HAWAII COMMUNITY DEVELOPMENT AUTHORITY
STATE OF HAWAII

ADDENDUM NO. 1

TO CONTRACT DOCUMENTS

FOR

Ala Moana Sewage Pump Station Phase 2
Screen House & 1940 Pump Station
Tax Map Key: (1) 2-12015:063

Honolulu, Hawaii

May 4th, 2018

NOTICE TO ALL PROSPECTIVE BIDDERS:

This addendum is hereby made a part of the contract documents for the subject project above and it shall amend said contract documents as follows:

I. BID DUE DATE

The bid due date shall be changed to: **May 29, 2018** at 2:00 p.m.

II. HISTORIC PRESERVATION PROCEDURES Covered in 01 1000-4

There is an existing Archaeological Monitoring Plan for this site that needs to be followed. Refer to specification section 01 1000-4 Miscellaneous Provisions. Kaka'ako Pumping Station SIHP# 50-80-14-9710 Job Code: Kaka'ako 191 is attached.

III. PRE BID MEETING NOTES

On April 27 a pre bid meeting was held at the project site. Attached are meeting notes from this meeting.

IV. CONTRACTOR QUESTIONS/CLARIFICATIONS

a. Question: In Specification Section, 00 7200, Article 2 of the General Provisions for Construction Contracts requires a Notice of Intention to Bid. Is the requirement boiler plate that does not apply to this project, or will the Notice of Intention to Bid be required?

Response: In Section 00 7300 of the specifications, SP 19 Special Provisions, we indicate a Notice of Intention to bid is not required.

b. Question: The bid date of May, 28, 2018 falls on Memorial Day, which is a holiday. Will the bid date be changed?

Response: Yes new bid date is **May 29th 2018** at 200pm.

c. Question: Is the installation of permanent electrical service from Keawe Street to the 1900 Pump House part of the project?

Response: No. Permanent service is being provided in a separate project that will be completed well before the work of this project. Note that Site Utility Plan, Sheet C-1 denotes permanent service as "Existing"

d. Question: Will the contractor be responsible for removing and disposing of loose items within the two project buildings?

Response: Yes. Any items of value to the State will be removed by the State in advance of the commencement of construction. All other items to be removed and properly disposed of by the Contractor.

e. Question: Licensing requirements, what type of license is the Contractor required to have?

Response: Refer to Requirements and Specifications Section 00 4100-6 #20 in regards to Licensing requirements.

V. DRAWINGS

a. See attached 22" x 34" drawing A-1 - Revised general notes to include the removal of debris on site.

b. See attached 22" x 34" drawing A-2 - Revised key notes to include the removal of debris within the buildings.

VI. SPECIFICATION

SECTION 01 1000-4 Project Requirements 1.6 Miscellaneous Provisions
Revised to include AMP information. Revision is in Bold

END OF ADDENDUM NO. 1

PRE-BID MEETING NOTES

PROJECT: Historic Ala Moana Sewage Pump Station Screen House and 1940 Pump Station Renovation, 653 Ala Moana Boulevard, Honolulu HI 96813

SUBJECT: Pre-Bid Meeting

DATE: 4-27-18 10:00 a.m.

ATTENDEES: Attachment

LOCATION: Project Site

I. Welcome and introductions

II. Project Description

This is a project by the Hawaii Community Development Authority. We are a State agency administratively attached to the Department of Business Economic Development and Tourism.

This is the second phase of renovations to this historic property which is owned by the HCDA. The initial phase of work was done on the 1900 pump station building and was completed about a year ago, and now houses a senior center. The Pacific Gateway Center operates the senior center. As specified in the bid documents, the contractor's work will have to be coordinated to minimize interference with the operations of the senior center.

This phase of the renovation is for the 1940 Pump Station and Screen House. These two buildings will be support facilities for the senior center and will essentially be a multipurpose space, restroom and kitchenette.

It was noted that the bid due date falls on a holiday so an addendum will be issued to address a change in the due date.

The building permit is approved.

Contractors should note in their bid they will be responsible for special inspections and archaeological monitoring. The HCDA has an archaeological monitoring plan which was approved by the State Historic Preservation Division which will be made available to bidders through an addendum to the bid documents.

Attendees were asked to email all questions to Marie McCreary at Ferraro Choi and Associates so that official written responses may be prepared and issued as an Addendum to the bid documents.

III. Site Walk

Attendees were able to view a portion of the Screen House. The door to the space on the Ewa side of the Screen House was frozen shut, hence the full view of this space was limited through the hole in the door.

Attendees were able to enter and view the 1940 Pump Station building.

Anyone needing to arrange a revisit may contact Amy Mutart at HCDA for access.

Pre-Bid Meeting
Ala Moana Pump Station Screen House and 1940 Pump Station Renovation

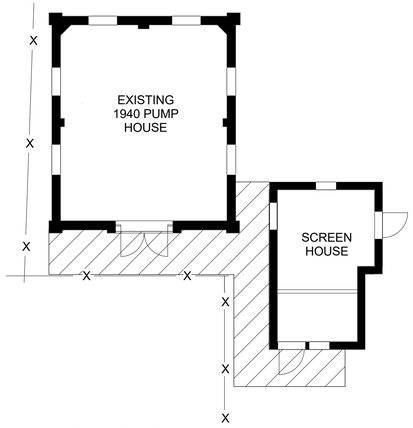
prebid conf attendance sheet

	Name	Company	Email	Phone
	MICHAEL LUCE	S+M SAKAMOTO	MLUCE@SMSHAWAII.COM	4564717
	Mike Mazzone	Statewide	Mike@SGCCHawaii.com	864-7428
	Malcolm Burgess Jr.	A and B Electric	malcolmjr@abelectrichi.com	682-4024
	SCOTT WAN	CAN-AM COATINGS	perryradtke@gmail.com	PERRY 429-9494
	Maria Pascua	HAWAII MARKS INC.	ahawaiimarksinc.com	847-7140

LEGEND

CJ — CONTROL JOINT - SEE DETAIL 8/S-1

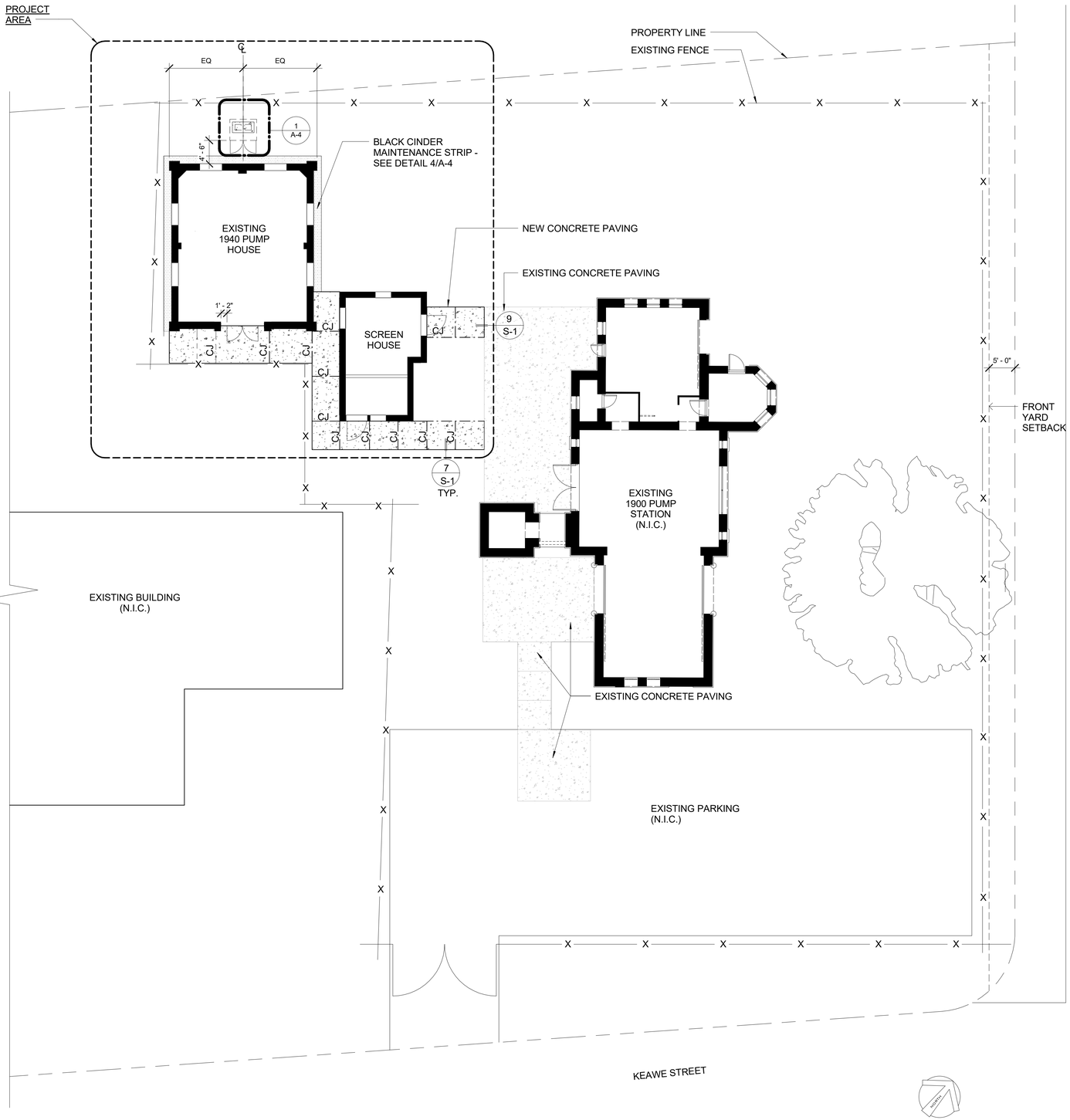
EXISTING CONCRETE WALKWAY TO BE DEMOLISHED



1 / A-1 EXISTING CONCRETE WALKWAY
3/32" = 1'-0"
0' 8' 16' 32'

GENERAL NOTES

1. CONTRACTOR SHALL COMPLY WITH THE SECRETARY OF THE INTERIOR'S PRESERVATION STANDARDS FOR THE TREATMENT OF HISTORIC PROPERTIES. REFERENCE: HTTP://WWW.NPS.GOV/TPS/STANDARDS/FOUR-TREATMENTS/STANDGUIDE/INDEX.HTM
2. ALL NEW OR REINSTALLATION WORK SHALL MAINTAIN ORIGINAL DETAILING OF THE EXISTING BUILDING.
3. CONTRACTOR SHALL PRIORITIZE REPAIR OVER REPLACE WHERE EVER FEASIBLE (USING 50% RULE AS A GUIDE). REFER QUESTIONS TO THE ARCHITECT
4. DISTINCTIVE MATERIALS, FEATURES, FINISHES AND CONSTRUCTION TECHNIQUES OR EXAMPLES OF CRAFTSMANSHIP THAT CHARACTERIZE THE PROPERTY WILL BE PRESERVED.
5. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE INTERNATIONAL BUILDING CODE (IBC) 2006 EDITION, AS LOCALLY ADOPTED, AND WITH APPLICABLE LOCAL, STATE AND FEDERAL CODES AND ORDINANCES.ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE INTERNATIONAL BUILDING CODE (IBC) 2006 EDITION, AS LOCALLY ADOPTED, AND WITH APPLICABLE LOCAL, STATE AND FEDERAL CODES AND ORDINANCES.
6. ALL WORK SHALL BE PERFORMED IN A MANNER THAT PROTECTS BUILDING OCCUPANTS, VISITORS AND THEIR POSSESSIONS.
7. IF THE CONTRACTOR SHALL PERFORM WORK CAUSING UNIQUE NOISE, ODORS OR OTHER DISTURBANCES OUTSIDE OF REGULAR BUSINESS HOURS, SUCH WORK SHALL BE SCHEDULED WITH OWNER AND BUILDING MANAGEMENT.
8. DURING THE ENTIRE CONSTRUCTION PERIOD CONTRACTOR SHALL NOT HAVE EXCLUSIVE USE OF THE PREMISES AND CONTRACTOR SHALL COORDINATE WITH THE OWNER'S REPRESENTATIVE REGARDING PARKING, ACCESS, STAGING, PROTECTIONS. AND METHODS TO MITIGATE DISRUPTION TO ONGOING OPERATIONS.
9. ALL ITEMS INDICATED "TO REMAIN" SHALL BE PROTECTED DURING THE CONSTRUCTION PERIOD.
10. GC MUST NOTIFY BUILDING OWNER, 72 HOURS IN ADVANCE OF ANY WORK REQUIRING ELECTRICAL, MECHANICAL AND PLUMBING INTERRUPTIONS.
11. THE INTENT OF THE DRAWINGS IS TO PRODUCE THE INTENDED RESULTS UNDER RECOGNIZED STANDARDS EVEN IF NOT SHOWN, BUT REASONABLY INFERABLE THEREFROM. THE CONTRACTOR SHALL CHECK ALL DRAWINGS FURNISHED TO HIM/HER IMMEDIATELY UPON THEIR RECEIPT AND SHALL PROMPTLY NOTIFY THE ARCHITECTS OF ANY DISCREPANCIES. LARGER SCALE DRAWINGS TAKE PRECEDENCE OVER SMALLER SCALE DRAWINGS, AND DETAILS TAKE PRECEDENT OVER ALL. THE CONTRACTOR SHALL COMPARE ALL DRAWINGS AND VERIFY THE DETAILS BEFORE LAYING OUT THE WORK AND SHALL BE RESPONSIBLE FOR ANY ERRORS WHICH MIGHT HAVE BEEN AVOIDED THEREBY.
12. ALL DEBRIS ON SITE WITHIN PROJECT SCOPE TO BE REMOVED AND PROPERLY DISPOSED OF. IF ANY ITEMS ARE IN QUESTION CONTACT ARCHITECT.



2 / A-1 SITE PLAN
3/32" = 1'-0"
0' 8' 16' 32'

FERRARO CHOI

FERRARO CHOI AND ASSOCIATES LTD.
ARCHITECTURE / INTERIOR ARCHITECTURE / RESEARCH
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TEL 808 533 8880 FAX 808 599 3769 www.ferrarochoi.com

4/30/2018
EXPIRATION OF LICENSE

SIGNATURE

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

(SEC. 16-115 DEPARTMENT OF COMMERCE AND CONSUMER AFFAIRS)

HISTORIC ALA MOANA SEWAGE PUMP STATION SCREEN HOUSE AND 1940 PUMP HOUSE RENOVATION

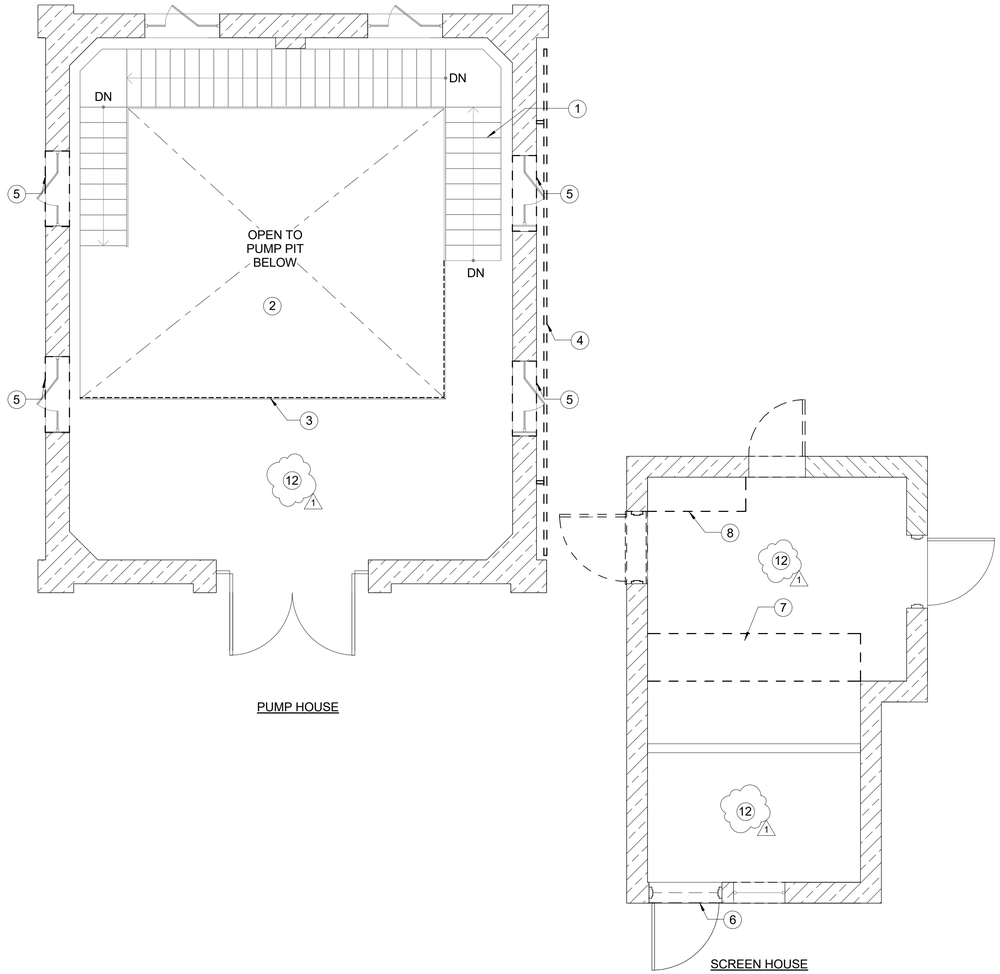
653 ALA MOANA BLVD.
HONOLULU, HAWAII 96813

PROJECT:	2017-016
DRAWN:	AY
DATE:	01/25/18
SHEET	A-1
OF	SHEETS

REVISIONS:
1 05-02-18 ADDENDUM 1

SHEET TITLE:
GENERAL NOTES & SITE PLAN

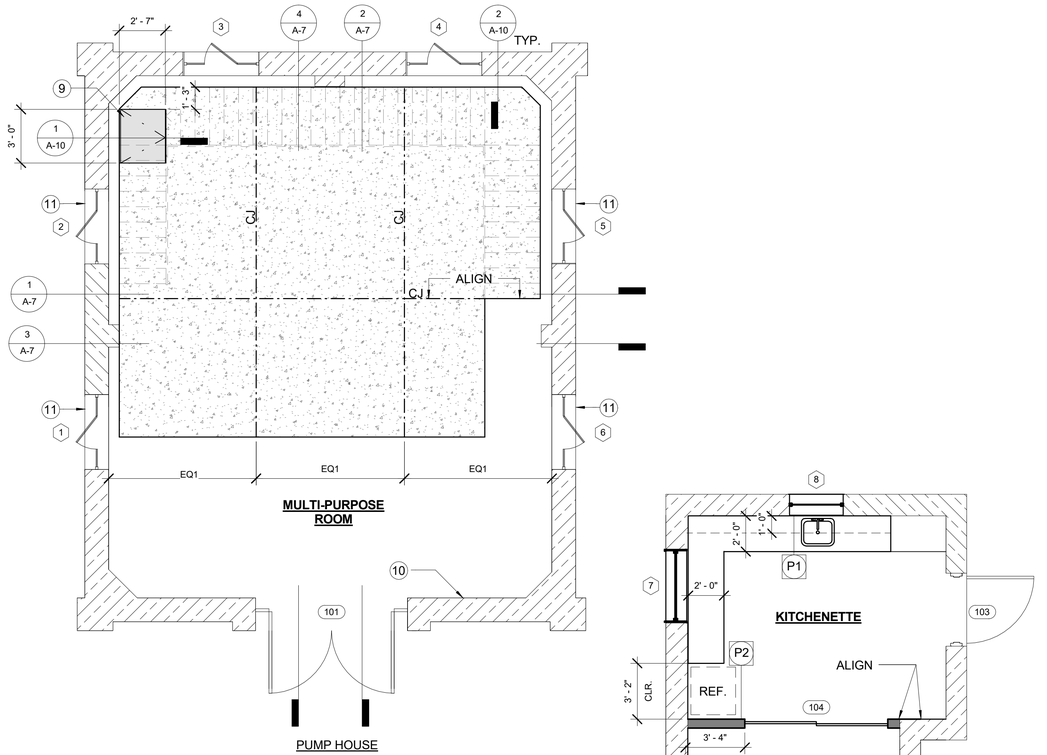
CADD FILE:

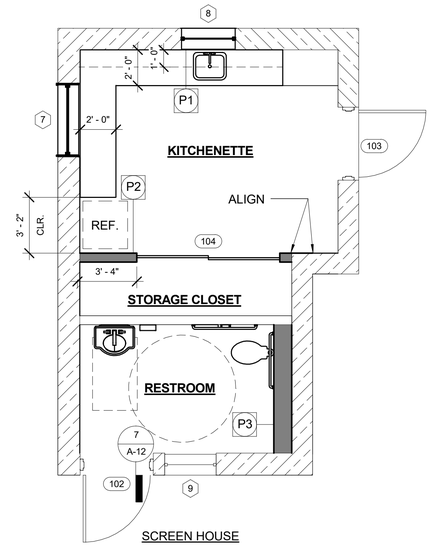


1 A-2 DEMOLITION PLAN

1/4" = 1'-0"

0' 2' 4' 8'





2 A-2 FLOOR PLAN

1/4" = 1'-0"

0' 2' 4' 8'

DEMOLITION & FLOOR PLAN LEGEND

- EXISTING PARTITION TO REMAIN
- NEW INTERIOR PARTITION TO BE ADDED
- NEW SUSPENDED STRUCTURAL SLAB OVER EXISTING PUMP PIT, REFER TO STRUCTURAL DWGS.
- RESTORE EXISTING DOOR TO REMAIN
- EXISTING DOOR TO BE REMOVED
- RESTORE EXISTING OPERABLE WINDOW TO REMAIN
- RESTORE EXISTING WINDOWS TO REMAIN
- NEW WINDOW, TO MATCH EXISTING
- NEW SLIDING DOORS, REFER TO DOOR SCHEDULE FOR MORE INFO.
- CJ — CONTROL JOINT - SEE DETAIL 8/S-1
- EXISTING BUILDING STRUCTURE

PRESERVATION GENERAL NOTES

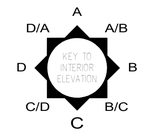
1. CONTRACTOR SHALL COMPLY WITH THE SECRETARY OF THE INTERIOR'S PRESERVATION STANDARDS FOR THE TREATMENT OF HISTORIC PROPERTIES. REFERENCE: HTTP://WWW.NPS.GOV/TPS/STANDARDS/FOUR-TREATMENTS/STANDGUIDE/INDEX.HTM
2. ALL NEW OR REINSTALLATION WORK SHALL MAINTAIN ORIGINAL DETAILING OF THE EXISTING BUILDING.
3. CONTRACTOR SHALL PRIORITIZE REPAIR OVER REPLACE WHERE EVER FEASIBLE (USING 50% RULE AS A GUIDE). REFER QUESTIONS TO THE ARCHITECT.
4. DISTINCTIVE MATERIALS, FEATURES, FINISHES AND CONSTRUCTION TECHNIQUES OR EXAMPLES OF CRAFTSMANSHIP THAT CHARACTERIZE THE PROPERTY WILL BE PRESERVED.

SHEET NOTES

1. ALL EXISTING UNUSED CONDUIT, FRAMING, BLOCKING, ETC. TO BE REMOVED FROM WALLS. CONTACT ARCHITECT IF THERE ARE ANY QUESTIONS IN REGARDS TO THE REMOVAL OF AN EXISTING ELEMENT.
2. ALL EXISTING WALLS TO BE CLEANED AND REPAIRED AS NEED TO RECEIVE NEW FINISH. ALL SPALLING TO BE REPAIRED. CRACKS TO RECEIVE EPOXY INJECTION. EXISTING PLASTER TO BE PATCH AND REPAIRED AS NEEDED TO RECEIVE NEW FINISH.
3. WHERE DISCREPANCIES OCCUR BETWEEN EXISTING CONDITIONS AND CONTRACT DRAWINGS VERIFY INTENT WITH ARCHITECT.

KEYNOTES

1. EXISTING STAIRS TO REMAIN TO PUMP PIT
2. EXISTING PUMP EQUIPMENT IN PIT TO BE ABADONED IN PLACE.
3. EXISTING RAILING TO BE REMOVED
4. EXISTING EXTERIOR RAILING TO BE REMOVED, EXTERIOR WALL TO BE PATCHED & REPAIRED AS NEEDED
5. ADDITIVE ALTERNATE #1: NEW 42 1/2" x 16 1/2" OPENING IN EXISTING WALL FOR NEW AC UNIT
6. EXISTING CURB AT THRESHOLD TO BE REMOVED
7. EXISTING FRAMING ABOVE TO BE REMOVED
8. EXISTING FULL HEIGHT SHELVING TO BE REMOVED
9. NEW FLOOR HATCH
10. PATCH WALL WHERE EXISTING PANEL WAS REMOVED. PATCH TO BE FLUSH WITH SURROUNDING WALL.
11. ADDITIVE ALTERNATE #1: NEW AC UNIT SEMI RECESSED IN EXISTING WALL BELOW WINDOW. REFER TO MECH. DWGS FOR MORE INFO
12. ALL ABANDONED EQUIPMENT, FURNITURE AND DEBRIS IN BUILDING TO BE REMOVED AND PROPERLY DISPOSED OF. IF ANY ITEMS ARE IN QUESTION CONTACT ARCHITECT.



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(SEC. 16-115 DEPARTMENT OF COMMERCE AND CONSUMER AFFAIRS)

HISTORIC ALA MOANA SEWAGE PUMP STATION SCREEN HOUSE AND 1940 PUMP HOUSE RENOVATION

653 ALA MOANA BLVD.
HONOLULU, HAWAII 96813

SHEET TITLE: DEMOLITON PLAN, PRESERVATION GENERAL NOTES & FLOOR PLAN

CADD FILE:

REVISIONS: 1 05-02-18 ADDENDUM 1

PROJECT: 2017-016
DRAWN: AY
DATE: 01/25/18
SHEET A-2
OF SHEETS

d. Keep access roads to the project site free of dirt and debris. Provide, erect and maintain lights, barriers, signs, etc. when working on roads, driveways and walkways to protect pedestrians and moped/bicycle riders.

1.6 MISCELLANEOUS PROVISIONS

A. Historical Archaeological Monitoring and Artifacts: Contractor is responsible for **hiring a qualified, independent entity to perform archaeological monitoring in accordance with Archaeological Monitoring Plan for the Kaka'ako Pumbing Station (SIHP# 50-80-14-97 10) 653 Ala Moana Blv., Kaka'ako Makai, Honolulu Auhpua'a Honolulu (Kona) District, Oahu Job Code: Kakaako 191**during ground disturbing activity including but not limited to trenching and excavation. All items having any apparent historical or archaeological interest discovered in the course of construction activities shall be carefully preserved. Should historic remains such as artifacts, burials, concentrations of shell or charcoal be encountered during the construction activities, work shall cease immediately in the adjacent vicinity of the find and the applicable site shall be protected from further damage. The Contractor shall immediately contact the Contracting Officer and the State Historic Preservation Division (SHPD) DLNR at (808) 692-8015. SHPD will assess the significance of the find and recommend an appropriate mitigation measure if necessary.

B. Dewatering:

1. Discharge from dewatering operations in building construction shall not be drained directly onto the street, gutter, into streams, or other bodies of water. In areas where a storm drainage has been installed, the discharge shall be conveyed to the nearest storm drain, by the use of pipes or other suitable means acceptable to the County. If necessary, the discharge shall be filtered or otherwise treated to comply with all applicable Federal, State, and Local regulations concerning water pollution prior to its release into waterways or local drainage systems.

2. In areas where there are no storm drainage systems, arrangements satisfactory to the County shall be made to dispose the discharge onto private properties.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION [NOT USE

3.1 PROJECT SCHEDULE

A. Schedule dates are presented for information and planning purposes. Dates and activities are subject to adjustments.

1. Pre-Bid Meeting and Site Visit Notice to Bidders
2. Clarifications or Questions Due 14 days before Offers are opened
3. Bid Opening Notice to Bidders
4. Project Start Date
5. Jobsite Start Date
6. Phase 1 Completion Date

Final

Archaeological Monitoring Plan for the Kaka‘ako Pumping Station (SIHP # 50-80-14-9710) Project, 653 Ala Moana Boulevard, Kaka‘ako Makai, Honolulu Ahupua‘a, Honolulu (Kona) District, O‘ahu TMK: [1] 2-1-015:063

Prepared for
Hawaii Community Development Authority

Prepared by
Brittany Enanoria, B.A.
and
Hallett H. Hammatt, Ph.D.

Cultural Surveys Hawai‘i, Inc.
Kailua, Hawai‘i
(Job Code: KAKAAKO 191)

June 2016

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Management Summary

Reference	Archaeological Monitoring Plan for the Kaka‘ako Pumping Station (SIHP # 50-80-14-9710) Project, 653 Ala Moana Boulevard, Kaka‘ako Makai, Honolulu Ahupua‘a, Honolulu (Kona) District, O‘ahu, TMK: [1] 2-1-015:063 (Enanoria and Hammatt 2016)
Date	June 2016
Project Number(s)	Cultural Surveys Hawai‘i, Inc. (CSH) Job Code: KAKAAKO 191
Investigation Permit Number	CSH will likely complete the archaeological monitoring fieldwork under archaeological fieldwork permit number 16-26, issued by the Hawai‘i State Historic Preservation Division (SHPD) per Hawai‘i Administrative Rules (HAR) §13-13-282.
Agencies	SHPD
Land Jurisdiction	State of Hawai‘i on lease by Executive Order #284 to the City and County of Honolulu
Project Proponent	Pacific Gateway LLC
Project Funding	State of Hawai‘i grant to Pacific Gateway and the Hawaii Community Development Authority
Project Location	653 Ala Moana Boulevard, Honolulu, Kaka‘ako Makai area; Honolulu Ahupua‘a, Honolulu (Kona) District, O‘ahu, TMK: [1] 2-1-015:063; location shown on a portion of the 1998 Honolulu U.S. Geological Survey (USGS) 7.5-minute topographic quadrangle
Project Description	The HCDA proposes to renovate the historic Kaka‘ako Pump Station for use as a community resource center primarily serving senior citizens. Pacific Gateway Center, a non-profit community-based organization, plans to transform the Kaka‘ako Pump Station into Na Kūpuna Makamae center. It is envisioned that the Center will serve as a gathering place that provides educational and cultural programs to seniors.
Project Acreage	Approximately 0.19 hectares (0.46 acres)
Project-Related Disturbance	Pavement around the site will be removed to improve drainage. Concrete slabs and portions of the chain link fence surrounding the site will be removed to open the site to the sidewalk and Ala Moana Boulevard. A handicapped-accessible parking space will be marked within an existing parking area and an accessible path will be provided to the front doors. Underground electrical conduits and irrigation will be installed. Other improvements include a new carport with photovoltaic system, a new roof, repair or renovation to existing windows and doors, stone blocks, and painting the metal trim. Interior work includes minor demolition, partial restoration of plaster work, and resurfacing of concrete floors. A finished shell space will be

	constructed by installing an ADA-compliant bathroom, air conditioning, suspended lighting, power outlets, fire alarms, and painting.
Historic Preservation Regulatory Context[i]	This archaeological monitoring plan (AMP) is intended to support the proposed project's historic preservation review under Hawai‘i Revised Statutes (HRS) §6E-8 and HAR §13-13-275. It is also intended to support any project-related historic preservation consultation with stakeholders such as state and county agencies and interested Native Hawaiian Organizations (NHOs) and community groups. In consultation with the SHPD, this document fulfills the requirements of HAR §13-13-279-4. CSH (Dr. Hallett H. Hammatt) met with the SHPD (Dr. Susan Lebo) on 27 April 2015 to discuss a sampling strategy for the Kaka‘ako Sewage Pump Station project. The SHPD confirmed CSH's testing strategy was sufficient to determine the presence/absence of potential cultural deposits and associated features. CSH completed an archaeological inventory survey (AIS) investigation for the Kaka‘ako Sewage Pump Station project on 22 July 2015. The report was accepted by SHPD in a letter dated 7 January 2016 (LOG NO.: 2015.03618, DOC. NO.: 1601KM03) (see Appendix A). One previously identified historic property was observed: The Ala Moana (Kaka‘ako) Pumping Station is listed on the State and National Registers of Historic Places (# 80-14-9710) and was placed on the Hawai‘i Register of Historic Places (HRHP) on 17 August 1997 and was listed on the National Register of Historic Places (NRHP) on 4 October 1978 (# 78001022) (see Appendix B and C). *The National Register of Historic Places Inventory- Nomination Form* completed for the Kaka‘ako Pump Station (State Inventory of Historic Places [SIHP] 50-80-14-9710 (Appendix B) indicates this architectural historic property was evaluated as significant for inclusion on the National Register of Historic Places under two criteria. The buildings were identified as being associated with Honolulu's first professionally designed sewage disposal system [Criterion A], and they are an excellent example of Hawaiian cut bluestone construction in an Industrial Romanesque style [Criterion C].
Historic Properties Potentially Affected	The proposed project will potentially affect one historic property (SIHP # -9710) identified within the project area.
Monitoring Recommendations	In order to mitigate potential adverse impact to as yet unidentified historic properties within the project area, it is recommended that project area construction proceed under an archaeological monitoring program. Archaeological monitoring will facilitate the identification and proper treatment of any subsurface historic properties that might be

	discovered during construction. It is further recommended that on-site archaeological monitoring occur for all subsurface construction-related activities extending below the base course fill layers (18 inches) to the water table and/or coral shelf.

[i] The State of Hawai‘i historic preservation review process is designed to identify and mitigate a project’s impacts to significant historic properties. Historic properties are defined as “any building, structure, object, district, area, or site, including *heiau* [temple] and underwater site, which is over fifty years old” (HAR §13-275-2). The six potential historic preservation review steps include the following: 1) identification and inventory, to determine if historic properties are present in the project’s area and, if so, to identify and document (inventory) them; 2) evaluation of historic property significance; 3) determination of project effect (impact) on significant historic properties; 4) mitigation commitments that commit to acceptable forms of mitigation in order to properly handle or minimize impacts to significant historic properties; 5) detailed mitigation plan, scope of work to properly carry out the general mitigation commitments; and 6) verification of completion of detailed mitigation plan (HAR §13-275-3). A project’s effect and potential mitigation measures are evaluated based on the project’s potential impact to “significant” historic properties (any historic property that meets the criteria of the Hawaii register of historic places or the criteria enumerated in subsections 13-275-6(b).

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Section 1 Introduction

1.1 Project Background

At the request of Pacific Gateway LLC and on behalf of the Hawaii Community Development Authority (HCDA), Cultural Surveys Hawai‘i, Inc. (CSH) has prepared this archaeological monitoring plan (AMP) for the Kaka‘ako Pumping Station (SIHP # 50-80-14-9710) project, Honolulu Ahupua‘a, Honolulu (Kona) District, O‘ahu, TMK: [1] 2-1-015:063. The project address is 653 Ala Moana Boulevard, Honolulu, in the Kaka‘ako *makai* (seaward) area. The project area is depicted on a portion of the 1998 Honolulu U.S. Geological Survey (USGS) 7.5-minute topographic quadrangle (Figure 1), a tax map plat (Figure 2), and a 2013 aerial photograph (Figure 3).

The HCDA proposes to renovate the historic Kaka‘ako Pump Station for use as a community resource center primarily serving senior citizens. Pacific Gateway Center, a non-profit community-based organization, plans to transform the Kaka‘ako Pump Station into Na Kūpuna Makamae center (Figure 4). It is envisioned that the Center will serve as a gathering place that provides educational and cultural programs to seniors.

Project improvements will include the removal of pavement around the site to improve drainage. Concrete slabs and portions of the chain link fence surrounding the site will also be removed to open the site to the sidewalk and Ala Moana Boulevard. A handicapped-accessible parking space will be installed within an existing parking area and an accessible path will be built to the front doors. A new carport is planned in the existing parking area, with a photovoltaic system on the carport roof (Figure 5). Underground electrical conduits and irrigation will be installed. Other improvements include a new roof, repair or renovation to existing windows and doors, stone blocks, and painting the metal trim. Interior work includes minor demolition, partial restoration of plaster work, and resurfacing of concrete floors. A finished shell space will be constructed by installing an ADA-compliant bathroom, air conditioning, suspended lighting, power outlets, fire alarms, and painting.

1.2 Historic Preservation Regulatory Context and Document Purpose

This AMP is intended to support the proposed project’s historic preservation review under Hawai‘i Revised Statutes (HRS) §6E-8 and Hawai‘i Administrative Rules (HAR) §13-13-275. It is also intended to support any project-related historic preservation consultation with stakeholders such as state and county agencies and interested Native Hawaiian Organizations (NHOs) and community groups. In consultation with the SHPD, this document fulfills the requirements of HAR §13-13-279-4.

One previously identified historic property was observed in the project area. The Ala Moana (Kaka‘ako) Pumping Station is an architectural historic property listed on the Hawaii Register of Historic Places (HRHP) and National Register of Historic Places (NRHP) (# 80-14-9710). It was assessed for the NRHP as significant under two criteria. The buildings were identified as being associated with Honolulu's first professionally designed sewage disposal system [Criterion A], and they are an excellent example of Hawaiian cut bluestone construction in an Industrial Romanesque style [Criterion C].

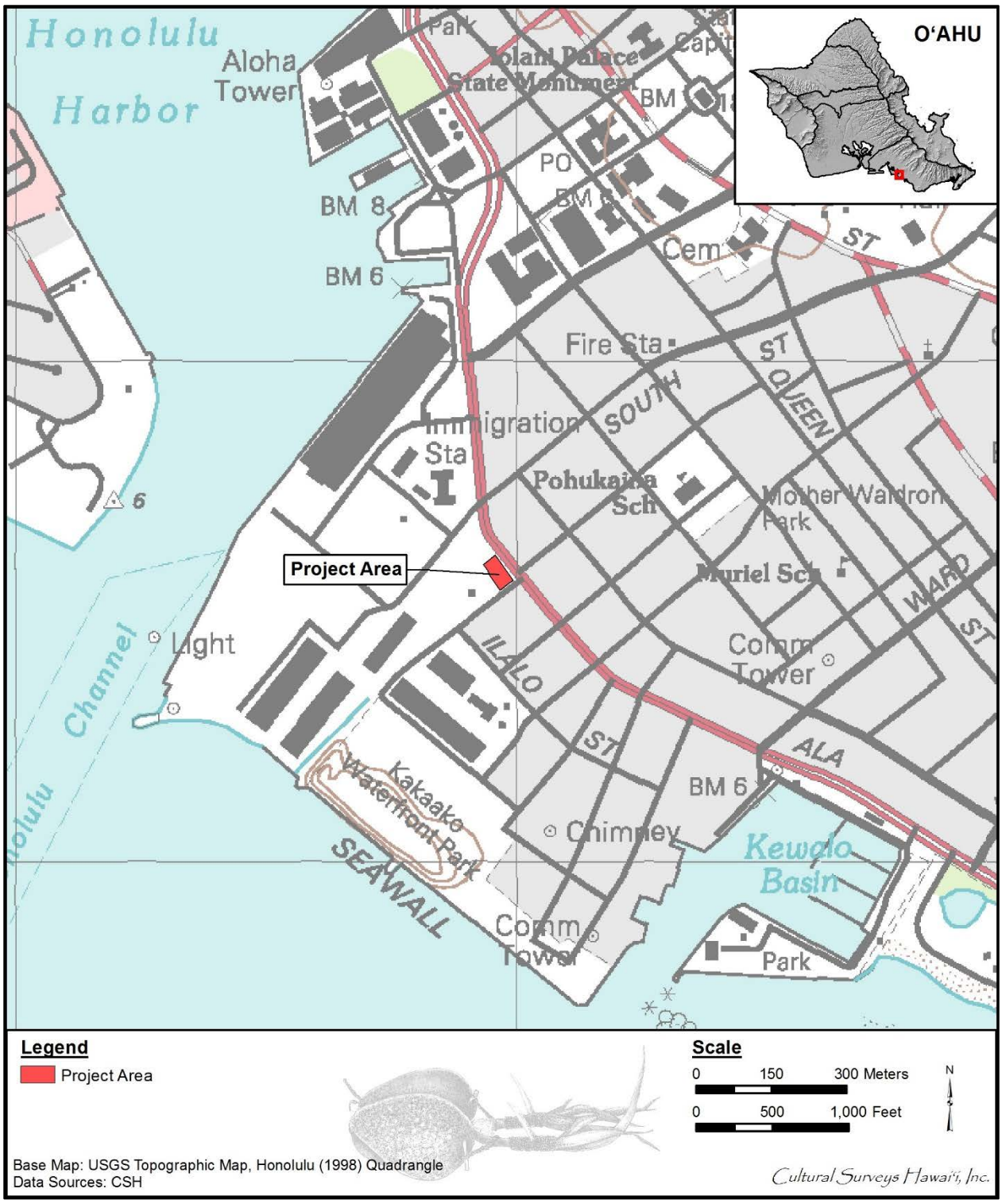


Figure 1. Portion of the 1998 Honolulu USGS 7.5-minute topographic quadrangle showing the location of the project area

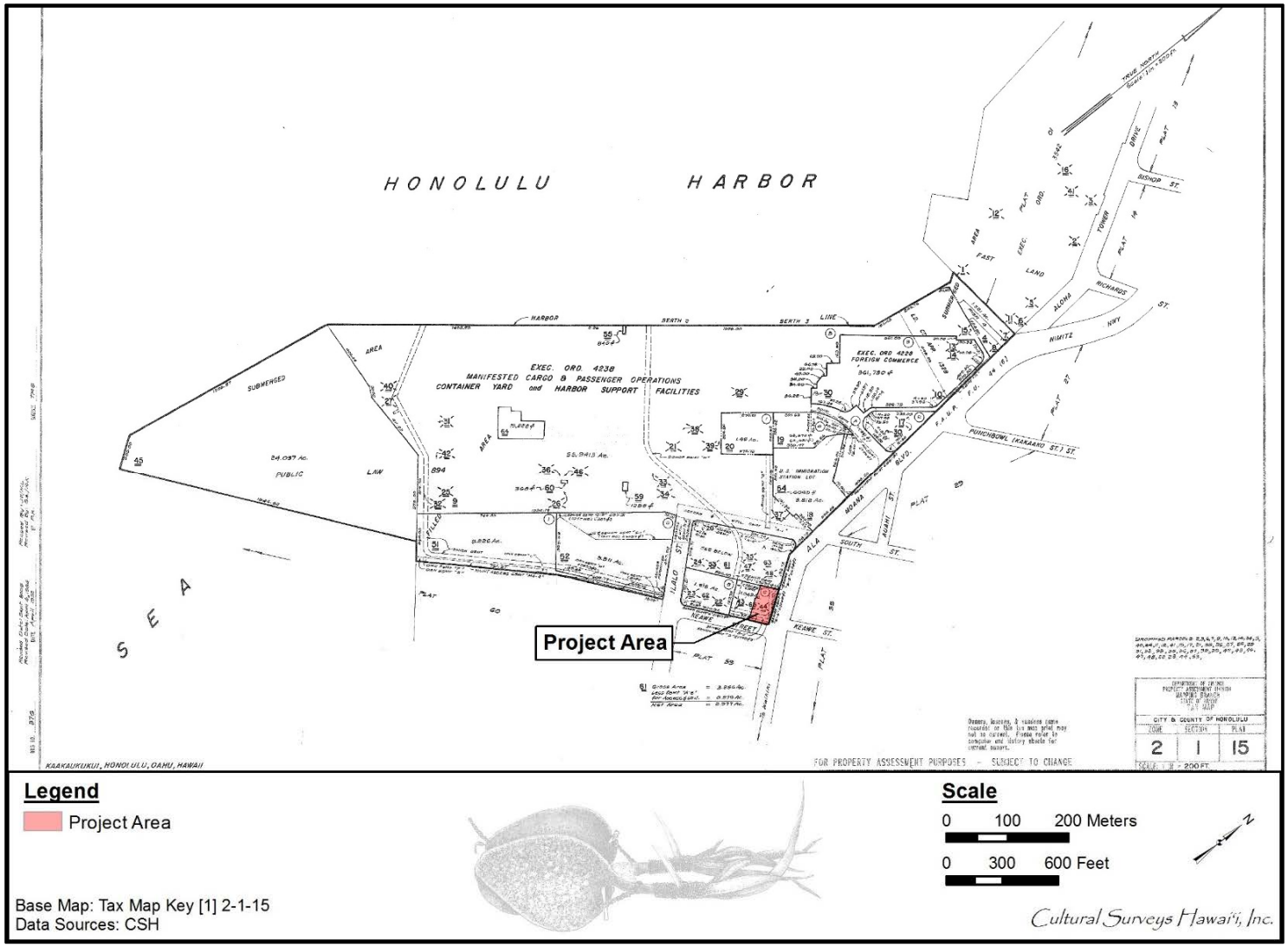


Figure 2. Tax Map Key (TMK): [1] 2-1-015 showing the project area; note the map indicates former parcels 43 and 44 were consolidated to form parcel 63 (Hawai‘i TMK Service 2014)

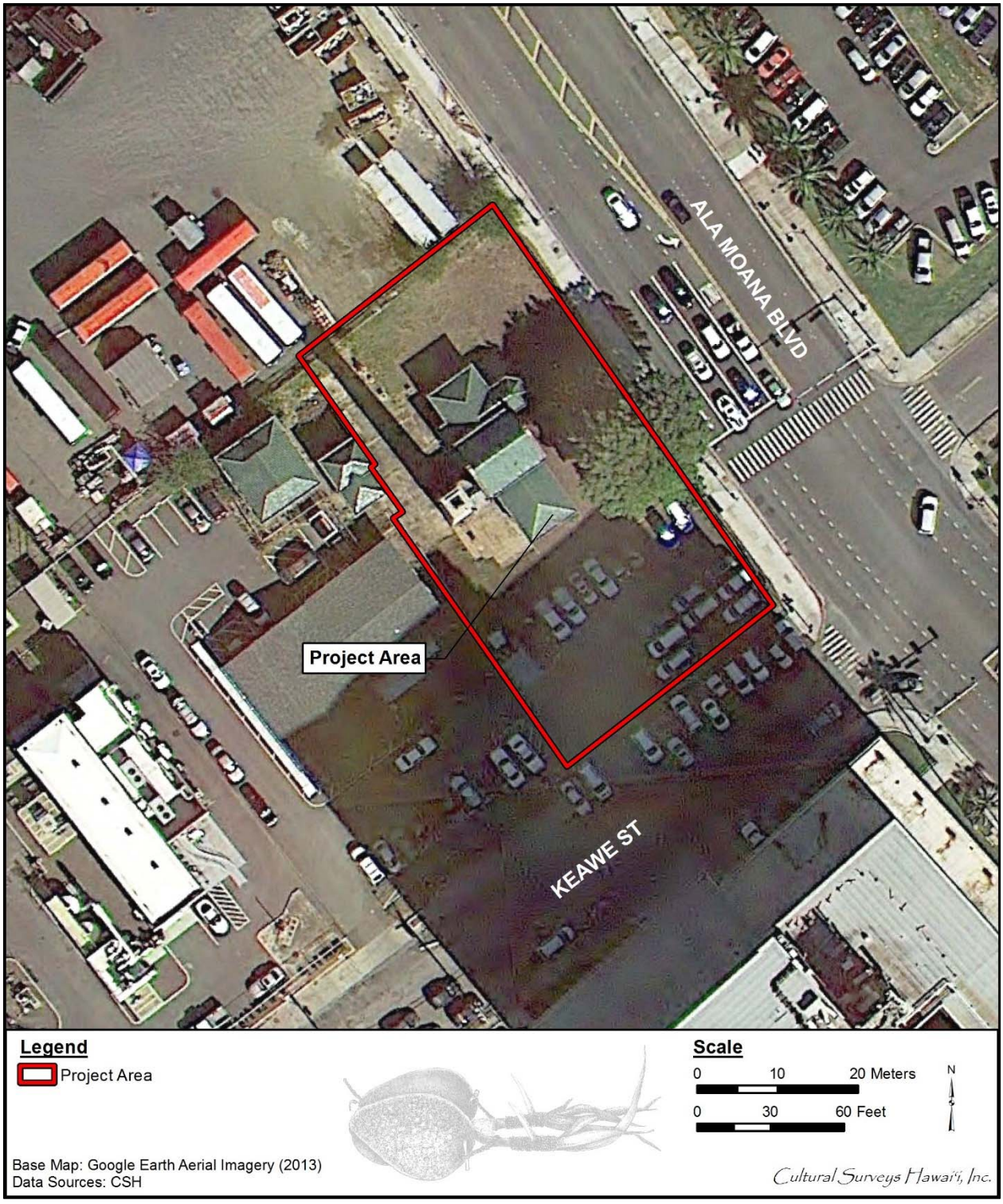


Figure 3. Aerial photograph of the project area (Google Earth 2013)

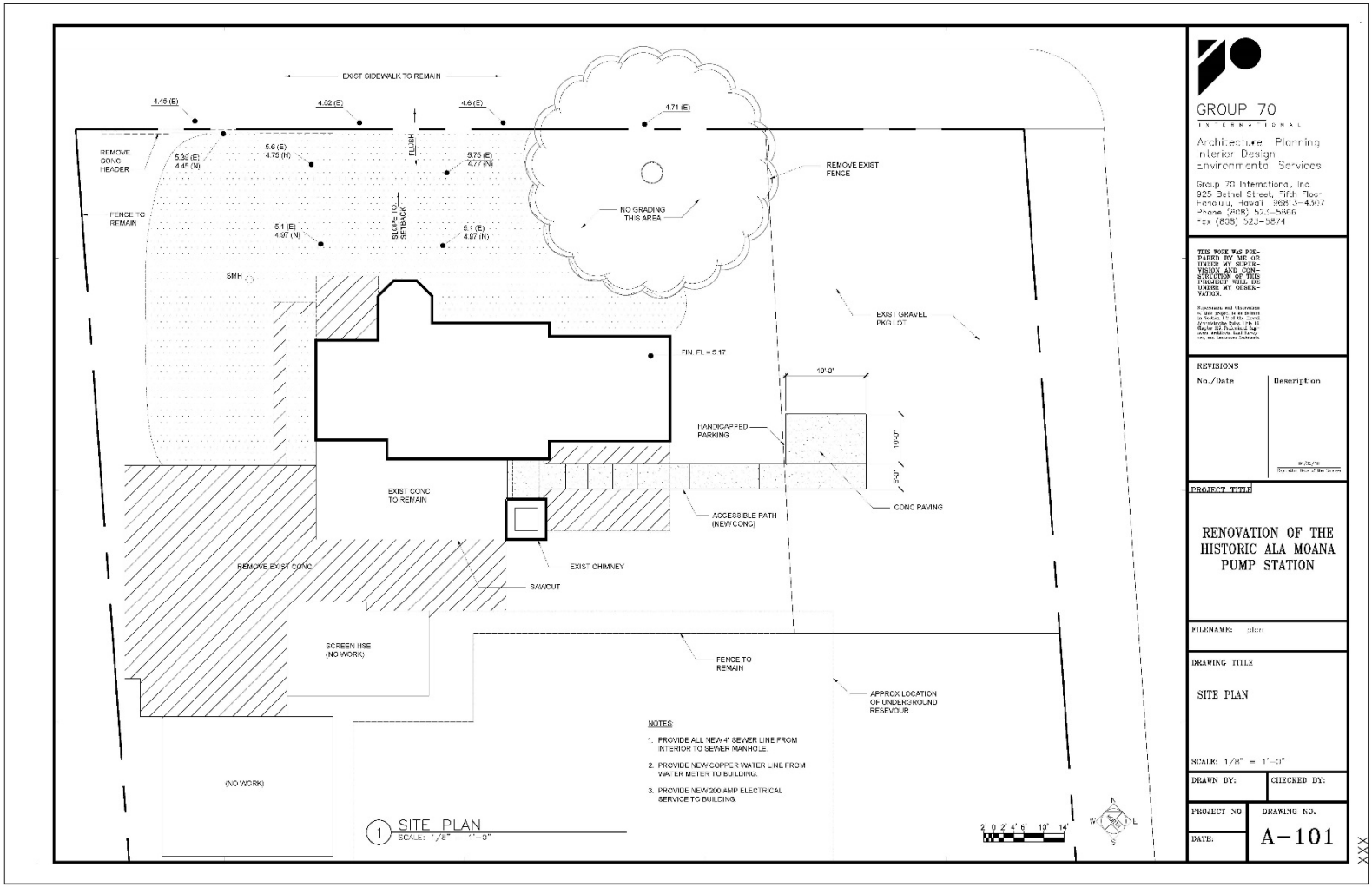


Figure 4. Overall site plan for the proposed project (Group 70 International 2015)

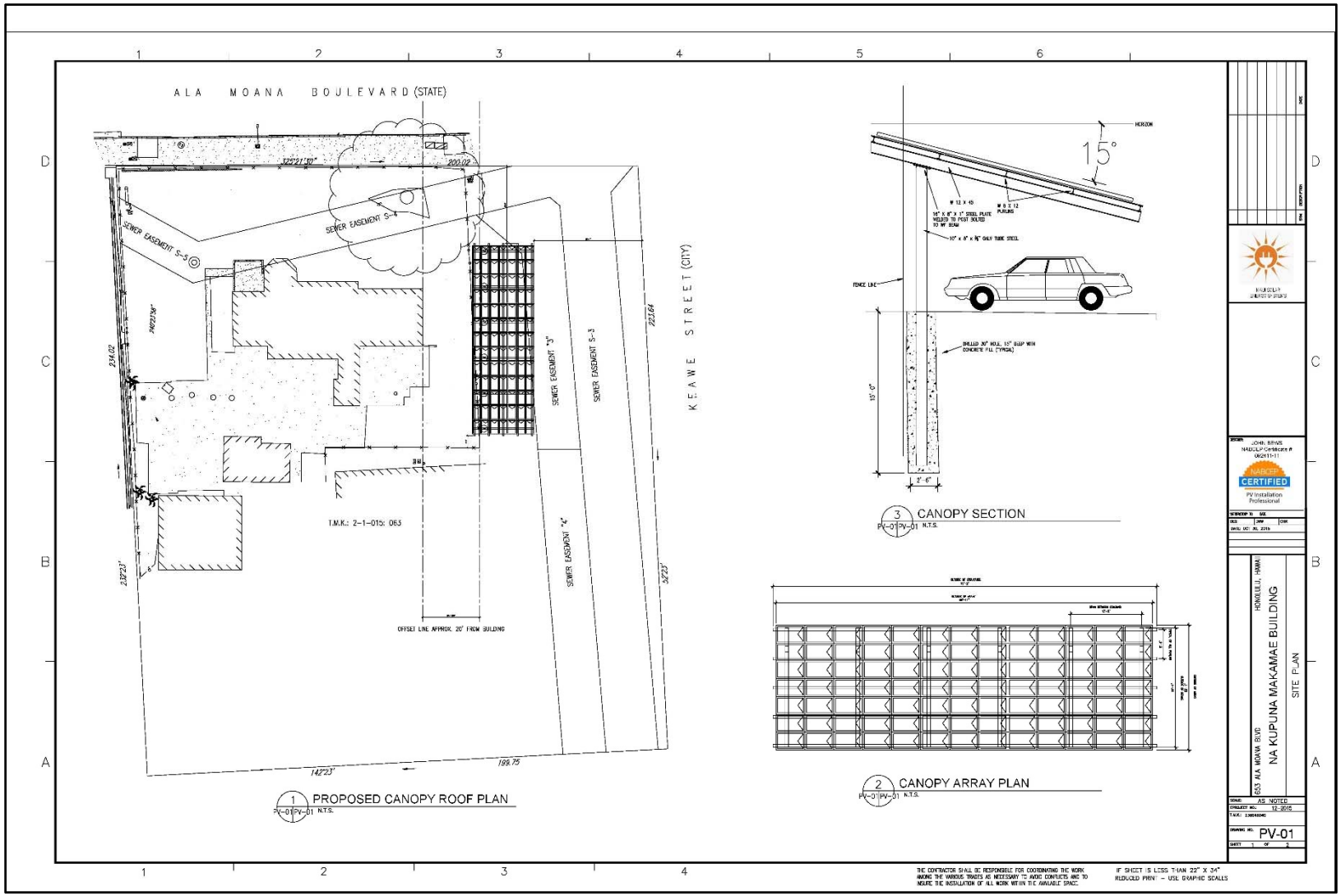


Figure 5. Proposed canopy roof plan for the proposed project (Maui Solar Energy Systems 2015)

In order to mitigate adverse impacts to potential subsurface archaeological historic properties during construction, it is recommended that project construction proceed under an archaeological monitoring program. CSH (Dr. Hallett H. Hammatt) met with the State Historic Preservation Division (SHPD; Dr. Susan Lebo) on 27 April 2015 to discuss a sampling strategy for the Kaka‘ako Sewage Pump Station project. The SHPD confirmed CSH's testing strategy was sufficient to determine the presence/absence of buried cultural deposits and associated features. CSH completed an archaeological inventory survey (AIS) investigation for the Kaka‘ako Sewage Pump Station project on 22 July 2015. The report was accepted by SHPD in a letter dated 7 January 2016 (LOG NO.: 2015.03618, DOC. NO.: 1601KM03).

1.3 Environmental Setting

1.3.1 Natural Environment

The entire study area lies on land created relatively recently. While many residents of Honolulu may think of this Kaka‘ako *makai* area as dominated by parking lots, warehouses, and office buildings, in fact much is dedicated to greenspace including the large Kaka‘ako Waterfront Park and Makai Gateway Park (a large park occupying two blocks between Cooke and Ohe streets).

The project parcel is within a topographic section of O‘ahu called the Honolulu Plain, an area generally less than 4.5 meters (m), or 15 feet (ft) above sea level (Davis 1989:5). The Honolulu Plain is stratified with late-Pleistocene coral reef substrate overlaid with calcareous marine Jaucas sand or terrigenous sediments (sediments formed from erosion of rocks on land), and stream-fed alluvial deposits (material deposited by running water) (Armstrong 1983:36). The top soil stratum consists of Fill land, mixed (FL), containing areas filled with material dredged from the ocean and hauled from nearby areas (Foote et al. 1972).

The modern Hawaiian shoreline configuration is primarily the result of 1) rising sea level following the end of the Pleistocene (Macdonald et al. 1983; Stearns 1978); 2) the mid- to late-Holocene ca. 1.5-2.0 m highstand of the sea (see summary in Dye and Athens 2000:18–19); and 3) pre-Contact and post-Contact human landscape modification. At the end of the Pleistocene, between approximately 20,000 and 5,000-6,000 years ago, water previously locked in glacial ice returned to the world's oceans, and the sea level rose over 100 m to approximately its current level. In the vicinity of the current project area, 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. When sea levels 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.

A highstand of the sea for the Hawaiian Islands, ca. 1.5 to 2.0 m above present sea level, has been well documented between 4,500 and 2,000 years ago (Athens and Ward 1991; Fletcher and Jones 1996; Grossman and Fletcher 1998; Grossman et al. 1998; Harney et al. 2000; Stearns 1978). During this highstand, there appears to have been an increase in coral reef production and the production of detrital (particles derived from pre-existing rock by weathering or erosion) reef sediments. Littoral environments appear to have been augmented substantially by the deposition of marine sediments. "What this means is that the great shoreline sand berms must have developed around the islands at this time because this was when calcareous sand was being produced and delivered to the shorelines in large quantities" (Dye and Athens 2000:19).

The Honolulu coastline was likely greatly affected by the deposition of marine sediments during this elevated sea level. The subsequent drop in sea level to its present level, ca. 2,000 years ago, most likely created a slightly erosional regime that may have removed sediments deposited during the preceding period of deposition (Dye and Athens 2000:19). However, the net gain in sediments would have been substantial. In 1911, it was estimated that about one-third of the Honolulu Plain was a wetland (Nakamura 1979:65, citing a Hawaiian Territory Sanitary Commission report). Hawaiians used the lagoonal/estuary environment of the Honolulu plain to construct fishponds. Fishpond walls served as sediment anchors for the accumulation of detrital reef sediments. They also likely affected long shore sedimentary transport, resulting in new littoral deposition and erosion patterns. In the post-Western Contact period, when the fishponds were no longer utilized, they became locations for the deposition of fill. These “reclaimed” areas provided valuable new land near the heart of growing urban Honolulu.

Foote et al. (1972) describe the project area as being Fill (FL), as depicted in Figure 6:

> 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. [Foote et al. 1972:31]

The undeveloped natural condition of the Kaka‘ako area consisted of low-lying marshes, tidal flats, fishponds, and reef areas. Beginning in the late nineteenth century, these low-lying areas were filled in and then developed, which permanently changed the area into its present fully urbanized character. While fill materials have been found in areas surrounding the current project area during previous archaeological investigations, Jaucas Sand (JaC) was also discovered underneath much of the land surface. Foote et al. (1972) describe Jaucas sand as follows:

> In a representative profile the soil is single grain, pale brown to very pale brown, sandy, and more than 60 inches deep. In many places the surface layer is dark brown as a result of accumulation of organic matter and alluvium. . . Permeability is rapid, and runoff is very slow to slow. . . . Workability is slightly difficult because the soil is loose and lacks stability for use of equipment. [Foote et al. 1972:48]

The area *mauka* (inland, toward the mountains) of the project parcel, based on Foote et al. (1972), is mainly Ewa silty clay loam, 0-2% slopes (EmA). The Ewa series consists of well-drained soils in basins and on alluvial fans, which developed in alluvium derived from basic igneous rock. They are nearly level to moderately sloping. Elevations range from near sea level to 150 ft. The soils are used for sugarcane, truck crops, and pasture. The natural vegetation consists of native grasses and *‘uhaloa* (*Waltheria indica* var. *americana*); historic introductions common to the area prior to its wholesale development include *kiawe* (*Prosopis pallida*) and *koa haole* (*Leucaena leucocephala*).

In this area of the Honolulu District, rainfall averages less than 30 inches per year (Armstrong 1983:62). 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 (Wilson Okamoto & Associates 1998:2-1). Vegetation within the project area is limited to a few ornamental trees in grass parking lot dividers and along the project area margins.

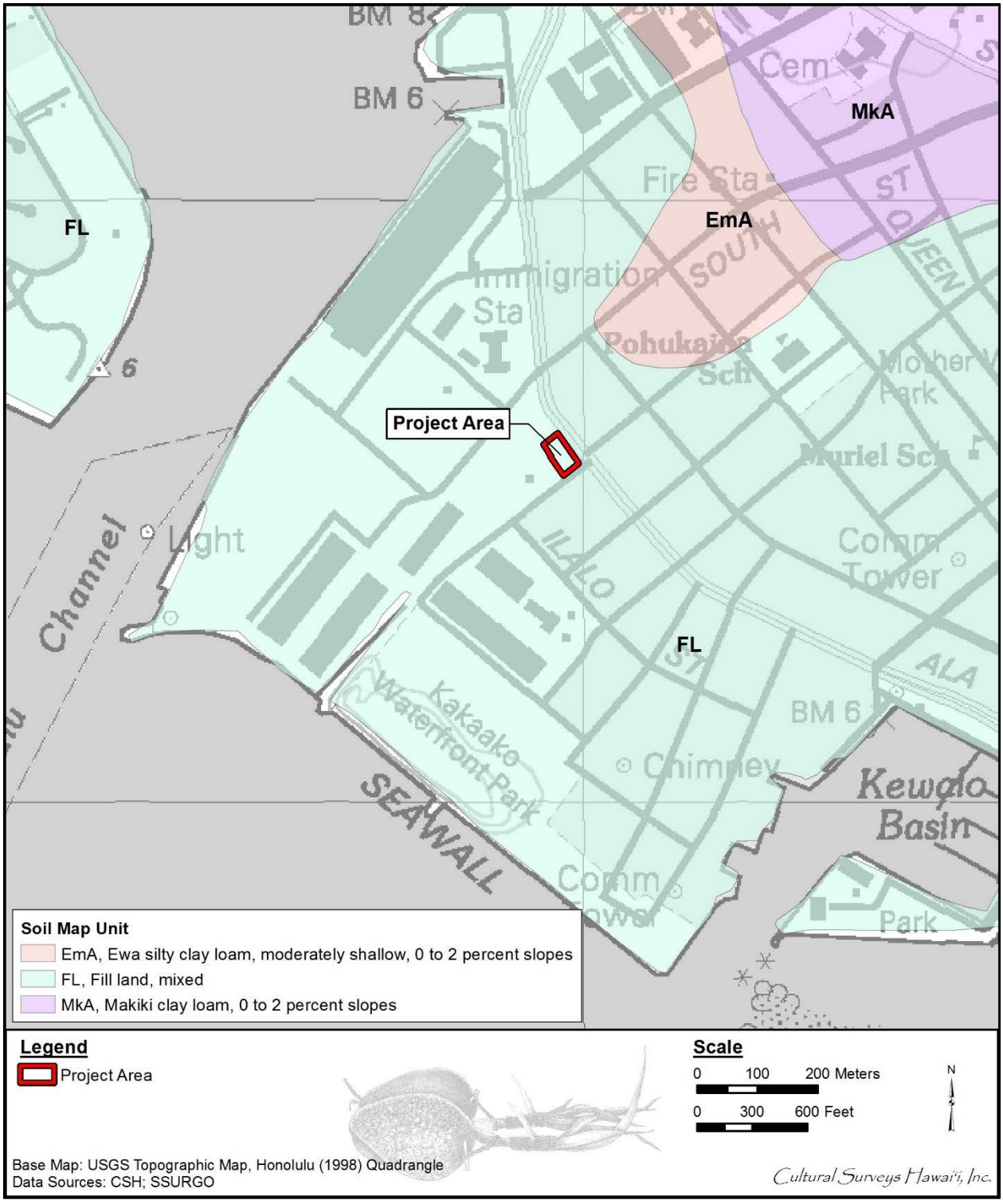


Figure 6. Overlay of *Soil Survey of the State of Hawaii* (Foote et al. 1972), indicating soil types within and surrounding the project area (U.S. Department of Agriculture Soils Survey Geographic Database [SSURGO] 2001)

1.3.2 Built Environment

The project area is at 653 Ala Moana Boulevard, two city blocks *mauka* of Kaka‘ako Waterfront Park. The vicinity is traversed by a grid of streets, north/south trending, including Auahi Street one block northeast of Ala Moana Boulevard, and Ilalo Street one block southwest of Ala Moana Boulevard. Forrest Avenue is one block northwest of the project area and Keawe Street intersects Ala Moana Boulevard immediately east of the project area. Major enterprises in the area include the Transmarine Navigation Corporation, Enterprise Rent-A-Car, the University of Hawai‘i Cancer Center, and the John A. Burns School of Medicine. Kewalo Basin, located 600 m to the southeast of the project area, is one of the major commercial boat harbors of Honolulu and the Honolulu Channel is less than 500 m to the northwest of the project area. The current trajectory of built environment within the vicinity of the project area appears to follow a trend of increasing human use relating to the shipping industry, markets of commerce, places of education, and residences within multi-story buildings.

Section 2 Background Research

The project area is located in Kaka‘ako (the modern district), immediately west of an area today often called Kewalo due to its proximity to Kewalo Basin. On early historic maps, the project vicinity is more specifically identified with the place names “Kukuluāe‘o” and “Ka‘ākaukukui.” The traditional area called Kewalo was generally considered the area *mauka* of Kukuluāe‘o and Ka‘ākaukukui, although it had a small beach area near the eastern terminus of Queen Street (two blocks west of Ala Moana Center). For the purpose of this study, the names Kaka‘ako and Kewalo are used, as these are the names most often used today for the area in general.

2.1 Traditional and Historical Background

In late prehistoric and early historic times the Kaka‘ako area remained outside the two most intensely populated and cultivated areas of southeastern O‘ahu—Waikīkī and Honolulu (or Kou). Hawaiians, however, used the marshes and wetlands of this area for salt making and farming of fishponds along with some limited wetland agriculture. The Kaka‘ako area has been heavily modified over the last 150 years due to historic filling of the area for land reclamation. Much of the cultural and natural deposits and land forms of the area (lowland marshes, sand deposits, coral reef flats, and fishponds) have survived below this fill, and numerous pre-Contact and post-Contact burials have been documented, largely the result of post-Contact epidemics. However, the history of land use in the project area is very recent. The area was once primarily shallow coral reefs under water at high tide. The coastline along the Kaka‘ako region was expanded in the early twentieth century as a result of dredging and reclamation of marsh lands. In successive waves of development, the coastline was extended *makai* to the current Ala Moana Boulevard by 1914, the Kewalo Channel was dredged in 1924 and expanded in 1941, and the dredged material was used to create a revetment—now the Kewalo Basin Park—in 1955 (Kewalo Basin Harbor 2014).

2.1.1 Wahi Pana

Place names, *wahi pana* or “legendary places” (Pukui and Elbert 1986:376) are an integral part of Hawaiian culture. Traditionally named places are found in *mo‘olelo*, or traditional Hawaiian stories, *mele* (songs), and *pule* (prayers) and concern the actions of gods or demi-gods. The *wahi pana* were then passed on through language and the oral tradition, thus preserving the unique significance of the place. “In Hawaiian culture, if a particular spot is given a name, it is because an event occurred there which has meaning for the people of that time” (McGuire 2000:17). Place names offer insights into traditional patterns of land use. As a sweeping generalization with notable exceptions, there is a relationship among the frequency of traditional place names, the intensity of land use, and the richness of the cultural landscape. More intensively utilized landscapes typically have more place names than less utilized landscapes.

Hawaiian place names convey a wide variety of information about the relationships among people, landscapes, and other natural and cultural resources. Place names may also express cultural, historical and/or spiritual values and concepts important to Hawaiian world views. It is common for places and landscape features to have multiple names, some of which may only be known to certain *‘ohana* (families) or even certain individuals within *‘ohana*, and many have also been lost, forgotten or kept secret through time. Place names may also convey *kaona* (hidden meanings) and *huna* (secret) information that may even have political or subversive undertones.

Before the introduction of writing to the Islands, when cultural information was exclusively preserved and perpetuated orally, Hawaiians gave names to literally everything in their environment, including individual garden plots and *‘auwai* (ditch, canal), house sites, intangible phenomena such as meteorological and atmospheric effects, *pōhaku* (rocks), *pūnāwai* (freshwater springs), and many others. In this way, the *wahi pana* of Kaka‘ako and the specific project area tangibly link the *kama‘āina* of Kaka‘ako to their past. All *wahi pana* meanings are cited from Pukui et al. (1974) unless otherwise noted.

2.1.1.1 Place Names of Kaka‘ako

Pukui et al. (1974) do not give a meaning for the place name Kaka‘ako, but Pukui and Elbert (1986:110) translate the word *kākā‘āko* as “dull, slow.” Thrum (1922:639) translated the word as “prepare the thatching,” as *kākā* means “to chop, beat, or thresh” and *ako* means “thatch.” If Thrum’s translation is correct, it could be related to the fact that salt marshes, such as areas like Kaka‘ako, were excellent places to gather tall *pili* (*Heteropogon contortus*; a type of grass), which the Hawaiians traditionally used to thatch their houses.

Ka‘ākaukukui, a filled-in reef, means “the right (or north) light,” and it may refer to a maritime navigation landmark. According to Kekahuna (1958:4), Ka‘ākaukukui was “a beautiful sand beach and reef that formerly extended a quarter mile along Ala Moana Park to Kewalo Basin. Various translations of Ka‘ākaukukui include “radiating place for lamp” (Thrum 1922:635) and “to the right of the lighthouse” (Gessler 1938:187). This would have been an accurate description of the area at that time as Ka‘ākaukukui was east, or “to the right” of the Honolulu Lighthouse in the harbor. This is probably a historic, not an ancient, interpretation as the Honolulu Lighthouse was not built until 1869 (Dean 1991:7). Ka‘ākaukukui was a *lele* (a detached part or lot of land belonging to one *‘ili* [land division] and located in another) with one parcel on the coast and two other, non-contiguous parcels inland. Ka‘ākaukukui was adjacent on the *mauka* side to several other small *‘ili* and *lele* lands, including portions of Pu‘unui (big hill) and Pualoalo (*Hibiscus kokio*; Thrum 1922:667).

Kukuluāe‘o, which translates literally as the “Hawaiian stilt (bird),” means “to walk on stilts.” This area on the upland side of Ka‘ākaukukui (Kekahuna 1958:4) formerly fronted Kewalo Basin and was an ideal environment for the Hawaiian stilt with its marshes, salt pans, and small fishponds (Griffin et al. 1987:36).

Kolowalu was a small land section between Kukuluāe‘o and Kewalo that encompassed a large fishpond. Pukui et al. (1974:116–117) do not give a meaning for Kolowalu Pond, but they interpret the name of Kolowalu, a ridge in Mānoa, as “eight creeping.” As Kolowalu Kai was probably associated with Mānoa, it is possible “eight creeping” is also the correct interpretation for the pond name. Thrum (1922:652) interpreted *kolowalu* as “a beneficent law of Kualii.” The *kolowalu* law was initiated by the Hawaiian chief Kūali‘i, who ruled O‘ahu from about 1720 to 1740 (Cordy 2002:19). This law protected the rights of commoners and provided food to the hungry (Fornander 1917:4(2):432).

Kewalo literally means “the calling (as an echo).” Land Commission and other historic-era documents identify it as the area between Cooke and Sheridan streets *mauka* of Queen Street and the coastal sections of Ka‘ākaukukui, Kukuluāe‘o, and Kālia. According to Pukui et al. (1974:109), *kauwā*, or members of a pariah caste, intended for sacrifice were drowned there. At one time, there was a sand beach at Kewalo, where various sports such as surfing were held (Kekahuna 1958).

The *‘ōlelo no‘eau* (proverb), “*Ka wai huahua‘i o Kewalo*,” translated as “The bubbling water of Kewalo” (Pukui 1983:178), suggests Kewalo once contained a freshwater spring. A *mo‘olelo* of Kawaiaha‘o also mentions two springs in Kewalo— Kawaiaha‘o (The Waters of Ha‘o) and Kewalo Spring (Pukui 1988:87–89).

Kō‘ula (red sugarcane) is the area around Thomas Square and the *mauka* portion of the Ward Estate, suggesting Kawailumalumai Pond may have been east of the Ward Estate. It may be part of the pond complex awarded to Koalele (LCA 3169), to the southeast of the Ward/Booth Estate (LCA 274).

2.1.2 *‘Ōlelo No‘eau*

Hawaiian sayings collected, translated, and annotated by Mary Kawena Pukui in the definitive *‘Ōlelo No‘eau: Hawaiian Proverbs and Poetical Sayings* offer a unique opportunity to relish the wisdom, poetic beauty, and earthy humor of the Hawaiian language. They reveal deeper layers of meaning, sharing an understanding not only of Hawai‘i and its people but of all humanity. These sayings are considered to be the highest form of cultural expression in old Hawai‘i and they bring one closer to the everyday thoughts and lives of the Hawaiians who created them (Pukui 1983:vii).

The following poetic saying pertains to Kewalo:

> Ka wai huahua’i o Kewalo.
>
> The bubbling water of Kewalo.
>
> Kewalo once had a large spring where
>
> many went for cool, refreshing water. [Pukui 1983:178]

2.1.3 *Mo‘olelo*

2.1.3.1 Kū‘ula

Kaka‘ako is mentioned in Thrum’s version of the legend of Kū‘ula, the god presiding over the fish, and his son ‘Ai‘ai. ‘Ai‘ai was the first to teach Hawaiians how to make various fishing lines and nets, the first to set up a *ko‘a kū‘ula*, a rock shrine on which the fishermen placed their first catch as an offering to Kū‘ula, and the first to set up *ko‘a i‘a*, fishing stations where certain fish were known to gather. Leaving his birthplace in Maui, ‘Ai‘ai traveled around the islands, establishing *ko‘a kū‘ula* and *ko‘a ia*. On O‘ahu, he landed first at Makapu‘u in Ko‘olaupoko, and then traveled clockwise around the island:

> Aiai came to Kalia [Waikīkī] and so on to Kakaako. Here he was befriended by a man named Apua, with whom he remained several days, observing and listening to the murmurs of the chief named Kou. This chief was a skillful haiku [bonito] fisherman, his grounds being outside of Mamala until you came to Moanalua. There was none so skilled as he, and generous withal, giving akus to the people throughout the district. [Thrum 1998:242]

2.1.3.2 Kawaiaha‘o

Two springs in Kewalo are mentioned in the *mo‘olelo* of the Waters of Ha‘o, which describes two children of the chief Ha‘o who ran away from their cruel stepmother. They stayed a time with the caretakers of Kewalo Spring, which may have been located close to the trail that connected

Waikīkī and Honolulu. The children then left when they heard the chiefess had sent men to look for them. The two children followed the moonlit trail across the plain toward Kou (Honolulu), but finally collapsed from weariness and thirst. In a dream, the boy's mother told him to pull up a plant close to his feet. When he did, he found a spring under the plant, which was called the Water of Ha‘o, or Kawaiaha‘o. This spring is located at the western end of the trail, near Kawaiaha‘o Church in Kaka‘ako (Pukui 1988:87–89).

2.1.3.3 Kānāwai Kaihehe‘e

Kewalo once had a famous fishpond used to drown the *kauwā* and *kapu* (taboo) breakers as the first step in a sacrificial ritual known as Kānāwai Kaihehe‘e (Kamakau 1991:6) or Ke-kai-he‘ehe‘e, which translates as "sea sliding along," suggesting the victims were slid under the sea (Westervelt 1963:16). Kewalo is described as follows:

> A fishpond and surrounding land on the plains below King Street, and beyond Koula. It contains a spring rather famous in the times previous to the conversion to Christianity, as the place where victims designed for the Heiau of Kanelaau on Punchbowl slopes, was first drowned. The priest holding the victim's head under water would say to her or him on any signs of struggling, 'Moe malie i ke kai o ko haku.' 'Lie still in the waters of your superiors.' From this it was called Kawailumalumai, 'drowning waters.' [Sterling and Summers 1978:292]

2.1.3.4 Kukaeunahiokapueo

In one legend, Kewalo is a marsh near the beach, where tall *pili* grass grew. A man named Kapo‘i went to this area to get thatching for his house. While there, he found seven eggs of a *pueo* (Hawaiian short-eared owl) and took them home to cook for his supper. An owl perched on the fence surrounding his house and cried out "O Kapoi, give me my eggs!" After several such pleas, Kapo‘i eventually returned the eggs. In return, the owl became his *‘aumakua* (deified ancestor) and instructed him to build a *heiau* named Mānoa. Kapo‘i built the *heiau*, placed some bananas on the altar as a sacrifice, and set the *kapu* days for its dedication. The king of O‘ahu, Kākuhihewa, who was building his own *heiau*, had made a law that if any man among his people erected a *heiau* and set the *kapu* before him, that man should die. Kapo‘i was seized and taken to the *heiau* of Kūpalaha at Waikīkī. Kapo‘i's *‘aumakua* asked for aid from the king of the owls at Pu‘u Pueo in Mānoa, who gathered all of the owls of the islands. They flew to Kūpalaha and battled the king's men, who finally surrendered: "The owls scratched at the eyes and noses of the men and befouled them with excrement" (Kamakau 1991:23). From this time, Hawaiians considered the owl a powerful *akua* (god, divine). Because of this battle, the Hawaiians name the area Kukaeunahiokapueo, which means, "the confused noise of owls rising in masses" (Westervelt 1963:135–137; Thrum 1998:200–202).

2.1.3.5 Huanuikalala‘ila‘i

Kewalo was the birthplace of Huanuikalala‘ila‘i, a chief famous for his love of cultivation at Kewalo and his care for the people (Kamakau 1991:24). An *oli* recounted by Kamakau (1991) captures the significance of Kewalo:

‘O Hua-a-Kamapau ke ‘li‘i	Hua-a-Kamapau the chief
O Honolulu o Waikīkī	O Honolulu, of Waikīkī

I hanau no la i kahua la i Kewalo,	Was born at Kewalo,
‘O Kālia la kahua	Kālia was the place [the site]
O Makiki la ke ēwe,	At Makiki the placenta,
I Kānelā‘au i Kahehuna ke piko,	At Kānelā‘au at Kahehuna the navel cord,
I Kalo i Pauoa ka ‘a‘a;	At Kalo at Pauoa the caul;
I uka i Kaho‘iwai i	Upland at Kaho‘iwai, at
Kanaloaho‘okau . . .	Kanaloaho‘okau . . .

[Kamakau 1991:24]

Kamakau (1991) recorded a traditional *wānana* (prophecy) that mentions the chief Huanuikalala‘ila‘i of Pu‘ukea Heiau:

[Ka makaua ua kahi o ‘Ewa]	[The increasing ‘first rain’ of ‘Ewa]
Ua puni ka i‘a o Mokumoa,	Overcomes the fish of Mokumoa,
Ua kau i‘a ka nene;	Washes up fish to the nene plants;
Ua ha‘a kalo ha‘a nu;	Lays low the taro as it patters down;
Ha‘a ka i‘a o Kewalo,	Lays low the fish of Kewalo,
Ha‘a na ‘ualu o Pahua,	Lays low the sweet potatoes of Pahua,
Ha‘a ka mahiki i Pu‘ukea,	Lays low the mahiki grass at Pu‘ukea,
Ha‘a ka unuunu i Pele‘ula,	Lays low the growing things at Pele‘ula
Ha‘a Makaaho i ke ala.	Lays low Makaaho [Makāho] in its path
E Kū e, ma ke kaha ka ua, e Kū,	O Kū, the rain goes along the edge [of the island], O Kū
[I ‘ai na ka i‘a o Maunalua] . . .	[‘Eating’ the fish of Maunalua] . . .

[Kamakau 1991:24–25]

The chant mentions the *mahiki* grass (seashore rush grass; *Sprorbolus virginicus*) of Pu‘ukea, a tufted rush found near the seashore. The term *mahiki* connotes several historical and contemporary meanings. With serious family discord, a *kupuna* (grandparent, ancestor) can continue with lines of inquiry of *ho‘oponopono* (family conference in which relationships are set right) to “peel off” layers of deeper feelings (Pukui et al. 1972:228). In a deeper Hawaiian past, skilled *kāhuna* (priests) formerly exorcised malicious spirits from the afflicted in an exorcist ritual with the aid of *mahiki* (Pukui and Elbert 1986:219). The use of this grass in a ritual may explain its association with a ceremonial *heiau*, or it may simply be that the Kukuluāe‘o coast was a good habitat and thus a favored place for healers to collect this type of grass.

2.1.3.6 Ka‘ākaukukui

Ka‘ākaukukui is briefly mentioned in the legend of Hi‘iaka, beloved sister of the Hawaiian volcano goddess, Pele. Hi‘iaka and her companions had been traveling around O‘ahu on the land trails, but decided to travel from Pu‘uloa (Pearl Harbor) to Waikīkī by canoe. At Pu‘uloa, Hi‘iaka met a party who were planning to travel to the house of the chiefess Pele‘ula in Waikīkī. Hi‘iaka recited a chant, telling the people that although they were going by land and she was going by sea they would meet again in Kou. One portion of the chant mentions the place Ka‘ākaukukui, with reference to a pool, possibly a reference to the salt ponds of the area:

A pehea lā au, e Honoka‘upu,	And what of me, O Honoka‘upu, my love
ku‘u aloha	
I ka welelau nalu kai o Uhi, o ‘Ōa	Upon the crest of the surf at Uhi and ‘Ōa
‘O nā makai ke ao (pō) o poina	Eyes in the living realm (night) of oblivion
Ma hea lā wau, e ke aloha lā	Where am I, O my love
‘O Kou ka papa	Kou is the coral flat
‘O Ka‘ākaukukui ka loko	*Ka‘ākaukukui is the pool*
‘O ka ‘alamihi a‘e nō	Some *‘alamihi* indeed
‘O ka lā a pō iho	Wait all day until night
Hui aku i Kou nā maka.	*Friends shall meet in Kou.*

[Ho‘oulumāhiehie 2006a:297; Ho‘oulumāhiehie 2006b:277]

The exact meaning of the word *‘alamihi* within this chant is unknown. *‘Alamihi* is the name of a Native Hawaiian small black crab, a scavenger often associated in Hawaiian sayings with corpse-eating (Pukui and Elbert 1986:18). *Alamihi* can also mean “path [of] regret” (Pukui et al. 1974:9).

2.1.4 Pre-Contact to Early Nineteenth Century

The chief Huanuikalala‘ila‘i governed Pu‘ukea Heiau in the land section of Kukuluāe‘o, according to Kamakau (1991:24). Pu‘ukea literally means “white hill” and is also the name of a small land division within the *‘ili* of Kukuluāe‘o that is mentioned in at least two Land Commission cases, LCA 1502 (not awarded) and LCA 1504. LCA 1504 is located near the junction of Halekauwila and Cooke streets. It is common for a *heiau* to have the same name as the *‘ili* in which it is located, so it is possible Pu‘ukea Heiau was also near the junction of Halekauwila and Cooke streets. The majority of the house sites in the mid-nineteenth century in Kukuluāe‘o were located near Halekauwila and Queen streets, *mauka* of the low-lying coastal swamplands on higher, dry ground. It is possible the *heiau* platform or the area it was built on was one of the few elevated locations in the flat, low-lying swamp that surrounded it, and thus gained the name *pu‘u kea*, or “white hill.”

Kewalo was situated between two centers of population and activity on the southern shore of pre-Contact O‘ahu: Kou (Honolulu) and Waikīkī. In Waikīkī, a system of irrigated taro *lo‘i* (pond fields) fed by streams descending from Makiki, Mānoa, and Pālolo valleys blanketed the plain, and networks of fishponds dotted the shoreline. Similarly, Kou (Honolulu)—the area of downtown

Honolulu on the east side of Nu‘uanu Stream and extending to the southeast adjacent to the harbor—possessed shoreward fishponds and irrigated fields watered by ample streams descending from Nu‘uanu and Pauoa valleys.

Rev. Hiram Bingham, arriving in Honolulu in 1820, described a still predominantly Native Hawaiian environment—still a “village”—on the brink of western-induced transformations:

> We can anchor in the roadstead abreast of Honolulu village, on the south side of the island, about 17 miles from the eastern extremity. . . . Passing through the irregular village of some thousands of inhabitants, whose grass thatched habitations were mostly small and mean, while some were more spacious, we walked about a mile northwardly to the opening of the valley of Pauoa, then turning southeasterly, ascending to the top of Punchbowl Hill, an extinguished crater, whose base bounds the northeast part of the village or town . . . Below us, on the south and west, spread the plain of Honolulu, having its fishponds and salt making pools along the seashore, the village and fort between us and the harbor, and the valley stretching a few miles north into the interior, which presented its scattered habitations and numerous beds of *kalo* (*arum esculentum*) in its various stages of growth, with its large green leaves, beautifully embossed on the silvery water, in which it flourishes. [Bingham 1847:92–93]

The Kewalo region would have been in Bingham’s view as he stood at “Punchbowl Hill” looking toward Waikīkī to the south: it would have comprised part of the area he describes as the “plain of Honolulu” with its “fishponds and salt making pools along the seashore.”

Another visitor to Honolulu in the 1820s, Jacobus Boelen, hints at the possible pre-Contact character of Honolulu and its environs, including the Kewalo area:

> It would be difficult to say much about Honoruru. On its southern side is the harbor or the basin of that name (which as a result of variations in pronunciation [sic] is also written as Honolulu, and on some maps, Honoonoono). The landlocked side in the northwest consists mostly of tarro fields. More to the north there are some sugar plantations and a sugar mill, worked by a team of mules. From the north toward the east, where the beach forms the bight of Whytetee, the soil around the village is less fertile, or at least not greatly cultivated. [Boelen 1988:62]

Boelen’s description suggests preliminarily that the Kewalo region *mauka* of the present study area is within a “not greatly cultivated” region of Honolulu perhaps extending from Puowaina (Punchbowl crater) at the north through Kaka‘ako to the Kālia portion of Waikīkī in the east. Kewalo is named in John Papa ‘Ī‘ī’s account of the death in 1810 of Isaac Davis, an American sailor who had settled in the Hawaiian Islands, becoming a confidant of Kamehameha:

> Many chiefs and notables mourned Davis, including Kamehameha and the company of warriors who watched over him. The funeral procession went from Davis’ dwelling at Aienui to Kewalo, where his body was deposited on the land of Alexander, a *haole* (Caucasian) who had died earlier. At the time of his death, Davis was an old man with white hair and other signs of age. [‘Ī‘ī 1959:85]

The distance inland (perhaps in the vicinity of the King and Pi‘ikoi Street intersection) supports the concept that the place name “Kewalo” was widely used to refer to areas further inland than we associate with the place name today. An article about Davis in *The Friend* of February 1862 mentions only that his grave was “in a burying place of the Europeans, near Hana-rura,” suggesting the Kewalo region and the “burying place” were outside the limits of Honolulu both at the time of Davis’s death and 42 years later when the article was written.

An early, somewhat generalized depiction of the pre-Contact Native Hawaiian shaping of Waikīkī, Honolulu, and the Kewalo region—along with a possible location of the “burying place of the Europeans” within Kewalo (southeast of Punchbowl)—is given on an 1817 map (Figure 7) by Otto von Kotzebue, commander of the Russian ship *Rurick*, who had visited O‘ahu the previous year. The map shows taro *lo‘i* (the rectangles) massed around the streams descending from Nu‘uanu and Mānoa valleys. Interestingly, a portion of a *lo‘i* wall boundary is illustrated in this map as crossing the northwest quadrant of the project area. The depicted areas of population and habitation concentration (indicated by the trapezoids), however, probably reflect distortions caused by the post-Contact shift of Hawaiians to the area around Honolulu harbor—the only sheltered landing on O‘ahu and the center of increasing trade with visiting foreign vessels. Kamehameha himself had moved from Waikīkī to Honolulu in 1809.

Kotzebue’s map (see Figure 7) suggests the land between Puowaina (Punchbowl crater) and the shoreline—which would include the Kewalo area—formed a “break” between the heavily populated and cultivated centers of Honolulu and Waikīkī: the area is only characterized by fishponds, trails connecting Honolulu and Waikīkī, and occasional taro *lo‘i* and habitation sites. We believe the quite early (1817) Kotzebue map erroneously portrays the east side of Honolulu Harbor too far to the west, but a geo-referenced overlay of the present project area does place it within coastal shallow. The Malden map of 1825 (Figure 8) shows a high degree of consistency in depictions of the natural coastline as very close to the present Ala Moana/Nimitz alignment.

Most maps of the nineteenth century (Malden 1825, see Figure 8; LaPasse 1855, Figure 9; Lyons 1876, Figure 10; Oahu Island Government Survey 1881 map, Figure 11) show the present project area and vicinity quite similarly. Most notably these maps show the present study area as being in the water (albeit mostly within a shallow reef flat that may have been partially exposed at low tide). *Mauka* of the project area near the former coast, these maps often show polygons or hatching that do not appear to relate to the cartographer’s conventions for fishponds or taro *lo‘i*. At least a partial explanation is suggested by the Lyons map of 1876 (see Figure 10) and the Oahu Island Government Survey 1881 map (see Figure 11) that show a quite extensive “Kaka‘ako Salt Works” just inland of the present study area. The Kaka‘ako Salt Works continued until well into the twentieth century (Figure 12). This suggests even the lands well inland of the present study area were quite low lying until overlain with fill. Figure 10 also indicates a “Leper Detention Depot” was located less than 25 m east of the project area in 1876.

While the low-lying lands to the north and east of the project area may have been somewhat bleak salt flats relegated to human quarantine and “salt works,” it appears a vibrant coastal community may have existed 400 m north of the present study area. It appears likely the community depicted in the sketch of “Honolulu Beach” by G.H. Burgess in the mid-1850s (Figure 13) relates to the coastal houses depicted on the 1855 LaPasse map (see Figure 9).

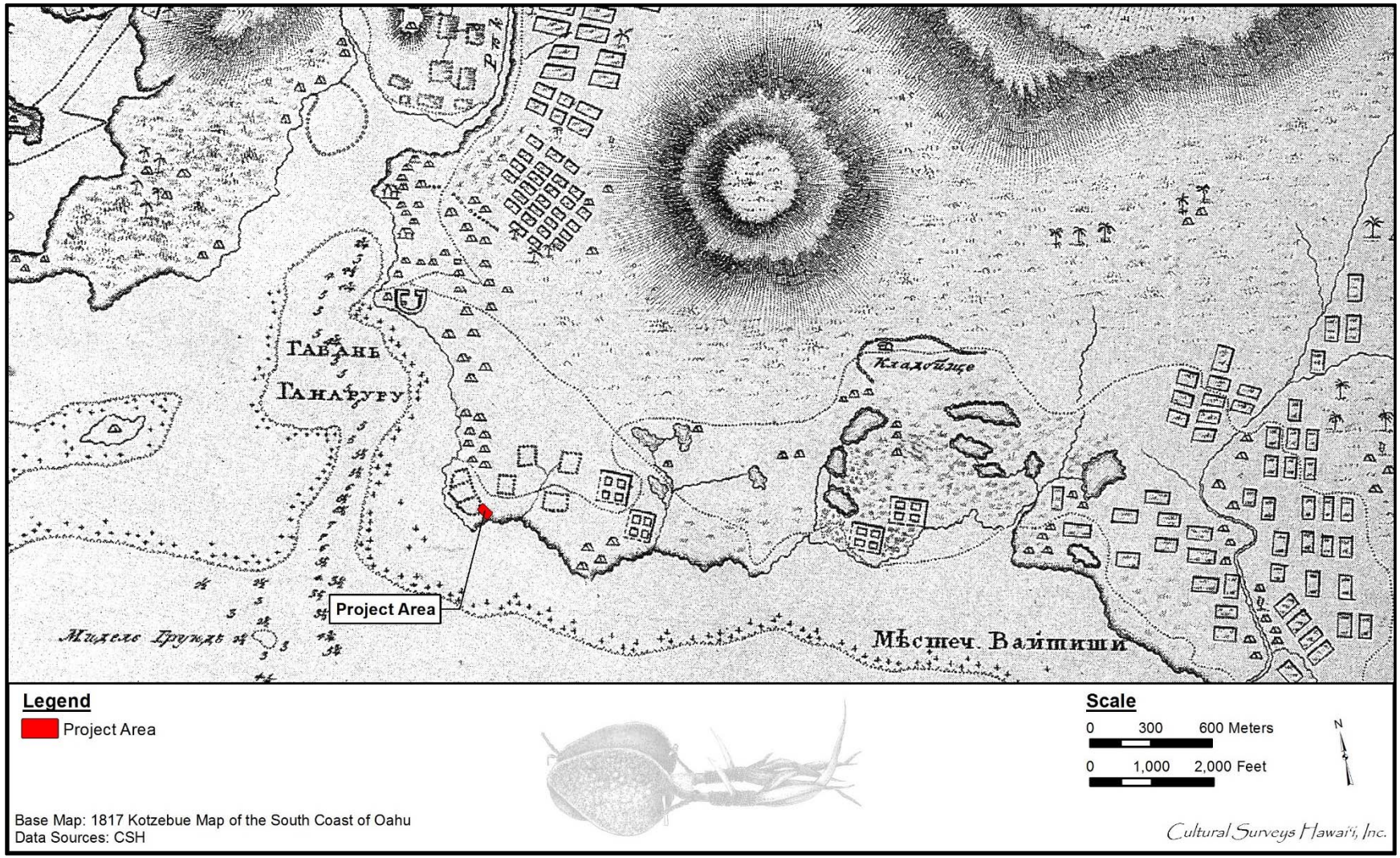


Figure 7. Portion of 1817 map by Otto von Kotzebue, commander of the Russian ship *Rurick*, showing fishponds and salt pans in the Kaka‘ako area (map reprinted in Fitzpatrick 1986:48–49)

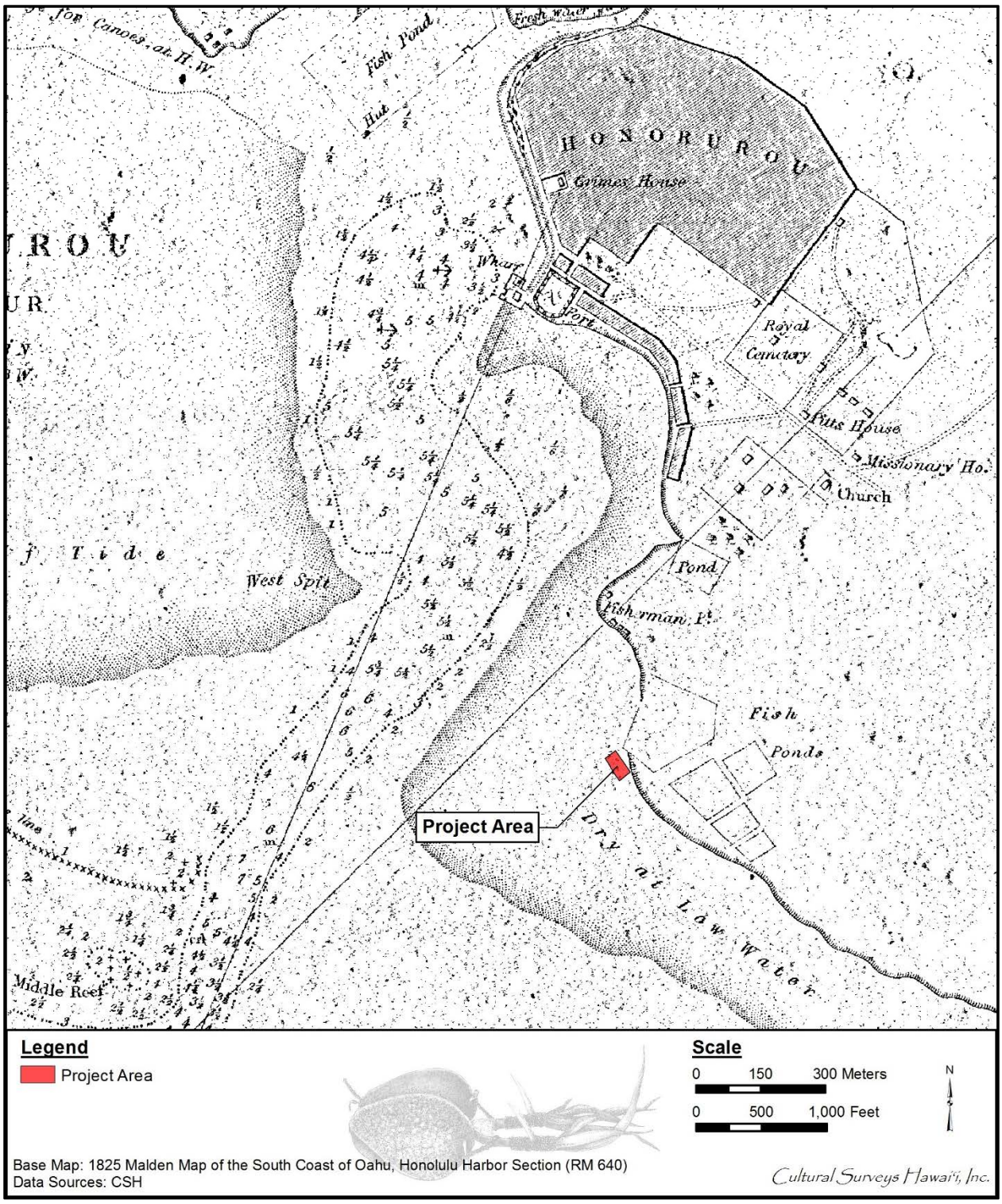


Figure 8. Portion of 1825 Malden map of the south coast of O‘ahu, Honolulu Harbor Section indicating the project area

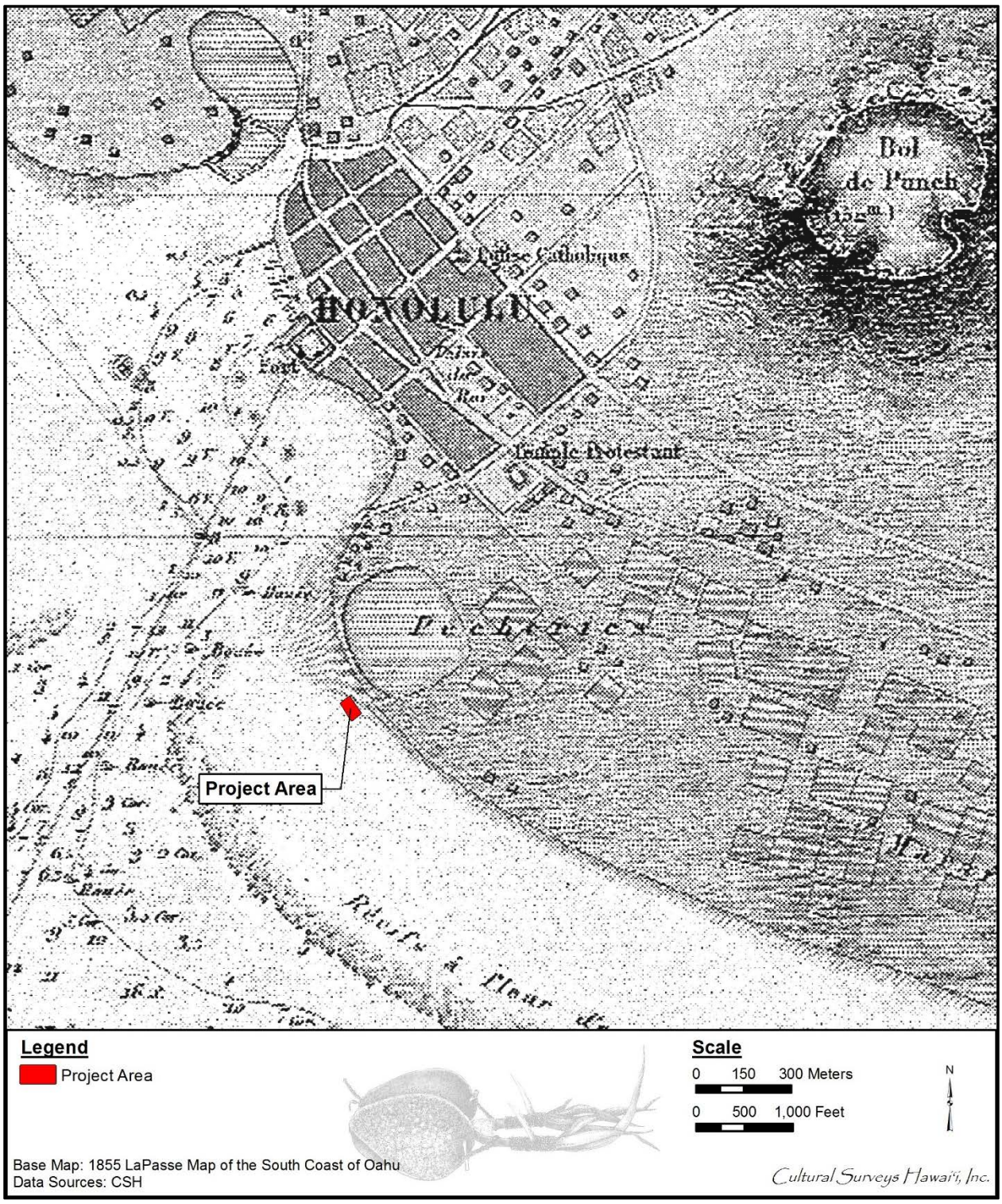


Figure 9. Portion of 1855 map of Honolulu by Lt. Joseph de LaPasse of the French vessel, *L'Eurydice*; indicating the project area southeast of an area labeled "*Pecheries*" ("Fishponds") (map reprinted in Fitzpatrick 1986:82–83)

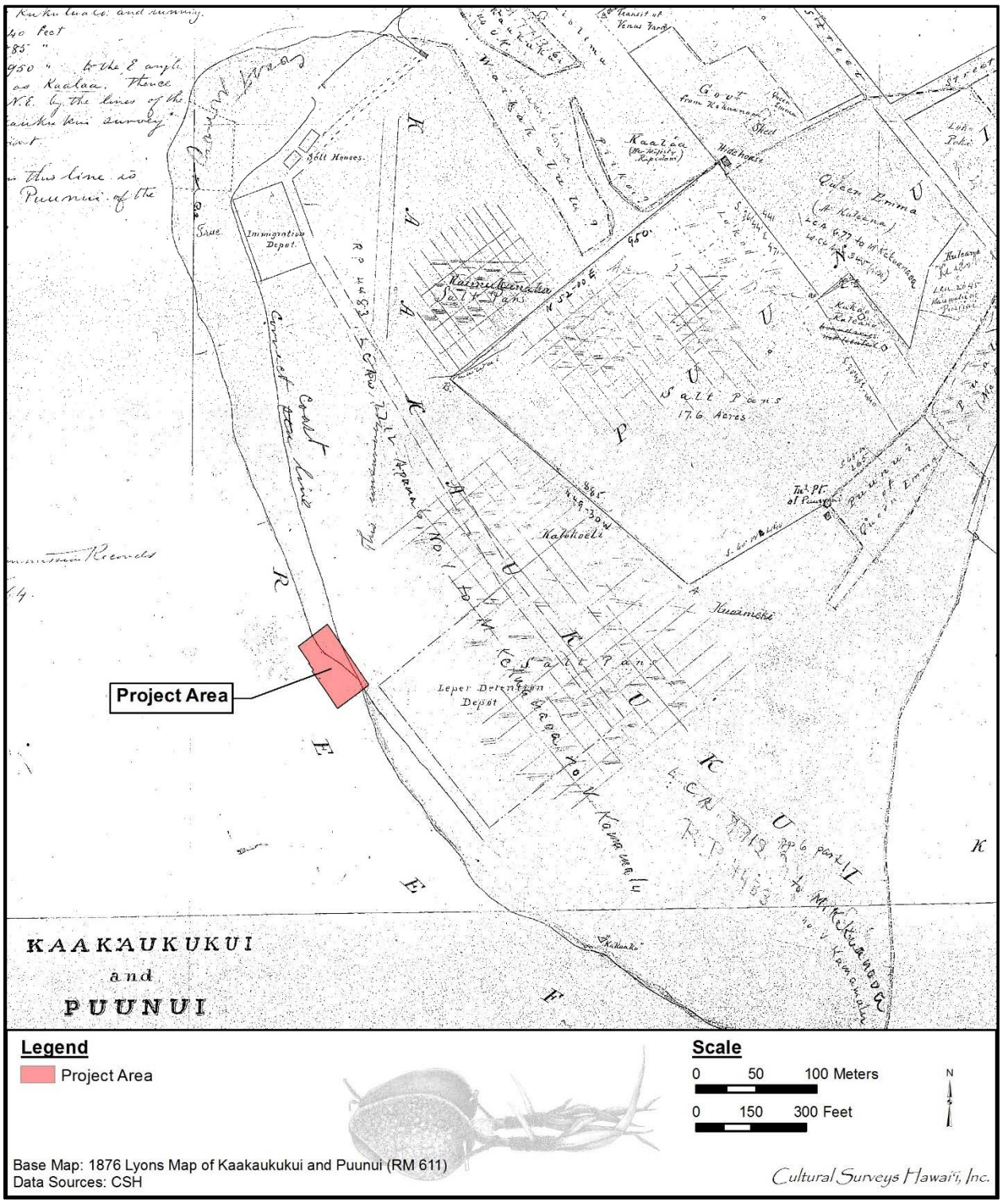


Figure 10. Portion of 1876 Lyons map of Kaakaukukui and Puunui indicating the project area

Figure 11. Portion of 1881 Oahu Island Government survey map by R. Covington indicating the project area; note extensive “Kakaako Salt Works” just inland of the present study area

Figure 12. 1902 photograph of the Kewalo Brine Basins; the Kaka‘ako salt works may have extended back to pre-Contact times and are shown here going strong in 1902; photo shows general vicinity of today’s Ward Warehouse (photograph in Scott 1968:579)

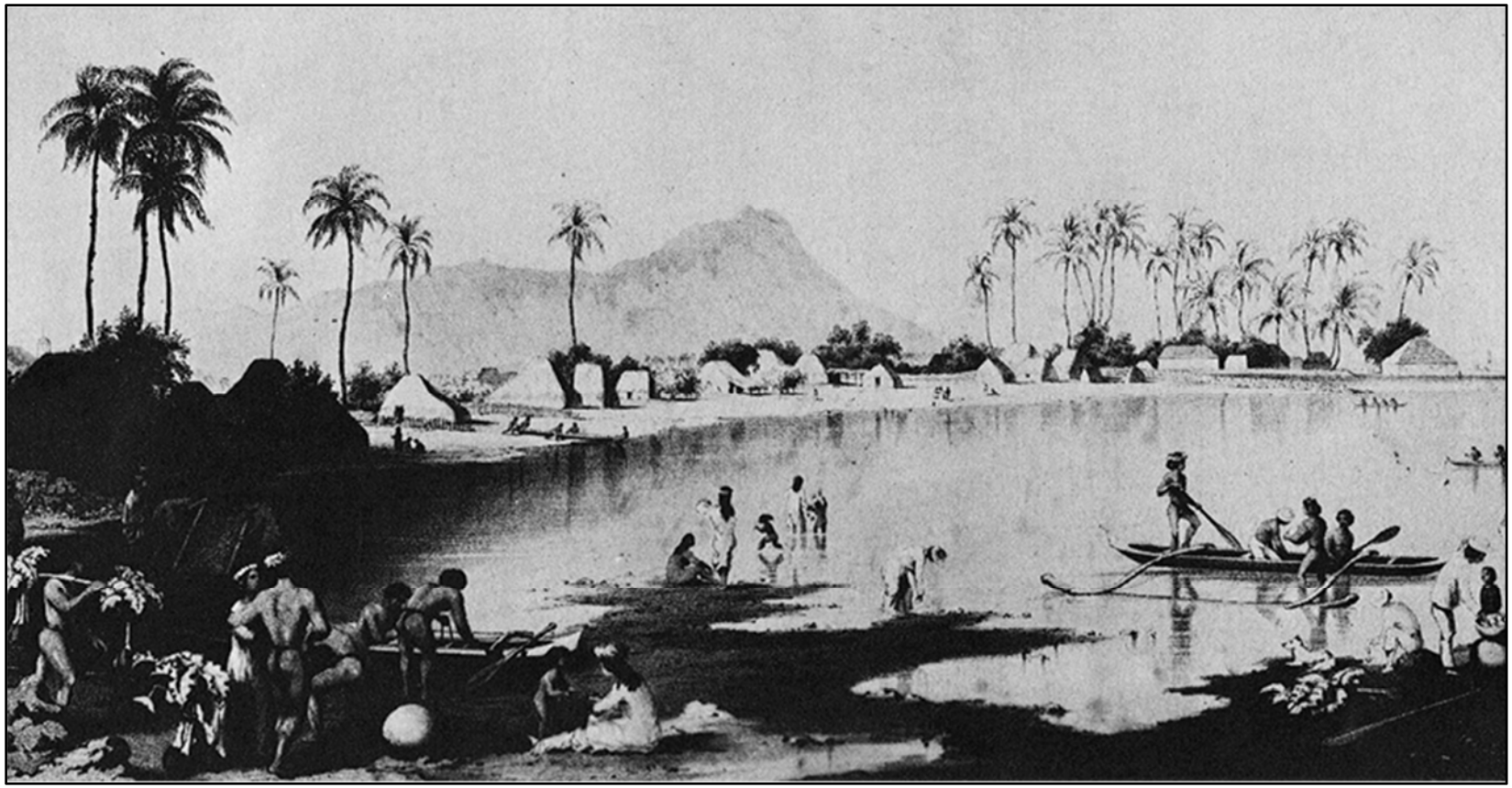


Figure 13. This sketch of “Honolulu Beach” by G.H. Burgess in the mid-1850s (from Scott 1968:575) portrays a scene just west of the present study area roughly between Pier 5 (foreground) and Fort Armstrong (at extreme right); note the dense thatched houses are constructed surprisingly close, within 10 m or so of the high tide line

2.1.5 Mid-Nineteenth Century and the Māhele

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 and the *ali‘i* (chief) received their land titles. *Kuleana* (native land rights) awards to commoners for individual parcels within the *ahupua‘a* were subsequently granted in 1850. The crown lands were considered the private lands of the monarch, and many lands were sold or mortgaged during the reigns of Kamehameha III and IV to settle debts to foreigners. To end this practice, the Crown lands were made inalienable in 1865, and their dispensation was regulated by a Board of Commissioners of Crown Lands, which effectively put them under the administrative control of foreign-born residents (Kame‘eleihiwa 1992:310). Before the passage of the Act of 3 January 1865, which made Crown Lands inalienable, Kamehameha III and his successors did as they pleased with the Crown Lands, selling, leasing, and mortgaging them at will (Chinen 1958:27).

In 1850, the Privy Council passed resolutions that affirmed the rights of the commoners or native tenants. To apply for fee-simple title to their lands, native tenants were required to file their claim with the Land Commission within the specified time period of February 1846 to 14 February 1848. The Kuleana Act of 1850 confirmed and protected the rights of native tenants. Under this act, the claimant was required to have two witnesses who could testify they knew the claimant and the boundaries of the land, knew that the claimant had lived on the land for a minimum of two years, and knew that no one had challenged the claim. The land also had to be surveyed. Not everyone who was eligible to apply for *kuleana* lands did so and, likewise, not all claims were awarded. Some claimants failed to follow through and come before the Land Commission, some did not produce two witnesses, and some did not get their land surveyed. For whatever reason, out of the potential 2,500,000 acres of Crown and Government lands “less than 30,000 acres of land were awarded to the native tenants” (Chinen 1958:31).

Among the first descriptions of Kaka‘ako and Kewalo by the Hawaiians themselves are testimonies recorded during the 1840s in documents associated with land awards and awardees of the Māhele. These records bring the present study area into clearer focus. Table 1 lists awards in the Kaka‘ako area. A portion of a modern tracing of an 1884 map by S.E. Bishop (Figure 14) shows the disposition of Land Commission Awards (LCAs) granted in the environs of the study area. The tracing includes some modern streets not present in 1884. These additions, however, permit an accurate positioning of the study area on the 1884 map. This general depiction is believed to be quite accurate, with the annotated “Beach Road” that runs along the edge of the sea becoming the present Ala Moana Boulevard/Nimitz Highway alignment.

The *‘ili* (land division smaller than an *ahupua‘a*) of Ka‘ākaukukui (LCA 7713) was awarded to Victoria Kamāmalu, sister of Kamehameha IV and Kamehameha V. There were no awards to commoners in this *‘ili*, which seems to have consisted entirely of land used for salt making. No residences are shown in this area until the twentieth century. The largest settlement in the vicinity was the village of Honuakaha, at the corner of Punchbowl and King streets. A large number of house lots were awarded to commoners in this area, and late nineteenth century and early twentieth century maps always show a cluster of houses in this area.

The *‘ili* of Pu‘unui, which also had several *lele* (non-contiguous) lands, included the large rectangular section *mauka* the Kaka‘ako Salt Works. The upper portion was part of LCA 677 awarded to Matio Kekūanao‘a, a high *ali‘i* who was a close friend to Kamehameha II and was

Table 1. LCAs in the Kaka‘ako District

LCA	Awardee	*‘Ili*	Comments
2	Robert Kilday	Pualoalo	Two fishponds in Kukuluāe‘o
200	Kaina, M.	Kawaiaha‘o; Koula	House lot
274	Joseph Booth	Koula	Royal Patent 306 to Joseph Booth
387	ABCFM	Beretania St, Punahou, Kawaiaha‘o, Kukuluaeo	Salt lands attached to Punahou
569	Puniwai	King St	House lot with salt beds at *makai* end
603	Hoonaulu	Waiahao; King St	House lot
673	Naiwi	Kawaiaha‘o	House lot
677	Kekūanao‘a for Kamāmalu	Honuakaha	Three lots on Queen St, salt pans on *makai* side; Parcel Two included Honuakaha guesthouse and cemetery
1503	Puaa	Kukuluaeo, Kewalo	House lot and four fishponds
1504	Pahika	Kukuluaeo, Kewalo	House lot, fishpond, salt bed
1903	Lolohi	Kukuluaeo	Two salt beds, 15 drains, two *poho kai* (hollows), one salt *kula*
3169	Koalele	Kewalo	*Makai* ponds
7713	V. Kamāmalu,	Honolulu	Retained
9549	Kaholomoku	Kukuluae‘e	Fishpond and four salt pans on east side
10463	Napela	Kukuluae‘e	House site, two ponds, one ditch, salt lands
10605	Pi‘ikoi, Iona	Kawelo, Puaaloalo	Ponds; four structures

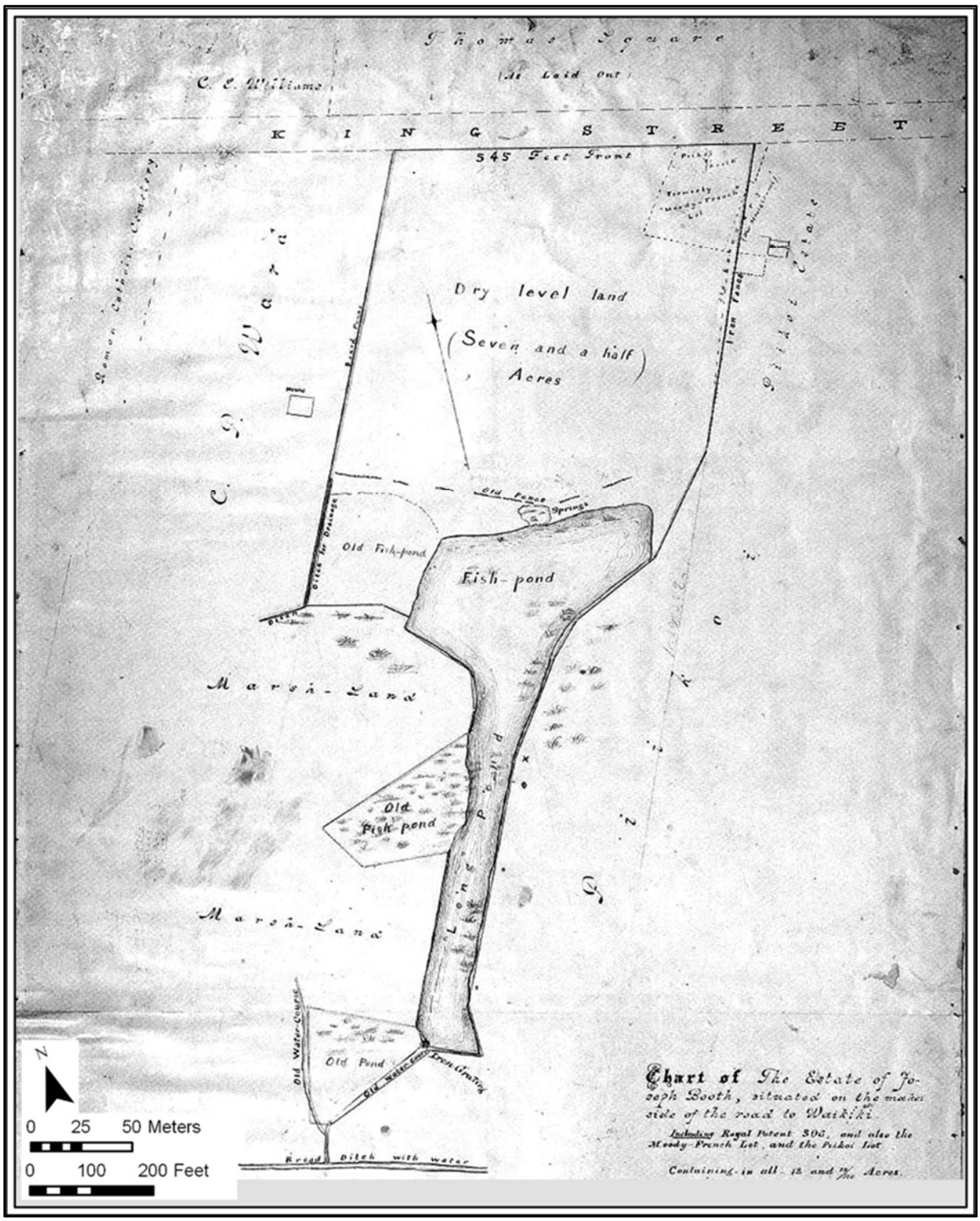


Figure 14. Estate of Joseph Booth, Royal Patent 306, LCA 272; later part of the Ward Estate (map reprinted in Hustace 2000:40)

married to Kīna‘u, the daughter of Kamehameha I. The lower portion was awarded to Victoria Kamāmalu as part of LCA 7713.

The *‘ili* of Kukuluāe‘o was originally awarded to the king as LCA 387, but he returned it to the government. The *‘ili* was then awarded to the American Board of Commissioners for Foreign Missions (ABCFM) (Figure 15). Initially this land was associated with Punahou School in Mānoa Valley, as Chief Boki gave the Punahou lands to Hiram Bingham, pastor of Kawaiaha‘o Church in 1829 (DeLeon 1978:3). In the Māhele, however, this land became "detached" from the Mānoa award and was instead given to the pastor of the Kawaiaha‘o Church (Foster 1991). Testimonies describe the land—identified as "Punahou" (relating to the main ABCFM holding)—and the background of the ABCFM's claim to it:

> The boundaries of that part which lies on the sea shore we cannot define so definitely, but presume there will be no difficulty in determining them, as it is commonly known as pertaining to Punahou. This part embraces fishing grounds, coral flats and salt beds.
>
> The above land was given by Boki to Mr. Bingham, then a member of the above named Mission and the grant was afterwards confirmed by Kaahumanu. [*Foreign Register* 1842:2:33]
>
> The *Makai* part of Punahou is bounded *Mauka* by 'Kewalo' and 'Koula', Waititi side by 'Kalia', seaward it extends out to where the surf breaks. Honolulu side by 'Honolulu.'
>
> This land was given to Mr. Bingham for the Sandwich Island Mission by Gov. Boki in 1829 . . . From that time to these the S.I. Mission have been the only Possessors and Konohikis of the Land.
>
> The name of the *Makai* part is Kukuluaeo. There are several tenants on the land of Punahou whose rights should be respected. [*Foreign Testimony* 1848:3:115]

Kolowalu, a triangular section of land between Kukuluāe‘o and Kewalo, was awarded to the government during the Māhele. This small land was probably a *lele*. Mānoa has such a division, with an *‘ili* called Kolowalu in the uplands and an *‘ili* called Kolowalu in the taro lands. The Kolowalu fishpond was probably the coastal portion of this *‘ili*. It was not a separate award in the Māhele, but was given in 1878 as a grant (Grant 3294) to Ka‘aua and Kalae, long-time caretakers of the land.

The *‘ili* of Kewalo (LCA 10605) was awarded to Kamake‘e Pi‘ikoi, wife of Jonah (Iona) Pi‘ikoi (awardee of Pualoalo ‘Ili), as part of LCA 10605, *‘āpana* (lot) 7. The award was shared between husband and wife (Kame‘eleihiwa 1992:269). Kewalo was a large 270.84-acre land section extending from Kawaiaha‘o Church to Sheridan Street. This land section had numerous large fishponds, which were awarded as part of the claim to Pi‘ikoi. Pi‘ikoi was an *ali‘i*, a retainer of Kauikeaouli (Kamehameha III), and held several government posts. The LCA consisted of three *lele* lands, two in Nu‘uanu Valley and a small parcel near the Kaka‘ako Salt Works. The LCA parcels were described as house lots, fishponds, salt ponds or salt lands, *kula* (plain, field) or some combination of the above. The 1884 map (Figure 15) also shows the location of buildings; although these may or may not be houses. The map illustrates that people used the coastal strip primarily for salt collection and only a few house lots were nearby on Halekauwila and Queen streets.

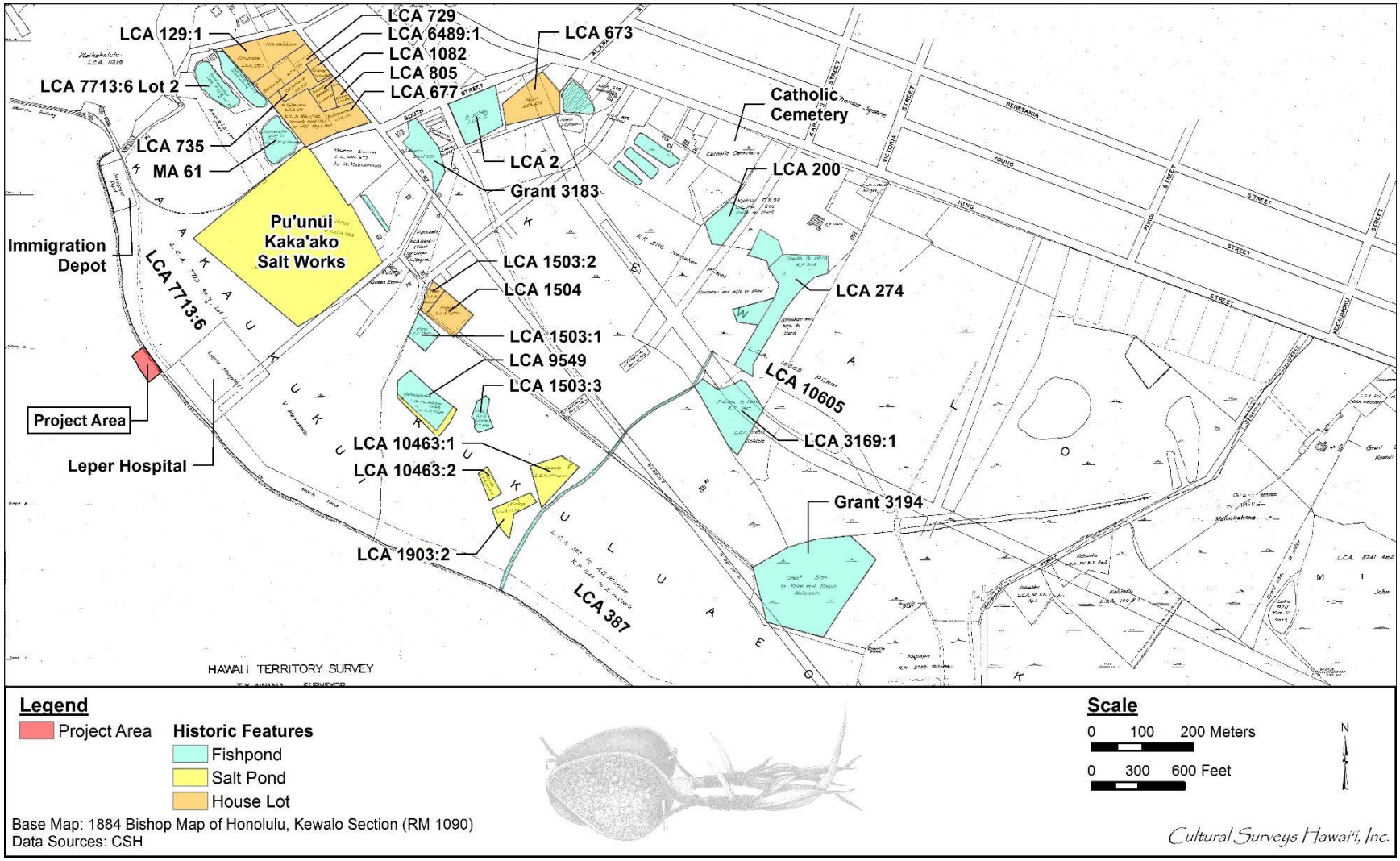


Figure 15. 1884 map of Honolulu, Kewalo Section map, by Sereno Bishop, showing Land Commission Awards within the study area; note in the extreme northern tip of the study area the Waikahalu‘u lands filled in ca. 1887

Fishponds were scattered throughout the area, with some modified into long, narrow ponds probably used to raise fish and ducks. The main habitation areas were adjacent to King Street on the *mauka* border or Kaka‘ako, and in Honuakaha Village at the northwestern border of the Kaka‘ako area.

Large portions of the Kukuluāe‘o and Kewalo sections of the Kaka‘ako district were once part of the Ward Estate. This land was first awarded as LCA 272 to Joseph Booth. Joseph Booth was an early English resident of the Hawaiian Islands who operated a saloon and hotel in Honolulu, known at the time of the Māhele as the Eagle Tavern (see Figure 14). He was granted lands in downtown Honolulu, Kewalo Uka (Pacific Heights area), the *‘ili* of Kapuni, and an area with "Three fish ponds, and a part of the plain near the road leading to Waikiki." Little information on these three fishponds is given in the LCA testimony, but Royal Patent No. 306 for these lands mentions one known as "the large fishpond" or "long fishpond," which had two huts beside it. The owners later modified this pond into the "lagoon" on the Ward Estate.

Curtis Perry Ward, a native of Kentucky, came to the Hawaiian Islands in 1853 and soon established a livery and draying business, moving goods from the harbor to Honolulu Town and loading goods at the docks for the whaling and shipping industries. In 1865, he married Victoria Robinson, who was descended from the Hawaiian *ali‘i* and early French and British residents. For his new family, Ward purchased at auction the 12-acre Kewalo estate of Joseph Booth, Royal Patent 306, and additional contiguous lands in the Kō‘ula area in 1870. This constituted the *mauka* portion of the "Old Plantation" from Thomas Square on King Street to the *makai* border at Waimanu Street (Figure 16). A few years later (but before 1875), Ward added to his property with the purchase of 77 acres and 3,000 ft of ocean frontage in the *‘ili* of Kukuluāe‘o, *makai* of Queen Street.

LCA 1503 to Puaa is recorded as consisting of three fishponds and a house lot.

LCA 1504 to Pahiha (Pahika on the 1884 map; see Figure 15) explicitly defines the general area:

> Peka W. [wahine] sw. I know this place. It is on the salt plains of Honolulu, used for making salt. *Mauka* is a stream of salt water. Waititi is several salt ponds—Napela, Kuniae and others own them. *Makai*—Gov't road. Honolulu—Peka Kaula, Lilea, Bolabola, Poe. Claimant recd this land from his father who died last year and held it a long time back in Kinau's time. [*Foreign Testimony* 1848:3:220]

LCA 9549 to Kaholomoku comprised "three ponds, a salt *mo‘o*" (*Native Register* 1847:4:477).

LCA 10463 to Napela is recorded as consisting of "two ponds, a ditch, two deposits, a house site and a salt land section in two pieces" (*Native Testimony* 1848:10:445).

Within Kewalo itself is LCA 3169 to Koalele:

> Mahoe, sworn, says he knows the land of Claimant in 'Kewalo'. It consists of some *kalo* patches *mauka* and some Lokos *makai*. The *kalo* patches are bounded *mauka* by Kealoha; bound Waikiki side by Kuaipaka's, *makai* by the konohiki, Ewa side by J. Booth. The fish ponds are bounded *mauka* by the konohiki. Waikiki and *makai* side, the same. Honolulu side by J. Booth. Clt received his land from Kapihi in the

Figure 16. 1880s photograph of the Ward plantation house, with the Ward family's daughters and friends gathered on the lanai (photograph reprinted in Hustace 2000:46)

> life time of Kinau and he has held the same without dispute till the present time. [*Foreign Testimony* 1848:3:507]

The *mauka* portion of Koalele's claim, which includes the taro patches, is not shown on the 1884 map; it is likely somewhere immediately *mauka* of King Street (see Figure 15). The *makai* portion—the "Lokos" or fishponds—is shown located northeast of the present study area.

In the testimony for LCA 1903, Lolopi claimed four separate types of salt features: the ponds near the shore that fill with salt water at high tide (*ālia*); the drains where the salt water is transferred to smaller clay-lined or leaf-lined channels (*ho‘oliu*); the natural depressions (or modified depressions) in the rocks along the shore where salt formed naturally (*poho kai*); and the land that could probably not be used for agriculture as it was impregnated with salt (*kula*).

The LCA records thus help clarify both the pre-Contact and mid-nineteenth century pictures of the study area vicinity. They suggest the traditional Hawaiian usage of the Kewalo region and its environs may have been confined to salt making and farming of fishponds, with minimal wetland agriculture in those areas *mauka* or toward Waikīkī at the very limits of the field system descending from Makiki and Mānoa. The characterization by a Native Hawaiian of the expanse within the present study area as the "salt plains of Honolulu" itself suggests the environmental limitations that would have made the general region less desirable for long-term permanent habitation by any sizeable population. However, the testimonies do indicate the area was lived on and was shaped by Hawaiians before the nineteenth century. The LCA records also reveal that, midway through the nineteenth century, taro cultivation and the traditional salt making and fishpond farming activities continued within the environs *mauka* of the present study area. These activities and the land features that supported them would be eliminated during the remainder of the nineteenth century by the increasing expansion of urbanized Honolulu. The 1884 Honolulu Kewalo Section map (see Figure 15) and an 1887 Wall Government Survey map (Figure 17) show the nascent traces of the future development in the grid of roads *mauka* of the project area vicinity. Until quite late in the 1800s, this grid was focused north of King Street and west of Punchbowl Street owing to the low-lying marshy nature of the land. In 1897 the project area remains upon the natural coral reef, outside the Kakaako sea wall and in the littoral portion of the ocean immediately *makai* of Breach Road in Kaakaukukui (Figure 19).

2.1.6 Late Nineteenth Century and Twentieth Century

The continued changes to the built environments and land use of coastal lands in the vicinity of the project area in the late nineteenth and twentieth century are noteworthy and significant. While the Kaka‘ako Pumping Station was completed in 1900, it appears illustrated on the 1891 Dodge map of Kaakaukukui (Figure 18) with an adjacent "Crematory" and adjoining "Trestle for wagons" that extends into the southwestern quadrant of the project area. Bordering the northwest portion of the project area in 1891 was an extensive "Dumping Ground" (see Figure 18). As noted in the Land Commission documents, much of the land in Kewalo and Kukuluāe‘o was used traditionally to produce salt. The following discussion further describes shifts in the coastline related to land reclamation activities, as well as in land uses in and around the vicinity of the project area. Land use changes from the 1890s to the 1930s involved a shift from activities relating to various resource production ponds, notably fish and salt ponds, to the subsequent in-filling of these ponds and the ultimate contemporary uses of the area for garbage, sewage, human and animal quarantine, the U.S. military, industry, and shipping commerce in the vicinity of the project area. The Kaka‘ako

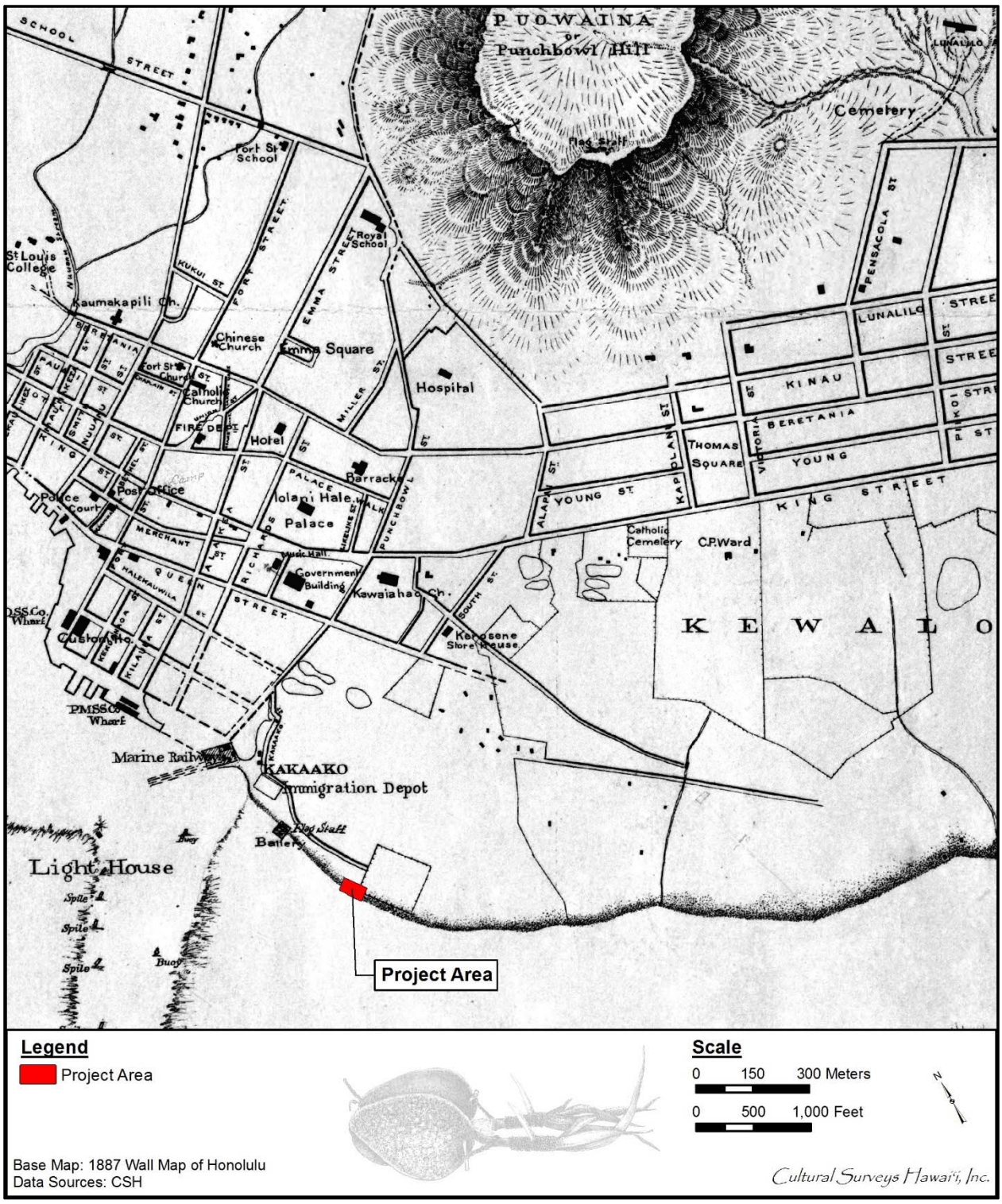


Figure 17. Portion of 1887 Wall map of Honolulu indicating the project area

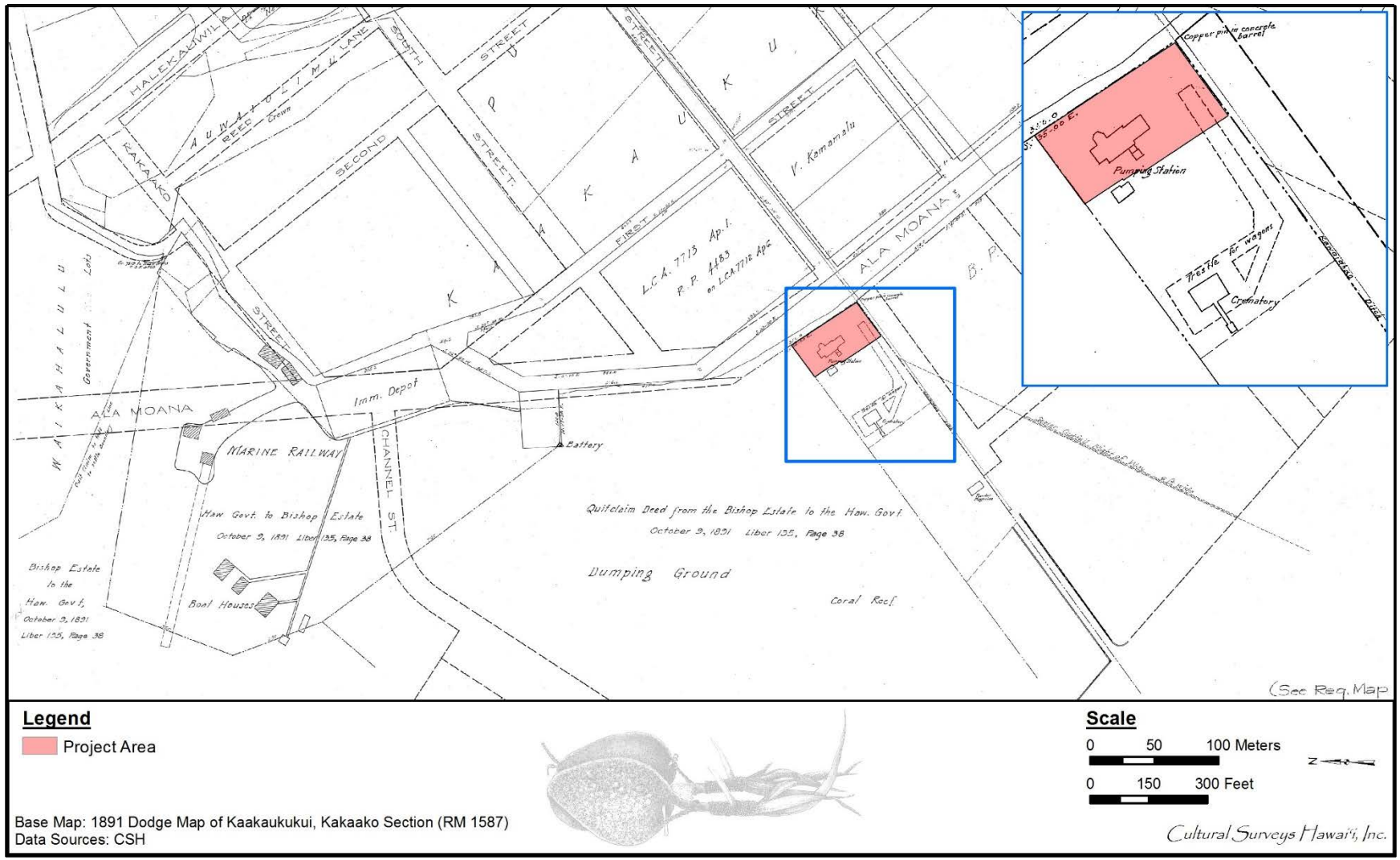


Figure 18. Portion of 1891 Dodge map of Kaakaukukui, Kakaako Section, indicating the project area

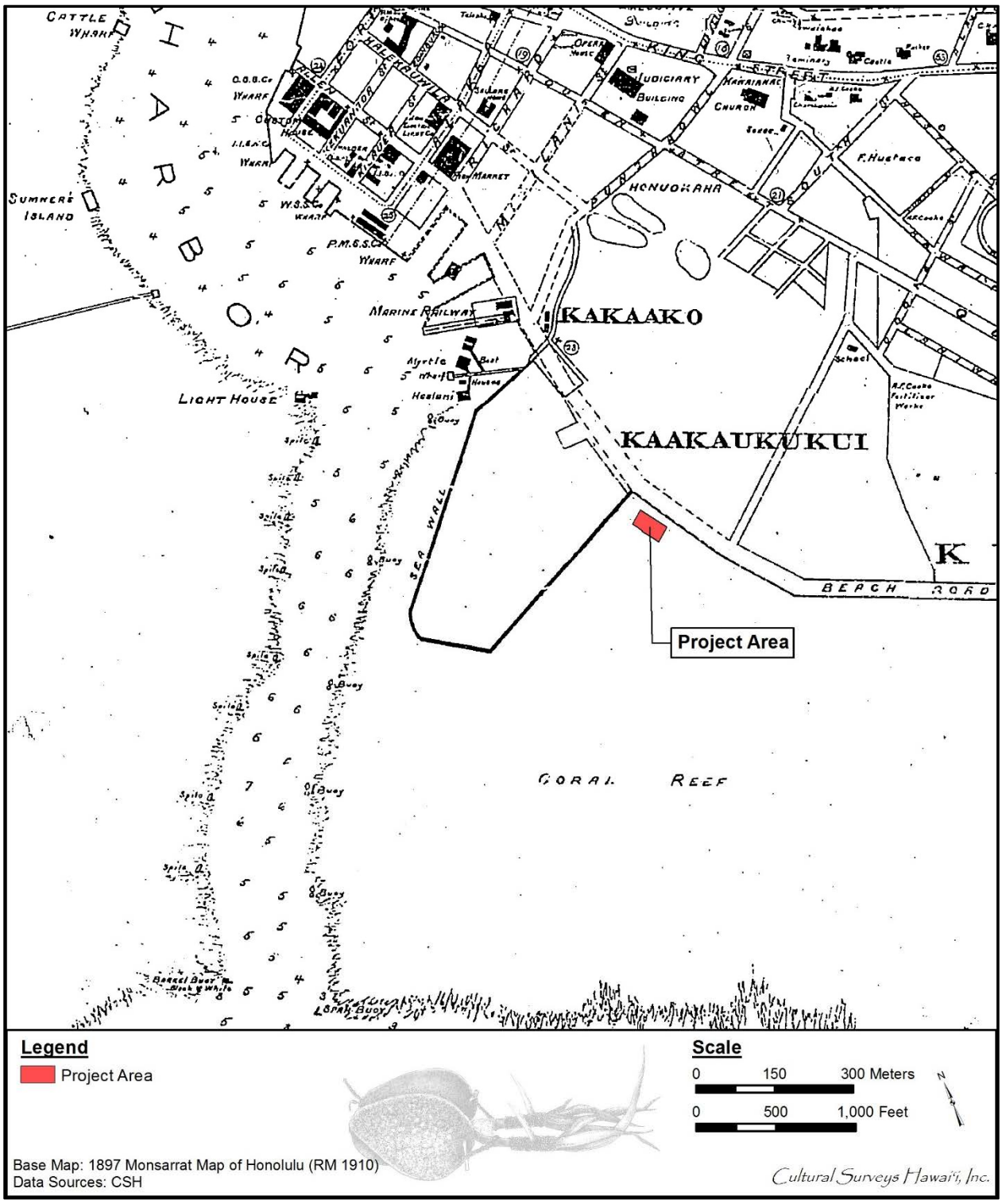


Figure 19. Portion of 1897 Monsarrat map of Honolulu, indicating the project area

area continued to remain distinct from and outside of Waikīkī and Honolulu during the post-Contact era. It served as a place for the dying and the dead, the trash and the wasteland, and the poor and immigrant; however, it also represents the birth of the world's most modern centers of industry, commerce, and tourism (Griffin et al. 1987:73).

Traditionally Hawaiians used *pa‘akai* (salt) to flavor food, to preserve fish by salting, for medicines, and for ceremonial purposes. Kamakau (1992:409) reported "The king and Isaac of Pu‘uloa are getting rich by running the salt water into patches and trading salt with other islands." Thrum describes how the ancient method of earth saltpans led to the salt works of Kamehameha IV in Kaka‘ako (Thrum 1924:116). The export of salt declined in the late nineteenth century (Thrum 1924:116). By 1916, only one salt works, the Honolulu Salt Company, was still in operation. Salt continued to be manufactured for local use; the Kaka‘ako Salt Works appears on maps as late as 1891 and a page in Victoria Ward's ledger for 1883 notes a yearly income of $651.50 received from her "Salt Lands" in Kukuluāe‘o (Hustace 2000:50). A 1902 photograph (see Figure 12) shows the extensive salt beds of the Kewalo area.

During an 1853 smallpox epidemic, patients were isolated at a temporary quarantine camp in Kaka‘ako (Thrum 1897:98), and victims of the disease were buried at the Honuakaha Cemetery, near the junction of Quinn and South streets (Griffin et al. 1987:13). Hansen's disease, commonly known as leprosy, was first reported in 1840 and definitively identified in 1853. In 1865, a receiving hospital in Kalihi was set up to examine suspected lepers. If the disease was confirmed, the patients were forcibly exiled to the Kalaupapa colony on Moloka‘i. In 1881, a branch hospital or receiving station for cases of Hansen's Disease was opened in Kaka‘ako, in a block now bound by Ala Moana, Auahi, Coral, and Keawe streets, under the direction of Sister Marianne Cope (Griffin et al. 1987:55). In 1888, the Hawaii Board of Health decided to close the branch, moving the receiving station to Kalihi, and determined that "[t]he buildings at Kakakao should be entirely removed" (Hanley and Bushnell 1980:275). However, Thrum (1897:101) reports that victims of the cholera epidemic of 1895 were treated at the Kaka‘ako Hospital, so the buildings must have remained or been rebuilt. In 1899, the first case of bubonic plague was identified in Hawai‘i, and spread rapidly through the crowded tenements of Chinatown. The government decided the best way to eradicate the disease was through "controlled burning" of the wooden buildings. Infected patients were moved to a quarantine camp at Kaka‘ako. Before new immigrants could travel to their new homes at the sugar plantations, doctors first examined them for disease. The Immigration Station was established in 1893 on Allen Street near downtown Honolulu, but it was moved to the Kaka‘ako area in 1905. The station was built on mud flats, resting on a pile foundation; it was connected to the shoreline by two bridges (UH 1978:A-11).

Kaka‘ako not only acted as a land set aside for human quarantine, but also for animal quarantine. The first animal quarantine station in the Hawaiian Islands was established in 1905. A veterinarian checked in all imported animals, looking for diseases such as cholera in hogs and tuberculosis in cattle. The workers added kennels to the facility in 1909 for the quarantine of all dogs brought to the Islands. The animal quarantine station was on land originally part of the Ward Estate, in the area between Kamake‘e and Pi‘ikoi streets. The 1913 report has a photograph of the "lethal chamber" where gas was used to euthanize "mangy and homeless" dogs (Hawaii Board of Commissioners for Forestry and Agriculture 1913:214). It is probable the government also buried euthanized dogs at the station. The Ward family also donated some of their land to the society to establish the first animal shelter. This land was at the corner of Pohukaina and Kō‘ula streets; the

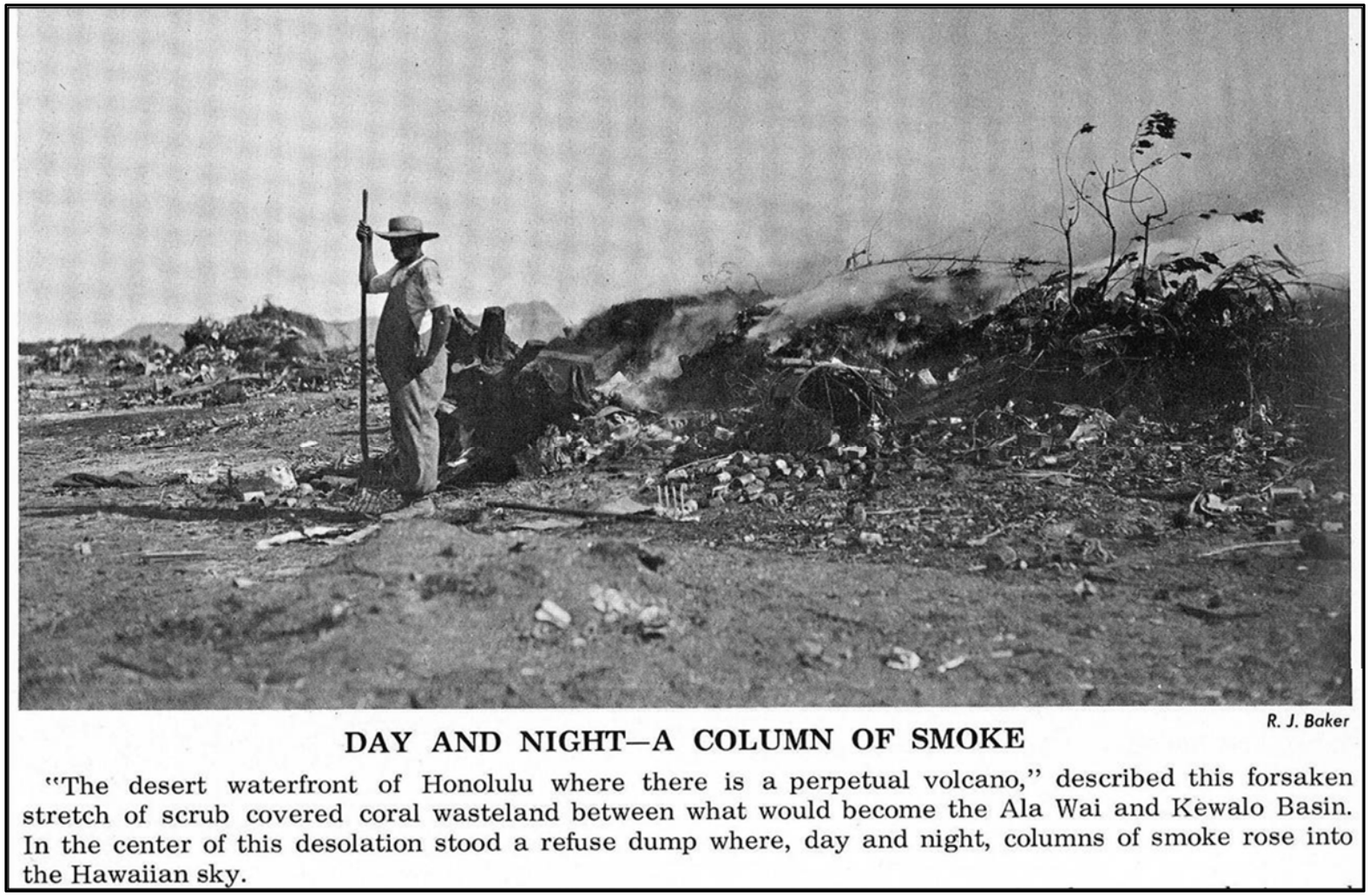
facility for “all homeless, hungry animals” was completed in 1925. The Humane Society moved to a new and larger facility in Mō‘ili‘ili in 1938 (Hawaiian Humane Society 1997:44, 53). As an area set apart for quarantine, other types of structures not suitable for construction near the center of town were built in Kaka‘ako, such as the sewer pump house located on the present project area, a kerosene storage lot for kerosene used in government buildings, and a garbage incinerator for the daily disposal of the city’s refuse (UH 1978) (Figure 20).

The approximate population of Honolulu in the late 1800s was 30,0000 people, with an “estimated 1.8 million gallons of sewage being disposed of in the City septic systems daily . . . which caused sanitation and odor concerns” (Young 2013). In 1897, Rudolph Hering, who had previously engineered the septic system for New York City, was hired by the City and County of Honolulu to design a comprehensive municipal system of human waste disposal. The Kaka‘ako Pumping Station was originally a steam powered pump, designed by architect Oliver Traphagen, who also designed the Moana Hotel. The steam powered pumping station was engineered to pump the human waste material collected by gravity flow in the Hering underground reservoir below Keawe Street and Ala Moana Boulevard to a location 3,800 ft into the ocean. The original steam powered Kaka‘ako Pumping Station was completed in 1900. Three subsequent electric pump stations were added to the project area in 1925, 1939, and 1955.

In 1857, Honolulu Fort was demolished and its walls became a 2,000-ft retaining wall used to extend the land out onto the shallow reef in the harbor. The remaining materials were used as fill to create what came to be known as the “Esplanade” (Wong-Smith and Rosendahl 1990:12), largely built on properties known as Waikahalu‘u that had been owned by Queen Hakaleleponi Kalama (wife of Kauikeaouli, Kamehameha III). Between 1857 and 1870, 22 acres of reef land between Fort Street and Alakea Street were filled in with material dredged from the harbor (Rush 1957:14). Filling activity then continued to the east, seaward of Richard and Punchbowl streets, extending west of the present study area in 1887. The 1887 Wall map (see Figure 17) shows the brand new, in-progress layout of streets in the area between Richards and Punchbowl streets (near the Prince Kūhiō Federal Building). Thus by 1886/1887 the filling of the shallows in the vicinity of the project area had begun but none of the project area was filled at that time.

In 1884–1887, a “Marine Railway” was developed by Lyle and Sorenson approximately 600 m northwest of the project area (see Figure 17) that facilitated the haul out of ships for bottom scrapping and propeller checks. During the monarchy, the point at Kaka‘ako, less than 300 m northwest of the project area, was the location for a battery with three cannons (see Figure 17) used to salute visiting naval vessels, which responded with their own cannon salutes (Figure 21). Other saluting batteries were at the top of Punchbowl Crater and at the Honolulu Fort (Dukas 2004:163). The *Hawaiian Annual and Almanac for 1887* (Thrum 1886:37) reported that $4,500 had been spent to build the battery. It was used for gun salutes up to at least the overthrow of the monarchy in 1893 (Judd 1975:57).

After the annexation of the Islands by the United States in 1899, the U.S. Congress began to plan for the coastal defenses of their new territory. The major batteries were placed at Pearl Harbor and in Waikīkī, but a small reservation named Fort Armstrong was also set up on the Ka‘ākaukukui Reef as a station for the storage of underwater mines (Figure 23, Figure 24, Figure 25, Figure 26, and Figure 27). Fort Armstrong (1899–1950s) was named after General Samuel Chapman Armstrong (1839–1893) who was born on Maui and graduated from Punahou, and was a hero of



R. J. Baker

DAY AND NIGHT—A COLUMN OF SMOKE

"The desert waterfront of Honolulu where there is a perpetual volcano," described this forsaken stretch of scrub covered coral wasteland between what would become the Ala Wai and Kewalo Basin. In the center of this desolation stood a refuse dump where, day and night, columns of smoke rose into the Hawaiian sky.

Figure 20. 1921 photograph of a City worker supervising open burning of trash understood to be on the west side of Kewalo Basin (original photograph by Ray Jerome Baker, reprinted in Scott 1968:578)

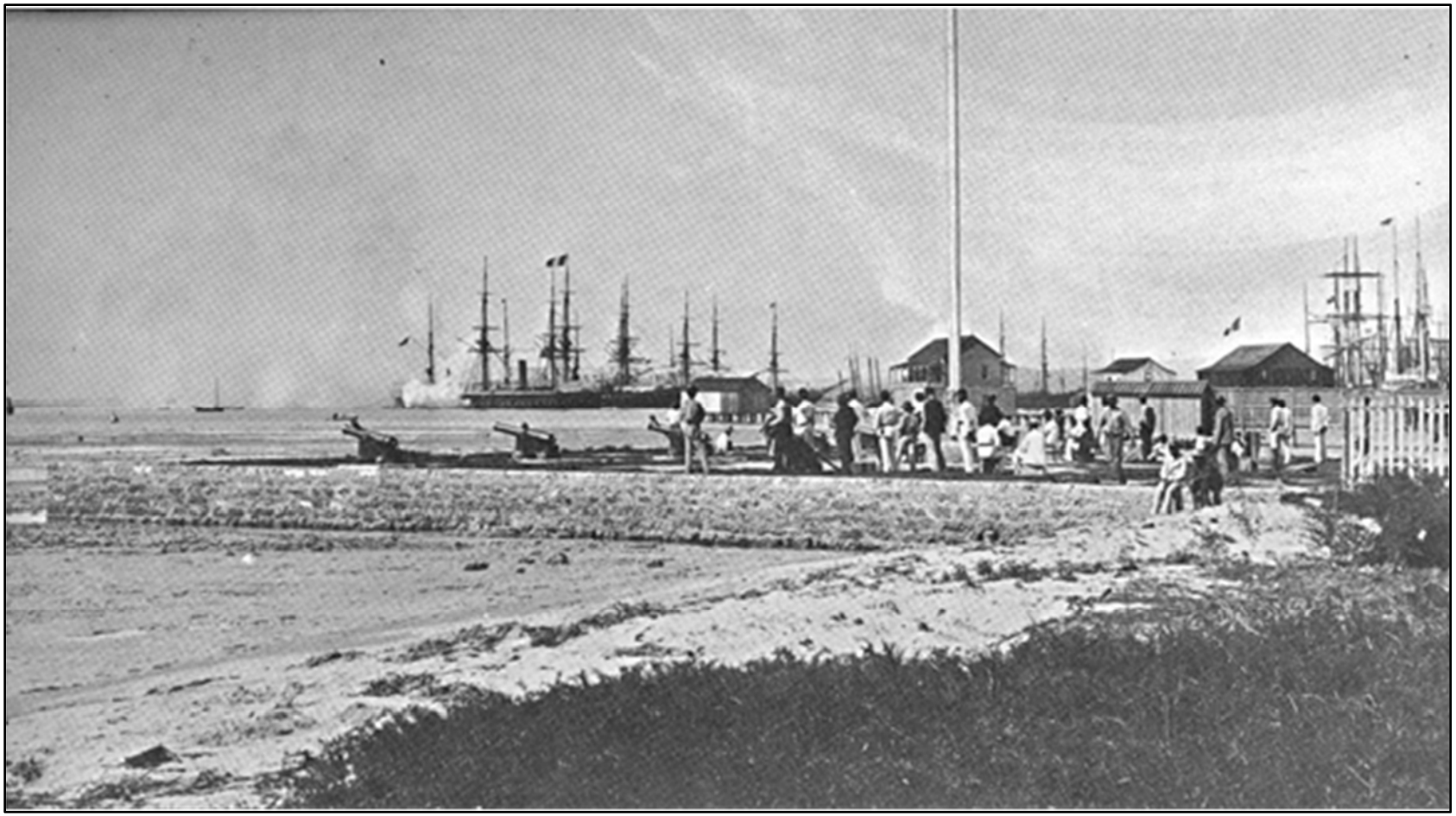


Figure 21. 1887 photograph of the Kaka‘ako Saluting Battery and flagstaff (original photograph taken by Karl Kortum and archived at the San Francisco Maritime Museum; reprinted in Scott 1968:176)

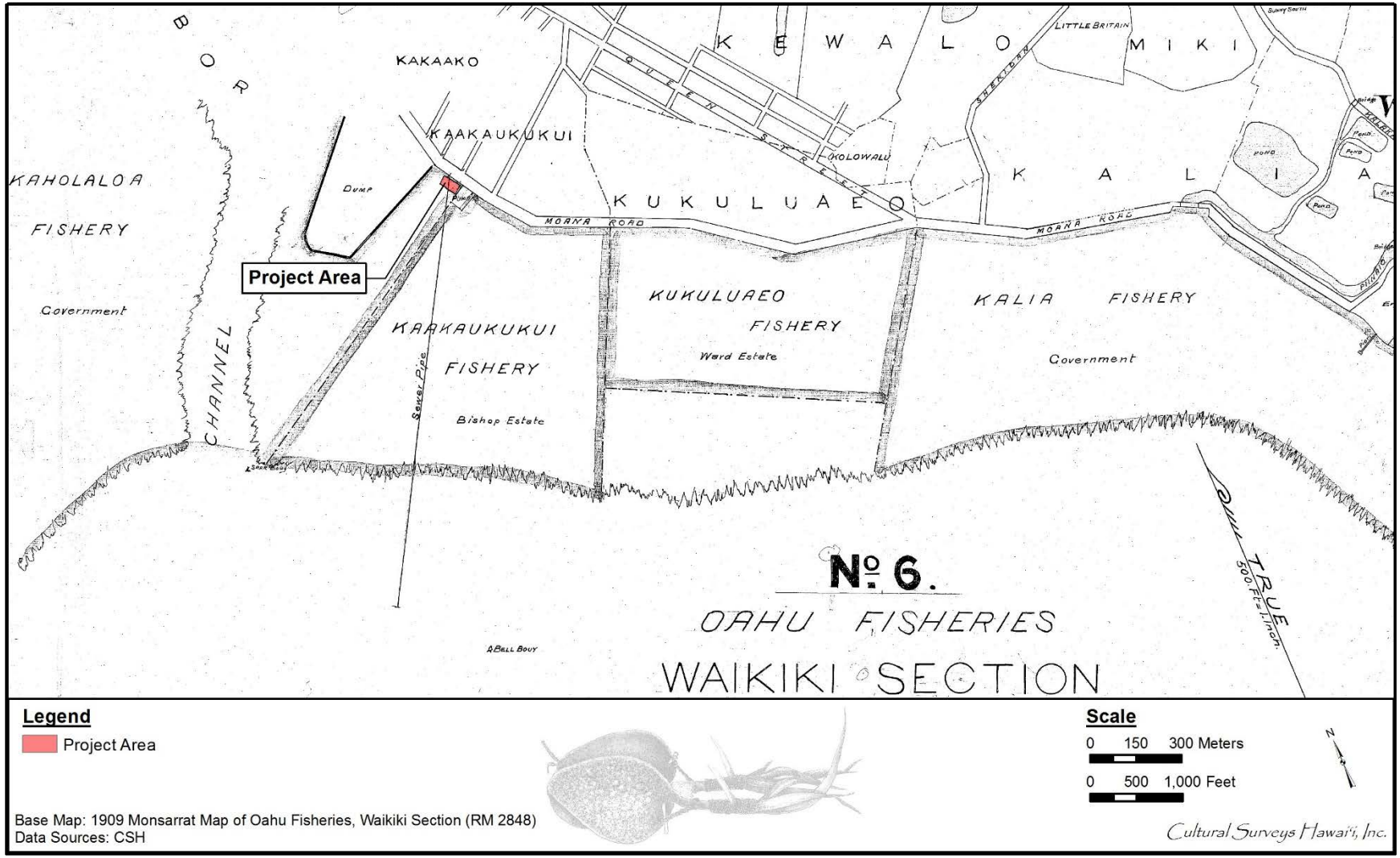


Figure 22. Portion of 1909 Monsarrat map of Oahu Fisheries, Waikiki Section, indicating the project area

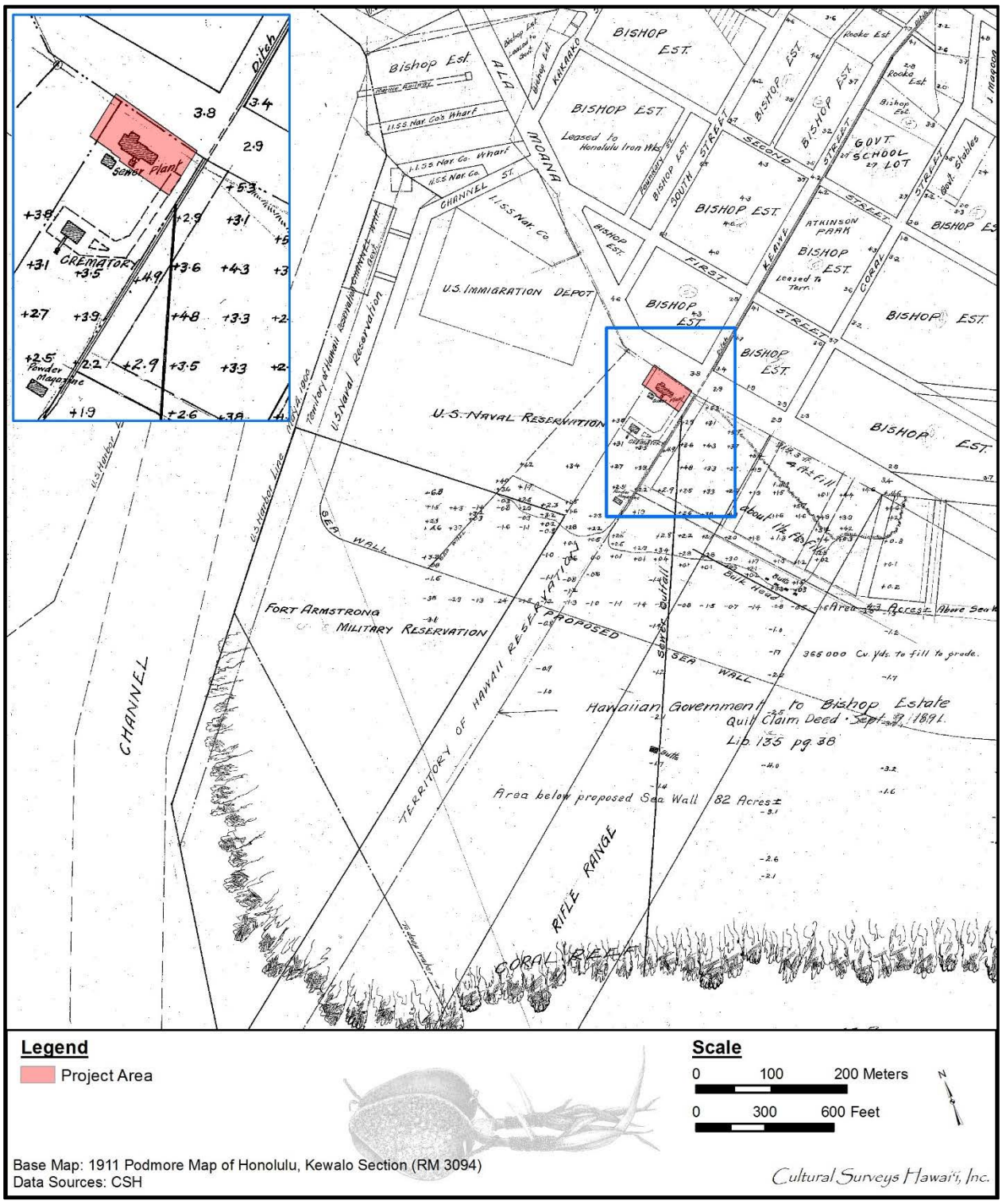


Figure 23. Portion of 1911 G. Podmore map of “Honolulu, Kewalo Section,” indicating the project area; note the bounding seawall at the southwest side of the project area is only “proposed”

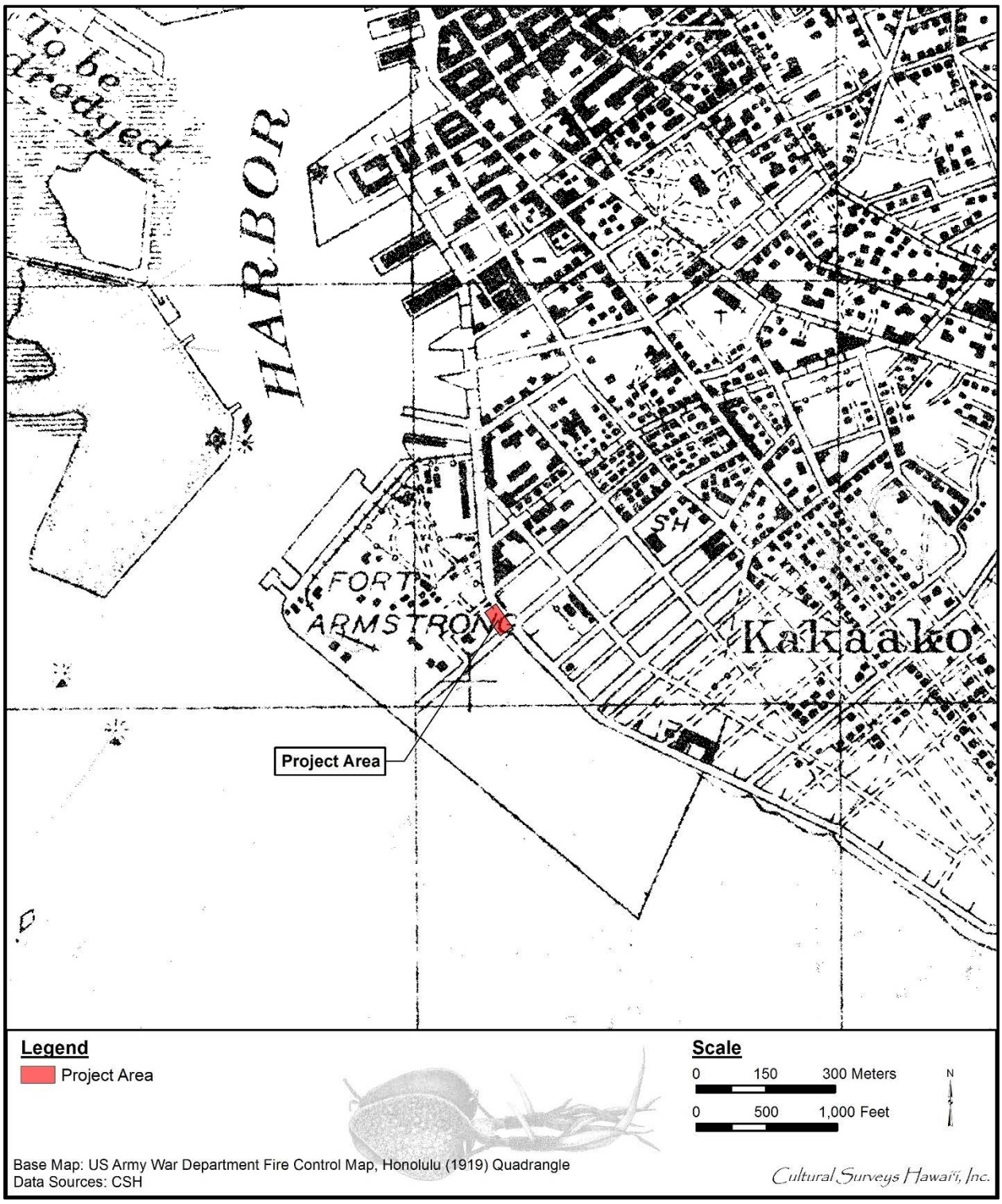


Figure 24. Portion of 1919 U.S. Army War Department Fire Control map, Honolulu quadrangle, indicating the project area

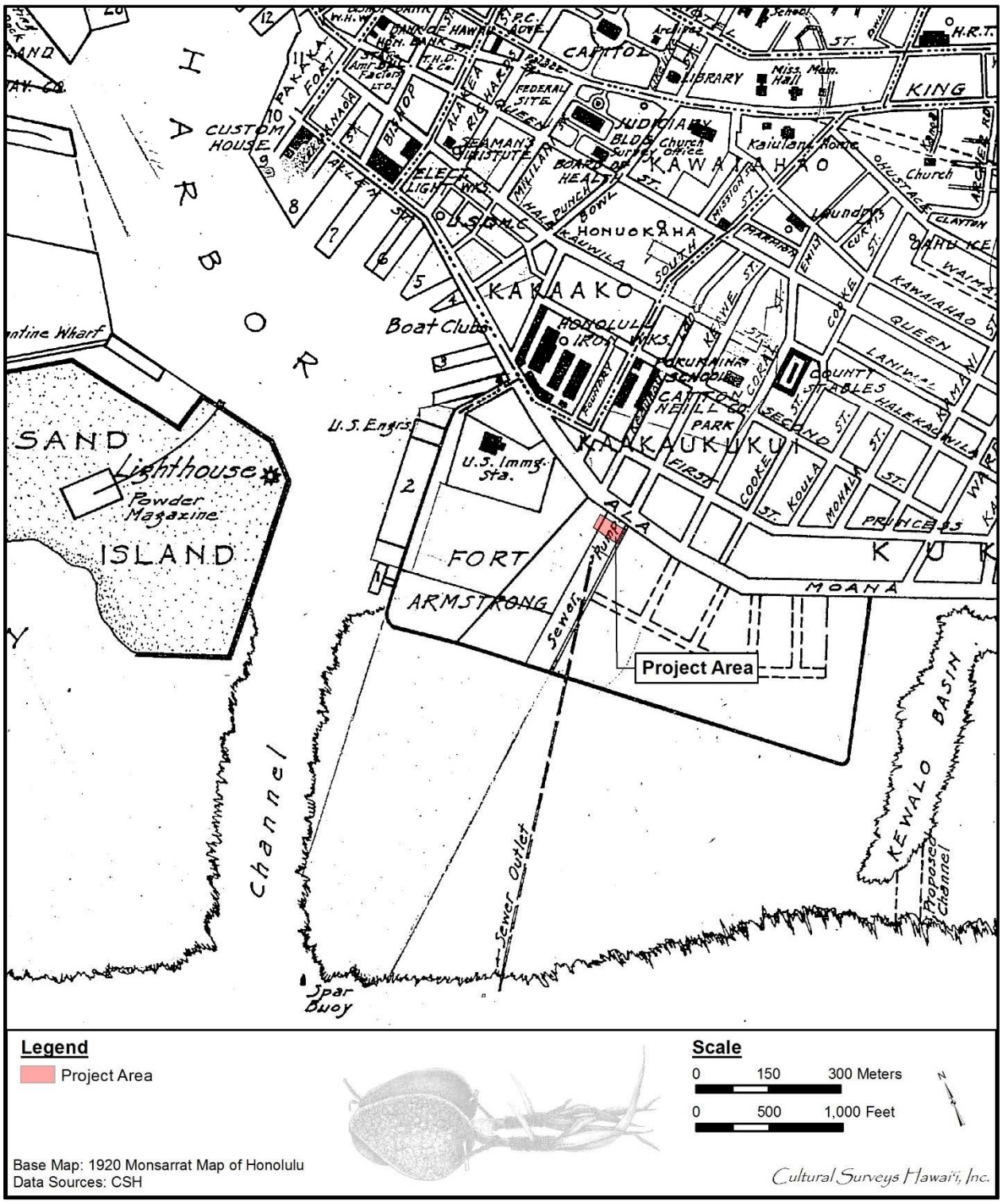


Figure 25. Portion of 1920 Monsarrat map of Honolulu indicating the project area

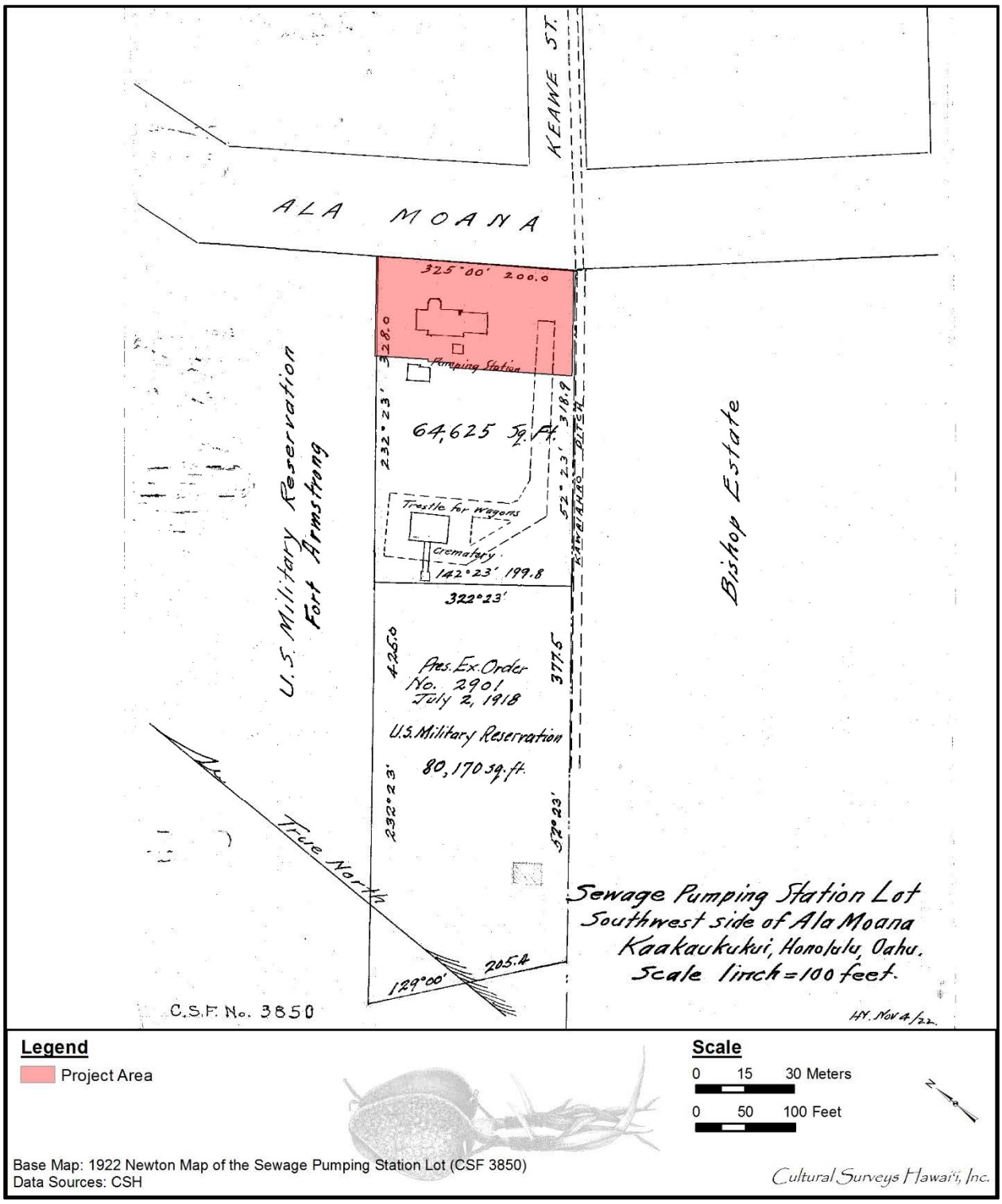


Figure 26. Portion of 1922 Newton map of the Sewage Pumping Station Lot

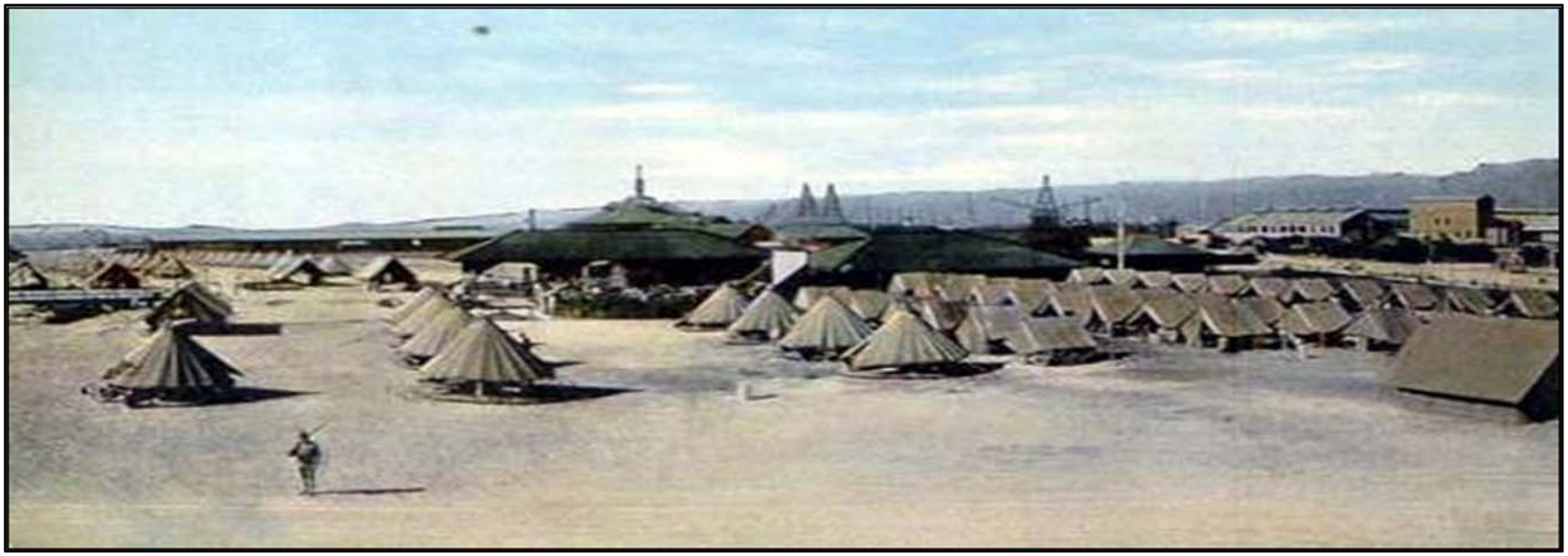


Figure 27. Colorized postcard (ca. 1911-1920) of Fort Armstrong (original black and white photograph at Hawai‘i State Archives; reprinted in Wisniewski 1984:18)

the Union defense of Cemetery Ridge at Gettysburg. Battery Tiernon, with two 3-inch m 1903 guns, was built at Fort Armstrong in 1911, and took over the job of saluting visiting naval vessels once performed by the Kaka‘ako battery (Williford and McGovern 2003:15). In the 7 December 1941 attack on the Islands, the fort escaped relatively unscathed; only one motor pool structure was hit. Anti-aircraft shells were fired from the fort but were ineffective and at least one hit the town of Honolulu rather than Japanese aircraft (Richardson 2005:34). In the 1950s, the federal government returned most of Fort Armstrong to the Territory of Hawaii, which used the area to expand the shipping piers of the harbor.

The present project area thus appears to have been in-filled after 1909 and before 1920. Historic maps indicate the project area ground surface was under water in 1909, underwater but within a proposed seawall in 1911, and within a functioning seawall making the ground surface of the project area dry in 1920 (see Figure 22, Figure 23, and Figure 25). Active road development and the sewer pump built within the project area is also indicated on the 1920 Monsarrat map (see Figure 25). A 1922 Newton map of the Sewage Pumping Lot (CSF 3850) (see Figure 26) indicates a crematory less than 100 m southeast of the project area with the adjoining trestle for wagons illustrated in the 1891 Dodge map (see Figure 18) still intact and extending into the southeast portion of the project area.

In 1919, approximately 1,000 m to the southeast of the project area, the Hawaii Government appropriated $130,000 to improve the small harbor of Kewalo for the aim of “harbor extension in that it will be made to serve the fishing and other small craft, to the relief of Honolulu harbor proper” (Thrum 1920:147). As the area chosen for the harbor was adjacent to several lumber yards, the basin was initially made to provide docking for lumber schooners, but by the time the wharf was completed in 1926, this import business had faded so the harbor was used mainly by commercial fishermen.

The dredged material from the basin was used for fill in and around the basins, in the area that became Ala Moana Beach Park (Johnson 1991:364), as well as a portion of the Bishop Estate on the western edge of Waikīkī and some of the Ward Estate in the coastal area east of Ward Avenue (U.S. Department of Interior 1920:52). Prior to dredging, Kewalo Basin was a natural deep pocket in the reef seaward of Ala Moana Boulevard between Ward Avenue and Kamake‘e Street. The expansion of Kewalo Basin was part of the 1920s and early 1930s dredging operations that included the Ala Wai Canal, Ala Wai Basin, and Ala Moana Beach Park. After the dredging of the Ala Wai Canal, the Ala Wai and Kewalo Basins were dredged, along with a connecting channel. The area between Kewalo Basin and Fort Armstrong *makai* of Ala Moana became a part of Kaka‘ako called “Squattersville.” “All Squattersville, like Gaul, is divided into three parts. There is the original settlement at Kewalo Basin Point, there is a tiny offshoot of this, and there is the later settlement along Ala Moana” (Johnson 1991:111). During 1925–1930 dredging and filling created Ala Moana Beach Park and commercial dock space at the Ala Wai and Kewalo basins. A 1933 U.S. Army War Department Fire Control map (Figure 28) shows much of the present Kaka‘ako *makai* area land in-filled west of Kewalo Basin but the fill is so recent that when the map was produced the layout of streets was on-going. The 1933 map (see Figure 28) shows the northeast boundary of Fort Armstrong as the northwest boundary of the project area extending *makai* from Ala Moana Boulevard and Keawe Street intersecting Ala Moana Boulevard at a right angle immediately east of the northeast corner of the project area. This same configuration is

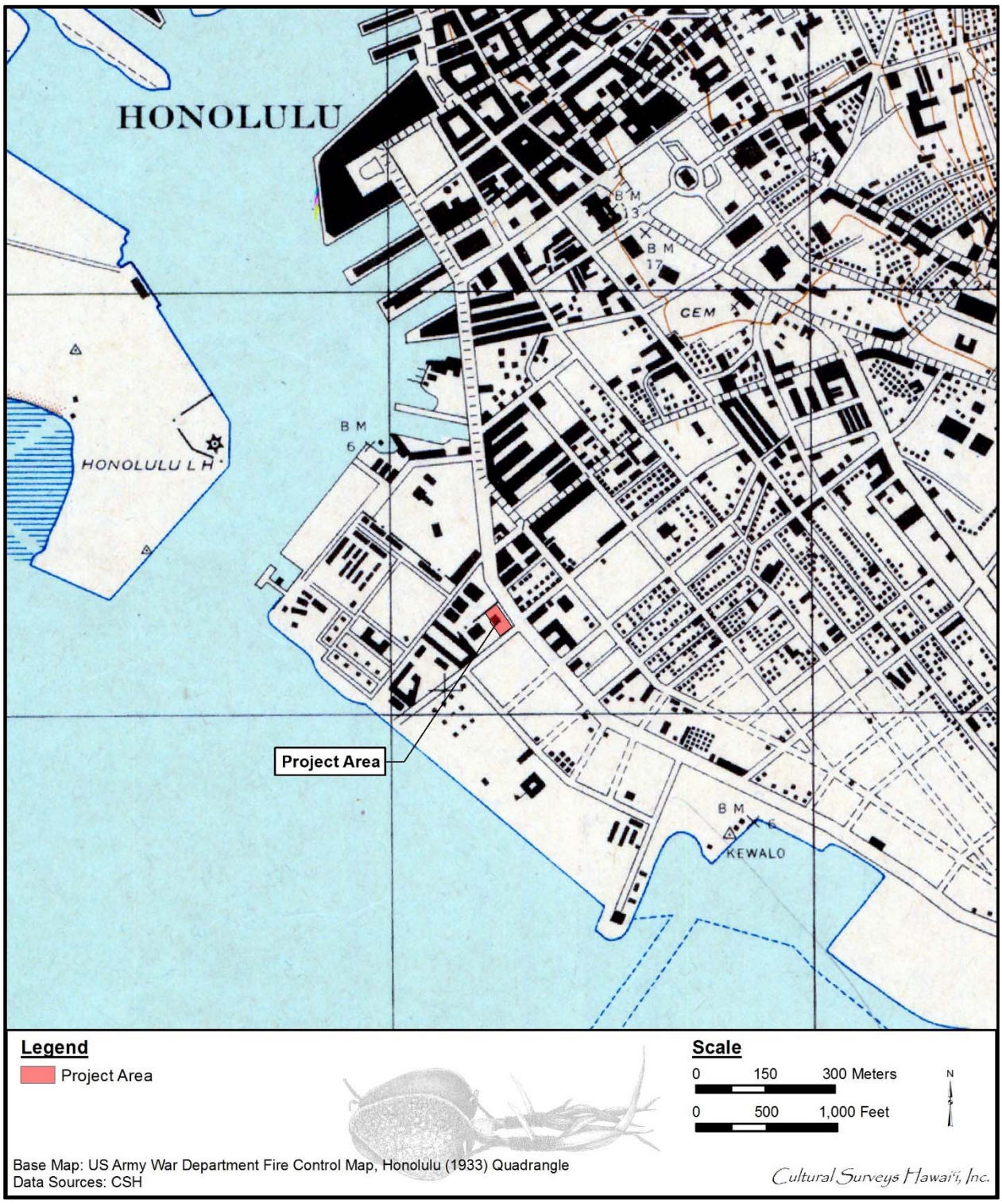


Figure 28. Portion of 1933 U.S. Army War Department Fire Control map, Honolulu quadrangle, indicating the project area

shown on the 1943 U.S. Army War Department map (Figure 29), and 1953 USGS map (Figure 30).

Aerial photographs of the project area from 1939 to 1954 (Figure 31, Figure 32) show the Fort Armstrong complex and remarkably little ongoing urban development in and around the project area and the Kaka‘ako area in the general vicinity of the project area during this time. That is, from the late 1930s through the early 1950s the built environment of the project area and its vicinity remained fairly static in land use strategies, with previously built surrounding single-story industrial and military complexes complimenting a baseball diamond and playing fields approximately 100 m west of the project area and a wooded area less than 50 m to the southwest.

The 1953 USGS map (see Figure 30) and 1930s-1950s aerial photographs (Figure 31 and Figure 32) corroborate the substantial expansion seaward that had occurred in the previous decades west of Kewalo Basin. While much of the fill material for this land reclamation did come from dredging activities, substantial material culture deposits also occurred from activities associated with the Honolulu City & County landfill, indicated immediately west of the project area in 1909 (see Figure 22). The long history of refuse deposition in the area created an ecosystem of decomposition, with the requisite abundant fly population. The surf break “Flies” off the west end of Kaka‘ako Waterfront Park is said to have been named by Joe Kuala in 1963 “for all of the flies at the landfill” (Clark 2002:74). Clark (2002:74) relates the surf site “was the home of many aggressive black flies that bit the surfers and fishermen.” The 1957 Hashimoto map (Figure 33) shows much the same scene with a *makai* extension of Keawe Street proposed.

The 1959 USGS map (Figure 34) clearly shows that in-filling behind the new seawall immediately *makai* of the project area was actively on-going at statehood. However, the Figure 34 map indicates portions of area within the seawall immediately *makai* of the project area remained under water in 1959 and no seawall nor land reclamation activities were present at this time *makai* of Fort Armstrong. By 1969, the seawall *makai* of Fort Armstrong has been completed and the land reclamation extended to the boundary of the Honolulu Channel (Figure 35). The present land configuration on the southeast side of Kewalo Basin appears to have been completed in the 1956/1959 timeframe. In the 1969 USGS map (see Figure 35) we finally see in-filling extended *makai* of Fort Armstrong with substantial fill activities having taken place on the seaward side of Fort Armstrong in the 1960s. This late landfill seaward of Fort Armstrong affected the surf:

> . . . there was another place to surf in Kaka‘ako that we called Armstrong’s. It was in front of Fort Armstrong. The shore there was different too—it was a shallow reef, and there were many military homes on the beach. We surfed in front of the homes. The landfill on the reef that made Piers 1 and 2 destroyed Armstrong’s. [Rawlins “Sonny” Kauhane in Clark 2002:121]

By 1974, after the transfer of Fort Armstrong to the State of Hawai‘i, the Fort Armstrong playing fields and baseball diamond were replaced by a shipping container yard complete with massive cylindrical containers, presumably for fuel storage, and Figure 36 shows the wooded area previously to the southwest of the project area now contains a multi-story building and parking lot. Aerial photos from the 1970s through the present day (see Figure 1, Figure 36, Figure 37, and Figure 38) indicate a continuation of the overall contemporary land use pattern of the project area vicinity primarily for heavy shipping industry with a noted intensification of human land use.

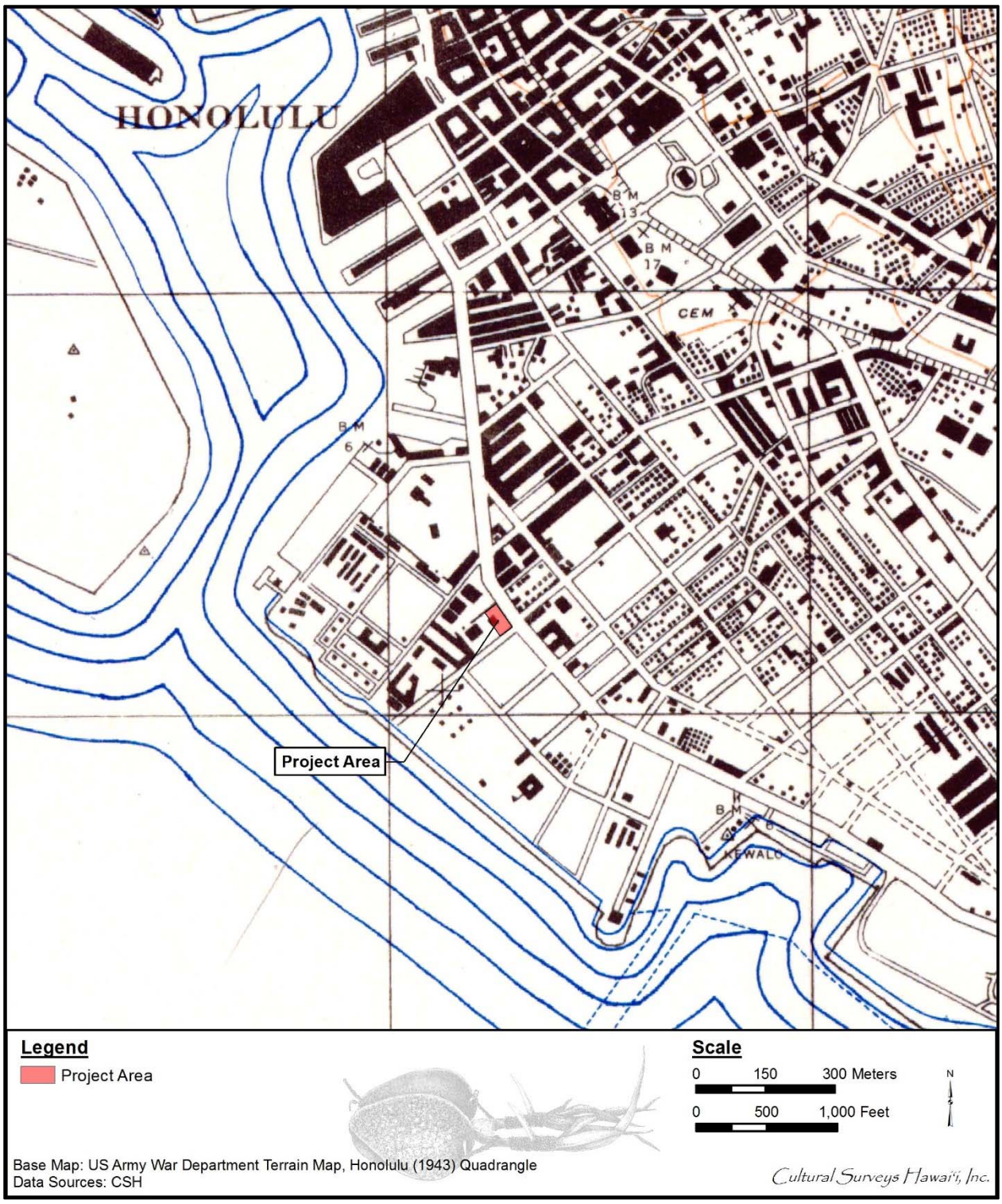


Figure 29. Portion of 1943 U.S. Army War Department Terrain map, Honolulu quadrangle, indicating project area

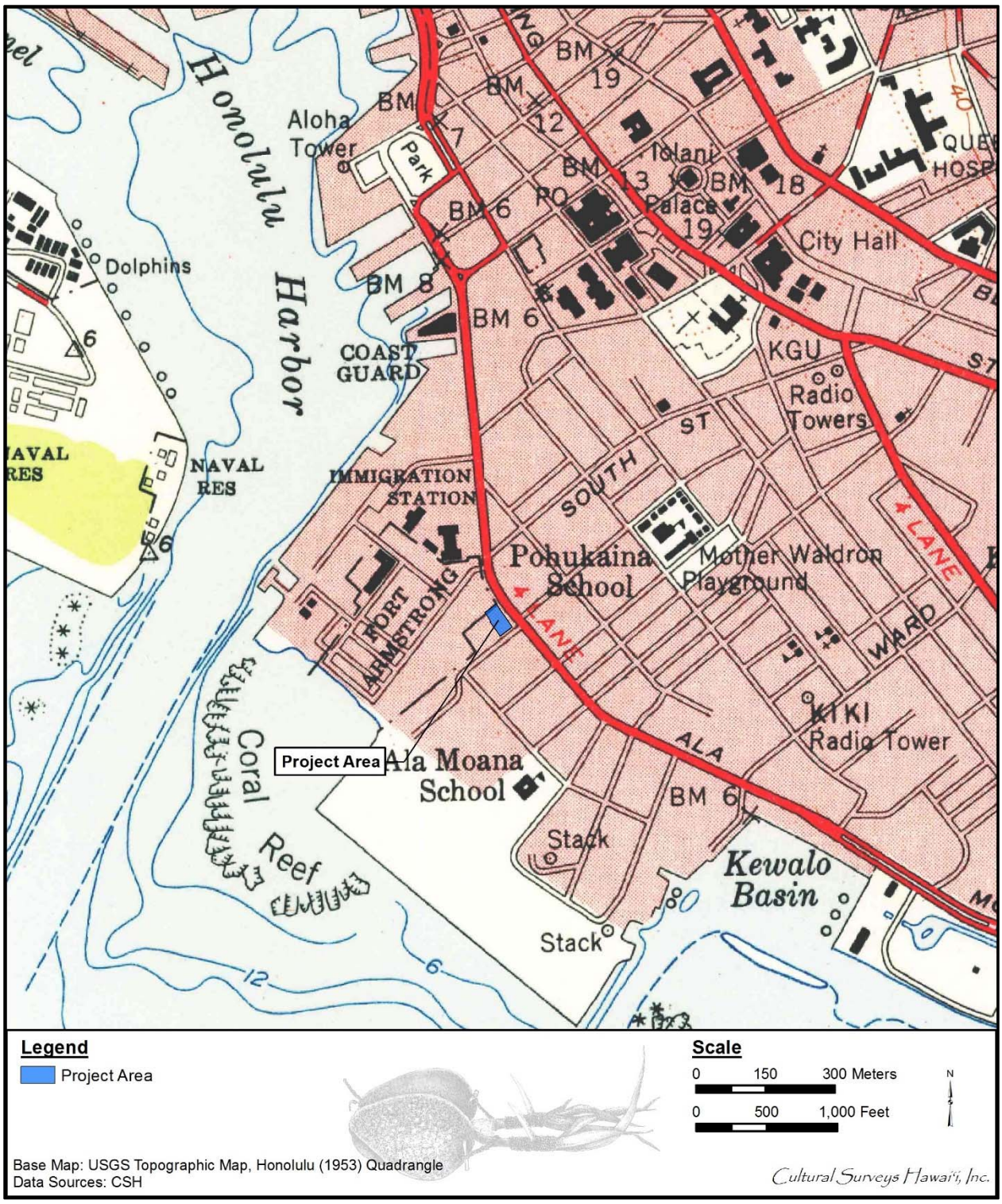


Figure 30. Portion of 1953 Honolulu USGS topographic quadrangle, indicating project area

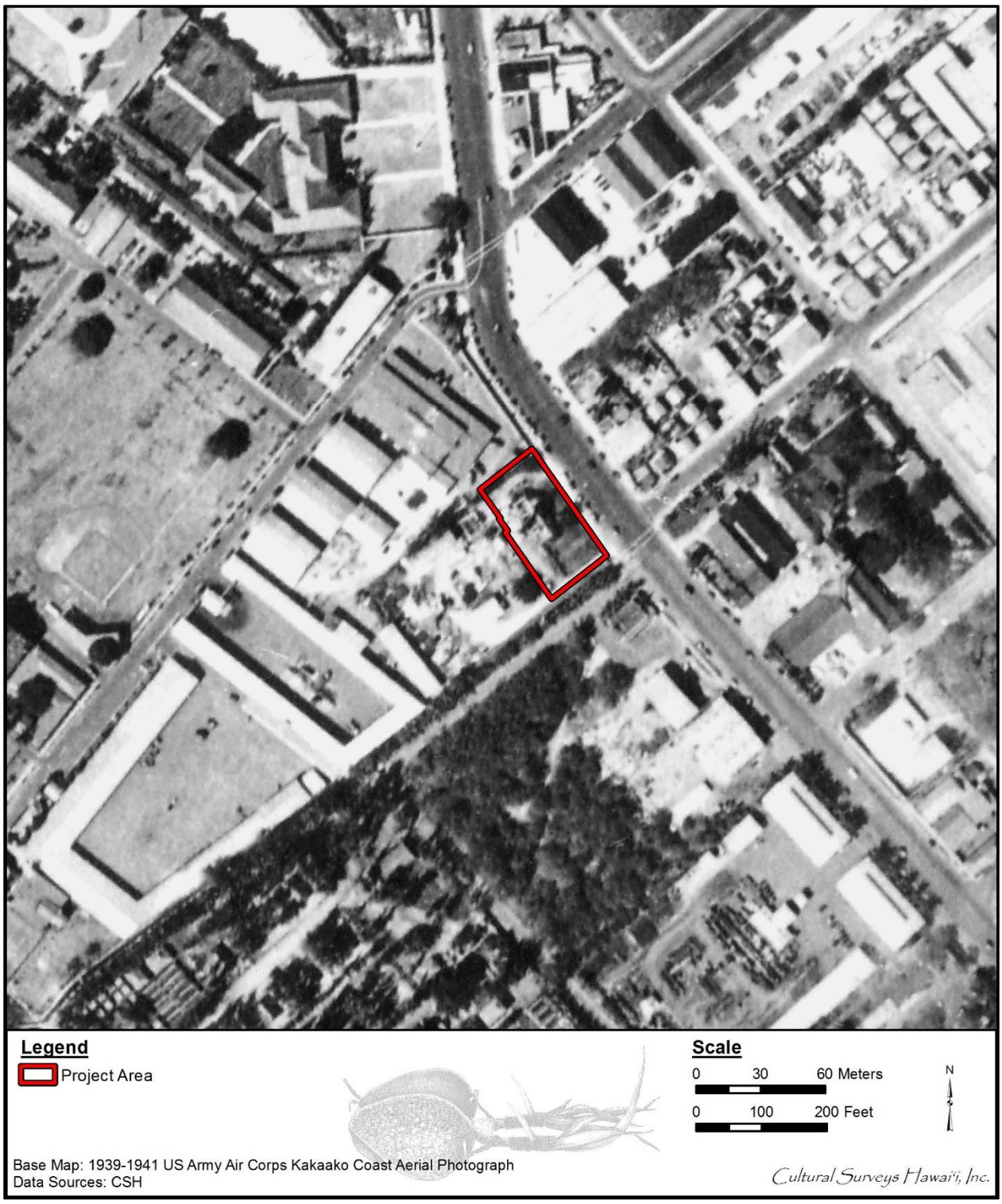


Figure 31. Portion of 1939-1941 aerial photograph of the project area and surrounding vicinity, noting baseball diamond and playing fields approximately 150 m northwest of the project area (U.S. Army Air Corps)

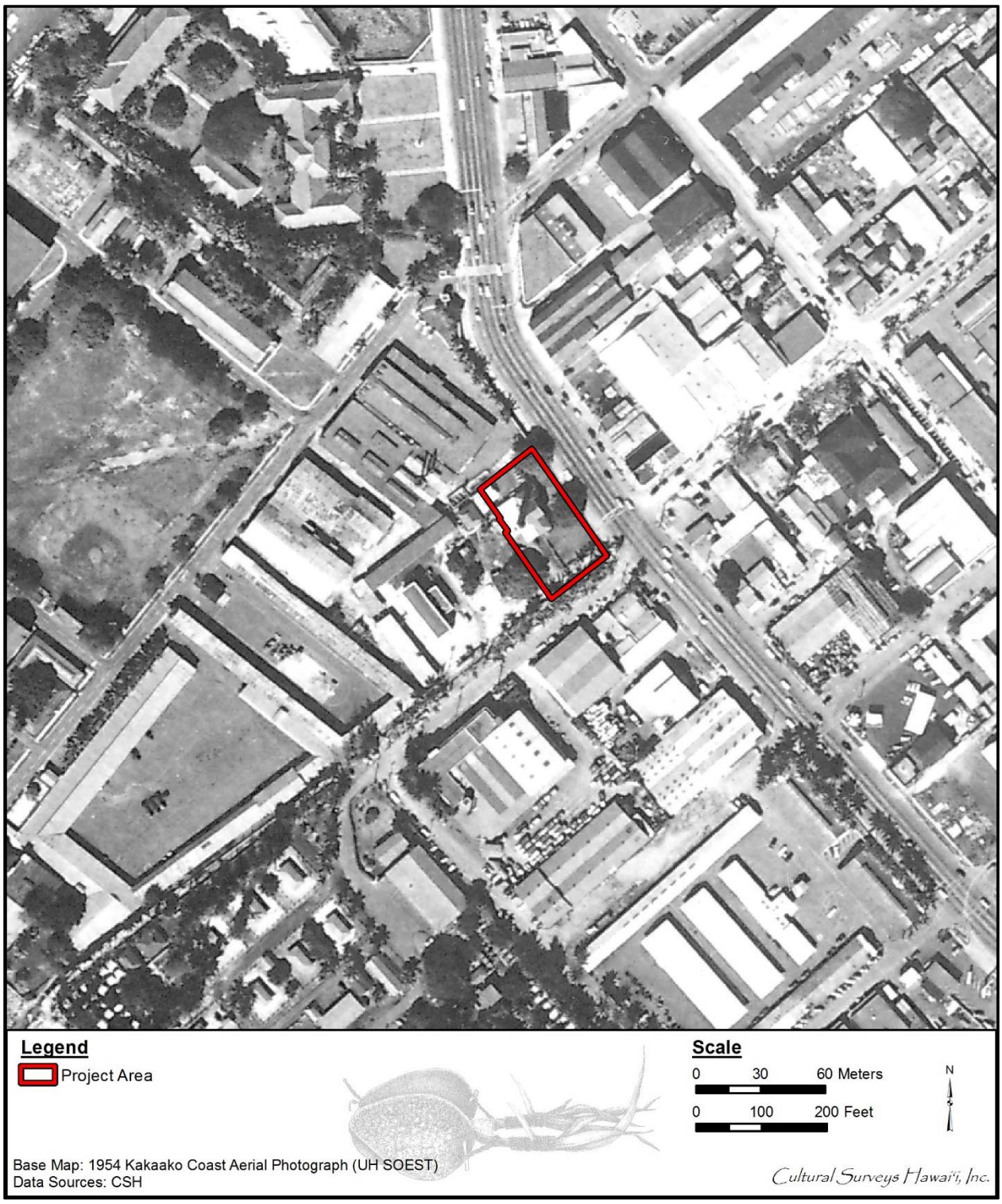


Figure 32. Portion of 1954 aerial photograph of the project area and surrounding vicinity, Kakaako Coast aerial photography (UH SOEST)

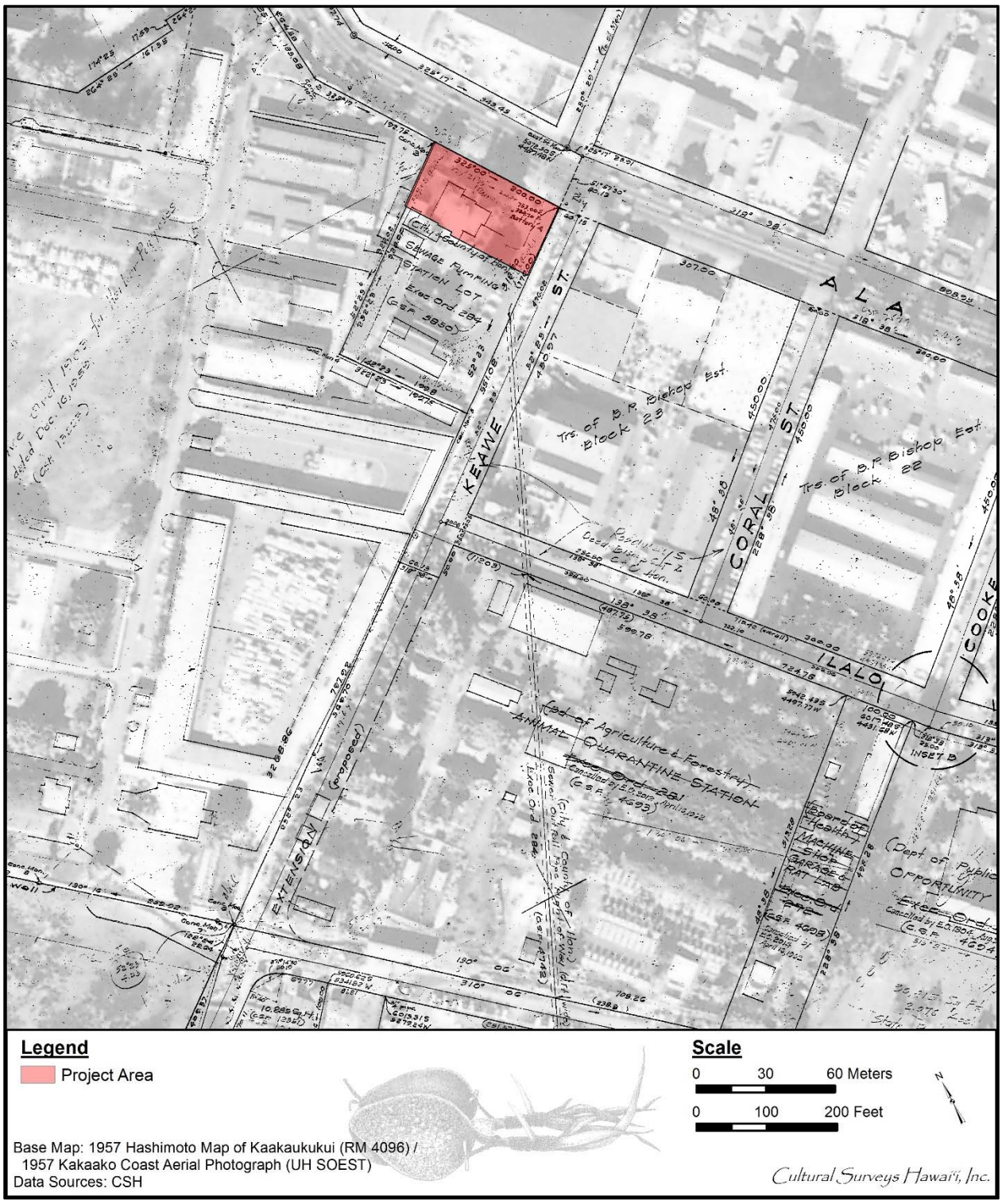


Figure 33. 1957 Hashimoto map of Kaakaukukui with a 1957 Kakaako coast aerial photograph (UH SOEST)

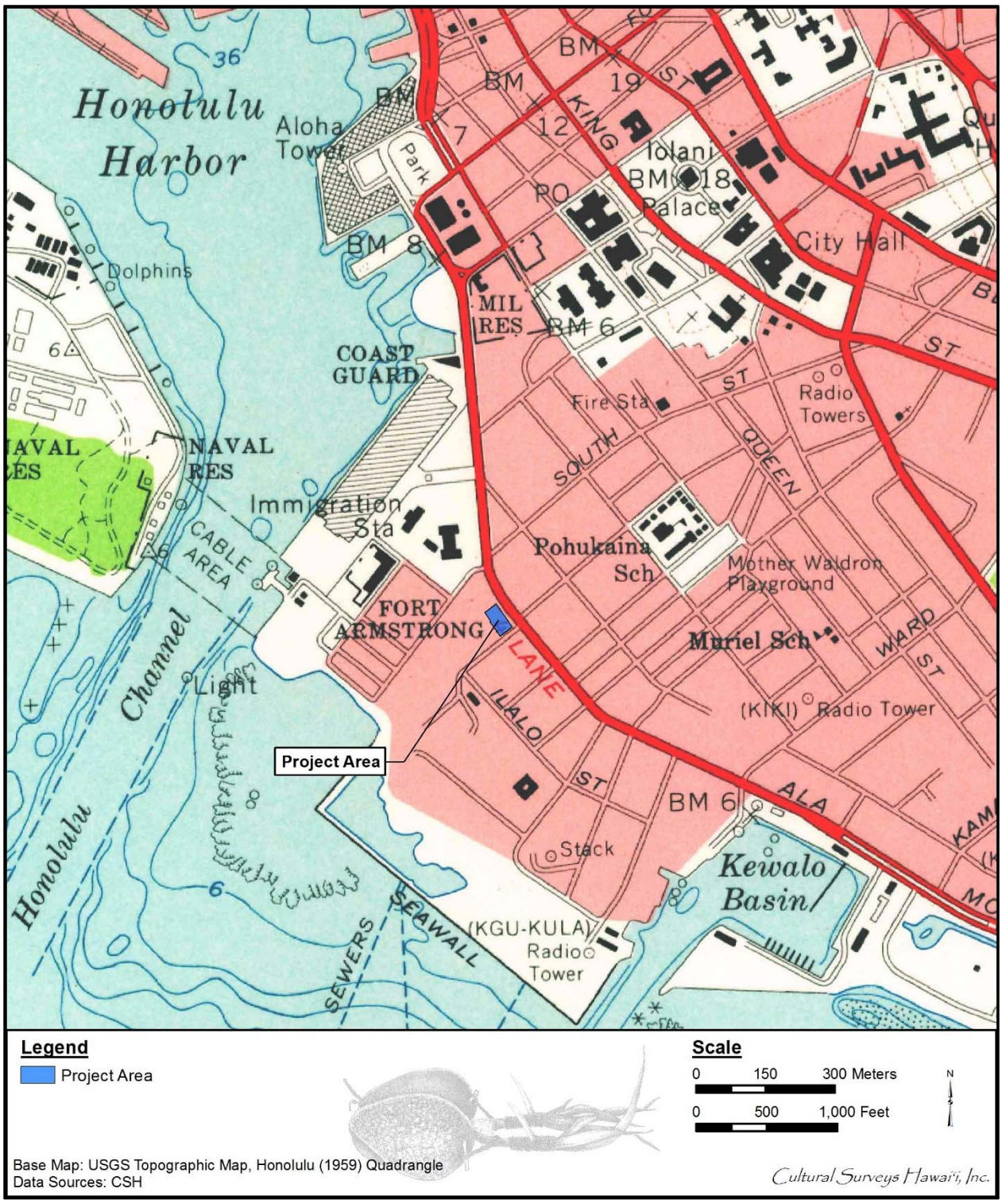


Figure 34. Portion of 1959 Honolulu USGS topographic quadrangle, indicating project area

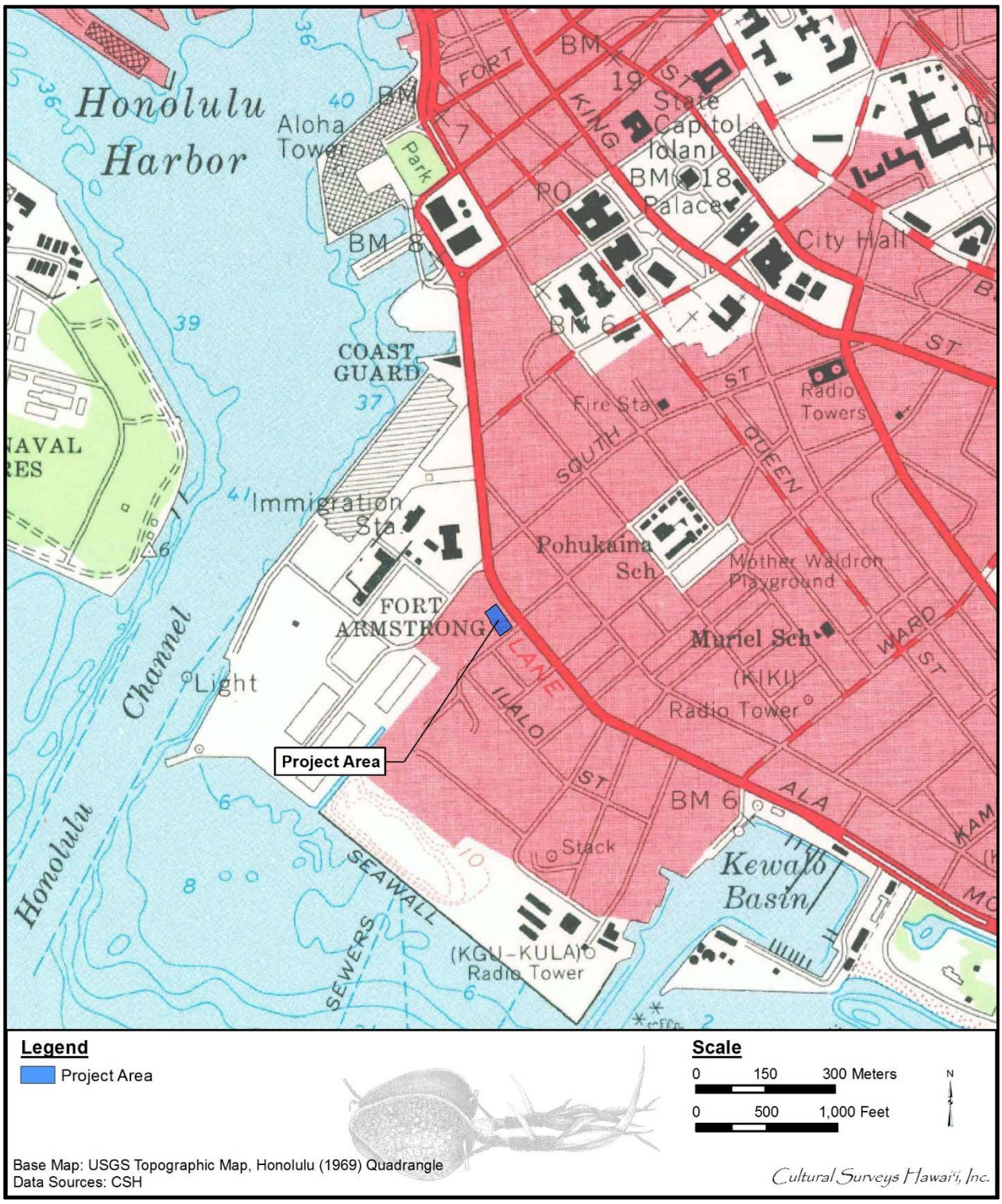


Figure 35. Portion of 1969 Honolulu USGS topographic quadrangle, indicating project area

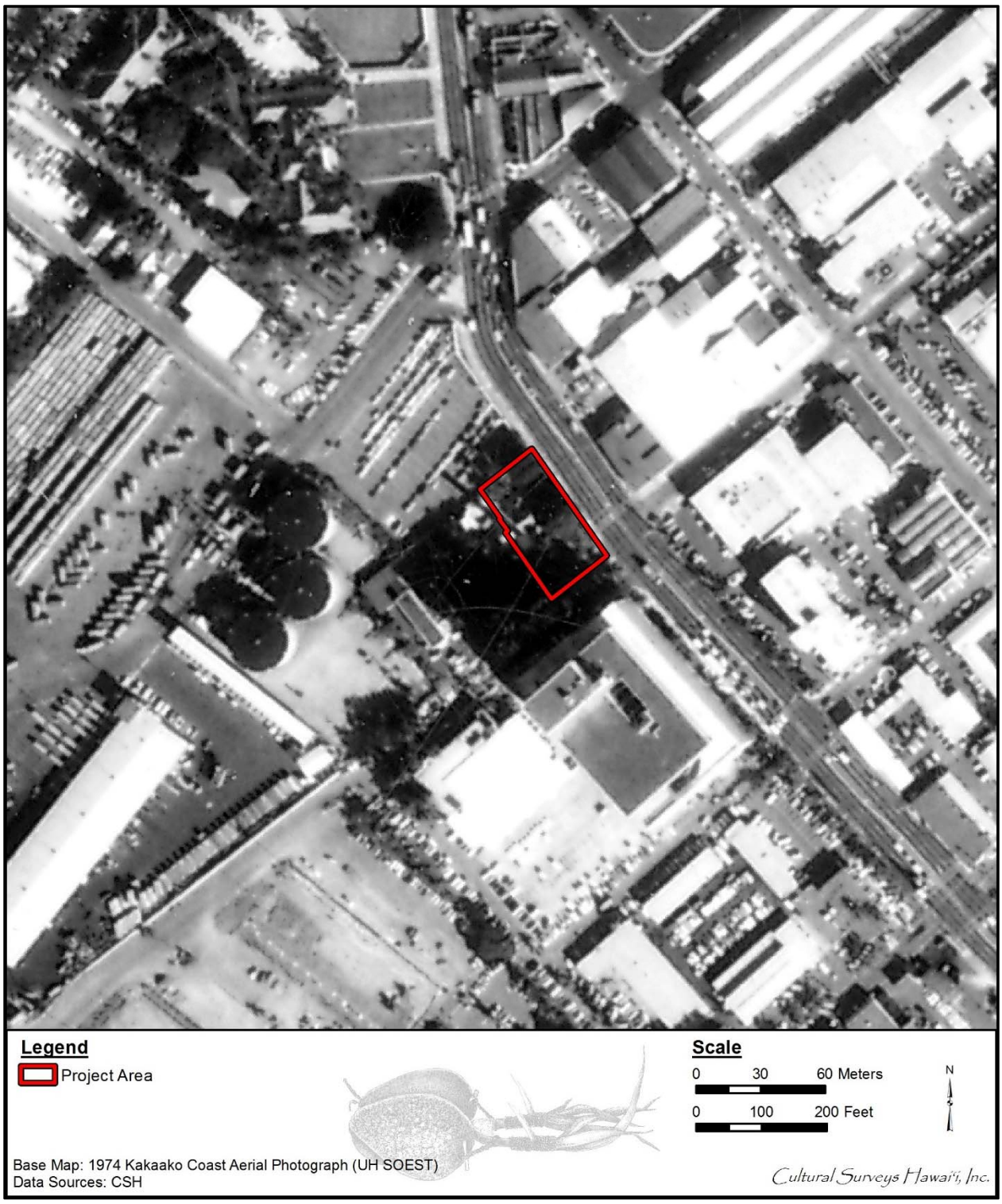


Figure 36. Portion of 1974 aerial photograph of the project area and surrounding vicinity, noting shipping containers and fuel storage containers approximately 150 m northwest of the project area, Kakaako Coast aerial photography (UH SOEST)

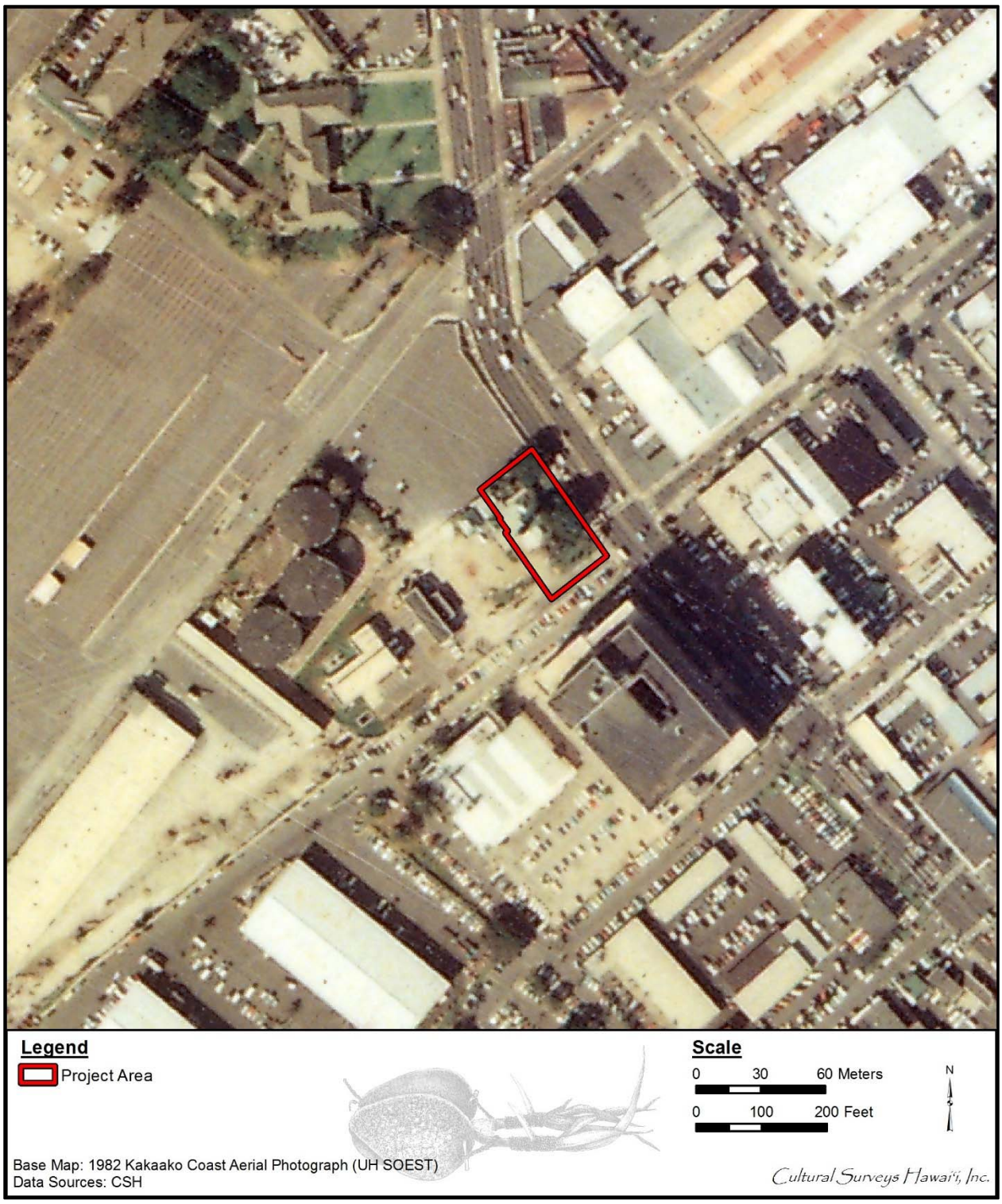


Figure 37. Portion of 1982 aerial photograph of the project area and surrounding vicinity, Kakaako Coast aerial photography (UH SOEST)

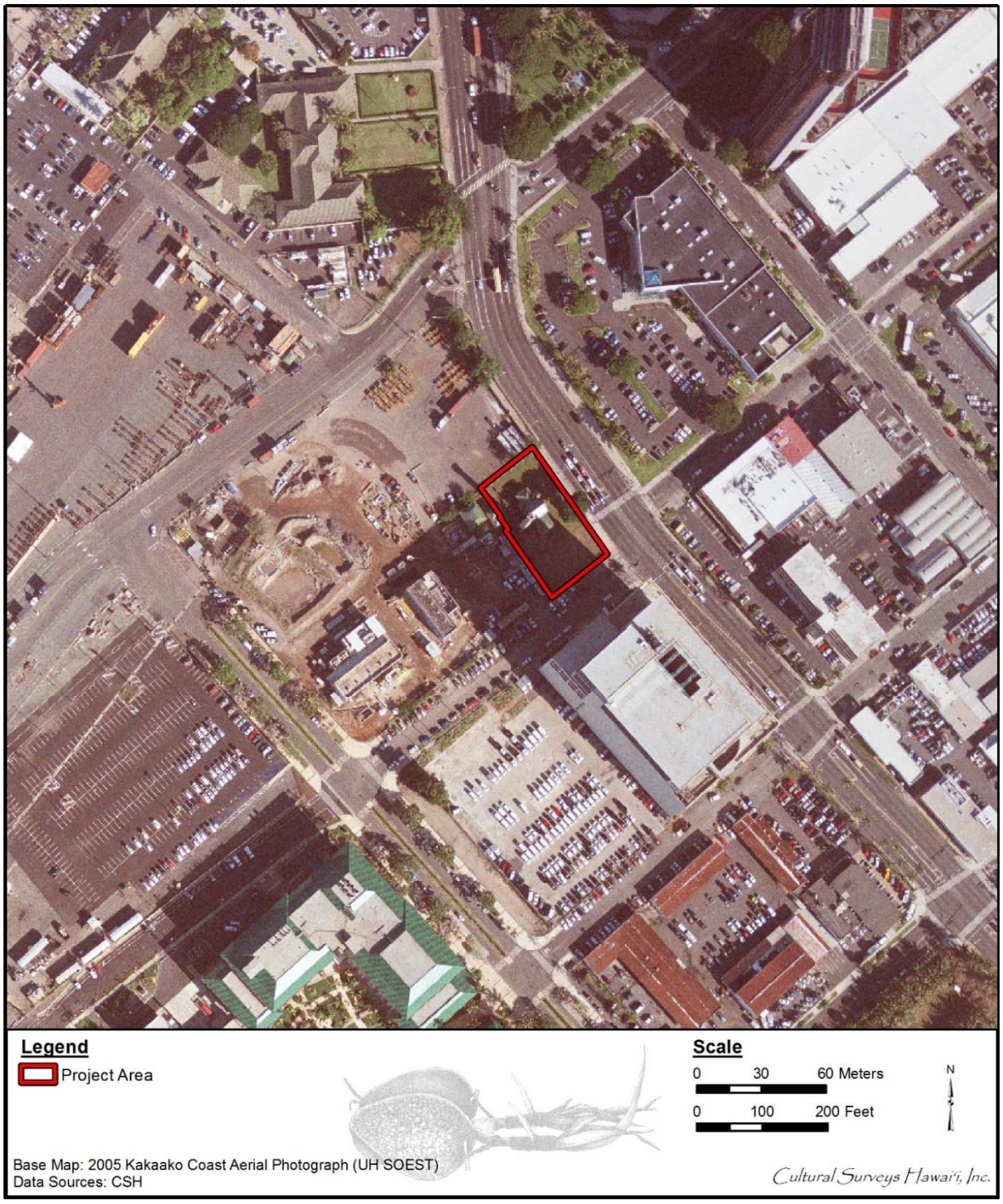


Figure 38. Portion of 2005 aerial photograph of the project area and surrounding vicinity, noting new multi-story buildings, including the UH J.A. Burns School of Medicine (green roof) and ground disturbance southwest of the project area, Kakaako Coast aerial photography (UH SOEST)

Land use intensification is particularly evident in the 2005 aerial with noted ground disturbance related to building excavation immediately west of the project area as well as an additional parking lot and multi-story buildings surrounding the project area. The current trajectory of land use within the vicinity of the project area appears to follow a path of increasing urbanization relating to commerce, residences within multi-story buildings, and education.

2.2 Previous Archaeological Research

Figure 39 depicts previous archaeological studies in the vicinity (approximately 1,000 m radius). These studies are summarized in Table 2 and are discussed in greater detail in the following text. Previously identified historic properties in the vicinity are located in Figure 40 and are summarized in Table 3. Please note that the full extent of some archaeological studies in the vicinity are not presented in figures as only the portions of the studies that are within the 1,000 m radius are shown. While seaward portions of Kaka‘ako *mauka* of the Ala Moana/Nimitz alignment have yielded cultural properties and/or human skeletal remains, no projects *makai* of the Ala Moana/Nimitz alignment appear to have yielded subsurface cultural properties or human skeletal remains.

2.2.1 Yent 1985

Martha Yent (1985) of State Parks reported on burial excavations for the recovery of six burials at the former Honolulu Ironworks construction project area at the corner of Punchbowl and Pohukaina streets (TMK: [1] 2-1-029:001). Only a discussion of designated burials # 5 and # 6 are presented. Several other bones believed to be dog are mentioned. The antiquity of the burials is unclear. The disposition of the burials is not stated. These were later designated collectively as SIHP # 50-80-14-2918.

2.2.2 Pfeffer et al. 1993

CSH (Pfeffer et al. 1993) reported on archaeological monitoring for a variety of improvement projects in Kaka‘ako Improvement District 1 (TMKs: [1] 2-1-029 through 2-1-032, 2-1-046 through 1-2-048, 2-1-051, 2-1-054, and 2-1-055) including the results of archaeological monitoring for the recovery of 31 burials from an 1853-1854 Honuakaha Smallpox Cemetery (SIHP # 50-80-14-3712) at Quinn Lane, one historic burial from Punchbowl Street (SIHP # 50-80-14-4532), one possibly pre-Contact burial from Halekauwila Street (SIHP # 50-80-14-4533), and 116 historic burials from Kawaiaha‘o Cemetery (SIHP # 50-80-14-4534) at Queen Street (used from 1825–1920). The closest finds to the present project area were the single burial from Halekauwila Street (SIHP # -4533) 41.2 m (135 ft) ‘Ewa of South Street and the finds along South Street near Quinn Lane.

2.2.3 McIntosh and Cleghorn 2000

Pacific Legacy (McIntosh and Cleghorn 2000) prepared an *Archaeological Report for the Oahu Commercial Harbors 2020 Master Plan-Immediate Phase Environmental Impact Statement* addressing five discrete areas in southeast Honolulu Harbor including western Fort Armstrong (Pier 2 at TMKs: [1] 2-1-015:029 and 030). An overview of cultural history and previous archaeology is presented but the primary focus in the closest project area was mitigation for the demolition of the Pier 2 shed (built in 1953).

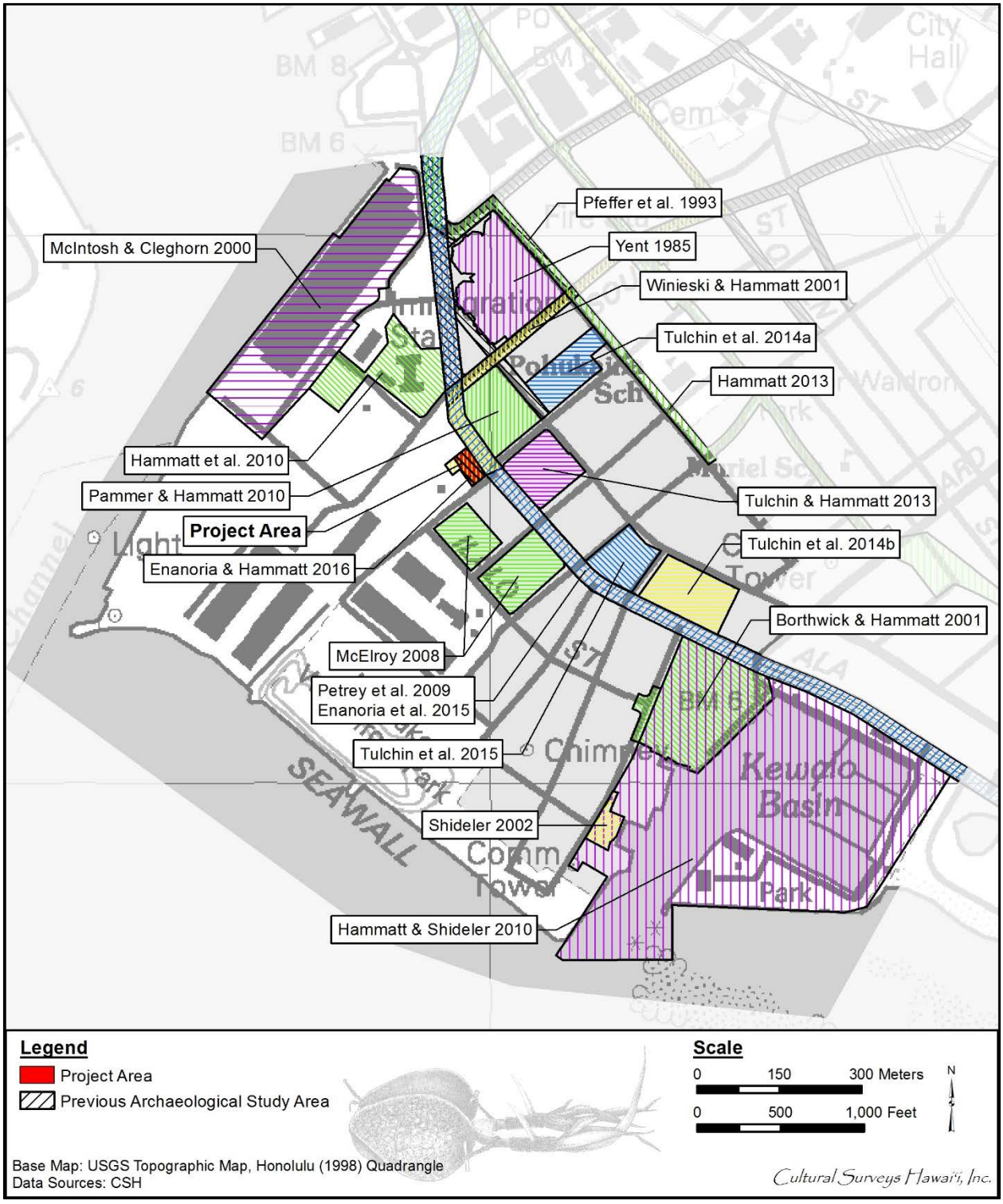


Figure 39. Previous archaeological studies in the vicinity of the project area

Table 2. Previous Archaeological Studies in the Vicinity of the Project Area

Reference	Type of Study	Location	Results (SIHP # 50-80-14****)
Yent 1985	Burial excavations	Honolulu Ironworks construction site	Ka‘ākaukukui Cemetery (SIHP # -2918) at the Honolulu Ironworks project area; six burials (SIHP # -2918) mentioned
Pfeffer et al. 1993	Archaeological monitoring	Kaka‘ako Improvement District 1, TMKs: [1] 2-1-029 through 032, 046 through 048, 051, 054, and 055	Monitoring for Kaka‘ako ID-1; 31 burials from 1853-1854 Honuakaha Smallpox Cemetery (SIHP #-3712) at Quinn Lane, one historic burial from Punchbowl St (SIHP # -4532), one possibly pre-Contact burial from Halekauwila St (SIHP # -4533), and 116 historic burials from Kawaiaha‘o Cemetery (SIHP # -4534) at Queen St (used from 1825–1920)
McIntosh and Cleghorn 2000	Archaeological study for Oahu Commercial Harbors 2020 Master Plan-Immediate Phase EIS	Five discrete areas in SE Honolulu Harbor including western Fort Armstrong (Pier 2), TMKs: [1] 2-1-015:029 and 030	Overview of cultural history and previous archaeology; discusses mitigation for demolition of Pier 2 shed (built in 1953)
Borthwick and Hammatt 2001	Archaeological monitoring	Kaka‘ako Improvement District 6, TMKs: [1] 2-1-056, 058, 059, and 060	No archaeological historic properties identified; based on background data and monitoring results, specific project area was seaward of shoreline and cut and filled in early to mid-1900s
Winieski and Hammatt 2001	Archaeological monitoring	Nimitz Hwy reconstructed sewer, TMKs: [1] 1-7-002, 003 and 2-1-002, 013–016, 025, 027, and 029–032	Identified historic brick alignment at intersection of Queen St; historic brick-lined manhole and remnant of light gauge trolley rail (SIHP # -5942) observed at intersection of Queen St and Nimitz Hwy; no other cultural features or materials encountered within project area

Reference	Type of Study	Location	Results (SIHP # 50-80-14****)
Shideler 2002	HABS documentation	121 ʻĀhui St	Incinerator Number One (Old Kewalo Incinerator) built in 1930; concluded Incinerator Number One achieves state and local significance in areas of maritime and social history, as well as engineering and architecture
McElroy 2008	Archaeological assessment	3.10-acre property bounded by Coral St, Ilalo St, Cooke St, and Ala Moana Blvd, TMKs: [1] 2-10-059:011 and 012	No historic properties identified; test excavations showed study area consisted of former reef flats filled in during early 1900s
Petrey et al. 2009	Archaeological monitoring	Nimitz Hwy and Ala Moana Blvd resurfacing project, TMKs: [1] 2-1-014 and 027	No historic properties identified; project excavations, however, generally to depths of 0.6 m or less below existing surface
Hammatt et al. 2010	Archaeological literature review and field inspection	U.S. Immigration and Customs Enforcement (ICE) Master Plan, TMKs: [1] 2-1-015:018 and 020	Concluded study area is twentieth century fill atop tidal flats, except for late nineteenth century seawall potentially abutting northeast edge of project lands
Hammatt and Shideler 2010	Archaeological literature review and field inspection	Kewalo Basin Repairs project, TMK: [1] 2-1-058	At least 95% of study area is twentieth century fill; potential cultural deposit bearing soils within 10 m seaward of seaward curb of Ala Moana Blvd
Pammer and Hammatt 2010	Archaeological assessment	Former Comp USA Parcel, Kakaʻako	No historic properties identified; project area underwent extensive land modification during filling of low lying areas of Kakaʻako

Reference	Type of Study	Location	Results (SIHP # 50-80-14****)
Hammatt 2013	Archaeological inventory survey	City Center (Section 4) of the Honolulu High-Capacity Transit Corridor project	Identified three archaeological historic properties near present project area: • SIHP # -2918, a subsurface cultural deposit and human burials • SIHP # -7189, a subsurface burnt trash deposit • SIHP # -7190, subsurface salt pan remnants
Tulchin and Hammatt 2013	Archaeological inventory survey	Kamehameha Schools Kaka‘ako Block F, TMKs: [1] 2-1-055:003, 006, 021, 026, and 038	Two archaeological historic properties identified: • SIHP # -7412, post-Contact cultural layer associated with construction and utilization of Kaka‘ako Leper Detention Depot • SIHP # -7413, post-Contact trash layers and structural remnants associated with construction and utilization of Hawaiian Sugar Planters Association Immigration Station
Tulchin et al. 2014a	Archaeological inventory survey	Kamehameha Schools Kaka‘ako Block B, TMKs: [1] 2-1-054:025, 027, 028 (por.), and 032	Two archaeological historic properties identified: • SIHP # -7512, post-Contact structural remnants associated with early to mid-twentieth century development • SIHP # -7513, post-Contact trash layer associated with early twentieth century land reclamation

Reference	Type of Study	Location	Results (SIHP # 50-80-14****)
Tulchin et al. 2014b	Archaeological inventory survey	Kamehameha Schools Kaka‘ako Block I, TMKs: [1] 2-1-056:002, 007, and 008	Six archaeological historic properties identified: • SIHP # -7578, twentieth century cultural layer • SIHP # -7579, twentieth century fill deposit and building foundations • SIHP # -7580, pre-Contact to post-Contact cultural layer with a historic burial cluster • SIHP # -7581, a pre-Contact traditional Hawaiian bundle burial • SIHP # -7582, disarticulated human skeletal remains within a non-burial context • SIHP # -7583, disarticulated human skeletal remains within a non-burial context
Enanoria et al. 2015	Archaeological monitoring	Ala Moana Blvd/ Nimitz Hwy resurfacing and highway lighting replacement project, TMKs: [1] 2-1-014, 027; 2-3, and 2-6	Three archaeological historic properties identified: • SIHP # -4573, subsurface remnants of pond sediment (Loko Kaipuni) • SIHP # -7435 Features A–D, human skeletal remains • SIHP # -7436, human skeletal remains
Tulchin et al. 2015	Archaeological inventory survey	Kamehameha Schools Kaka‘ako Block H, TMKs: [1] 2-1-056:003 and 004	One archaeological historic property identified: • SIHP # -7549, post-Contact structural remnants associated with early to mid-twentieth century development

Reference	Type of Study	Location	Results (SIHP # 50-80-14****)
Enanoria and Hammatt 2016	Archaeological inventory survey	Kaka‘ako Pumping Station, TMK: [1] 2-1-015:063	One archaeological historic property identified: • SIHP # -9710, architectural site known as the Kaka‘ako Pumping Station

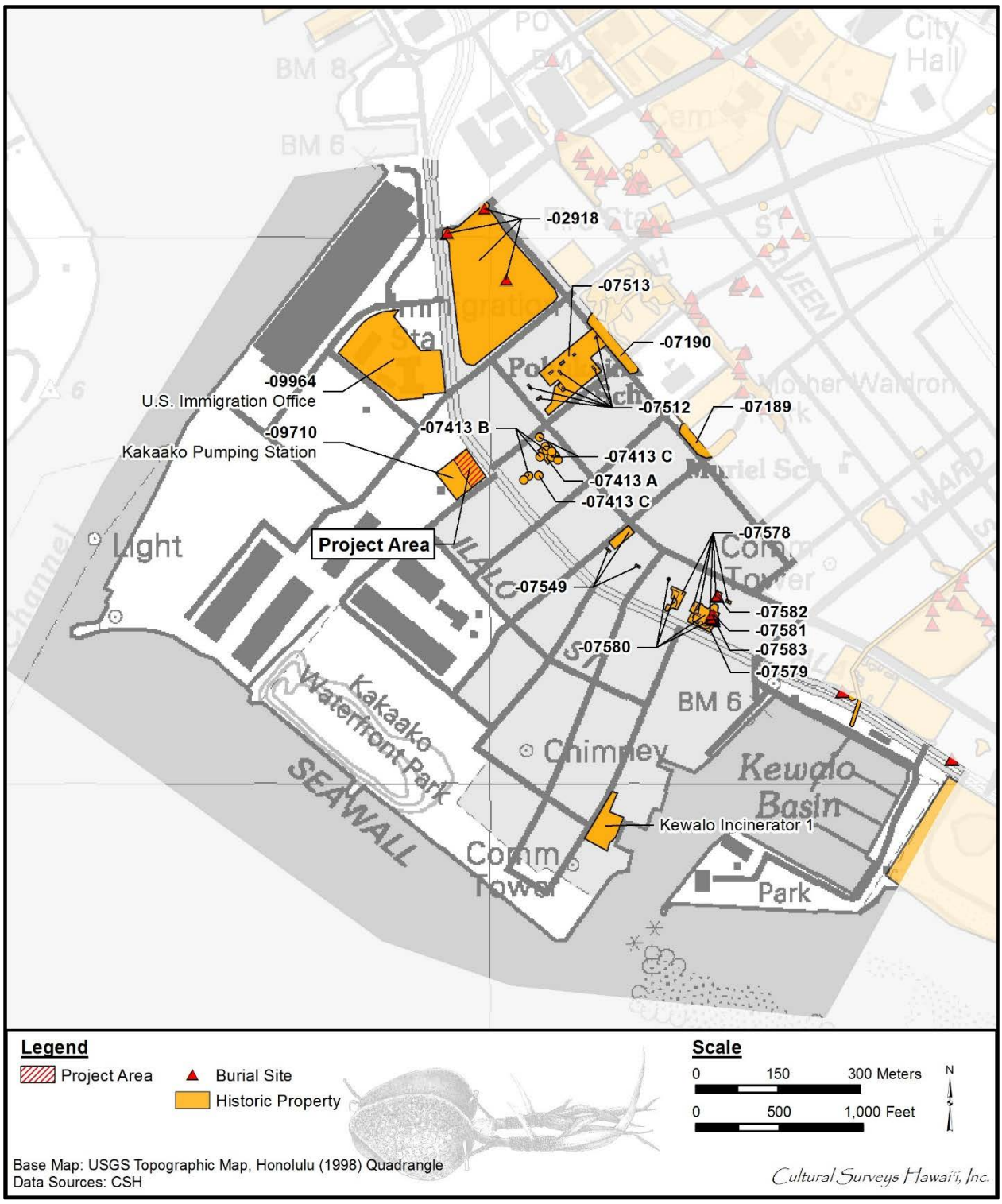


Figure 40. Previously identified historic properties in the vicinity of the project area

Table 3. Previously Identified Historic Properties near the Present Project Area (* not shown in Figure 40 due to location outside of 1,000 m radius)

SIHP #	Site Type	Age	Source
50-80-14-02918	Subsurface cultural deposit	Pre-and post-Contact	Hammatt 2013
50-80-14-02918	Burials	Uncertain	Yent 1985, Hammatt 2013
50-80-14-03712*	Burials	Post-Contact	Pfeffer et al. 1993
50-80-14-04532*	Burial	Post-Contact	Pfeffer et al. 1993
50-80-14-04533*	Burials	Possible pre-Contact	Pfeffer et al. 1993
50-80-14-04534*	Burials	Post-Contact	Pfeffer et al. 1993
50-80-14-04573*	Subsurface pond deposit	Pre- and post-Contact	Enanoria et a. 2015
50-80-14-05942*	Light gauge trolley rail remnant	Post-Contact	Winieski and Hammatt 2001
50-80-14-07189	Historic burnt garbage deposits	Post-Contact	Pammer et al. 2011, Hammatt 2013
50-80-14-07190	Salt pan remnants	Pre-and post-Contact	Pammer et al. 2011, Hammatt 2013
50-80-14-07413 A	Historic building	Post-Contact	Tulchin and Hammatt 2013
50-80-14-07413 B	Subsurface building foundation	Post-Contact	Tulchin and Hammatt 2013
50-80-14-07413 C	Subsurface trash layer	Post-Contact	Tulchin and Hammatt 2013
50-80-14-07412*	Subsurface cultural layer	Post-Contact	Tulchin and Hammatt 2013
50-80-14-07512	Historic building remnants	Post-Contact	Tulchin et al. 2014a
50-80-14-07513	Subsurface trash deposit	Post-Contact	Tulchin et al. 2014a
50-80-14-07435*	Burials	Pre-Contact to early post-Contact	Enanoria et al. 2015
50-80-14-07436*	Burials	Uncertain	Enanoria et al. 2015
50-80-14-07549	Subsurface building remnant	Post-Contact	Tulchin et al. 2015
50-80-14-07578	Subsurface cultural deposit	Post-Contact	Tulchin et al. 2014b
50-80-14-07579	Subsurface infrastructure remnants	Post-Contact	Tulchin et al. 2014b
50-80-14-07580	Subsurface cultural deposit	Pre-and post-Contact	Tulchin et al. 2014b
50-80-14-07580	Burials	Uncertain	Tulchin et al. 2014b
50-80-14-07581	Burials	Uncertain	Tulchin et al. 2014b

SIHP #	Site Type	Age	Source
50-80-14-07582	Burials	Uncertain	Tulchin et al. 2014b
50-80-14-07583	Burials	Uncertain	Tulchin et al. 2014b
50-80-14-09710	Kakaako Pumping Station	Post-Contact	NRHP
50-80-14-09964	U.S. Immigration Office	Post-Contact	NRHP
No SIHP #	Kewalo Incinerator 1	Post-Contact	Shideler 2002

2.2.4 Borthwick and Hammatt 2001

CSH (Borthwick and Hammatt 2001) reported on archaeological monitoring for the Kaka‘ako Improvement District 6 project (TMKs: [1] 2-1-056, 058, 059, 060), an irregularly shaped, approximately 7.7-acre project area bounded by Ala Moana Boulevard on the north, ‘Āhui Street on the west, Kewalo Basin on the east, and extending approximately 200 ft seaward of Halo Streeton the south.

During monitoring work, the types of material observed included varieties of fill and natural tidal flats material. The fill material ranged from crushed coral to marine clays related to the pumped sludge-like dredged material. The pumped dredged material generally made up the lower course of fill, with the drier crushed coral fill on top. Concrete pads or asphalt made up the uppermost or surface layer throughout most of the project area. No burials, traditional Hawaiian or early historic cultural layers, or large historic to modern trash pits were observed during any monitoring phase. The finds were, as anticipated, fill materials over tidal flats strata.

2.2.5 Winieski and Hammatt 2001

CSH (Winieski and Hammatt 2001) reported on archaeological monitoring for a Nimitz Highway reconstructed sewer project. No traditional Hawaiian cultural materials or features were observed. No pre-Contact or historic burials were encountered. A historic period soda bottle was encountered in an historic fill layer at the intersection of Pohukaina and South streets. A historic brick alignment was observed at the intersection of Queen Street. A historic brick-lined manhole and a remnant of light gauge trolley rail (SIHP # -5942) were observed at the intersection of Queen Street and Nimitz Highway. Historic rubbish was found scattered through a fill layer at the intersection of Maunakea Street and Nimitz Highway. No other cultural features or materials were encountered within the project area.

2.2.6 Shideler 2002

CSH (Shideler 2002), working with Mason Architects Inc. and David Franzen (photographer), produced Historic American Buildings Survey (HABS) documentation of Incinerator Number One (Old Kewalo Incinerator) at 121 ‘Āhui Street built in 1930. The study notes Incinerator Number One was one of two facilities constructed by the City and County of Honolulu to dispose of waste from the nearby Ala Moana dump. The ash from the incinerator facilities was used to fill the area enclosed by the seawall constructed over the shallow reef at Ka‘ākaukukui in the late 1940s. By 1956, 29 acres of new land were added to the shoreline, dramatically altering Honolulu’s coastal landscape. It was concluded that Incinerator Number One achieves state and local significance in the areas of maritime and social history, as well as engineering and architecture under Criteria A and C.

2.2.7 McElroy 2008

Garcia and Associates (McElroy 2008) conducted an archaeological inventory survey of a 3.10-acre property bounded by Coral Street, Ilalo Street, Cooke Street, and Ala Moana Boulevard (TMKs: [1] 2-10-059:011 and 012) in Kaka‘ako, results reported as an archaeological assessment due to negative findings. Four test pits were excavated on the *mauka* ends of the two parcels documenting modern historic fill deposited directly atop the then shallow reef. Stratigraphy in all test pit locations confirmed an absence of buried terrestrial deposits within the parcels.

2.2.8 Petrey et al. 2009

CSH (Petrey et al. 2009) reported on archaeological monitoring for a Nimitz Highway and Ala Moana Boulevard resurfacing project (TMKs: [1] 2-1-014 and 027). While no historic properties or burials were encountered in the project excavations, this may have been due to the fact that project excavations were generally to depths of 0.6 m or less below the existing surface.

2.2.9 Hammatt, et al. 2010

CSH (Hammatt et al. 2010) conducted an archaeological literature review and field inspection study for a U.S. Immigration and Customs Enforcement (ICE) Master Plan (TMKs: [1] 2-1-015:018 and 020). It appeared the study area is twentieth century fill atop tidal flats, excepting a late nineteenth century seawall potentially abutting the northeast edge of the project lands. The study noted that bomb shelters (manifest on the surface by rectilinear mounds) were excavated into the eastern lawn of the Immigration Station during World War II.

2.2.10 Hammatt and Shideler 2010

CSH (Hammatt and Shideler 2010) prepared an archaeological literature review and field inspection report for a Kewalo Basin repairs project (TMK: [1] 2-1-058.) The study concluded at least 95% of the study area is twentieth century fill. Some question remained whether there may be potentially cultural-deposit-bearing soils within 10 m seaward of the seaward curb of Ala Moana Boulevard.

2.2.11 Pammer and Hammatt 2010

CSH (Pammer and Hammatt 2010) completed an archaeological inventory survey for the approximately 4.7-acre former Comp USA parcel (TMKs: [1] 2-1-055:004, 009, and 017) bound by Auahi Street to the north, Keawe Street to the east, Ala Moana Boulevard to the south, and South Street to the west. Five test excavations were undertaken. Trenches 2–5 contained only fill material down to the coral shelf. Trench 1 contained a thin sand layer, but no cultural materials were found within the sand. The negative results were reported as an archaeological assessment.

2.2.12 Hammatt 2013

CSH (Hammatt 2013) conducted an archaeological inventory survey for the City Center (Section 4) of the Honolulu High-Capacity Transit Corridor project. The project area included Dillingham Boulevard, Ka‘aahi Street, Nimitz Highway, Ala Moana Boulevard, Halekauwila Street, Queen Street, and Kona Street. While 19 archaeological historic properties were identified within, or immediately adjacent to, the City Center AIS study area, only three of these were close to the present study area: SIHP # -2918 is a previously identified subsurface cultural deposit and 30 features located along Punchbowl Street near the Ala Moana intersection, and *makai* of Pohukaina Street between Punchbowl and South streets. This historic property was first identified in 1985 by Martha Yent of State Parks as consisting of at least five burial pits located at the Honolulu Ironworks construction site (Yent 1985). SIHP # -7189 is a subsurface burnt trash deposit previously identified (Pammer et al. 2011) within the block bounded by Halekauwila, Keawe, Pohukaina, and South streets. SIHP # -7190 consists of previously identified (Pammer et al. 2011) subsurface salt pan remnants (including possible berms) located southwest (*makai*) of Halekauwila Street, between South and Keawe streets.

2.2.13 Tulchin and Hammatt 2013

CSH (Tulchin and Hammatt 2013) conducted an archaeological inventory survey for the Kamehameha Schools Kaka‘ako Block F, the block bounded by Ala Moana Boulevard, Keawe Street, Auahi Street, and Coral Street (TMKs: [1] 2-1-055:003, 006, 021, 026, and 038). Two archaeological historic properties were identified: SIHP # -7412, post-Contact cultural layer associated with the construction and utilization of the Kaka‘ako Leper Detention Depot, and SIHP # -7413, post-Contact trash layers and structural remnants associated with the construction and utilization of the Hawaiian Sugar Planters Association Immigration Station.

Additionally, Mason Architects Inc. conducted an architectural inventory survey for "Kaka‘ako Mauka" that includes the project area (Mason Architects 2009). Seven buildings were described. Three buildings were evaluated as eligible or potentially eligible for NRHP listing: 331 Keawe Street (TMK: [1] 2-1-055:038), constructed 1914; 660 Ala Moana (TMK: [1] 2-1-055:003), constructed 1962; and 680 Ala Moana (TMK: [1] 2-1-055:021), constructed 1960.

2.2.14 Tulchin et al. 2014a

CSH (Tulchin et al. 2014a) conducted an archaeological inventory survey for the 2.5-acre Kamehameha Schools Kaka‘ako Block B bounded by Pohukaina, Keawe, Auahi, and South streets (TMKs: [1] 2-1-054:025, 027, 028 [por.], and 032). Thirty-nine test locations were excavated, documented, and sampled. Two archaeological historic properties were identified consisting of SIHP # -7512, post-Contact structural remnants associated with early to mid-twentieth century development, and SIHP # -7513, post-Contact trash layer associated with early twentieth century land reclamation.

2.2.15 Tulchin et al. 2014b

CSH (Tulchin et al. 2014b) conducted an archaeological inventory survey for the 3.4-acre Kamehameha Schools Kaka‘ako Block I, within the block bounded by Auahi Street, Ward Avenue, Ala Moana Boulevard, and Koula Street (TMKs: [1] 2-1-056:002, 007, and 008). Six archaeological historic properties were identified consisting of SIHP # -7578, twentieth century cultural layer; SIHP # -7579, a twentieth century fill deposit and building foundations; SIHP # -7580, pre- to post-Contact cultural layer with a historic burial cluster; SIHP # -7581, a pre-Contact traditional Hawaiian bundle burial; SIHP # -7582, disarticulated human skeletal remains within a non-burial context; and SIHP # -7583, disarticulated human skeletal remains within a non-burial context.

2.2.16 Enanoria et al. 2015

CSH (Enanoria et al. 2015) reported on archaeological monitoring for an Ala Moana Boulevard/ Nimitz Highway resurfacing and highway lighting replacement project, between Fort Street and Kalākaua Avenue (TMKs: [1] 2-1-014, 027, 2-3, and 2-6). Three archaeological historic properties were identified: SIHP # -4573, subsurface remnants of pond sediment (Loko Kaipuni); SIHP # -7435 Features A–D, human skeletal remains; and SIHP # -7436, human skeletal remains.

2.2.17 Tulchin et al. 2015

CSH (Tulchin et al. 2015) conducted an archaeological inventory survey for the 202-acre Kamehameha Schools Kaka‘ako Block H, which is bounded by Auahi Street, Koula Street, Ala Moana Boulevard, and Cooke Street (TMK: [1] 2-1-056:003 and 004). One archaeological historic

property was identified: SIHP #-7549, post-Contact structural remnants associated with early- to mid-twentieth century development.

2.2.18 Enanoria and Hammatt 2016

CSH (Enanoria and Hammatt 2016) conducted and archaeological inventory survey for the Kaka‘ako Pumping Station (TMK: [1] 2-1-015:063) (Figure 41). One previously identified historic property was observed including The Ala Moana (Kaka‘ako) Pumping Station. The Kaka‘ako Pumping Station is listed on the State and National Registers of Historic Places (NRHP) (SIHP # 80-14-9710) and was placed on the HRHP on 17 August 1997 and was listed on the National Register of Historic Places (NRHP) on 4 October 1978 (#78001022). SIHP # -9710 is an architectural site rather than an archaeological site; and is listed under the NRHP under Criteria A and C.

In general, the observed stratigraphy from open trenching consists of varying layers of fill material. No natural or culturally enriched materials were encountered. Because the project area lies *makai* of the original shoreline, the area was expected to consist mostly of fill material. The coral shelf was observed within one trench, Test Excavation (TE) 1, located on the *mauka* side of the existing Kaka‘ako Pumping Station building, parallel to Ala Moana Boulevard. Within the remaining three trenches, excavations extended to approximately 2 ft below the water table (with additional probing), however, the coral shelf was not encountered. In addition to the project area being located *makai* of the original shoreline, construction style for a sewer pump station requires gravitational force and ground stability, suggesting that the area was excavated below sea level and into the coral shelf in order to create this effect (see Figure 17).

2.3 Background Summary and Predictive Model

Ubiquitous historic fill lenses are expected immediately below the ground surface, related to land reclamation activities in and around the project area from the 1890s to the 1930s. These municipal midden lenses of historic refuse are at least secondarily deposited as fill. The 1891 Dodge map (see Figure 18) illustrated the Kaka‘ako Pumping Station even prior to its completion in 1900 and is the first historic map observed to document the project area as above sea level. Possible buried archaeological materials include artifacts related to the “wagon trestle” illustrated in the 1891 Dodge map in the southwest portion of the project area. The illustrated wagon trestle feature adjoins a “crematory” immediately outside the project area.

Due to the substantial in-filling and other land reclamation activities documented in and around the project area, in situ cultural deposits prior to 1891 would be anticipated to be related to underwater or littoral human activities such as fishpond resource procurement. Specifically, there is the possibility of an intact traditional fishpond wall illustrated as crossing the northwest quadrant of the project area on the 1817 Kotzebue map (see Figure 7). While seaward portions of Kaka‘ako *mauka* of the Ala Moana/Nimitz alignment have yielded cultural properties and/or human skeletal remains, no projects *makai* of the Ala Moana/Nimitz alignment appear to have yielded subsurface cultural properties or human skeletal remains. That said, the possibility of encountering human remains still exists, even secondarily deposited within the expected historic fills.

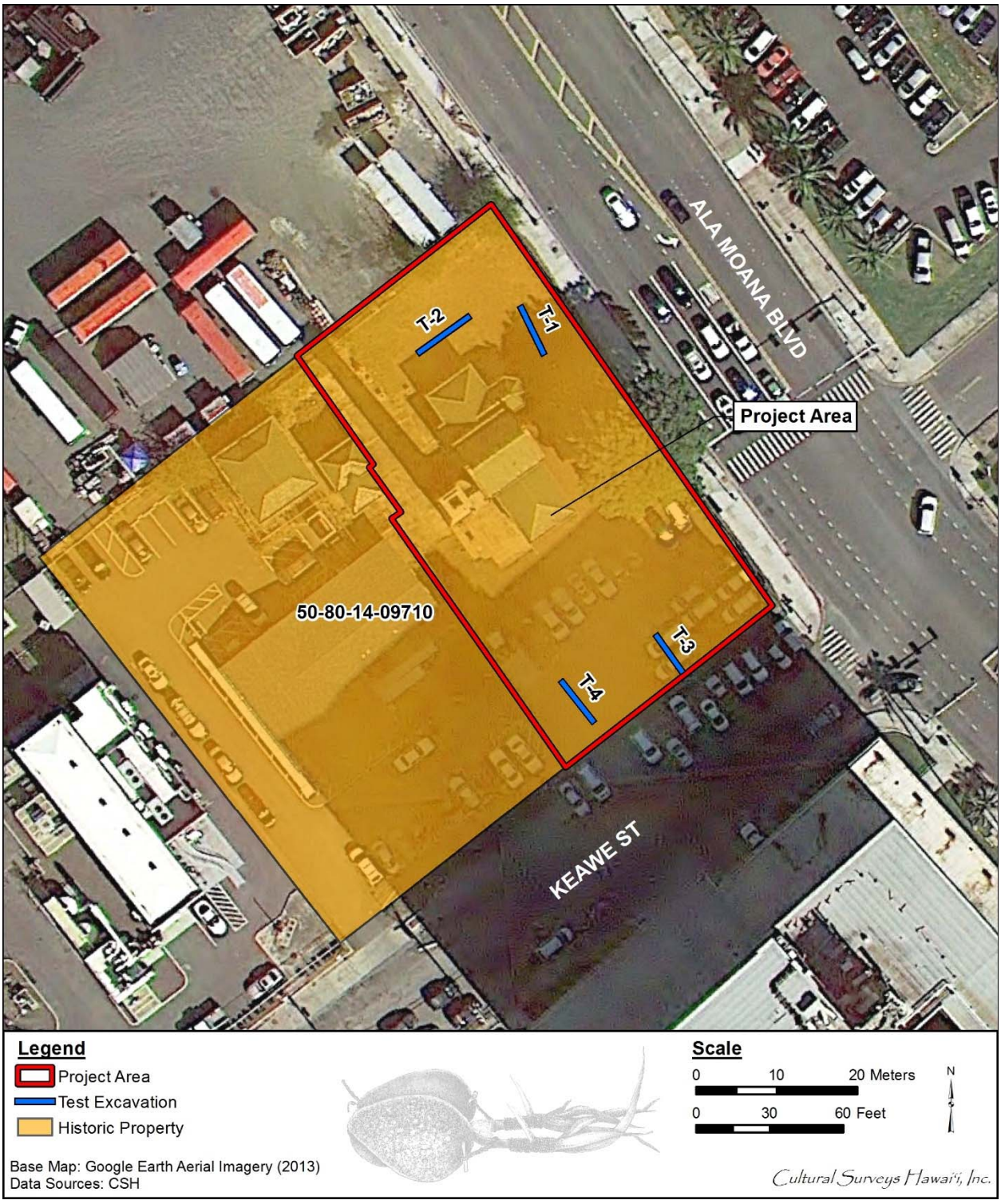


Figure 41. Location of test excavations and historic properties within the project area

Section 3 Archaeological Monitoring Provisions

Under Hawai‘i State historic preservation legislation, “Archaeological monitoring may be an identification, mitigation, or post-mitigation contingency measure. Monitoring shall entail the archaeological observation of, and possible intervention with, on-going activities, which may adversely affect historic properties” (HAR §13-13-279-3).

Hawai‘i State historic preservation legislation governing archaeological monitoring programs requires that each monitoring plan discuss eight specific items (HAR §13-13-279-4). The monitoring provisions below address these eight requirements in terms of archaeological monitoring for the excavations within the current project area.

1) Anticipated Historic Properties:

   The results of the AIS indicate one previously identified historic property is present in the project area, the Ala Moana (Kaka‘ako) Pumping Station. The Ala Moana Pumping Station is an architectural site listed on the State and National Registers of Historic Places (# 80-14-9710) and was placed on the HRHP on 17 August 1997 and was listed on the NRHP on 4 October 1978 (# 78001022). However, additional historic properties have been encountered in the immediate vicinity including human burials, fishpond remnants, historic privy features, and pit features. As such, anticipated findings include both historic and pre-Contact cultural material, archaeological features, and possibly human burials (see Figure 39, Figure 40, Table 2, and Table 3).

2) Locations of Historic Properties:

   Historic properties may be encountered anywhere within the project area. SIHP # -9710, the Ala Moana (Kaka‘ako) Pumping Station, is an existing structure located primarily in the central portion of the project area. The project area was observed to have undergone extensive land modification by the filling in of this low lying portion of Kaka‘ako. The Kaka‘ako Pump Station will undergo minor changes that will not affect its significant character.

3) Fieldwork:

   A program of on-site monitoring will be conducted in order to mitigate any impact on SIHP # -9710, the Ala Moana (Kaka‘ako) Pumping Station. Archaeological monitoring also will facilitate the identification and proper treatment of any potential historic properties that might be newly encountered during project construction activities. On-site archaeological monitoring is recommended for all ground-disturbing construction work more than 18 inches below surface, the depth of the uppermost fill deposits. Any departure from this will occur only following consultation with and written concurrence from the SHPD.

   The monitoring fieldwork will likely encompass the documentation of subsurface archaeological deposits (e.g., trash pits, structural remnants) and will employ current standard archaeological recording techniques. This will include drawing and recording the stratigraphy of excavation profiles where cultural features or artifacts are exposed as well as representative profiles. These exposures will be photographed, located on project area maps, and sampled. Photographs and representative profiles of excavations will be taken

even if no historically significant sites are documented. As appropriate, sampling will include the collection of representative artifacts, bulk sediment samples, and/or the on-site screening of measured volumes of feature fill to determine feature contents.

In the event of significant finds, the SHPD will be notified and consulted regarding their documentation and significance. If human remains are identified, construction activity in the vicinity will be stopped and no exploratory work of any kind will be conducted unless specifically requested by the SHPD. All human skeletal remains encountered during excavation will be handled in compliance with HAR §13-13-300 and HRS §6E-43.

4) Archaeologist's Role:

The on-site archaeologist has the authority to stop work immediately in the area of any findings so that documentation can proceed and appropriate treatment can be determined. In addition, the archaeologist may have the authority to slow and/or suspend construction activities in order to ensure the necessary archaeological sampling and recording can take place.

5) Coordination Meeting:

Before work commences on the project, the on-site archaeologist shall hold a coordination meeting to orient the construction crew to the requirements of the archaeological monitoring program. At this meeting the monitor will emphasize his or her authority to temporarily halt construction and state that all finds (including objects such as bottles) are the property of the landowner and may not be removed from the construction site. At this time it will be made clear that the archaeologist must be on site during all subsurface excavations that exceed 45 cm (18 inches) below ground surface.

6) Laboratory Work:

Laboratory work will be conducted in accordance with HAR §13-13-279-5(6). Laboratory analysis of non-burial related finds will be tabulated and standard artifact and midden recording will be conducted as follows. Artifacts will be documented as to provenience, measurements, weight, type of material, and presumed function. Photographs of representative artifacts will be taken for inclusion in the archaeological monitoring report. Bone and shell midden materials will be sorted down to species, when possible, and then tabulated by provenience.

As appropriate, collected charcoal material obtained within intact cultural deposits will be analyzed for species identification. Charcoal samples ideal for dating analyses will be sent to Beta Analytic, Inc. for radiocarbon dating. If appropriate, artifacts may be sent to the University of Hawai‘i-Hilo Geoarchaeology Lab for Energy-Dispersive X-ray Fluorescence (EDXRF) analysis in order to identify and possibly geographically locate the source material. All analyzed samples, provenience information, and results will be presented in table form within the archaeological monitoring report.

7) Report Preparation:

The report will contain sections on monitoring methods, archaeological results, stratigraphy, and results of laboratory analyses, and it will present a synthesis of these results. The report will address all requirements of a monitoring report (pursuant to HAR §13-13-279-5).

Photographs of excavations will be included in the monitoring report even if no historically significant sites are documented. Should burial treatment be completed as part of the monitoring effort, a summary of this treatment will be included in the monitoring report. Should burials and/or human remains be identified, CSH will provide all appropriate additional written documentation (e.g., letters, memos, reports) that may be requested by the SHPD.

8) Archiving Materials:

All burial materials will be addressed in accordance with SHPD directives. Materials not associated with burials will be temporarily stored at CSH's Waimānalo office until an appropriate curation facility is selected, in consultation with the landowner and the SHPD. All data generated will be stored at the CSH offices.

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Appendix A SHPD Correspondence

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

JEFFREY T. PEARSON
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

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January 7, 2016

Doug Borthwick
Cultural Surveys Hawaii, Inc.
P.O. Box 1114
Kailua, HI 96734

Log No. 2015.03618
Doc. No. 1601KM03
Archaeology

Dear Mr. Borthwick,

SUBJECT: **Chapter 6E-8 Historic Preservation Review –**
Archaeological Inventory Survey for the Kaka‘ako Pump Station (Site 50-80-14-9710)
Honolulu Ahupua‘a, Honolulu (Kona) District, Island of O‘ahu
TMK: (1) 2-1-015:063

Thank you for the opportunity to review the draft report titled *Archaeological Inventory Survey Report for the Kaka‘ako Pumping Station (SIHP # 50-80-14-9710) Project, 653 Ala Moana Boulevard, Kaka‘ako Makai, Honolulu Ahupua‘a, Honolulu (Kona) District, O‘ahu, TMK: [1] 2-1-015:063* (Enanoria and Hammatt, September 2015). SHPD received the original submittal for review on September 30, 2015, and revisions on January 6, 2015 (Doug Borthwick email correspondence). HCDA proposes to renovate the Kaka‘ako Pump Station (Site 50-80-14-9710) for use as a community resource center. The non-profit community group, Pacific Gateway Center, plans to develop the Na Kūpuna Makamae center as a gathering place, and for educational and cultural programs to primarily senior citizens.

The proposed project initially came under review by the State Historic Preservation Division (SHPD) in late October of 2014. SHPD determined there was insufficient information to provide a determination of “no historic properties affected” and requested additional information. SHPD further requested an archaeological inventory survey (AIS) of the subject parcel be conducted to document surface and potential subsurface historic properties (Log No. 2014.04494, Doc. No. 1410GC14). In a subsequent correspondence, SHPD’s Architecture Branch restated the need for additional information, completion of an AIS, and requested a consultation meeting regarding discussion of the project elements and treatment of the pump station (Site 50-80-14-9710) (Log No. 2014.05806, Doc. No. 1501AB10). SHPD’s concerns regarding treatment of the existing pump station (Site 50-80-14-9710) and for potential subsurface properties were addressed during a meeting on April 9, 2015. SHPD confirmed the need for an AIS and approved a subsurface testing strategy in a 27 April 2015 meeting with Cultural Surveys of Hawaii, Inc. (CSH).

This archaeological inventory survey (AIS) report was prepared by Cultural Surveys Hawaii, Inc. on behalf of the Hawaii Community Development Authority (HCDA). The AIS project area consists of approximately 0.19 acres, comprising TMK: (1) 2-1-015:063 at 653 Ala Moana Boulevard. The property contains the Kaka‘ako Pump Station (Site 50-80-14-9710), a historic architectural property. The Kakaako Pump Station was determined significant under Criteria A and C and was listed in the Hawaii Register of Historic Places in 1973 and listed in the National Register of Historic Places in 1978 (NR# 78001022).

The AIS fieldwork involved a pedestrian survey of the entire property parcel and subsurface testing involved excavation of four test trenches (TE 1 through TE 4). No surface historic properties other than the Kakaako Pump Station (Site 50-80-14-9710) were identified, and no historic properties were identified during subsurface testing. No natural sediments or cultural layers were encountered and the coral shelf was only observed within a single excavation (TE 1). As the Kakaako Pump Station (Site 50-80-14-9710) is an architectural resource, the significance and eligibility of Site 9710 were not reassessed during this AIS.

Mr. Borthwick
January 7, 2016
Page 2

Pursuant to Hawaii Administrative Rules (HAR) §13-275-7, the project effect determination is "effect, with agreed upon mitigation commitments" due to the proposed project plans to significantly renovate the Kakaako Pump Station (Site 50-80-14-9710) and the potential for the project affect yet unidentified significant subsurface archaeological historic properties. The agreed-upon mitigation commitments are (1) renovation of the Kakaako Pump Station will follow the Secretary of the Interior's Standards for Rehabilitation, and (2) on-site archaeological monitoring will occur for all ground disturbing and construction related activities.

The revised report adequately addresses the issues and concerns identified in SHPD's email correspondence with Doug Borthwick (January 5, 2016; January 6, 2016). The report meets the standards set forth in HAR §13-276-5. **It is accepted by SHPD**. Please send one hardcopy of the document, clearly marked FINAL, along with a copy of this review letter and a text-searchable PDF version on CD to the Kapolei SHPD office, attention SHPD Library.

As stipulated in HAR §13-275-7(e), when SHPD comments that the project will have an "effect, with agreed upon mitigation commitments," then detailed mitigation plans shall be developed for SHPD review and acceptance. Pursuant to HAR §13-284-8(a)(1)C), the agreed-upon mitigation measure for the proposed Na Kūpuna Makamae project is data recovery in the form of archaeological monitoring. **Pursuant to HAR §13-284-8, we look forward to receiving an archaeological monitoring plan that meets HAR §13-279-4 prior to any project related work commencing**.

Please contact Kimi Matsushima at (808) 692-8027 or at Kimi.R.Matsushima@hawaii.gov if you have any questions or concerns regarding this letter.

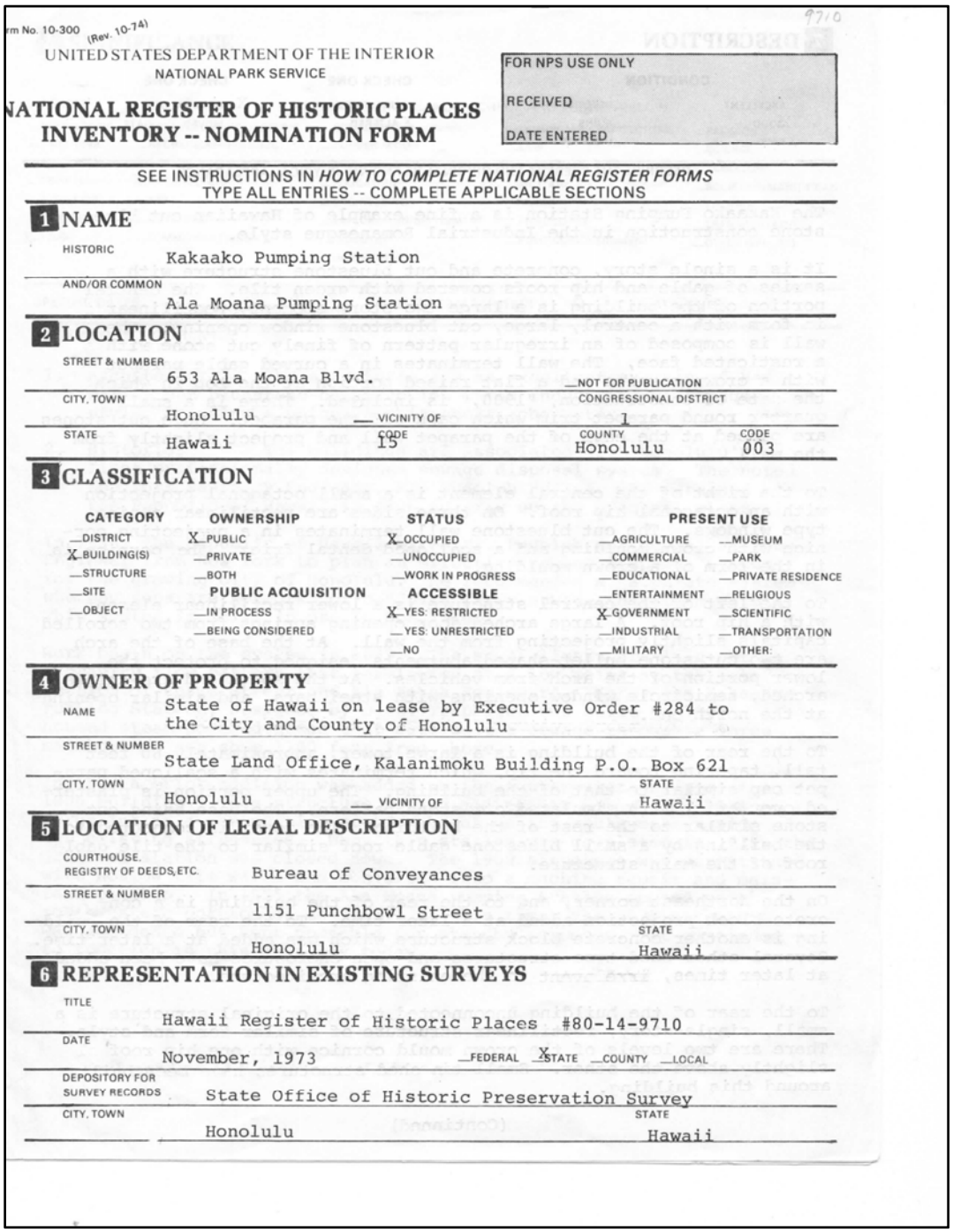
Aloha,

Susan A. Lebo

Susan A. Lebo, PhD
Archaeology Branch Chief

cc: Rayton Vares, Senator Brickwood Galuteria's Office (r.vares@capital.hawaii.gov)
Anthony Ching, Executive Director, Hawaii Community Development Association (tony@hcdaweb.org)

Appendix B National Register of Historic Places: Application for the Kaka‘ako Pumping Station



rm No. 10-300 (Rev. 10-74)

UNITED STATES DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE

NATIONAL REGISTER OF HISTORIC PLACES INVENTORY -- NOMINATION FORM

FOR NPS USE ONLY
RECEIVED
DATE ENTERED

SEE INSTRUCTIONS IN *HOW TO COMPLETE NATIONAL REGISTER FORMS*
TYPE ALL ENTRIES -- COMPLETE APPLICABLE SECTIONS

1 NAME

HISTORIC: Kakaako Pumping Station

AND/OR COMMON: Ala Moana Pumping Station

2 LOCATION

STREET & NUMBER: 653 Ala Moana Blvd. — NOT FOR PUBLICATION

CITY, TOWN: Honolulu — VICINITY OF — CONGRESSIONAL DISTRICT: 1

STATE: Hawaii — CODE: 15 — COUNTY: Honolulu — CODE: 003

3 CLASSIFICATION

CATEGORY	OWNERSHIP	STATUS	PRESENT USE	
__DISTRICT	X PUBLIC	X OCCUPIED	__AGRICULTURE	__MUSEUM
X BUILDING(S)	__PRIVATE	__UNOCCUPIED	__COMMERCIAL	__PARK
__STRUCTURE	__BOTH	__WORK IN PROGRESS	__EDUCATIONAL	__PRIVATE RESIDENCE
__SITE	PUBLIC ACQUISITION	ACCESSIBLE	__ENTERTAINMENT	__RELIGIOUS
__OBJECT	__IN PROCESS	X YES: RESTRICTED	X GOVERNMENT	__SCIENTIFIC
	__BEING CONSIDERED	__YES: UNRESTRICTED	__INDUSTRIAL	__TRANSPORTATION
		__NO	__MILITARY	__OTHER:

4 OWNER OF PROPERTY

NAME: State of Hawaii on lease by Executive Order #284 to the City and County of Honolulu

STREET & NUMBER: State Land Office, Kalanimoku Building P.O. Box 621

CITY, TOWN: Honolulu — VICINITY OF — STATE: Hawaii

5 LOCATION OF LEGAL DESCRIPTION

COURTHOUSE, REGISTRY OF DEEDS, ETC.: Bureau of Conveyances

STREET & NUMBER: 1151 Punchbowl Street

CITY, TOWN: Honolulu — STATE: Hawaii

6 REPRESENTATION IN EXISTING SURVEYS

TITLE: Hawaii Register of Historic Places #80-14-9710

DATE: November, 1973 — __FEDERAL X STATE __COUNTY __LOCAL

DEPOSITORY FOR SURVEY RECORDS: State Office of Historic Preservation Survey

CITY, TOWN: Honolulu — STATE: Hawaii

7 DESCRIPTION

CONDITION		CHECK ONE	CHECK ONE
_EXCELLENT	_DETERIORATED	_UNALTERED	X_ORIGINAL SITE
X_GOOD	_RUINS	X_ALTERED	_MOVED DATE_____
_FAIR	_UNEXPOSED		

DESCRIBE THE PRESENT AND ORIGINAL (IF KNOWN) PHYSICAL APPEARANCE

The Kakaako Pumping Station is a fine example of Hawaiian cut bluestone construction in the Industrial Romanesque style.

It is a single story, concrete and cut bluestone structure with a series of gable and hip roofs covered with green tile. The central portion of the building is a large two-story element, rectilinear in form with a central, large, cut bluestone window opening. The wall is composed of an irregular pattern of finely cut stone with a rusticated face, The wall terminates in a curved gable parapet with a crown cornice and a flat raised portion at the top in which the date of construction, "1900," is included. There is a small quarter round parapet trim which caps off the parapet. Huge cut stones are placed at the eave of the parapet wall and project slightly from the wall.

To the right of the central element is a small octagonal projection with an octagonal hip roof. On three sides are rectilinear awning type windows. The cut bluestone wall terminates in a projecting cornice with crown moulding and a scalloped dental friez. The cornice is in the form of a crown moulding.

To the left of the central structure is a lower rectilinear element with a hip roof. A large arched door opening springs from two scrolled capitals slightly projecting from the wall. At the base of the arch are two cut stone bullet-shaped abutments designed to protect the lower portion of the arch from vehicles. At the south end are triple arched, semicircle window openings with steel bars, and similar openings at the north end.

To the rear of the building is a large tower, approximately 80 feet tall, tapering toward the tip, which terminates with a scalloped parapet cap similar to that of the building. The upper portion is plastered over brick with simulated cut stone pattern. The base being cut stone similar to the rest of the building. The tower is connected to the building by a small bluestone gable roof similar to the tile gable roof of the main structure.

On the northeast corner, and to the rear of the building is a concrete block projection added at a later time. To the rear of the building is another concrete block structure which was added at a later time. Several other shed type structures and open enclosures have been added at later times, irrelevant to the existing architecture.

To the rear of the building unconnected to the original structure is a small, single-story, rectilinear structure of similar form and style. There are two levels of the crown mould cornice with one hip roof slightly above the other. Small tin shed structures have been built around this building.

(Continued)

Form No. 10-300a
(Rev. 10-74)

UNITED STATES DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE

NATIONAL REGISTER OF HISTORIC PLACES INVENTORY -- NOMINATION FORM

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CONTINUATION SHEET ITEM NUMBER 7 PAGE 1

Directly to its rear is a rectilinear structure with plastered exterior finish, a large arched opening with a projecting lintel with the legend "1940" incised at its keystone. The corners of the structure are articulated by projecting pilasters which terminate in a slightly projecting beveled base for the structure. The wall terminates with cornice moulding similar to the original structures. A Hawaiian hip roof with slight projecting gable and green tile covers the building. This structure is apparently the actual pumping station, as it goes down approximately three floors with an open well in the center and a great deal of pipe and machinery. On the interior is a rectilinear fluted pilaster column, set diagonally at each corner with a small moulded base and capital. Also, midway between each corner is a similar pilaster protecting the wall. These support a steel channel truss system that forms the hip configuration of the roof. The roof itself is of concrete. On either side and to the rear of the building are two arched openings with steel windows. The area above the double glass and steel entry door has a fan lite configuration which reflects the vertical mullions in the door sash.

The buildings are set in a large lawned area adjacent to Ala Moana Boulevard with a number of large palm trees and shrubbery.

To the rear of the complex are some similar industrial buildings which are contemporary style. Currently the structures are being used as machine and repair shops for municipal purposes. To the right of the main structure, running along Ala Moana is a large, cut stone, rusticated wall with large abutments at the corners and recurring periodically with pyramiding caps.

8 SIGNIFICANCE

PERIOD	AREAS OF SIGNIFICANCE -- CHECK AND JUSTIFY BELOW			
__PREHISTORIC	__ARCHEOLOGY-PREHISTORIC	__COMMUNITY PLANNING	__LANDSCAPE ARCHITECTURE	__RELIGION
__1400-1499	__ARCHEOLOGY-HISTORIC	__CONSERVATION	__LAW	__SCIENCE
__1500-1599	__AGRICULTURE	__ECONOMICS	__LITERATURE	__SCULPTURE
__1600-1699	X ARCHITECTURE	__EDUCATION	__MILITARY	__SOCIAL/HUMANITARIAN
__1700-1799	__ART	X ENGINEERING	__MUSIC	__THEATER
__1800-1899	__COMMERCE	__EXPLORATION/SETTLEMENT	__PHILOSOPHY	__TRANSPORTATION
X 1900-	__COMMUNICATIONS	__INDUSTRY	__POLITICS/GOVERNMENT	__OTHER (SPECIFY)
		__INVENTION		

SPECIFIC DATES 1900 (Completed) BUILDER/ARCHITECT O.G. Traphagen

STATEMENT OF SIGNIFICANCE

1. Architectural: The structures are an excellent example of Hawaiian cut bluestone construction in an Industrial Romanesque style, creating a unique architectural character.

2. Historic: The buildings are associated with Honolulu's first professionally designed sewage disposal system. The noted New York Sanitary Engineer, Mr. Rudolph Hering, was retained by the Republic of Hawaii in 1896 to draw up the original plans.

In 1896, the Republic of Hawaii hired Mr. Rudolph Hering, a Sanitary Engineer from New York to plan an effective sewage disposal system for the growing city of Honolulu. He recommended a "separate system" whereby separate networks of conduits carry sewage and storm waters. This system is still in use in Honolulu.

Work began on the system in 1899. The sewer lines were laid out in a gravity flow pattern that terminated at a low point at the intersection of Keawe Street and Ala Moana Boulevard. Here, the Kakaako Pumping Station, designed by O. G. Traphagen was built in 1900. It housed steam-powered pumps that carried the sewage through a force main out to sea some 1200 feet from shore.

In 1925 a brick addition was added on the southwestern side of the 1900 building. This structure housed additional pumps. In 1938 construction on a new pumping station began on the southwestern side of the existing structures. When this station was completed in 1939, the original station was closed down. The 1900 structure was partitioned with hollow tile walls and converted into a machine repair and maintenance shop. In 1955 the Ala Moana Pumping Station opened on the southwestern portion of the lot. At this time, the 1938 structure was abandoned but kept operable for standby purposes. It continues to function in this capacity today.

9 MAJOR BIBLIOGRAPHICAL REFERENCES

Metcalf and Eddy, Engineers, Report To: Honolulu Sewage Committee Upon Sewage and Sewage Disposal, Vol. 1, (Metcalf and Eddy: Boston, 1944).
Interview with Mr. Raymond C. Y. Len and Mr, Robert Ishida, Division of Sewers, City and County of Honolulu.

10 GEOGRAPHICAL DATA

ACREAGE OF NOMINATED PROPERTY 1.148

UTM REFERENCES

	ZONE	EASTING	NORTHING
A	03	617665	2355950
B			
C			
D			

VERBAL BOUNDARY DESCRIPTION

The Kakaako Pumping Station is a rectangular parcel of land bounded by Ala Moana Boulevard on the north, by Keawe Street on the east, by TMK parcel 2-1-57:7 on the soutn, and by TMK parcels 2-1-57:15 and 5 on the west. It occupies TMK land parcel #2-1-57:1.

LIST ALL STATES AND COUNTIES FOR PROPERTIES OVERLAPPING STATE OR COUNTY BOUNDARIES

STATE	CODE	COUNTY	CODE
STATE	CODE	COUNTY	CODE

11 FORM PREPARED BY

NAME / TITLE
Gary Cummins - Historian/Bob Fox - Architect

DATE
November, 1973

ORGANIZATION
State Historic Preservation Office

STREET & NUMBER
1151 Punchbowl Street

TELEPHONE
548-6408

CITY OR TOWN
Honolulu

STATE
Hawaii

12 STATE HISTORIC PRESERVATION OFFICER CERTIFICATION

THE EVALUATED SIGNIFICANCE OF THIS PROPERTY WITHIN THE STATE IS:

NATIONAL ___ STATE ___ LOCAL X

As the designated State Historic Preservation Officer for the National Historic Preservation Act of 1966 (Public Law 89-665), I hereby nominate this property for inclusion in the National Register and certify that it has been evaluated according to the criteria and procedures set forth by the National Park Service.

STATE HISTORIC PRESERVATION OFFICER SIGNATURE

TITLE Jane L. Silverman

DATE April 12, 1978

FOR NPS USE ONLY
I HEREBY CERTIFY THAT THIS PROPERTY IS INCLUDED IN THE NATIONAL REGISTER

DATE

DIRECTOR, OFFICE OF ARCHEOLOGY AND HISTORIC PRESERVATION
ATTEST: DATE

KEEPER OF THE NATIONAL REGISTER

GPO 892-453

Appendix C Hawaii Register of Historic Places: Application for the Kaka‘ako Pumping Station

COVER SHEET

HAWAII REGISTER OF HISTORIC PLACES

50 - 80 - 14 - 09 7 10 SITE NAME/TYPE KAKAAKO PUMPING STATION
(1 2 3 4 5 6 7 8 9) DISTRICT HONOLULU
SITE IDENTIFICATION NUMBER AREA 2 acres square

2 1 1 8 9 9 - 1 9 0 0 CATEGORY Single Feature x Complex Place
(10 11 12 13 14 15 16 17 18 19 20)
CARD NO DATE/PERIOD OWNERSHIP x Public Private

PRESENT LAND USES(S) Machine Shop KNOWN PRESSURES ON SITE Change in use-demolition

DESTRUCTION No Known Future Danger Possible Future Danger x Future Danger Certain
Present Danger Presently Being Destroyed

STATUS x Occupied Unoccupied CONDITION x Excellent Good Fair Deteriorated
INTEGRITY Unaltered, Orig Loc Unaltered, Moved xAltered, Orig Loc Altered, Moved
ACCESSIBILITY Unrestricted xRestricted Inaccessible PHOTOS x Yes No(Tech Temp)
LEGENDARY MATERIALS KNOWN Yes x No WRITTEN HISTORICAL MATERIALS xYes No
SUSCEPTIBILITY TO INTERPRETATION Good x Moderate Poor
IMPORTANCE AS EXAMPLE OF TYPE SITE x Good Moderate Poor
RESEARCH POTENTIAL Good x Moderate Poor
LOCAL ATTITUDES ABOUT SITE xValuable Moderate Value Low Value Ambivalent
Unknown

BRIEF DESCRIPTION (Columns 21 - 80): A single story, concrete and cut bluestone structure with a series of gable and hip roofs with green tile covering. Built in an industrial Romanesque style.

STAFF EVALUATION High Value xValuable Reserve Marginal
SUGGESTED THEME(S): Art: Architecture; Science: Technology Acculturated Hawaii:
DATE SUBMITTED TO REVIEW BOARD North American//// 2/15/74

REVIEWER'S RECORD & EVALUATION

NAME DATE REVIEWED
CATEGORY High Value Valuable Reserve Marginal
SIGNIFICANCE National State Local
RECOMMENDED DISPOSITION Nominate National Register State Register Staff Files
RECOMMENDED THEMES:
REVIEWER'S COMMENTS:

REVIEW BOARD EVALUATION RECORD

DATE REVIEWED RECORDER
OFFICIAL CATEGORY: High Value Valuable Reserve Marginal
OFFICIAL SIGNIFICANCE National State Local
OFFICIAL THEME(S):
OFFICIAL DISPOSITION National Register Nomination State Register Staff Files
REVIEW BOARD COMMENTS:

VOTING RECORD:

Kikuchi	Mark	Lind
Tuggle	Nagata	Paglinawan
Jackson	Hormann	La Rocha
Daws		

HRHP-4-73

80 / 14 /9710
island quad site number
HRHP I.D. NO.

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

HAWAII REGISTER OF HISTORIC PLACES

Historic Sites Information and Review Form

Name of Site (Common): **ALA MOANA PUMPING STATION**

And/Or Historic: **KAKAAKO PUMPING STATION**

Street Address: **653 Ala Moana Boulevard**

City or Town: **Honolulu**

Latitude-Longitude Coordinates:

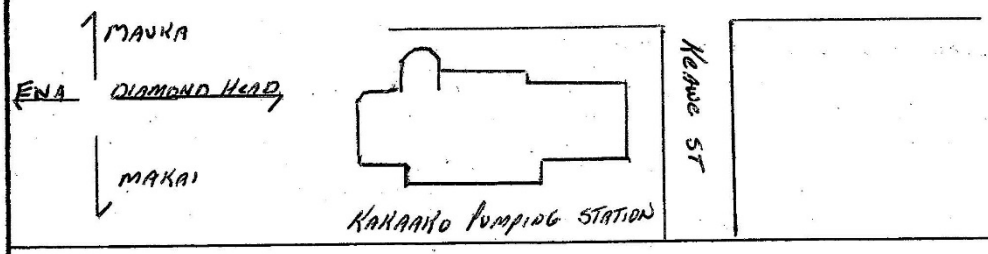
County: **Honolulu** District: **Honolulu**

Tax Key Numbers: **2-1-57-1**

Type of Site:
Building x
Public x
Industrial-Commercial
Religious-Educational
Residence
Other (Specify)

Historic Site (No Structure)
Historic District
Historic Object

Location Map of the Site: ALA MOANA BLVD



Approximate Acreage of Site: **1.148** Status of Site (Endangered?) **Yes**

Present Ownership: Private Federal State x City-County x

2

1

PRESENT INFORMATION ON THE SITE

NAME OF PRESENT OWNER(S):
City and County of Honolulu (State of Hawaii holds title to the land, which is managed by the City and County under Executive Order # 284)

ADDRESS OF PRESENT OWNER(S):
City and County of Hawaii--Department of Sewers, Alilolani Hale, Honolulu
Department of Accounting and General Services, State of Hawaii

OWNER'S ATTITUDE:
Unrestricted Research Allowed X
Restricted Research Allowed ____
No Research Allowed ____

ACCESSIBILITY:
Unrestricted Access ____
Restricted Access X
No Public Access ____

PRESENT USE OF THE SITE:
Agricultural ____ Commercial ____ Educational ____ Entertainment ____
Government X Industrial ____ Military ____ Museum ____ Park ____
Residence ____ Religious ____ Scientific ____ Transportation ____
Other (Specify) Building is now a shop/administrative area

PRESENT CONDITION OF THE SITE:
Excellent X Good ____ Fair ____ Deteriorated ____ Ruins ____

INTEGRITY OF THE SITE:
Altered X Unaltered ____ Moved ____ Original Place X
(If Moved, note original location): ____

ARCHITECTURAL DESCRIPTION OF THE SITE AT PRESENT, INCLUDING SKETCHES:
General Description:

It is a single story, concrete and cut bluestone structure with a series of gable and hip roofs covered with green tile. The central portion of the building is a large two-story element, rectilinear in form with a central, large, cut bluestone window opening. The wall is composed of an irregular pattern of finely cut stone with a rusticated face. The wall terminates in a curved gable parapet with a crown cornice and a flat raised portion at the top in which the date of construction, "1900," is incised. There is a small quarter round parapet trim which caps off the parapet. Huge cut stones are placed at the eave of the parapet wall and project slightly from the wall.

Architectural Interest and Merit:

To the right of the central element is a small octagonal projection with an octagonal hip roof. On three sides are rectilinear awning type windows. The cut bluestone wall terminates in a projecting cornice with crown moulding and a scalloped dental frieze. The cornice is in the form of a crown moulding.

To the left of the central structure is a lower rectilinear element with a hip roof. A large arched door opening springs from two scrolled capitals slightly projecting from the wall. At the base of the arch are two cut stone bullet-shaped abutments designed to protect the lower portion of the arch from vehicles. At the south end are triple arched, semicircle window openings with steel bars, and similar openings at the north end.

To the rear of the building is a large tower, approximately 80 feet tall, tapering toward the top, which terminates with a scalloped parapet cap similar to that of the building. The upper portion is plastered with simulated cut stone. The base being cut OVER-BRICK PATTERN.

Condition of Fabric: Good

Quality of Maintenance: Excellent X Standard ____ Poor ____ None ____

3

HRHP-4-73A KAAKO PUMPING STATION #1

80-14-9710

HAWAII REGISTER OF HISTORIC PLACES

HISTORICAL SITES INFORMATION AND REVIEW FORM---CONTINUATION SHEET

Please note subject heading (Statement of Significance, etc.; use separate sheet for each heading).

ARCHITECTURAL DESCRIPTION (CONT.)

stone similar to the rest of the building. The tower is connected to the building by a small bluestone gable roof similar to the tile gable roof of the main structure.

On the northeast corner, and to the rear of the building is a concrete block projection added at a later time. To the rear of the building is another concrete block structure which was added at a later time. Several other shed type structures and open enclosures have been added at later times, irrevalent to the existing architecture.

To the rear of the building unconnected to the original structure is a small, single-story, rectilinear structure of similar form and style. There are two levels of the crown mould cornice with one hip roof slightly above the other. Small tin shed structures have been built around this building.

Directly to its rear is a rectilinear structure with plastered exterior finish, a large arched opening with a projecting lintel with the legend "1940" incised at its keystone. The corners of the structure are articulated by projecting pilasters which terminate in a slightly projecting beveled base for the structure. The wall terminates with cornice moulding similar to the original structures. A Hawaiian hip roof with slight projecting gable and green tile covers the building. This structure is apparently the actual pumping station, as it goes down approximately three floors with an open well in the center and a great deal of pipe and machinery. On the interior is a rectilinear

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HRHP-4-73A KAKAAKO PUMPING STATION 4-9710 #2

HAWAII REGISTER OF HISTORIC PLACES

HISTORICAL SITES INFORMATION AND REVIEW FORM---CONTINUATION SHEET

Please note subject heading (Statement of Significance, etc.; use separate sheet for each heading).

ARCHITECTURAL DESCRIPTION (CONT.)

fluted pilaster column, set diagonally at each corner with a small moulded base and capital. Also, midway between each corner is a similar pilaster projecting from the wall. These support a steel channel truss system that forms the hip configuration of the roof. The roof itself is of concrete. On either side and to the rear of the building are two arched openings with steel windows. The area above the double glass and steel entry door has a fan lite configuration which reflects the vertical mullions in the door sash.

The buildings are set in a large lawned area adjacent to Ala Moana Blvd. with a number of large palm trees, shrubbery and other plants native to Hawaii.

To the rear of the complex are some smaller industrial buildings which are of contemporary style. Currently the structures are being used as machine and repair shops for municipal purposes. To the right of the main structure, running along Ala Moana is a large, cut stone, rusticated wall with large abutments at the corners and recurring periodically with pyramiding caps.

ARCHITECTURAL INTEREST AND MERIT:

The buildings, although the recent additions have been attached totally out of context with the original structure, are in excellent structural condition and reflect a strong, rugged character. They represent an exceptionally fine example of Hawaiian cut bluestone construction in an industrial Romanesque style, creating a unique architectural character.

ARCHITECTURAL DESCRIPTION OF SITE AT PRESENT, INCLUDING SKETCHES:

Wall and Ceiling Finish: concrete

Decorative Features and Trim: projecting cornices with crown moulding and scalloped dental frieze.
Large tower with scalloped parapet cap.
Octagonal projection

Notable Hardware: /windows and doors (use of steel bars)

Lighting: Electric, industrial

Additions and Alterations: Several metal sheds
concrete block projection NE corner
small single story rectilinear structure

Sites and Surroundings:

Orientation: Faces Ala Moana Blvd

Other Structures: Several sheds
small single story rectilinear structure
rectilinear structure with plastered exterior finish--"1940."

Landscaping: Large lawned area, adjacent to Ala Moana Blvd.
Several trees and Hawaiian plants

Walks, Drives, Walls: Service-type driveway

Miscellaneous (If more space is needed, please use continuation sheets, HRHP-4-73A):

HISTORICAL AND/OR ARCHITECTURAL SIGNIFICANCE

PERIOD OF SIGNIFICANCE:
EARLY CONTACT____ MISSIONARY_____ MIDDLE 19th CENTURY
MONARCHY____ TURN OF THE CENTURY__X__ 20th CENTURY__X__

ARCHITECT: O. G.Traphagen | BUILDER:

SPECIFIC DATES: 1900 (Building completed).

STATEMENT OF SIGNIFICANCE, INCLUDING HISTORICAL SKETCH:

1. Architectural: The structures are an excellent example of Hawaiian cut bluestone construction in an industrial Romanesque style, creating a unique architectural character. The building is being nominated mainly for its architecture.

2. Historic: The only historic significance is that the buildings are associated with Honolulu's first professionally designed sewage disposal system. The noted New York Sanitary Engineer, Mr. Rudolph Hering, was retained by the Republic of Hawaii in 1896 to draw up the original plans.

In 1896, the Republic of Hawaii hired Mr. Rudolph Hering, a Sanitary Engineer from New York to plan an effective sewage disposal system for the growing city of Honolulu. He recommended a "separate system" whereby separate networks of conduits carry sewage and storm waters. This system is still in use in Honolulu.

Work began on the system in 1899. The sewer lines were laid out in a gravity flow pattern that terminated at a low point at the intersection of Keawe Street and Ala Moana Boulevard. Here, the Kakaako Pumping Station, designed by O.G. Traphagen was built in 1900. It housed steam-powered pumps that carried the sewage through a force main out to sea some 1200 feet from shore.

Subsequent growth of Honolulu led to additional pumping stations and "interceptors" in 1927-28 and 1944.

5 7

BIBLIOGRAPHIC AND OTHER SOURCE INFORMATION

MAJOR LITERARY SOURCES:

Metcalf and Eddy, Engineers, Report To: Honolulu Sewerage Committee Upon Sewerage and Sewage Disposal, V. 1, (Metcalf and Eddy Boston, 1944)

OTHER SOURCES (personal interview,etc.):

Mr. Raymond C. Y. Len, Mechanical Engineer, Division of Sewers, City Hall, Room 203

REPRESENTATION IN OTHER SURVEYS:

Title of Survey: None

Date of Survey: _____

Records Located: _____

LOCATION OF LEGAL DESCRIPTION: Bureau of Conveyances
403 South Queen Street
Honolulu, Hawaii 96809

COMMENTS: **A land exchange is being contemplated between the City-County of Honolulu and the Department of Trasnportation, State of Hawaii. The Department of Transportation would like to have the parcel the pumping station is on for a container yard. All structures on the parcel would be demolished. DOT is waiting for Review Board action before a final decision is made.**

The smokestack is threatened by a tree growing in its top, dislodging bricks.

SURVEY CARRIED OUT BY: **Gary Cummins** (Name) **Historian** (Title)

Robert M. Fox, AIA (Name) **Architect** (Title)

PHOTOGRAPHS: Yes X No _____ By: **Gary Cummins and Robert M. Fox** (Name)

DATE: **November, 1973**

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ARCHITECTURAL DESCRIPTION OF THE SITE AT PRESENT, INCLUDING SKETCHES:

Detailed Description of Exterior:

Foundation: Bluestone

Wall Construction: Bluestone, concrete

Structural System: steel channel truss system

Porches and Stoops:

Openings: Doors: large arched door opening

Windows: triple arched, semicircular window openings with steel bars

Roof: Shape and Covering: hip roof, green tile, gabled

Detailed Description of Interior:

Floor Plan: concrete floors, large, open. Partially sunken with various pipes and machinery

Stairways: na

Flooring: concrete, uncovered