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OFC. OF ENVIRONMENTAL QUALITY CONTROL

Mr. Scott Glenn, Director
Office of Environmental Quality Control
Department of Health, State of Hawai'i
235 S. Beretania Street, Room 702
Honolulu, Hawai'i 96813

Dear Mr. Glenn:

Environmental Impact Statement Preparation Notice for
Ala Wai Canal Dredging and Improvements
Waikiki, Island of O'ahu, Hawai'i
Tax Map Key: (1) 2-3, 2-6, and 2-7

The Department of Land and Natural Resources (DLNR), hereby transmits the Environmental Impact Statement Preparation Notice (EISPN) for the Ala Wai Canal Dredging and Improvements project situated at TMKs (1) 2-3, 2-6, and 2-7, in the District of Waikiki, Island of Oahu, Hawaii for publication in the next available edition of the Environmental Notice. DLNR has determined, based on evaluation of the subject project, that the proposed undertaking should be assessed as an Environmental Impact Statement (EIS) pursuant to the requirements of Hawaii Revised Statutes, Chapter 343 and the significance criteria under Hawai'i Administrative Rules, Title 11, Chapter 200.

We understand that publication of the EISPN in the Environmental Notice will initiate a 30-day public consultation period for parties to comment on the action and to request to become consulted parties in the preparation of the draft EIS.

Enclosed are one (1) hard copy of the completed OEQC Publication Form, two (2) hard copies of the EISPN, and a CD with an electronic copy of the EISPN document (PDF), and publication form (MS Word).

If there are any questions, please contact Mr. Gayson Ching of our Engineering Division at 587-0232.

Sincerely,

Kekoa Kaluhiwa

for SUZANNE D. CASE
Chairperson

Enclosures
c: Brian Takeda (R. M. Towill Corporation)

17-187

AGENCY PUBLICATION FORM

Project Name:	Ala Wai Canal Dredging and Improvements
Project Short Name:	Ala Wai Canal Dredging
HRS §343-5 Trigger(s):	Use of state or county lands and funds; Use within the Waikīkī area of O'ahu; Use within any historic site as designated in the National Register or Hawai'i Register
Island(s):	O'ahu
Judicial District(s):	Honolulu
TMK(s):	(1) 2-3, 2-6, and 2-7
Permit(s)/Approval(s):	*FEDERAL:* Section 404, Clean Water Act, and Section 10, Rivers and Harbors Act. Section 404/10 permit processing will involve: Section 7, Endangered Species Act Consultation; Magnuson-Stevens Fishery Conservation and Management Act Consultation; Section 103, Marine Protection, Research, and Sanctuaries Act Consultation; and Section 106, National Historic Preservation Act Consultation. *STATE:* Environmental Impact Statement under Hawai'i Revised Statutes, Chapter 343; Section 401, Water Quality Certification; Coastal Zone Management Federal Consistency Determination; Section 402, CWA, National Pollutant Discharge Elimination System permit for construction stormwater; Conservation District Use Permit; and Stream Channel Alteration Permit. *CITY AND COUNTY OF HONOLULU:* Special Management Area Permit; Shoreline Setback Variance Permit; and Waikīkī Special District and Diamond Head Special District Permits.
Proposing/Determining Agency:	State of Hawai'i, Department of Land and Natural Resources
Contact Name, Email, Telephone, Address	Gayson Ching, gayson.y.ching@hawaii.gov (808) 587-0232, 1151 Punchbowl Street, Room 221, Honolulu, Hawaii 96813
Accepting Authority:	Governor, State of Hawai'i
Contact Name, Email, Telephone, Address	The Honorable David Y. Ige, http://governor.hawaii.gov/contact-us/contact-the-governor/ (808) 586-0034, Executive Chambers, State Capitol, 415 South Beretania Street, Honolulu, HI 96813
Consultant:	R. M. Towill Corporation (RMTC)
Contact Name, Email, Telephone, Address	Brian Takeda, Planning Project Coordinator, briant@rmtowill.com, (808) 842-1133, 2024 North King Street, Suite 200, Honolulu, Hawai'i 96819-3494

Status (select one)	**Submittal Requirements**
____DEA-AFNSI	Submit 1) the proposing agency notice of determination/transmittal letter on agency letterhead, 2) this completed OEQC publication form as a Word file, 3) a hard copy of the DEA, and 4) a searchable PDF of the DEA; a 30-day comment period follows from the date of publication in the Notice.
____ FEA-FONSI	Submit 1) the proposing agency notice of determination/transmittal letter on agency letterhead, 2) this completed OEQC publication form as a Word file, 3) a hard copy of the FEA, and 4) a searchable PDF of the FEA; no comment period follows from publication in the Notice.
____ FEA-EISPN	Submit 1) the proposing agency notice of determination/transmittal letter on agency letterhead, 2) this completed OEQC publication form as a Word file, 3) a hard copy of the FEA, and 4) a searchable PDF of the FEA; a 30-day comment period follows from the date of publication in the Notice.
__X_ Act 172-12 EISPN ("Direct to EIS")	Submit 1) the proposing agency notice of determination letter on agency letterhead and 2) this completed OEQC publication form as a Word file; no EA is required and a 30-day comment period follows from the date of publication in the Notice.
____ DEIS	Submit 1) a transmittal letter to the OEQC and to the accepting authority, 2) this completed OEQC publication form as a Word file, 3) a hard copy of the DEIS, 4) a searchable PDF of the DEIS, and 5) a searchable PDF of the distribution list; a 45-day comment period follows from the date of publication in the Notice.
____ FEIS	Submit 1) a transmittal letter to the OEQC and to the accepting authority, 2) this completed OEQC publication form as a Word file, 3) a hard copy of the FEIS, 4) a searchable PDF of the FEIS, and 5) a searchable PDF of the distribution list; no comment period follows from publication in the Notice.
____ FEIS Acceptance	The accepting authority simultaneously transmits to both the OEQC and the proposing agency a letter

Determination	of its determination of acceptance or nonacceptance (pursuant to Section 11-200-23, HAR) of the FEIS; no comment period ensues upon publication in the Notice.
FEIS Statutory Acceptance	Timely statutory acceptance of the FEIS under Section 343-5(c), HRS, is not applicable to agency actions.
____ Supplemental EIS Determination	The accepting authority simultaneously transmits its notice to both the proposing agency and the OEQC that it has reviewed (pursuant to Section 11-200-27, HAR) the previously accepted FEIS and determines that a supplemental EIS is or is not required; no EA is required and no comment period ensues upon publication in the Notice.
____ Withdrawal	Identify the specific document(s) to withdraw and explain in the project summary section.
____ Other	Contact the OEQC if your action is not one of the above items.

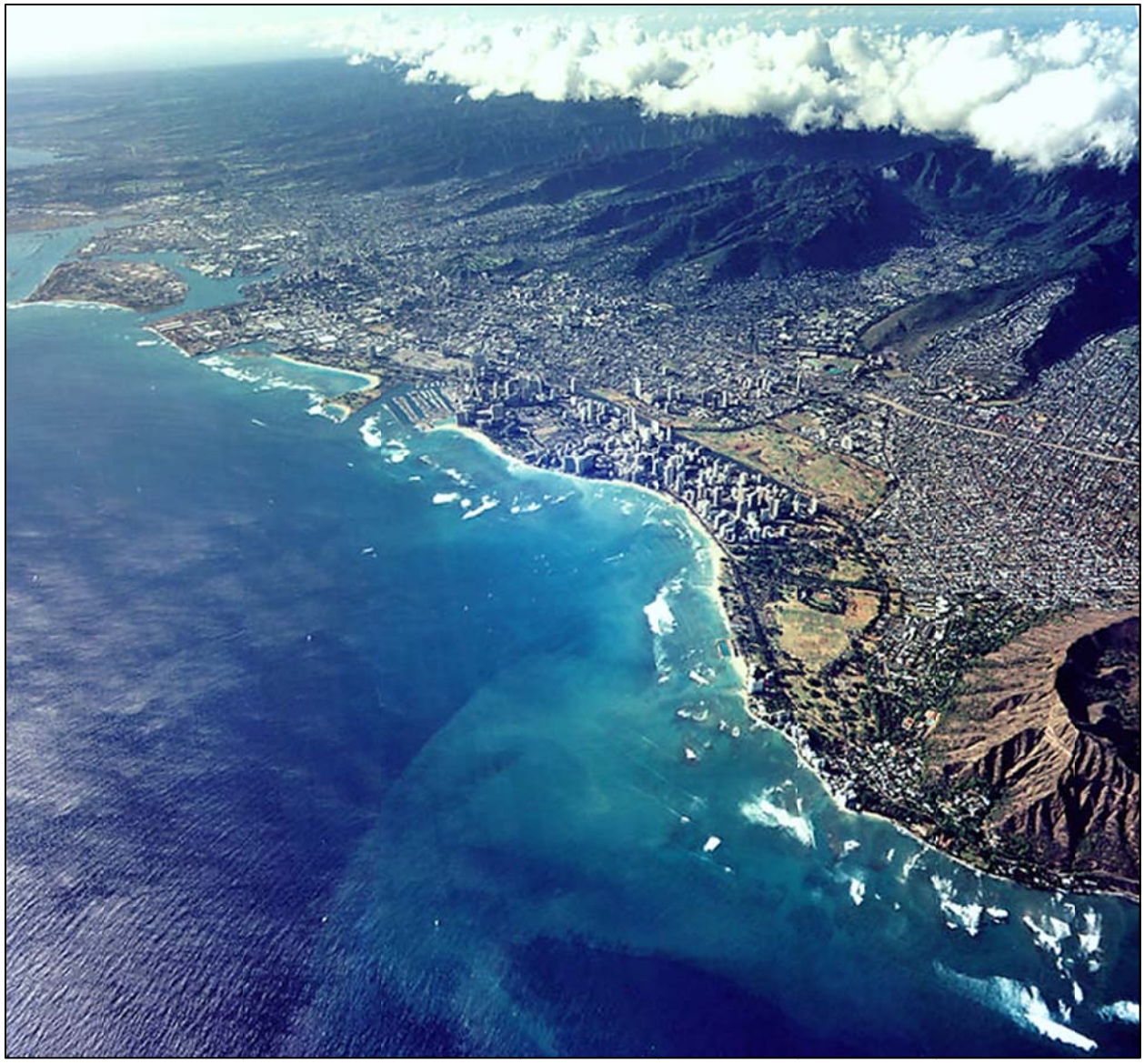
Project Summary
Provide a description of the proposed action and purpose and need in 200 words or less.

The proposed action is to dredge the Ala Wai Canal and a portion of the Mānoa-Pālolo Drainage Canal in Waikīkī, and provide repairs to damaged and deteriorating sections of the Ala Wai Canal walls and stairs. The purpose of the proposed action is to dredge and remove accumulated silt and sediments, improve protection of nearshore State marine waters and aquatic life, improve public health and safety, decrease the potential for property damage from flooding and a deteriorating canal structure, and improve aesthetics along the Ala Wai Boulevard sidewalk. The removal of accumulated silt and sediments, and repair of the canal walls are needed to restore sediment and water holding capacities, decrease risk of flooding in surrounding areas during high intensity storm events, and improve conditions for recreational use along the Ala Wai Canal and its environs.

Act 172-12 Environmental Impact Statement Preparation Notice
Prepared in Accordance with Hawaii Revised Statutes,
Chapter 343, and Hawaii Administrative Rules, Title 11, Chapter 200

Ala Wai Canal Dredging and Improvements

Waikīkī, Island of O'ahu, Hawai'i



October 2016

Applicant/Accepting Agency:
State of Hawai'i, Department of Land and Natural Resources
1151 Punchbowl Street, Room 130
Honolulu, Hawai'i 96813

Act 172-12 Environmental Impact Statement Preparation Notice

Ala Wai Canal Dredging and Improvements

Waikīkī, Island of Oʻahu, Hawaiʻi

October 2016

Prepared For:
State of Hawaiʻi
Department of Land and Natural Resources
1151 Punchbowl Street, Room 130
Honolulu, Hawaiʻi 96813

Prepared By:
R. M. Towill Corporation
2024 North King Street, Suite 200
Honolulu, Hawaiʻi 96819-3494

Project No. 1-22490-00P

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1 **Appendices**

Appendix A	Notification and Content of Ala Wai Canal Dredging and Improvements Project Public Informational and EISPN Scoping Meeting, July 2016.
Appendix B	Public Comments, July-September 2016.

2

Acronyms and Abbreviations

ADA	Americans with Disabilities Act
ANSI	American National Standards Institute
AWC	Ala Wai Canal
BLNR	Board of Land and Natural Resources
BMPs	Best Management Practices
BWS	Board of Water Supply
CCH	City and County of Honolulu
CDP	Census Designated Place
CDUP	Conservation District Use Permit
CIA	Cultural Impact Assessment
CRM	Concrete Rubble Masonry
CWA	Clean Water Act of 1972, as amended
CWB	Clean Water Branch, Hawai'i Department of Health
CWRM	Commission on Water Resource Management
cy	Cubic Yard
CZM	Coastal Zone Management
CZMA	Coastal Zone Management Act
CZM FEDCON	Coastal Zone Management Federal Consistency Determination
CZMP	Coastal Zone Management Program, Hawai'i Office of Planning
dB	Decibel
dBA	A-Weighted Decibel
DEIS	Draft Environmental Impact Statement
DHSD	Diamond Head Development Plan
DLNR	Hawai'i Department of Land and Natural Resources
DOBOR	Division of Boating and Ocean Recreation, DLNR
DOFAW	Division of Forestry and Wildlife, DLNR
DOH	Hawai'i Department of Health
DP	Development Plan
DPP	Department of Planning and Permitting, CCH
DPR	Department of Parks and Recreation, CCH
DSP	Division of State Parks, DLNR
ECP	Erosion Control Plan
EFH	Essential Fish Habitat
EIS	Environmental Impact Statement
EISPN	Environmental Impact Statement Preparation Notice

Acronyms and Abbreviations

ENV	Department of Environmental Services, CCH
EPA	Environmental Protection Agency
ESA	Endangered Species Act
FEIS	Final Environmental Impact Statement
ft	Feet
FEMA	Federal Emergency Management Agency
FIRM	Flood Rate Insurance Map
FIS	Flood Insurance Study
FONSI	Finding of No Significant Impact
GP	General Plan (of the CCH)
GPS	Global Positioning System
HAR	Hawai‘i Administrative Rules
HDOT	Hawai‘i Department of Transportation
HECO	Hawaiian Electric Company
HFD	Honolulu Fire Department
HPD	Honolulu Police Department
HRS	Hawai‘i Revised Statutes
IPCC	Intergovernmental Panel on Climate Change
IPRC	International Pacific Research Center
km	Kilometer
kV	Kilovolt
lf	Linear Feet
LUO	Land Use Ordinance
MBTA	Migratory Bird Treaty Act
MMPA	Marine Mammal Protection Act
MPDC	Mānoa-Pālolo Drainage Canal
MPRSA	Marine Protection, Research and Sanctuaries Act
msl	Mean Sea Level
MUS	Management Unit Species
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NMFS	National Marine Fisheries Service, NOAA
No.	Number
NOAA	National Oceanic and Atmospheric Administration
NOI	Notice of Intent to discharge under NPDES regulations

Acronyms and Abbreviations

NPDES	National Pollutant Discharge Elimination System
OCCL	Office of Conservation and Coastal Lands
ODMDS	Ocean Dredged Material Disposal Site
OEQC	Office of Environmental Quality Control
OHA	Office of Hawaiian Affairs
PUC	Primary Urban Center
PUC-DP	Primary Urban Center Development Plan
RCRA	Resource Conservation and Recovery Act
RHA	Rivers and Harbors Act of 1899
RMTC	R. M. Towill Corporation
ROH	Revised Ordinances of Honolulu
ROW	Right of Way
SAP	Sampling and Analysis Plan
SCAP	Stream Channel Alteration Permit
SCH	Sustainable Communities Hawai‘i
SCS	U. S. Department of Agriculture, Soil Conservation Service
SHPD	State Historic Preservation Division, DLNR
SHPO	State Historic Preservation Officer
SIHP	State Inventory of Historic Properties
SMA	Special Management Area
SOEST	University of Hawai‘i, School of Ocean and Earth Science and Technology
SSV	Shoreline Setback Variance
SWPPP	Storm Water Pollution Plan
TCLP	Toxicity Characteristics Leaching Procedure
TMDL	Total Maximum Daily Load
TMK	Tax Map Key
USACE	U. S. Army Corps of Engineers
USC	United States Code
USCG	U. S. Coast Guard
USDA	U. S. Department of Agriculture
USFWS	U. S. Fish & Wildlife Service
USGS	U. S. Geological Survey
WPRFMC	Western Pacific Regional Fishery Management Council
WRDA	Water Resources Development Act
WQC	Water Quality Certification

Acronyms and Abbreviations

WQS	Water Quality Standards
WSD	Waikīkī Special District

1

1.0 Project Summary

Project:	Ala Wai Canal Dredging and Improvements Project, Waikīkī, Island of Oʻahu, Hawaiʻi
Proposing/Determining Agency:	State of Hawaiʻi, Department of Land and Natural Resources (DLNR) 1151 Punchbowl Street, Room 130, Honolulu, Hawaiʻi 96813
Accepting Authority:	Governor, State of Hawaiʻi Executive Chambers, State Capitol, 415 South Beretania Street, Honolulu, Hawaiʻi 96813
Agent:	R. M. Towill Corporation (RMTC) 2024 North King Street, Suite 200 Honolulu, Hawaiʻi 96819-3494 Contact: Brian Takeda, Planning Project Coordinator
Tax Map Keys (TMKs):	(1) 2-3, 2-6, and 2-7
Proposed Action:	The proposed action is to dredge the Ala Wai Canal and a portion of the Mānoa-Pālolo Drainage Canal (MPDC), provide repairs to damaged and deteriorating sections of the Ala Wai Canal walls, and assess appropriate treatment (i.e., repair, backfilling, or demolition) of the stairs leading into the Ala Wai Canal that have become a safety concern. The treatment to the stairs will be assessed through consultations with the community and agencies. The purpose of the proposed action is to dredge and remove accumulated silt and sediments, improve protection of nearshore State marine waters and aquatic life, improve public health and safety, decrease the potential for property damage from flooding and a deteriorating canal structure, and improve aesthetics along the Ala Wai Boulevard sidewalk. The removal of accumulated silt and sediments, and repair of the canal walls are needed to restore sediment and water holding capacities, decrease risk of flooding in surrounding areas during high intensity storm events, and improve conditions for recreational use along the Ala Wai Canal and its environs.
Land Area:	Approximately 37.6 acres
State Land Use District:	Urban
Adjacent County Zoning	Public Precinct, Apartment Precinct, Apartment, B-2 Community Business, AMX-2 Medium-density Apartment Mixed Use District, BMX-3 Community Business Mixed Use District, Resort Commercial Precinct (Waikīkī Special District), Resort Mixed Use Precinct, and P-2 General Preservation District
Existing Use:	Canal (Drainageway)
Special Management Area:	Ala Wai Canal and MPDC: NO Potential Disposal/Mooring/Transportation Sites: YES
Permits and Approvals that May be Required:	*FEDERAL:* Section 404, Clean Water Act (CWA), and Section 10, Rivers and Harbors Act (RHA). Section 404/10 permit processing will involve: Section 7, Endangered Species Act (ESA) Consultation; Magnuson-Stevens Fishery Conservation and Management Act Consultation; Section 103, Marine Protection, Research, and Sanctuaries Act Consultation (MPRSA); and Section 106, National Historic Preservation Act (NHPA) Consultation. *STATE:* Environmental Impact Statement (EIS) under Hawaiʻi Revised Statutes (HRS), Chapter 343; Section 401, Water Quality Certification (WQC); Coastal Zone Management Federal Consistency Determination (CZM FEDCON); Section 402, CWA, National Pollutant Discharge Elimination System (NPDES) permit for construction stormwater; Conservation District Use Permit (CDUP); and Stream Channel Alteration Permit (SCAP). *CITY AND COUNTY OF HONOLULU (CCH):* Special Management Area (SMA) Permit; Shoreline Setback Variance (SSV) Permit; and Waikīkī Special District (WSD) and Diamond Head Special District (DHSD) Permits.

2.0 Introduction

2.1 Purpose of the Environmental Impact Statement Preparation Notice (EISPN)

This Environmental Impact Statement Preparation Notice (EISPN) is prepared pursuant to the requirements of HRS, Chapter 343. The applicant for the proposed action is the State of Hawai'i, DLNR.

This EISPN provides public notification of the proposed maintenance dredging of the Ala Wai Canal and a portion of the MPDC, proposed repairs to the canal walls, and potential treatment of the stairs leading into the canal in Waikīkī, Island of O'ahu, Hawai'i. This EISPN will be followed by the preparation of a Draft Environmental Impact Statement (DEIS) and a Final Environmental Impact Statement (FEIS).

The EIS documents will provide information describing the proposed project, an analysis of the potential environmental consequences of the proposed action, and a discussion of alternatives to determine if there would be significant short-term, long-term, and/or cumulative impacts on the human, natural, or built environment. The EIS documents will also inform interested parties of the proposed project and seek relevant public comment on subject areas that should be addressed.

This EISPN presents a summary of alternatives for the maintenance dredging of the Ala Wai Canal and portion of the MPDC, repair of the Ala Wai Canal walls, and potential treatments to select stairs along the Ala Wai Canal that have become a safety concern. A detailed discussion of the alternatives, and potential environmental effects and mitigation measures for maintenance dredging and repair, rehabilitation, or replacement of the damaged structures of the canal will be provided in the DEIS.

Community input will be sought during the EIS process and is initiated with public notification and community scoping which is further discussed in **Section 10** of this document.

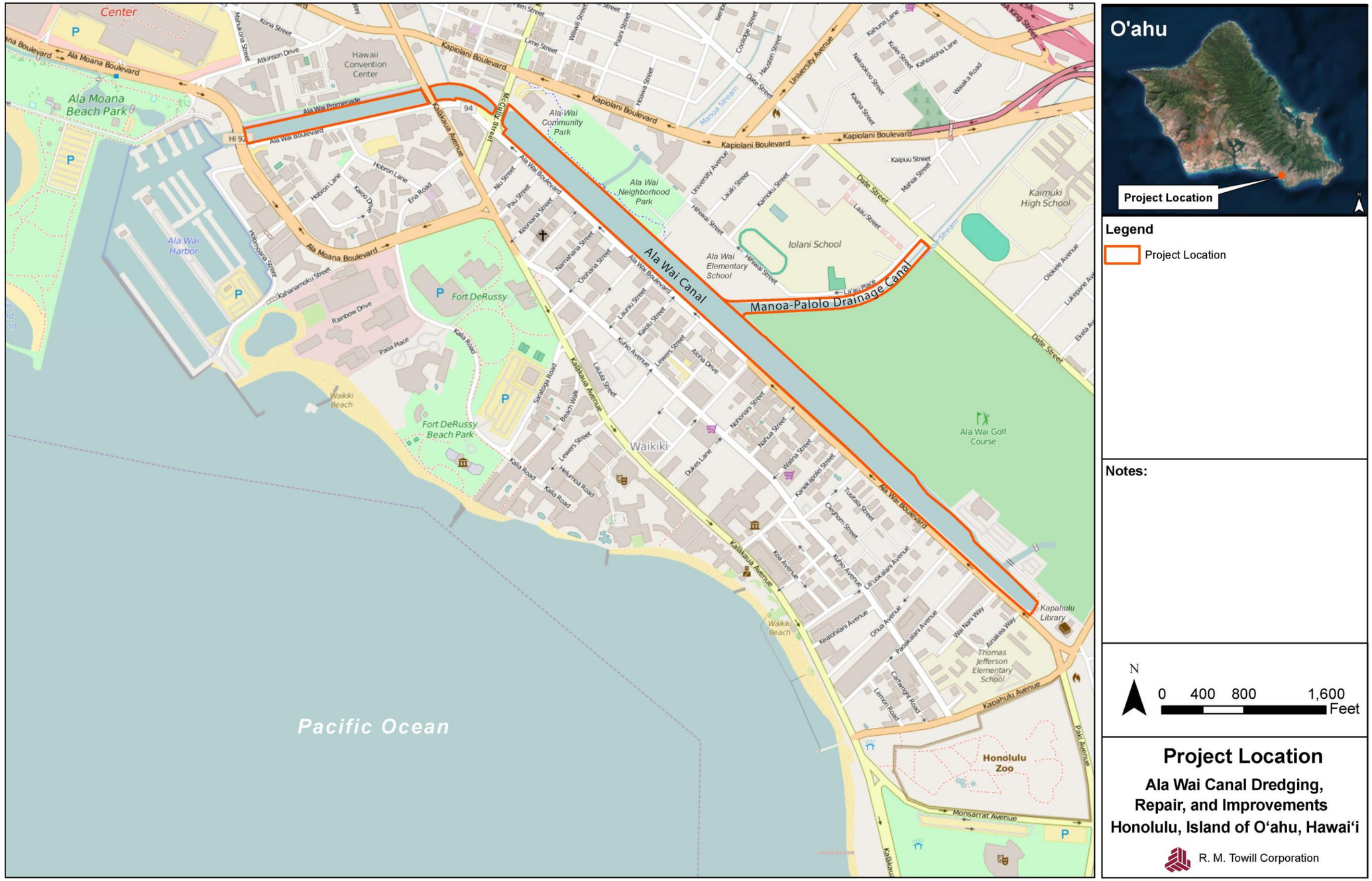
Site-specific environmental studies, engineering analyses and design will be performed for the proposed maintenance dredging, repair of the canal walls, and treatment of the stairs leading into the canal, and will also be presented in the DEIS.

2.2 Location of the Proposed Action

The proposed action is located in Waikīkī, island of O'ahu, Hawai'i, and involves maintenance dredging of the Ala Wai Canal and the MPDC, and construction to repair damaged and deteriorating sections of the canal walls, and potential treatments to select stairs along the canal that have become a safety concern.

The project limits include approximately 7,200 linear feet (lf) of the Ala Wai Canal from the mauka side of the Ala Moana Boulevard Bridge to the beginning of the canal near Ainakea Way and the Kapahulu Library, and approximately 2,000 lf of the MPDC. The principal areas of work will include most of the Ala Wai Canal and a portion of the MPDC. The total project area is approximately 37.6 acres. See **Figure 2-1, Project Location**. Sediment dredged from the canals will be characterized prior to the start of dredging for potential placement at a U. S. Environmental Protection Agency (EPA) designated ocean disposal site offshore O'ahu or for upland placement.

1 Figure 2-1. Project Location



The material planned to be dredged from the canals will be evaluated to identify contaminated material. If any contaminated material is identified, it will be isolated during dredging and addressed through sediment collection, processing, and disposal, consistent with state solid waste regulations. The general process will involve collecting the material into a scow (barge) and moving the materials to a containment area for proper handling.

Dredged sediment determined to be non-hazardous and suitable for disposal or reuse, will be disposed of at the South O'ahu Ocean Dredged Material Disposal Site (ODMDS), the designated ocean disposal location closest to the Ala Wai Canal. Reuse of the materials, if acceptable, will be for construction or other related purposes at an upland location. Upland sites currently being evaluated for placement of dredged sediments include a special area next to the Reef Runway at Honolulu International Airport, and state park land at Sand Island. Other sites, as appropriate, will be identified in the project DEIS.

The State Land Use classification of the proposed project site is in the Urban District. CCH zoning includes Public Precinct for the Ala Wai Canal dredge area and P-2 General Preservation for the MPDC dredge area, and potential staging sites at the Ala Wai Neighborhood Park and Magic Island (exact locations are to be determined). Conservation District lands that may be affected include submerged state lands, possible areas off the Reef Runway, and a possible moorage area off Magic Island.

2.3 Project Background

The Ala Wai Canal is a two-mile-long waterway constructed in the 1920s to drain extensive coastal wetlands, thus allowing for the development of the Waikīkī District. The canal begins near Ainakea Way, extends approximately 7,200 lf, until ending on the *mauka* (toward the mountains) side of the Ala Moana Boulevard bridge crossing over the canal where it empties into the Ala Wai Boat Harbor. The width of the Ala Wai Canal ranges between 150 and 250 feet (ft), with the widest section between McCully Street and the confluence with the MPDC (see **Figure 2-1**).

The MPDC, constructed between 1935 and 1936, originates at the confluence of Mānoa and Pālolo streams just above Wai'alae Avenue, and drains into the Ala Wai Canal, just west of the Ala Wai Golf Course (see **Figure 2-1**). The MPDC is lined with concrete for most of its length, but has a natural bottom just before entering the Ala Wai Canal.

The Ala Wai Canal intercepts flows via drainage features, streams, and smaller drain outfalls, which drain the approximately 19 square mile Ala Wai Canal watershed, including the developed communities of Makiki, Mānoa, Pālolo, McCully, Mō'ili'ili, Kapahulu, Ala Moana, and Waikīkī, in addition to undeveloped mountain ranges further north of the Makiki, Mānoa, and Pālolo communities. Large quantities of sediment are transported via storm water runoff from the watershed into the Ala Wai Canal, particularly during periods of high intensity rainfall.

Sources of sediment in the watershed include debris from the uplands and adjacent properties. Historically, the upper watershed was dominated by a native forest. The canopy structure was complex and captured rainfall, absorbing and slowing its energy before it hit the ground. The trees had strong, stable roots to withstand high water and wind velocities and secure sediment. The understory also helped to stabilize soil. The upper watershed is now dominated by invasive tree species with shallow

root systems, limited understory cover, and a simple canopy structure that does not adequately slow the rainfall. As a result, during large storm events, the upper watershed contributes a high amount of large woody debris and sediment, beyond natural background levels (USACE, 2015). These undeveloped portions of the watershed contribute the majority of the sediment load to the canal, with drainage features, streams, and smaller drain outfalls within the watershed serving as conveyors of eroded soil. Once the eroded soil reaches the Ala Wai Canal it leads to accumulation of large amounts of sediment over time. This is because the Ala Wai Canal is wider and deeper than its tributary streams, causing water velocity to be reduced upon entering the canal, and therefore resulting in deposition of sediment. The MPDC, the major tributary of the Ala Wai Canal, is a large source of the sediment, trash, and debris that enters the canal; a large sediment shoal exists at the confluence of the Ala Wai Canal and MPDC. Depths in this area have been reduced to as little as approximately (-) 2 ft mean sea level (msl).

Subsequently, the Ala Wai Canal serves as an important drainageway and sediment deposition basin. The Ala Wai Canal is critical in providing flood control for a very dense area of Honolulu. One of the main concerns for the integrity of the canal is the health of its waters. As sediments are deposited in the Ala Wai Canal by streams and storm drains they result in siltation and sources of water pollution. The Ala Wai Canal therefore reduces the discharge of these sediments from the Ala Wai Canal watershed into the nearshore coastal waters of Waikīkī, ensuring the protection of nearshore State marine waters and aquatic life.

The original depths of the Ala Wai Canal were approximately 10 to 20 ft below msl behind Waikīkī, 10 to 13 ft below msl between the confluence with Makiki Stream and Ala Moana Boulevard Bridge, and 25 ft below msl beyond the Ala Moana Boulevard Bridge (Edward K. Noda, 1992a). However, sedimentation has decreased the depths over time, particularly below the junction with the MPDC, where a sediment sill forms, decreasing circulation in the upper end of the Ala Wai Canal (Gonzalez, 1971). This has led to degradation of the hydraulic performance of the canal. Overtopping of the canal has previously flooded Waikīkī multiple times, including during the November 1965 and December 1967 storms and during the passage of Hurricane Iniki in 1992, contributing to property damage, and posing health and safety risks.

To protect the surrounding communities, increase water depths, and restore sediment-holding capacities, portions of the Ala Wai Canal have been dredged three times in the past: in 1966, 1978-79, and in 2002-03 (USACE, 2015). In 2002-03, approximately 170,000 cubic yards (cy) of material was removed (E2, 2016). However, since then, build-up of sediment in the Ala Wai Canal has increased, decreasing the canal's ability to hold sediment and contain runoff. This has increased the risk of flooding in surrounding areas. Due to shoaling since 2002, the State of Hawai'i DLNR proposes the subject maintenance dredging to maintain sufficient storm water handling capacity and to minimize the possibility of flooding. See **Section 2.4** for existing bathymetry of the Ala Wai Canal and the MPDC.

Since the original construction of the Ala Wai Canal, the canal walls have undergone repair, including major modifications to replace wall sections. In 1950, the crumbling masonry along the canal wall was replaced with a new concrete facing. In 1992, the State of Hawai'i, Harbors Division, reinforced or replaced portions of the wall due to deterioration. In general, the majority of the canal structure and surrounding area is in acceptable condition and poses no immediate safety threat to pedestrians, bicyclists, or other users of the facilities along the canal. There are certain damaged sections along the

canal, however, that have become a safety concern. These include sections of the canal walls that have failed or are severely leaning, cracked and uneven concrete wall toppings, areas with exposed rebar, cracked and missing rocks along the sides of the canal, and areas where there are voids behind the canal retaining walls due to loss of backfill. See **Section 2.4** below for details on the existing condition of the canal walls and stairs.

The proposed project would serve to address the accumulated sediment in the Ala Wai Canal and MPDC by restoring water depths in the proposed dredge areas. In addition, the project would address the damaged and deteriorating sections of the canal walls and stairs. Combined, these efforts would improve conditions for recreational use of the Ala Wai Canal and its environs and restore sediment- and water-holding, and flood control capacities within the canals.

2.4 Existing Conditions

Exiting Conditions: Canal Bathymetry

A topographic survey of the walls, banks and surrounding areas within the project limits along the Ala Wai Canal and the MPDC was conducted by RMTC in April and May of 2015, and was combined with a bathymetric survey performed in February 2015. The bathymetric survey results are summarized in **Table 2-1** below and illustrated in the upper portion of **Figures 2-2 to 2-12**.

Table 2-1. Ala Wai Canal and MPDC Existing Bathymetry Summary

Area	Figure No.	Approximate Channel Bottom Depth (feet msl)
Ala Wai Canal: Ala Moana Boulevard Bridge	Figure 2-2	(-) 10 to 11
Ala Wai Canal: Kalākaua Avenue Bridge	Figure 2-3	(-) 5 to 9
Ala Wai Canal: McCully Street Bridge	Figure 2-4	(-) 6 to 11
Ala Wai Canal: Between the McCully Street Bridge and the MPDC	Figure 2-5	(-) 4 to 6
Ala Wai Canal: Confluence with the MPDC	Figure 2-6	(-) 2
Ala Wai Canal: Upstream of confluence with the MPDC	Figure 2-7	(-) 4 to 5
Ala Wai Canal: Between Nahua Street and Lili‘uokalani Street	Figure 2-8 & Figure 2-9	(-) 7 to 9
Ala Wai Canal: Near Kapahulu Library and Ainakea Way	Figure 2-10	(-) 3 to 5
MPDC: Upstream of the confluence with the Ala Wai Canal	Figure 2-11	(-) 2 to 5
MPDC: Southwest of the Date Street Bridge	Figure 2-12	(-) 1 to 2

Bottom elevations along the Ala Wai Canal gradually rise from the Ala Moana Boulevard Bridge to the Kalākaua Avenue Bridge. Between the Kalākaua Avenue Bridge and the McCully Street Bridge where the canal bends, a localized depression is present. Bottom elevations along the Ala Wai Canal gradually rise from the McCully Street Bridge to the confluence with the MPDC. Within the Ala Wai Canal a shoal is present immediately downstream of the confluence with the MPDC. It is approximately 800 ft long and

greater than 150 ft wide, with a water depth of approximately (-) 2 ft msl. Immediately upstream of the confluence with the MPDC, depths within the Ala Wai Canal drop substantially (approximately (-) 5 to (-) 7 ft msl), with a localized depression located adjacent to the Ala Wai Golf Course.

In addition to sediment buildup, especially in the shoal area, the presence of depressions negatively affects water circulation. The Ala Wai Canal is a long, narrow, salinity stratified estuary where circulation is affected by storm events and tides. During heavy rainfall runoff events or strong trade wind conditions, the surface layer will flow towards the ocean regardless of the tidal phase. The underlying layer is largely tidally influenced, with currents flowing into the canal during the high tide and out of the canal during the low tide. During substantial rainfall events, runoff and stream flow into the canal causes the entire water column to flow seaward independent of tidal phase. Tidal currents within the canal are slight, do not lead to a natural flushing of the canal, and do little to circulate water, especially in localized depressions present within the canal. Depending on the dredge depths chosen, dredging would serve to even out the bottom surface of the Ala Wai Canal for more favorable water circulation.

Existing Conditions: Infrastructure

In addition to bathymetric and topographic surveys, field inspections were also completed to identify and document locations along the canals where repairs are needed. A search of as-built record drawings was conducted to determine the existing design of the canal walls and verify locations of underground infrastructure. Photos taken along both sides of the Ala Wai Canal document the existing condition of the canal walls and are provided on the lower portion of **Figures 2-2 to 2-12**; each photo is numbered and location identified on the bathymetric maps in the upper portion of each figure. The photos show the damaged and deteriorating sections of the canal walls and stairs.

The findings from the site visits, surveys and as-built drawings determined that there were multiple methods of wall construction utilized along the Ala Wai Canal. Since initial construction in the 1920s, the canal walls have undergone minor repairs, major modifications or have had sections completely replaced. In most sections of the canal, the walls are unreinforced concrete rubble masonry (CRM) of varying heights, widths, and face slopes. There are sections of the canal that have reinforced concrete walls, however upon visual inspection it could not be determined if the reinforced concrete extends down to the wall footing or if it was added on top of an existing CRM wall; one set of as-built drawings identified the latter. The existing conditions of the canal infrastructure are discussed in further detail below.

The existing conditions of the canal infrastructure are divided into the following subsections:

- Existing Conditions: Mauka-Side Canal Walls and Banks;
- Existing Conditions: Makai-Side Canal Walls and Banks; and
- Existing Conditions: Ala Wai Canal Stairs.

Figure 2-2. Ala Wai Canal Existing Conditions: Plan 1

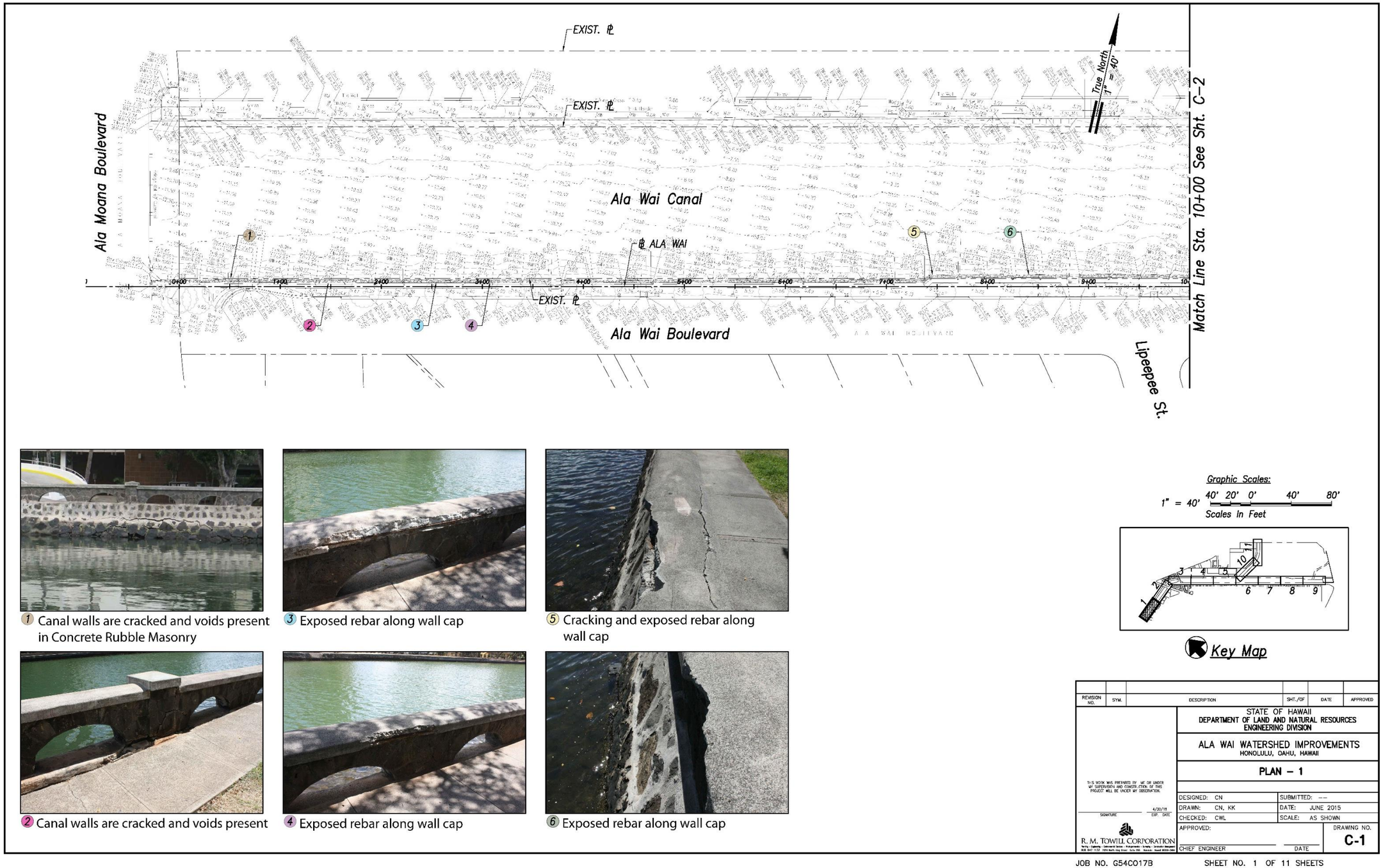
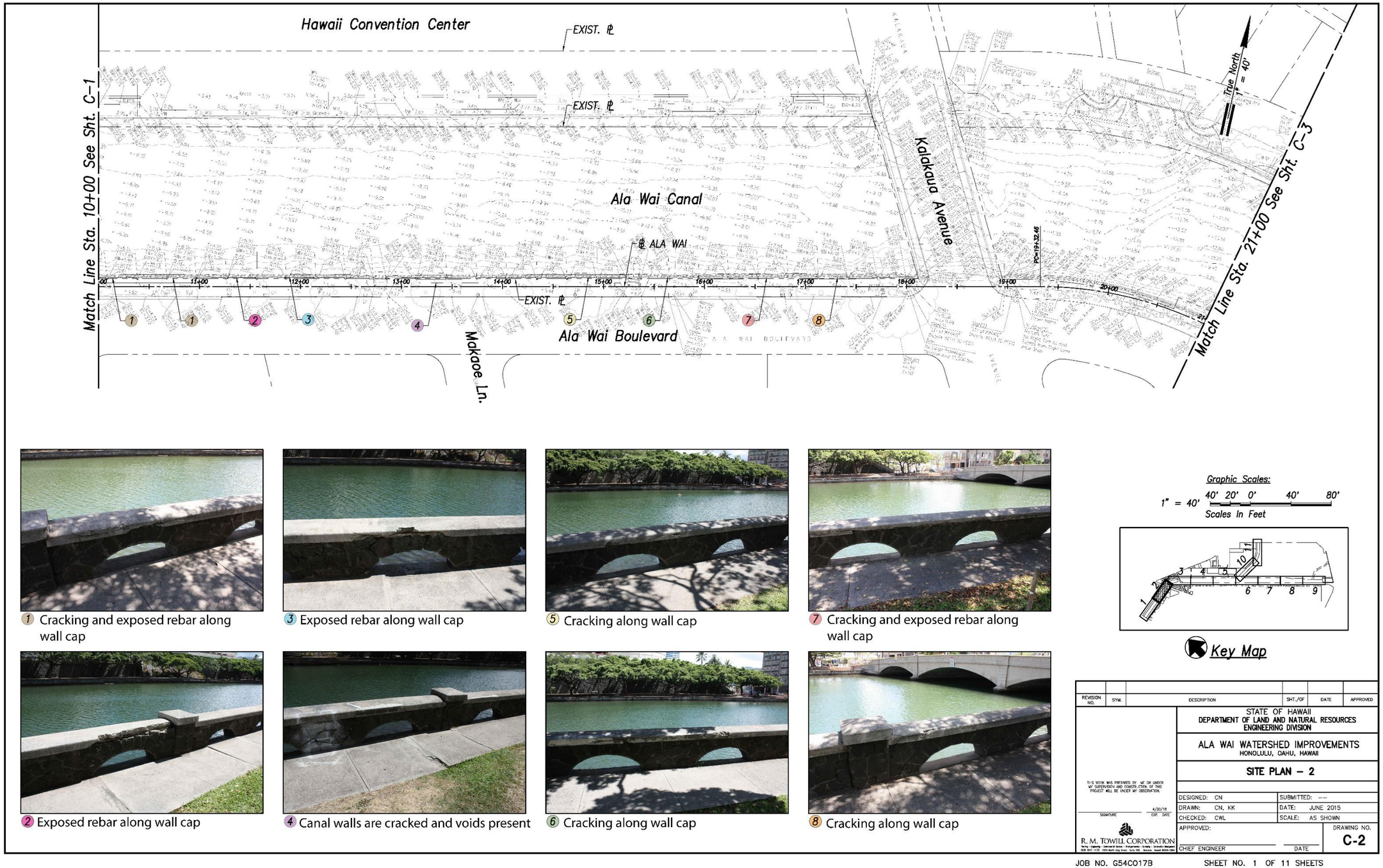


Figure 2-3. Ala Wai Canal Existing Conditions: Plan 2



1 Cracking and exposed rebar along wall cap

3 Exposed rebar along wall cap

5 Cracking along wall cap

7 Cracking and exposed rebar along wall cap

2 Exposed rebar along wall cap

4 Canal walls are cracked and voids present

6 Cracking along wall cap

8 Cracking along wall cap

Graphic Scales:
1" = 40' 40' 20' 0' 40' 80'
Scales In Feet

Key Map

REVISION NO.	SYM.	DESCRIPTION	SHT./OF	DATE	APPROVED

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
ENGINEERING DIVISION

ALA WAI WATERSHED IMPROVEMENTS
HONOLULU, OAHU, HAWAII

SITE PLAN – 2

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

SIGNATURE 4/30/16 EXP. DATE

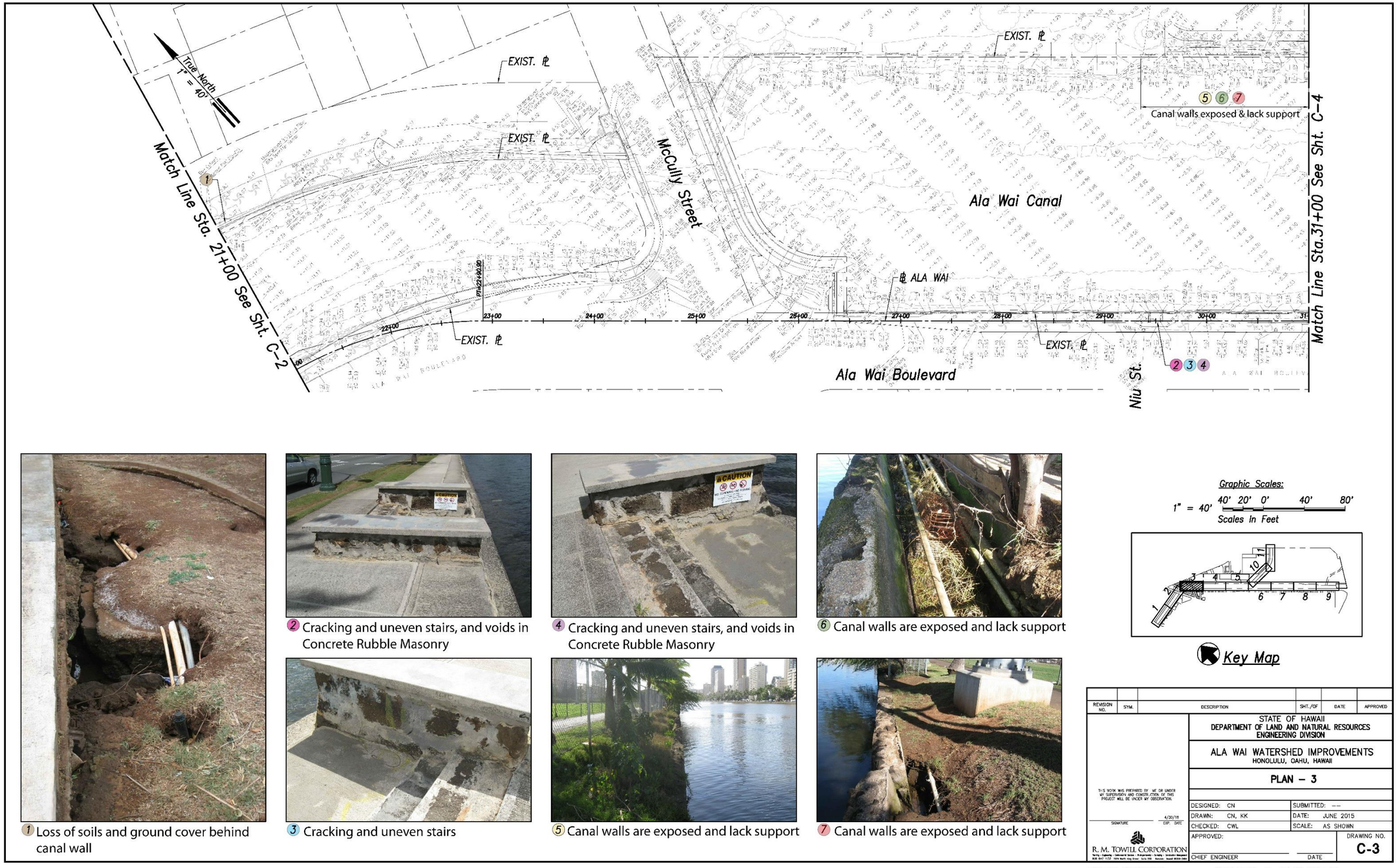
R. M. TOWILL CORPORATION

DESIGNED: CN	SUBMITTED: --
DRAWN: CN, KK	DATE: JUNE 2015
CHECKED: CWL	SCALE: AS SHOWN
APPROVED:	DRAWING NO. C-2
CHIEF ENGINEER DATE	

JOB NO. G54C017B SHEET NO. 1 OF 11 SHEETS

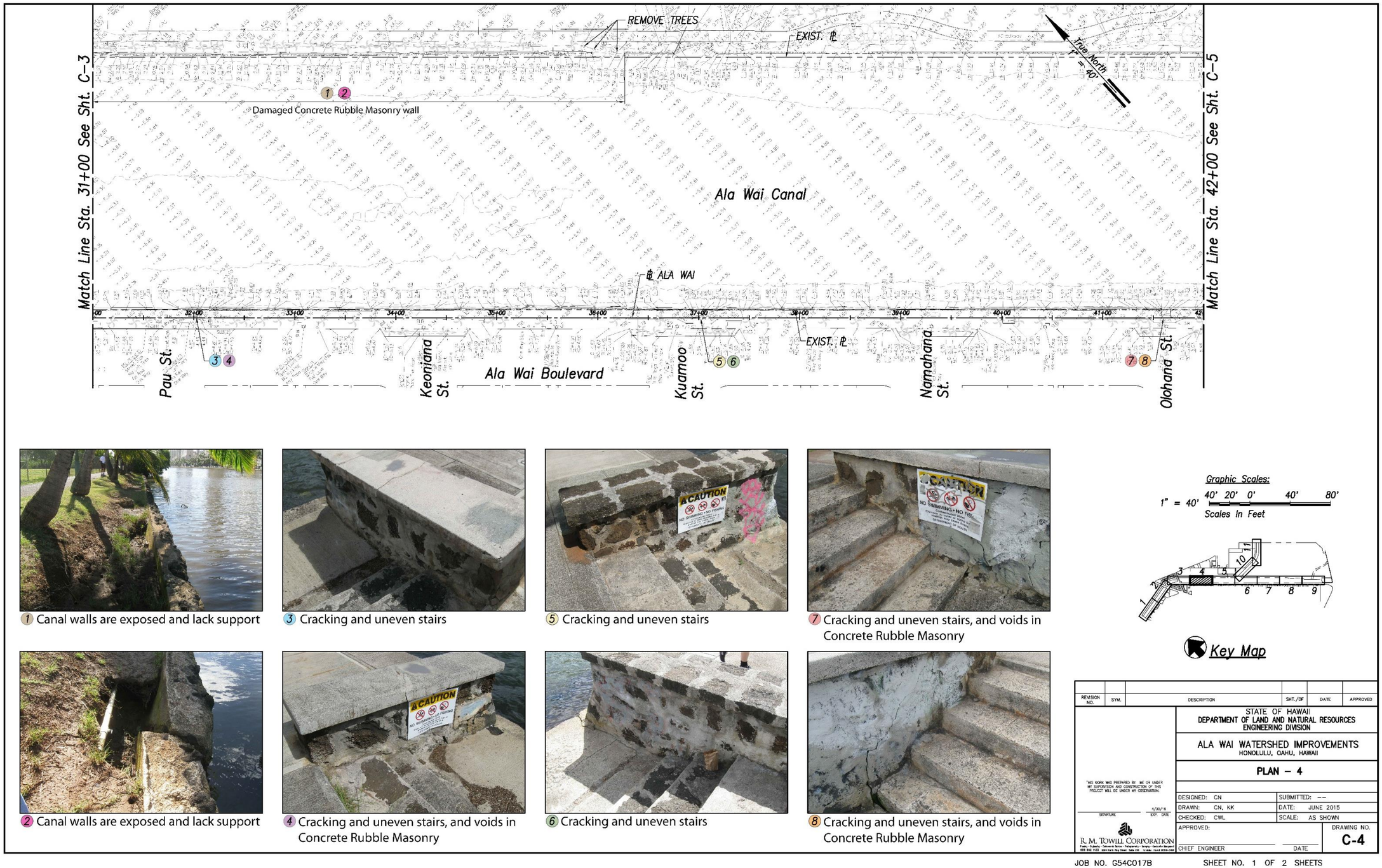
1 Figure 2-4. Ala Wai Canal Existing Conditions: Plan 3

2



1 Figure 2-5. Ala Wai Canal Existing Conditions: Plan 4

2



1 Canal walls are exposed and lack support

3 Cracking and uneven stairs

5 Cracking and uneven stairs

7 Cracking and uneven stairs, and voids in Concrete Rubble Masonry

2 Canal walls are exposed and lack support

4 Cracking and uneven stairs, and voids in Concrete Rubble Masonry

6 Cracking and uneven stairs

8 Cracking and uneven stairs, and voids in Concrete Rubble Masonry

1 Figure 2-6. Ala Wai Canal Existing Conditions: Plan 5

2

Figure 2-7. Ala Wai Canal Existing Conditions: Plan 6

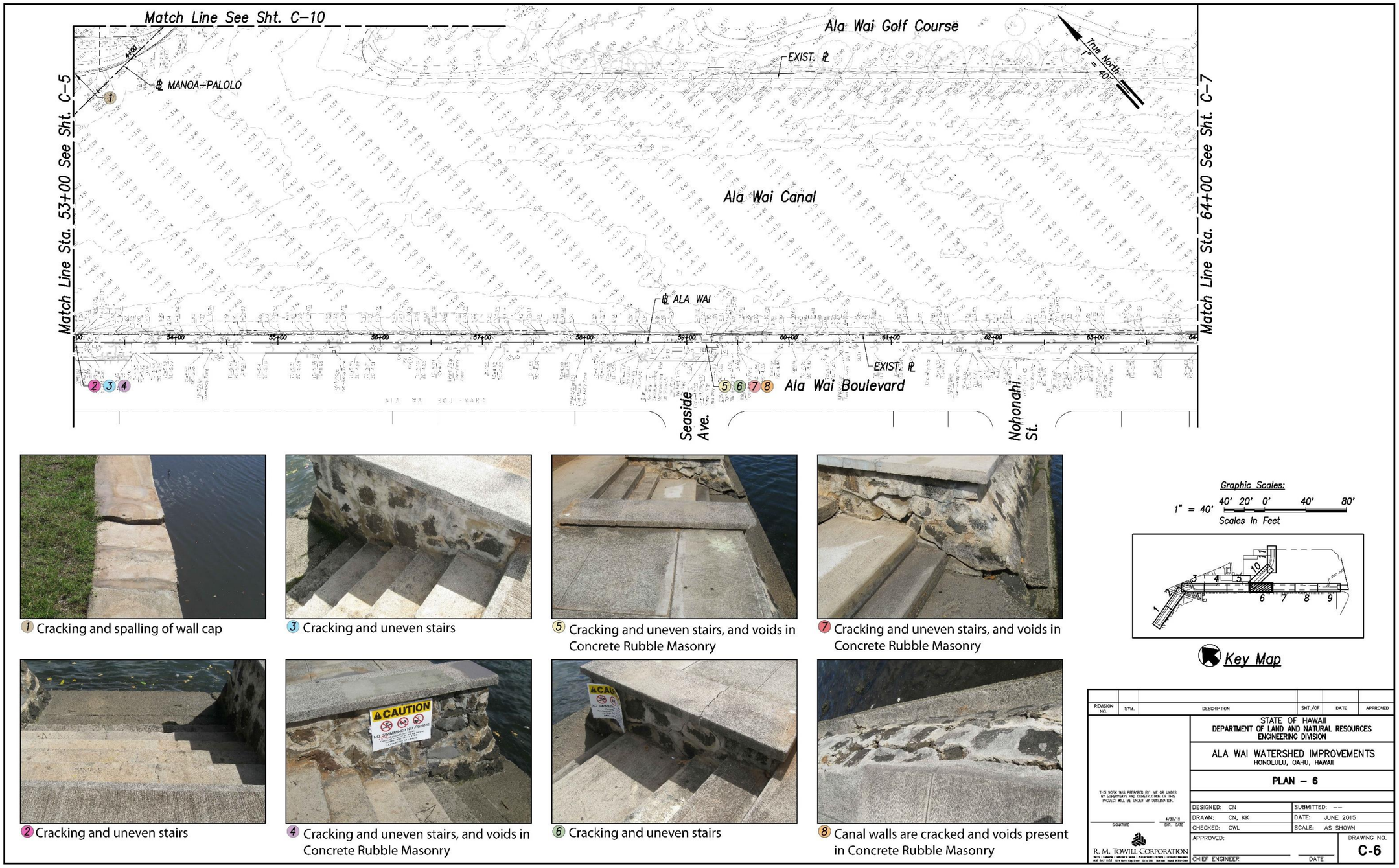


Figure 2-8. Ala Wai Canal Existing Conditions: Plan 7

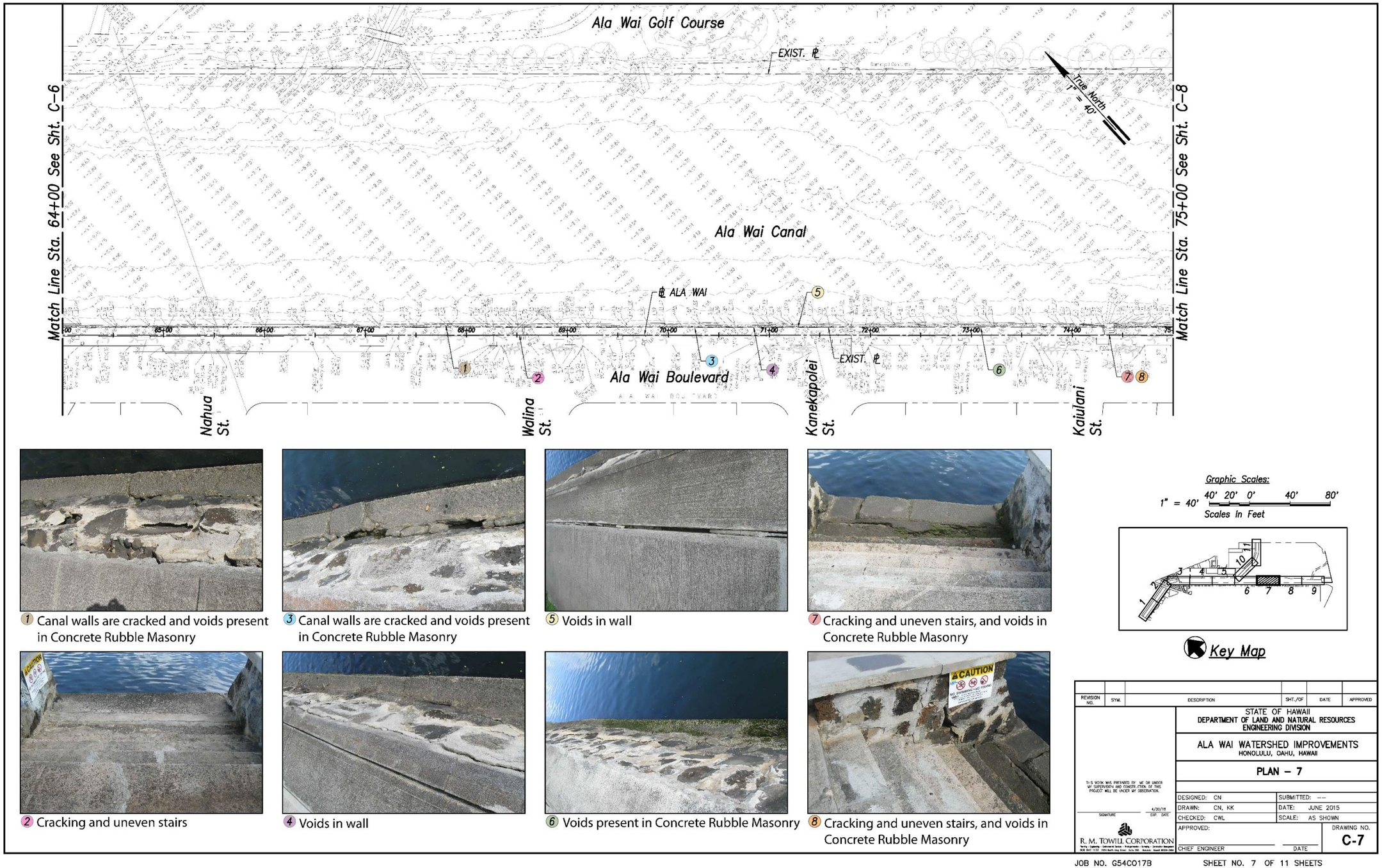
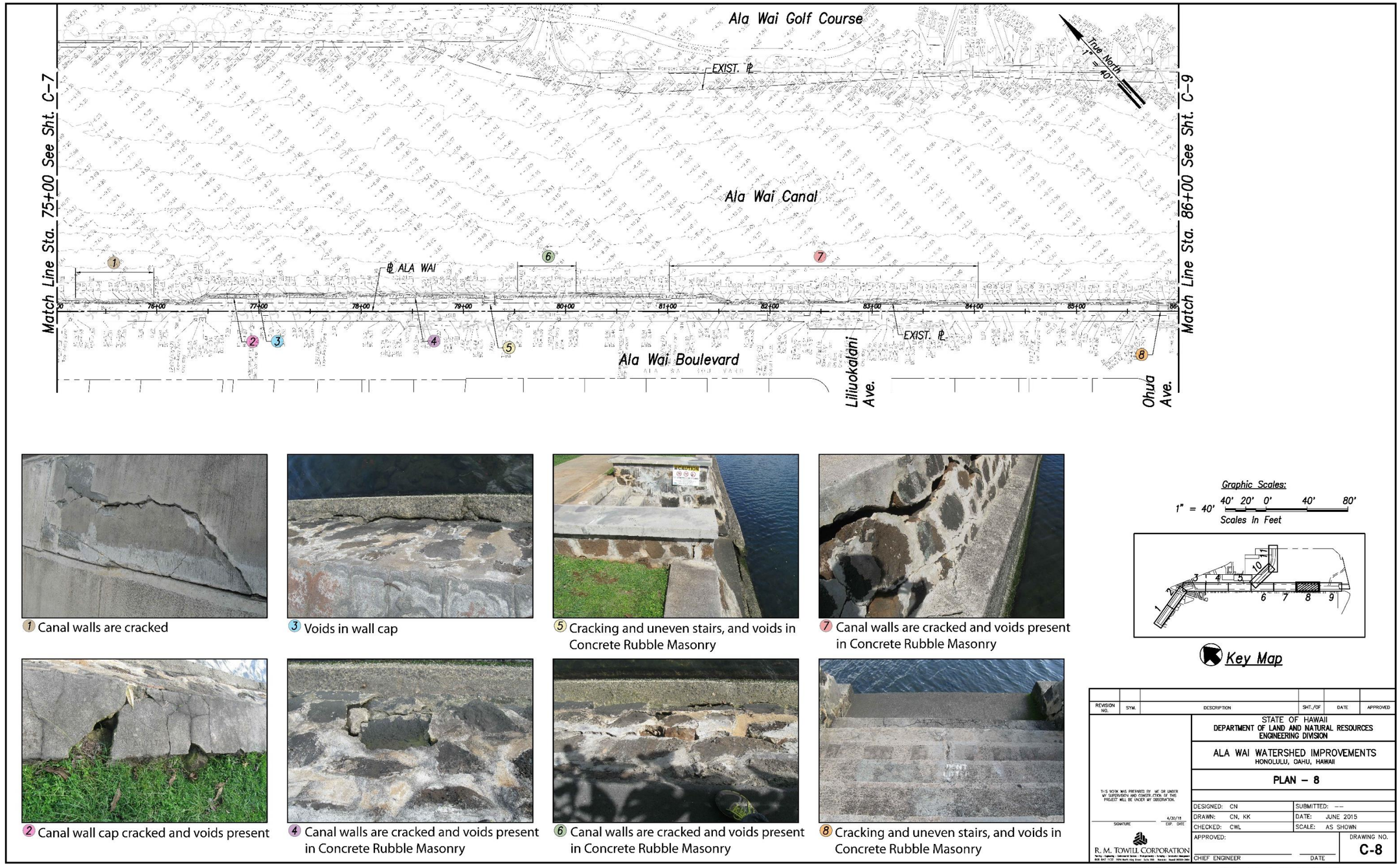
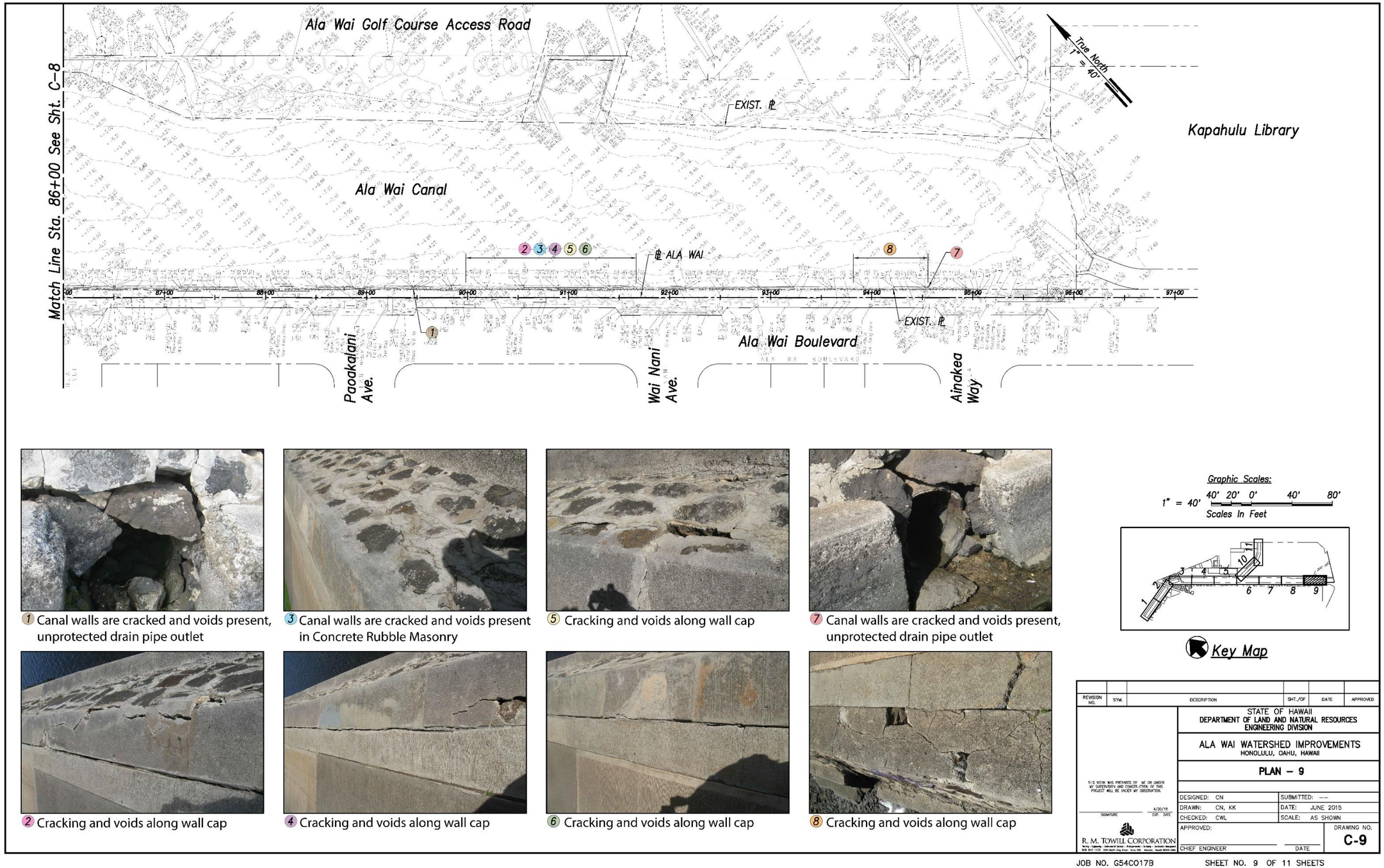


Figure 2-9. Ala Wai Canal Existing Conditions: Plan 8



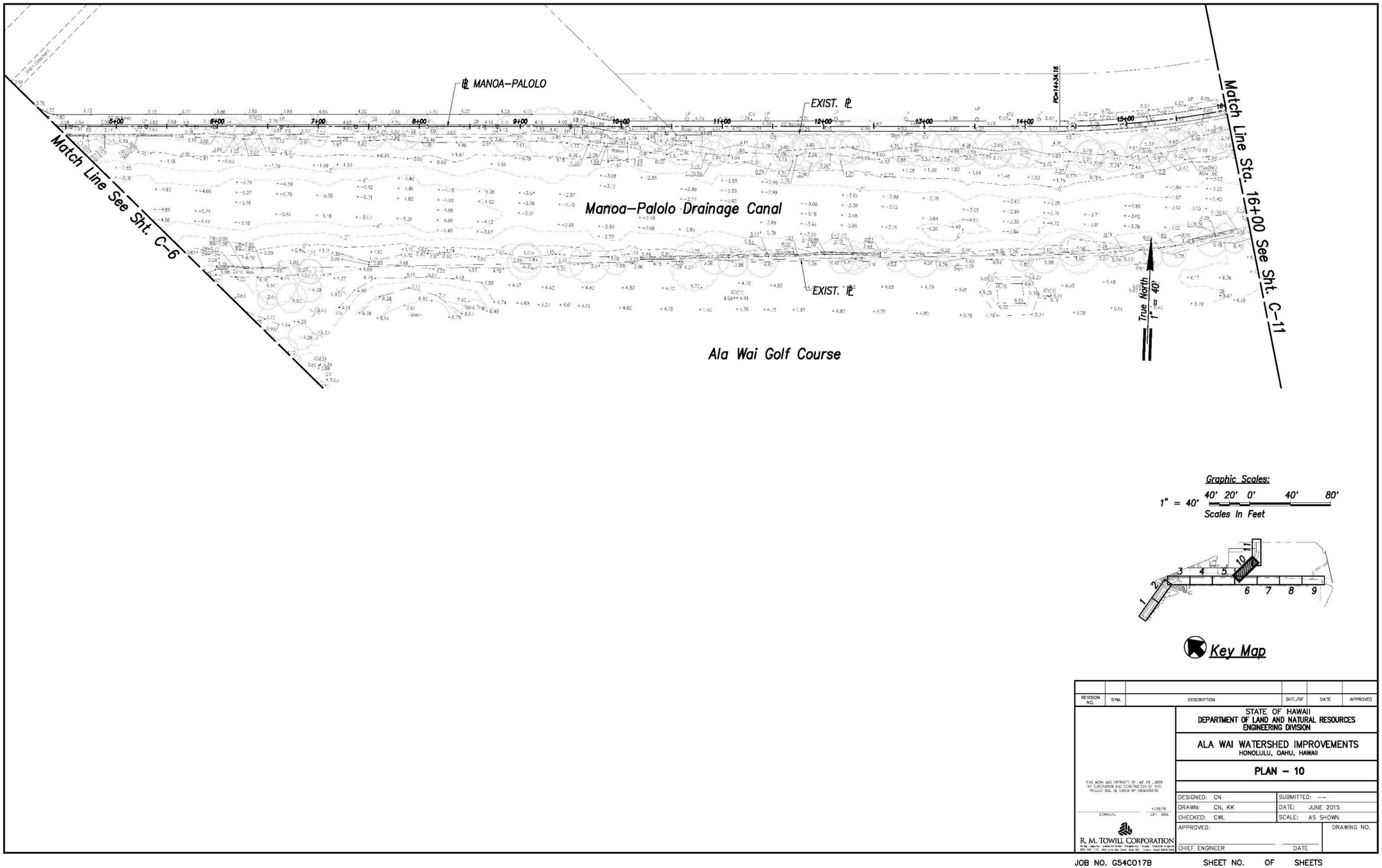
1 Figure 2-10. Ala Wai Canal Existing Conditions: Plan 9

2

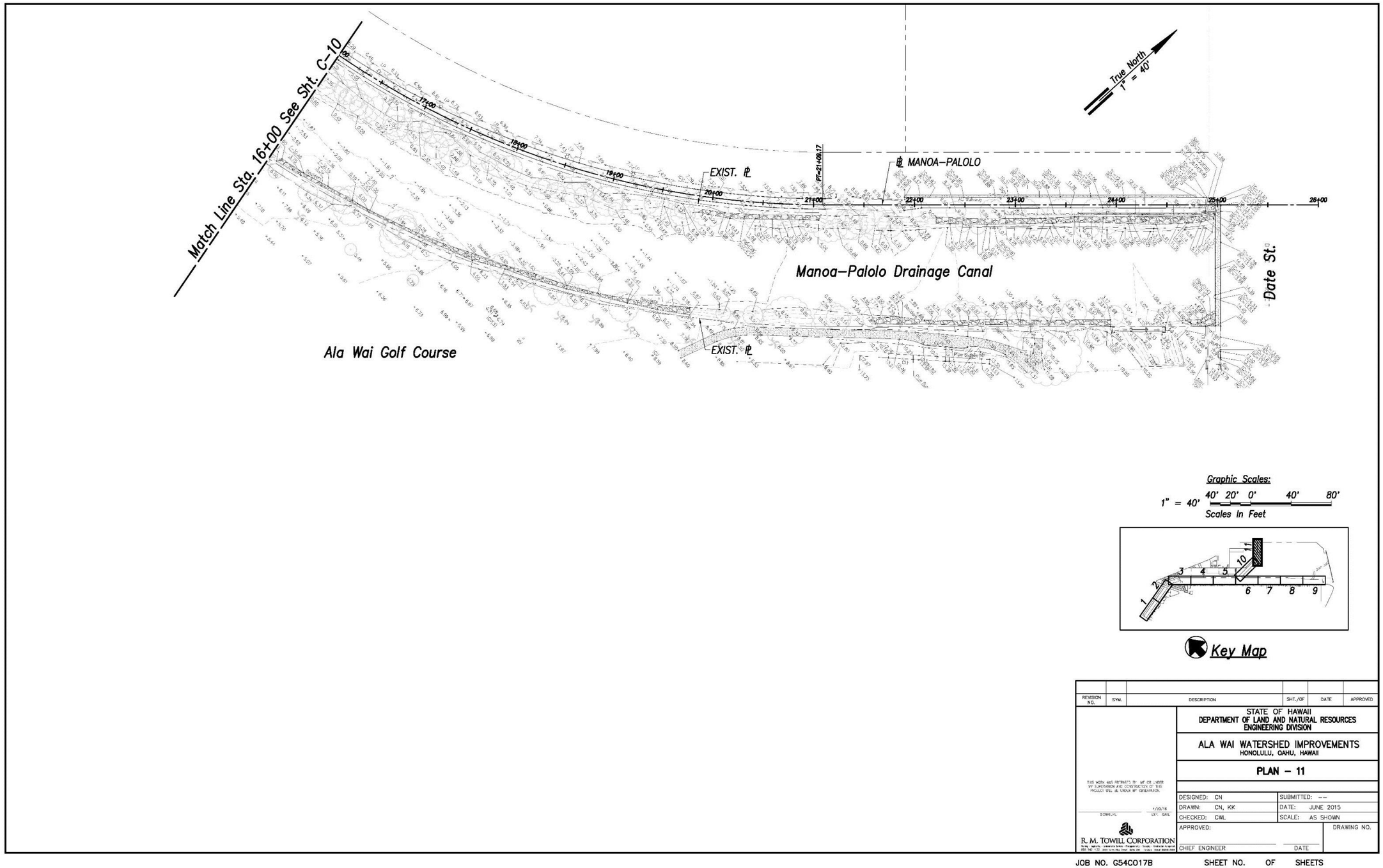


1 Figure 2-11. MPDC Existing Conditions: Plan 10

2



1 Figure 2-12. MPDC Existing Conditions: Plan 11



Existing Conditions: Mauka-Side Canal Walls and Banks

Between the Ala Moana Boulevard, Kalākaua Avenue, and McCully Street Bridges, a promenade (i.e., paved sidewalk) separates the mauka wall of the Ala Wai Canal from the Hawaii Convention Center and several condominiums. The wall in this section varies from approximately 4 to 7 ft above the water surface. The section between Ala Moana Boulevard and Kalākaua Avenue appears to be reinforced concrete and is in fair condition (see **Photo 2-1** below). The wall between Kalākaua Avenue and McCully Street appears to be CRM with a smooth concrete topping and is in average condition, but is noticeably leaning into the canal (see **Photo 2-2** below).

Photo 2-1. *Mauka wall (in back) between Ala Moana Blvd. and Kalakaua Ave.*

Photo 2-2. *Mauka wall between Kalakaua Ave. and McCully St. (wall noticeably leaning)*

Between McCully Street and the MPDC, the mauka wall of the Ala Wai Canal is approximately 1 to 5 ft above the water surface and appears to be CRM construction. This section of the canal is adjacent to the Ala Wai Community Park (located east of McCully Street and west of the Hausten Ditch), and Ala Wai Neighborhood Park, located east of the Hausten Ditch and west of Ala Wai Elementary School. A jogging path runs along this section. The wall adjacent to Ala Wai Community Park is in poor condition; this section of the wall is leaning into the canal and exposed along the back face (see **Photo 2-3** below). The section of wall adjacent to Ala Wai Elementary school is in fair condition and appears to have been raised as it is higher than the section adjacent to Ala Wai Community Park (see **Photo 2-4** below).

Photo 2-3. *Mauka wall adjacent to Ala Wai Community Park (east of McCully St.) (wall leaning and exposed along back face)*

Photo 2-4. *Mauka wall adjacent to Ala Wai Elementary School (east of MPDC)*

Between the MPDC and the end of the Ala Wai Canal near the Kapahulu Library, the mauka wall of the Ala Wai Canal is adjacent to the Ala Wai Municipal Golf Course. The wall in this area is submerged or has fallen over in some sections and is approximately 2 ft above the water surface at the highest areas. The wall appears to be CRM and has failed or is leaning into the canal in many sections. Portions of the canal wall are exposed along the back face and are filled with standing water (see **Photo 2-5** below). Long sections of the wall are covered with overgrowth along the banks (see **Photo 2-6** below).

Photo 2-5. *Mauka wall adjacent to the Ala Wai Municipal Golf Course (wall submerged and fallen over)*

Photo 2-6. *Mauka wall adjacent to the Ala Wai Municipal Golf Course covered with overgrowth*

The mauka-side walls of the Ala Wai Canal end as they turn east and up along the banks of the MPDC. The MPDC has earthen banks on both the mauka- and makai-side, with fairly dense brush and small trees lining the banks. There are limited areas with low rock walls along the MPDC, but no areas of concern requiring repairs were observed.

Existing Conditions: Makai-Side Canal Walls and Banks

Between the Ala Moana Boulevard Bridge and the end of the Ala Wai Canal near the Kapahulu Library and Ainakea Way, the Ala Wai Boulevard separates the makai wall of the canal from condominiums and businesses that are on the edge of the Waikīkī District. A heavily used sidewalk runs along the entire length of the makai wall within the project limit.

Between Ala Moana Boulevard and Kalākaua Avenue, the makai wall of the Ala Wai Canal has a height of approximately 6 to 8 ft above the water surface and approximately 2 to 3 ft along the adjacent sidewalk (see **Photo 2-7** and **Photo 2-8** below). The wall appears to be CRM up to the sidewalk elevation with stone and reinforced concrete above the sidewalk. This section of the wall is in good condition; however, there are a number of locations along the portion of wall above the sidewalk elevation where cracking or spalling is occurring.

Photo 2-7. *Makai wall between Ala Moana Blvd. and Kalakaua Ave.*

Photo 2-8. *Makai wall between Ala Moana Blvd. and Kalakaua Ave. (cracking and spalling)*

Between Kalakaua Avenue and McCully Street, the makai wall of the Ala Wai Canal is approximately 6 to 8 ft in height above the water surface. The lower portion of the wall appears to be CRM and is in good condition. The upper portion of the CRM wall appears to have been added to raise the wall and is also in good condition (see **Photo 2-9** below). In the remainder of this section, Ala Wai Boulevard is constructed on top of piers so there is no wall (see **Photo 2-10** below).

Photo 2-9. *Makai wall east of Kalakaua Ave.*

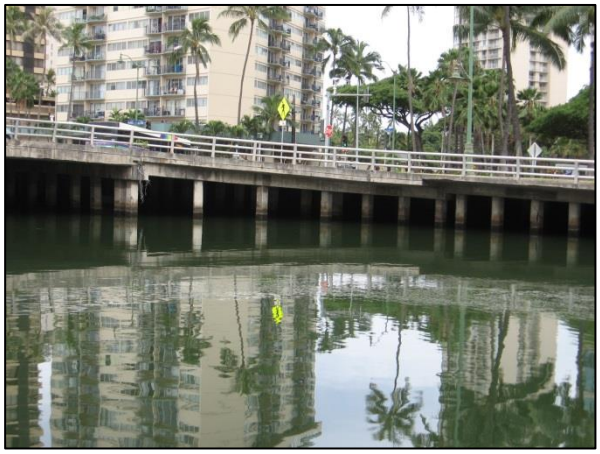


Photo 2-10. *Makai piers west of McCully St.*

Between the McCully Street Bridge and the end of the canal near Ainakea way, the makai wall of the Ala Wai Canal is adjacent to Ala Wai Boulevard. A frequently used sidewalk runs along this section of canal (see **Photo 2-11** below). The height of the wall in this area is approximately 4 to 6 ft above the water surface and appears to be CRM. The wall in this section appears to have been raised; this likely occurred during the construction of Ala Wai Boulevard (see **Photo 2-12** below). The wall in this location is in average condition; however, in many locations cracks and large voids are present.

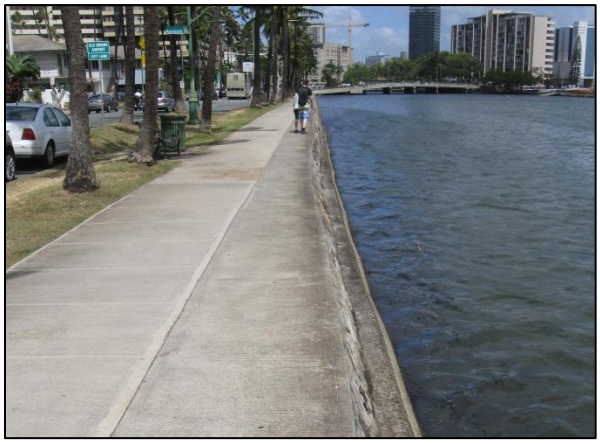


Photo 2-11. *Makai wall east between McCully St. Ainakea Way*

Photo 2-12. *Makai wall east between McCully St. and and Ainakea Way*

Existing Conditions: Ala Wai Canal Stairs

Along the makai-side of the Ala Wai Canal, there are 15 sets of stairs leading from the sidewalk down to the water surface. These stairs appear to be of reinforced concrete and there are between five to eight steps that are each less than seven inches in height. Most of the stairs, including the landings and handrails, do not appear to be compliant with the Americans with Disabilities Act (ADA) guidelines. Four sets of these stairs, located between Ala Moana Boulevard and Kalākaua Avenue, are in decent condition, with only minor cracking occurring in the concrete (see **Photo 2-13** and **Photo 2-14** below).

Photo 2-13. *Makai wall stair west of Kalakaua Ave. (view of stair entrance)*

Photo 2-14. *Makai wall stair west of Kalakaua Ave. (minor cracking of steps)*

The remaining eleven sets of stairs, located between McCully Street and the beginning of the Ala Wai Canal near Ainakea Way and the Kapahulu Library, are in poor condition; damage includes extensive cracking, unevenness on the stairs, and large voids in the CRM walls (see **Photo 2-15** and **Photo 2-16** below, note the State of Hawai'i, Department of Health (DOH) warning placard advising the public against swimming and fishing).

Photo 2-15. *Makai wall stair between McCully St. and Ainakea way (voids in CRM walls)*

Photo 2-16. *Makai wall stair between McCully St. and Ainakea way (cracking and uneven stairs)*

2.5 Purpose of the Proposed Action

The purpose of the project is to perform maintenance dredging within the Ala Wai Canal and a portion of the MPDC, repair the damaged sections of the Ala Wai Canal walls, and assess the condition of the stairs along the Ala Wai Canal for appropriate treatment. The proposed action would remove accumulated sediment from the Ala Wai Canal and MPDC and improve conditions of the canal structure and surrounding area. This will increase water depths in the proposed dredge areas, which will restore sediment- and water-holding capacities, ensure the protection of nearshore State waters, and decrease risk of flooding in surrounding areas during high intensity storm events. Overall, conditions would improve for recreational use of the Ala Wai Canal and its environs.

The Ala Wai Canal serves as an essential drainageway and sedimentation basin, for the approximately 19 square-mile Ala Wai watershed. Large quantities of sediment are deposited into the canal via streams and drainage features, particularly during high intensity rainfall. The majority of the sediment load to the canal comes from soil erosion occurring on steep sloped, undeveloped lands at the upper elevations of the watershed. Sediments are conveyed by streams and drainage features within the watershed to the Ala Wai Canal. As the faster moving tributary streams and drainage features enter the much wider and slower moving waters of the Ala Wai Canal, flow velocity is reduced resulting in the localized deposition of sediments into the canal. This occurs primarily near the confluence with the MPDC, where a large sediment shoal has formed. The proposed maintenance dredging of the Ala Wai Canal and MPDC is needed to remove accumulated sediments and restore water depth, ensure the protection of nearshore State marine waters and aquatic life, improve public health and safety, decrease the potential for property damage from flooding, and improve water quality.

In addition to serving the physical function of a drainageway and sedimentation basin, the Ala Wai Canal is an important recreational resource. Recreational facilities in the vicinity of the proposed project site primarily consist of State and County parks; a golf course; boating facilities; and the Ala Wai Canal itself. The Ala Wai Canal offers a variety of recreational opportunities, including outrigger canoe paddling and kayaking, and supports the single largest concentration of canoe clubs in the State. In addition, the sidewalks and other pathways along the Ala Wai are heavily used for walking, running and biking. Overall, the Ala Wai Canal System (including the contributing streams) have been identified as a regionally outstanding recreational resource, as defined based on the diversity of high quality experiences, unique characteristics, or unique combination of recreational attributes (Hawai'i Cooperative Park Service Unit, 1990). Over time however, sections of the canal walls and stairs have sustained damage, becoming a health and safety concern for which repairs are needed. The proposed action to repair sections of the Ala Wai Canal walls, and to repair, backfill, or demolish select stairs would address these issues.

2.6 Need for the Proposed Action

The proposed action is necessary to restore water depth, and improve the sediment and flood handling capacity of the Ala Wai Canal and MPDC. Over time, the build-up of sediments into the Ala Wai Canal has affected the canal's sediment- and water-holding capacities reducing the canal's ability to temporarily contain and then release stormwater when there are heavy storm events, while increasing risks associated with flooding. This leads to more sediment discharged into the ocean decreasing the protection of nearshore State waters.

The build-up of sediment also negatively affects the water quality of the canal and the use of the canal as a recreational resource. Nutrients, sediments, and toxic pollutants are recognized as a principal contributor in causing the Ala Wai Canal to exceed State of Hawai'i water quality criteria (DOH, 2002). Accumulated sediment in the canal is further exacerbated by pollutants which are subject to resuspension and concentration. Dredging the canal will help to address these issues.

In addition to the presence of sediment build-up in the Ala Wai Canal, repairs to the structure are needed to improve conditions for recreational uses. Repairs to deteriorating portions of the canal walls and stairs will improve public health and safety, decrease the potential for property damage, and improve the aesthetics of the canal within the Waikīkī visitor destination area.

The proposed action will fulfill the following objectives:

- Restore water depth and reduce flood risks in the proposed dredge areas;
- Restore sediment holding capacities in the proposed dredge areas and ensure protection of nearshore marine waters; and
- Repair damaged and deteriorating sections of the Ala Wai Canal walls and assess the stairs along the Ala Wai Canal for appropriate treatment.

The U. S. Army Corps of Engineers (USACE) and the DLNR are currently performing a flood reduction study, entitled the Ala Wai Canal Project that has the main objective of reducing riverine flood risks in the Ala Wai Watershed. The Ala Wai Canal Dredging and Improvements project will be coordinated with

the USACE to review the goals and objectives of the USACE Ala Wai Canal Project relative to the maintenance action proposed as a part of this EIS document. Further discussion on the results of the coordination effort will be provided in the forthcoming DEIS.

3.0 Description of the Proposed Action

3.1 Project Overview

The DLNR proposes maintenance dredging of the Ala Wai Canal and a portion of the MPDC, collection and disposal of the dredged spoils, and repair of broken or damaged portions of the canal walls. Stairwells leading into the Ala Wai Canal will be examined for treatment including possible repair, backfilling, or demolition, based on consultations with the community and agencies. The project will restore water depth in the dredge areas, ensure protection of nearshore State marine waters and aquatic life, maintain public health and safety, and improve aesthetics. Removal of accumulated sediment and repairs to the deteriorating sections of the canal walls will restore sediment- and water-holding capacities, decrease risk of flooding in surrounding areas during high intensity storm events, and improve conditions for recreational use at the Ala Wai Canal and the nearshore marine environment. Staging areas will be required and will be identified in the subsequent DEIS for the proposed project.

Project work will consist of the following:

- Maintenance dredging of the Ala Wai Canal and portion of the MPDC, and collection and disposal of the dredged spoils; and
- Repair of the Ala Wai Canal walls and assessment of the stairs along the Ala Wai Canal for appropriate treatment.

The project work is described in more detail below.

3.2 Maintenance Dredging, Collection, and Disposal of Dredged Spoils

The proposed action to dredge the Ala Wai Canal and MPDC is composed of the following six components: (1) dredge limits; (2) dredge method; (3) dredged sediment transportation method; (4) potential work support areas; (5) sediment processing method; and (6) sediment handling and disposal. Each component is described below, and will be further discussed in the project DEIS.

Component 1: Dredge Limits

Dredge limits are expressed in terms of the area to be dredged and the maximum dredge depth. Periodic dredging of the Ala Wai Canal and the MPDC is critical to the function of the south O‘ahu watershed area. The proposed dredging area extends approximately 7,200 lf within the Ala Wai Canal from the Ala Moana Boulevard Bridge to Ainakea Way and the Kapahulu Library and approximately 2,000 lf within the MPDC from the confluence with the Ala Wai Canal to Date Street. Significant sedimentation has occurred within this area, especially downstream from the confluence of the Ala Wai Canal and the MPDC. Currently, depths within the Ala Wai Canal immediately below the confluence with the MPDC average approximately (-) 2 ft msl. Depths within the upper sections of the drainage are presently as shallow as (-) 1 ft msl.

The DLNR proposes a tiered dredge design for the Ala Wai Canal to promote water movement. The design dredge depths will be shallowest at the Kapahulu Library end of the canal and in the upper section of the MPDC, and increase gradually moving downstream toward the Ala Wai Boat Harbor.

Dredge depths required to restore water holding capactiy within the Ala Wai Canal and MPDC will be further evaluated in the subsequent DEIS for this project. Based on the preliminary dredge design, approximately 187,100 cy of material are anticipated to require removal.

Component 2: Dredge Method

The method for dredging the canals will involve use of specially designed equipment to remove accumulated sediment from the Ala Wai Canal and MPDC. Essentially, two dredging methods are under consideration - hydraulic (suction) or mechanical (crane bucket or backhoe) dredging. The proposed work will be accomplished within the waterway of the canals by mounting the selected dredging equipment atop a barge.

Component 3: Dredged Sediment Transportation Method

Sediment dredged from the canals using either the hudraulic or mechanical method will need to be transportable for ingress into and egress out of the canals. Essentially, two transportation methods are under consideration – pipline or scows (a specially constructed barge). The method selected must account for the conditions following dredging, especially with regard to water content. Because hydraulic dredging would produce a slurry with high water content (as high as 80 percent), a pump and pipeline will be needed to move the material. The pipeline(s) would need to traverse the length of the canals from the dredge site to a scow moored near the ocean end of the Ala Wai Canal. The use of mechanical dredging would result in dredged spoils with approximately 50 percent water content. This material will be too solid to be pumped and would require transportion using a scow. A push boat, would move the scows to and from the canals to the ocean end of the Ala Wai Canal.

Component 4: Potential Work Support Areas

Land-based work support areas will be required to support the dredging operations. The project will also require use of an area in the waterway on the ocean side of the Ala Moana Boulevard Bridge for the mooring of equipment. Operationally feasible sites include: a site adjacent to the Ala Wai Golf Course at the Kapahulu end of the Ala Wai Canal; the Ala Wai Neighborhood/Community Park (staging area); and, a portion of the Magic Island (staging area and barge mooring). The only option for mooring of the scows (barges) is the corner of the Ala Wai Boat Harbor turning basin.

The exact work support locations are under review and will be selected based on the work space needed to accomplish the work.

Component 5: Sediment Processing Method

Processing of the dredged sediment may be necessary. The processing method selected will be dependent on both the condition of the sediments following dredging, and the final disposal or reuse location.

Component 6: Sediment Handling and Disposal

Dredged material removed from the canals will be disposed of based on the prior testing results of the dredged material for pollutants. Sampling, analysis and evaluation of the dredged material will determine material suitability for ocean or upland disposal. A Sampling and Analysis Plan (SAP) has been developed and will be used to test and characterize sediment from the proposed dredge areas.

The ocean disposal site is the South O'ahu ODMDS, the designated ocean disposal location closest to the Ala Wai Canal. Upland options under consideration include the Reef Runway at Honolulu International Airport and state park lands at Sand Island. Ocean disposal of sediment will be transported in scows to the South O'ahu ODMDS via a tugboat. Upland placement of sediment will be transported in scows by a tugboat and tranferred to a sealed truck bed (to prevent loss of liquids from dredged spoils) at the proposed mooring location at Magic Island for transport to the identified upland site.

3.3 Repair of the Ala Wai Canal Walls and Assessment of the Stairs Along the Ala Wai Canal for Appropriate Treatment

The project will repair damaged sections of the Ala Wai Canal walls and address treatment of the stairs that have become a safety concern. Repairs will be performed on sections of the canal walls that have failed or are severely leaning, cracked and uneven concrete wall toppings, areas with exposed rebar, areas with cracked and missing rocks along the sides of the canal, cracked and shifted panels, and areas where there are voids behind the canal retaining walls due to loss of backfill. Select stairs leading into the Ala Wai Canal will be assessed for appropriate treatment, including repair, backfilling, or demolition, and will be based on consultations with the community and agencies for the project.

The proposed action includes the entire width of both canals to approximately 25 ft beyond the outside edges of the banks to the CCH right-of-way (ROW). The project DEIS will further describe the detailed wall repairs and treatment of stairs required for this project.

3.4 Surrounding Land Use

The Ala Wai Canal runs approximately two-miles from just northwest of Kapahulu Library, near Ainakea Way, along the length of Waikīkī, then turns southwest to empty into the Pacific Ocean. Bridges cross the Ala Wai Canal at McCully Street, Kalākaua Avenue, and Ala Moana Boulevard. Ala Wai Boulevard runs parallel to the southwest side of the canal in Waikīkī.

Directly mauka of the Ala Wai Canal are parks, apartment buildings, Ala Wai Elementary School, Iolani School, Ala Wai Golf Course, Ala Wai Community Garden, Hawai'i Convention Center, and a bike path between the McCully Street Bridge and the MPDC. On the makai side is Ala Wai Boulevard, a tree-lined roadway with sidewalks bordering the canal and high-density apartment, commercial, and resort areas. In addition to surrounding land uses, the Ala Wai Canal itself serves as a popular recreation area for paddling, boating, and fishing (notwithstanding the DOH advisory against fishing in the canal). At the mouth of the Ala Wai Canal are the Ala Wai Boat Harbor, two yacht clubs (Ala Wai Yacht Club and Waikīkī Yacht Club), and the Ala Moana and Magic Island parks.

3.5 Ownership and Property Requirements

The Ala Wai Canal, including the walls and stairs, is owned and maintained by the State of Hawai'i. The sidewalks on both sides of the Ala Wai Canal and the MPDC are owned and maintained by the CCH. The project will involve a State action to dredge the MPDC.

Marine waters seaward of the state certified shoreline are under jurisdiction of the DLNR up to the state's 12-mile territorial limit. The EPA and the USACE have joint authority for managing the South O'ahu ODMDS (i.e., the nearest ocean disposal site to the proposed project) and for regulating the transportation of dredged material for ocean disposal. The EPA is responsible for designating permanent disposal sites and enforcing the disposal site use conditions. The USACE is the permitting authority for projects proposing to discharge material at an EPA-designated ocean disposal site. For ODMDSs serving the state of Hawaii, EPA Region IX and the USACE Honolulu District are the managing offices.

3.6 Environmental Factors

See **Section 5.0, Environmental Setting, Potential Effects and Mitigation Measures**, concerning the potential for environmental effects including proposed mitigative measures to address the potential for adverse environmental effects.

3.7 Construction Timing and Valuation

The DLNR proposes to commence dredging operations and construction of repairs upon approval of all required environmental permits, anticipated to be in mid 2018. The overall duration of the project is expected to be approximately one year. The final schedule and duration of dredging and repairs will be balanced against potential impacts, including issues of park use, noise, and safety and will be further described in the DEIS for this project.

The estimated project cost is approximately $13 million.

3.8 Regulatory and Community Consultations

Public and agency coordination activities for the proposed action will be required. The project will be reviewed with appropriate government agencies to provide information about the project, and to solicit input. Project scoping and coordination will continue to include meetings and correspondence with agencies, landowners, and interested parties, as appropriate, throughout the EIS and permitting process.

In addition to the community scoping process, a public notice of the proposed action will be provided during the EIS process through the State Office of Environmental Quality Control (OEQC) Bulletin. See **Section 10.0** for a complete list of agencies, organizations and individuals to be consulted during the EIS process.

4.0 Alternatives Under Consideration

4.1 Introduction

Three alternatives are under consideration to address the purpose and need for the project: (1) No Action; (2) Delayed Action; and (3) Build Action Alternatives. The Build Action Alternatives include the development of potential alternatives for the dredging of the Ala Wai Canal and the MPDC, repairs of the Ala Wai Canal walls, and potential treatments to select stairs along the Ala Wai Canal.

4.2 No Action Alternative

The No Action alternative is not to dredge the Ala Wai Canal or MPDC, and not to perform repairs to the canal walls and stairs. Under the No Action alternative, none of the six components of dredging would be implemented, and the objectives of restoring sediment- and water-holding and floodway capacities would not be realized. In addition, recreational benefits, including improved water quality, protection of nearshore State marine waters, increased water depths, and improved safety conditions would not occur. Because the No Action Alternative would not address the purpose and need for the project, it is not considered a viable or feasible alternative. For this reason, it is eliminated from further consideration.

4.3 Delayed Action Alternative

The Delayed Action Alternative differs from taking no action in that the proposed project would be constructed, but at a later undetermined time. Delayed action to construct the proposed improvements project would adversely affect the project when it is ultimately constructed because:

- Design and construction costs could be expected to increase due to price inflation involving the cost of labor, materials, and equipment; and
- Environmental permit requirements could be expected to increase with new or more stringent regulations, which would add to the time required to obtain approvals, increase costs associated with the processing of permits, and add new or increased provisions for mitigation.

Delayed Action would eventually address the purpose and need for the project, however, there would be little to no benefit as sediment would continue to increase, leading to more sediments being discharged into the ocean with a further reduction of floodway capacity. In addition, there is no benefit in delaying the project, as the facility would continue to be subject to further deterioration and public health and safety concerns. Because Delayed Action is anticipated to increase the time needed for project design and construction, and add to project costs, it is not considered a viable alternative and is eliminated from further consideration.

4.4 Build Action Alternatives

This section addresses the Build Action Alternatives for the maintenance dredging of the Ala Wai Canal and MPDC, and treatment of the Ala Wai Canal structure, including the deteriorating portions of its walls and stairs. The goals of the project are to remove accumulated sediment in the Ala Wai Canal and MPDC to restore sediment- and water-holding capacities, decrease risk of flooding in surrounding areas during

high intensity storm events, improve water quality to ensure the protection of the nearshore marine waters of Waikīkī, and improve public health and safety conditions for recreational use of the Ala Wai Canal and its environs.

The objectives toward meeting the goals of this project consist of the following:

- Maintenance dredging of the Ala Wai Canal and portion of the MPDC, and collection and disposal of the dredged spoils; and
- Repair of the Ala Wai Canal walls and assessment of the stairs along the Ala Wai Canal for appropriate treatment.

Various alternatives are under consideration to address the objectives of the proposed project. The alternatives under consideration are described below and will be further discussed in the project DEIS.

Maintenance Dredging, Collection, and Disposal of Dredged Spoils

As presented in **Section 3.2**, the proposed action to dredge the Ala Wai Canal and MPDC has six components: (1) dredge limits; (2) dredge method; (3) dredged sediment transportation method; (4) potential work support areas; (5) sediment processing method; and (6) sediment handling and disposal. Multiple options exist for each component; therefore, project alternatives will consider the best combination of alternatives for each of the six components and will be further elaborated in the project's DEIS.

Repair of the Ala Wai Canal Walls and Assessment of the Stairs Along the Ala Wai Canal for Appropriate Treatment

The majority of the walls along the canal project limits are in acceptable condition where they pose no immediate threat to public safety. However, there are locations that have sustained damage that pose a health and safety concern that requires repair and improvement. Select stairs along the Ala Wai Canal have become a safety concern. These stairs will be assessed for appropriate treatment, including repair, backfilling, or demolition through consultations with the community and agencies as the project progresses. Further analysis of repair and treatment alternatives for the Ala Wai Canal walls and stairs, the potential for adverse impacts, and recommended mitigation measures will be included in the subsequent project DEIS.

4.5 Preferred Alternative

Further discussion and description of the project's preferred alternative will be based on the environmental and engineering investigations that are presently underway to assess the chemical and biological characteristics of the sediments within the Ala Wai Canal and MPDC, and the resulting engineering and construction details necessary for the safe and efficient handling and disposal of the dredged spoils. This will be provided in the subsequent DEIS.

5.0 Environmental Setting, Potential Effects and Mitigation Measures

This section summarizes the environmental setting, potential effects of the proposed project, and mitigation measures. This section illustrates the existing conditions and potential short- and long-term effects of the proposed project. Short-term effects are from dredging and infrastructure repair activities, while long-term effects continue or occur after the project is completed.

5.1 Climate

The climate in the project area is characterized as semi-tropical and is influenced by Hawai'i's geographic location southwest of the Pacific High region. The principal features of the climate are the equable temperatures from day to day and season to season, northeasterly trade winds, and a marked variation in rainfall from the wet to the dry season, and from place to place. (Gimbelluca et al., 2013). The average monthly temperature recorded at the nearby Honolulu International Airport ranges from 71 to 84 degrees Fahrenheit. Average annual precipitation is 17 inches. Although the project area is on the leeward side of the island, the humidity is still moderately high, ranging from mid-50 to mid-70 percent, with relative humidity slightly higher in the wet season than in the dry season. Winds are predominantly from the northeast at speeds of 10 to 40 miles per hour. The project area is known for relatively high insolation (DBEDT, 2014).

Potential Effects and Proposed Mitigation

Further consultation with appropriate agencies and discussion, including an analysis of each alternative considered, the potential for the project to increase vulnerability to tsunamis and appropriate mitigation measures, will be included in the subsequent DEIS for this project.

Potential Impacts of Alternatives

Further analysis for each alternative, the potential for adverse effects on climatic conditions and recommended mitigation measures will be included in the subsequent DEIS for this project.

5.2 Geology

The island of O'ahu is a volcanic doublet formed by the Wai'anae Range to the west and the younger Ko'olau Range to the east. Both are remnants of shield volcanoes, but the term "range" indicates that they have lost most of their original shield outlines and are now long, narrow ridges shaped largely by erosion. Later post-erosional eruptions sent lava down the valleys and resulted in the formation of volcanic cones such as Diamond Head and Tantalus. The project site is located on the Honolulu Plain, a low-lying coastal plain along Oahu's southern coast.

Potential Effects and Proposed Mitigation

Work at the site would involve maintenance dredging of the Ala Wai Canal and MPDC, possible repairs to existing canal walls, and potential treatments to select stairs along the canal that have become a safety concern. Further consultation with appropriate agencies and discussion, including an analysis of

the potential for the project to increase vulnerability to erosion and appropriate mitigation measures, will be included in the subsequent DEIS.

Potential Impacts of Alternatives

Further consultation with appropriate agencies and discussion, including an analysis of each alternative considered, the potential for project impacts on geology and appropriate mitigation measures, will be included in the subsequent DEIS for this project.

5.3 Topography

The Ala Wai Canal is a two-mile long man-made waterway of variable depth and width located in the Waikīkī district of Honolulu. The canal was historically designed to drain low-lying wetlands in Waikīkī and provide fill that would reclaim over six hundred acres of land in Waikīkī. The canal is fed by the MPDC which drains the Mānoa and Pālolo valleys, as well as a number of smaller streams, drainage ditches and storm sewers which also drain into the canal. The canal forms the boundary of the Waikīkī district, separating Waikīkī from the Makiki, Mōʻiliʻili, and Ala Moana areas of the city. The area surrounding the canal is relatively flat in topography. See **Figure 5-1**, **Topography**.

Three bridges cross the Ala Wai Canal waterway; these include the Ala Moana Boulevard, Kalākaua Avenue, and McCully Street bridges. In addition, fifteen stairwells are present along the makai length of the Ala Wai Canal; these stairs drop down from the sidewalk to the canal's surface. These additions to the canal landscape were made after the completion of the canal. Further information on the topography of the Ala Wai Canal and MPDC will be described in the project's DEIS.

Potential Effects and Proposed Mitigation

The topography of the project site will require alteration for dredging and repair activities. During construction, Best Management Practices (BMPs) would be employed to minimize soil erosion and runoff that may impact the area's topography. Potential for impacts involving soils stability or erosion will be addressed by use of applicable Federal, State, and CCH guidelines governing development, including adherence to grading standards, erosion controls, and CWA regulations. Further detail, including the potential for adverse effects and mitigation measures, will be provided in the subsequent DEIS for this project.

Potential Impacts of Alternatives

Further consultation with appropriate agencies and discussion, including an analysis of each alternative considered, the potential for project impacts on existing topography and appropriate mitigation measures, will be included in the subsequent DEIS for this project.

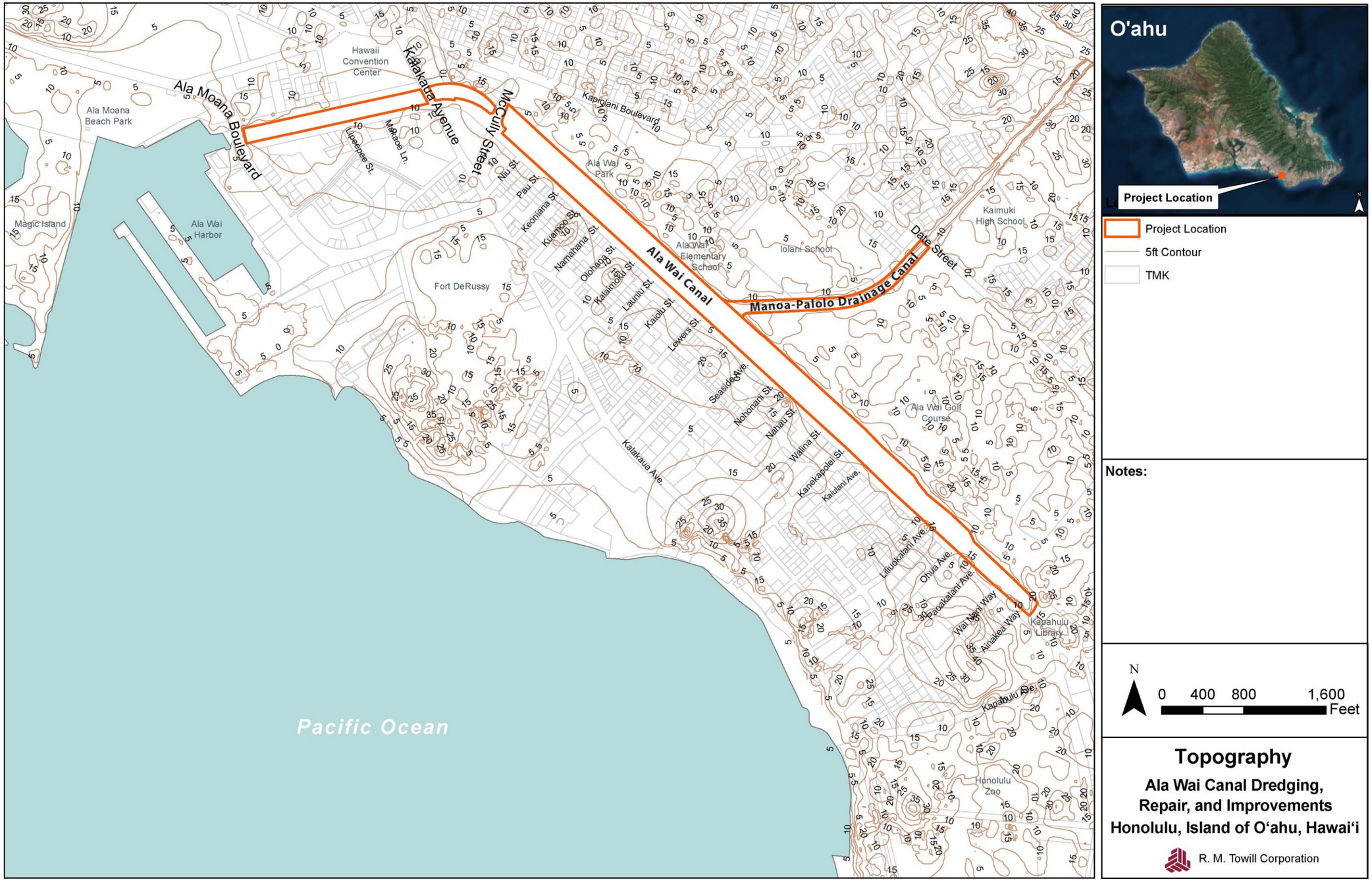
5.4 Soils

The land type on which the project site is situated is characterized as the Lualualei-Fill land-Ewa Association. According to the U. S. Department of Agriculture, Soil Conservation Service (SCS) publication, "*Soil Survey of the Islands of Kauai, Oahu, Maui, Molokai, and Lanai, State of Hawaii, 1972*"

(USDA, 1972) this association consists of well-drained, fine textured and moderately fine textured soils on fans and in drainageways on the southern and western coastal plains. See **Figure 5-2, Soils**.

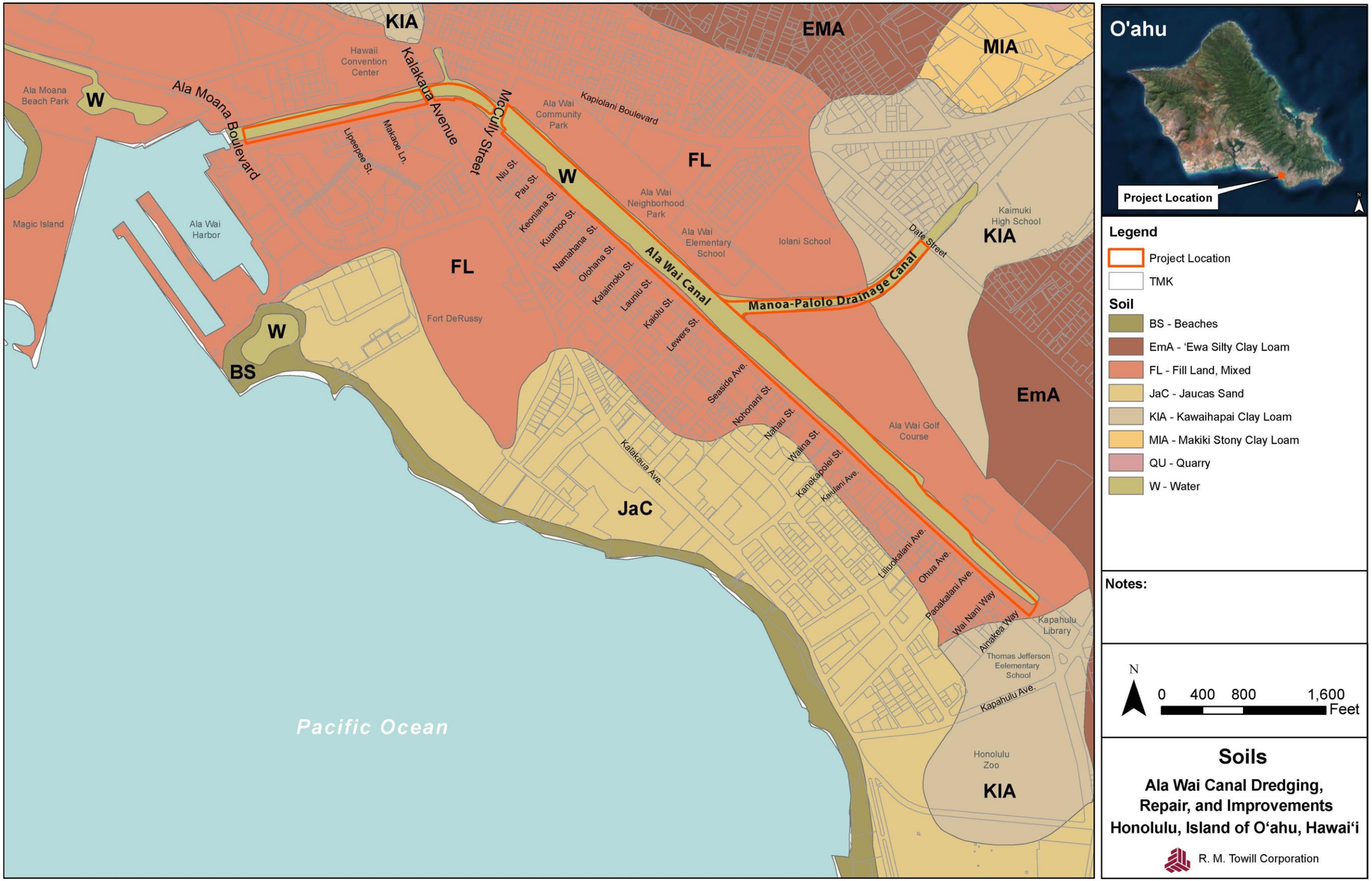
1 Figure 5-1. Topography

2



1 Figure 5-2. Soils

2



Potential Effects and Proposed Mitigation

Work at the site will involve dredging of the Ala Wai Canal and MPDC and disposal of dredged soils, as well as potential repair of the canal walls and stairways. Grading, excavation, and other construction activities required for the project will be in accordance with Federal, State and CCH regulatory requirements. Further site-specific analysis of soils will also be performed during geotechnical investigations of the site and detail, including the potential for adverse effects and mitigation measures, will be provided in the project DEIS.

Potential Impacts of Alternatives

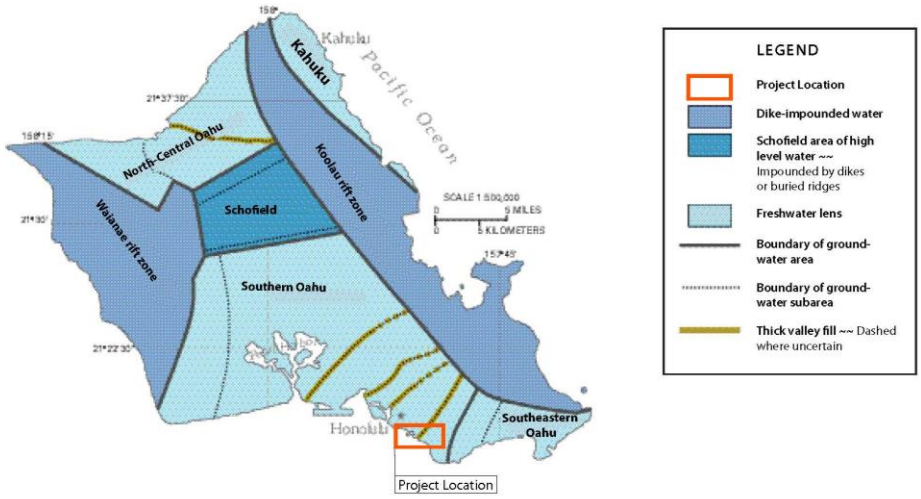
Further consultation with appropriate agencies and discussion, including an analysis of each alternative considered, the potential for project impacts on existing soil conditions and appropriate mitigation measures, will be included in the subsequent DEIS for this project.

5.5 Groundwater

An important source of groundwater supply for the Island of O'ahu is an exceptional lens of basal groundwater in the Honolulu-Pearl Harbor area (USDA, 1972). Southern O'ahu's coastal plain is underlain by sedimentary deposits that form a caprock which extends along the coastline from 800 to 900 ft below sea level and retards the seaward movement of fresh groundwater from the basal aquifer.

O'ahu has been divided into seven major groundwater areas, primarily on the basis of geologic or hydrologic differences (see **Figure 5-3**, **O'ahu Groundwater**). The entire project area is located within the designated Southern O'ahu freshwater lens groundwater area.

Figure 5-3. O'ahu Groundwater



Source: USGS, 1999

Potential Effects and Proposed Mitigation

Further consultation with appropriate agencies and discussion, including an analysis of the potential for the project to impact groundwater influx or nutrient quantities, and appropriate mitigation measures, will be included in the subsequent DEIS for this project. Appropriate mitigative measures and controls will be evaluated and will be consistent with sound engineering and operating practices for the protection of groundwater.

Potential Impacts of Alternatives

Further consultation with appropriate agencies and discussion, including an analysis of each alternative considered, the potential for project impacts on existing groundwater resources and appropriate mitigation measures, will be included in the subsequent DEIS for this project.

5.6 Surface Water

Historically surface water within the Ala Wai watershed occurred in a variety of settings, including streams, springs, ponds and wetlands. Urbanization and development activities have subsequently altered or destroyed many of these features, including the broad coastal wetlands that occurred throughout the Waikīkī area and most of the spring-fed ponds. At the present time, surface water within the Ala Wai watershed is almost entirely confined to streams and canals. The Ala Wai Canal and MPDC are two major canals within the watershed.

The Ala Wai Canal is an approximately two-mile-long, man-made channel originally dredged in the 1920s (Clark, 2002). The Canal intercepts flows from Mānoa and Pālolo streams (via the MPDC) and Makiki Stream (as well as numerous storm drain outfalls), and empties into the Ala Wai Boat Harbor. The boat harbor connects to Māmala Bay. The width of the Canal ranges between 150 and 250 ft, with the widest section between McCully Street and the confluence with the MPDC.

Waters of the Ala Wai Canal and MPDC and the site of the proposed dredging operations and potential structural repair locations of the Ala Wai Canal walls are in the "*Inland Class 2 Waters*" category as defined by the DOH. Waters of the Pacific Ocean and the area of proposed barge mooring within the Ala Wai Boat Harbor are in the "*Marine Class A Waters*" category as defined by the DOH. See **Figure 5-4**, **Surface Waters**.

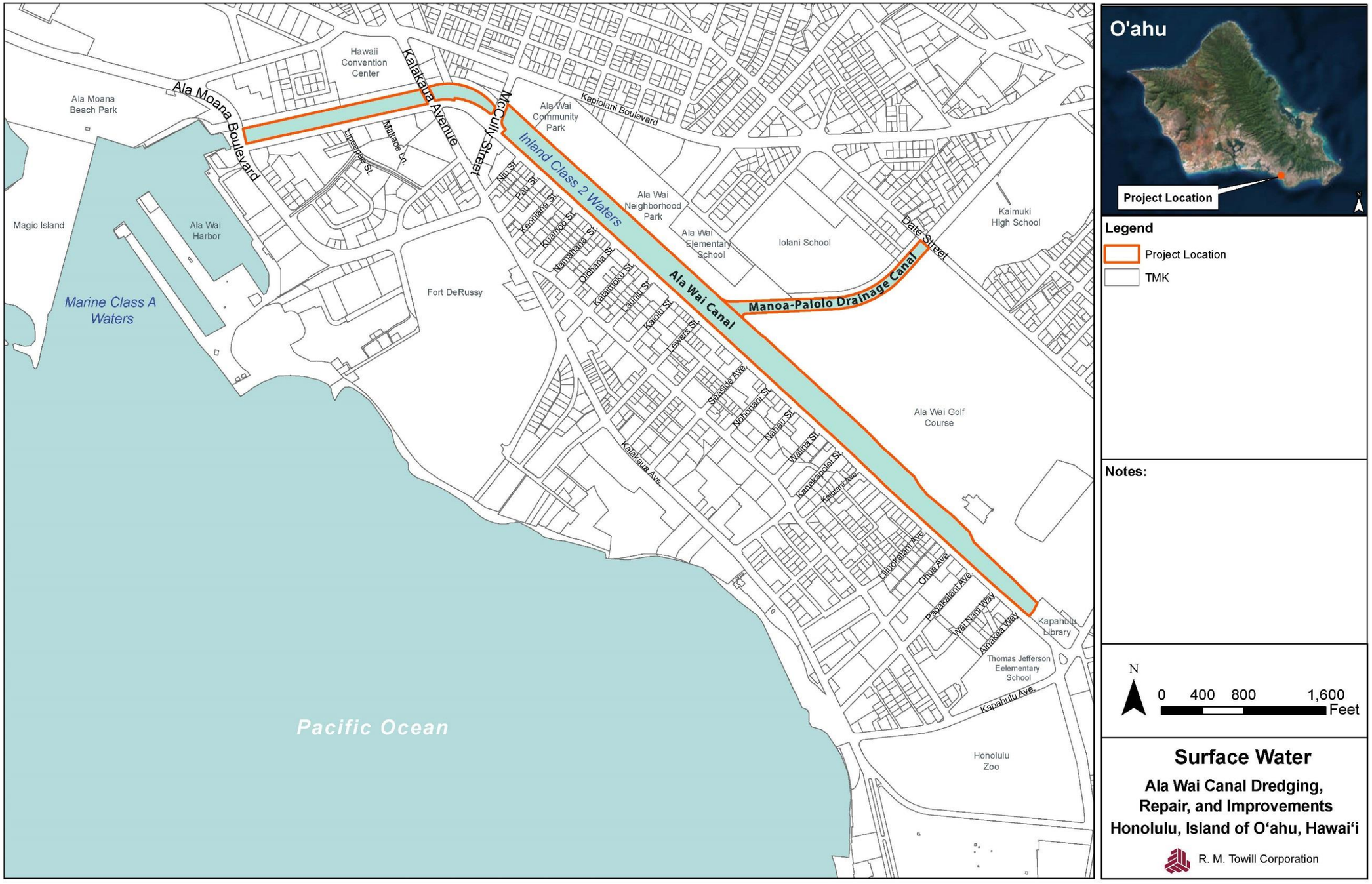
The closest ocean disposal option for the dredged sediment is the South O'ahu ODMDS, located approximately three miles offshore. This ODMDS is outside waters classified by the State DOH. The USACE and EPA will be consulted regarding disposal of dredged sediments at the South O'ahu ODMDS.

Potential Effects and Proposed Mitigation

Project related activities would involve maintenance dredging of the Ala Wai Canal and MPDC, and the collection and disposal of dredged spoils, as well as potential repairs to Ala Wai Canal walls, and possible treatments to select stairs along the Ala Wai Canal. The purpose of the proposed action is to increase sediment- and water-holding capacities within the Ala Wai Canal and MPDC, ensure the protection of nearshore State marine waters, and to provide needed structural improvements.

1 Figure 5-4. Surface Water

2



During construction, there is the potential for storm water runoff (i.e., construction-related pollutants that have contacted or commingled with storm water runoff) and non-storm water runoff (i.e. polluted water used for construction activities) pollutants to discharge from the project site into nearby surface waters. Further detail, including the potential for adverse effects and mitigation measures, will be provided in the project DEIS.

Potential Impacts of Alternatives

Work proposed within the Ala Wai Canal and MPDC is anticipated to require the filing of a Department of the Army permit and Section 401, WQC. The potential for adverse impacts to the surface waters will be addressed through adherence to all USACE, DOH, and CCH regulatory requirements (see **Section 8.3** and **Section 8.4**). Further consultation with appropriate agencies and discussion, including an analysis of each alternative considered, the potential for project impacts on existing surface water resources and appropriate mitigation measures, will be included in the subsequent DEIS for this project.

5.7 Drainage

The Ala Wai Watershed is located on the southeastern side of the island of O‘ahu, Hawai’i. The watershed encompasses 19 square miles (12,064 acres) and extends from the ridge of the Ko‘olau Mountains to the nearshore waters of Māmala Bay. It includes Makiki, Mānoa, and Pālolo streams, which flow to the Ala Wai Canal, a two-mile-long, man-made waterway constructed during the 1920s to drain extensive coastal wetlands (USACE, 2015).

Potential Effects and Proposed Mitigation

Drainage effects would be of short duration and would cease upon completion of the project. All work proposed would adhere to USACE, DOH, and CCH regulatory requirements. Further detail, including the potential for adverse effects and mitigation measures, will be provided in the project DEIS.

Potential Impacts of Alternatives

Further consultation with appropriate agencies and discussion, including an analysis of each alternative considered, the potential for project impacts on the storm drainage system and appropriate mitigation measures, will be included in the subsequent DEIS for this project.

5.8 Natural Hazards (Floods, Seismic Hazard, Tsunamis, Hurricanes and High Winds)

Floods

The terrestrial project area is characterized by the Federal Emergency Management Agency, Digital Flood Insurance Rate Map (FEMA-FIRM) as the following categories:

0.2 PCT Annual Chance Flood Hazard:	0.2 PCT Annual Chance Flood Zone is the flood insurance rate zone that corresponds to the areas of 500-year flooding.
Zone A:	Flood insurance rate zone that corresponds to the 100-year floodplains that are determined in the Flood Insurance Study (FIS) by approximate methods.

Zone AE:	Flood insurance rate zone that corresponds to the 100-year floodplains that are determined in the FIS by detailed methods.
Zone AO:	Flood insurance rate zone that corresponds to the areas of 100-year shallow flooding (usually sheet flow on sloping terrain) when average depths are between 1 and 3 ft.
Zone VE:	Flood insurance rate zone that corresponds to the 100-year coastal floodplains that have additional hazards associated with storm waves.
Zone X:	Area determined to be outside of the 0.2% annual chance floodplain.

The project site is primarily located within FEMA-FIRM Zone A and AE. See **Figure 5-5**, **Flood Zones**.

Seismic Hazard

Earthquakes occurring in Hawai‘i are closely linked to volcanic activity. Numerous earthquakes take place every year, with the majority occurring beneath the island of Hawai‘i.

Tsunamis

Tsunamis are seismic sea waves caused by earthquakes, submarine landslides, and, infrequently, by eruptions of island volcanoes. During a major earthquake, the seafloor can move by several meters and an enormous amount of water is set into motion. The result is a series of waves that move across the ocean at speeds greater than 800 km (497 miles) per hour.

The Ala Wai Canal, MPDC, and Magic Island are within the 100-year flood inundation zone and the Tsunami Evacuation Zone as identified on the CCH, Department of Emergency Management, Map 1: Waikīkī (CCH, DPP, 2015).

In case of floods or tsunamis during construction, dredging activities would cease and equipment would be secured in work support areas. The dredging crew would follow standard community emergency procedures, and evacuation would progress as required.

Hurricanes and High Winds

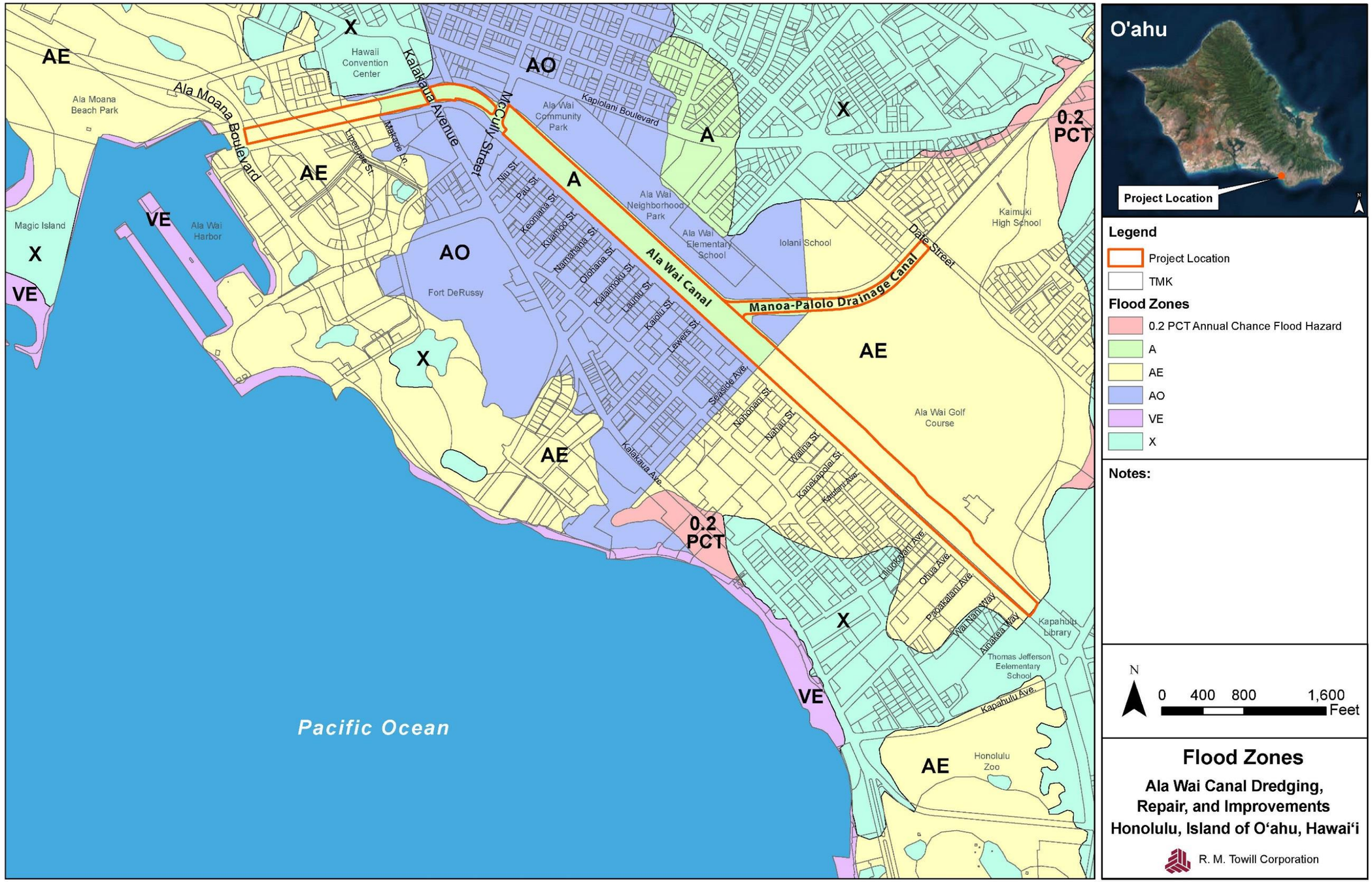
Heavy rains and strong winds associated with tropical storms occasionally impact Hawai‘i and can cause flooding and major erosion. Hurricanes occasionally approach, but rarely reach the islands with hurricane force wind speeds. The most recent hurricanes directly affecting the islands included Iniki in 1992 which mainly affected Kaua‘i, and Iselle in 2014 which mainly affected Hawai‘i. Hurricanes are more prone to affect the Hawaiian Islands from the late summer to early winter months.

Potential Effects and Proposed Mitigation

Floods – The proposed project would improve the existing drainage of the area. The purpose of the proposed action is to remove sediment from the Ala Wai Canal and MPDC. This will increase water depths in the proposed dredge areas, which will restore sediment holding capacities ensuring the protection of nearshore marine waters and decrease risk of flooding in surrounding areas during high intensity storm events. The risk of erosion during and following construction would be addressed through adherence to appropriate State and CCH guidelines and standards.

1 Figure 5-5. Flood Zones

2



Seismic Hazard – No building structures are proposed. The proposed structural work will meet existing Federal, State, and CCH seismic requirements.

Tsunami – The project site is located within the tsunami evacuation zone. All structures (i.e., wall repairs and stair treatment) associated with the proposed project, and risk of erosion during and following construction would be addressed through adherence to appropriate Federal, State, and CCH guidelines and standards.

Hurricanes and High Winds – To mitigate for potential effects of hurricanes, structures would be designed to meet or exceed minimum State and CCH requirements.

Potential Impacts of Alternatives

In case of a natural hazard, dredging and construction activities would cease for the period that the flood, seismic, hurricane, or tsunami hazard exists. Equipment would be secured in work and support areas. After dredging and construction are completed, flood hazards should be reduced for the vicinity of the Ala Wai Canal and MPDC. Further consultation with appropriate agencies and discussion, including an analysis of each alternative considered, the potential for impacts by natural hazards, and appropriate mitigation measures, will be included in the subsequent DEIS for this project.

5.9 Scenic and Aesthetic Environment

The determination of effects to scenic vistas and viewplanes is based on the existing visual qualities of the area, and the degree and duration of disturbance. Public views, in the CCH Development Plan (DP) Common Provisions, include "*views along streets and highways, mauka-makai view corridors, panoramic and significant landmark views from public places, views of natural features, heritage resources, and other landmarks, and view corridors between significant landmarks*" [§24-1.4 Revised Ordinances of Honolulu (ROH)].

Important views to be protected on O'ahu, as identified in the Primary Urban Center (PUC)-DP, are "*panoramic views of the Ko'olau and Wai'anae Mountain Ranges, Punchhowl, Diamond Head, Pearl Harbor and other natural landmarks.*" Objectives of the PUC-DP include "*maintain[ing] important view corridors within and across urban Honolulu and keep[ing] Downtown [Waikīkī] as the most prominent feature of the urban skyline*" (CCH, DPP, 2004).

The proposed action will occur primarily along the Ala Wai Canal, the MPDC, and within the Ala Wai Boat Harbor. Staging and mooring locations are under consideration and may include sites at Magic Island and/or the Ala Wai Neighborhood Park.

Potential Effects and Proposed Mitigation

The proposed project will involve the use of construction equipment, soils, and staged materials, which could temporarily reduce the overall aesthetic quality of the Ala Wai Canal and MPDC during dredging operations. These activities would be temporary and localized and will not obstruct large view sheds. Once dredging operations and construction is completed, all equipment no longer necessary to the site

will be removed with no further disturbance to the scenic resources of the area. Further detail, including the potential for adverse effects and mitigation measures, will be provided in the project DEIS.

Potential Impacts of Alternatives

Further consultation with appropriate agencies and discussion, including an analysis of each alternative considered, the potential for project impacts to visual and scenic resources and appropriate mitigation measures, will be included in the subsequent DEIS for this project.

5.10 Air Quality

Air quality is generally excellent in the project area. Air pollution is mainly derived from volcanic emissions produced on the Big Island of Hawai‘i consisting of sulfur dioxide which converts into particulate sulfate and produces a volcanic haze (i.e., vog) that occasionally blankets parts of the island. Prevailing northeasterly tradewinds keep the project area relatively free of vog for most of the year.

Potential Effects and Proposed Mitigation

During construction, ambient air quality within the vicinity of the project site may temporarily be affected by fugitive dust and odors arising from the canal during dredging, and exhaust emissions from construction vehicles and equipment. Further detail, including the potential for adverse effects and mitigation measures, will be provided in the project DEIS.

Potential Impacts of Alternatives

Further consultation with appropriate agencies and discussion, including an analysis of each alternative considered, the potential for project impacts on existing air quality and appropriate mitigation measures, will be included in the subsequent DEIS for this project.

5.11 Water Quality

The quality of surface water and groundwater resources can be affected by a variety of pollutants, resulting from both natural and human-derived sources. Given the heavily developed nature of the Ala Wai Watershed, groundwater and surface water resources are especially vulnerable to contamination and other changes in quality, particularly within the urbanized areas surrounding the Ala Wai Canal and MPDC.

Waters of the Ala Wai Canal and MPDC and the site of the proposed dredging operations and repair of the canal walls and stairways are in the Class 2 category as defined by the DOH (HAR, Chapter 11-54, WQS) (see **Figure 5-4**). Waters of the Pacific Ocean and the area of proposed barge mooring within the Ala Wai Boat Harbor are designated Class A, open coastal marine waters in the State of Hawai‘i WQS (DOH, 2014a).

Potential Effects and Proposed Mitigation

Short-term negative effects on water quality in the canal are expected from the temporary resuspension of sediment at the specific area where dredging takes place. Suspended sediment will be contained with

silt curtains. Long-term water clarity and quality improvements are expected as a result of the proposed action. Further detail, including the potential for adverse effects and mitigation measures, will be provided in the subsequent DEIS for this project.

Potential Impacts of Alternatives

Further consultation with appropriate agencies and discussion, including an analysis of each alternative considered, the potential for project impacts on existing water quality and appropriate mitigation measures, will be included in the subsequent DEIS for this project.

5.12 Noise

The proposed project is located in Honolulu and subject to regulation under HAR, Chapter 11-46, "Community Noise Control." The accepted unit of measure for noise is the decibel (dB) because it reflects the way humans perceive changes in sound amplitude. Sound levels can be measured, but human response and perception of the wide variability in sound amplitudes is subjective.

The DOH developed objectives and strategies guiding the noise environment of communities in Hawai'i. State noise guidelines are outlined in HAR 11-46. These guidelines identify maximum allowable noise levels within zoning districts. For the zoning districts surrounding the project site the maximum permissible sound levels range from 45 to 70 A-weighted decibel (dBA).

Potential Effects and Proposed Mitigation

Noise levels are anticipated to temporarily increase due to use of equipment associated with dredging and construction, and have the potential to impact nearby areas. Construction equipment typically generate noise in the range of 55 to 90 dB adjusted, depending on the construction methods used. Noise generated will be temporary, of limited duration and restricted to daytime hours. Further detail, including the potential for adverse effects and mitigation measures, will be provided in the project DEIS.

Potential Impacts of Alternatives

Further consultation with appropriate agencies and discussion, including an analysis of each alternative considered, the potential for project impacts on existing noise levels and appropriate mitigation measures, will be included in the subsequent DEIS for this project.

5.13 Terrestrial Botanical Resources

Within the project area, the vegetation is significantly limited by urban development; it is primarily comprised of landscaped vegetation or ruderal, weedy species.

Potential Effects and Proposed Mitigation

Further detail, including the potential for adverse effects and mitigation measures, will be provided in the project DEIS.

Potential Impacts of Alternatives

Further consultation with appropriate agencies and discussion, including an analysis of each alternative considered, the potential for project impacts on existing terrestrial botanical species and appropriate mitigation measures, will be included in the subsequent DEIS for this project.

5.14 Terrestrial Faunal and Avifaunal Resources

Given the extent of development, terrestrial wildlife in the project vicinity is primarily comprised of feral species (such as mongoose, cats, rats, and others). It is likely that one or more of the four established alien *Muridae* found on O'ahu – roof rat (*Rattus rattus*), brown rat (*Rattus norvegicus*), black rat (*Rattus exulans hawaiiensis*), and European house mouse (*Mus musculus domesticus*) – utilize resources found within the project area on a seasonal basis. All of these introduced rodents are deleterious to native ecosystems and native faunal species.

Potential Effects and Proposed Mitigation

Further detail, including the potential for adverse effects and mitigation measures, will be provided in the project DEIS.

Potential Impacts of Alternatives

Further consultation with appropriate agencies and discussion, including an analysis of each alternative considered, the potential for project impacts on existing faunal and avifaunal resources and appropriate mitigation measures, will be included in the subsequent DEIS for this project.

5.15 Marine Biological Resources

The Ala Wai Canal is considered an estuary, defined by the State of Hawai'i WQS (HAR Title 11, Chapter 54) as "characteristically brackish waters in well-defined basins with a continuous or seasonal surface connection to the ocean that allows entry of marine fauna." As such, the Canal provides important nursery grounds for native juvenile fish (Jokiel et al., 2004), and is an important component of the migratory pathway for native amphidromous species.

Potential Effects and Proposed Mitigation

Further detail, including the potential for adverse effects and mitigation measures, will be provided in the project DEIS.

Potential Impacts of Alternatives

Further consultation with appropriate agencies and discussion, including an analysis of each alternative considered, the potential for project impacts on existing marine biological resources and appropriate mitigation measures, will be included in the subsequent DEIS for this project.

6.0 Public Services, Potential Impacts and Mitigation Measures

6.1 Transportation Facilities

Existing roadway conditions in the project vicinity include high volumes of vehicular and pedestrian traffic during daylight and evening hours. Major roadways in the area are Ala Moana Boulevard (State highway), the H-1 Freeway (the primary highway for cross-town traffic), Pi'ikoi Street (a major mauka-makai arterial roadway between Ala Moana Boulevard and the H-1 Freeway), University Avenue (a collector street serving mauka-makai traffic between lower Mānoa and the lower Mōʻiliʻili area which provides direct access to the canal shore vicinity of Ala Wai Neighborhood Park), Kapiolani Boulevard (arterial street serving ʼEwa-Koko Head traffic between downtown Honolulu and Mōʻiliʻili), Ala Wai Boulevard (a one-way street on the makai side of Ala Wai Canal), and Kapahulu Avenue (an undivided minor arterial street which provides a "back door" connection between Waikīkī and the H-1 Freeway).

Potential Effects and Proposed Mitigation

Further detail, including the potential for adverse effects and mitigation measures, will be provided in the project DEIS.

Potential Impacts of Alternatives

Further consultation with appropriate agencies and discussion, including an analysis of each alternative considered, the potential for project impacts on transportation and appropriate mitigation measures, will be included in the subsequent DEIS for this project.

6.2 Recreational Facilities

Recreational facilities in the vicinity of the project site primarily consist of State and County parks; a golf course; boating facilities; and the Ala Wai Canal itself. The Ala Wai Canal offers a variety of recreational opportunities, including outrigger canoe paddling, kayaking, and fishing; it supports the single largest concentration of canoe clubs in the State. In addition, the sidewalks and other pathways along the Ala Wai are heavily used for walking, running and biking.

Potential Effects and Proposed Mitigation

Long-term effects on recreational activities occurring in the project area are expected to be positive. Water use activities in the canal should be enhanced once the project is complete, due to the removal of shoal areas, which is expected to improve water quality and allow navigation over the width and length of the Ala Wai Canal. Further detail, including the identification of recreational resources and potential for adverse effects and mitigation measures, will be provided in the project DEIS.

Potential Impacts of Alternatives

Further consultation with appropriate agencies and discussion, including an analysis of each alternative considered, the potential for project impacts on parks and recreational resources and appropriate mitigation measures, will be included in the subsequent DEIS for this project.

6.3 Wastewater

The proposed project does not involve the requirement for wastewater collection or treatment. However, during construction workers will be provided access to portable toilets, as required.

Potential Effects and Proposed Mitigation

The use of portable toilets would be maintained by the contractor in accordance with State DOH and CCH health regulations. No adverse effects requiring mitigation are anticipated to be required.

Potential Impacts of Alternatives

No alternative considered is anticipated to have an adverse effect on wastewater.

6.4 Potable Water

The project does not require the use of potable or drinking water.

Potential Effects and Proposed Mitigation

No adverse effect on potable water resources or infrastructure is expected and no mitigation measures are expected to be required.

Potential Impacts of Alternatives

No alternative considered is anticipated to have an adverse effect on potable water.

6.5 Solid and Hazardous Waste

Solid waste will be generated during construction activities, and possibly during dredging activities. Disposal of the solid waste will be to an acceptable waste disposal facility in accordance with Federal, State and CCH regulations. Prior to disposal, the dredged material will be evaluated to identify contaminated material. If any contaminated material is identified, it will be isolated during dredging. Any material determined to be contaminated will be addressed through sediment collection, processing, and disposal, consistent with state solid waste regulations.

Potential Effects and Proposed Mitigation

Disposal of solid waste will be handled in accordance with applicable Federal, State, and CCH rules and regulations. Further detail, including the potential for adverse effects and mitigation measures, will be provided in the project DEIS.

Potential Impacts of Alternatives

Further consultation with appropriate agencies and discussion, including an analysis of each alternative considered, the potential for project impacts on the State of Hawai‘i, CCH or private solid or hazardous waste collection services providers and appropriate mitigation measures, will be included in the subsequent DEIS for this project.

6.6 Power and Communications

Various utility lines cross the Ala Wai Canal and MPDC, with most utilities utilizing the existing bridge structures for the crossing of the canal. An existing transmission power line located within the Ala Wai Canal is used by the Hawaiian Electric Company (HECO) and is planned to be relocated.

Potential Effects and Proposed Mitigation

Coordination and communications with service providers will be undertaken to review as-built plans and to properly locate service lines. Further detail, including the location of power and communication utilities, and the potential for adverse effects and mitigation measures, will be provided in the project DEIS.

Potential Impacts of Alternatives

Further consultation with appropriate agencies and discussion, including an analysis of each alternative considered, the potential for project impacts on the electrical or communication services providers and appropriate mitigation measures, will be included in the subsequent DEIS for this project.

6.7 Police Protection

Police protection services on O‘ahu are provided by the Honolulu Police Department (HPD). O‘ahu is divided into eight patrol districts. The district stations are located in Kalihi, Pearl City, Kapolei, Wahiawa, and Kaneohe. The police substations are located in Wai‘anae, Kailua, Kahuku, Waikīkī, and Chinatown. The project area is identified by the HPD as District 1, Central Honolulu; District 6, Waikīkī; and District 7, East Honolulu. The main police station in the vicinity of the proposed project area is the Waikīkī Substation, located at 2425 Kalākaua Avenue, Honolulu, Hawai‘i.

Potential Effects and Proposed Mitigation

The proposed project involves the maintenance dredging of the Ala Wai Canal and MPDC, possible repairs to existing canal walls, and potential treatments to select stairs along the canal that have become a safety concern. The project is not expected to result in an increase in demand for police protection. The HPD will be consulted to identify and meet standard requirements for traffic controls during construction.

Potential Impacts of Alternatives

Further consultation with appropriate agencies and discussion, including an analysis of each alternative considered, the potential for project impacts on police protection services, and appropriate mitigation measures, will be included in the subsequent DEIS for this project.

6.8 Fire Protection

The Honolulu Fire Department (HFD) provides firefighting services for O‘ahu. The HFD responds to emergencies, including but not limited to fires, emergency medical calls, hazardous materials incidents,

motor vehicle accidents, natural disasters and technical rescues. O'ahu is divided into five battalions containing 45 fire stations.

The fire stations nearest to the Ala Wai Canal and MPDC project area include: HFD, Station 2, located at 1610 Makaloa Street, Honolulu, Hawai'i; HFD, Station 7, located at 381 Kapahulu Avenue, Honolulu, Hawai'i; and HFD, Station 29, located at 2424 Date Street, Honolulu, Hawai'i.

Potential Effects and Proposed Mitigation

The proposed project involves the maintenance dredging of the Ala Wai Canal and MPDC, possible repairs to existing canal walls, and potential treatments to select stairs along the canal that have become a safety concern. The project is not expected to result in an increase in demand for fire protection. The HFD will be consulted to identify and meet fire standard requirements.

Potential Impacts of Alternatives

Further consultation with appropriate agencies and discussion, including an analysis of each alternative considered, the potential for project impacts on fire protection services and appropriate mitigation measures, will be included in the subsequent DEIS for this project.

6.9 Health Care and Emergency Services

Emergency medical services are provided by the State of Hawai'i, CCH, and private emergency services vendors. The nearest hospital with an emergency room to the project site is Queen's Medical Center, located at 1301 Punchbowl Street, Honolulu, Hawai'i. Emergency transport (ambulance) services are provided by CCH's Department of Emergency Services.

Potential Effects and Proposed Mitigation

The proposed project is a maintenance and repair action. The potential need for health and emergency services would be principally during construction from personnel operating equipment and vehicles, and during dredging activities when there will be barges and work boats present. Once dredging and construction operations are completed the project is not expected to result in an increase in demand for health care or emergency services. Further detail, including the potential for adverse effects and mitigation measures, will be provided in the project DEIS.

Potential Impacts of Alternatives

Further consultation with appropriate agencies and discussion, including an analysis of each alternative considered, the potential for project impacts on health care and emergency services and appropriate mitigation measures, will be included in the subsequent DEIS for this project.

6.10 Schools

Several public and private school facilities are located within the vicinity of the proposed project location. All schools within the project extents will be identified and evaluated as to potential effects associated with the project.

Potential Effects and Proposed Mitigation

The proposed project involves the maintenance dredging of the Ala Wai Canal and MPDC, possible repairs to existing canal walls, and potential treatments to select stairs along the canal that have become a safety concern.

The proposed project will not increase nor decrease the provision of educational services to the community, and will not directly or cumulatively result in an increase in the area population, which would otherwise generate the need for school services. Further detail, including the potential for adverse effects and mitigation measures, will be provided in the project DEIS.

Potential Impacts of Alternatives

Further consultation with appropriate agencies and discussion, including an analysis of each alternative considered, the potential for project impacts on shools and appropriate mitigation measures, will be included in the subsequent DEIS for this project.

7.0 Socioeconomic and Related Environment, Potential Impacts and Mitigation Measures

7.1 Population and Demographics of the Project Area

The U. S. Census Bureau released its subcounty population estimates on May 21, 2015. These annual statistics cover all local governmental units, including incorporated places such as cities and towns. Hawai'i is the only state that has no incorporated places recognized by the U. S. Census Bureau. Through an agreement with the Bureau, Urban Honolulu Census Designated Place (CDP) is the only subcounty area in Hawai'i estimated by the Bureau on an annual basis. Urban Honolulu CDP encompasses an area bordered by Nimitz Highway, Aliamanu Drive, the Ko'olau Ridge, Wai'alae Nui Stream and Wai'alae Nui Canal. The proposed project extents are within the Urban Honolulu CDP (DBEDT, 2015).

From April 1, 2010 to July 1, 2014, Urban Honolulu CDP had a 3.9% growth in population (0.9% annual growth rate) and an increase from 337,256 to 350,399 people. This growth was slightly lower than the rest of Honolulu and the CCH. It was also lower than the state (4.4%). It was much lower than the growth for Maui County (5.3%), Kaua'i County (5.0%) and Hawai'i County (4.9%).

Urban Honolulu CDP accounted for 35.3% of Oahu's population in 2014, while 64.7% of Oahu's population lived on the rest of O'ahu. Urban Honolulu's share of the population dropped very slightly over the past 2 years.

Potential Effects and Proposed Mitigation

The proposed project involves the maintenance dredging of the Ala Wai Canal and MPDC, possible repairs to existing canal walls, and potential treatments to select stairs along the canal that have become a safety concern. The project is not anticipated to directly result in an increase in population economic growth or long-term impacts to existing socio-economic status and demographics of the Urban Honolulu CDP.

Potential Impacts of Alternatives

Further consultation with appropriate agencies and discussion, including an analysis of each alternative considered, the potential for project impacts on existing population and demographic conditions and appropriate mitigation measures, will be included in the subsequent DEIS for this project.

7.2 Historic and Archaeological Resources

The Ala Wai Canal is listed as a historic property on the Hawai'i Register of Historic Places, State Inventory of Historic Properties (SIHP) # 50-80-14-9757. The MPDC, constructed in 1935-1936, is eligible for listing on the National/State Register under criteria A and C. The DLNR, State Historic Preservation Division (SHPD) will be consulted regarding the proposed projects potential to impact historic resources and identify areas of particular concern. Any mitigation measures developed through the consultation process will be described in the forthcoming DEIS to be prepared for this project.

Potential Effects and Proposed Mitigation

A Cultural Impact Assessment (CIA) is underway and is based on preliminary consultation with SHPD to evaluate and address the proposed project's effect on historic and cultural resources. The results of the study and an assessment of the proposed project's impacts to historic and cultural practices and resources, as well as proposed mitigation, will be included in the subsequent DEIS for this project.

Potential Impacts of Alternatives

Further consultation with appropriate agencies and discussion, including an analysis of each alternative considered, the potential for project impacts on historic, archaeological and cultural deposits and traditional and contemporary cultural practices and resources and appropriate mitigation measures, will be included in the subsequent DEIS for this project.

7.3 Traditional Cultural Practices

The project requires compliance with the State of Hawai'i environmental review and historic preservation process (HRS, Chapter 343; Session Laws of Hawai'i, Act 50; HRS Chapter 6E-8; and HAR Chapter 13-275), which requires consideration of a proposed project's effect on cultural practices and resources.

As noted above, a CIA is currently underway to evaluate the proposed project's effect on cultural practices and resources. The results of the study and an assessment of the proposed project's impacts, as well as proposed mitigation, will be included in the subsequent DEIS for this project.

Potential Effects and Proposed Mitigation

Further detail, including the potential for adverse effects and mitigation measures, will be provided in the project DEIS.

Potential Impacts of Alternatives

Further consultation with appropriate agencies and discussion, including an analysis of each alternative considered, the potential for project impacts on historic, archaeological and cultural deposits and traditional and contemporary cultural practices and resources and appropriate mitigation measures, will be included in the subsequent DEIS for this project.

8.0 Relationship to Land Use Plans, Policies and Controls

8.1 Overview

Federal, State and County policies, plans, and land use controls are established to guide development in a manner that enhances the environment and quality of life. Policies, plans, and land use controls at all levels of government are promulgated to help ensure that the long-term social, economic, environmental, and land use needs of the community and region can be met. The proposed project's relationship to land use policies, plans, and controls for the region and proposed activity are as follows.

8.2 Section 404, Clean Water Act (CWA), and Section 10, Rivers and Harbors Act (RHA) (also referred to as a Department of the Army Permit)

A Department of the Army Permit application will be required for the project and include areas of jurisdictional coverage under CWA, Section 404, and RHA, Section 10. Coordination will be undertaken with the USACE to address the potential for adverse effects to "Waters of the United States" including effects associated with canal dredging and offshore disposal of dredged spoils. As required, further information will be provided on related regulatory considerations in the project's DEIS.

Discussion

The proposed project involves the maintenance dredging of the Ala Wai Canal and MPDC, possible repairs to existing canal walls, and potential treatments to select stairs along the canal that have become a safety concern. Dredged sediment determined to be suitable for disposal or reuse, will be disposed of at the South O'ahu ODMDS, the designated ocean disposal location closest to the Ala Wai Canal, or reused as fill at an upland location. Upland options currently being evaluated for placement of dredged sediments include the Reef Runway at Honolulu International Airport and state park lands at Sand Island.

Work proposed within the Ala Wai Canal, MPDC, and Pacific Ocean is expected to require the filing of a Department of the Army permit. The permit preparation, related regulatory review, and filing will be coordinated with the USACE, Honolulu Branch and will include the provision of appropriate mitigation measures and controls for the protection of the environment. The permit application will be submitted to USACE after completion of the EIS process.

Further consultation with appropriate agencies and discussion, including an analysis of each alternative considered, the potential for project impacts to the environment and appropriate mitigation measures, will be included in the subsequent DEIS for this project.

8.3 Section 401, Water Quality Certification (WQC)

The CWA is the key legislation governing surface water quality protection in the United States. Sections 401 and 402 of the Act require permits for actions that involve wastewater discharges or discharge of dredged or fill material into waters of the United States. The EPA is responsible for administering the CWA. In Hawai'i, the U.S. EPA has delegated responsibility for implementing the Act to the State. States

can use their WQS in the Section 401 WQC to review and approve, condition, or deny all federal permits or licenses that may result in discharges to state waters, including wetlands. States and tribes make decisions to deny, certify, or condition permits or licenses primarily to ensure that the activity will comply with State WQS. In addition, states and tribes look at whether the activity will violate effluent limitations, new source performance standards, toxic pollutants, and other water resource requirements of state/tribal law or regulation. A Section 401 WQC Application for this project, if determined applicable by USACE, will be submitted to the State DOH.

Discussion

The proposed project involves the maintenance dredging of the Ala Wai Canal and MPDC, possible repairs to existing canal walls, and potential treatments to select stairs along the canal that have become a safety concern. Under the federal CWA and HRS Chapter 342D, along with their supporting rules in HAR 11-54, a WQC is required for activities when proposed construction or operation may result in discharges to State waters.

The USACE Regulatory Branch and the DOH, Clean Water Branch (CWB) will be consulted to identify permitting requirements pertaining to their jurisdiction under the CWA, Section 401. In addition, a NPDES permit pursuant to the CWA, Section 402, will be filed for construction storm water discharges. If required, the WQC application will be submitted to the DOH, CWB after completion of the EIS process.

Consultation with appropriate agencies and discussion, including an analysis of the alternatives considered, the potential for project impacts to water quality and appropriate mitigation measures, will be included in the subsequent DEIS for this project.

8.4 Hawai‘i State Plan

The Hawai‘i State Plan, HRS, Chapter 226, serves as a guide for future long-range development of the state. The Plan consists of comprehensive goals, objectives, policies, and priorities for all areas of government functions. These functions include the protection of the physical environment, the provision of public facilities systems, and the promotion and assistance of socio-cultural advancement. The objectives and policies of the Hawai‘i State Plan will be further evaluated and discussed in the project’s DEIS.

8.5 Hawai‘i State Functional Plans

The Hawai‘i State Functional Plans (Chapter 226) provides a management program that allows for use of Hawaii’s natural resources to improve current conditions and attend to various societal issues and trends. The objectives of the Recreation Functional Plan will be further evaluated and discussed in the project’s DEIS.

8.6 Hawai‘i State Land Use Law

The Hawai‘i State Land Use Law, entitled “State Land Use Commission”, HRS, Chapter 205, was adopted in 1961. The law is meant to preserve and protect Hawai‘i lands, and encourage the uses to which the

lands are best suited. All land in Hawai‘i is classified as one of the four districts: Urban, Rural, Agricultural or Conservation.

Discussion

The subject project is located primarily within the “Urban” State Land Use District. By definition, Urban districts are lands characterized by “city-like” concentrations of people, structures and services. See **Figure 8-1**, **State Land Use Districts**. As stated in Section 205-2(b):

> “*Urban districts shall include such activities or uses as provided by ordinances or regulations of the county within which the urban district is located.*”

Portions of the project may be located within the “Conservation” district; these areas include potential submerged areas to be used for the mooring, transportation, and disposal of dredged sediments. Lands designated as being in the “Conservation” district, denotes that the lands are comprised primarily of lands in existing forest and water reserve zones and include areas necessary for protecting watersheds and water sources, scenic and historic areas, parks, wilderness, open space, recreational areas, habitats of endemic plants, fish and wildlife, and all submerged lands seaward of the shoreline.

Project related activities within the “Conservation” district may require the filing of a CDUP. The DLNR, Office of Conservation and Coastal Lands (OCCL) will be consulted for the proposed project. All necessary permit applications and environmental and building permit approvals will be secured prior to the initiation of construction activities.

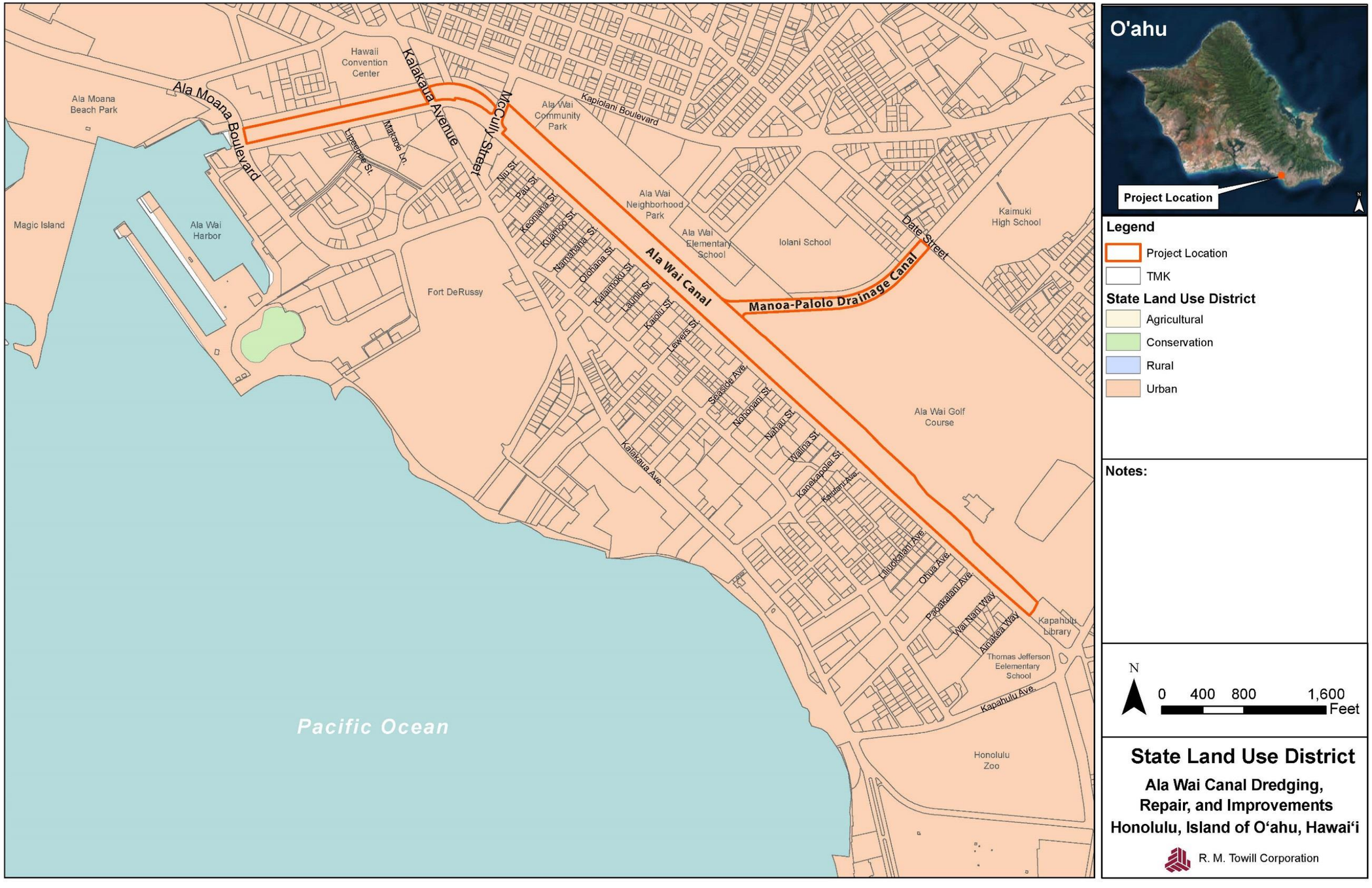
Further consultation with appropriate agencies and discussion, including an analysis of each alternative considered, the potential for project impacts to the designated State land uses and appropriate mitigation measures, will be included in the subsequent DEIS for this project.

8.7 Coastal Zone Management Act (CZMA)

The proposed project is located within the Coastal Zone as defined by the State of Hawai‘i. The CZM area encompasses the entire State and extends seaward to the limit of the State’s police power and management authority, to include the territorial sea. The Coastal Zone Management Act (CZMA), enacted 1972, provides states with financial incentives for the development and implementation of CZM practices, and limited review power over federal actions affecting the State’s coastal zone. Hawai‘i’s Coastal Zone Management Program (CZMP) was enacted to provide a common focus for State and County actions dealing with land and water uses and activities. Projects needing federal permits are required by the CZMA to be consistent with Hawai‘i’s CZMP objectives and policies. The project will undergo review through a CZM FEDCON Determination by the Hawai‘i Office of Planning.

The proposed project will be designed and constructed in conformance with the goals, policies, and objectives of the Hawai‘i CZMP. The State of Hawai‘i designates the CZMP to manage the intent, purpose and provisions of HRS, Chapter 205(A)-2, as amended, for the areas from the shoreline to the seaward limit of the State’s jurisdiction, and any other area which a lead agency may designate for the purpose of administering the CZMP. All land and water use activities in the State must comply with HRS, Chapter 205A, Hawai‘i Coastal Zone Law.

Figure 8-1. State Land Use Districts



Discussion

The USACE, NOAA, USFWS, and USCG will be consulted for the proposed project. All necessary permit applications and environmental and building permit approvals will be secured prior to the initiation of construction activities. The objectives of the CZMA will be further evaluated and discussed in the project's DEIS.

8.8 Stream Channel Alteration Permit (SCAP)

Stream channels are protected by law from alteration, whenever practicable, to provide for fishery, wildlife, recreational, aesthetic, scenic and other beneficial in-stream uses. No stream channel can be altered until an application for a SCAP to undertake the work has been filed and the Commission on Water Resource Management (CWRM) has issued a permit.

The SCAP is regulated by HAR, Title 13, Subtitle 7, Chapter 169 – Protection of Instream Uses of Water and HRS 174C – State Water Code. The State Water Code defines a stream as "any river, creek, slough, or natural water course that usually flows in a defined bed or channel."

A SCAP is required for any temporary or permanent activity within the stream bed or banks that may: 1) Obstruct, diminish, destroy, modify, or relocate a stream channel; 2) Change the direction of flow of water in a stream channel; 3) Place any materials or structures in a stream channel; or 4) Remove any material or structure from a stream channel. Routine streambed and drainageway maintenance activities and the repair of existing facilities are exempt from the SCAP requirements.

Discussion

The DLNR, CWRM will be consulted for the proposed project. All necessary permit applications and environmental and building permit approvals will be secured prior to the initiation of construction activities.

8.9 City and County of Honolulu Zoning

Land uses within the CCH jurisdiction are regulated under ROH, Chapter 21, Land Use Ordinance or LUO. The purpose of the LUO, as stated in Section 21.1.20, is to:

> *"… regulate land use in a manner that will encourage orderly development in accordance with adopted land use policies, including the O'ahu general plan and development plans, and to promote and protect the public health, safety and welfare."*

Section 21.3.10 of the LUO lists the latest CCH land use zoning districts classifications. The adopted zoning districts associated with this project include: P-2 General Preservation for the proposed project area within the MPDC, Magic Island, and the Ala Wai Neighborhood Park; Public Precinct for the area within the Ala Wai Canal; and I-2 Industrial Intensive for the potential upland sediment placement location at the Reef Runway.

All lands to be used for this project are subject to CCH zoning regulations under the LUO. Article 3, Table 21-3, *Master Use Table*, associates various land uses and structures with use categories and zoning

regulations. Under the *Master Use Table* heading "Social and Civil Service," the proposed project falls under "public uses and structures" and therefore is a "permitted use" in all zoning classifications. See **Figure 8-2**, **O'ahu Zoning**.

Discussion

The proposed project is consistent with the purpose and uses of the land's associated zoning classifications under the LUO. The project is not expected to influence the zoning of any adjoining parcels or to affect the existing CCH zoning in the area.

8.10 Waikīkī Special District (WSD) and Diamond Head Special District (DHSD) Permits

Within the vicinity of the proposed project are the WSD, which includes the Ala Wai Canal and area makai of the canal; and the DHSD, which comprises the area mauka of the Ala Wai Canal including the MPDC. These special districts are illustrated in **Figure 8-3, Zoning Special Districts**.

Discussion

The proposed project involves the maintenance dredging of the Ala Wai Canal and MPDC, possible repairs to existing canal walls, and potential treatments to select stairs along the canal that have become a safety concern. The area of the project within and along the banks of the Ala Wai Canal is within the WSD. The mauka bank of the Ala Wai Canal and the MPDC are located within the DHSD.

The CCH, Department of Planning and Permitting (DPP) will be consulted regarding the proposed project and applicability to the regulations of the WSD and DHSD, and to identify permitting requirements pertaining to their jurisdiction. If required, a Special District Permit (Major) application will be submitted to the CCH, DPP after completion of the EIS process. The objectives of the WSD and DHSD will be further evaluated and discussed in the project's DEIS.

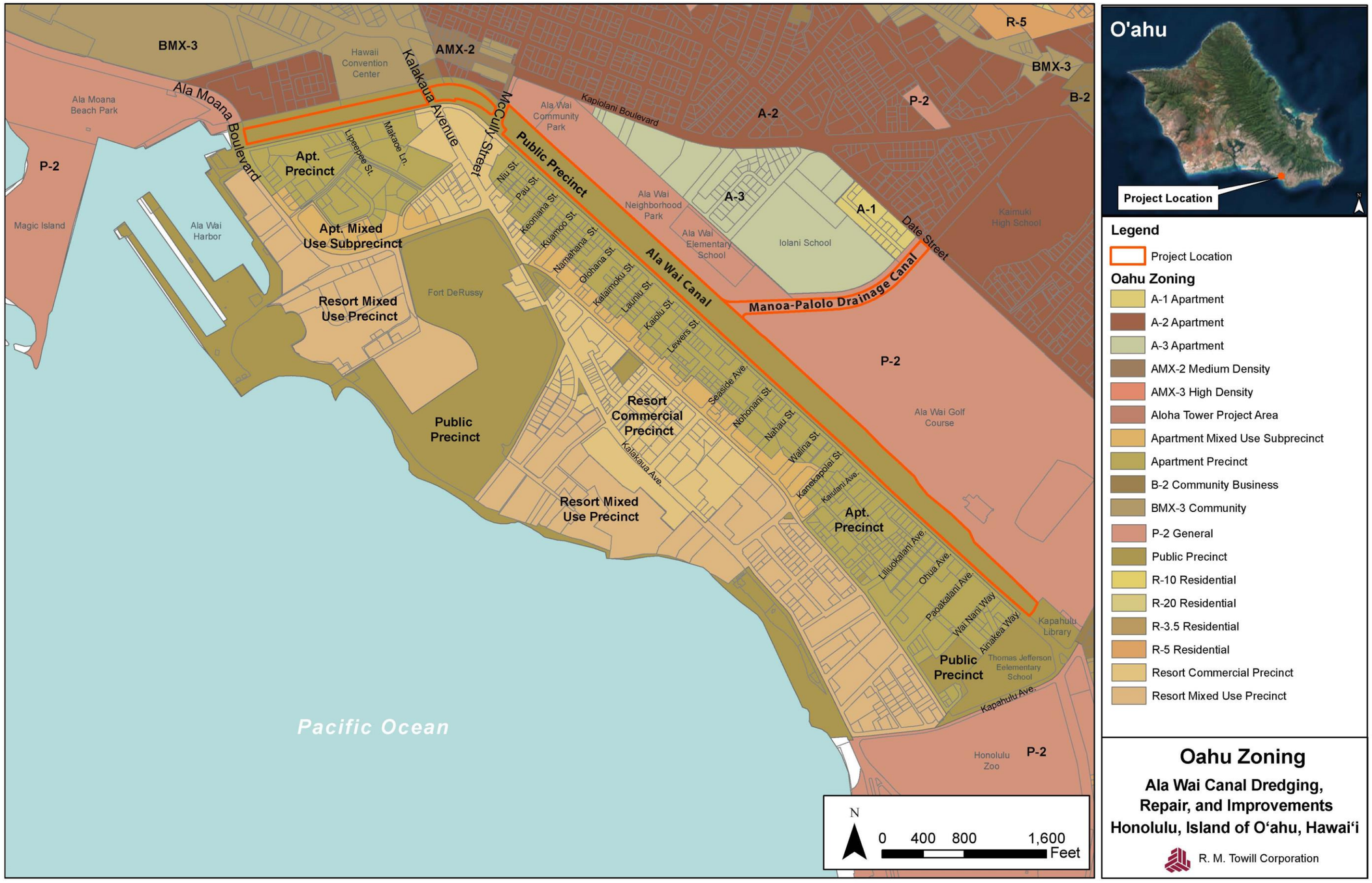
8.11 General Plan (GP) of the City and County of Honolulu

The General Plan (GP), a requirement of the CCH Charter, is a written commitment by CCH to a future for the Island of O'ahu. The current plan, approved in 2002, is a statement of the long-range social, economic, environmental, and design objectives and a statement of broad policies, which facilitate the attainment of the objectives of the plan. The plan is currently being updated. The project will be reviewed against the requirements of the CCH's GP. The objectives and policies of the CCH's GP will be further evaluated and discussed in the project's DEIS.

8.12 Primary Urban Center Development Plan (PUC-DP)

The purpose of the development plans and sustainable community plans prepared by the CCH, DPP, is to implement the GP in specific geographic areas. The PUC-DP area encompasses the coastal plain that extends along Oahu's southern shore from Wai'alae-Kahala in the east to Pearl City in the west, and from the shoreline to the westerly slopes of the Ko'olau Mountain Range.

Figure 8-2. O‘ahu Zoning



1 Figure 8-3. Zoning Special Districts

2

The provisions of the PUC-DP are not regulatory; rather, they are established with the explicit intent of providing a coherent vision to guide resource protection and land use within the PUC. However, the plan does provide guidance for development for the PUC, public investment in infrastructure, zoning and other regulatory procedures, and the preparation of the CCH's annual capital improvement program budget.

The most recently-approved PUC-DP is contained in ROH, Chapter 24, Article 2, effective June 2004. It is the intent of the plan to:

> *"…provide a guide for orderly and coordinated public and private sector development in the Primary Urban Center development plan area in a manner that is consistent with applicable general plan provisions, including the designation of the Primary Urban Center as the principal region for future growth in residential population and jobs"* (ROH, Section 24-2.2(b)).

The policies and goals of the PUC-DB will be further evaluated and discussed in the project's DEIS.

8.13 Special Management Area (SMA) Rules and Regulations

The SMA is a regulated zone extending inland from the shoreline to a landward boundary delineated by the CCH on O'ahu. The landward boundary of the SMA can vary from a few dozen feet to more than a mile. A portion of the project area may be within the County's SMA zone, and therefore subject to County SMA regulations. See **Figure 8-4**, **Special Management Area**.

Discussion

In accordance with ROH, Chapter 25, the DPP, CCH will be consulted for proposed work in the CCH's SMA. Please refer to **Section 8.7** for an analysis of the proposed project with regard to HRS, Chapter 205(A)(2), *Coastal Zone Management*. All necessary permit applications and environmental and building permit approvals will be secured prior to the initiation of construction activities.

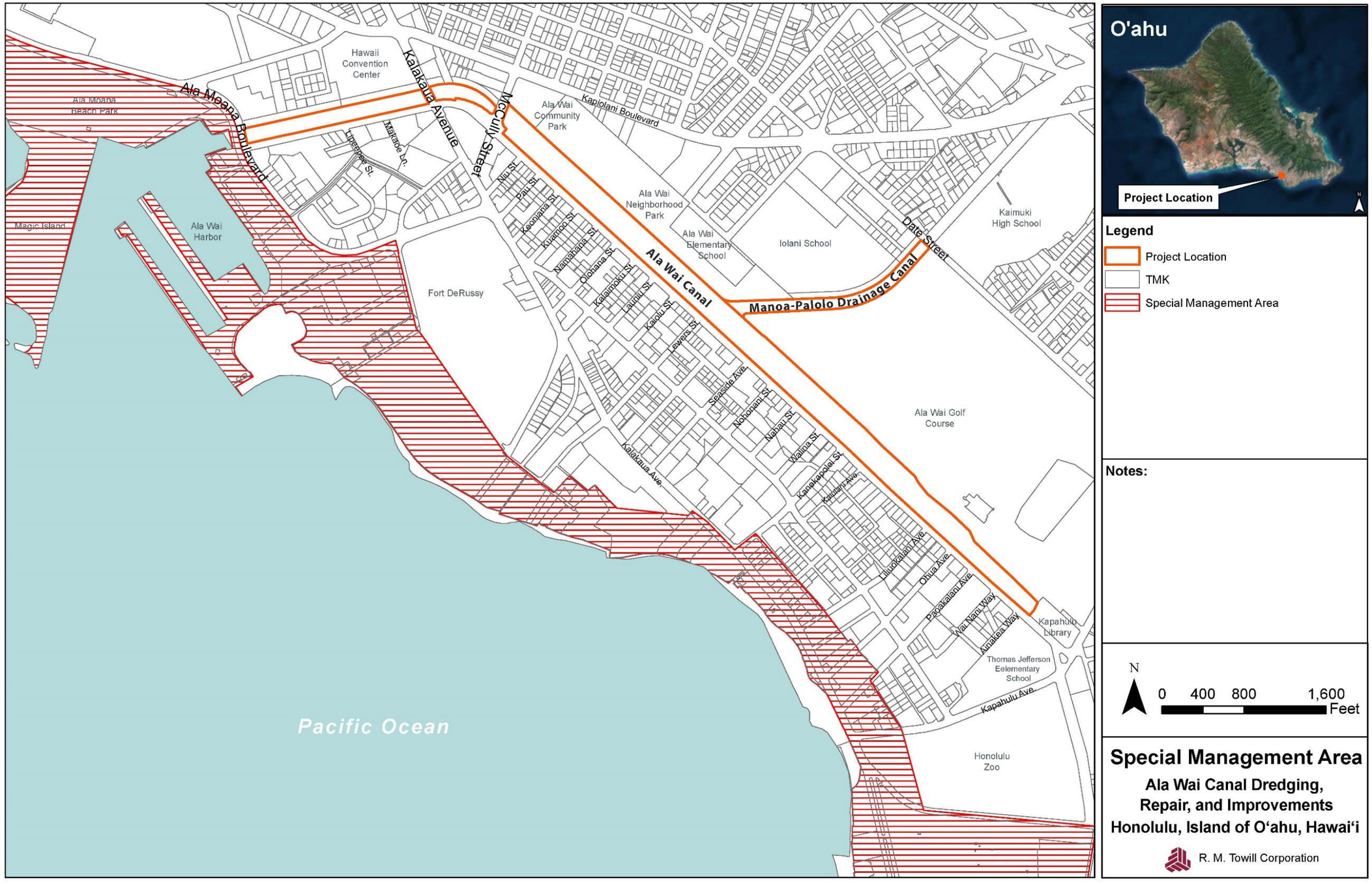
8.14 Shoreline Setback

ROH, Chapter 23, defines requirements for activities within the shoreline setback (40 ft from the certified shoreline) area. Activities within the shoreline setback, including grading or stockpiling of earth, require a SSV, which is administered by the CCH, DPP. The SSV application would be submitted with the SMA application (discussed above, see **Section 8.13**). This application, if required, will be submitted after the EIS process is completed.

Discussion

A SSV permit, in accordance with ROH, Chapter 23, may be required for construction work in the CCH's shoreline setback area, and therefore may be subject to review and evaluation by the CCH, DPP. If required, a shoreline survey and SSV application will be submitted following the EIS process.

Figure 8-4. Special Management Area



9.0 Permits and Approvals that May be Required

9.1 Federal

Section 404, Clean Water Act (CWA) and Section 10, Rivers and Harbors Act (RHA) Request for Permit Application (USACE and EPA); this will involve:

- Section 7, Endangered Species Act (ESA), Consultation (USFWS and NOAA)
- Section 103, Marine Protection, Research, and Sanctuaries Act Consultation (MPRSA);
- Magnuson-Stevens Fishery Conservation and Management Act, Consultation (NOAA)
- Section 106, National Historic Preservation Act (NHPA), Consultation (DLNR, SHPD)

9.2 State of Hawai‘i

Final Environmental Impact Statement (FEIS) under HRS, Chapter 343 (DLNR)

Coastal Zone Management Federal Consistency (CZM FEDCON) Determination (Department of Business, Economic Development, and Tourism (DBEDT), Office of Planning)

Section 401, CWA, Water Quality Certification (WQC) (DOH, CWB)

Section 402, CWA, National Pollution Discharge Elimination System (NPDES) Permit for Construction Stormwater (DOH, CWB)

Stream channel Alteration Permit (SCAP) (DLNR, CWRM)

Conservation District Use Permit (CDUP) (DLNR, OCCL)

9.3 City and County of Honolulu

Special Management Area (SMA) Permit (DPP)

Waikīkī Special District (WSD) and Diamond Head Special District (DHSD) Permits (DPP)

Shoreline Setback Variance (SSV) Permit (DPP)

10.0 Agencies, Organizations and Individuals to be Consulted for the Environmental Impact Statement

A number of groups, organizations, and individuals were notified that an EIS is under preparation for the project. The notified groups, organizations, and individuals were requested to provide input on relevant issues that should be reviewed during the EIS process.

10.1 City and County of Honolulu

DES, Golf Course Division
DPR
DPP
Department of Facility Maintenance (DFM)
Department of Environmental Services (ENV)
Department of Design & Construction
HFD
HPD

10.2 State of Hawai‘i

DLNR:
- Board of Land and Natural Resources (BLNR)
- CWRM
- OCCL
- Division of Forestry and Wildlife (DOFAW)
- DSP
- Division of Boating and Ocean Recreation (DOBOR)
- SHPD
- Land Division
- Division of Aquatic Resources

Department of Education
DOH, CWB
DBEDT, Office of Planning
HDOT, Highways Division
Office of Hawaiian Affairs (OHA)

10.3 Federal Government

USACE, Honolulu District
NOAA
USFWS
USCG

10.4 Utility Companies

HECO
BWS, CCH

10.5 Elected Officials and Neighborhood Boards

United States Senator Brian Schatz
United States Senator Mazie Hirono
United States Representative Tulsi Gabbard
United States Representative Mark Takai
Governor David Ige
State Senator Sam Slom, District 9
State Senator Les Ihara Jr., District 10
State Senator Brian Taniguchi, District 11
State Senator Brickwood Galuteria, District 12
State Representative Mark Hashem, District 18
State Representative Bertrand Kobayashi, District 19
State Representative Calvin K.Y. Say, District 20
State Representative Scott Nishimoto, District 21
State Representative Tom Brower, District 22
State Representative Isaac W. Choy, District 23
State Representative Della Au Belatti, District 24
State Representative Sylvia Luke, District 25
State Representative Scott Saiki, District 26
Mayor Kirk Caldwell
Honolulu City Managing Director Roy K. Amemiya, Jr.
Honolulu City Councilperson Trevor Ozawa, District 4
Honolulu City Councilperson Ann Kobayashi, District 5
Honolulu City Councilperson Carol Fukunaga, District 6
Chairperson, Neighborhood Board No. 4
Chairperson, Neighborhood Board No. 5
Chairperson, Neighborhood Board No. 6
Chairperson, Neighborhood Board No. 7
Chairperson, Neighborhood Board No. 8
Chairperson, Neighborhood Board No. 9
Chairperson, Neighborhood Board No. 10
Chairperson, Neighborhood Board No. 11
Chairperson, Neighborhood Board No. 12

10.6 Landowners, Community, Associations, Organizations, Clubs, and Schools

DLNR, BLNR
CCH, DPR

CCH, DPW
Waikīkī Improvement Association
Ala Wai Watershed Association

Ala Wai Watershed Partnership
Waikiki Business Improvement District
Hawai‘i Lodging & Tourism Association
Hawai‘i Tourism Authority
Mālama Mānoa
Partners in Development Foundation
United Cerebral Palsy Association of Hawai'i
Tendai Mission of Hawai'i
State Recognized Descendant of Ahupuaa Waikīkī
Interscholastic League of Honolulu
Association of Hawaiian Civic Clubs:
    Maunalua Hawaiian Civic Club
    Waikīkī Hawaiian Civic Club
Kumuola Hawai'i Foundation
Ikaika Hawai'i
Native Hawaiian Hospitality Association
PAC-Five
Na Ohana o Na Hui Wa‘a
Elks Lodge Waikīkī
Royal Hawaiian Center
WCIT Architecture, Inc.
O‘ahu Hawaiian Canoe Racing Association
Koa Kai Canoe Club
Lōkahi Canoe Club
Waikīkī Beachboys Canoe Club
Kamehameha Canoe Club
Kumulokahi Canoe Club
Imua Canoe Club
Waikīkī Yacht Club and Canoe Club
Hui Nalo Canoe Club
Keola O Ke Kai Canoe Club
Outrigger Canoe Club
Ala Wai Canal Canoe Hālau
University of Hawai‘i at Mānoa:
    Hawai‘inuiākea School of Hawaiian Knowledge;
    Department of Oceanography, School of Ocean Earth Science and Technology;
    College of Social Sciences, Department of Civic Engagement
    Center for Conservation Research & Training, Pacific Biosciences Research Center and

Hawai‘i Stream Research Center
Ala Wai Elementary School
‘Iolani School
President Thomas Jefferson Elementary School
Kaimukī High School
McCully District Park
Hawai'i State Library
Mānoa Public Library
McCully -Mō‘ili‘ili Public Library
Waikīkī-Kapahulu Public Library
Kaimukī Public Library
Library for the Blind an Physically Handicapped
Note: Other canoe clubs and community associations will be identified as part of the project DEIS.

10.7 Public and Community Consultation

In addition to the public and private agencies, organizations, and individuals identified above, early public input will be solicited at a public information meeting to inform and obtain input from the community on relevant issues or concerns that should be considered in the preparation of the EIS documentation for the project.

An EIS community scoping meeting was held in July 2016 to notify and initiate consultation with the community for the preparation of a Chapter 343, HRS, EIS for the Ala Wai Dredging and Improvements project. The meeting was held to accomplish the following:

- Solicit public input to help identify environmental and cultural issues to be considered and addressed in the upcoming EIS; and
- Inform the publish regarding ongoing activities and the upcoming EIS process.

The EIS community scoping meeting was held on the following date and location:

- Thursday, July 21, 2016, 6:00 PM to 8:00 PM, Ala Wai Elementary School Cafeteria, Honolulu

Table 10-1 below provides a summary of the effort by the DLNR to notify the public in advance of the meeting using multiple media sources. See **Appendix A, Notification and Content of Ala Wai Canal Dredging and Improvements Project Public Informational and EISPN Scoping Meeting, July 2016**, for the printed documents used for the public notification (i.e., advertisement, letters and email notification, flyer, and news release), the PowerPoint presentation, the agenda and handouts provided to the public at the meeting, the sign-in sheet for the meeting, and the public comment form distributed at the meeting.

Table 10-1. Public Notification of Community Meeting

Item	Description
Advertisement, *Honolulu Star- Advertiser* (Legal Section)	Announced purpose, time and date of meeting. An approximately 5.75-inch-wide by 8-inch-long meeting advertisement was published for one (1) day on July 7, 2016. The advertisement was issued by the DLNR approximately 2 weeks prior to the start of the meeting held on July 21, 2016.
Meeting Notification and Flyer	A letter announcing the meeting and flyer were disseminated to CCH, State, and Federal agencies and elected officials, the community, clubs, and associations. The letter and flyer were distributed on July 11, 2016.
Email Blast and Flyer	Emails announcing the meeting and flyer were disseminated to CCH, State, and Federal agencies and elected officials, the community, clubs, and associations. The emails and flyer were sent on July 11, 2016.
News Release	A news release announcing the purpose, time and date of the meeting was issued by the DLNR on July 15, 2016, approximately 1 week prior to the start of the meeting.

The agenda for the July 21, 2016 meeting included: (1) introduction and meeting overview; (2) presentation; and (3) public comments. The DLNR, Chief Engineer, Carty S. Chang, opened the meeting by introducing members of the DLNR administration and the consultant RMTC. Mr. Chang welcomed the audience, thanking all for their patience and attendance at the meeting at the Ala Wai Elementary School.

Future opportunities for public comment will be made available following publication of this EISPN document, and following publication of the forthcoming DEIS.

At the meeting, the consultant provided a review of the agenda and purpose for the meeting. Next, a PowerPoint presentation by the consultant described the objectives of the proposed project, the existing condition of the Ala Wai Canal and MPDC and future plans for the dredging and improvements project, including future opportunities for community input. The public notifications and meeting presentation and handouts are reproduced in **Appendix A**.

This was followed by an opportunity for the public to briefly present any issues that needed to be addressed in the EIS process. The consultant prepared a meeting summary of the major concerns raised by the community for use in preparing the EIS.

Public Comments Received and Preliminary Response to Comments

The public comments received were organized into 4 categories based on predominant subject:

1. Project Design and Operations
2. Socioeconomic and Cultural Impacts
3. Environment
4. Other Comments

Preliminary responses to the comments are prepared according to the categories and are described below. See also **Appendix B, Public Comments, July-September 2016**, for the record of comments received at the July 21, 2016 meeting, mail comments, and email comments.

1. Project Design and Operations:

Project Extents

- Will the proposed project dredge the whole Ala Wai Canal? (Mtg.)
- Where do you plan to dredge along the MPDC? (Mtg.)
- Your map of the Project Location is not exactly correct, right? Won't you need to stage barges outside of the indicated area, and dump material in the open ocean? (Email)
- Locations and depth where dredging will occur and quantity of dredged spoils are needed. (Mtg.)
- Can DLNR please compare the expected dredge volumes for the proposed work to the quantity dredged in the 2002- to 2004-timeframe? (Mtg.)
- I understand that work will be undertaken up to the State property boundary. Can you help us understand the portion of the makai side of the canal along the Ala Wai Boulevard and if this is located within State property? (Mtg.)
- Is Makiki Stream under the City and County of Honolulu jurisdiction? Is Makiki Stream where it enters the Ala Wai Canal (AWC) considered for this dredging project? (Mtg.)
- Can Makiki Stream dredging be added to this project? (Written)
- Are any of these repairs required for certain areas of the project: reconstruction of the stairs, areas of new ground disturbance? (Written)

Response:

The proposed maintenance dredging will take place within the Ala Wai Canal from the Ala Moana Boulevard Bridge to Ainakea Way and the Kapahulu Library and within the MPDC from the confluence with the Ala Wai Canal to Date Street. Staging areas will be required and will be identified in the subsequent DEIS for the proposed project. Land-based work support areas will be required for shore-side support activities. The project will also require use of an area in the waterway on the ocean side of the Ala Moana Boulevard Bridge for mooring of equipment. Operationally feasible sites include a site adjacent to the Ala Wai Golf Course at the Kapahulu end of the Ala Wai Canal, Ala Wai Neighborhood/Community Park (staging area), and a portion of Magic Island (staging area and barge mooring). The only option for mooring of the scows (barges) is the corner of the Ala Wai Boat Harbor turning basin. The exact work support locations are under review and will be selected based on the work space needed to accomplish the work.

The dredging near the Ala Wai Boat Harbor will be to an approximate depth of (-)11 feet from sea level, then will rise to various levels at different locations within the Ala Wai Canal, with a depth of (-)3 feet being the shallowest. The proposed volume of dredged spoils is anticipated to be similar to the 2002 quantity and is estimated at approximately 190,000 cubic yards; however, the specific dredge locations and depths will be identified as the planning for the project progresses.

The proposed wall repair work will be performed up to the limit of the State property line. A promenade or walkway is located on the mauka side of the canal wall along the Ala Wai Community Park and Ala Wai Neighborhood Park, under the jurisdiction of the CCH. Streams may be located on

private or public land; therefore, DLNR would need to look into the jurisdiction of the lower portion of Makiki Stream to determine if it falls within State of Hawai'i jurisdiction. The dredging of Makiki Stream would be beyond the project scope of work. However, a future initiative may be possible through coordination between the State and CCH based on the use of City funding.

Construction Schedule

- What is the projected start/time frame, construction, and duration? (Mtg.)
- Can DLNR address the proposed work hours and the possibility of doing nighttime work to move the project forward? Nighttime work may help alleviate some issues with users of the AWC during the daytime hours. (Mtg.)

Response:

The project is anticipated to start in mid-2018. As the project is further developed more information will be available on the time frame and construction schedule. This information will be provided in the subsequent Draft and Final EIS. The environmental permitting required for the project will take approximately one year to complete.

Night work is not anticipated at this early stage, however if required, work during night hours would need to be assessed for potential impacts to residents and visitors in the Waikīkī area and construction requirements. If night work is required, DLNR will work with the DOH for conditions that may be associated with a noise variance permit.

Construction Costs

- What is the project cost? (Mtg.)

Response:

DLNR currently has been appropriated approximately $13 million by the State for the project. The final cost will depend on the final analysis of the costs associated with the proposed dredging and wall and stair repair work. If the costs exceed what has been appropriated, DLNR would need to seek additional funding from the Legislature. If funding is limited DLNR would reduce the proposed scope of work to prioritize the dredging of the canal.

2. Socioeconomic and Cultural Impacts:

Cultural Resources

- What aesthetic or historical value do the stairs leading into the Ala Wai Canal have that they require spending time and money working on them, or maintaining them? (Mtg.)
- Provide mitigation measures proposed to avoid, minimize, rectify or reduce impact; including provisions for compensation for losses of cultural and archaeological resources. (Written)
- Is there a final/approved Cultural Impact Assessment, Archaeological Inventory Survey or Archaeological Assessment of the [Area of Potential Effect] (APE)? (Written)

- My concern is whether this project would result in any impact on cultural or historic sites which are significant to Native Hawaiians. (Written)

Response:

The stairs and the Ala Wai Canal itself are on the National Register of Historic Places. Because of the canals prominence starting in the 1920s when it was constructed, DLNR is required to work with the SHPD. Personally, everyone has a difference of opinion on the importance of the stairs. For example, DLNR understands that the stairs are important as they are utilized for emergency access by canoe hālau users. The stairs may also appear to invite people to access the water, but this is not recommended as there are a number of signs posted by the State Hawai'i, DOH at the stair access points advising the public to stay out of the water and avoid fishing. The EIS process that is currently underway will include consulting with the community and the SHPD, as well as completion of an in depth Cultural Impact Assessment to determine a fair and proper treatment for the stairs along the historic Ala Wai Canal.

Effects on Users

- What do you foresee as the disruption to the use (i.e., canoeing and kayaking) of the Ala Wai Canal throughout the course of the project? (Mtg.)
- I hope that in the studies completed for the proposed project the DLNR will look at how increasing the depth could attract other type of uses that might conflict with existing uses. (Mtg.)

Response:

For any project that is linear, such as this project, the work will not occur all at once. The project will be undertaken incrementally in phases. This means that only where there is active work in progress will there be limited access. The work is anticipated to allow for the passing of canoes and kayaks; however, temporary closures of portions of the canal during the project may be required to ensure public safety, as needed. The DLNR will coordinate with the kayak and canoe community to minimize disruption of uses. Awareness of event and canoe club scheduling will help minimize disruption. Overall, when completed the project will result in improved conditions for paddlers.

Maintenance dredging the Ala Wai Canal is not expected to significantly increase the depth to a level that would attract other users to the canal. Any vessel traversing under the bridges would need to be very low to the water. Even with the planned dredging work marine vessels will continue to have difficulty in entering the Ala Wai Canal, e.g., prior dredging required the use of specially designed vessels to traverse under the bridges. This included the design of barges that normally would not fit under the bridges; but when fully loaded have enough freeboard to pass beneath the bridges. Any marine vessel entering the Ala Wai Canal to perform dredging therefore needs to be purpose built.

Coordination with Other Projects

- I understand that this project is separate from the USACE flood mitigation project; however, looking at them I think that they are really intertwined. Wall restoration cost savings could be realized through partnership. (Mtg.)
- There is a Hawaiian Electric Company (HECO) project located in the area. Can you talk about how this is all going to fit? (Mtg.)
- Are the existing HECO lines going to be moved or will the work be performed around those lines? Will the depth of the dredging be impacted by the existing lines? (Mtg.)
- HECO has existing easements and facilities along the planned project route and is working on a project to relocate the affected lines… and would like to continue coordinating efforts with DLNR to ensure both projects can be executed in an efficient and timely manner. (HECO Email)
- A sewage line was placed in the Ala Wai Canal to divert the water that flooded into some of the basements of some hotels. Are there any existing pipes in the Ala Wai Canal now that are part of the sewage system? (Mtg.)
- Sustainable Communities Hawai‘i (SCH) is working with the community and other nonprofit groups to bring the trash water wheel to Hawai‘i. The trash water wheel would be installed at the end of the Ala Wai Canal. SCH’s time line to install the trash water wheel is scheduled to occur prior to the proposed dredging work. Would the trash water wheel interfere with the DLNR project or impact the transit of dredging equipment through the waterway there? (Mtg.)
- Are there any other projects that might need to be coordinated either for preparation for or during the proposed project? (Mtg.)

Response:

The subject project is for maintenance dredging of the Ala Wai Canal to improve water flow and circulation, and to repair the condition of the canal walls. DLNR dredges the Ala Wai Canal about every 10 to 15 years. The USACE project is only in the planning stages and is intended to be for flood mitigation and proposes to raise protective walls along the Ala Wai Canal. The USACE project may not start until much later. The DLNR cannot wait for the USACE flood mitigation project to begin as there is the existing need to dredge the Ala Wai Canal to provide flood control and protection of nearshore waters.

The relocation of the HECO power line will occur in conjunction with the DLNR project. DLNR and HECO are working together to ensure both projects run smoothly and minimize impacts to one another.

HECO is planning to re-install and deepen the power line in the Ala Wai Canal using directional drilling. Directional drilling is intended to place the power line much deeper than the dredge depth. DLNR is attempting to coordinate this work to have both projects occur at the same time as the HECO power line relocation. If both projects cannot take place at the same time, the bottom elevation where the exiting HECO line is located will be dredged to match the prior dredge

elevation, which was about elevation (-) 9 or so from sea level, to ensure no disturbance to the HECO line.

Besides the existing HECO line there is a new force main that was constructed beneath the Ala Wai Canal about 4-5 years ago. The force main however is very deep and will not be affected by this dredging project. There was a temporary sewage line that was placed in the Ala Wai Canal during construction of the force main project which has since been removed.

DLNR will need to coordinate the proposed dredging project with SCH to ensure that there will be no interruption to either project. A discussion of coordination with other projects will also be discussed in the EIS. The EIS process will include contacting public, City, State and Federal agencies to coordinate with and learn about other projects that DLNR might not know of. Projects that DLNR are aware of include the HECO energized line relocation project and the USACE flood mitigation project that is not related to the current project. It is expected that as the project goes though the EIS process that more information will be provided about agencies, as well as utility provider concerns so that the project is more informed and coordinated with the other planned activities in the project area. DLNR will learn more about other projects starting with the publication of the EIS Preparation Notice and the later Draft EIS document.

3. Environment:

Environmental Monitoring

- How will water quality be measured and will it be performed daily to ensure that swimmers and surfers stay safe? (Mtg.)
- What will be the impacts on water quality with kids, elderly, and tourist swimming/ paddling/ diving/ surfing in the Ala Wai/ Waikiki/ Ala Moana? (Email)
- Will water quality testing be performed on the ocean side of the Ala Moana Boulevard Bridge and how will ocean users be notified? (Mtg.)
- Do you have models of sediment/ toxic plumes and/ or any projection of the near shore impacts? (Email)
- What will be the impacts on the near shore environment, which is the healthiest fisherman have seen in years? (Email)
- History has shown that dredging a wetland increases the speed and flow of the water, which allows toxins/ sediments to efficiently destroy near shore reef environments. (Email)

Response:

DLNR will employ a major monitoring and sampling effort before any of the dredging work is started. This will involve 1) a survey of the complete canal, and 2) tests will be taken at spots in the canal. Canal soil biology and chemistry testing will be performed.

DLNR will ensure that contaminated material is not dispersed into the ocean through rigorous testing of the dredge areas. In addition, DLNR will construct a curtain wall and containment booms around the open dredge locations so that silt cannot migrate out of the Ala Wai Canal toward the

ocean. Additional BMPs will be implemented as used during prior dredging operations. DLNR will also consult with the State of Hawai'i DOH and USACE to address any permitting and water quality testing requirements.

Sediment Accumulation

- For the proposed dredging of the sediment, all the sediment removed will again return and accumulate over time. Is there a way to improve flow and sediment dispersal, and reduce sediment accumulation over longer periods of time? (Mtg.)
- Where the Manoa Stream rounds the bend to connect with the canal is always a cause for concern. the "island" of silt builds up quickly so I would suggest that a bigger scoop shovel go down deeper in that area of the canal. (Email)
- Where is the sediment coming from? Individual yards? If so, is education about individual prevention being considered as part of this project? (Mtg.)

Response:

Sediment accumulation within the Ala Wai Canal will always be a problem until a different solution is found which will involve significant improvement of the infrastructure within the Ala Wai Watershed, extending beyond the Ala Wai Canal. This will require coordination amongst the CCH, State, federal government, and public and private parties, who have an interest in improving regional water quality within the area watershed.

The tributary that accepts all of the runoff flowing into the Ala Wai Canal is large. The Ala Wai Watershed is approximately 19 square miles with much of the flows going to the Ala Wai Canal. About half of this is forested land within the State Conservation District. Some of the vegetation in the watershed reduces erosion, but there are still large areas where development contributes to erosion during periods of heavy rainfall. When there are heavy rains silt get entrained in storm water runoff and makes its way past or through the urbanized area. The federal government is aware that point sources of discharge such as these need to be addressed and legislation such as the Clean Water Act have helped to further this effort through regulations like the National Pollutant Discharge Elimination System permitting process. These types of environmental programs are important to have in place so that over time they will slowly ensure that there are less and less discharges of pollutants. A little progress over long time frames will have big results.

Excavated Soil

- When was dredged material last identified for ocean disposal? (Mtg.)
- Are there specific locations within the AWC where contaminated material that is not suitable for ocean disposal is located? (Mtg.)
- Are there any efforts to reclaim or remediate the dredged spoils to lessen the impact for disposal? (Mtg.)

Response:

During the 2002 dredging of the Ala Wai Canal, approximately 187,000 cubic yards of material was removed. Prior to this dredging areas in the Ala Wai Canal were identified which contained material not suitable for ocean disposal. These areas were found by conducting extensive surveys and testing of the sediment within the Ala Wai Canal and were completed to ensure that the material was properly disposed of either in the ocean or handled on land. The current project will be handled in the same manner; the specific areas of potential contaminated materials will be identified as the planning for the project progresses.

The vast majority of the spoils removed during the 2002 dredging operations were found to be clean and was accepted by the EPA for disposal at the South O'ahu ODMDS (i.e., the nearest ocean disposal site to the proposed project). Only a small amount was found to exceed the EPA requirements for ocean disposal, and this material was disposed of at the Reef Runway Soil Management facility.

Reclamation is beneficial but it is costly and requires permits that are different for ocean disposal. Testing the material will assist in determining how to dispose of the spoils. If testing indicates the spoils are suitable for ocean disposal, this would be the preferred method as it is the least expensive way to dispose of the dredged material. If the spoils are unsuitable for ocean disposal, the spoils will need to be placed at an upland site approved by the DOH. Following preliminary testing results, DLNR will look at what is the proper disposal method. Costs to remediate the dredged spoils would need to be evaluated, but are anticipated to be costly because a very large quantity of dredged spoils would be removed from the canal. Remediation would require a dewatering site, and would involve associated costs for the disposal site. DLNR would need to look into the cost implications of remediation and take into account the associated permitting requirements.

Water Quality and Circulation

- Can DLNR elaborate on how the project will improve circulation within the Ala Wai Canal. (Mtg.)
- Is DLNR considering opening the other end of the AWC to improve circulation? Or is this strictly a maintenance project? (Mtg.)
- Under McCully Street Bridge, install pumps that will push and pull water into the canal more frequent than relying on tidal changes. (Written)
- If the goal is to return the Ala Wai to "Historic Levels", why would the State define "Historic" as the first time we effectively destroyed the Waikiki watershed? Shouldn't we define "Historic" as when the Waikiki Watershed was healthy and productive, and work towards that? (Email)
- The Ala Wai Canal is straight and there is no other fresh water contributing to the AWC. (Mtg.)

Response:

Within the Ala Wai Canal there are certain shoal areas that greatly diminish circulation. One example within the Ala Wai Canal is at the MPDC confluence, where water depths are only approximately (-)2 feet, where it should be much deeper. By removing the accumulated sediment, it will improve circulation and improve flows into the Ala Wai Canal, especially in the upper reaches of the canal.

DLNR does not intend to open the other end of the Ala Wai Canal and no water features will be added with this project. A major concern is that opening another outlet to the canal would affect the ocean environment. This is purely a maintenance project to remove accumulated sediment that has occurred over the last 10 plus years.

The problem with the Ala Wai Canal is that there are few contributing sources of fresh water going into the canal; no major sources of fresh water come from the uplands, and flows into the canal are principally stormwater. When the rain stops there is no more water flowing into the canal and because of the regular buildup of sediments and other material it begins to slow the movement of sediment within the Ala Wai Canal. Without any major sources of fresh water, the waters of the Ala Wai Canal tend to stagnate. Tidal action only influences the portions of the canal closest to the ocean, while the portions of the canal furthest from the ocean receive very little circulation.

General Environmental Protection

- On the Waikīkī side, what will the impacts of noise be? During the prior dredging work in the 2002- to 2004-timeframe the general noise was not really a problem. (Mtg.)
- I believe that there are coral segments within the MPDC near the Kaimukī High School. (Mtg.)

Response:

The project will need to be assessed for potential impacts of noise to the Waikīkī visitor destination. The DLNR will further evaluate project related noise effects in the EIS.

The Kaimukī High School is quite a way up from the proposed dredge locations within the MPDC and is not within the scope of this project. Dredging within the MPDC will extend from the Ala Wai Canal up to just below the Date Street Bridge. The intention of removing material from the canal is to improve safety, reduce flooding risks, and improve water quality. DLNR will look at all of these and intends to further evaluate the aquatic and biological resources within the project area in the EIS.

4. Other Comments:

- [For] the tributaries that empty into the canal, can siltation basins be developed to intercept the runoff and clean the water before it empties into the canal? I know for the [USACE] Watershed project one area being looked at is Ala Wai Golf Course but that this will be years if at all before fruition. (Written)

- Maybe the use of pervious pavement to move rainwater down into the cap rock versus sheet flow into storm drains [could be utilized]? This could freshen the cap rock. (Written)
- Is there a possibility of planting more Loʻi's in the upland or maybe at the Ala Wai Golf Course to filter more of the sediment so it does not enter the Ala Wai Canal in the first place? (Mtg.)
- Provide bio swale catchment basins to capture rain water and periodically clean swale of debris. (Written)
- In the channel by the Ala Wai driving range, phytoremediation was done and it clarified the water but seemed to work in a more confined body of water but that is an area that feeds the canal. (Written)
- Have there been any proposals to modify the Ala Wai Golf Course to serve as a flood plain? (Mtg.)
- The well that was dug on [the Ala Wai] Golf Course property, will that be considered to be pumped and empty into the canal? It is still there but capped. If electrical cost is an issue, then would PV with battery storage be feasible? (Written)
- The assertion that the dredging will protect Waikiki from flooding should be explored further. The Waikīkī side break wall is much higher than the mauka bank. And even in our "40 days of rain", Waikiki was never in danger from the Manoa/ Palolo stream flow. (Email)
- The mauka side of the Ala Wai Canal is overtopped by the high tide approximately twice per month. The reality is that sea levels are rising and that this will happen more and more frequently, especially with high tides. Is there any consideration by the DLNR to either raise the land or other infrastructure on the mauka side of the Ala Wai Canal? How is DLNR addressing sea level rise during its discussion with SHPD about the walls? (Mtg.)

Response:

Any type of siltation basins, pervious pavement, or vegetative practices, such as planting a tree or establishing Loʻi or anything that helps to trap or filter water before it goes down stream is always helpful. However, the use of siltation basins, pervious pavement, and plants to filter sediments or for bioremediation needs to be done under a separate project in collaboration with City, State and private landowners. The Ala Wai Canal needs to be dredged to restore flood storage capacity.

The Ala Wai Golf Course is under the jurisdiction of the City and further coordination with the City will be required before this can be considered.

The issue of sea level rise will be addressed in the EIS for the project. The EIS will evaluate how DLNR intends to deal with sea level rise moving forward in time and how sea level rise will impact facilities and users along shoreline.

11.0 Summary of Impacts and Significance Determination

In accordance with the content requirements of HRS, Chapter 343, and the significance criteria in HAR, Section 11-200-12 of Title 11, Chapter 200, an applicant or agency must determine whether an action may have significant impacts on the environment, including all phases of the project, its expected consequences both primary and secondary, its cumulative impact with other projects, and its short- and long-term effects. In making the determination, the Rules establish "Significance Criteria" to be applied as a basis for identifying whether significant environmental impacts will occur. According to the Rules, an action shall be determined to have a significant impact on the environment if it meets any one of the criteria.

11.1 Short-Term Impacts

The potential for short-term impacts will be evaluated for this project as part of the project DEIS. Preliminary short-term impacts are expected to include temporary closure of the canal, potential disturbance of marine mammals and sea turtles in the project vicinity, ground disturbance due to construction activities, and the generation of noise and air emissions during construction.

11.2 Long-Term Impacts

Potential long-term impacts associated with the project will be evaluated as part of the project DEIS. Preliminary long-term impacts are expected to include improved water depths and sediment handling capacity to ensure the protection of nearshore State marine waters and aquatic life and protect the area against storm flows entering the Ala Wai Canal, and improved public health and safety and visual aesthetics of the canal walls and appurtenances.

The USACE and the DLNR are currently conducting a flood reduction study entitled the Ala Wai Canal Project. The main objective is to reduce riverine flood risks in the Ala Wai Watershed. The Ala Wai Canal Project proposes various programs to improve the CCH and State drainage system capabilities for reducing flood risks and handling sediment. These programs include, but are not limited to: (1) in-stream debris and detention basins in the upper reaches of Makiki, Mānoa and Pālolo streams, (2) a standalone debris catchment feature, (3) multi-purpose detention basins in open space areas in the urbanized portions of the watershed, (4) floodwalls (and associated pump stations) along the Ala Wai Canal, and (5) improvements to the flood warning system (USACE, 2015).

The programs listed above would improve the CCH and State drainage systems, lessen the need for maintenance dredging and ocean disposal of dredged spoils, reduce pollution, and lessen costs to the CCH and State of Hawai'i overtime. However, until these systems are cable of handling sediment traveling downstream from the upper reaches of the watershed to the Ala Wai Canal and MPDC, maintenance dredging and disposal of dredged spoils will continue to be required. The project will be coordinated with the USACE to review the goals and objectives of the USACE Ala Wai Canal Project relative to the subject maintenance action proposed as a part of this EIS document. Further discussion on the results of the coordination effort will be provided in the forthcoming DEIS.

According to EPA the South O'ahu ODMDS has been in use for 35 years and no unacceptable adverse impacts resulting from previous disposal are known to have occurred based on site monitoring, and

significant adverse effects are not expected in the future based on current sediment quality acceptability and compliance tracking requirements. The DOH, CWB, USACE, and EPA will be consulted regarding the proposed project.

Further consultation with appropriate agencies and discussion, including an analysis of alternatives considered, the potential for long-term and cumulative impacts and appropriate mitigation measures, will be included in the subsequent DEIS for this project.

11.3 Significance Criteria Evaluation

Potential effects associated with the proposed project will be evaluated based on the significance criteria in HAR, Section 11-200-12. The significance criteria are listed below; the potential for adverse effects will be addressed through adherence to the mitigation measures and practices that will be further described in the forthcoming DEIS to be prepared for this project.

1. *Involves an irrevocable commitment to loss or destruction of natural or cultural resources;*
2. *Curtails the range of beneficial uses of the environment;*
3. *Conflicts with the State's long-term environmental policies or goals and guidelines as expressed in Chapter 344, HRS, and any revisions thereof and amendments thereto, court decisions, or executive orders;*
4. *Substantially affects the economic or social welfare of the community or state;*
5. *Substantially affects public health;*
6. *Involves substantial secondary impacts, such as population changes or effects on public facilities;*
7. *Involves substantial degradation of environmental quality;*
8. *Is individually limited but cumulatively has considerable effects on the environment, or involves a commitment for larger actions;*
9. *Substantially affects any rare, threatened or endangered species or its habitat;*
10. *Detrimentally affects air or water quality or ambient noise levels;*
11. *Affects or is likely to suffer damage by being located in an environmentally sensitive area, such as a flood plain, tsunami zone, beach, erosion-prone area, geologically hazardous land, estuary, freshwater, or coastal waters;*
12. *Substantially affects scenic vistas and view planes identified in county or state plans or studies;*
13. *Requires substantial energy consumption.*

11.4 Preliminary Determination

An evaluation of the HAR 11-200-12 significance criteria listed above and discussion of impacts and mitigation measures will be provided in the forthcoming DEIS for the proposed project. The project may have a significant effect; therefore, in accordance with HAR 11-200-11.2, this EISPN is being submitted and an EIS will be prepared in accordance with HRS, Chapter 343 and HAR, Chapter 11-200. This EISPN and subsequent DEIS will provide information and evaluation of the potential for environmental impacts on the natural and built environment associated with the proposed project. This EISPN will further

inform interested parties of the proposed project and seek public comment on subject areas that should be addressed in the subsequent DEIS for this project.

12.0 References

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Appendices

Appendix A	Notification and Content of Ala Wai Canal Dredging and Improvements Project Public Informational and EISPN Scoping Meeting, July 2016.
Appendix B	Public Comments, July-September 2016.

Appendix A Notification and Content of Ala Wai Canal Dredging and Improvements Project Public Informational and EISPN Scoping Meeting, July 2016.

Appendix A

Notification and Content of
Ala Wai Canal Dredging and Improvements Project
Public Informational and EISPN Scoping Meeting

Meeting Held: Thursday, July 21, 2016, 6:00 PM to 8:00 PM, Ala Wai Elementary School Cafeteria, Honolulu

Attachments:

A. Public Notification Material
B. PowerPoint® Presentation
C. Meeting Agenda and Handouts
D. Sign-in Sheet
E. Public Comment Form

Attachment A

Public Notification Material

AFFIDAVIT OF PUBLICATION

IN THE MATTER OF
YOU ARE INVITED: Public Information and Environmental
Impact Statement Preparation Notice
Scoping Meeting

STATE OF HAWAII }
} SS.
City and County of Honolulu }

Doc. Date: JUL - 7 2016 **# Pages:** 1

Notary Name: Patricia K. Reese First Judicial **Circuit**

Doc. Description: Affidavit of Publication

PATRICIA K. REESE NOTARY PUBLIC Comm. No. 86-467 STATE OF HAWAII

Notary Signature — Date: JUL - 7 2016

Barbara Suzuki being duly sworn, deposes and says that she is a clerk, duly authorized to execute this affidavit of Oahu Publications, Inc. publisher of The Honolulu Star-Advertiser, MidWeek, The Garden Island, West Hawaii Today, and Hawaii Tribune-Herald, that said newspapers are newspapers of general circulation in the State of Hawaii, and that the attached notice is true notice as was published in the aforementioned newspapers as follows:

Honolulu Star-Advertiser 1 times on:
07/07/2016
MidWeek 0 times on:
The Garden Island 0 times on:
Hawaii Tribune-Herald 0 times on:
West Hawaii Today 0 times on:
Other Publications: 0 times on:

And that affiant is not a party to or in any way interested in the above entitled matter.

Barbara Suzuki

Subscribed to and sworn before me this 7th day of July A.D. 2016

Patricia K. Reese, Notary Public of the First Judicial Circuit, State of Hawaii

My commission expires: Oct 07, 2018

PATRICIA K. REESE NOTARY PUBLIC Comm. No. 86-467 STATE OF HAWAII

Ad # 0000891842

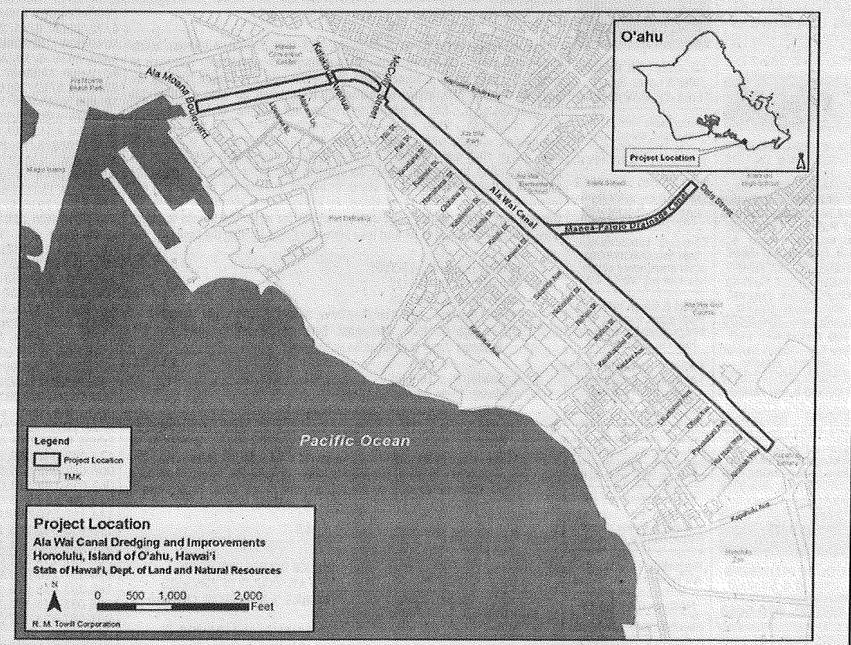
YOU ARE INVITED:
Public Information and
Environmental Impact Statement Preparation Notice Scoping Meeting
ALA WAI CANAL DREDGING AND IMPROVEMENTS PROJECT
Waikīkī, Island of O'ahu, Hawai'i

On behalf of the State of Hawai'i, Department of Land and Natural Resources (DLNR), the public is invited to attend a Public Information and Environmental Impact Statement Preparation Notice (EISPN) Scoping Meeting for the Ala Wai Canal Dredging and Improvements Project. Project components being considered include maintenance dredging of the Ala Wai Canal and a portion of the Mānoa-Pālolo Drainage Canal, and improvements to the Canal walls, sidewalks, and stairs in Waikīkī, Island of O'ahu, Hawai'i. The project limits are shown on the attached figure.

The purpose of this Public Information and EISPN Scoping Meeting is to present information on the proposed project and to obtain community input on relevant environmental, social and technical issues or concerns that should be considered during the EIS process. Accordingly, the input provided by the community will be recorded for use in the EIS documents that will be prepared for the proposed project in conformance with Hawai'i Revised Statutes, Chapter 343 and Hawai'i Administrative Rules, Section 11-200.

Meeting Date, Time and Location:
Date: Thursday, July 21, 2016
Time: 6:00 p.m. to 8:00 p.m.
Place: Ala Wai Elementary School Cafeteria
503 Kamoku Street
Honolulu, HI 96826

For more information about the project or meeting, or if you require special assistance, auxiliary aid and/or service to participate in this event (i.e., sign language interpreter; interpreter for language other than English, or wheelchair accessibility), please contact Brian Takeda, Planning Project Coordinator, at (808) 842-1133 / AlaWaiImprovements@rmtowill.com or Gayson Ching, DLNR-Engineering Division, at (808) 587-0232 / Gayson.Y.Ching@hawaii.gov at least five (5) business days prior to the event.



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, P.E.
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

ENGINEERING DIVISION
POST OFFICE BOX 373
HONOLULU, HAWAII 96809

July 11, 2016

TO: SUZANNE CASE, Chairperson

EDWARD UNDERWOOD, Administrator
Division of Boating and Ocean Recreation

ALAN DOWNER, Administrator
State Historic Preservation Division

RUSSELL TSUJI, Administrator
Land Division

DAVID SMITH, Administrator
Division of Forestry and Wildlife

CURT COTTRELL, Administrator
Division of State Parks

BRUCE ANDERSON, Administrator
Division of Aquatic Resources

SAMUEL LEMMO, Administrator
Office of Conservation and Coastal Lands

JEFFREY PEARSON, Deputy Director
Commission on Water Resource Management

DAN DENNISON, Sr. Communications Manager
Communications Team

FROM: CARTY S. CHANG, Chief Engineer

SUBJECT: **Ala Wai Canal Dredging and Improvements Project Waikīkī, Oʻahu, Hawaiʻi**

The Engineering Division is holding a Public Informational and Environmental Impact Statement Preparation Notice (EISPN) Scoping Meeting on the ALA WAI CANAL DREDGING AND IMPROVEMENTS PROJECT on the following date:

Date & Time:	**Thursday, July 21, 2016 @ 6:00 pm to 8:00 pm**
Place:	**Ala Wai Elementary School Cafeteria**
	503 Kamoku Street, Honolulu, HI 96826

The Engineering Division is preparing an Environmental Impact Statement (EIS) in conformance with Hawai‘i Revised Statutes, Chapter 343 and Hawai‘i Administrative Rules, Section 11-200. The EISPN is the first step in the EIS process.

Project components being considered include the maintenance dredging of the Ala Wai Canal and a portion of the Mānoa-Pālolo Drainage Canal, and improvements to the Canal walls, sidewalks, and stairs in Waikīkī, Island of O‘ahu, Hawai‘i. The project limits are shown on the attached figure.

The purpose of the Public Informational and EISPN Scoping Meeting is to present information on the proposed project and to obtain community input on relevant environmental, social and technical issues or concerns that should be considered during the EIS process. Accordingly, the input provided by the community will be recorded for use in the EIS documents that will be prepared for the proposed project.

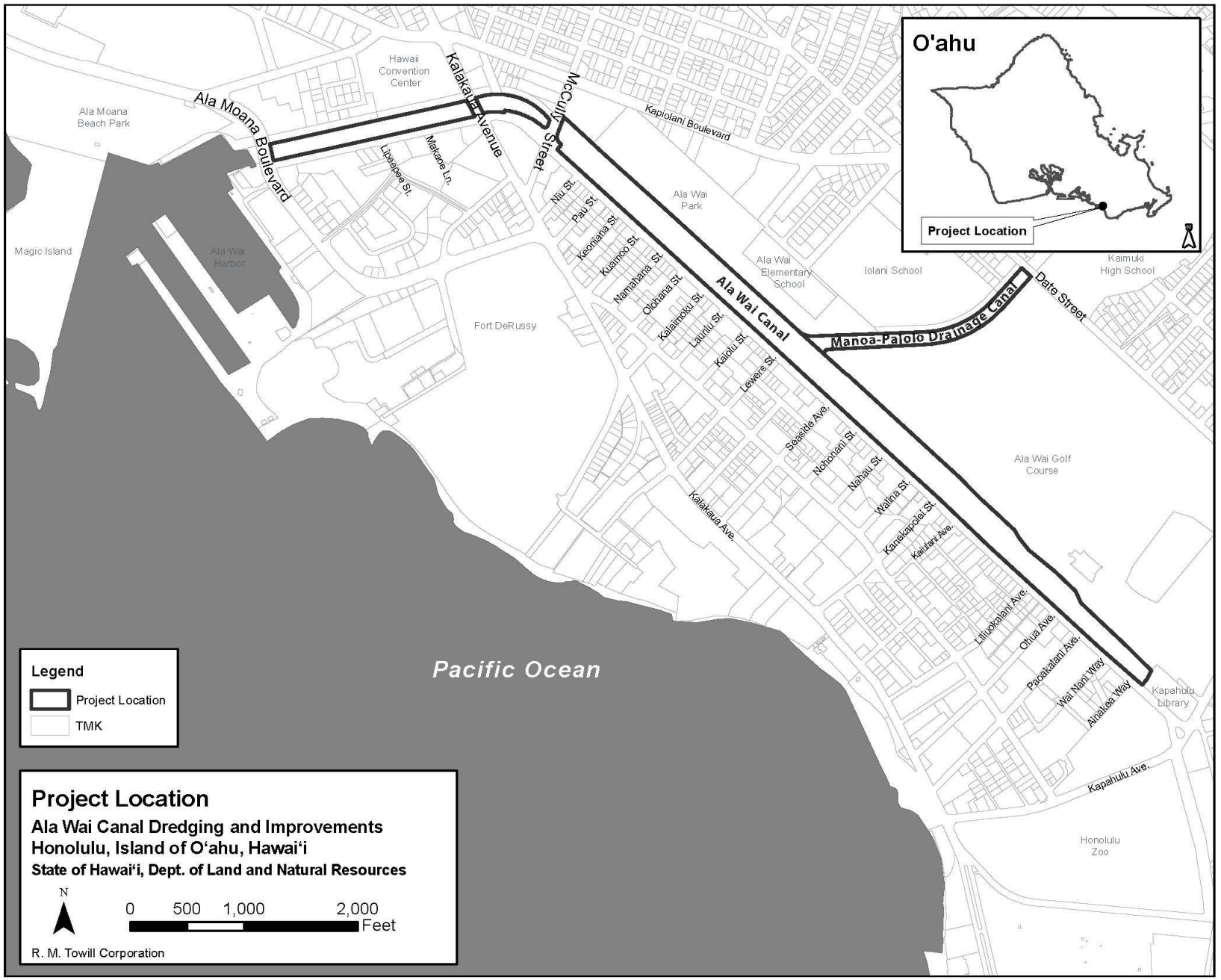
We understand that the proposed project may require more clarification, and would be willing to schedule one-on-one meetings with your staff. You are also invited to attend the scheduled presentation noted above, where the background and purpose of this effort will be presented.

We respectfully request your assistance with this effort and also ask that you provide us with a point of contact from your agency with whom we can follow up with scheduling of our activities.

Thank you in advance for your assistance in accomplishing this important project.

If you have any questions or need additional information, please contact Gayson Ching of my staff at 587-0232 or via email at gayson.y.ching@hawaii.gov.

Attachment
c: Brian Takeda, RMTC


O'ahu
Project Location
Ala Moana Boulevard
Kalakaua Avenue
McCully Street
Kapiolani Boulevard
Ala Wai Canal
Manoa-Palolo Drainage Canal
Date Street
Ala Moana Beach Park
Hawaii Convention Center
Ala Wai Park
Ala Wai Elementary School
Iolani School
Kaimuki High School
Magic Island
Ala Wai Harbor
Fort DeRussy
Ala Wai Golf Course
Kapahulu Library
Honolulu Zoo
Pacific Ocean
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Project Location
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R. M. Towill Corporation

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES

ENGINEERING DIVISION
POST OFFICE BOX 373
HONOLULU, HAWAII 96809

July 11, 2016

_____
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Dear _____,

Ala Wai Canal Dredging and Improvements Project
Waikīkī, O‘ahu, Hawai‘i

The Department of Land and Natural Resources (DLNR) is pleased to invite you to attend a Public Informational and Environmental Impact Statement Preparation Notice (EISPN) Scoping Meeting on the ALA WAI CANAL DREDGING AND IMPROVEMENTS PROJECT to be held on the following date:

Date:	**Thursday, July 21, 2016**
Time:	**6:00 pm to 8:00 pm**
Place:	**Ala Wai Elementary School Cafeteria** **503 Kamoku Street** **Honolulu, HI 96826**

The DLNR is preparing an Environmental Impact Statement (EIS) in conformance with Hawai‘i Revised Statutes, Chapter 343 and Hawai‘i Administrative Rules, Section 11-200. The EISPN is the first step in the EIS process.

Project components being considered include the maintenance dredging of the Ala Wai Canal and a portion of the Mānoa-Pālolo Drainage Canal, and improvements to the Canal walls, sidewalks, and stairs in Waikīkī, Island of O‘ahu, Hawai‘i. The project limits are shown on the attached figure.

The purpose of this Public Informational and EISPN Scoping Meeting is to present information on the proposed project and to obtain community input on relevant environmental, social and technical issues or concerns that should be considered during the EIS process. Accordingly, the input provided by the community will be recorded for use in the EIS documents that will be prepared for the proposed project.

On behalf of the DLNR, we hope you will support this project and look forward to your attendance and participation.

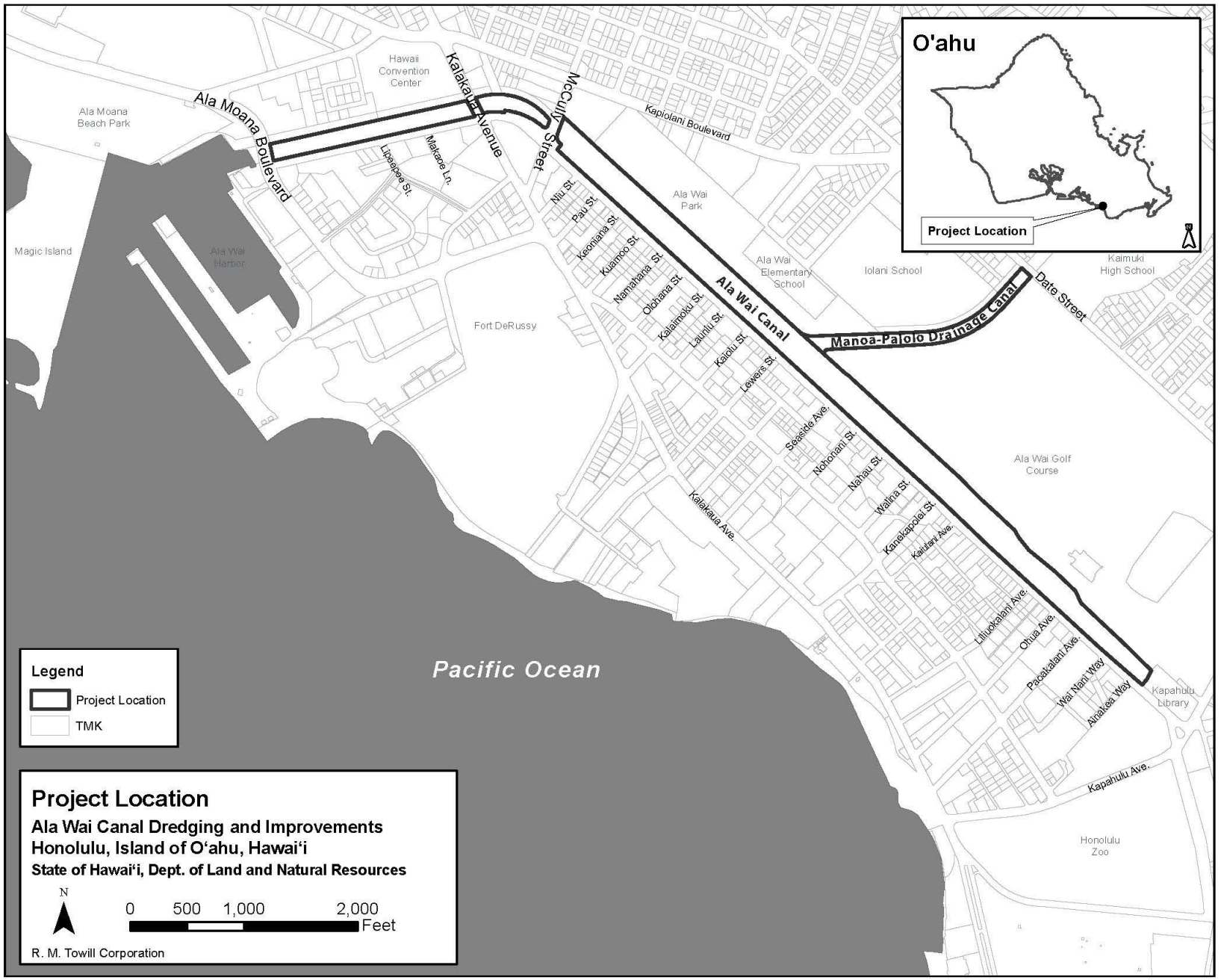
Should there be questions please do not hesitate to contact our consultant Brian Takeda, R. M. Towill Corporation, at (808) 842-1133 / AlaWaiImprovements@rmtowill.com or Gayson Ching of my staff at (808) 587-0232 / Gayson.Y.Ching@hawaii.gov.

Sincerely,

CARTY S. CHANG
Chief Engineer

Attachment

c: Brian Takeda, RMTC


O'ahu
Project Location
Ala Moana Boulevard
Kalakaua Avenue
McCully Street
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Manoa-Palolo Drainage Canal
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Project Location
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Project Location
Ala Wai Canal Dredging and Improvements
Honolulu, Island of O'ahu, Hawai'i
State of Hawai'i, Dept. of Land and Natural Resources
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R. M. Towill Corporation

Aloha:

Please join us for a Public Information and Environmental Impact Statement Preparation Notice (EISPN) Scoping Meeting on the ALA WAI CANAL DREDGING AND IMPROVEMENTS PROJECT to be held on the following date:

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On behalf of the Department of Land and Natural Resources (DLNR), we hope you will support this project and look forward to your attendance and participation.

Should there be questions please do not hesitate to contact our consultant Brian Takeda, R. M. Towill Corporation, at (808) 842-1133 or via email at AlaWaiImprovements@rmtowill.com or Gayson Ching, DLNR-Engineering Division, at (808) 587-0232 or via email at Gayson.Y.Ching@hawaii.gov.

YOU ARE INVITED:
Public Information and
Environmental Impact Statement Preparation Notice Scoping Meeting
ALA WAI CANAL DREDGING AND IMPROVEMENTS PROJECT
Waikīkī, Island of Oʻahu, Hawaiʻi

The State Department of Land and Natural Resources is holding a Public Information and Environmental Impact Statement Preparation Notice (EISPN) Scoping Meeting for the Ala Wai Canal Dredging and Improvements Project. Project components being considered include maintenance dredging of the Ala Wai Canal and a portion of the Mānoa-Pālolo Drainage Canal and repair to the Canal walls, sidewalks, and stairs.

Meeting Date, Time, and Location:

Date: Thursday, July 21, 2016
Time: 6:00 p.m. to 8:00 p.m.
Place: Ala Wai Elementary School Cafeteria
503 Kamoku Street, Honolulu, HI 96826

The purpose of this Public Information and EISPN Scoping Meeting is to present information on the proposed project and to obtain community input on relevant environmental, social and technical issues or concerns that should be considered during the EIS process. Accordingly, the input provided by the community will be recorded for use in the EIS documents that will be prepared for the proposed project in conformance with Hawaiʻi Revised Statutes, Chapter 343 and Hawaiʻi Administrative Rules, Section 11-200.

On behalf of the Department of Land and Natural Resources, we hope you will support this project and look forward to your attendance and participation. Should there be further questions please do not hesitate to contact our consultant Brian Takeda, R. M. Towill Corporation, at (808) 842-1133 / AlaWaiImprovements@rmtowill.com or Gayson Ching, DLNR-Engineering Division, at (808) 587-0232 / Gayson.Y.Ching@hawaii.gov.

DLNR NEWS RELEASE: ALA WAI CANAL DREDGING AND IMPROVEMENTS PROJECT AND EIS IS TOPIC OF INFORMATION AND SCOPING MEETING ON JULY 21

Posted on Jul 15, 2016 in Latest News (http://governor.hawaii.gov/category/newsroom/latest-news/)

HONOLULU – The Department of Land and Natural Resources (DLNR) is holding a public information and environmental impact statement (EIS) preparation notice scoping meeting for the Ala Wai canal dredging and improvement project on Thursday July 21.

Project components being considered include maintenance dredging of the Ala Wai Canal and a portion of the Manoa-Palolo drainage canal, and repairs to the canal walls, sidewalks and stairs in Waikiki.

The purpose of this meeting is to present information on the proposed project and to obtain community input on relevant environmental, social and technical issues or concerns that should be considered during the EIS process. Accordingly, the input provided by the community will be recorded for use in the EIS documents that will be prepared for the proposed project.

The meeting will take place from 6 to 8 p.m. on Thursday July 21 at Ala Wai Elementary School cafeteria, 503 Kamoku St. in Waikiki.

# # #

Media contact:

Deborah Ward

DLNR Communications office

Phone: (808) 587-0320

Attachment B

PowerPoint® Presentation

Ala Wai Canal Dredging and Improvements Project

HAWAIʻI REVISED STATUTES, CHAPTER 343
ENVIRONMENTAL IMPACT STATEMENT
PUBLIC SCOPING MEETING, JULY 21, 2016

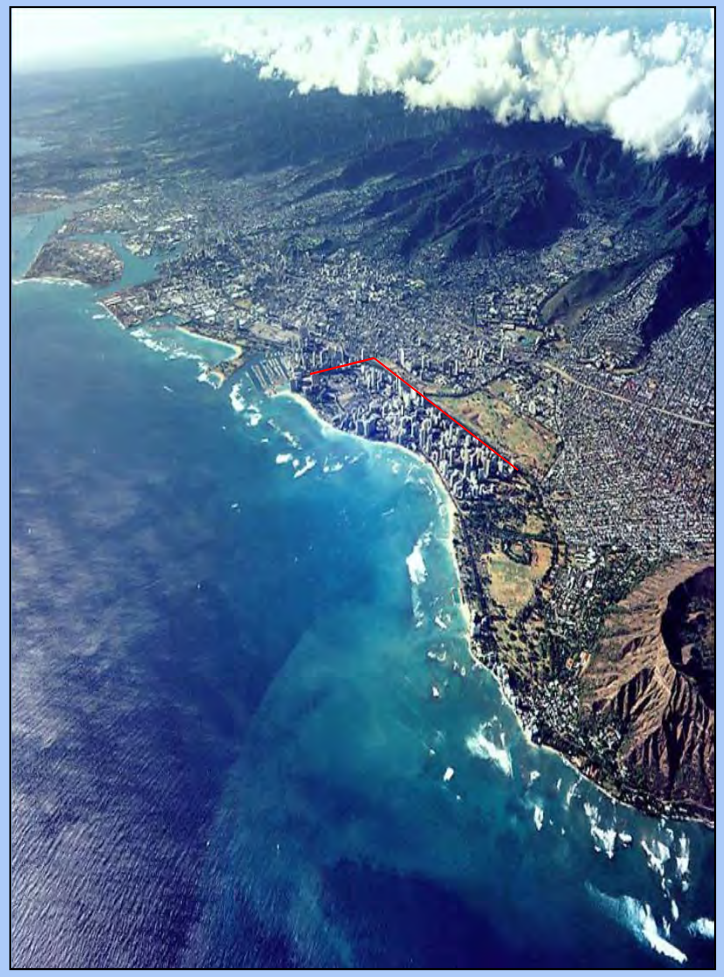
STATE OF HAWAIʻI
DEPARTMENT OF LAND AND NATURAL RESOURCES

R. M. Towill Corporation

Introduction

- DLNR Introduction
  - Department of Land and Natural Resources (DLNR)
  - Principal Consultant: R. M. Towill Corporation (RMTC)
- Why are we here?
  - DLNR wants community input to make a better project.
  - Hawai‘i Environmental Impact Statement (EIS) process also requires consideration of all relevant community concerns.
- Housekeeping
  - Please sign-in and take a handout.
  - Comment sheets available – mail or e-mail to: alawaiimprovements@rmtowill.com
  - Bathrooms

What is the Project?



Ala Wai Canal Dredging and Improvements Project

- Sponsored by the DLNR - The project will remove accumulated silt and sediments to restore and improve the performance of the canal to convey inland storm water flows to the ocean.
- Ala Wai Canal needs to retain and reduce silt and sediments from discharging directly into the ocean to protect corals and marine life.
- Ala Wai Canal was initially constructed in the 1920s. Over the past century of use, its canal walls and features have deteriorated and are in need of repair.

Why is this Project Needed?

Photo Credit:
tastyislandhawaii.com, Nov. 2015

Photo Credit: Yelp 2016

- Maintain the ability of the Canal to efficiently convey storm water flows to the ocean and reduce the risk of flooding.
- Reduce silt and sediments from discharging directly into the ocean to protect corals and marine life.
- Rehabilitate damaged portions of the Canal including cracked and leaning canal walls, stairways and other features.

Existing Conditions – Along Canal (1)

- Cracks and holes in canal walls
- Tops of wall crumbling
- Other issues

- Edges of wall have deteriorated exposing reinforcing bar (rebar)

Photo Credits: RMTC 2016

Existing Conditions – Along Canal (2)

- Erosion behind canal walls
- Ground soils have eroded exposing utility lines and threaten to undermine canal wall
- Canal walls are exposed and lack support

Photo Credit: RMTC 2016

Existing Conditions – Along Canal

- Existing wall deterioration
- Loss of soils and ground cover behind wall
- Exposed utility pipe

Photo Credits: RMTC 2016

- Cracks in the existing wall

Existing Conditions – Ala Wai Watershed

- The watershed draining into the Ala Wai Canal is approximately 10,500 acres in size.
- 47 percent in forested conservation land
- 53 percent in urban land
- Homes and multifamily housing make up the majority of urban lands. Other major urban uses include the developed Waikīkī area and University of Hawai‘i campus (DOH, 2002).

Graphic Source:
Ala Wai Watershed Analysis, Final Report, Townscape Inc. & E. Dashiell for DLNR & U.S. Army Corps of Engineers, July 2003

Existing Conditions – Water Quality

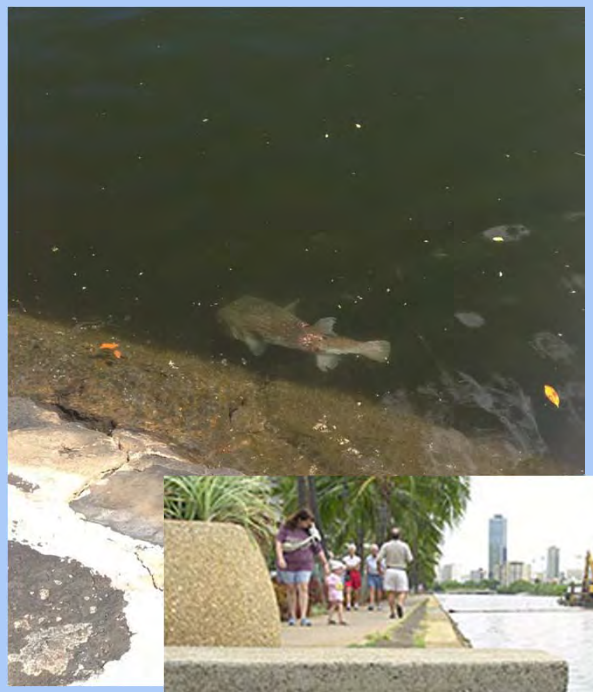


Photo Credit:
Yelp 2016

Photo Credit: Honolulu
Star-Advertiser 2/14/2003

- The upland sources of runoff result in stagnant water due to little freshwater inflow except during substantial storms.
- Problematic because the upper half of the Canal does not have any major freshwater tributaries.
- This causes seawater to mix poorly with canal waters further compounded by a relatively narrow canal.
- The result of limited circulation is that nutrients, sediments, and other pollutants build up in the stagnant waters and settle to the bottom of the Canal (DOH, 2002).

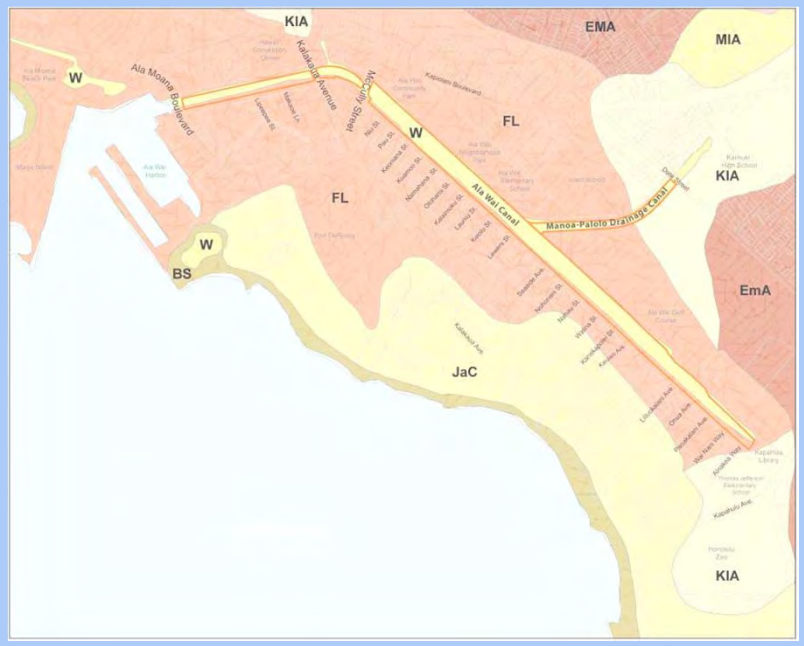
Ala Wai Canal Dredging and Improvements

Three major project components:

1. Dredge the Ala Wai Canal and Mānoa-Pālolo Drainage Canal (MPDC);
2. Repair the Ala Wai Canal walls and tops of walls; and
3. Work closely with the State Historic Preservation Division (SHPD) to determine how to handle preservation of the stairs and aesthetic treatment of the canal walls.

Ala Wai Canal Dredging

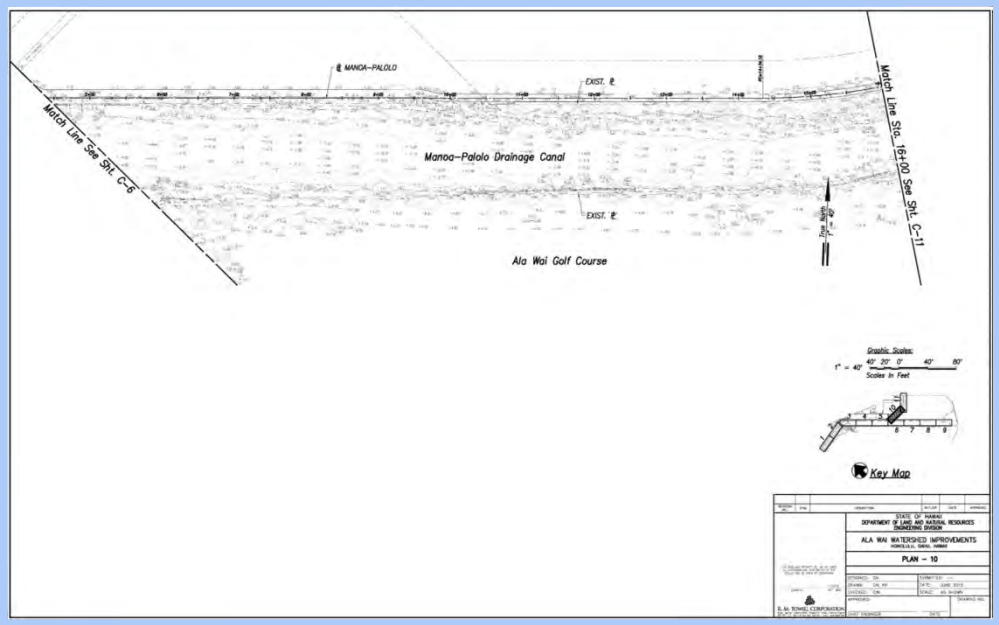
- Maintenance dredge the Ala Wai Canal to restore hydraulic capacity by removing years of accumulated silt and sediment.
- The Ala Wai Canal has depths as little as (-) 2 feet below MSL at its confluence with the MPDC, to as little as (-) 1 feet below MSL in other locations.
- DLNR proposes dredging that will start near the Kapahulu Library end and increase the canal depth moving downstream toward the Ala Wai Boat Harbor.



- Approximately 190,000 cubic yards will need to be removed.
- Maintenance dredging was performed in 1966, 1978, and in 2002.

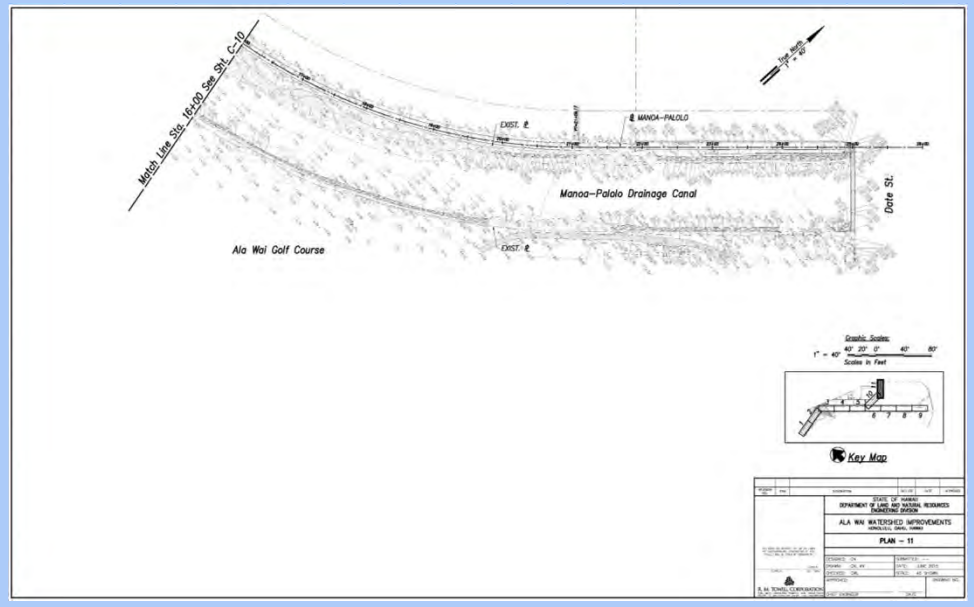
First Step in Preparing for Dredging (1)

- Survey and map all dredge locations.
- Scientifically test the sampled materials in a laboratory.
- The dredged area will be about two miles long.
- Requires extensive, intensive, and detailed survey, mapping, and analytical work.



First Step in Preparing for Dredging (2)

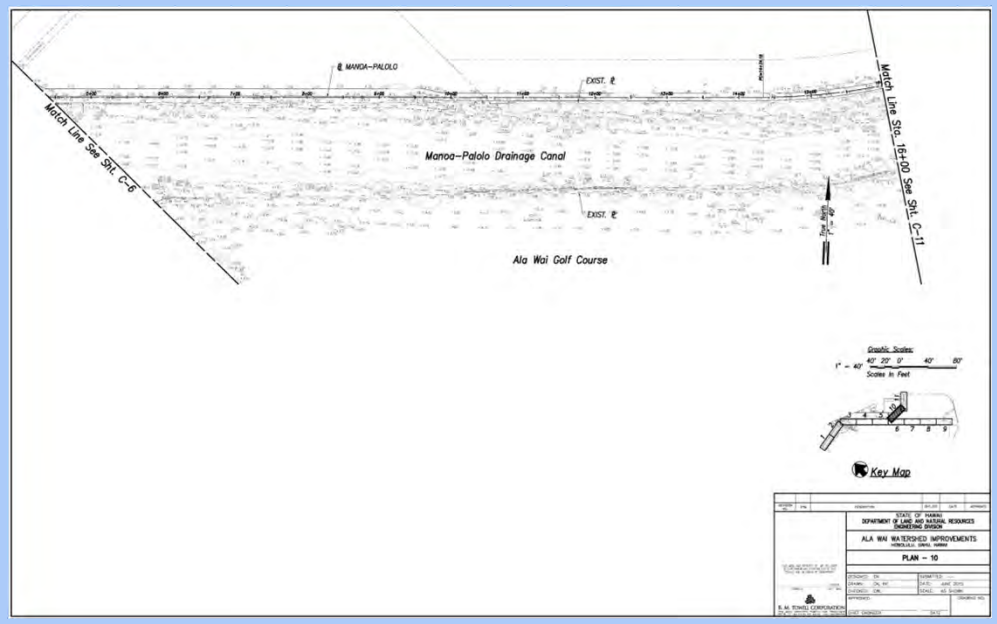
- Survey mapping will precisely locate where the dredged removal sites are, and laboratory testing of the canal bottom materials will determine chemical and biological properties.
- The results will inform DLNR if dredged spoils can be ideally disposed of at the preferred USEPA, South O‘ahu Ocean Dredged Material Disposal Site.



- One of five deep ocean disposal sites in Hawai‘i for dredged material managed and regulated by the USEPA.

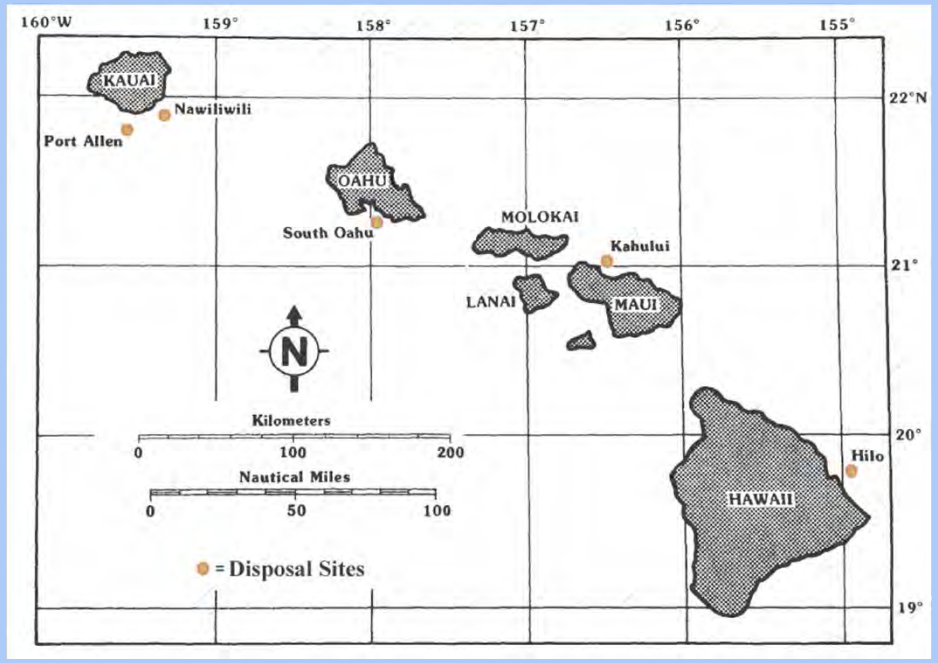
First Step in Preparing for Dredging (3)

- Dredging method under evaluation but expected to involve mechanical removal with a crane bucket or backhoe mounted atop a barge.
- This is similar to the approach previously used when the canal was last dredged by the DLNR in 2002.



Disposal of Dredged Spoils (1)

- Deposit dredged materials onto a purpose built barge and transport it to the ocean end of the Ala Wai Canal to transfer the barge from the workboat to a tugboat.
- Transport barge to the South O‘ahu Ocean Dredged Material Disposal Site, or if the material is unacceptable for deep ocean disposal, collect waste, pretreat as needed, and send to an inland site.



U. S. Environmental Protection Agency, Hawai‘i Ocean Dredged Materials Disposal Sites

Disposal of Dredged Spoils (2)

- The deep ocean disposal site is preferred but dependent on whether the material is unsuitable for ocean disposal because of higher levels of toxic or hazardous constituents than allowed by USEPA. Disposal to the ocean site only allowed if the materials laboratory results are acceptable by the USEPA.
- The prior 2002 dredging of the Ala Wai Canal allowed use of ocean disposal for the majority of material with only a small remainder that required safe disposal at an upland location (Reef Runway soil management facility).
- If necessary, other USEPA prescribed handling practices will be implemented, such as providing further containment and treatment of toxic or hazardous waste in the dredged spoils.

Disposal of Dredged Spoils (3) Safety

- Because of the extensive and exhaustive nature of the survey and testing procedure, and because of DLNR's adherence to all environmental laws and regulations, if any toxic or hazardous waste contained in the dredged spoils is found, it will be properly handled and safely disposed of.

Ala Wai Canal Improvements

- Damaged sections of the Ala Wai Canal will be repaired as the dredging work progresses. Repairs will be made to:
  - Canal walls that have failed or are severely leaning;
  - Cracked and uneven concrete wall toppings;
  - Areas with exposed rebar;
  - Along the sides of the canal where cracks and voids are present; and
  - Areas where erosion has formed voids behind the canal retaining walls.
- Work area will include the entire width of both canals and up to the edge of the state property boundary.

How Long will the Project Last?

- Preliminary schedule is for construction in mid-2018.
- Construction is preliminarily expected at one to two years. However, this will depend on completing the permitting.
- The EIS and permits will take roughly one year to complete.
- Consult with Canoe Halau and other community users, e.g., kayakers, during and after the permitting phase.

Major Work Task Items	April	May	June	July	Aug	Sept	Oct	Nov	Dec
EIS Preparation Notice									
Draft EISPN to Client									
Public Scoping Mtg									
OEQC Publication									
Public Comment Period (30d)									
Draft EIS									
Response to Comm Letters									
Draft EIS to Client									
Revision and OEQC Filing									
OEQC Publication									
DEIS Public Comment Period (Mandatory 45 Days)									

Major Work Task Items	Jan	Feb	Mar	Apr	May	June	Jul	Aug	Sept
DEIS Public Comment Period (Mandatory 45 Days)									
Final EIS									
Response to Comm Letters									
Draft FEIS to Client									
Revision and OEQC Filing									
OEQC Publication									
Environmental Entitlements Sched. To Be Determined based on FEIS									

What is the Benefit to the Community? (1)

- The community will benefit from improved storm water handling capacity of the Ala Wai Canal and MPDC. This will reduce flood risks, and help improve the quality of nearshore waters for recreational uses.
- The maintenance dredging of the canal will also improve silt and sediment storage capacity, helping to reduce these discharges to the ocean where it could affect corals and marine life.

Photo Credits:
Yelp 2016

What is the Benefit to the Community? (2)

Photo Credit:
Kam Family Blog
Accessed July 2016

Photo Credit:
Honolulu Star-Bulletin
1/21/02

- The Ala Wai Canal is a historic cultural resource that is an important watercourse centerpiece in Waikīkī. When completed, the project will promote an improved resident and visitor experience when visiting and walking along the Canal.

Photo Credit:
Hawaiifreepress.com
Accessed July 2016

Comments?

- Limit your time to 2-3 minutes.
- Please wait until called on to be heard, and tell us your name for our records.
- Be respectful of one another.
- Self-addressed comment forms are available.
  Please respond by the date shown. Mail or e-mail to:

alawaiimprovements@rmtowill.com

Next Steps

- Take the community's comments and document all relevant concerns in the EIS Preparation Notice (EISPN). Publish the EISPN (30-day comment period).
- Respond to written comments to the EISPN and prepare the Draft EIS .
- Complete special surveys and studies for the Draft EIS.
- Publish the Draft EIS (45-day comment period) and respond to written comments.
- Prepare the Final EIS documenting the public comments received and prepare the publication notice.

Attachment C

Meeting Agenda and Handouts

Agenda

Public Information and
Environmental Impact Statement Preparation Notice (EISPN) Scoping Meeting

Ala Wai Canal Dredging and Improvements Project
Waikiki, Oahu, Hawaii

Ala Wai Elementary School Cafeteria
503 Kamoku Street
Honolulu, Hawaii 96826

Thursday, July 21, 2016
6:00 – 8:00 pm

1. Introduction and Welcome 6:00 – 6:15 pm

   - Why are we here and why this project is needed

2. Presentation 6:15 – 6:45 pm

   - What is the project?
   - How does it benefit the public and community?

3. Comments and Questions 6:45 – 7:45 pm

   - Why the community's input is important

4. Summary and Thank You 8:00 pm

ALA WAI CANAL DREDGING AND IMPROVEMENTS PROJECT
Public Information and
Environmental Impact Statement Preparation Notice (EISPN) Scoping Meeting
Thursday, July 21, 2016

The Ala Wai Canal, constructed in the 1920s, is an essential drainageway and sedimentation basin for the approximately 19 square-mile Ala Wai watershed. This watershed includes the developed communities of Makiki, Mānoa, Pālolo, McCully, Mōʻiliʻili, Kapahulu, Ala Moana, and Waikīkī, and undeveloped mountain ranges and conservation land further to the north. The Ala Wai Canal also serves as an important recreational resource supporting boating and canoe facilities and activities, and surrounding State and County parks, and a golf course.

Over time, the build-up of sediments into the Ala Wai Canal has decreased the canal's sediment- and water-holding capacities. This buildup of sediment affects the canal's ability to efficiently hold and capture sediments, leading to more sediments being discharged into the ocean which decreases the protection of nearshore state waters. Accumulated sediment also decreases the canal's ability to temporarily contain and then release stormwater when there are heavy storm events, and increases risks associated with flooding.

The State Department of Land and Natural Resources is leading the Ala Wai Canal Dredging and Improvements Project, to dredge and remove accumulated silt, and repair the structure of the canal including deteriorating portions of its walls and stairs. The principal areas of work will include most of the Ala Wai Canal and a portion of the Mānoa-Pālolo Drainage Canal (MPDC). The objectives of this much needed work will ensure the protection of nearshore state marine waters and aquatic life, improve public health and safety, decrease the potential for property damage from flooding and a deteriorating canal structure, and improve the aesthetics and water quality of the canal within the Waikīkī destination area for residents and visitors.

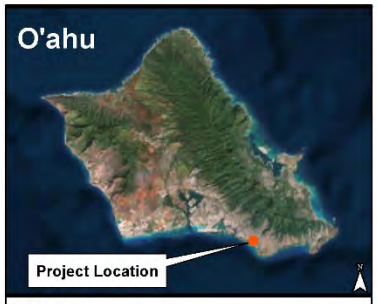
The Ala Wai Canal Dredging and Improvements Project is in the Environmental Impact Statement Preparation Notice (EISPN) Scoping phase. This phase is part of a Hawaiʻi State Environmental Impact Statement (EIS) process which will conclude with the publication of a Final EIS. The EIS documents will describe the proposed project, and compare project alternatives and their respective impacts on the community, environment, and economy.

For more information, please contact:

Brian Takeda
Planning Project Coordinator
R. M. Towill Corporation
2024 North King Street, Suite 200
Honolulu, Hawaiʻi 96819-3494
AlaWaiImprovements@rmtowill.com

State of Hawaiʻi
Department of Land and Natural Resources

ALA WAI CANAL DREDGING AND IMPROVEMENTS PROJECT



Legend

Project Location

Notes:

State of Hawai'i
Department of Land and Natural Resources

N

0 400 800 1,600 Feet

Project Location

Ala Wai Canal
Dredging and Improvements
Honolulu, Island of O'ahu, Hawai'i

R. M. Towill Corporation

Attachment D

Sign-in Sheet

Attendance Log

Ala Wai Canal Dredging and Improvements Project
Public Information and
Environmental Impact Statement Preparation Notice (EISPN) Scoping Meeting
Thursday, July 21, 2016
6:00 – 8:00 pm
Ala Wai Elementary School Cafeteria

No.	PRINT Name	Signature
1	GEORGE KYES	
2	CARINA OHARA	
3	Carty Chang	
4	Chris Nakamura	
5	Grayson Ching	
6	Craig Luke	
7	Brian Takeda	
8	Kelly Powell	
9	Ingrid Friedberg	
10	Ally Criscola	
11	Tom HEINRICH	Tom Heinrich
12	JOHN SAKAGUCHI	
13	Lisa GOLLIN	
14	James Ziccardi	
15	Geraldine Edmondson	
16	Timothy R Cottrell	
17	Scott Nishimoto	
18	Karen Ah Mai	
19	Kenta Okada	

Attendance Log (page 2)

Ala Wai Canal Dredging and Improvements Project
Public Information and
Environmental Impact Statement Preparation Notice (EISPN) Scoping Meeting
Thursday, July 21, 2016
6:00 – 8:00 pm
Ala Wai Elementary School Cafeteria

No.	PRINT Name	Signature
20	Michelle Herr	
21	Matthew Gonser	
22	Julia Allen	
23	TODD HIRANAGA	
24	GARRICK IWAMURO	
25	Jeff Meister	
26	Tim Streitz	
27	Les Ihara Jr.	
28	Jim Shannon Wood	
29	Franklin Chung.	
30	Corinne Chang	Corinne Chang
31	Kala Kaleikini	
32	Kilinahe Kelimoi	
33	Kaanohi Kaleikini	
34	JAYSON SHIBATA	
35	Ken Kamachin	
36	Lan Yonedu	
37	Nancy Marker	Nancy Marker

Attendance Log (page 3)

Ala Wai Canal Dredging and Improvements Project
Public Information and
Environmental Impact Statement Preparation Notice (EISPN) Scoping Meeting
Thursday, July 21, 2016
6:00 – 8:00 pm
Ala Wai Elementary School Cafeteria

No.	PRINT Name	Signature
38	VIRGINIA TANJI	
39	Darryl Wong	
40	TOM BROWER	
41	Cynthia Nyvoss	
42	SHARON KOKUBUN	
43	BRUCE BLACK	
44	Monica Umeda	
45	Newton Parks	
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Attachment E

Public Comment Form

Public Comments
Ala Wai Canal Dredging and Improvements Project
Public Information and
Environmental Impact Statement Preparation Notice (EISPN) Scoping Meeting

Please use this form if you wish to make written comments. Your comments would be most helpful if received by **Friday, August 5, 2016 (two weeks after public meeting date Thursday, July 21, 2016).** Please mail to:

ATTENTION:

Brian Takeda
Planning Project Coordinator
R. M. Towill Corporation
2024 North King Street, Suite 200
Honolulu, Hawaii 96819-3494

Name: _____ e-Mail: _____

Address: _____

Telephone: _____ Fax: _____

Post office will not accept without proper postage

ATTENTION:

Brian Takeda
Planning Project Coordinator
R. M. Towill Corporation
2024 North King Street, Suite 200
Honolulu, Hawaii 96819-3494

RE: 2016 Ala Wai Canal Dredging and Improvements Project

Appendix B Public Comments, July-September 2016.

Appendix B

Public Comments, July-September 2016.

Attachments:

A. Record of July 21, 2016 Meeting Comments
B. Written Comments
C. Email Comments

Attachment A

Record of July 21, 2016 Meeting Comments

Summary of Public Comments Recorded at the
Ala Wai Canal Dredging and Improvements Project
Public Information and EISPN Scoping Meeting

Thursday, July 21, 2016, 6-8PM

Meeting Attendee Comment 1—Tim Cottrell

- ʻIolani School uses the Ala Wai Canal (AWC) for various athletic programs (i.e., kayaking, etc.). What do you foresee as the disruption to the use of the AWC throughout the course of the project?

Brian Takeda (BT), R. M. Towill Corporation (RMTC), Response:

- For any project that is linear, such as this project, the work will not occur all at once. The project will be undertaken incrementally. This means that only where there is active work in progress will there be limited access to protect and maintain public safety.

Carty Chang (CC), Department of Land and Natural Resources (DLNR), Response:

- The dredging will not occur along the entire canal all at once and will be completed in phases. The work can be done in such a way that will allow for the passing of canoes and kayaks; however, temporary closures of portions of the canal during the project may be required to ensure public safety, as needed. The DLNR will coordinate with the kayak and canoe community to minimize disruption of uses. Awareness of event and canoe club scheduling will help minimize disruption. Overall, when completed the project will result in improved conditions for paddlers.

Meeting Attendee Comment 2—George West

- What is the projected start/time frame, construction, and duration and cost?

BT, RMTC, Response:

- The project is anticipated to start mid-2018. As the project is further developed more information will be available on the time frame and construction schedule. This information will be provided in the subsequent Draft and Final Environmental Impact Statements (EIS). The environmental permitting required for the project will take approximately one year to attain.

CC, DLNR, Response:

- DLNR currently has been appropriated approximately $13 million by the State for the project. The final cost will depend on the final analysis of the costs associated with the proposed dredging and wall repair work. If the costs exceed what has been appropriated, DLNR may request more funding from the Legislature. If funding is limited DLNR would reduce the proposed scope of work to prioritize the dredging of the canal.

Meeting Attendee Comment 3—Tim Streitz

- I understand that this project is separate from the U. S. Army Corps of Engineers (USACE) project; however, looking at them I think that they are really intertwined. Wall restoration cost savings could be realized through partnership. Also there is a Hawaiian Electric Company (HECO) project located in the area. Can you talk about how this is all going to fit?
- I hope that in the studies completed for the proposed project the DLNR will look at how increasing the depth could attract other type of uses that might conflict with existing uses.

CC, DLNR, Response:

- The subject project is for maintenance dredging of the AWC to improve water flow and circulation, and to repair the condition of the canal walls. DLNR dredges the AWC about

every 10 to 15 years. The USACE project is only in the planning stages and is intended to be for flood mitigation to raise protective walls along the AWC. The USACE project may not start until much later. The DLNR cannot wait for the USACE flood mitigation project to begin as there is the existing need to dredge the Ala Wai Canal to provide flood control and protection of nearshore waters.

- The relocation of the HECO power line will occur in conjunction with the DLNR project. DLNR and HECO are working together to ensure both projects run smoothly and minimize impacts to one another.

BT, RMTC, Response:

- Maintenance dredging the AWC is not expected to significantly increase the depth to a level that would attract other users to the canal. A slide was displayed to show how low the bridges crossing the canal are; therefore, any vessel traversing under the bridges would need to very low to the water. Even with the planned dredging work marine vessels will continue to have difficulty in entering the AWC, e.g., prior dredging required the use of specially designed vessels to traverse under the bridges. This included the design of barges that normally would not fit under the bridges; but when fully loaded have enough freeboard to pass beneath the bridges. Any marine vessel entering the AWC to perform dredging therefore needs to be purpose built.

Meeting Attendee Commenter—Bruce Black:

Bruce Black – Comment 1:

- Can DLNR elaborate on how the project will improve circulation within the AWC. Is DLNR considering opening the other end of the AWC to improve circulation? Or is this strictly a maintenance project?

CC Response:

- Within the AWC there are certain shoal areas that greatly diminish circulation. One example within the AWC is at the Mānoa-Pālolo confluence, where water depths are only approximately -2 feet, where it should be much deeper. By removing the accumulated sediment, it will improve circulation and improve flows into the AWC, especially in the upper reaches of the canal.

  DLNR does not intend to open the other end of the AWC and no water features will be added with this project. This is purely a maintenance project to remove accumulated sediment that has occurred over the last 10 plus years.

Bruce Black – Comment 2:

- I understand that there has been dredging in the past and that DLNR has a regular maintenance schedule. As far as sediment accumulation at the turn [bend] in the AWC, the back of the channel gets particularly clogged and becomes polluted, as there is no circulation. For the proposed dredging of the sediment, all the sediment removed will again return and accumulate over time. Is there a way to improve flow and sediment dispersal, and reduce sediment accumulation over longer periods of time?

CC, DLNR, Response:

- Sediment accumulation within the Ala Wai Canal will always be a problem until a different solution is found which will involve significant improvement of the infrastructure within the Ala Wai Watershed, extending beyond the Ala Wai Canal. This will require coordination amongst the CCH, State, federal government, and public and private parties, who have an interest in improving regional water quality within the area watershed.

Bruce Black – Comment 3:

- It was mentioned that there are existing HECO lines within the AWC that may restrict the depth of dredging. Are the existing lines going to be moved or will the work be performed around those lines? Will the depth of the dredging be impacted by the existing lines?
- A sewage line was placed in the AWC to divert the water that flooded into some of the basements of some hotels. Are there any existing pipes in the AWC now that are part of the sewage system?

CL, RMTC, Response:

- HECO is planning to re-install and deepen an existing power line in the AWC using directional drilling. Directional drilling is intended to place the power line much deeper than the dredge depth. DLNR is attempting to coordinate this work to have both projects occur at the same time as the HECO power line relocation. If both projects cannot take place at the same time, the bottom elevation where the exiting HECO line is located will be dredged to match the prior dredge elevation, which was about elevation (-) 9 or so from sea level, to ensure no disturbance to the HECO line.

DLNR Response:

- Besides the existing HECO line there is a new force main that was constructed beneath the Ala Wai Canal about 4-5 years ago. The force main however is very deep and will not be affected by this dredging project. There was a temporary sewage line that was placed in the Ala Wai Canal during construction of the force main project which has since been removed.

Bruce Black – Comment 4:

- Will the proposed project dredge the whole AWC? During the 2002 dredging it seemed that the most toxic material within the AWC was near the Library end of the canal, can you elaborate on this?

BT, RMTC, Response:

- One of the constraints of getting to different parts of the AWC is that some sections have become very shallow with the buildup of sediment. The plan is to survey the canal understanding that the canal is shallower near the Library end and will get progressively deeper as it approaches the Ala Wai Boat Harbor.

CL, RMTC, Response:

- The dredging near the Ala Wai Boat Harbor will be to an approximate depth of (-)11 feet from sea level, then will rise to various levels at different locations within the Ala Wai Canal, with a depth of (-)3 feet being the shallowest. The proposed volume of dredged spoils is anticipated to be similar to the 2002 quantity and is estimated at approximately

190,000 cubic yards; however, the specific dredge locations and depths will be identified as the planning for the project progresses.

Bruce Black – Comment 5:

- Have there been any proposals to modify the Ala Wai Golf Course to serve as a flood plain or to plant Loʻi to filter sediments? The area where the Ala Wai Golf Course is located was once a rice paddy and taro field. The USACE plan contains a plan for flood water storage at the Ala Wai Golf Course, but that is a long way away.

CC, DLNR, Response:

- Any type of siltation basins, pervious pavement, or vegetative practices, such as planting a tree or establishing Loʻi or anything that helps to trap or filter water before it goes down stream is always helpful. However, the use of siltation basins, pervious pavement, and plants to filter sediments or for bioremediation needs to be done under a separate project in collaboration with City, State and private landowners. The Ala Wai Canal needs to be dredged to restore flood storage capacity. The Ala Wai Golf Course is under the jurisdiction of the City and further coordination with the City will be required before this can be considered.

BT, RMTC, Response:

- A prior bioremediation project was undertaken near the upper reaches of the AWC closer to Kapahulu Avenue near the Library.

Meeting Attendee Commenter—Franklin Chung

Franklin Chung – Comment 1:

- What aesthetic or historical value do the stairs leading into the AWC have that they require spending time and money working on them, or maintaining them?

BT, RMTC, Response:

- The stairs and the Ala Wai Canal itself are on the National Register of Historic Places. Because of its prominence starting in the 1920s when it was constructed, DLNR is required to work with the State Historic Preservation Division (SHPD). Personally, everyone has a difference of opinion on the importance of the stairs. For example, DLNR understands that the stairs are important as they are utilized for emergency access by canoe hālau users. The stairs may also appear to invite people to access the water, but this is not recommended as there are a number of signs posted by the State Department of Health at the stair access points advising the public to stay out of the water and avoid fishing. The EIS process that is currently underway will include consulting with the community and the SHPD to determine a fair and proper treatment for the stairs along the historic AWC.

Franklin Chung – Comment 2:

- Another gentleman had mentioned the opening of the other end of the AWC. Is there any possibility of such a project?

CC, DLNR, Response:

- DLNR has only performed a feasibility study that was completed several years ago. DLNR has not moved forward with further investigations to open the other end of the AWC. A major concern is that opening another outlet to the canal would affect the ocean environment and this is not an action item for DLNR right now.

Meeting Attendee Commenter: Matt Gonser

Matt Gonser – Comment 1:

- I understand that work will be undertaken up to the State property boundary. Can you help us understand the portion of the makai side of the canal along the Ala Wai Boulevard and if this is located within State property?

Craig Luke (CL), RMTC, Response:

- The proposed wall repair work will be performed up to the limit of the State property line. A promenade or walkway is located on the mauka side of the canal wall along the Ala Wai Community Park and Ala Wai Neighborhood Park, under the jurisdiction of the City and County of Honolulu (CCH).

Matt Gonser – Comment 2:

- The mauka side of the AWC is overtopped by the high tide approximately twice per month. At those points in the tide you will see the boat ramps affected. The reality is that sea levels are rising and that this will happen more and more frequently, especially with high tides. Is there any consideration by the DLNR to either raise the land or other infrastructure on the mauka side of the AWC? How is DLNR addressing sea level rise during its discussion with SHPD about the walls?

BT, RMTC, Response:

- The issue of sea level rise will be addressed in the EIS for the project. The intention for the current meeting is not to explain exactly how the project is going to be done, but this is certainly an issue that will be explored in the EIS. The EIS will evaluate how DLNR intends to deal with sea level rise moving forward in time and how sea level rise will impact facilities and users along shoreline.

Matt Gonser – Comment 3:

- Is Makiki Stream under the City and County of Honolulu jurisdiction? Is Makiki Stream where it enters the AWC considered for this dredging project?

CC, DLNR, Response:

- Streams may be located on private or public land; therefore, DLNR would need to look into the jurisdiction of the lower portion of Makiki Stream to determine if it falls within State of Hawai‘i jurisdiction. The dredging of Makiki Stream would be beyond the project scope of work. However, a future initiative may be possible through coordination between the State and CCH based on the use of City funding.

Meeting Attendee Commenter—Kahi Pacarro (Sustainability Coastlines Hawai‘i (SCH))

Kahi Pacarro – Comment 1:

- The dredging work will create turbidity and stir up a lot of the waste that could impact nearshore ocean users. How will water quality be measured and will it be performed daily to ensure that swimmers and surfers stay safe? Will water quality testing be

performed on the ocean side of the Ala Moana Boulevard Bridge and how will ocean users be notified?

BT, RMTC, Response:

- DLNR will employ a major monitoring and sampling effort before any of the dredging work is started. This will involve 1) a survey of the complete canal, and 2) tests will be taken at high spots in the canal. Canal soil biology and chemistry testing will be performed.

CL, RMTC, Response:

- DLNR will ensure that contaminated material is not dispersed into the ocean through rigorous testing of the dredge areas. In addition, DLNR will construct a curtain wall and containment booms around the open dredge locations so that silt cannot migrate out of the AWC toward the ocean. Additional Best Management Practices (BMPs) will be implemented as previously used (slides of BMPs used during the prior dredging operation were shown to the audience). DLNR will also consult with the State of Hawai'i Department of Health (DOH) and USACE to address any permitting and water quality testing requirements.

Kahi Pacarro – Comment 2:

- SCH is working with the community and other nonprofit groups such as Surf Rider to bring the trash water wheel to Hawai'i. The trash water wheel would be installed at the end of the AWC. SCH's time line to install the trash water wheel is scheduled to occur prior to the proposed dredging work. The trash water wheel has the potential to help by collecting and diverting a lot of the solid waste that comes up to the surface. However, would the trash water wheel interfere with the DLNR project or impact the transit of dredging equipment through the waterway there?

BT, RMTC, Response:

- DLNR will need to coordinate the proposed dredging project with SCH to ensure that there will be no interruption to either project.

Kahi Pacarro – Comment 3:

- Where is the sediment coming from? Individual yards? If so, is education about individual prevention being considered as part of this project?

BT, RMTC, Response:

- The tributary that accepts all of the runoff flowing into the AWC is large. The Ala Wai Watershed is approximately 19 square miles with much of the flows going to the AWC. About half of this is forested land within the State Conservation District. Some of the vegetation in the watershed reduces erosion, but there are still large areas where development contributes to erosion during periods of heavy rainfall. When there are heavy rains silt get entrained in storm water runoff and makes its way past or through the urbanized area. The federal government is aware that point sources of discharge such as these need to be addressed and legislation such as the Clean Water Act have helped to further this effort through regulations like the National Pollutant Discharge Elimination System permitting process. These types of environmental programs are important to have in place so that over time they will slowly ensure that there are less and less discharges of pollutants. A little progress over long time frames will have big results.

Kahi Pacarro – Comment 4:

- Our ancestors never needed to dredge the AWC or streams and they relied on the Ahupua'a and Lo'i to try to filter as much as they could before it got out to the ocean. They found value in the sediment and here we are wasting a lot of it. Is there a possibility of planting more Lo'i's in the upland or maybe at the Ala Wai Golf Course to filter more of the sediment so it does not enter the AWC in the first place?

BT, RMTC, Response:

- Any type of vegetative practices, such as planting a tree or establishing Lo'i or anything that helps to trap or filter water before it goes down stream is always helpful. However, this would be beyond the current scope of the dredging project.

Meeting Attendee Commenter—Jim Wood

Jim Wood – Comment 1:

- The AWC is straight and there is no other fresh water contributing to the AWC.

BT, RMTC, Response:

- The problem with the Ala Wai Canal is that there are few contributing sources of fresh water going into the canal; no major sources of fresh water come from the uplands, and flows into the canal are principally stormwater. When the rain stops there is no more water flowing into the canal and because of the regular buildup of sediments and other material it begins to slow the movement of sediment within the Ala Wai Canal. Without any major sources of fresh water, the waters of the Ala Wai Canal tend to stagnate. Tidal action only influences the portions of the canal closest to the ocean, while the portions of the canal furthest from the ocean receive very little circulation.

Meeting Attendee Commenter—Newton Parks

Newton Parks – Comment 1:

- Are there any efforts to reclaim or remediate the dredged spoils to lessen the impact for disposal?

CC, RMTC, Response:

- Reclamation is beneficial but it is costly and requires permits that are different for ocean disposal. Testing the material will assist in determining how to dispose of the spoils. If testing indicates the spoils are suitable for ocean disposal, this would be the preferred method as it is the least expensive way to dispose of the dredged material. If the spoils are unsuitable for ocean disposal, the spoils will need to be placed at an upland site approved by the DOH. Following preliminary testing results, DLNR will look at what is the proper disposal method. Costs to remediate the dredged spoils would need to be evaluated, but are anticipated to be costly because a very large quantity of dredged spoils would be removed from the canal. Remediation would require a dewatering site, and would involve associated costs for the disposal site. DLNR would need to look into the cost implications of remediation and take into account the associated permitting requirements.

Meeting Attendee Commenter—Tom Heinrich

Tom Heinrich – Comment 1:

- On the Waikīkī side, what will the impacts of noise be? During the prior dredging work in the 2002- to 2004-timeframe there was adjustment to the work hours to actually allow for nighttime work to move the job forward. The general noise was not really a problem. Can DLNR address the proposed work hours and the possibility of doing nighttime work to move the project forward? Nighttime work may help alleviate some issues with users of the AWC during the daytime hours.

  Also, can DLNR please compare the expected dredge volumes for the proposed work to the quantity dredged in the 2002- to 2004-timeframe?

  Lastly, reference has been made to the coordination of the proposed project with the HECO project within the AWC; are there any other projects that might need to be coordinated either for preparation for or during the proposed project?

BT, RMTC, Response:

- Night work is not anticipated at this early stage, however if required, work during night hours would need to be assessed for potential impacts to residents and visitors in the Waikīkī area and construction requirements. If night work is required, DLNR will work with the DOH for conditions that may be associated with a noise variance permit.

  The proposed volume of dredged spoils is anticipated to be similar to the 2002 quantity and is estimated at approximately 190,000 cubic yards. While the quantity removed in 2002 was less than the proposed volume, dredging operations are occurring at other locations in the State of Hawai'i. To give context to this, Honolulu Harbor was dredged multiple times: in 1977, 456,000 cubic yards were dredged and in 1981 it was one million cubic yards. On the opposite side of the spectrum, in 2009 about 2,000 cubic yards were removed from the Wai'anae Small Boat Harbor. Hopefully this will help put the numbers for this project in perspective to what has been needed elsewhere.

  A discussion of coordination with other projects will be discussed in the EIS. The EIS process will include contacting public, City, State and Federal agencies to coordinate with and learn about other projects that DLNR might not know of. Projects that DLNR are aware of include the HECO energized line relocation project and the USACE flood mitigation project that is not related to the current project. It is expected that as the project goes though the EIS process that more information will be provided about agencies, as well as utility provider concerns so that the project is more informed and coordinated with the other planned activities in the project area. DLNR will learn more about other projects starting with the publication of the EIS Preparation Notice and the later Draft EIS document.

Meeting Attendee Commenters – Commenter Name Unknown

Comment 1**:**

- When was dredged material last identified for ocean disposal?

Are there specific locations within the AWC where contaminated material that is not suitable for ocean disposal is located?

BT, RMTC, Response:

- During the 2002 dredging of the AWC, approximately 187,000 cubic yards of material was removed. The vast majority was found to be clean and was accepted by the EPA for disposal at the South O'ahu ocean disposal site. Only a small amount was found to exceed the EPA requirements for ocean disposal, and this material was disposed of at the Reef Runway Soil Management facility.

  During the prior dredging work in 2002, there were areas in the AWC that were identified which contained material not suitable for ocean disposal. This was known before the actual dredging occurred. These areas were found by conducting extensive surveys and testing of the sediment within the AWC and were completed to ensure that the material was properly disposed of either in the ocean or handled on land. The current project will be handled in the same manner.

Meeting Attendee Commenters – Commenter Name Unknown

Comment 1**:**

- Where do you plan to dredge along the Mānoa-Pālolo Drainage Canal (MPDC)? I believe that there are coral segments within the MPDC near the Kaimukī High School.

BT, RMTC, Response:

- The Kaimukī High School is quite a way up from the proposed dredge locations within the MPDC and is not within the scope of this project. Dredging within the MPDC will extend from the Ala Wai Canal up to just below the Date Street Bridge. The intention of removing material from the canal is to improve safety, reduce flooding risks, and improve water quality. DLNR will look at all of these and intends to further evaluate the aquatic and biological resources within the project area in the EIS.

Attachment B

Written Comments

Recd 7-25-2016

Public Comments
Ala Wai Canal Dredging and Improvements Project
Public Information and
Environmental Impact Statement Preparation Notice (EISPN) Scoping Meeting

Please use this form if you wish to make written comments. Your comments would be most helpful if received by **Friday, August 5, 2016 (two weeks after public meeting date Thursday, July 21, 2016).** Please mail to:

ATTENTION:

Brian Takeda
Planning Project Coordinator
R. M. Towill Corporation
2024 North King Street, Suite 200
Honolulu, Hawaii 96819-3494

See attached.

Name: Garrick Iwamuro e-Mail: giwamuro@honolulu.gov
Address: 404 Kapahulu Avenue, Hon 96815
Telephone: 768-7201 Fax: 735-4220

Public Comment: Ala Wai Canal Dredging and Improvement Project

- The tributaries that empty into the canal, can siltation basins be developed to intercept the runoff and clean the water before it empties into the canal? I know for the Watershed project one area being looked at is Ala Wai Golf Course but that will be years if at all before fruition.
- In the channel by the Ala Wai driving range, phytoremediation was done and it clarified the water but seemed to work in a more confined body of water but that is an area that feeds the canal.
- The well that was dug on golf course property, will that be considered to be pumped and empty into the canal? It is still there but capped. If electrical cost is an issue then would PV with battery storage be feasible?
- Maybe the use of pervious pavement to move rainwater down into the cap rock versus sheet flow into storm drains? That could freshen the cap rock.
- Under McCully Street Bridge, install pumps that will push and pull water into the canal more frequent than relying on tidal changes.
- Provide bio swale catchment basins to capture rain water and periodically clean swale of debris.

These are some thoughts.

Thank you for the opportunity to comment.

Garrick Iwamuro
Golf Course System Administrator
Department of Enterprise Services
City and County of Honolulu
404 Kapahulu Avenue
Honolulu, Hawaii 96815
Email: giwamuro@honolulu.gov
Pf: 768-7201

Public Comments
Ala Wai Canal Dredging and Improvements Project
Public Information and
Environmental Impact Statement Preparation Notice (EISPN) Scoping Meeting

Please use this form if you wish to make written comments. Your comments would be most helpful if received by **Friday, August 5, 2016 (two weeks after public meeting date Thursday, July 21, 2016).**
Please mail to:

ATTENTION:

Brian Takeda
Planning Project Coordinator
R. M. Towill Corporation
2024 North King Street, Suite 200
Honolulu, Hawaii 96819-3494

Provide mitigation measures proposed to avoid, minimize, rectify or reduce impact; including provisions for compensation for losses of cultural, archaeological resources.

Is there a final/approved Cultural Impact Assessment, Archaeological Inventory Survey or Archaeological Assessment of the APE.

Are any of these reports required for certain areas of the project; reconstruction of stairs, areas of new ground disturbance.

My concern is whether this project would result in any impact on cultural or historic sites which are significant to native Hawaiians

Request to be notified when DEIS is completed

Hui Malama I Na Kupuna O Hawaii Nei

Name: c/o P. Kaanohi Kaleikini e-Mail: pkaleikini@hawaii.rr.com
Address: 89-107 Nanaikala St. Waianae HI 96792
Telephone: _____ Fax: _____

Rec'd 7/27/2016

Public Comments
Ala Wai Canal Dredging and Improvements Project
Public Information and
Environmental Impact Statement Preparation Notice (EISPN) Scoping Meeting

Please use this form if you wish to make written comments. Your comments would be most helpful if received by **Friday, August 5, 2016 (two weeks after public meeting date Thursday, July 21, 2016).** Please mail to:

ATTENTION:

Brian Takeda
Planning Project Coordinator
R. M. Towill Corporation
2024 North King Street, Suite 200
Honolulu, Hawaii 96819-3494

Can Makiki Stream dredging be added to this project?

Dept. of Facility Maintenance
Div. of Road Maintenance
99-999 Iwaena St.
Aiea, HI 96701

Name: Lan Yoneda e-Mail: lyoneda@honolulu.gov
Address: 99-999 Iwaena Street, Aiea, HI 96701
Telephone: (808) 768-3600 Fax: (808) 768-1622

Attachment C

Email Comments

From: Laura Ruby
Sent: Wednesday, July 27, 2016 1:07 PM
To: Brian Takeda
Subject: ala wai canal dredging
Attachments: ala wai dredging.zip

HI Brian,
Wish I had had time to hear your whole presentation. I‘ve attached 3 photos from the 2003 dredging, and anyway you measure it it is unlikely that the little scoop shovel goes down below the 10 foot depth. Where the Manoa Stream rounds the bend to connect with the canal is always a cause for concern. the "island" of silt builds up quickly so I would suggest that a bigger scoop shovel go down deeper in that area of the canal. Even better of course is the method employed previously (in the late 70s) using a big suction hose--and a barge can act as a settling pond and the remnant silt then shipped to a preferred site. That area really should be dredged to the 20+ foot depth of the original canal excavation.

Sincerely,
Laura Ruby

From: Luciano Minerbi
Sent: Thursday, August 04, 2016 9:53 AM
To: Brian Takeda
Subject: Ala Wai Canal Improvement Project
Attachments: ALA WAI Canal Minerbi NOTES.pdf

Aloha Brian Takeda:
I was off island so I missed your July 21 presentation on the Ala Wai Canal Dredging and Improvement Project. If you have some pdf or ppt of what presented please let me know. I attach my notes after attending the USACE meeting of their project so you can see my concerns on the Ala Wai project (not the dredging per se). If you have questions or answer on what I wrote please e-mail me.
Mahalo
Luciano

--
Luciano Minerbi, Dr. Arch. MUP, APA
Professor
Department of Urban and Regional Planning
Saunders Hall, 107
2424 Maile Way
University of Hawai‘i, Honolulu, HI. 96926, USA
Tel. 808-956-6869; Fax 808-956-6870
e-mail: luciano@hawaii.edu
("Non dat veritas sine memoria" Latin Proverb)

(Draft Only) February 8, 2016

Notes on the Ala Wai Canal: Its Development and Impacts

Luciano Minerbi
Professor of Urban and Regional Planning
University of Hawaii

Waikiki Ahupua'a Pre- Ala Wai Canal

The orography of the Waikiki Ahupua'a includes several sub-watershed below the Ko'olau Mountain Range. They are the Makiki Sub-watershed, the Manoa Sub-watershed, the Palolo Sub-watershed, and, makai of them, the Ala Wai Sub-watershed and the Waikiki Sub-watershed. The Makiki Stream is fed by its 4 tributaries, the Manoa Stream by its 7 tributary and Palolo Stream by its 3 tributaries.

It is important to recognize that, before the construction of the Ala Wai Canal, all the above-mentioned three streams converged and then diverged again to reach the ocean in three different and direct outlets or stream mouth called "Muliwai" in the Hawaiian Language. This natural hydrographic configuration was unfortunately altered by the flawed construction of the Ala Wai Canal in the 1920, which reduced three Muliwai to only one outlet located at the current Ala Wai Boat Harbor. The Territory of Hawaii maps of the late 1880s and early 1900 document this fact.

The Hawaii Registered Map of Waikiki No. 1398 by S. B. Bishop dated 1881 clearly shows (from the east to west) the Pahoa Stream, and the Kalia Stream flowing into the Kukainaki Muliwai (river mouth); the Pahoa Stream and the Kalia Stream going into the Apuakehau Stream and into its muliwai into the Ocean at Hamohamo. The Paakea Stream enters the Piinaio Stream that reaches the Ocean at his Kahawai mouth, south of McCully Street at the location of current Fort De Russy.

The Hawaii Registered Map No 2848 Waikiki Fisheries of June 1909 by M.D. Monsarrat also clearly depicts these three different streams reaching the Ocean.

In this map the first (unnamed) stream, near Kapiolani Park outlets at Hamohamo Fisheries through the H.M. Liliukalani Lands, the second was the Apukehau Stream abutting into the Ocean between the Moana Hotel and the Seaside Hotel in Waikiki. The third was the Piinaio Stream collecting the water from its two tributary streams, Maunahala Stream and Makiki Stream, with its outlet reached the ocean at Kalia Fisheries, south of Punahou Street.

The Waikiki Ahupua'a Old Breadbasket

The construction of the Ala Wai Canal effectively destroyed the self-sufficient diversified food basket production system of taro, banana, rice fields and fowls of the large Moiliili District mauka of Waikiki and also obliterated the abundant fresh fish production raised by the dozen Waikiki ponds by land-filling of Waikiki with the earth dredged out from the canal.

The Early Design of the Ala Wai Canal

Appropriately, the early design of the Canal mimicked the natural stream hydrography: an April 1917 Waikiki Map by Wright-Harvey-Wright, as reported by Ross (2007), depicts three proposed drainage channels to reach the ocean in Waikiki (although one was marked "withdrawn"). The design of the Ala Wai Canal (1921-1928) originally envisioned –two outlets at both end of the canal-- but what instead was actually built was only the Western outlet at the Ala Wai Boat harbor, while the East outlet near the Aquarium at Kapiolani Park was unfortunately not realized. It is notable that the 1912 map of Chas.V.E. Dove Map of Honolulu depicts in dotted lines the road subdivision of Moiliili and the Ala Wai Channel, with the two outlets clearly marked. A note explains that this plan was approved by L.E. Pinham, the president of the Board of Health and approved by the Territorial Board of Health February 21, 1906.

The Flowed Construction of the Ala Wai Canal

With only one ocean outlet into the Ala Wai Harbor currently the Ala Wai Canal continues to slow down the natural flows of the 3 named streams to the ocean. One result is that the water accumulates, back-up and stagnates particularly at the eastern end of the canal. It is waiting only the next exceptional event to overflow and flood.

What is Needed to Ameliorate the Situation

The ocean outflow section from the Ala Wai Canal should be bigger than the sum of all sections of the streams coming into the canals so as to avoid water in the canal to stagnate and make flooding possible when more water comes in that what goes out into the ocean. If it is determined this to be the case, then it is the ocean water outlets than needs to be enlarged to decrease flooding by allowing the water in the canal to have an opening of adequate section into the ocean.

Two opening into the ocean at the opposite sides of the Ala Wai Canal – at it was originally designed in 1906 -- will also improve water quality, decrease pollution by avoiding stagnating water at the Diamond Head side of the in the canal. The real permanent solution to these problems and for lessening flood risk would be then to open the second outlet going to the Kapiolani Park near the aquarium and under a bridge for Kapahulu Street.

The Uneven Height of Ala Wai Canal Banks and Walls

The Ala Wai Canal edges are uneven in height: the Makai (ocean) side bank is about two feet higher than the Mauka (mountain) side: so that if a flood or a tsunami wave raises the water in the canal above two feet or more, the Waikiki district is protected and the Moiliili district will be flooded. If any money is available –for fairness-- it should be used first to raise the Moiliili bank to the same height of the Waikiki one.

The USACE Plan

USACE Plan 2-A proposes a 4-foot concrete wall to protect from flooding the entire length of the Waikiki side of the Ala Wai Canal and a 4-foot wall to protect the Moiliili side of the Ala Wai Canal.

But the selected Plan 3-A, selected by USACE, does not have a wall at the Manoa-Palolo channel to effectively protect the Moiliili districts, so that flood water will hit and immediately inundate Iolani School and the Ala Wai Elementary School as well all the condominiums and walk-up apartments located in the area.

Actually if the two walls are constructed as in Plan 3 A on all Waikiki makai side but only ½ the Moiliili mauka side of the canal that would exacerbate flooding in terms of volume, velocity and power at the Iolani School Site into Moiliili much more than current condition without that wall because the flood water will disperse on the larger surface of the Moiliili district.

Moreover and importantly, if the walls on the two sides of the canal are not designed and built by USACE both at the same height from the water level, flood will go on one side only, the Moiliili side. Now Waikiki side is much more protected than the Ala Wai side because the existing walled bank of the Waikiki side is about two feet higher than the one on the Moiliili side. Therefore the priority and urgent need is to raise the Moiliili and the Manoa Palolo channel wall and bank two feet to make it level with the Waikiki side, before other improvements.

Findings

In sum, the construction of the Ala Wai Canal precipitated the destruction of the Waikiki Food shed with loss of crops, fish food and fowl. It made possible the real estate development of the Waikiki resort district. The current flowed design of the canal with only one outfall is a key factor in the deterioration of water quality with stagnation and pollution in the canal east side, and the increased risk of flooding well over the historical and natural hydraulic conditions of three original stream ocean outlets or muliwai. The proposed remediation by USACE Plan 3-A uses apparently a hydraulic model that will exacerbate flooding by not protecting the Moiliili side instead of preventing it.

This is because (a) lack of adequate sized and number of ocean outlets, (b) current channel walls not at equal heights, (c) USACE choice (Plan 3-A) of building only a makai wall for the Waikiki side and not a mauka wall for Moiliili to continue to protect the Moiliili side of the Manoa Palolo Canal, and (d) USACE lack of detail of what a 4 foot wall really means (if from the current one or raising both channel walls at the same level to avoid flooding on one side).

Conclusions

In my opinion planning and construction would be better spent to: (a) open a Kapiolani Park ocean outlet for the Ala Wai Canal -- as originally designed in 1906, (b) raise the Moiliili and Manoa Palolo Canal side banks at the same level as the one of Waikiki (c) only in a second phase raise both walls, as more money becomes available to reach a same higher elevation.

No. 6.
OAHU FISHERIES
WAIKIKI SECTION
HARBOR-DIAMOND HEAD
Compiled by
M. D. Monsarrat Surveyor.
June 1909.
WAIKIKI
KEWALO
KAKAAKO
KAAKAUKUKUI
KUKULUAEO
KALIA
MIKI
PAWAA
KEAUHOU
PAAKEA
KANEWAI
PILIAMOO
KEKIO
PAHOA
KALUAOLOHE
KAPAHULU
WAIALAE
KAHALA
KALUAOKAU
HAMOHAMO
HELUMOA
ULUNIU
KANELOA
KAPIOLANI PARK
KAPUA
LEAHI
Diamond Head
KAALAWAI
KALUAHOLE
HARBOR
CHANNEL
KAHOLALOA FISHERY
Government
KAAKAUKUKUI FISHERY
Bishop Estate
KUKULUAEO FISHERY
Ward Estate
KALIA FISHERY
Government
HAMOHAMO FISHERY
H. M. Liliuokalani
KANELOA FISHERY
Government
KAPUA FISHERY
KALUAHOLE FISHERY
Government
KEAUAU FISHERY (KAPAHULU)
Solomon Kauai
KUILEI FISHERY
Sumner
KAALAWAI FISHERY
KAHALA FISHERY
Bishop Estate
KING STREET
BERETANIA STREET
MOANA ROAD
WAIALAE ROAD
THOMAS SQUARE
Rice Fields
Government
TRUE
M. D. MONSARRAT
SURVEYOR
HONOLULU, T. H.


MAP
of
HONOLULU
HAWAIIAN ISLANDS.
Scale 1000 Feet to 1 Inch.
Chas. V. E. Dove. C.E.
Copyright, 1913, by Chas. V. E. Dove.
PILIAMOO
PILIPILI
KEAUHOU
KAPAAKEA
WAIKIKI
KAPAHULU
HAMOHAMO
HELUMOA
KAIMUKI
OCEAN
VIEW
TRACT
PALOLO
HILL
TRACT
PARK
DIAMOND
HEAD
KAPIOLANI
KAIA
KEWALO
KULUAEO
LITTLE
BRITAIN
U.S. ARMY RESERVATION
FORT DE RUSSE
FORT RUGER
DIAMOND HEAD CRATER
Note.
Dotted Street and other Lines in WAIKIKI
Station show Proposed Improvements planned
by L.E. Pinkham
approved by the TERRITORIAL BOARD of HEALTH
Feb'y 6th 1906
Scale of Feet.

From: Alika Winter
Sent: Thursday, August 18, 2016 1:33 PM
To: Ala Wai Canal Dredging EIS; Lisa Gollin; Kelly Powell
Subject: Re: Ala Wai Canal Dredging and Improvements Project - Notice of Public Scoping Meeting

Follow Up Flag: Follow up
Flag Status: Flagged

Aloha Brian,

1) Your map of the Project Location is not exactly correct, right? Won't you need to stage barges outside of the indicated area, and dump material in the open ocean?

2) Do you have models of sediment/ toxic plumes and/ or any projection of the near shore impacts?

3) What will be the impacts on the near shore environment, which is the healthiest fisherman have seen in years?

4) What will be the impacts on water quality with kids, elderly, and tourist swimming/ paddling/ diving/ surfing in the Ala Wai/ Waikiki/ Ala Moana?

5) History has shown that dredging a wetland increases the speed and flow of the water, which allows toxins/ sediments to efficiently destroy near shore reef environments.

If the goal is to return the Ala Wai to "Historic Levels", why would the State define "Historic" as the first time we effectively destroyed the Waikiki watershed?

Shouldn't we define "Historic" as when the Waikiki Watershed was healthy and productive, and work towards that?

6) The assertion that the dredging will protect Waikiki from flooding should be explored further. The Waikiki side break wall is much higher than the mauka bank. And even in our "40 days of rain", Waikiki was never in danger from the Manoa/ Palolo stream flow.

I have cc'd Dolan Eversole from University of Hawaii.

Whether or not big contracts are in place, we should really take a good look at all of these questions.

I am available to meet anytime.

Mahalo,
Alika Winter/ Kumulokahi Canoe Club Chairman

On Wed, Aug 17, 2016 at 9:17 AM, Ala Wai Canal Dredging EIS <AlaWaiImprovements@rmtowill.com> wrote:

> Hi Alika,

I am very sorry for taking so long to get back to you. The answer is yes, the next opportunity to provide input will be when the Environmental Impact Statement Preparation Notice is published. We hope to do this in about a month or so from now. I am attaching some of the information we presented at the meeting.

If you want you can also give me a call as Chair from your Canoe Club.

Thank you,

Brian Takeda
Planning Project Coordinator

Ala Wai Canal Improvements EIS

c/o R. M. Towill Corporation

2024 North King Street, Suite 200

Honolulu, Hawaii 96819

808.842.1133

From: Alika Winter
Sent: Monday, July 11, 2016 3:14 PM
To: Ala Wai Canal Dredging EIS; Lisa Gollin
Subject: Re: Ala Wai Canal Dredging and Improvements Project - Notice of Public Scoping Meeting

ALOHA,
I am very interested in this project/ the heath of the Manoa & Palolo estuaries.

But, my daughter's graduation party is that day.

Is there a chance for me to get info/ give input if I cant make it?

Mahalo,
Alika Winter/ Chairman Kumulokahi Canoe Club

On Mon, Jul 11, 2016 at 11:53 AM, Ala Wai Canal Dredging EIS <AlaWaiImprovements@rmtowill.com> wrote:

Aloha:

Please join us for a Public Information and Environmental Impact Statement Preparation Notice (EISPN) Scoping Meeting on the ALA WAI CANAL DREDGING AND IMPROVEMENTS PROJECT to be held on the following date:

Date:	**Thursday, July 21, 2016**
Time:	**6:00 pm to 8:00 pm**
Place:	**Ala Wai Elementary School Cafeteria** **503 Kamoku Street** **Honolulu, HI 96826**

The purpose of this Public Information and EISPN Scoping Meeting is to present information on the proposed project and to obtain community input on relevant environmental, social and technical issues or concerns that should be considered during the EIS process. Accordingly, the input provided by the community will be recorded for use in the EIS documents that will be prepared for the proposed project.

On behalf of the Department of Land and Natural Resources (DLNR), we hope you will support this project and look forward to your attendance and participation.

Should there be questions please do not hesitate to contact our consultant Brian Takeda, R. M. Towill Corporation, at (808) 842-1133 or via email at AlaWaiImprovements@rmtowill.com or Gayson Ching, DLNR-Engineering Division, at (808) 587-0232 or via email at Gayson.Y.Ching@hawaii.gov.

AlaWaiImprovements@rmtowill.com

Ala Wai Canal Dredging and Improvements EIS

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