	Remains of at least 1 burial found, excavation recommended.
Dega and Kennedy 1993	Inadvertent Burial Discovery	Waikīkī Aquarium	Discovery of unidentified bones, remains given to SHPD.

Reference	Type of Investigation	General Location	Findings
Hammatt and Chiogioji 1993	Archaeological Assessment	16-Acre Portion of the Ala Wai Golf Course	Pre-contact and early historic occupation layers associated with *lo'i* system intact below modern fill. Burial testing recommended.
Maly et al. 1994	Arch.& Historical Assessment Study	Convention Center Project Area	Recommend subsurface testing to determine presence or absence of cultural deposits and features.
McMahon 1994	Inadvertent Burial Discovery	Kalākaua & Kuamo'o Street	Miscellaneous bones uncovered in back dirt pile during construction.
Hammatt & Shideler 1995	Sub-surface Inventory Surface	1777 Kalākaua Ave.	No further work recommended at Hawai'i Convention Center site.
Jourdane 1995	Inadvertent Burial Discovery	Paoakalani Avenue	Remains discovered in planted strip between street and sidewalk fronting hotel.
Simons et al. 1995	Data Recovery Excavations	Fort DeRussy	Historic & pre-contact artifacts, artifact debris, & midden from 7 occupation layers. 6 pre-contact cultural features; *'auwai* bunds and channels, fishpond walls & sediments, possible *lo'i*, hearths.
Cleghorn 1996	Inventory Survey	TMK: 2-6-016:23, 25, 26, 28, 61, 69	7 backhoe trenches excavated, no sites located.
Grant 1996b	Historical Reference	Waikīkī	Historical information about Waikīkī prior to 1900.
Hammatt and Shideler 1996	Data Recovery	Hawai'i Convention Center	No clear evidence of Kūwili Pond sediments in project area; no further work recommended.
McDermott et al. 1996	Inventory Survey	'Āinahau Estate	Buried remnants of *'auwai* and *lo'i* and human burial found on 'Āinahau Estate, ^{14}C dates
Denham et al. 1997	Data Recovery Report	Fort DeRussy	Excavations conducted at fishponds, ^{14}C dates mid-Seventeenth century
Denham and Pantaleo 1997	Monitoring and Excavations Report	Fort DeRussy	10 subsurface features and 9 burials found. ^{14}C dates; no SHPD recommendations

Reference	Type of Investigation	General Location	Findings
Beardsley and Kaschko 1997	Monitoring & Data Recovery Report	Pacific Beach Hotel Office Annex	Traditional Hawaiian cultural deposits and 2 human burials. 3 ^{14}C dates
Hammatt and Chiogioji 1998b	Assessment	King Kalākaua Plaza Phase II	No surface sites, documented human burials, presence of subsurface pre-contact & historic cultural deposits
Hammatt and McDermott 1999	Burial Disinterment Plan and Report	Kalākaua Avenue	Two human burials found
Perzinski et al. 1999	Monitoring Report	Ala Wai Blvd., Kalākaua Ave., & ʻEna Rd.	2 burials found (1 before monitoring); pockets of undisturbed layers exist
Rosendahl 1999	Interim Report: Inventory Survey	Fort DeRussy	This area is part of the old shoreline.
Hammatt and Chiogioji 2000	Archaeological Assessment	Honolulu Zoo Parcel	Monitoring recommended for SW portion of zoo parcel, which may have significant cultural deposits.
LeSuer et al. 2000	Inventory Survey	King Kalākaua Plaza Phase II	Site -5796 has been adversely affected by land alteration Site -4970 adequately documented.
Perzinski et al. 2000a	Burial Findings	Kalākaua Ave. between Kaiʻulani & Monsarrat Ave.	44 sets of human remains; 37 disinterred, 7 left in place; believed to be Native Hawaiian, pre-1820.
Cleghorn 2001a,b	Mitigation	Burger King Site	3 incidents of uncovered human remains while locating a buried sewer-line for the ABC's store.
Corbin 2001	Inventory Survey	Hilton Waikikian	No arch. sites were found during excavations
Elmore and Kennedy 2001	Inadvertent Burial Discovery	Royal Hawaiian Hotel	Human remains found during trench excavations for conduit. In situ remains left in place, remains disturbed reentered with others.
McGuire and	Cultural Assessment	Lewers St., Beach Walk, Kālia Rd. &	Waikīkī Beach Walk project; Inadvertent burial discovery. Monitoring recommended for all

Reference	Type of Investigation	General Location	Findings
Hammatt 2001		Saratoga Rd.	subsurface work
Perzinski and Hammatt 2002	Monitoring Report	Kapi'olani Bandstand	A charcoal layer .most on the SW side of the bandstand, observed; recovered a basalt lamp with a handle from SE end.
Perzinski and Hammatt 2001b	Monitoring Report	Kalākaua Ave., Natatorium to Ponimō'T Road	No cultural layer, artifacts, midden, or human burials were encountered
Rosendahl 2001	Assessment Study	Outrigger Beach Walk	Assessment of previous archaeological & historical literature.
Winieski and Hammatt 2000	Monitoring Report	TMK: 1-2-6-025:000	Possibility that Hawaiian or historic materials and burials may still be present
Borthwick et al. 2002	Inventory Survey	71,000 sq. ft. parcel, TMK: 2-6-016:002	No burials found; absence of dry Jaucus sands indicate that burial finds are unlikely in project area.
Bush and Hammatt 2002	Monitoring Report	Kalākaua Ave., between Ala Moana Blvd. and Kapahulu Ave.	Found 4 human burials, probably pre-contact; several historic trash pits; entire pig within an *imu* pit (c. A.D. 1641-1671); gleyed muck associated with former ponds.
Calis 2002	Monitoring Report	Lemon Road	No historic deposits, major previous disturbance
Elmore and Kennedy 2002	Monitoring Report	Fort DeRussy	No findings.
Mann and Hammatt 2002	Monitoring Report	Lili'uokalani & Uluniu Avenues	5 burial finds of 6 individuals; two historic trash pits.
Putzi and Cleghorn 2002	Monitoring Report	Hilton Hawaiian Village	No findings during monitoring of trench sewer excavations
Winieski et al. 2002a	Monitoring Report	Kalākaua Ave. between Ka'iulani and	44 human burials encountered, 37 disinterred; buried habitation layer identified, with traditional artifacts, midden, hearths, & charcoal; remnant of Honolulu

Reference	Type of Investigation	General Location	Findings
		Monsarrat Avenues.	Transit trolley system (light rail guage) found; low-energy alluvial sediments associated with the now channelized *muliwai* Kūkaunahi
Winieski et al. 2002b	Monitoring Report	Kūhiō Beach	Skeletal remains of 10 individuals, 6 disinterred, only 2 in situ. 4 indigenous artifacts, none in situ. Cultural layer, historic seawall.
Bush et al. 2003	Monitoring Report	International Marketplace	Historic trash found.
Tome & Dega 2003	Monitoring Report	Waikīkī Marriot	No in situ remains, recommends monitoring if more work is done, 1 isolated not in situ possible human bone fragment.
Tulchin and Hammatt 2003	Arch. & Cultural Impact Assessment	2284 Kalākaua Ave.	Possibility of burials in project area; recommends inventory survey & subsurface testing.

V. COMMUNITY CONTACT PROCESS

Throughout the course of this study, an effort was made to contact and consult with Hawaiian cultural organizations, government agencies, community members and recognized cultural descendants of Waikīkī who might have knowledge of and/or concerns about traditional cultural practices specifically related to the project area. This effort was made by letter, e-mail, telephone and in person contact. In the majority of cases, letters along with a map and an aerial photograph of the project area were mailed with the following text:

> At the request of Kusao & Kurahashi, Inc., Cultural Surveys Hawai'i is conducting a Cultural Impact Evaluation of a parcel located between Ala Wai Boulevard and Tusitala Street in Waikīkī, Kona District, on the island of O'ahu (TMK 2-6-24:70, 71). Please find enclosed a USGS map, tax map, and photographs of the project location.
>
> The cultural impact evaluation is related to the proposed Tusitala Vista Elderly Apartments: a nine-story complex of 107 apartments being developed by the nonprofit Hawai'i Housing Development Corporation.
>
> Based on a study of historic maps and documents, we believe that the parcel includes a portion of 'Āinahau, the ten-acre estate that, during the latter nineteenth century, was the home of Archibald Cleghorn, his wife Princess Miriam Likelike, and their daughter Princess Victoria Kawekiu Lunalilo Kalaninuiahilapalapala Ka'iulani Cleghorn.
>
> The purpose of the cultural impact evaluation we are conducting is to evaluate potential impacts of the proposed project to traditional cultural resources, beliefs and practices.
>
> We are seeking your input regarding the following issues:
>
> Identification of traditional Hawaiian activities including gathering of native plants, animals and other resources.
>
> Identification of existing archaeological or cultural sites, trails, burials etc., which may be impacted by the proposed project.
>
> Cultural associations with the study area through legends, traditional use or otherwise.

The individuals, organizations, and agencies attempted to be contacted and the results of any consultations are presented in the table below. Mr. Van Horn Diamond participated in a telephone interview with Cultural Surveys Hawai'i Inc. on November 1, 2004. The results of the community contacts are listed in Table 2.

Mr. Van Horn Diamond is the chairperson for the O'ahu Island Burial Council and a recognized cultural descendant for Waikīkī.

Mr. Diamond related the following information about the project area:

> The parcel seemed to be cottage oriented and it did not go all the way to Tusitala Street. The Ala Wai side would have had home like cottages and a drive way. We know it was a portion of the 'Āinahau Estate on the Tusitala Street side. When you come down Ka'iulani Street towards Tusitala there used to be a sign pointing inside to the area where once stood a huge banyan tree. It may have been *makai* of an HVB sign. The sign had a picture of Kamehameha on it. The sign said, "Ka'iulani and Stevenson used to sit here". The *iwi* or bones found in the parcel could have come from the filling from the Ala Wai. In the 1960s at the intersection of Tusitala Street and Kapili Street used to be apartment building with parking underneath. The building was purchased by Mr. Eugene F. Kennedy. Who he purchased it from may give more leads.

Table 2 Community Contacts

Name	Organization Affiliation	Comments
Ahlo, Charles	Cultural Descendant for Waikīkī	No response.
Aiu, Colleen	ʻAhahui O Kaʻiulani	No response.
Among, Les A.	Waikīkī Neighborhood Board Subdistrict 1-Chair	No response.
Apaka, Jeff	Waikīkī Neighborhood Board Subdistrict 2-Chair	No response.
Ayau, Edward Halealoha	Hui Malama O Nā Iwi O Hawai'i Nei	No response.
Carney, Mary	State Historic Preservation Division Burials Program-Burials Facilitator	Referred to Recognized Cultural Descendants for Waikīkī.
Cook, Delores	Waikīkī Neighborhood Board Subdistrict 3-Chair	No response.
Correa, Lawrence	Waikīkī Resident	No response.
Dressel, David L.	Waikīkī Resident	No comment.
Gersaba, Nālani J.	Cultural Descendant for Waikīkī	No response.
Gora, Amelia K.	Cultural Descendant for Waikīkī	No response.
Guth, Heidi	Office of Hawaiian Affairs	No response.
Harris, Cy K.	Cultural Descendant for Waikīkī	No response.
Kennedy, Eugene F.	Waikīkī Resident	No response.
Keohokālole, Adrian K.	Cultural Descendant for Waikīkī	No response.
Keohokālole, Dennis K.	Cultural Descendant for Waikīkī	No response.
Keohokālole, Emalia E.	Cultural Descendant for Waikīkī	No response.
Keohokālole, James H.	Cultural Descendant for Waikīkī	No response.
Keohokālole, Joseph M.	Cultural Descendant for	No response.

K.	Waikīkī	
Koko, Kanaloa	Cultural Descendant for Waikīkī	No response.
Kuhea, G. Kealoha	Cultural Descendant for Waikīkī	No response.
Lau, Edmund M.	Waikīkī Resident	No response.
Mamac, Violet L.	Cultural Descendant for Waikīkī	No response.
Medeiros, Clarence A. Jr.	Cultural Descendant for Waikīkī	No response.
Medeiros, David	Cultural Descendant for Waikīkī	No response.
Napōka, Nathan	State Historic Preservation Division History and Culture	I suggest that Cultural Surveys Hawai'i check the Dillingham records at the Bernice Pauahi Bishop Museum and their Ka'iulani Collection. The 'Ahahui 'O Ka'iulani Foundation headed by Kumu Hula Colleen Aiu of Hula Hālau O Maiki may have concerns of the project area.
Rose, Charles	Association of Hawaiian Civic Clubs-President	Referred to Nālani Gersaba.
Sawyer, Stephen	Waikīkī Resident	Mr. Stephen Sawyer, a long time resident of Waikīkī, confirmed that the land was part of Cleghorn Estates long ago. Mr. Sawyer was quick to talk about Hawaiian burials all around the parcel as well. He summarized his concerns that Hawaiians buried the people where they lived.
Souza, William D.	Royal Order of Kamehameha, Kūhio Chapter	No comment.

	–Knights Companion, Protocol Officer	
Tomcyzk, Pi'ikea L.	Waikīkī Hawaiian Civic Club-President	No response.
Yagodich, Darrll	Department of Hawaiian Home Lands Planning Office	No comment.

VI. TRADITIONAL CULTURAL PRACTICES

Traditional cultural practices are based on profound awareness concerning harmony between man and their natural resources. The Hawaiians of old depended on these cultural practices for survival. Based on their familiarity with specific places and through much trial and error, Hawaiians communities were able to devise systems that fostered sustainable use of nature's resources. Many of these cultural practices have been passed down from generation to generation and are still practiced in some of Hawaii's communities today.

This project seeks to evaluate traditional cultural practices as well as resources pertaining to the project area within Waikīkī Ahupua'a. This section will convey the different types of traditional practices, cultural resources associated with the vicinity.

A. Hawaiian Agriculture

Beginning in the fifteenth century, a vast system of irrigated taro fields was constructed, extending across the littoral plain from Waikīkī to lower Mānoa and Pālolo valleys. This field system – an impressive feat of engineering the design of which is traditionally attributed to the chief Kalamakua – took advantage of streams descending from Makiki, Mānoa and Pālolo valleys which also provided ample fresh water for the Hawaiians living in the *ahupua'a*. It is likely that, during traditional Hawaiian times, environs like the present project area were used for less intensive cultivation of patches of sweet potato, *pia*, and *wauke*, and the gathering of *hala*, *kukui* and other upland resources.

The *Mahele* documents indicate that within the present project area at the mid-nineteenth century: the *mauka* section comprised a portion of taro *lo'i* belong to the king; the central section comprised a portion of 'Āpuahēkau Stream in which taro was also growing; and the *makai* portion comprised *kula* – a dryland agricultural field where taro, sweet potatoes, and gourd may have been growing. It is likely that these agricultural activities recorded in the documents reflect the continuation into the nineteenth century of the primary traditional Hawaiian land use and cultural activity within the project area and vicinity.

B. Gathering for Plant Resources

Hawaiians utilized upland resources for a multitude of purposes. Forest resources were gathered, for not only the basic needs of food and clothing, but for tools, weapons, canoe building, house construction, dyes, adornments, hula, medicinal and religious purposes. However, as noted above, during traditional Hawaiian times the present project area was used for the gathering of *hala*, *kukui* and similar upland resources.

Within the project area itself no specific documentation was found in regards to gathering of plants during traditional Hawaiian times. During this evaluation there were no ongoing practices related to traditional gathering of plant resources identified in the present project area. None of the individuals contacted or interviewed for this assessment identified any native plant gathering practices within the project area. Based on the information it is likely that there was far greater emphasis on gathering plant resources further inland.

C. Aquatic Resources

Native stream animals supplied the Hawaiian diet with a rich source of protein Before the Ala Wai Canal was built and the streams diverted, the streams feeding into Waikīkī were once abundant in *'o 'opu* and *'ōpae.*

An 1881 Hawaiian Government survey map by Serrano E. Bishop with locations of LCA parcels provides a detailed record of the physical landscape of Waikīkī before the transformations of the twentieth century (Figure 3). As shown on the map, coursing through the middle of the project area is 'Āpuakēhau Stream which once descended from Mānoa Valley, entering the ocean "near the present Moana Hotel" and which was "probably named for a rain" (Pukui *et al.* 1974: 13). The map also shows the project area straddling two Waikīkī *'ili* which appears to be separated by 'Āpuakēhau Stream: the *mauka* portion of the project area is in Kalāmanamana and the *makai* portion is in Auaukai. Also indicated on the map are the *'auwai* created to channel water of streams descending from Pālolo, Mānoa, and Makiki Valleys. The almost 90-degree bend of 'Āpuakēhau Stream into the present project area, as shown on the 1881 map, suggests that the stream was diverted sometime early in the creation of the Waikīkī fields either to direct water to *lo'i* constructed elsewhere or to create a broader expanse of dryland in the *'ili* identified on the map as 'Au'aukai, Kaluaokau, Kapuni and Uluniu. These *'ili* would, in time, come to be identified with *'ali'i* (the Hawaiian royalty) who resided in Waikīkī.

By the end of the 19th century most of the fishponds that had previously proliferated had been neglected and allowed to deteriorate. During the 1920s, the Waikīkī landscape would be transformed when the construction of the Ala Wai Drainage Canal, begun in 1921 and completed in 1928, resulted in the draining and filling in of the remaining ponds and irrigated fields of Waikīkī.

D. Traditional Hawaiian Sites

There is no surface or archaeological sites on the surface of the present project area. As noted above the current land surface in the parcel is landfill.

E. Burials

Discoveries, which have occurred throughout Waikīkī, have included many human burials, traditional Hawaiian and historic, as well as pre-contact Hawaiian and historic cultural deposits.

In 1996, a traditional Hawaiian burial was discovered and left in place during test excavations on two lots at Lili'uokalani Avenue and Tusitala Street (McDermott et al. 1996). Cultural Surveys Hawaii's research suggested that a portion of the study lots -specifically TMK 2-6-24:36-40 - was formerly a corner of the 'Āinahau Estate southeast of the current project area. A total of 2 indigenous and 15 historic artifacts were collected from the former 'Āinahau Estate portion of the project area.

Cultural Surveys Hawai'i is currently conducting the archaeological survey for the proposed Tusitala parcel. Fragments of human remains have been discovered. The work is still in progress.

Past archaeological research, from the beginning of the twentieth century to the present has produced evidence that traditional Hawaiian cultural deposits, historic trash deposits, and, most notably, human burials, do exist throughout the breadth of the Waikīkī area.

F. Hawaiian Trails

John Papa 'Ī'ī's account of the ancient trail leading from Honolulu into "lower Waikīkī places the trail within Kālia and down to Iinaio; along the upper side of Kahanaumaikai's coconut grove, along the border of Kaihikapu Pond, into Kawehewehe; then through the center of Helumoa of Puaaliilii, down to the mouth of the 'Āpuakehau stream northwest of the present project area ('Ī'ī 1959:92). Part of the coastal trail system, there are no visible trail remnants to speak of today. No traditional trails were identified within the present project area on historic maps or by community informants.

G. *Wahi pana* (Storied Places)

Historic documentation identifies the present project area as a portion of 'Āinahau, the Waikīkī estate of Archibald Cleghorn (1835-1910), his wife Prince Miriam Likelike (1851-1887), and their daughter Princess Ka'iulani (1875-1899) – all significant personages in the history of Hawai'i.

> Cleghorn not only beautified Waikīkī through his work at Kapi'olani Park [he had been instrumental in the park's creation and design], but also at his estate, 'Āinahau, which he had purchased in 1872 for $300. Inheriting a love of horticulture from his father, Cleghorn lavishly landscaped this parcel, making it "the most beautiful private estate in the Hawaiian Islands" (Hibbard and Franzen 1986: 12)

No other storied places were identified in the immediate vicinity of the project area.

VII. SUMMARIES AND RECOMMENDATIONS

Reviewing the information provided by the elements of this cultural impact evaluation – historical documentation, archaeological research, and community contacts – there emerges a more detailed picture of the traditional landscape of Waikīkī Ahupua'a and the present project area. The *ahupua'a* of Waikīkī in the centuries before the arrival of Europeans was a well-used locale with abundant natural and cultivated resources – including an expansive system of irrigated taro fields and numerous fishponds – supporting a large population that included the highest-ranking *ali'i* (Hawaiian royalty). In the second half of the nineteenth century, after a period of depopulation and desuetude, Waikīkī was reanimated by the Hawaiian *ali'i* and the foreigners residing there, and by farmers continuing to work the irrigated field system which had been converted from taro to rice. This farming continued up to the first decades of the twentieth century when the newly-constructed Ala Wai Canal drained the remaining ponds and irrigated fields of Waikīkī.

The present Tusitala Elderly Apartments parcel straddles two Waikīkī *'ili* which appears to be separated by 'Āpuakēhau Stream: the *mauka* portion of the project area is in Kalāmanamana and the *makai* portion is in 'Au'aukai. Historic maps identify the present project area as a portion of 'Āinahau, the Waikīkī estate of Archibald Cleghorn (1835-1910), his wife Prince Miriam Likelike (1851-1887), and their daughter Princess Ka'iulani (1875-1899) – all significant personages in the history of Hawai'i. *Mahele* documents indicate that within the present project area at the mid-nineteenth century: the *mauka* section comprised a portion of taro *lo'i* belong to the king; the central section comprised a portion of 'Āpuahēkau Stream in which taro was also growing; and the *makai* portion comprised *kula* – a dryland agricultural field where taro, sweet potatoes, and gourd may have been growing. When the 1917 (figure 5) map is studied in tandem with the 1881 map discussed above (Figure 4), it appears that the 'Āinahau estate comprised the entire LCA 7597 Apana 2 and an adjacent portion of LCA 104 FL Apana 5. The portion of LCA 104 FL is probably the land that Princess Ruth Ke'elikōlani gave to Princess Ka'iualani as a christening gift.

As noted above, the parcel and adjacent lands are linked with the Hawaiian royalty. *Ali'i* residence likely represents the primary traditional Hawaiian cultural activity associated with the parcel.

In 1917 James W. Pratt bought the 'Āinahau Estate, then sold most of it in 1919 to William Chauncey Wilder, along with developer Percy M. Pond. A Pacific Commercial Advertiser 1919 map shows the residential subdivision developed by Pond. The streets shown on the map correspond to the present day Ka'iulani Avenue, Cleghorn Street, Kapili Street and Tusitala Street.

An advertisement appearing in the Pacific Commercial Advertiser on May 5, 1919 shows the residential subdivision developed by Pond (Figure 6). The streets shown on the map, which were constructed for the subdivision, correspond to the present-day Ka'iulani Avenue, Cleghorn Street, Kapili Street, and Tusitala Street. An advertisement appearing in the Pacific Commercial Advertiser on May 5, 1919 shows the residential subdivision developed by Pond (Figure 6). The streets shown on the map, which were constructed for the subdivision, correspond to the present-day Ka'iulani Avenue, Cleghorn Street, Kapili Street, and Tusitala Street. These 20th century

developments have effectively eliminated any surface sites that may have related to traditional Hawaiian cultural activity within the parcel.

While surface sites may have been eliminated within the parcel, subsurface deposits are of cultural concern. Several archaeological studies have recorded the presence within Waikīkī of subsurface cultural deposits of both pre-contact Hawaiian and historic provenance. These deposits had remained intact despite the years of construction activity that have altered the entire Waikīkī area. The authors of these studies emphasize that the potential for discovering similar intact deposits elsewhere in Waikīkī cannot be discounted.

Archaeological reports have documented human burials – both pre-contact Hawaiian and historic – throughout the breadth of Waikīkī. The possible presence of human burials within the parcel is of ongoing cultural concern.

None of the community contacts queried for this cultural impact evaluation identified any ongoing cultural practices within the project area.

It is possible that intact prehistoric and early contact cultural deposits are lying undisturbed beneath modern fill layers within the project parcel. Other possible deposits may be associated with nineteenth century Hawaiian royalty.

Based on the above findings, it is recommended that no further formal cultural impact mitigation measures are warranted.

In order to address traditional cultural concerns, and given the cultural sensitivity of the entire Waikīkī area, it should be noted, however, that subsurface properties associated with former traditional Hawaiian activities in the project area, such as artifacts and cultural layers, may be present despite the decades of sugar cultivation activities. As a precautionary measure, personnel involved in future development activities in the area should be informed of the possibility of inadvertent cultural finds, and should be made aware of the appropriate notification measures to follow.

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APPENDIX 9

WAIKIKI NEIGHBORHOOD BOARD MINUTES NOTIFICATION LETTERS

KUSAO & KURAHASHI, INC.
Planning and Zoning Consultants

MANOA MARKET PLACE
2752 WOODLAWN DRIVE, SUITE 5-217
HONOLULU, HAWAII 96822

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

November 5, 2014

Dear Neighboring Property Owner:

Subject: **Draft Environmental Assessment and Waikiki Special District Permit Application**
Ainahau Vista II Affordable Family Rental Project – 2428 Tusitala Street and 2423 And 2429 Ala Wai Boulevard, Waikiki, Oahu, Hawaii
Tax Map Keys: 2-6-24: 70 and 71

The Applicant, Hawaii Housing Development Corporation, is planning to submit a Draft Environmental Assessment to the Hawaii Housing Finance & Development Corporation and subsequent to that, a Waikiki Special District Permit application to the Department of Planning and Permitting on the proposed Ainahau Vista II Affordable Family Rental Project. The proposed development is described on the attached summary sheet.

As an adjoining property owner and in accordance with the requirements of the City and County of Honolulu, we are notifying you of the upcoming presentation to the Waikiki Neighborhood Board described below, so that we may respond to your questions and/or concerns regarding our Ainahau Vista II Project and Draft Environmental Assessment and Waikiki Special District Permit application processes.

Waikiki Neighborhood Board No. 9

Date: Tuesday, November 18, 2014
Time: 7:00 pm
Place: Waikiki Community Center
310 Paoakalani Avenue
Honolulu, Hawaii 96815

We have also attached a location map for your review. Should you have questions, please do not hesitate to call our office at 988-2231.

Very truly yours,

Keith Kurahashi

Keith Kurahashi

cc: Hawaii Housing Development Corporation
Hawaii Housing Finance & Development Corporation
Department of Planning and Permitting

AINAHAU VISTA II
DRAFT ENVIRONMENTAL ASSESSMENT, 201H APPLICATION,
AND WAIKIKI SPECIAL DISTRICT PERMIT APPLICATION
Tax Map Key 2-6-24: 70 and 71
2428 Tusitala Street
2423 and 2429 Ala Wai Boulevard

The Applicant, Hawaii Housing Development Corporation, proposes the Ainahau Vista II, a nine-story, approximately 80-foot high, affordable family rental apartment building in Waikīkī, Honolulu, on O`ahu (the "Project") on the mauka (north) portion of a lot (comprised of two parcels). The makai (south) portion of the lot is developed with Ainahau Vista, a 106-unit affordable senior housing rental development with 29 at grade parking stalls, 5 accessible stalls and one loading stall. The Applicant plans to submit a Draft Environmental Assessment and 201H Permit application for Ainahau Vista II to the Hawaii Housing Finance & Development Corporation, Department of Business, Economic Development & Tourism for processing. The Applicant plans to also submit a Waikiki Special District permit application to the Department of Planning and Permitting for the Project. The Project will be located on the mauka portion of a 35,781 square foot site in Waikīkī (the "Project Site"). Ainahau Vista II will be developed in accordance with the requirements of Chapter 201H of the Hawaii Revised Statutes (HRS), as amended and the Waikiki Special District.

The Applicant will be applying to government agencies for tax credits, rental housing trust funds, CDBG, Home and DURF funds to provide these affordable rental units for a period of just over 60 years. The Applicant is working with the Department of Community Services at the City to provide approximately 10% to 20% of the rental units for their Housing First Program to support the homeless in Waikiki.

The proposed affordable family rental apartment use is permitted in the Apartment Precinct.

The Project will provide affordable rental units to singles or families earning at or below 50% of the area median income. The nine-story building will provide 77 rental units (47 one-bedroom units and 30 studios) and 26 at grade parking stalls. The 80-foot high structure will have surface parking below and 8 floors of apartment units above. Floors two to eight will each have six one-bedroom units and four studio units. The ninth floor will have five one-bedroom units, two studio units, a multi-purpose room, and two offices.

Ingress and egress to Ainahau Vista II is expected to be via Tusitala Street, through the existing parking level of Ainahau Vista.

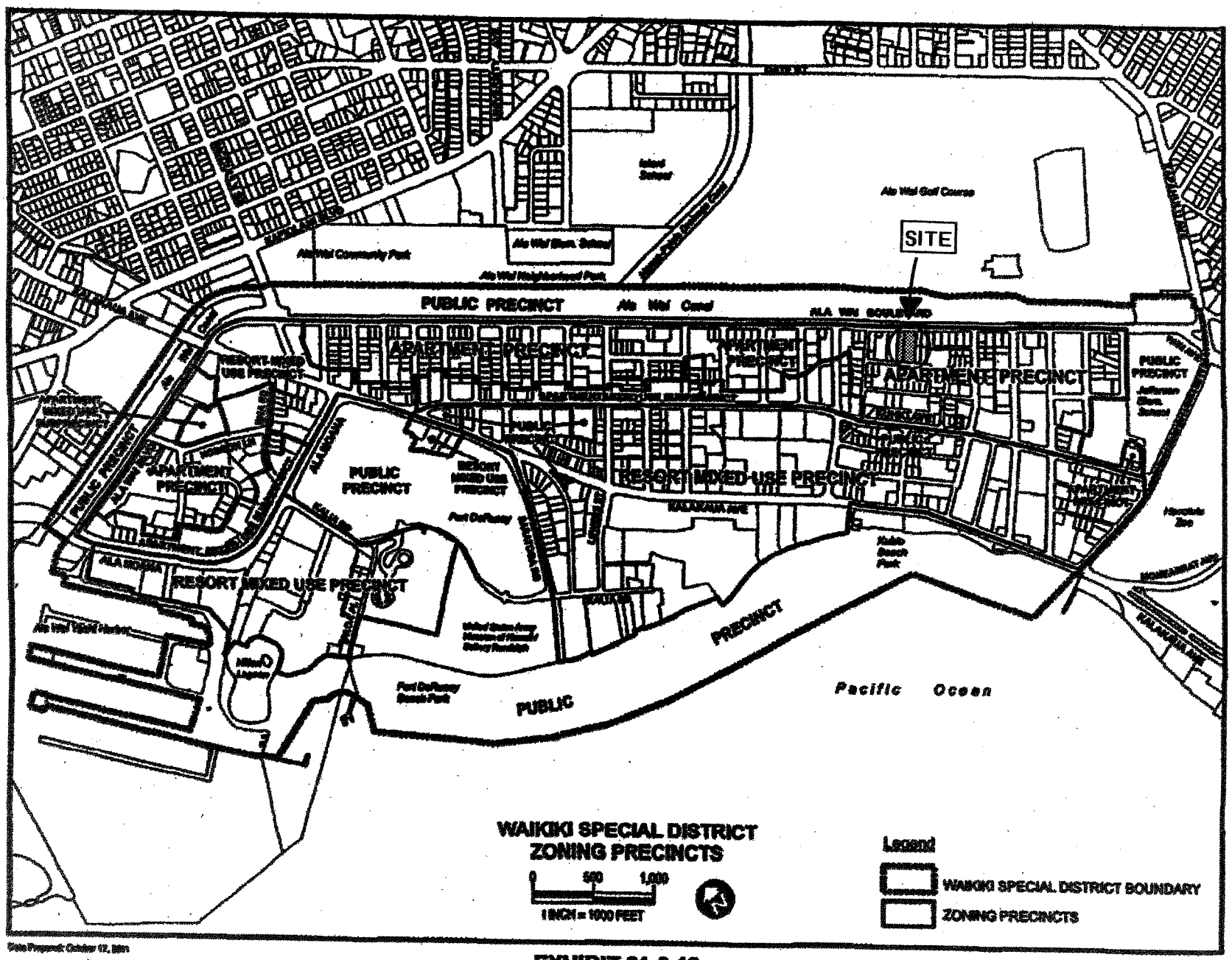

EXHIBIT 21-9.13

FIGURE 1 LOCATION AND ZONING MAP

KUSAO & KURAHASHI, INC.
Planning and Zoning Consultants

MANOA MARKET PLACE
2752 WOODLAWN DRIVE, SUITE 5-217
HONOLULU, HAWAII 96822

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

November 5, 2014

Dear Neighboring Property Owner c/o Condo Master and/or Building/Resident Manager:

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Tax Map Keys: 2-6-24: 70 and 71

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Condo Master and/or Building/Resident Manager, please post in a prominent location - entry door, elevators, or other location where all residents/owners will see. We would further appreciate your contacting/notifying owners of the upcoming Waikiki Neighborhood Board Meeting.

As an adjoining property owner and in accordance with the requirements of the City and County of Honolulu, we are notifying you of the upcoming presentation to the Waikiki Neighborhood Board described below, so that we may respond to your questions and/or concerns regarding our Ainahau Vista II Project and Draft Environmental Assessment and Waikiki Special District Permit application processes.

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Keith Kurahashi

Keith Kurahashi

cc: Hawaii Housing Development Corporation
Hawaii Housing Finance & Development Corporation
Department of Planning and Permitting

AINAHAU VISTA II
DRAFT ENVIRONMENTAL ASSESSMENT, 201H APPLICATION,
AND WAIKIKI SPECIAL DISTRICT PERMIT APPLICATION
Tax Map Key 2-6-24: 70 and 71
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2423 and 2429 Ala Wai Boulevard

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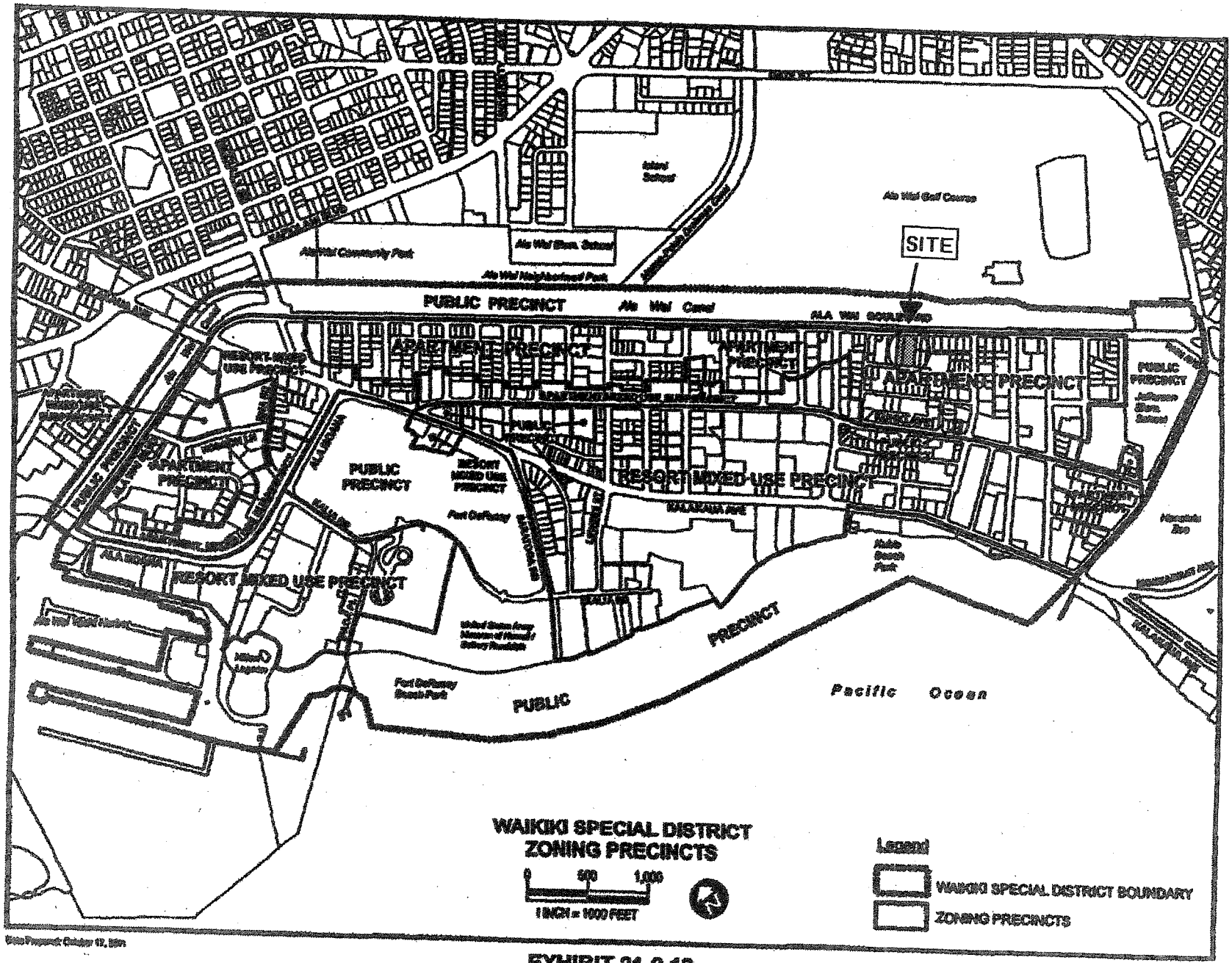

EXHIBIT 21-9.13

FIGURE 1 LOCATION AND ZONING MAP

~~Tusitala Vista~~ Ainahau Vista II
11/14

TMK: 2-6-24: 99
Ainahau Gardens LLC
2442 Tusitala Street
Honolulu, HI 96815

TMK: 2-6-24: 61
Wong, Mei Y TR
Xie, Hang TR
P.O. Box 29178
Honolulu, HI 96820

TMK: 2-6-24: 73
Ala Wai Townhouse-Condo Mstr
c/o Hawaiiana Management Co., Ltd.
711 Kapiolani Boulevard, Suite 700
Honolulu, Hawaii 96813

TMK: 2-6-24: 73
Ala Wai Townhouse
Condo Master
2421 Ala Wai Blvd
Honolulu, HI 96815

TMK: 2-6-24: 59
Waikiki Townhouse
Condo Master
2421 Tusitala Street
Honolulu, HI 96815

TMK: 2-6-24: 59
Waikiki Townhouse, Building Manager
Alex Colon
2421 Tusitala Street
Honolulu, HI 96815

TMK: 2-6-24: 91
Wong Darryl Trust, c/o Lau Dierdre, etal
DBA Waikiki Bellevue Apts
2048 Kapiolani BLvd. Apt. 29
Honolulu, HI 96826

TMK: 2-6-24: 73
Ala Wai Townhouse, Resident Manager
Farley Young
2421 Ala Wai Blvd
Honolulu, HI 96815

TMK: 2-6-24: 59
Waikiki Townhouse-Condo Mstr
c/o Hawaiiana Management Co., Ltd.
711 Kapiolani Boulevard, Suite 700
Honolulu, Hawaii 96813

WAIKIKI NEIGHBORHOOD BOARD NO. 9
c/o NEIGHBORHOOD COMMISSION • 530 SOUTH KING STREET ROOM 406 • HONOLULU, HAWAII, 96813
PHONE (808) 768-3710 • FAX (808) 768-3711 • INTERNET: http://www.honolulu.gov

DRAFT REGULAR MEETING MINUTES
TUESDAY, NOVEMBER 18, 2014
WAIKIKI COMMUNITY CENTER

CALL TO ORDER: Chair Robert Finley called the meeting to order at 7:00 p.m. **with a quorum of 13 members present**. Note: This 17-member Board requires nine (9) members to establish a quorum and to take official Board action.

Board Members Present: Jo-An Adams, Jeff Apaka, John Dew, Louis Erteschik, Robert Finley, Walt Flood, Janet Grace, William 'Bill' Lofquist, Jeff Merz, John Nigro (arrived at 8:01 p.m.), Jim Poole, Mary Simpson, Mark Smith, and Larry Williams.

Board Members Absent: Helen Carroll, Kuuipo Kumukahi, and John Moore.

Guests: Acting Captain Jake Nakajima (Honolulu Fire Department), Dominic Dias (Board of Water Supply), Councilmember Stanley Chang, Michael Leong (Councilmember Stanley Chang's Office staff), Mark Garrity (Mayor's Representative/Deputy Director, City Department of Transportation Services), Representative Tom Brower, Raytan Vares (Senator Brickwood Galuteria's Office staff), Rick Egged (Waikiki Improvement Association), David Benson (Waikiki Rotary Club), Keith Kurahashi (Kusao & Kurahashi), Corey Dillman, Linda Knix, Jan Bappe, Grace Chien, Dawn Ward, and Lori Snyder (Neighborhood Commission Office staff).

Vacancies: There were no vacancies.

CITY MONTHLY REPORTS:

Honolulu Fire Department (HFD): Acting Captain Jake Nakajima reported the following:

- October 2014 Statistics: There were 4 fires, 157 medical emergencies, 3 hazardous conditions, 6 service calls, 69 good intent calls, and 15 false alarm calls.
- Fire Safety Tip: HFD encourages every family to take the necessary steps to prepare for a natural disaster. Survival kit preparation, shelter locations, and other information can be found at www.honolulu.gov/dem. Consider a fire-resistant artificial Christmas tree this holiday season. When purchasing a natural tree, select the freshest tree and keep the tree hydrated and away from heat sources in the home. Use noncombustible materials for decorations. Choose only Underwriter's Laboratory-approved electrical decorations and follow the manufacturer's instructions for installation. Do not overload extension cords.

Questions, comments, and concerns followed:

1. September 2014 Statistics: Smith requested statistics from September 2014, and Chair Finley requested them to be sent to the neighborhood assistant for the minutes. The neighborhood assistant received an e-mail stating there were 132 medical emergencies in September 2014.
2. Age Statistics: Grace inquired if the medical emergency statistics were available by age group.
3. Sit-Lie Bill: Chair Finley asked if the number of medical emergency calls dropped, since the passage of the sit-lie bill.

Honolulu Police Department (HPD): No representative was present and no report was available.

Board of Water Supply (BWS): Dominic Dias reported the following:

- Water Main Breaks: There were no water main breaks in October 2014, and the Kapiolani Boulevard construction is ongoing.
- BWS Fire Hydrants: BWS has installed and maintained more than 20,000 fire hydrants across Oahu, which excludes federal and private water systems. BWS inspect and maintain hydrants every 18 months to make certain that water from each hydrant flows at sufficient water pressure. Residents can help keep fire hydrants dependable by keeping the area around fire hydrants clear, and reporting damaged or malfunctioning hydrants to BWS at 748-5000.

Questions, comments, and concerns followed: Fort Derussy Construction: Dias noted for Lofquist that the Fort Derussy construction was not a BWS project.

Hearing no objections, Chair Finley took the agenda out of order to IV. C. Councilmember Stanley Chang.

Councilmember Stanley Chang: Councilmember Stanley Chang reported the following:

- Coconut Tree: The Department of Parks and Recreation (DPR) maintained the hazardous coconut tree by a city bus stop on Monday, October 13, 2014 and Monday, November 3, 2014.
- Manukai Street Potholes: Funds have been appropriated for DPR to fix potholes on Manukai Street.
- Lunch Wagons: Notice of violation were issued to the cosmetics store and lunch wagons on Kuhio Street.
- Kuhio Shower Run Off: DPR and the Department of Design and Construction are addressing the Kuhio beach park shower run off.
- Homeless Encampment: The Department of Transportation (HDOT) is addressing the homeless encampment on Ala Moana Boulevard and Atkinson Drive.
- Bill Signing: Councilmember Chang joined Mayor Caldwell for the signing of Bills 42, 43, and 46, prohibiting sitting and lying on public streets in Waikiki, and urinating and defecation.
- Homeless Advocacy: Councilmember Chang thanked the Waikiki community for their advocacy about homelessness, and noted the state has devoted $1.5 million to homelessness while the city has devoted over $40 million.
- Legislation Update: Councilmember Chang gave an update on legislation, including Resolution 14-240 related to civil fines and Resolution 14-213 related to banning smoking on beaches statewide.
- Kaimuki Clean-Up: The 11th Annual Community Clean-Up at Kaimuki High School will be held on Saturday, November 22, 2014 from 9:00 a.m. to 1:00 p.m. Donations of recyclables, computers, usable clothing, and appliances are requested.

Questions, comments, and concerns followed:

1. Thank You: Dew, Mertz, and Lofquist thanked Councilmember Chang and staff for addressing the Board's concerns.
2. Security Cameras: Councilmember Chang will follow up for Poole on exact locations of security cameras during the Honolulu Marathon.

The agenda order resumed.

RESIDENTS' COMMUNITY CONCERNS:

- 2014 Elections Thank You: A community member noted an article from the Friday, November 14, 2014 Star Advertiser in which Board member Janet Grace voiced appreciation for the support of the Waikiki Community during the 2014 elections.
- Ō'lelo Channel: A community member noted there was a free small television with Ō'lelo available for those who do not get the Ō'lelo channel 49.
- Trash Trap Maintenance: A community member voiced concern that the Department of Land and Natural Resources (DLNR) was not maintaining the Ala Wai canal trash trap.
- Sidewalk Sweep: A community member requested the sweeping of sand off of the Waikiki Beach sidewalk, and voiced concern that the stones are deteriorating.

ELECTED OFFICIALS:

Mayor Kirk Caldwell's Representative: Deputy Director Mark Garrity reported the following:

- Lunch Wagons: Various inspections have occurred and notice of violations given in regards to the lunch wagons on Beachwalk near Trump Tower.
- Ena Road Weight Restrictions: The Department of Design and Construction (DDC) noted freight cars and large service trucks such as fire trucks service Ena Road, so a weight restriction could not be imposed. Further, there is scheduled bus service to Eaton Square.
- Kalakaua Avenue Hole: DPR's Division of Urban Forestry filled in the hole in front of the HPD substation on Kalakaua Avenue on Thursday, October 30, 2014.

Questions, comments and concerns followed:

1. Lunch Wagons: Flood voiced concern that the lunch wagons had not moved from the parking lot. Deputy Director Garrity noted the lunch wagons have a special use permit that allows them to stay parked. A community member voiced concern that the lunch wagons could be illegal.

2. Liliokulani Street Property: Dew inquired about the vacant property on Liliuokalani Street being used as an equipment storage lot. Egged noted the property has not been sold. Deputy Director Garrity believed it was permitted to store equipment on the lot was given previously, but will follow up.
3. Pothole Update: Deputy Director Garrity will follow up for Lofquist on a pothole update. Apaka voiced concern that he called the pothole hotline about a pothole on 2121 Ala Wai Boulevard and one (1) at Waikiki Trade Center that have not been filled. A community member reported a pothole on Niihau Street.
4. Kuhio Beach Pool Barricade: A community member reported children playing in pools of water in potholes along Kuhio Beach, and requested barricades be placed around the potholes.
5. Halloween Theft: Flood reported a case of vandalism and theft at a convenience store on Halloween night, and asked if arrests were made, if there were any other incidents, and what the ordinance was that addresses this crime.

Governor Neil Abercrombie's Representative: There was no representative present and no report was available.

Representative Tom Brower: Representative Brower reported that he was walking the neighborhood and taking notes on needed improvements, is working on the issues of campers at Ala Moana Park, and is preparing for the legislative session.

Questions, comments and concerns followed: Beach Showers: Dew voiced concern that the public is not allowed to use shampoo or soap at beach showers.

Senator Brickwood Galuteria: Raytan Vares provided a handout and reported the following:

- Thank You: Senator Galuteria is appreciative of the community support during the elections.
- Legislative Session Assignments: Vares noted the legislative session leadership assignments have been made.

Questions, comments, and concerns followed:

1. Committee Assignments: Vares answered for Adams that Senator Galuteria will be the Vice Chairs for the Water and Land and Hawaiian Affairs committees, and a member of the Ways and Means, Public Safety, and Energy committees.
2. Tsunami Evacuation Zoning Meeting: Chair Finley announced a Tsunami Evacuation zoning meeting and inquired about the meeting date.
3. Animals in Stores: Dew voiced support for prohibiting animals inside a public store, and recommended more stores implement this rule. Chair Finley noted there is a law allowing service animals inside stores, and Dew voiced concern that an individual could order a service animal vest on the internet.

Waikiki Improvement Association (WIA): Rick Egged highlighted the following:

- New Years' Fireworks: WIA will be sponsoring the fireworks at midnight of New Years, Thursday, January 1, 2014 at the barge up shore.
- Institute of Human Services (IHS): IHS has been active in Waikiki and the Housing First program has begun. There has been more interest in the programs IHS offers since the compassionate disruption by the City started.

Questions, comments and concerns followed: Sleepers in Restrooms: Flood voiced concern that individuals were sleeping in restroom stalls and were not being removed.

APPROVAL OF MINUTES OCTOBER 14, 2014: **By UNANIMOUS CONSENT, the October 14, 2014 regular meeting minutes were APPROVED as amended, 13-0-0 (Aye:** Adams, Apaka, Dew, Erteschik, Finley, Flood, Grace, Lofquist, Merz, Poole, Simpson, Smith, and Williams). Amendments included: Page 1: "Janet Grace" should be listed after Board Members Present. Page 2: In the third sentence of Beaches, "reinstated" should be changed to "enforced".

NEW BOARD BUSINESS:

John Nigro arrived at 8:01 p.m. There were 14 Board members present.
Rotary Plan for Aloha Drive Park: David Benson displayed posters and reported about Rotary Club plans for a centennial park on Aloha Drive. The Waikiki Rotary Club meets at the Waikiki Hotel every Tuesday. To commemorate the 100th year of the Waikiki Club in Hawaii, the Rotary Club would like to create a centennial park. A proposal has been given to Mayor Kirk Caldwell's office, and meetings have been held with DPR and Mayor

Caldwell. The main gate out of three (3) gates would be located on Aloha Drive. The City is hiring a botanist to inspect the current landscaping, and there are plans to landscape a rotary design in the park. A fundraiser idea is to sell bricks that would be placed in the park, Benson noted he could present a more solid plan to the Board in summer 2015.

Questions, comments, and concerns followed:

- Disclosure: Chair Finley disclosed that he lives close to the park.
- Bill Sweatt: Apaka and Lofquist requested commemorating Bill Sweatt in the park.
- City Briefing: Erteschik requested a comprehensive briefing from the City about the park.
- Park Concerns: Smith requested high gates at the park that are locked at night to prevent the park from turning into a dangerous environment. Benson noted the park would be designed to discourage individuals from camping inside, and there are plans for a weekly maintenance crew for the park.
- Public Park: Adams requested the park be open to the public.

Flood moved and Merz seconded that the Waikiki Neighborhood Board No. 9 supports the concept of the park developed by the Rotary Club. Discussion followed:

- Public Involvement: Adams requested creating a way to ensure the public was involved in the planning.
- Board Updates: Chair Finley requested Lofquist work directly with Benson and provide the Board with updates, and requested Benson report back in January 2015.
- City Involvement: Erteschik requested an update from the City. Deputy Director Garrity noted Mayor Caldwell supported the project, DPR is neutral due to funding, and suggested DPR be involved in the reports of the project.
- Support: Lofquist voiced support for the project.

The motion that the Waikiki Neighborhood Board No. 9 supports the concept of the park developed by the Rotary Club was ADOPTED by UNANIMOUS CONSENT, 14-0-0 (Aye: Adams, Apaka, Dew, Erteschik, Finley, Flood, Grace, Lofquist, Merz, Nigro, Poole, Simpson, Smith, and Williams).

Ainahau Vista II: Keith Kurahashi, planning and zoning supporting applicant for the Ainahau Vista II project, provided a PowerPoint and reported the following:

- Applications: Hawaii Housing Development Corporation (HHDC) will be submitting a Draft Environmental Assessment, a 201H application, applying to government agencies for tax credits, rental housing trust funds, a Community Development Block Grant (CDBG), Home and Dwelling Unit Revolving Fund (DURF), and a Waikiki Special District Permit.
- Location: The development will be located between Ala Wai Boulevard and Tusitala Street, east of Kaiulani Avenue on a portion of a 35,781 square foot lot zoned Apartment Precinct with a 240 foot height limit.
- Residents: HHDC will provide affordable rental units to singles or families earning at or below 50% of the area median income. The nine (9) story building will provide 77 rental units and 26 parking stalls. The 80 foot high structure will have surface parking below and eight (8) floors of apartment units above.
- Housing First: HHDC has been in contact with the Department of Community Services (DCS) to consider the provision of 10% to 20% of the rental units for the Housing First Program.
- Exemptions: The proposed development will require exemptions including parking, loading space requirements, exceeding the maximum density, allow encroachment into yards, allow encroachment into the transitional height setback, and deferral of water and sewer connection fees.
- Traffic Impacts: Traffic impacts would be minimal with the development.
- Permits: The permits needed include a Finding of No Significant Impact on a Final Environmental Assessment, a 201H Affordable Housing Development Approval, a Waikiki Special Design District Permit, and Grading and Building permits.

Questions, comments and concerns followed:

1. Parking Exemptions: Merz and Smith voiced support for the parking exemption request.
2. Density: Merz noted the sensible use of land is important, and asked how much of a density exemption was asked.
3. Visual of Building: Erteschik asked for a visual representation of the building after exemptions.
4. Room Size: Williams voiced concern about the small size of the rooms, and Flood voiced concern about noise issues if the rooms were small.
5. Sacred Land: Resident Grace Chien noted Ainahau is a sacred place for many Hawaiians, and voiced concern about the preservation of the sacred land. Kurahashi noted HHDC will work with DLNR to ensure preservation of any sacred artifacts found on the land. Kurahashi noted for Loo that the sacred statue and

plant were placed there and HHDC will request them to be relocated. A resident voiced agreements with Chien's concerns.

6. Purpose of Housing First: Grace reminded the public and Board that Housing First is geared towards providing services to the chronically homeless population.
7. Inconsistency: Erteschik voiced concern about the inconsistency of the Board's opinions about developments, and voiced support for the Ainahua Vista II project.
8. Interior: Adams recommended designing the interior of the apartments to accommodate for the small size.
9. Update: Chair Finley requested Kurahashi return to the Waikiki Neighborhood Board No. 09 in January 2015 with an update on the Ainahua Vista II development and with answers to the concerns voiced.

REPORTS:

Treasurer's Report: Treasurer Williams reported expenditures of $48.38 for printing and mailing, leaving a balance of $477.28. The report was filed.

District 1 Report: Merz reported that the Outrigger Reef has provided a supplemental Environmental Impact Statement (SEIS) with many opportunities for public review. Also, a letter was received from Hyatt about a minor project.

Subdistrict 2 Report: Flood reported that HFD cited a violation for the large propane tanks at the lunch wagons on Kuhio Avenue. There were no barriers to prevent cars from hitting the propane tanks which could explode and kill or injure customers and neighbors.

Subdistrict 3 Report: Smith reported that he hopes to address the missing sidewalk on Paoakalani Avenue in 2015.

Chair Report: Chair Finley reported the following:

- Special Meeting: Chair Finley thanked the individuals who attended the Waikiki Neighborhood Board No. 9 special meeting on Wednesday, October 29, 2014.
- Liquor License Applications: Applications for a liquor license were received for Aloha Kitchen, Pacific Fun Discovery Bay, and Ohana East Hotel.
- Harbor Project: The State is searching for a new investor for the Ala Wai Harbor Project.

ANNOUNCEMENTS:

- Next Meeting: The Waikiki Neighborhood Board No. 09 regular meeting will be held on Tuesday, January 13, 2015, Waikiki Community Center at 7:00 p.m.

ADJOURNMENT: The meeting adjourned at 9:05 p.m.

Submitted by: Lori Snyder, Neighborhood Assistant
Reviewed by: Nola Frank, Neighborhood Assistant
Finalized by: Robert Finley, Chair; JoAnn Adams, Board Secretary

WAIKIKI NEIGHBORHOOD BOARD NO. 9

c/o NEIGHBORHOOD COMMISSION • 530 SOUTH KING STREET ROOM 406 • HONOLULU, HAWAII, 96813
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DRAFT REGULAR MEETING MINUTES
TUESDAY, JANUARY 13, 2015
WAIKIKI COMMUNITY CENTER

CALL TO ORDER: Chair Robert Finley called the meeting to order at 7:00 p.m. **with a quorum of 15 members present**. Note: This 17-member Board requires nine (9) members to establish a quorum and to take official Board action. Chair Finley announced that the"Keep Hawaii's Heroes" petition is on the back table to save our bases. Signatures are welcome

Board Members Present: Jo-An Adams, Jeff Apaka, Helen Carroll, John Dew, Louis Erteschik, Robert Finley, Walt Flood, Janet Grace, Kuuipo Kumukahi Arrived at 7:40 p.m.), William 'Bill' Lofquist, Jeff Merz, John Nigro, Jim Poole, Mary Simpson, Mark Smith and Larry Williams.

Board Members Absent: John Moore.

Guests: Stacilynn Eli (Senator Brickwood Galuteria's Office), Z. Lehua Sureda, Rodney and Grace Chiue; Dominic Dias (Board of Water Supply), Deputy Director Mark Garrity (Mayor Kirk Caldwell's representative/Department of Transportation Services), Randy Bartlett (Hawaii Invasive Species/State Department of Agriculture), Mary Kirchoff, Dawn Ward, Corey Dillman, Jan Bappe, Marilyn and Robert Katzman; Representative Tom Brower, Elsie Lee and Mela Kealoha Lindsey (COH); Steve Marcotz, Kurt Tsuneyoshi (Councilmember Trevor Nozawa's Office staff), Pat Fitzgerald, Keith Kurahashi (Kusao & Kurahashi), Rick Egged (Waikiki Improvement Association), Regina K. Hilo, Dave Mosttowitz, Daisy Murai, Senator Brickwood Galuteria, Lieutenant Dien Shearer (Honolulu Police Department, District 6-Waikiki), David Jones (Videographer) and Nola J. Frank (Neighborhood Commission Office staff).

Vacancies: There were no vacancies.

CITY MONTHLY REPORTS:

Honolulu Fire Department (HFD): A representative was not present; a report was not provided.

Honolulu Police Department (HPD): A representative was not present at this time.

Board of Water Supply (BWS): Dominic Dias reported the following:

- Water Main Breaks: No main breaks in December 2014 and not current BWS construction.
- 2015 Water Conservation Calendar: The 2015 Water Conservation Calendar presents artwork and poetry submitted by Oahu youth in Grades K-12. Copies of the calendar were provided.
- Water Conservation Contests: The theme for the 37th annual Water Conservation Week Poster Contest and 7th annual Poetry Contest is "Water Matters – Conserve It". The contest is open to Oahu's student artists and poets in Grades K-12. Deadline to enter is Wednesday, February 26, 2015. For more information visit www.boardofwatersupply.com or call the BWS Communication Office at 748-5041.
- `Olelo Xchange Video Competition: BWS is pleased to sponsor a category in the Youth Xchange Video Competition, which is a statewide student video competition coordinated by `Olelo Community Media. The video contest is open to students statewide in grades Kindergarten through 12 and the entry deadline is Tuesday, March 3, 2015. For detailed information visit www.boardofwatersupply.com or call the BWS Communications Office at 748-5041.

Vote on Three (3) Absence Rule for Kuuipo Kumukahi: Chair Finley announced that Board member Kumukahi replied that she would like to remain on the Board. Kumukahi is stuck in traffic and will be at the meeting shortly. **Apaka moved, Dew seconded to retain Kuuipo Kumukahi as a Board member. The motion was ADOPTED, 12-0-2 (Aye:** Apaka, Carroll, Erteschik, Finley, Grace, Lofquist, Merz, Nigro, Poole, Simpson, Smith and Williams); **Nay:** 0; **Abstain:** Adams and Flood).

RESIDENTS' COMMUNITY CONCERNS:

Hawaii Invasive Species Council: Randy Bartlett circulated information brochures regarding the little fire ant and coconut rhinoceros beetle.

- Little Fire Ant (LFA): The little fire ant is about 1/16 inch long, orange-red in color and slow moving has been found in Waimanalo and Mililani Mauka. To detect LFA, place sticks with a thin smear of peanut butter on a disposable chopstick around the yard for about an hour. If LFA are found on the chopstick, place the stick in a Ziploc bag, seal and label with your name address, and phone number and place bag in the freezer overnight to kill the ants. Call the Hawaii Department of Agriculture (HDOA) pest hotline at 643-PEST to report that you may have LFA.
- Coconut Rhinoceros Beetle (CRB): The CRB is from southeast Asia was found only on Oahu in a pile of mulch where the beetle breeds. Currently, the CRB is found on military bases. Samples of the beetles were circulated. Sites are being treated. If the CRB are seen or found in a neighborhood, please contact the Department of Agriculture.

Questions, comments and concerns followed:

1. Decontamination: Bartlett answered for Merz that the State Department of Agriculture is called to inspect ships and planes. It was noted that all ships are decontaminated.
2. CRB: Bartlett answered for a resident that the CRB is attracted to bright lights and does fly at night.

Restrooms Back of HPD Substation: A resident pointed out that use of these restrooms is paid by public money. He reported that the restrooms are open 24/7, and a security guard is on duty from 10:00 p.m. to 6:00 a.m. However, the security guard is not allowed to enter or use the restrooms. The resident stated that between 5:00 and 5:30 a.m. he went into the men's restroom and found defecation on the seats and between the doors. It was questioned why the security guard is not allowed to enter and check the restrooms. The resident asked should 911 be called if the toilets are found to be destroyed. It was suggested that the restrooms next to the Cheeseburger Restaurant be opened. The Department of Parks and Recreation (DPR) staff cleans the restrooms at 6:15 a.m. The issue was referred to Mayor's representative Garrity.

Board member Kuuipo Kumukahi arrived at 7:40 p.m.; **16 members present.**

3. Trespassing: A resident reported that people seeking shelter at night are trespassing, seeking shelter under apartment stairwells and breaking into apartments. A packet was circulated by SOS Security Incorporated, with information to assist condominiums and apartments with security. An example given was that large buildings could share security costs between them.

ELECTED OFFICIALS:

Mayor Kirk Caldwell's Representative: Mark Garrity wished everyone a Happy New Year and reported the following:

- Neighborhood Board Elections The deadline to apply is Friday, February 20, 2015. Paper applications are available on the front table or you may apply online at www.honolulu.gov/nco. More information on the boards and the election are also available on that site or by calling 768-3708.
- Keep Hawaii's Heroes: On November 9, 2014 Mayor Caldwell co-sponsored a petition named Keep Hawaii's Heroes, to urge the Army to maintain its Military Presence in Hawaii. The proposal by the Army would reduce over 16,000 personnel at Schofield Barracks and 4,000 personnel at Fort Shafter eliminating 19,800 soldiers and approximately 30,000 civilians. Mayor Caldwell has asked that community to join him in signing the petition and encourages anyone to sign up and testify at the Army's Listening Session held on Tuesday, January 27, 2015 at the Hale Koa Hotel. A petition is located on the table near the sign in sheet. For more information, please visit www.KeepHawaiisHeroes.org or you can request more information at infor@KeepHawaiisHeroes.org.
- Potholes on Kuhio Avenue across from Nahua Street (2121 Ala Wai and at Seaside Manor): Pothole patching crews have scheduled pothole repairs at these locations for January 9, 2015.
- New Sandstone Pavers on Kuhio Beach: The concern of premature wear of the new sandstone pavers will be referred to the Department of Design and Construction (DCC) who administered the design and construction of Kuhio Beach improvements and Department of Parks and Recreation (DPR) who maintains the improvements. It appears the path users are walking on the grassed areas rather than the pavers and it is the adjacent areas that are eroding rather than the paver stones.

- Liliuokalani Avenue Vacant Lots Used as Storage: Investigation by the Department of Planning and Permitting (DPP) revealed the vacant lots (4) along Liliuokalani/Tusitala and Cleghorn Streets are being used for the storage of vehicles and equipment by Okada Trucking for use on a City & County of Honolulu project Woodlawn Drive. This temporary use is permitted by Section 21-1.60 of the Land Use Ordinance.
- Potholes on Manukai Street: Manukai Street between Lewers Street and Royal Hawaiian Avenue is privately owned and does not qualify for City maintenance. Manukai Street between Royal Hawaiian and Seaside Avenue is under DPP jurisdiction. DPR reports that a hotel is utilizing Manukai Street as a private driveway and much of the damages are attributed to the hotel's use of the road. DPR is discussing the maintenance of the road with the hotel but on the interim DFM has scheduled pothole repairs to this portion of Manukai Street on January 9, 2014.
- Landscaping Project on Kalakaua Avenue near the Police Substation: The Department of Parks and Recreation (DPR) responds that the re-landscaping of the planter located beneath the HPD Waikiki Substation building sign was completed by the Division of Urban Forestry, Department of Parks and Recreation on December 12, 2014.
- Lunch Wagons on Beachwalk Lot: Investigation by DPP revealed that the five (5) lunch wagon vehicles have current license registrations. Special Design District No. 2013/SDD-90 was approved, with conditions, on January 13, 2014 for a lunch wagon park and does not require the lunch wagon vehicles to move every 24 hours.
- Kuhio Beach Pools for Washing Feet: A water supply line was leaking and needed to be shut down for repair work. On December 2, 2014, the repair work was completed by the Department of Parks and Recreation (DPR) Maintenance Support Services staff.
- Criminal Activity Halloween Night: According to HPD Halloween Night 2014 was an extremely busy night in Waikiki. HPD had approximately 55 police officers working that evening in anticipation of a very large crowd. Although the crowd was loud very few crime complaints were received. Due the report of broken glass and theft of alcohol, a Burglary in the Second Degree case was initiated November 1, 2014 for the Royal Mini Mart located at the Royal Grove Hotel building. A detective began investigating the incident, but the complainant withdrew his complaint. The case was subsequently closed.
  With reference to other incidents of "grab and run," if reported, although referred to as "shoplifting," a theft case would be initiated. The degree would be based on the cost of what was stolen, and if the total amount of the theft is $100 or less, a Theft in the Fourth degree case would be initiated, which is a petty misdemeanor. If the amount exceeds $100, a Theft in the Third Degree (misdemeanor) would be initiated. If the amount exceeds $200 the classification would be Theft in the Second Degree, a Class C felony. Finally, if the amount were to exceed $20,000, a Theft in the First Degree, which is a Class Be felony would be initiated.

Questions, comments and concerns followed:

1. General Excise Tax (GET) Surcharge: Erteschik commented that the public was told by a previous administration that the GET would be raised.
2. Liliuokalani Ave/Cleghorn Street Vacant Lots: Merz questioned the staging of equipment on these vacant lots for a project on Woodlawn Drive in Manoa. Merz pointed out that the project is not in the Waikiki area and is unacceptable. Merz stated that illegal storage (commercial use in a residential zone) has occurred for years. Nigro agreed with Merz, and noted that the staging of pipes and other equipment and driving three (3) miles to Manoa to the job site makes no sense. Nigro added that the street-usage permit should be re-checked. Nigro reiterated that items have been stored on the lots for years.
3. Rail Noise; Dew inquired about the effects of the noise that will be caused by the rail for residents' living in the Waimanu Street area. According to the condominium owners, the information regarding rail was provided at the time of their purchase.
4. Grateful: Lofquist expressed gratitude to the Department of Facility Maintenance (DFM) crew for filling the Manukai Street potholes on Monday, January 12, 2015. Garrity replied that concerns from the Neighborhood Board and questions makes things happen. Garrity noted that the City appreciates the Board's feedback.
5. Halloween Night in Waikiki: A resident reported that 13 people with bats were beating up other people on Lewers Street. The fight broke up right be HPD arrived. The resident wanted to know what was the per capita of HPD officers versus civilians.
6. Temporary Permit: Follow up will done as to the definition of a temporary permit.
7. Lunchwagons Comment: A resident noted that lunchwagons are not permitted to park in metered stalls. It was asked if the private lot allowing permanent permits and to park overnight. Garrity replied that per the response from DPP, the lunchwagons obtained a special design permit, which was approved with conditions for the Lunchwagon Park. The resident added that other lunch trucks and other businesses are

prohibited to use the Lunchwagon Park. It was pointed out that lunchwagons are not permitted to park in metered stalls. Garrity will follow up on the terms and expiration date for the permits.

Governor David Ige's Representative: A representative was not present; a report was not available.

Questions, comments and concerns followed:

1. Cigarette Butts: Merz asked who is in charge of the beaches and inquired if it is the state Department of Land and Natural Resources (DLNR). Representative Brower that this was a good question. It was noted that it is illegal to smoke or litter on beaches. Recycling of cigarette butts will be explored.

Councilmember Trevor Ozawa: Kurt Tsuneyoshi circulated a report and highlighted the following:

- Committees: Councilmember Ozawa will chair the Committee on Executive Matters and Legal Affairs and Kapiolani Park Trust. Vice Chair for the Committee on Zoning and Planning. Member of the Committee on Budget, Committee on Business, Economic Development & Tourism, Committee on Public Health, Safety and Welfare, Committee on Public Works, Infrastructure and Sustainability, and the Committee on Legislative Matters.
- Full City Council Meeting: The next full City Council meeting is scheduled for Wednesday, January 28, 2015.

Questions, comments and concerns followed:

- Restroom Issues: Apaka asked that Councilmember Ozawa work on this issue to allow the security guard to enter and check the restroom to help keep them clean.
- Iolani Park Trust: Tsuneyoshi answered for Dew that Councilmember Ozawa Chair's the Iolani Park Trust.
- Kalakaua Avenue: Smith reported people sitting on their backpacks on the sidewalks on Kalakaua Avenue, and asked if that is permitted.

Senator Brickwood Galuteria: Stacelynn Eli circulated a report and highlighted the following:

- 2015 Legislature: The 2015 Legislature will convene on Wednesday, January 21, 2015 at 10:00 a.m.
- Committee Assignments: Senator Galuteria will be Vice Chair of the Water and Land Committee, Hawaiian Affairs Committee; member of the Ways and Means, Energy and Environment, and Public Safety, Intergovernmental and Military Affairs Committees.

Representative Tom Brower: Representative Brower distributed his written report and highlighted the following:

- Committees: Representative Brower will continue to chair the Tourism committee, and sit on the committees on Judiciary, Agriculture, Economic Development, Consumer Protection and Military Affairs.
- Hawaii Five O Noise: Area filming of Hawaii Five O resulted in the use of simulated gunfire/explosion.
- Cigarette Butts on the Beaches: Cigarette butts are among the top pollutants with non-biodegradable filters, which pose a threat to marine life. Although smoking and littering are illegal on the beach, enforcement has been difficult and a burden on the police. New legislation for solutions are being explored and legislation for a beach cleanup fund to help keep the beaches cleaner.
- Rail Tour: Representative Brower participated in a tour of the rail in Kapolei, and noted that the project is currently on schedule.
- Lipeepee Street/Ala Moana Boulevard Crosswalk: A constituent inquired last month about the possibility of installing a crosswalk at Lipeepee Street and Ala Moana Boulevard. The City's traffic engineers informed Representative Brower that his is not necessary. According to state law, a person can cross at any intersection, unless signs prohibit doing so (Hawaii Revised Statutes 291C-72 and 73).
- Tax Clinic: A tax clinic will be held at the Capitol on Saturday, January 31, 2015 in Conference Room 329 from 9:00 a.m. to 2:00 a.m. For more information and see if you qualify call (808) 426-3858.

Questions, comments, and concerns followed:

1. Cigarette Butts: Merz inquired if it is the State Department of Land and Natural Resources (DLNR) is in charge of the beaches. Representative Brower noted that it is illegal to smoke or litter on beaches. Recycling of cigarette butts will be explored
2. General Excise Tax (GET): Chair Finley the amount of money the State takes from the City would be reduced. In response, 10% collected by the City is taken by the State. It was commented that cost to the City for lawsuits relating to rail is $250 million. It was noted that the legislature voted to extend the City's ability to call on and utilize the General Excise Tax (GET) for the rail. It was noted that 30% of rail funding is from visitors.

Waikiki Improvement Association (WIA): Rick Egged highlighted the following:

- Beach Management Plan: A Bill has been introduced to establish a Waikiki Beach special improvement district at the request of the WIA and would fund a non-profit run by Waikiki stakeholders and develop a long-term Waikiki Beach Management Plan. This would contribute to approved public-private maintenance and restoration projects.to help develop a long-term Waikiki. Funding would come from Waikiki's commercial property assessments.
- Ban: Suggestion are to ban vehicles from stopping next to the Waikiki Shopping Plaza causing backup of traffic.

Questions, comments and concerns followed:

1. Newspaper Tax Article: Egged answered for Erteschik that the word tax is misused. It is basically an assessment. Erteschik commended Egged and asked if beach coordination would occur. Egge noted that the project would be partnered with DLNR, and relayed that it does not hurt to get a government agency involved with private partners. Egge noted that a community plan is being worked on and working with government agencies on a beach plan.
2. International Market Place: Merz noted that the International Market Place is clean and quiet, and thanked Egged for doing a good job. Egged commended Chair Finley for attending the meetings and doing a good job with the community relations. Chair Finley added that the biggest problem was coordination with the Hawaiian Electric Company (HECO).
3. Beach Sand Disappearing: Per a newspaper article, Lofquist expressed concern regarding sand disappearing from Waikiki Beach, and questioned if the article is accurate. It was noted that sand was brought in in 2013, which is supposed to last for seven (7) to 10 years. However, 27% of the sand has eroded. It was pointed out to never anticipate that the sand would stay on the beach forever. It was noted that in November/December 2011 it was advocated and the Ewa wall torn down to improve beach erosion, which is not true. Lofquist asked if there are any future plans. Egged answered that proposal come up from time to time. The intent is to have a beach management plan for Waikiki Beach. Regarding the Sheraton Waikiki (T-groin), the beach management plan will be looked at in an orderly fashion. The best solution would be t-groin-wall-t-groin. However, some people want no structures. One (1) project is to replace the Royal Hawaiian groin going forward with the appropriated funding.
4. Lunchwagons: Regarding the lunchwagons, Egged answered for Adams that the WIA was not consulted. Egged noted being aware the permits were granted.

APPROVAL OF SPECIAL MEETING MINUTES OCTOBER 29, 2014: **The October 29, 2014 special meeting minutes were APPROVED as written and circulated by UNIMOUS CONSENT, 16-0-0 (Aye:** Adams, Apaka, Carroll, Dew, Erteschik, Finley, Flood, Grace, Kumukahi, Lofquist, Merz, Nigro, Poole, Simpson, Smith, and Williams).

APPROVAL OF MINUTES NOVEMBER 18, 2014: : **The November 18, 2014 special meeting minutes were APPROVED as written and circulated by UNIMOUS CONSENT, 16-0-0 (Aye:** Adams, Apaka, Carroll, Dew, Erteschik, Finley, Flood, Grace, Kumukahi, Lofquist, Merz, Nigro, Poole, Simpson, Smith, and Williams).

NEW BOARD BUSINESS:

Rotary Plan for Aloha Drive Park Follow Up: David Benson reported the following: On Thursday, January 1, 2015, the Rotary Club is celebrated its 100th anniversary. The Rotary Club submitted a proposal for the Aloha Park to the City. According to the City Department of Parks and Recreation (DPR), the Rotary name logo cannot be used for the park or the selling of bricks with inscriptions in memory of someone. Based on State and City laws the park will be named the "Centennial Park." Plans are to setup an agreement with the City regarding the land, build the park, and turn the park over to the City. Board member Lofquist assisted with the plans and was invited by the Rotary to speak with the WIA board. The next step is to speak with area managers regarding the plans. The parks will consists of a rock wall and fencing. A developer has offered to donate the cement.

Questions, comments and concerns followed:

1. Park Name/Maintenance: Merz requested a Hawaiian name. Benson answered for Merz that the Department of Parks and Recreation (DPR) is in charge of the maintenance. A work party from the Rotary Club, Waikiki residents and area hotel meet every other Saturday to clean the park. Concern was raised regarding long-term maintenance and repairs. In response, plans will be available between the Rotary and the City. The park will remain under city jurisdiction, enforced by HPD, and locked at 10:00 p.m.

2. Small Restaurant Facilities: It was asked if a small restaurant would be placed in the park.
3. Mahalo: Lofquist thanked the Rotary Club for taking on this large project.
4. Other Parks: Smith asked if the Rotary Club has created other parks in the world. Benson noted that on Oahu, there is one (1) park on Diamond Head Road and the other on the Salvation Army property.

Flood moved, Merz seconded in support of continuing efforts in continuing the completion of the park. The motion was UNANIMOUSLY ADOPTED, 16-0-0 (Aye: Adams, Apaka, Carroll, Dew, Erteschik, Finley Flood, Grace, Kumukahi, Lofquist, Merz, Nigro, Poole, Simpson, Smith, and Williams).

Ainahau Vista II, 2428 Tusitala Street Follow Up: Keith Kurahashi provided a PowerPoint and highlighted the following:

- Applications: Hawaii Housing Development Corporation (HHDC) will be submitting a Draft Environmental Assessment (DEA), a 201H application, applying to government agencies for tax credits, housing trust funds, a Community Development Block Grant (CDBG), Home and Dwelling Unit Revolving Fund (DURF), and a Waikiki Special District Permit.
- Location: Between Ala Wai Boulevard and Tusitala Street, east of Kaiulani Avenue on a portion of a 35,781 square foot lot zoned Apartment Precinct with a 240 foot height limit.
- Residents: Affordable rental units to singles or families earning below 50% of the area median income. The nine (9) story building will provide 62 rental units and 23 parking stalls.
- Housing First: HHDC has been in contact with the Department of Community Services (DCS) to consider provision of 10% to 20% of the rental units for the Housing First Program.
- Exemptions: The proposed development will require exemptions including parking, loading space requirements, exceeding the maximum density, allow encroachment into yards, allow encroachment into transitional height setback, and deferral of water and sewer connection fees.
- Traffic Impacts: With the development traffic impacts will be minimal.
- Permits: The permits needed include a Finding of NO Significant Impact on a Final Environmental Assessment, a 200H Affordable Housing Development Approval, a Waikiki Special Design District Permit, and Grading and Building Permits.
- Responses to previously asked questions:
  - Parking Exemptions: The required parking for the development is 62 parking stalls and the applicant proposes to provide 24 parking stalls.
  - Density: The allowable density with the planned 35% open space is 54,947 square feet and the proposed density will be 94,617 square feet. The project will be 29,670 square feet over the allowable density. However, if calculated with 50% open space provided the project will be 12,349 square feet over the allowable density (Vistas 1 and 2).
  - Visual of Building: A slide provided a visual representation of the exemptions being requested.
  - Room Size: The studio units have been increased in size from 275 square feet to 377 square feet. It was noted that the studio units have increased in size.
  - Sacred Land: Kurahashi will work with the State Department of Land and Natural Resources (DLNR) to ensure preservation of any sacred artifacts found on the land. It HHDC will request that the sacred statue and plant be relocated.

Questions, comments and concerns followed:

1. Comment: Apaka relayed that tonight's update shows a much better plan.
2. Parking Stalls: Regarding the anticipation of seniors with cars, Kurahashi answered for Apaka that 23 parking stall will be provided with the possibility of a large loading zone area. Apaka added that almost everyone catches the bus.
3. Onsite Security: Kurahashi answered for Flood that there will a security guard on site during the day and guard on duty at night. It is unsure if cameras would be installed.
4. Soundproofing Wall: It was asked if the walls would be soundproofed.
5. Support: Grace noted the efforts of support and to protect seniors. Grace asked how would the seniors residing in the Ainahau Vista I be protected from lane closures.
6. Current Plan: Erteschik inquired why the current plan is substantially different from the previous plan and much denser than regulations allow. Affordable housing is needed. Kurahashi relayed a concern from the owner and Board is the homeless problem. There is a market for smaller units. It is hopeful that smaller affordable units would be available in the future.
7. Environmental Assessment (EA): Merz pointed out that the EA is not the end. There is still time for concerns and recommendations. Kurahashi noted that the Board would be informed when the public may provide input.

Flood moved, Merz seconded in support of the project concept. The motion was ADOPTED, 15-1-0 (Aye: Adams, Apaka, Carroll, Erteschik, Finley, Flood, Grace, Kumukahi, Lofquist, Merz, Nigro, Poole, Simpson, Smith, and Williams; **Nay**: Dew; Abstain-0).

Flood moved Merz seconded in support of the Ainahau Vista II project concept. The motion was ADOPTED 15-1-0 (Aye: Adams, Apaka, Carroll, Erte4schik, Finley, Flood, Grace, Kumukahi, Lofquist, Merz, Nigro, Poole, Simpson, Smith and Williams; **Nay:** Dew; **Abstain**: 0).

Honolulu Police Department (HPD): Lieutenant Dien Shearer apologized for being late, circulated the report and noted that he would be in the back to entertain any questions

Ohana West Update: Cassie Idehara reported the following:

- Location: The hotel is located at 2330 Kuhio Avenue.
- Building Design: The entrance on Walina Street will remain and added loading stalls.
- A restaurant will be located on the corner of Kuhio Avenue and Walina Street, with a Starbucks on the Nahua Street side.
- Exterior: The building exterior will be repainted, one (1) elevator added and a double height retail storefront. The Walina Street side of the hotel will be renovated with a new lobby, imagery and a double height ceiling.
- Construction: Anticipated construction start date is March 15, 2015 with demolition late April 2015 with barriers surrounding the entire building. Completion date is February 2016. Applications for noise variances have been submitted for the hours of 9:00 a.m. to 5:00 p.m. Work will be scheduled on weekdays Monday through Friday.

Questions, comments and concerns followed:

1. Sidewalks: Idehara answered for Lofquist that there will be sidewalks on Kuhio Avenue.
2. 24-Hour Restaurant: Apaka asked and it was noted that a 24-hour restaurant is not in the plans.
3. Square Footage: Flood asked and it was noted that there will be no change to the square footage (275-280 square feet).
4. Plan for Construction Trucks: Plans are to take one (1) going up Walina Street and down Kuhio Avenue.
5. Comment: Apaka pointed out that there is no 'Hawaiiana' in the plans. The response was there are limitations on what can be done Kumukahi asked what Hawaiian signs, artifacts, and wood items are in the interior. The response was wood. Kumukahi added if there is an opportunity for Hawaiian art in guest rooms, Hawaiian patterns on the side of the buildings, such as tapa prints. Kumukahi stated that Waikiki is a Special District.

Flood moved Merz seconded in support of the Ohana West renovations. The motion was ADOPTED, 14-2-0 (Aye: Adams, Apaka, Carroll, Dew, Erteschik, Flood, Grace, Kumukahi, Lofquist, Merz, Nigro, Poole, Smith, and Williams); **Nay:** Finley and Simpson; **Abstain**: 0).

REPORTS:

Treasurer's Report: Treasurer Williams reported expenditures of $42.83 for printing and mailing, leaving a balance of $434.45. The report was filed.

Subdistrict 2 Report: Flood reported that the Waialae Country Club is hosting the Sony Open. There are about 40 volunteers who are paid $40.00 daily. Active military are free to watch the tournament.

Chair Report: Chair Finley reported the following:

- The Waikiki Transportation Stakeholder Oversight Committee continues to work to improve traffic issues and address the bus routes following Rail.
- : Several new buses have been ordered for Waikiki and they will be quiet and less polluting than current models.
- Mentioned by Rick Egged it was reiterated that the WIA is going to have a busy year with the formation of two new activities to improve the beach and parking. They will also be working on improvements to the WSDP.
- Bill 65 will address the need for hourly car rentals for our residents who need a car for a few hours a month but don't have parking or the budget to own a car next month.
    - Don't forget to sign up for the next Neighborhood Board election. It is NOT automatic. Deadline is Friday, February 20, 2015. There were no other reports.

ANNOUNCEMENTS:

- Next Meeting: The next Waikiki Neighborhood Board No. 09 regular meeting will be held on Tuesday, February 10, 2015, Waikiki Community Center at 7:00 p.m.

ADJOURNMENT: The meeting adjourned at 9:40 p.m.

Submitted by: Nola J. Frank, Neighborhood Assistant
Reviewed by: Neil Baarde, Neighborhood Assistant
Reviewed by: Finalized by: Robert Finley, Chair; JoAnn Adams, Board Secretary