

PALANI AVENUE DRAINAGE IMPROVEMENTS

DRAFT ENVIRONMENTAL ASSESSMENT

TMK (1) 2-7-34

Waikiki Ahupua`a, Kona District, Island of O`ahu

July 2011

Prepared for:

City and County of Honolulu

Department of Design and Construction



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APPENDICES

- Appendix A: *Biological Survey for the Palani Avenue Drainage Improvements Project, Kapahulu, Honolulu O`ahu.* Prepared by AECOS Inc., dated June 2, 2011.
- Appendix B: *An Archaeological Monitoring Plan for a Property Located at TMK: (1) 2-7-034 in Waikiki Ahupua`a, Kona District, Island of Oahu,* prepared by Archaeological Consultants of the Pacific Inc., dated March 2011.
- Appendix C: *A Cultural Impact Assessment for a Property Located at TMK: (1) 2-7-034 in Waikiki Ahupua`a, Kona District, Island of Oahu,* prepared by Archaeological Consultants of the Pacific Inc., dated March 2011.

Chapter 1 – PROJECT PROFILE

Name of Project:	Palani Avenue Drainage Improvements Kapahulu, Honolulu, Oahu
Applicable Law:	Chapter 343 HRS Chapter 11-200 HAR (Use of county lands and funds)
Island:	Oahu
District:	Honolulu
Location:	Kapahulu along Date Street and Palani Avenue
TMK:	Right-of-Way surrounded by (1) 2-7-037
Landowner:	City and County of Honolulu
Existing Use:	Roadway and On-street Parking
Flood Zone:	X (areas outside the 500-year floodplain)
State Land Use:	Urban District
Land Use Ordinance:	A-2 Apartment District B-2 Business District
Permits Required:	City and County of Honolulu Street Usage Permit Permit to Excavate (Trenching) State of Hawaii Community Noise Permit NPDES Permit
Name of Applicant or Proposing Agency:	Department of Design and Construction City and County of Honolulu
Address	650 South King Street
City, State, Zip	Honolulu, Hawaii 96813
Contact and Phone	Edward Visaya, PE / Ph. 768-8807
Approving Agency:	Department of Design and Construction For Mayor, City and County of Honolulu
Consultant:	Gray, Hong, Nojima & Associates, Inc
Address	201 Merchant Street, Suite 1900
City, State, Zip	Honolulu, Hawaii 96813
Contact and Phone	Michael Nojima, PE / Ph. 521-0306
Anticipated Determination:	Finding of No Significant Impact

Project Summary:

The City and County of Honolulu proposes to construct improvements to an underground drainage system to improve and facilitate the conveyance of storm runoff from Palani Avenue in the Kapahulu area.

The proposed underground drainage system, consisting of pipes and drainage structures, starts with a connection to the existing drain near the intersection of Date Street and Kapahulu

Avenue. The proposed underground system will extend along Date Street, continue on Palani Avenue and end at a new catch basin in the vicinity of 731 Palani Avenue. Existing and proposed drainage structures along Date Street and Palani Avenue will be outfitted with drainage check valves to prevent storm water backflow from the existing drainage system on to the road. Existing utilities to be relocated includes water (8, 12 and 30-inch water mains, laterals, fire hydrant) and an underground electrical line serving 721 Palani Avenue.

Direct impacts include increased traffic congestion, disruption of residential/business activities, noise, dust, and temporary utility interruptions resulting from construction activities. There should be no impacts to endangered species, water quality, archaeological resources, or cultural practices. No long-term adverse indirect, secondary and cumulative impacts are anticipated. Beneficial long-term impacts include reduction of future property damage, inconvenience, and health hazards due to flooding in the vicinity of Palani Avenue. The estimated project construction cost is \$1,700,000 and will be funded by the City and County of Honolulu. The project is expected to be put out to bid in the 2nd half of 2012 with construction to follow. The construction of the improvements is anticipated to take about 1 year to complete.

Chapter 2 – GENERAL DESCRIPTION OF PROPOSED ACTION

2.1 BACKGROUND

In July 2009, the City Department of Design and Construction (DDC) contracted Gray Hong Nojima and Associates (GHN) to study the existing drainage conditions at Palani Avenue and provide alternate solutions to alleviate drainage concerns that resulted from heavy rainfall events. GHN completed a study of the existing conditions in the July 2009 report “Drainage Study of Existing Conditions for the Palani Avenue Drainage Improvements”, and determined that the existing drainage system on Palani Avenue would not have sufficient hydraulic capacity to accommodate large storm events.. GHN then developed drainage alternatives which are described in the report “Schematic Drainage Alternatives for the Palani Avenue Drainage Improvements” dated October 2009. The alternatives were further refined through consultation with government/utility agencies and a topographic survey by Controlpoint Surveying. Final recommendations were submitted to DDC in July 2010 in the report “Preliminary Engineering Report Palani Avenue Drainage Improvements, TMK: 2-7-34, Honolulu, Oahu, Hawaii” and described in Section 2.4 – Proposed Action

The provisions of Chapter 343 of the Hawaii Revised Statutes (HRS), which require an Environmental Assessment (EA), apply to the proposed drainage improvements which will utilize City funds for construction. This Draft Environmental Assessment (DEA), prepared in accordance with Chapter 343, HRS and Chapter 11-200, HAR, addresses the proposed drainage improvements impact (short-term, long-term, cumulative, positive and negative) on environmental, natural, social, cultural, archeological and economic aspects. The DEA will be available for public review over a 30-day comment period. During this time the DEA will also be circulated for review to affected government agencies, utility companies, and community groups. A Final EA will then be prepared taking into consideration comments received during the 30-day period. A Finding of No Significant Impact (FONSI) is anticipated, which will conclude that the project will not have a significant impact on the environment, and that an Environmental Impact Statement will not be required.

2.2 LOCATION

The Palani Avenue Drainage Improvements are located in a residential neighborhood in Kapahulu on the eastern side of the Island of Oahu in Honolulu, (Refer to Figure 1). The area affected includes Palani Avenue and Date Street. Palani Avenue is approximately 600 feet in length and is bordered by Date Street to the south and Kapahulu Avenue to the north. The affected area on Date Street is 600-feet in length and is located north of Ala Wai Golf Course and between its intersections with Kapahulu Avenue to the east, Palani Avenue to the west.

2.3 NEED AND PURPOSE

Palani Avenue is located within a depressed low point and receives drainage flows from Palani Avenue, Kapahulu Avenue and Date Street. Current storm runoff is conveyed by the existing Date-Palani Box Culvert, which was designed in 1937, and serves a drainage area totaling 145.10 acres. The existing Date-Palani Box Culvert drainage system begins at Harding Avenue near the Interstate H-1 Freeway, continues on Kapahulu Avenue, Palani Avenue, Date Street, and discharges into an open ditch which flows into the Manoa-Palolo Drainage Canal. Because of the limited hydraulic capacity of the Date-Palani Box Culvert, some flooding along Palani Street has occurred. This situation may be attributable to the following:

- The existing Date-Palani Box Culvert size has capacity limitations during large storm events to accommodate the storm runoff conveyed from the 145.10 acre drainage area.
- The discharge of storm waters into the Manoa-Palolo Drainage Channel is impeded at times when the water surface elevation of the channel reaches a higher elevation than the roadway elevation along Palani Avenue, thereby impeding the discharge of storm runoff.
- Limitations of the upstream underground drainage system to intercept runoff from the depressed low area in Palani Avenue.

Previous attempts to alleviate the flooding at Palani Avenue occurred in the late 60s and early 70s during the Kapahulu General Neighborhood Renewal Plan (Kakahulu GNRP) sponsored by the City and County of Honolulu Department of Housing and Community Development. Kapahulu GNRP was an urban renewal plan which consisted of improvements including widening roads, sidewalks, utilities, and new/retrofitted drainage systems. Part of the Kapahulu GNRP was to examine and upgrade the existing drainage system to current drainage standards at that time. Kapahulu GNRP concluded that the existing Date-Palani Box Culvert is “not adequate to handle the large design flows now required under current standards” (Chung Dho Ahn, 1971). The following improvements related to Palani Avenue were proposed:

- Divert the runoff from the existing Date-Palani Box Culvert above Palani Avenue into the Ala Wai Canal via the Kapahulu Box Culvert.
- Divert the runoff from Palani Avenue from the existing Date-Palani Box Culvert into the Ala Wai Canal via the Kapahulu/Date Street Drain.

Some of these drainage improvements have been completed; these improvements included the partial construction of the Kapahulu Box Culvert and the Kapahulu/Date Street Drain. This project proposes to complete additional drainage improvements to improve the conveyance of storm runoff from the Palani Avenue area.

2.4 PROPOSED ACTION

The proposed drainage improvements extends the existing Kapahulu/Date Street Drain into Palani Avenue to provide an additional inlet to intercept storm water during a heavy rainfall. Within Date Street (Refer to Figures 2 and 3) a new drain manhole will be constructed over the existing Kapahulu/Date Street 42-inch drain line located on the makai side of Date Street near 614 Kapahulu Avenue. The proposed drainage system will extend to Palani Avenue and consist of new drain structures, reconstructed catch basins and various sized drain lines (18, 23, 30 and 36-inch). In order to cross over to the mauka side of Date Street, the existing Date Street 30-inch water line will be lowered to provide adequate pipe cover over the new drain line. All of the existing affected catch basins on Date Street between Palani and Kapahulu Avenue will be reconstructed to a lower invert to connect or accommodate the proposed drainage system. The proposed drainage improvements will continue on Palani Avenue via a 24-inch and 18-inch drain line and includes new and reconstructed drainage structures. Required utility relocations to accommodate the drainage system include the existing drain line, water main (12- and 8-inch), gas line, and electrical line. To prevent the backflow of storm water from the existing box culvert, drainage check valves will be installed at these existing catch basins.

Upon completion of the proposed drainage improvements, the affected areas along Date Street and Palani Avenue will be restored to original condition, including (a) resurfacing of pavements, (b) reconstruction of driveways, sidewalks, ramps, curbs and gutters, and (c) replanting of pre-construction vegetation.

Chapter 3 – AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

3.1 TOPOGRAPHY

Based on a topographic survey by Controlpoint Surveying in 2010 and available as-built record drawings, the project area is relatively flat with gentle slopes. Elevations on Date Street vary from 7.7-feet (MSL) to 12.1-feet (MSL) and slopes up at 0.4% towards Diamond Head. Elevations on Palani Avenue vary from 8.1-feet (MSL) to the low point fronting 707 Palani Avenue at 6.5-feet (MSL) with slopes varying from 0.7% to 0.9%. The surrounding residential area towards Kaimuki High School is also relatively flat, and the area east of the project site slopes up towards Leahi Hospital (Refer to Figure 4). The project as proposed would involve trenching within the City Right-of-Way. After trenching activities are completed, the disturbed area will be restored to its original condition and elevations, therefore, the proposed drainage improvements are not anticipated to have any long-term impact on the existing topography.

3.2 CLIMATE

According to the National Weather Service, Hawaii's climate include mild temperatures throughout the year, moderate humidity, persistence of northeasterly trade winds, significant differences in rainfall within short distances, and infrequent severe storms. According to the Western Regional Climate Center, the nearest climate recording station, Waikiki 717.2, is located near the Honolulu Zoo about 2/3-mile south of the project site. Waikiki 717.2, operated by the National Weather Service, recorded 45 years of rainfall and temperature data. The average annual rainfall is 23.46 inches with the majority occurring between October and March. The average high temperature is 84.6°F with the warmest month in August 88.2°F. The average low temperature is 69.2°F with the coolest month in January 64.6°F. The project as proposed is not anticipated to have any impact on climatic conditions, thus no mitigation measures are planned.

3.3 FLOOD AND TSUNAMI HAZARD

The project site is located in an area designated as Zone X on the Flood Insurance Rate Map (FIRM No. 15003C0368G, revised January 19, 2011), which is outside the 500-year floodplain (Refer to Figure 5). The Flood Insurance Program does not have any regulations for developments within Flood Zone X. The project site is also outside the of the tsunami evacuation area.

The proposed drainage system will provide long-term benefits by reducing the potential for flooding in the vicinity of Palani Avenue by:

- Allowing for another means of runoff to drain from Palani Avenue during periods of prolonged and/or intense rainfall.
- The use of drainage check valves that will prevent the backflow of runoff from the existing drain.

A long-term project to reduce flooding is currently underway involving the Ala Wai Watershed (an 11,069 acre area stretching from Makiki to Diamond Head and from the Pacific Ocean to the Koolau Mountain ridge). The project entitled, The Ala Wai Watershed Project, is sponsored by the U.S. Army Corps of Engineers (USACE) in partnership with the State Department of Land and Natural Resources (DLNR), and the City. One of the objectives of the Ala Wai Watershed

Project is to reduce the risk and damage of flooding by improving water conveyance, restoring the ecosystem to a more natural state, incorporating natural habitat features, and integrating non-structural approaches. The project is currently in the Feasibility Phase, planned for completion by the fall of 2012, and includes formulation of alternatives, evaluation of alternatives, preparation of an Environmental Impact Statement (EIS), and selection of the recommended plan. The proposed Palani Avenue Drainage Improvements should not directly impact the Ala Wai Project since the Palani Avenue drainage area is relatively small in comparison to the Ala Wai Watershed drainage area. The Ala Wai Watershed project in conjunction with the proposed drainage improvements should further provide long-term benefits to the residents of Palani Avenue. In order to confirm these assumptions, the Draft EA for the proposed Palani Avenue Drainage Improvements will be submitted to the USACE and DLNR for their review and comments.

3.4 WATER QUALITY

The proposed drainage improvements will convey runoff generated from Palani Avenue to the exiting Date/Kapahulu Street Drain and eventually discharge to the Ala Wai Canal via the Ala Wai Golf Course. Ala Wai Canal is designated a perennial river by the U.S. Geological Survey and Inland Class “2” State water on the Water Quality Standards Map for the Island of Oahu (State Department of Health, 1987). According to State Department of Health (DOH) Water Quality Standards, “The objective of class 2 waters is to protect their use for recreational purposes, the support and propagation of aquatic life, agricultural and industrial water supplies, shipping, and navigation” (HAR Section 11-54-03(b)(2)). Discharges into “2” Inland State waters qualifies for coverage under National Pollutant Discharge Elimination System (NPDES) General Permit which calls for the application of permanent and construction Best Management Practices (BMPs). For the proposed drainage improvements, disposal of construction dewater effluent and water line hydrotesting require coverage by NPDES General Permit.

Due to the low elevations along Date and Palani Avenue, groundwater is expected to be encountered during construction excavation. To install the proposed drainage improvements, trenches would need to be properly dewatered. Discharging of the dewatering effluent into state waters requires a Notice of Intent Form G (NOIG) – Construction Activity Dewatering Effluent, to be covered by NPDES General Permit. The NOIG will include a dewatering plan, dewatering system maintenance plan, field sampling and laboratory data on the dewatering effluent for water quality and toxicity. The contractor will be required to treat the dewatering effluent using appropriate BMP methods, such as sedimentation, chemical pretreatment, and filtration prior to discharge. Discharge pollution controls will be monitored and maintained by the contractor on a routine basis and after each significant rain event.

Water line relocation will require hydrotesting in accordance with the Board of Water Supply (BWS) specifications. To dispose of the test effluent into State Waters, a Notice of Intent Form F (NOIF) – Hydrotesting Waters, to be covered by NPDES General Permit is required. The NOIF will include field sampling and laboratory data on the hydrotesting effluent for water quality and toxicity. In addition a BMP plan will be initiated to: (1) prevent the introduction of pollutants to the effluent; and (2) prevent pollutant in the effluent from entering the State Waters. The BMP methods would be similar to NOIG.

In addition to the Inland “2” classification, Ala Wai Canal is currently included on the Clean Water Act Section 303(d) list of impaired waters by State DOH. Total Maximum Daily Loads (TDML) has been developed for Ala Wai Canal for nutrients. Because of the TDML represents the maximum amount of pollutants that a water body can receive and still meet water quality

standards, the City and County of Honolulu is limited to the amount of nutrient waste load allocations it can discharge into the Ala Wai Canal. Since no additional runoff will be introduced to the Ala Wai Canal, no new impairments will be added.

Construction activities are likely to result in runoff from the project site which may include soils from trenching, asphalt, fuel, and silt. BMPs such as installing sediment barriers at storm drain inlets, keeping the construction site as clean as possible, complying with conditions of the project's NPDES permit, and offsite fueling of construction equipment/vehicles will be applied to ensure that runoff from construction does not reach the Ala Wai Canal. Implementation of construction BMPs would minimize potentially adverse impacts to surface water quality.

Because construction activities are required on or near sewer lines, the contractor would be required to minimize spillage of sewage onto the streets to minimize potential groundwater contamination. Applying appropriate BMP, such as installing sediment barriers at storm drain inlets, will be implemented during construction. BMPs for consideration include dewatering effluent contaminated with sewage to be discharged to the sewer system. Impacts will also be mitigated by complying with the conditions of the project NPDES permits. Application of the BMPs discussed above would minimize potentially adverse impacts to groundwater quality.

The project will not be subject to the Department of Army Section 10 of the Rivers and Harbors Act or Section 404 of the Clean Water Act permits for activities in waterways, since all proposed construction activities will be outside the limits of applicability.

The impact on Ala Wai Canal is expected to be minimal and short-term and will not impact recreational activities for the following reasons: (1) The construction plans will be reviewed by pertinent government agencies for comments and approval prior to construction; (2) Construction activities will require coverage under the NPDES Permit system for disposal of dewatering and hydrotesting effluent; and (3) BMP measures will be applied to prevent pollutants from entering water bodies,

3.5 AIR QUALITY

Air quality can be impacted by traffic volumes and temporary construction-related impacts. Since post-construction traffic volumes will remain essentially identical to current levels, no significant long-term effects are anticipated.

With respect to construction-related impacts, licensed contractors are required to maintain construction equipment in proper working order to ensure no violations and are subject to enforcement actions if found in non-compliance. Activities associated with the construction phase of the project will comply with Chapter 60 of Title 11, HAR, Air Pollution Control.

3.6 NOISE

Noise levels in the developed residential area are anticipated to be identical prior to and after project implementation. Noise related to construction activities are primarily controlled by hours of operation. All construction will be limited to daytime hours and the contractor would be required to obtain a Community Noise Permit from the DOH. Activities associated with the construction phase of the project will comply with Chapter 46 of Title 11, HAR, Community Noise Control.

3.7 FLORA & FAUNA

A biological survey of the proposed project site was conducted on May 26, 2011, by AECOS, Inc (refer to Appendix A). The area investigated included portions of the residential neighborhood along Date Street, Palani and Kamuela Avenue. As expected in an established residential area, vegetation consisted primarily of weeds and ornamental plants. The following summarizes the findings of the survey (AECOS, 2011):

- “No streams, relatively permanent or nonrelatively permanent waterways, or wetlands occur in the project area.”
- “No botanical resources of concern are located in the project area. Native plants are all but absent here and there are no plant species present that would be of particular concern from a regulatory standpoint. No exceptional trees as defined by Revised Ordinances of Honolulu, Chapter 41, Article 13 occur in the area (C&C, 2010).”
- “Although a survey to develop a faunal listing for the project area was not undertaken, no animals of particular concern were encountered by the biologist on May 26. No habitats other than those supporting common lowland birds and introduced wild, feral, and domesticated mammals are present. Although no federally listed (threatened or endangered) species (USFWS, 2005a,b, 2011) were encountered during the survey, and none is anticipated to utilize habitats in the project area, White tern or *Manu-o-Ku* (*Gygis alba rothschildi*) could utilize trees in the project area. Although not an ESA listed species, the Manu-o-Ku is protected under the federal Migratory Bird Treaty Act (MBTA) and listed as threatened by the State of Hawai‘i (DLNR, 1997). The *Manu-o-Ku* is a tree nesting species that lays its eggs on bare branches without building a typical nest. Since this bird is known to nest in Honolulu (in particular, in large street and grounds trees between Waikiki and the Capitol District (Vanderwerf, 2003), if trimming or removal of large trees is anticipated for the project, an inspection for nesting by *Gygis alba* must precede the tree cutting and any active nesting by *G. alba* left undisturbed until the fledglings have moved on their own out of the area.”

The project as proposed is not anticipated to involve any tree trimming or removal. The contractor will be made aware of the possibility of *Manu-o-Ku* nesting within trees in the area and that an inspection for nesting will be required prior to any work on existing trees.

3.8 ARCHAEOLOGICAL FEATURES

The DLNR State Historic Preservation Division (SHPD) approved archaeological monitoring plan has been prepared by Archaeological Consultants of the Pacific (ACP) for the proposed drainage improvement project (Refer to Appendix B). Although there are no past archaeological studies within the project area, ACP researched past studies of the surrounding area in the Waikiki Ahupuaa. These studies reported that the Waikiki Ahupuaa had a large population of Native Hawaiians supported by taro fields and fish ponds that resulted in the presence of pre-contact Hawaiian and historic-era deposits. ACP concluded that while the urbanization of Waikiki may have eliminated the presence of pre-contact Hawaiian surface features there is a possibility of historic-era deposits buried beneath modern fills. ACP also identified that the project area contains a small amount of Jaucas sands which from past experience, may contain pre-contact burial sites. The following are components of the monitoring plan (ACP, March 2011):

1. The monitoring archaeologist will conduct a pre-construction meeting with the construction crew to brief the team on the expected finds and plans for monitoring.
2. In the event that a significant historic site is encountered, the monitoring archeologist shall have the authority to stop construction in the immediate vicinity of the find until proper authorities have been notified and/or proper mitigation measures are undertaken. Construction activities may shift to other areas that are not impacted by the find.
3. During construction, the archaeological field monitor will visually inspect all excavations and rake through excavated materials in order to identify any possible cultural materials. Profiles of the stratigraphy encountered and soil samples from each strata identified will be taken.
4. If traditionally manufactured artifacts are recovered, they will be collected, bagged and labeled with the appropriate excavation information. If artifacts of traditional manufacture are collected, the provenience of the find will be documented.
5. In the event that deposits are encountered containing significant amounts of midden and artifactual materials, ground disturbing activities will cease at that location and archaeological salvage excavations will be conducted. These excavations will be limited to a single 1 m by 1 m test unit at any individual deposit containing significant cultural materials.
6. Laboratory work will include, but not be limited, to identification of vertebrate faunal remains, invertebrate faunal remains, culturally derived remains and artifacts. All analyses will be conducted according to standard scientific and archaeological methods and recorded on standardized analysis forms.
7. In the event that human burials are encountered during archaeological monitoring, the proper personnel at the DLNR SHPD and the State Burials Program will be notified and their recommendations implemented. Upon the positive identification of human remains, no screening of back dirt piles or other invasive procedures will be conducted.
8. A complete Archaeological Monitoring Report will be prepared following the completion of a subsurface construction activities documenting all finds encountered during archaeological monitoring.

3.9 CULTURAL RESOURCES

A cultural impact assessment was conducted by ACP in order to identify and assess the potential effects of the proposed drainage improvements on cultural practices and features of that site (refer to Appendix C for assessment). The current assessment took the form of a historic background study, consultations with the DLNR SHPD and the community. The historic background research revealed that sites of historic preservation possibly lay sub-surface on the subject property. Consultations with members of the local community did not bring to light significant objections to the proposed drainage improvements but did bring up the possibility of human remains in the area.

3.10 PUBLIC FACILITIES AND SERVICES

This section discusses the projects probable impacts on infrastructure facilities serving the project site and surrounding areas. Most of the impacts will be associated with short-term construction-related activities.

Except for utility relocation described in this section, existing utilities will remain in service and in place. Any utilities encountered during construction activities will not be disturbed or damaged unless otherwise instructed in the plans and specifications. Existing surface and subsurface utilities and poles within and abutting the project site will be protected at all times. The City and the affected utility company shall be notified immediately of any damaged or disturbed utility. If relocation of existing utilities is required for the contractor's convenience, interruption of service shall be kept to a minimum. All relocation will follow applicable Federal, State, County and Utility agency standards, rules, and regulations.

3.10.1 ROADWAY

Palani Avenue is a 60-foot right-of-way County owned street with a 28-foot wide pavement width serving residential, apartment, and businesses. Palani Avenue runs mauka to makai with two lanes of traffic (one in each direction), curb, sidewalk and parking on both sides of the street. Date Street is an 80-foot right-of-way County owned street with a 40-foot wide pavement width located mauka of the Ala Wai Golf Course. Date Street runs Ewa to Diamond Head with four lanes of traffic (two in each direction). Closer to the intersection with Kapahulu Avenue, the pavement width of Date Street widens to allow for a median island and an extra right turn lane onto Kapahulu Avenue.

Construction-related activities for the proposed drainage improvements will disrupt pedestrian and vehicular traffic in and around the project area. Trenching activities, installation of drain line/structures and movement of construction equipment in the roadway could block traffic lanes, interfere with pedestrians and restrict on-street parking. Therefore, construction work within the roadway will occur during non-peak traffic hours (8:30 am to 3:30 pm) on weekdays. The contractor will be required to publish a public notice in the newspaper one week prior to construction and coordinate with residents and property owners in the vicinity of the project site at least two weeks prior to the start of construction. The Oahu Transit Services, TheBus, The Handi-Van, Police and the Fire Department will also be notified of any construction activities that could affect their respective services at least two weeks prior to the start of construction.

Traffic control plans will be developed by a registered civil engineer, conform to the latest State and City rules and follow the current Federal Highways Manual of Uniform Traffic Control Devices. The traffic control plan will be submitted to the Department of Planning and Permitting, Traffic Review Branch for review and approval. Access to all affected residences will be maintained throughout the duration of the proposed drainage improvements construction. In addition, the Contractor will be required to obtain a street usage permit prior to temporary closure of any area street. Provisions for pedestrian traffic will be provided to allow safe continuous passage around any closed walkways. During non-working hours all open trenches will be covered with a safe non-skid bridging material and all lanes will be open to the public. After completion of the project the affected areas along Date Street and Palani Avenue will be restored to original condition, including pavements, driveways, curbs, sidewalks, gutters, landscaping, signage, pavement markings, etc.

Construction of the drainage improvements on Date Street and Palani Avenue will have short-term impacts to vehicular and pedestrian traffic due construction related activities. Completion of the proposed drainage improvements action is not expected to generate an impact on traffic.

3.10.2 WATER SYSTEMS

The water system within the project site is maintained by the Board of Water Supply (BWS). Palani Avenue is served by an 8-inch water line constructed in the late 80's while Date Street is served by a 12-inch water line constructed in the late 30's and a 30-inch transmission line constructed in the early 50's. The project site also includes various valves, manholes, laterals, meters, and fire hydrants.

In order to construct the proposed drainage improvements, portions of the 30-inch water main on Date Street and the 12-inch and 8-inch water main at the Date-Palani Intersection will be relocated. To minimize interruption of water service to the surrounding area the existing water lines will be bypassed rather than removed and replaced. After the bypass is connected to the live main, the existing line will be abandoned or removed. Fire hydrants and water laterals may also need to be relocated. Design, construction, and testing of the new water improvements will follow the BWS Water System Standards and NPDES General Permit for hydrotesting and dewatering (Refer to Section 3.4 – Water Quality).

The proposed drainage improvements may have a short-term interruption of the water service to the residences along Palani Avenue and Date Street. Construction schedule will be coordinated with BWS and the residents to minimize the impact. All water line construction requiring shutdown will occur during normal working hours with a maximum downtime of 6-hours. After the drainage improvements are completed, long-term impacts to the water system are not expected.

3.10.3 WASTEWATER COLLECTION SYSTEMS

The project area's sewer is served by an existing 8-inch and 12-inch sewer constructed in the early 50's as part of the Kapahulu Sewerage District Section 2. The 12-inch sewer serving the residents along Palani Avenue is located in a 10-foot wide alley behind the property and will not be affected by the proposed drainage improvements. The residents along Date Street are served by the existing 8-inch sewer line installed in the Ewa Bound lanes. A sewer lateral from the existing 8-inch sewer that serves 614 Kapahulu Avenue (Old Hawaiian Dredging Building) will be concrete jacketed. All sewer work will follow the City Standard Specification and Details. The proposed drainage improvements will not require additional sewer service nor is it expected to require relocation of existing sewers and sewer manholes.

3.10.4 DRAINAGE SYSTEMS

The existing drainage systems in the project area are the Date-Palani Box Culvert, Date/Kapahulu Drainage System and the Kapahulu Box Culvert (Refer to Figure 1).

The Date-Palani Box Culvert was designed in 1937. The upstream end of the box culvert begins near the intersection of Kapahulu and Harding Avenue. The box culvert continues down Kapahulu Avenue, Palani Avenue, and Date Street next to the Ala Wai Golf Course. The box culvert eventually discharges into an open ditch that empties into the Manoa-Palolo Drainage Canal. The proposed drainage improvements will divert some of the storm water from this system thus there will not be any short or long-term impacts.

The existing Kapahulu/Date Street Drain was designed in 1971 as part of the Kapahulu GNRP. The drain begins in the Ala Wai Golf Course, continues along Kapahulu Avenue and ends on

Date Street near 614 Kapahulu Avenue (the old Hawaiian Dredging building). As mentioned in Section 2.4 – Proposed Action, the existing Kapahulu/Date was originally designed to accept flows from Palani Avenue. The purpose of this project is to complete the Kapahulu/Date Street drain as designed in the Kapahulu GNRP (minus the addition of the Kamuela Street Drain). The only long-term impact is considered to be related to the benefits of the project which will reduce flooding in the vicinity of Palani Avenue.

The existing Kapahulu Box Culvert was designed in 1971 as part of the Kapahulu GNRP. The box culvert begins in Ala Wai Golf Course, extends along Kapahulu and ends near Williams Street. The proposed drainage improvements will not touch this drainage system thus there will not be any short or long-term impacts.

3.10.5 ELECTRIC/CABLE UTILITIES

Electrical and telecommunications utilities in the area are served by Hawaiian Electric Company (HECO), Hawaiian Telcom (HTCO), Oceanic Time Warner Cable, and the US Army. Per consultation with HTCO and Oceanic during the preliminary engineering stage, the project areas telephone and cable are currently served by aerial facilities which should not be affected by construction activities. U.S. Army 30th Signal Battalion maintains underground Joint Trucking System (JTS) ducts and manholes along Date Street. The JTS ducts should not be affected by the proposed drainage improvements since the proposed pipes would be installed below the JTS ducts. Proper support and protection will be provided to the JTS ducts while working in the same trench.

Electricity in the area is served by aerial and underground facilities. Per conversations with HECO, there may be a possible conflict with secondary lines serving 721 Palani Avenue. The secondary line originates from overhead line on pole 3 (fronting 718 Palani Avenue) then crosses Palani Avenue underground to 721 Palani Ave. The secondary line may conflict with the proposed drainage system and will need to be relocated. Relocation will follow all applicable HECO standards and construction plans will be submitted for review and approval.

Construction around overhead lines will follow all applicable HECO, State and Federal Occupational Safety and Health Laws. If the construction should encroach within the radial clearance to the overhead lines, HECO will be notified and necessary precaution such as de-energizing the aerial line might be necessary. Since trenching operation will come within 10-feet of existing poles, adequate support (approved by HECO) must be provided to the poles. Since all applicable HECO, State, and Federal laws will be followed, no long-term impacts are expected.

3.10.6 GAS UTILITIES

The Gas Company maintains gas lines of various sizes along Date and Palani Avenue. During construction some gas lines will be exposed during trenching activities and may conflict with the proposed improvements. The contractor will obtain written clearance prior to excavation and coordinate any necessary relocation with The Gas Company. All excavation and backfill around gas lines will be in presence of a The Gas Company representative and follow their standards. Adequate support and protection to gas line exposed in the trench will be approved by The Gas Company. No long-term impacts on the gas utilities are expected.

3.11 CONSTRUCTION ACTIVITIES

During construction, normal requirements for mitigation of construction impacts will be utilized. These requirements include traffic control, compliance with best management practices (BMP),

compliance with hours prescribed for construction to minimize noise impacts, and compliance with businesses and their normal hours of operation through direct contact. All BMPs are to be in place prior to the commencement of any construction activities. Proposed BMPs are as follows:

- (1) All loose material and small tools and equipment will be removed from the construction site after each work day is completed.
- (2) City-approved area(s) to store or stockpile construction related materials and equipment will be designated prior to the start of construction.
- (3) Removed vegetation, debris and unsuitable excavated materials will be properly disposed at a site approved by the City.
- (4) All hazardous or toxic waste will be disposed of in the manner specified by federal, state or local regulations or the manufacturer.
- (5) All sanitary waste from portables will be collected and disposed of properly.
- (6) All solid waste from the site will be stored in a securely lidded dumpster within or adjacent to the project site. The dumpster will be emptied as needed at least on a daily basis, and the trash will be hauled to a City-approved site.
- (7) Any debris and other deleterious material will be contained and prevented from entering State waters.
- (8) Materials to be placed in State waters will be free of waste metal products, organic materials, objectionable debris and any other pollutants at concentrations toxic or potentially hazardous to aquatic life.
- (9) Sediment control filters shall be installed on catch basins in and around the site.
- (10) Visual monitoring will be performed by the contractor on a daily basis or following any storm event of 0.5-inch or greater. The contractor will inspect all control measures to ensure that they are maintained in good working condition. Necessary repairs will be initiated by the contractor within 24 hours of notification or observation.
- (11) Rocks, soil or debris will not be allowed to fall, slide or flow onto adjoining properties.
- (12) Graded areas and exposed surfaces will be kept well watered whenever feasible. At the end of each work day, the project site will be sufficiently dampened so as to remain moist overnight.
- (13) To the extent possible, construction will be done during dry weather so that there is low or no construction-related runoff. The contractor will be required to temporarily suspend work during periods of heavy rain. All erosion control measures will be inspected following any storm event of 0.5-inch or greater.
- (14) Equipment shall be inspected daily to ensure that oil leaks do not occur. Equipment shall be stored away from the ditch or stream bed. Fueling and lubricating of equipment and motor vehicles will be conducted away from the stream bed and in a manner to

protect against spills and evaporation. Lubricants and excess oils will be disposed of in accordance with applicable federal, state and local regulations.

- (15) Any existing improvements in the project site, and in adjacent areas, that are not to be removed, shall be preserved and protected. Any and all damages resulting from construction activities shall be restored to its original, or better, condition.
- (16) The roadway (including sidewalk and gutters) shall be cleaned on a daily basis to be free of debris and sediment resulting from the grading operations (flushing into the catch basins are prohibited).
- (17) All other requirements per NPDES General Permit for dewatering and hydrotesting effluent.

In addition, except for downtime related to electrical and water relocation, utility services should not be disrupted during construction activities. The contractor will be required to verify locations, protect utilities during construction and ensure no additional interruption of services on all utilities in the vicinity of the project site during construction. Access to fire apparatus will be maintained throughout the construction site and any interruption to the existing fire hydrant system during construction will be reported to the Fire Communication Center (phone 523-4411) by the contractor.

3.12 ECONOMIC AND SOCIAL FACTORS

The cost of the proposed drainage improvements is estimated at \$1,700,000 and will be funded by the City and County of Honolulu. The proposed drainage improvements are expected to be constructed within a one-year period commencing mid to late 2012. The proposed drainage improvements will help convey runoff from Palani Avenue which in turn will reduce the amount of runoff on the roadways, property damage, and inconvenience to residence that are currently being flooded during major storms. The proposed drainage improvements will also create construction jobs for contractors and their employees, material suppliers, and others during the anticipated construction period.

Short-term socio-economic impacts due to the proposed drainage improvements include: inconveniences to residents, reduction of customers at neighboring business, interruption of pedestrian and vehicular traffic, restriction of on-street parking, and utility disruptions. Residents and businesses to be affected by construction activities will be notified by the City or by the contractor prior to the commencement of construction and any utility down time. Mitigation measures include scheduling construction activities during day time non-peak traffic hours, locate and securing construction equipment located within the project area to not interfere with nighttime residential and business activities, and providing traffic control procedures throughout the project area to minimize traffic disruptions. Overall, impacts that may occur to residents and surrounding businesses are short-term and related to construction activities.

Since the project area is fully developed, the proposed drainage improvements are not expected to change the existing land uses or have a significant impact on the urbanized land uses. No existing commercial or residential activity will be directly displaced by the proposed project. The proposed drainage improvements will not result in new residential units or visitor units or generate any new residents to the island of Oahu. As a result, there should be no impact on the existing resident population.

Chapter 4 – ALTERNATIVES CONSIDERED

4.1 PROPOSED ACTION

The proposed action involves extending the existing underground Kapahulu/Date Street drainage system to Palani Avenue as recommended in Gray Hong Nojima's July 20 2010 Preliminary engineering report and discussed in Section 2.4 – Proposed Action, and Figures 2 and 3. The purpose of the proposed action is to reduce flooding and prevent backflow on Palani Avenue by diverting runoff from the inadequate Date-Palani box culvert which discharges into the Manoa-Palolo Drainage Canal, into a drainage system that discharges into the Ala Wai Canal.

4.2 DRAINAGE IMPROVEMENT ALTERNATIVES

During the preliminary engineering report stage of this project, Gray Hong Nojima and Associates prepared the report entitled "Schematic Drainage Alternatives for the Palani Avenue Drainage Improvements" to investigate different alternatives. Each alternative (besides Alternative 1 – No Action) proposed to divert storm water from the existing Date-Palani box which discharges in the Manoa-Palolo Drainage Canal, into the Ala Wai Canal using an existing unfinished drainage system designed during the Kapahulu GNRP. The other alternatives included:

1. Alternative 1 – No Action
2. Alternative 2 – Extend the Existing Kapahulu Box Culvert
3. Alternative 3 – Extend the Existing Kapahulu/Date Street Drain to Palani and Kamuela Avenue
4. Alternative 4 – Extend the Existing Kapahulu/Date Street Drain to Palani Avenue without Lowering the Existing 30-inch Water Line

4.2.1 ALTERNATIVE 1 – NO ACTION

This alternative has no environmental impacts but runoff from Palani Avenue would be serviced by the undersized existing Date-Palani Box Culvert and discharged into the Manoa-Palolo Drainage Canal which is known to have high flood water surface elevations. During heavy storms, the Date-Palani Box Culvert would not be able to adequately convey runoff and will backflow out of the drainage system and overflow into private residences. The backflow could carry health hazards such as garbage, pollutants, and dead fish and is not an acceptable course of action.

4.2.2 ALTERNATIVE 2 – EXTEND THE EXISTING KAPAHULU BOX CULVERT

The existing Kapahulu Box Culvert was designed in 1971 as part of the Kapahulu GNRP and serves most of the area between 6th, Campbell and Monsarrat Avenue in Kapahulu. The box culvert begins in Ala Wai Golf Course, extends along Kapahulu Avenue and ends near Williams Street. According to the June 1971 Chung Dho Ahn's Drainage Report, the box culvert was originally designed to be extended further up Kapahulu Avenue and serve most of the area below Interstate H-1 Freeway. This alternative explored extending the Kapahulu Box Culvert mauka, from Williams Street, and intercepting the existing 3-foot by 4-foot Date-Palani box culvert (see Figures 6 and 7). This alternative was not chosen due to excessive cost, inconvenience to the neighborhood and negative effects to the existing system.

This alternative would involve installing 750-linear feet of 6-foot by 6-foot box culvert in Kapahulu Avenue. Extending the Kapahulu Box Culvert is cost prohibitive and trenching activities would cause major inconvenience and disruptions to the Kapahulu neighborhood. Kapahulu Avenue is the main road through the Kapahulu Neighborhood and is a major route to Waikiki. Construction activities would cause traffic problems such as lane closures and detours. Surrounding businesses would be affected by traffic, limited access to their businesses and restriction of on-street parking. Extending the box culvert would require the following utility relocation:

- Existing drain line branches along Kapahulu Avenue would need to be reconstructed in order to connect with the proposed box culvert.
- The existing 8-inch water lines on Kapahulu near Palani Avenue and Kamuela Avenue would need to be lowered 8 to 9-feet to avoid the proposed box culvert.
- The existing 12-inch sewer line on Palani Avenue and 8-inch sewer line on Kamuela Avenue would conflict with the proposed box culvert and would require that the existing downstream sewer system between Kapahulu Avenue and Date Street would be reconstructed.
- Potential underground electrical, telephone and cable infrastructure relocations.

Intercepting the Date-Palani box culvert would increase the tributary drainage areas by 88.60 acres with a corresponding increase of storm runoff of 265.80 cfs to the Kapahulu Box Culvert existing system. This increased flow through the Kapahulu box culvert would have profound impacts to the downstream systems and be further compounded due to the changes in the City Drainage Standards.

4.2.3 ALTERNATIVE 3 – EXTEND THE EXISTING KAPAHULU/DATE STREET DRAIN TO PALANI AND KAMUELA AVENUE

Alternative 3 is similar to the proposed action but includes connecting the existing Kamuela Avenue Drain to the Kapahulu/Date Street Drain (see Figures 8 and 9). Kamuela Avenue is located Diamond Head of Palani Avenue between Kapahulu Avenue and Date Street. Although the existing Kamuela Avenue drain is connected to the existing Date-Palani Box Culvert, no flooding complaints have been reported. This might be due to the higher elevations along Kamuela Avenue as compared to Palani Avenue. This alternative would require the following construction activities in addition to the proposed alternative:

- Requires additional drainage structures and larger drain sizes than the proposed alternative to accommodate the increase in runoff from Kamuela Avenue.
- The existing Date Street 12-inch water line and Kamuela Ave 8-inch water line would need to be lowered 3.5 to 4-feet to accommodate the proposed drain line.
- Several existing drainage structures and 117-linear feet of existing drain line will need to be reconstructed.

This alternative was not selected since the addition of the Kamuela Avenue drain to the Kapahulu/Date Street drain system would increase the flow and have a detrimental effect on the proposed catch basins on Palani Avenue.

4.2.4 ALTERNATIVE 4 – EXTEND THE EXISTING KAPAHULU/DATE STREET DRAIN WITHOUT LOWERING THE EXISTING 30-INCH WATER LINE.

The proposed improvements consist of extending the Kapahulu/Date Street drain to Palani Ave, similar to the proposed action, but cross over the existing 30-inch water line in its current location, rather than relocate the existing 30-inch water line under the proposed drain line (Refer to Figures 10 and 11). Leaving the existing 30-inch water line in place avoids any disruption in water service. However this alternative will not provide sufficient pipe cover over the proposed drain line leaving the proposed drain line within the pavement structure and subject to direct traffic loads. In addition the insufficient pipe depth will preclude the connection of an additional catch basin on Palani Avenue. The additional catch basin would intercept runoff from Kapahulu Avenue and lessen the concentration of runoff in the depressed low point on Palani Avenue.

Chapter 5 – RELATIONSHIP TO LAND USE POLICIES AND CONTROLS

5.1 STATE LAND USE PLAN

The purpose of the State Land Use Plan is to establish a state-wide zoning law where all land in the State is classified into four districts (urban, rural, agricultural and preservation). The plan was enacted to prevent haphazard development which will be detrimental to the States long-term growth and income potential. According to the State of Hawaii – Land Use Commission maps, the proposed drainage improvements lie within an Urban State Land Use District. According to the Land Use Commission Website, an urban district “generally includes lands characterized by “city-like” concentrations of people, structures and services.” Jurisdiction of this district lies primarily with the respective counties, therefore, the proposed drainage improvements and the surrounding apartment and business areas are regulated by City and County of Honolulu ordinances and regulations.

5.2 HAWAII STATE PLAN

The purpose of the Hawaii State Plan, Chapter 226 HRS (2007), is to serve as a guide for the future long-range development of the State. The Plan consists of objectives, and policies for the State to provide a basis for determining priorities and allocating limited resources. The Plan establishes a State-wide planning system to coordinate and guide all major state and county activities. The State Plan promotes the growth and diversification of the State's economy, the protection of the physical environment, the provision of public facilities, and the promotion of and assistance to socio-cultural advancement. The proposed drainage improvements are consistent with Section 226-13(b)(5) – Reduce the threat to life and property from erosion, flooding, tsunamis, hurricanes, earthquakes, volcanic eruptions, and other natural or man-induced hazards and disasters.

5.3 CITY AND COUNTY OF HONOLULU ZONING

The proposed drainage improvements are located in Apartment–Medium Density (A-2) and Business–Community (B-2) zoned land based on the City and County of Honolulu Land Use Ordinance (Chapter 21 of the Revised Ordinances of Honolulu). The purpose of the Land Use Ordinance is to provide development and design standards to preserve natural/historic/scenic resources, protect public health and safety, and promote development in accordance with adopted land use polices. According to the Land Use Ordinance, A-2 and B-2 are defined as follows (City and County of Honolulu, 2008):

- “The intent of the A-2 medium density apartment district is to provide areas for medium density, multifamily dwellings. It is intended primarily for concentrated urban areas where public services are centrally located and infrastructure capacities are adequate.”
- “The intent of the B-2 community business district is to provide areas for community-wide business establishments, serving several neighborhoods and offering a wider range of uses than is permitted in the B-1 district. The intent is to apply this district to areas conveniently accessible by vehicular and pedestrian modes and served by adequate public facilities. Typically, this district would be applied to lots along major streets and in centrally located areas in urban and urban fringe areas.”

The City Land Use Ordinance permits the use of these zoned lands for public facilities such as drainage systems. The proposed action will be in compliance with the policies and objectives of the City Zoning Districts regulations.

5.4 CITY AND COUNTY OF HONOLULU GENERAL PLAN

Oahu's *General Plan* establishes policies and objectives of a comprehensive planning process addressing physical, social, economic and environmental concerns for future growth of Honolulu's metropolitan area (Department of Planning and Permitting, 2002). The proposed drainage improvements are consistent with the following objectives and policies:

- Natural Environment Objective A, Policy 6 – Design surface drainage and flood control in a manner which will help preserve their natural setting.
- Transportation and Utilities Objective C, Policy 2 – Provide improvements to utilities in existing neighborhoods to reduce substandard conditions.
- Transportation and Utilities Objective D, Policy 1 – Give primary emphasis in the capital-improvement program to the maintenance and improvement of existing roads and utilities.
- Physical Development and Urban Design Objective F, Policy 3 – Provide and maintain roads, public facilities, and utilities without damaging the character of older communities.

5.5 CITY AND COUNTY OF HONOLULU PRIMARY URBAN CENTER DEVELOPMENT PLAN

The Primary Urban Center Development Plan (PUCDP) development plan establishes policies to shape the growth and development of the primary urban center of Oahu (encompassing the area from Pearl City in the west and Waiialae-Kahala in the east). The PUCDP recognizes that while the secondary urban center in Ewa will have the greatest growth, the role of the primary urban center will continue to be a central focus as home to almost half of Oahu's population and three-fourths of its jobs. Thus, the focus of planning goals for this mature urban center will be to "enhance its livability and accommodating a moderate amount of growth" (City and County of Honolulu, 2004). The proposed drainage improvements recognize the following sections of PUCDP:

- Section 3.3.1.2: The PUCDP acknowledges that infrastructure deficiencies occur most frequently within the older, in-town neighborhoods.
- Section 3.3.2: Expand the capacity of infrastructure, including water supply, sewers, and storm drains. Government needs to lead both planning and investment in renewing and expanding infrastructure.

5.6 CITY AND COUNTY OF HONOLULU PUBLIC INFRASTRUCTURE MAP

Provisions of the Public Infrastructure Map (PIM) are set forth in Chapter 4 Article 8 of the Revised Ordinances of Honolulu. PIM shows major infrastructure projects that have a significant impact on surrounding land uses or environment, establishes a new facility, changes the function of an existing facility, or modifies an existing facility which would permit significant new development or redevelopment. There is no "symbol" for drainage improvements along Palani Avenue shown on the PIM for the Primary Urban Center (October 13, 2004).

Furthermore, since the PIM is limited to identifying only major open drainage channels, the PIM will not need to be revised for the proposed drainage improvements.

5.7 CITY AND COUNTY OF HONOLULU SPECIAL DISTRICTS

Certain areas of Oahu are designated Special Districts to protect and/or enhance the physical and visual characteristic for the benefit of the community by guiding development in the area through permits. According to the City and County of Honolulu Land Use Ordinance, a portion of the project site lies within the Diamond Head Special District (Date Street between Manoa-Palolo Drainage Canal and Kapahulu Avenue). Since the proposed drainage improvements consists of below grade infrastructure installation and streetscape improvements (paving, curb ramps), a special district permit is not required

5.8 OTHER REGULATORY DISTRICTS

The purpose of a Flood Hazard Districts is to regulate development in flood/tsunami prone areas to reduce property damage, loss of life, health/safety hazards and cost related to flood control and damage. As mentioned in Section 3.3 – Flood and Tsunami Hazard, the proposed drainage improvements are in an area designated as Zone X. Flood Zone X is not considered to be in the a Flood Hazard Districts thus the proposed drainage improvements are not subject to regulatory procedures and permit requirements described in the Land Use Ordinance.

To preserve and protect the costal zones of Hawaii by controlling development within an area along the shoreline, the City and County of Honolulu created Special Management Areas (SMA). Since the proposed drainage improvements are not located within a SMA, this project is not subject to regulatory procedures and permit requirements described in Chapter 25 of the Revised Ordinances of Honolulu.

Chapter 6 – POTENTIAL PERMITS AND APPROVALS

6.1 CITY AND COUNTY OF HONOLULU

Permit to Excavate Public Right-of-Way (Trenching)
Street Usage Permit

Dept. of Planning and Permitting
Dept. of Transportation Services

6.2 STATE OF HAWAII

Community Noise Control Permit
NPDES Permit (Dewatering, Hydrotesting)

Dept. of Health
Dept. of Health

6.3 FEDERAL

Federal permits are not anticipated for the proposed drainage improvements.

Chapter 7 – COMPLIANCE WITH CHAPTER 343, HAWAII REVISED STATUTES

7.1 ANTICIPATED DETERMINATION

The proposed drainage improvements will have no potential significant short-term, long-term, or cumulative adverse impacts on the environment, and therefore the preparation and processing of an Environmental Impact Statement is not required. Based on the information and analysis presented in this document, a Finding of No Significant Impact (FONSI) is anticipated for the proposed drainage improvements.

7.2 FINDINGS AND REASONS SUPPORTING THE ANTICIPATED DETERMINATION

The FONSI was based on evaluating the proposed drainage improvements with Section 11-200-12 HAR, which states, “In determining whether an action may have a significant effect on the environment, the agency shall consider every phase of a proposed action, the expected consequences, both primary and secondary, and the cumulative as well as the short-term and long-term effects of the action. In most instances, an action shall be determined to have a significant effect on the environment if it.....” meets any of the following criteria:

1. The project involves an irrevocable commitment to loss or destruction of any natural or cultural resource.

The proposed drainage improvements would not involve irrevocable commitment to loss or destruction of any natural or cultural resource. The project site lies within an existing City road and surrounding area has been subject to substantial construction and development. The proposed drainage improvements call for modification and extension of existing man-made infrastructure with no disturbance of lands which were previously undisturbed. Biological surveys (Section 3.7–Flora and Fauna) found no Federally-listed or State-listed endangered, threatened or candidate species within the project site. No significant historical, archaeological, or cultural resources are anticipated to occur within the project site, but a State approved archaeological monitoring plan (Section 3.8–Archeological Features), will be enacted since there is always a possibility of subsurface historic deposits.

2. The project curtails the range of beneficial uses of the environment.

The proposed drainage improvements do not curtail the range of beneficial uses of the environment. The project would have long-term favorable effects by reducing flooding and preventing backflow of storm water that could pose as health hazards that would adversely affect the environment and public safety. Therefore the proposed drainage improvements would contribute to increased environmental quality.

3. The project conflicts with the state's long-term environmental policies or goals and guidelines as expressed in chapter 344, HRS, and any revisions thereof and amendments thereto, court decisions, or executive orders.

The proposed drainage improvements will not conflict with the State’s long-term environmental policies or goals and guidelines as expressed in Chapter 344, HRS, and any revisions thereof and amendments thereto, court decisions, or executive orders. The purpose of Chapter 344 HRS is to establish a state environmental policy that will conserve natural resources and enhance the quality of life.

The project will conserve the natural and cultural resources in the area and enhancing the long-term quality of life for residents adjacent and surrounding the project area by reducing flooding and preventing runoff backflow of environmental hazards from the existing drainage system.

4. The project substantially affects the economic welfare, social welfare, and cultural practices of the community or State.

The proposed drainage improvements would not substantially affect the economic or social welfare of the community or the State. There may be some short-term positive and negative economic and social impacts as related to construction. Short-term negative impacts include traffic congestion, blockage of street frontage, reduction of on-street parking and noise, etc which would be minimized by the appropriate mitigation measures. Short-term positive impacts include hiring of construction workers and the purchasing of materials.

In the long-term, the project would have positive economic effects through protection of private property and safety of residents, motorists and pedestrians along Palani Avenue. The proposed drainage improvements are limited to the Date Street, Palani Avenue and adjacent properties. As a result, there will be no negative impact or change to the overall character of the community or the State.

5. The project substantially affects public health.

Public health would not be adversely affected by the proposed drainage improvements. The proposed drainage improvements would provide positive, long-term public health benefits to residents and businesses by implementing measures that would reduce hazards such as flooding and runoff backflow.

6. The project involves substantial secondary impacts, such as population changes or effects on public facilities.

The proposed drainage improvements would not result in a population increase, generate additional vehicle traffic, or affect demand for public facilities or utilities.

7. The project involves a substantial degradation of environmental quality.

The proposed drainage improvements are not anticipated to involve a substantial degradation of environmental quality. Short-term impacts such as traffic, noise, and air quality are related to construction and would be mitigated through traffic control, and the use of BMPs. Once completed, the project would contribute to increased environmental quality by reducing flooding and preventing runoff backflow of environmental hazards into the surrounding area.

8. The project is individually limited but cumulatively has considerable effect upon the environment or involves a commitment for larger actions.

The scope of the proposed drainage improvements are limited to Date Street and Palani Avenue and will not result in the requirement of other actions. Impacts associated with the proposed drainage improvements are addressed in Chapter 3 – Affected Environment and Environmental Consequences, are temporary and short-term related to construction activities. Existing roads to be affected by construction of the drainage improvements will be restored to original condition.

9. The project substantially affects a rare, threatened, or endangered species, or its habitat.

In Section 3.7–Flora and Fauna, AECOS Inc. reported the possibility of a threatened bird species *Manu-o-ku* which is known to nest in trees in the area. Since the proposed drainage

improvements is not anticipated to involve any work on existing street trees, no rare, threatened, or endangered species, or its habitat will be affected.

10. The project detrimentally affects air or water quality or ambient noise levels.

The proposed drainage improvements will not have a detrimentally significant impact on air or water quality, or ambient noise levels. Short-term impacts may occur during the construction of the project. However, the contractor must comply with current State and City regulations and adhere to and provide BMPs.

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

The proposed drainage improvements are not located in any sensitive area.

12. The project substantially affects scenic vistas and viewplanes identified in county or state plans or studies.

In Section 5.7-City and County of Honolulu Special Districts, the City Land Use Ordinance specifies that portion of the project on Date Street lies within the Diamond Head Special District within a “prominent public vantage point from which significant views of Diamond Head exist” (City and County of Honolulu, 2008). In the short-term, construction activities may block some view of Diamond Head, but there will not be any long-term effects since the proposed drainage improvements will be constructed underground within an existing roadway.

13. The project requires substantial energy consumption.

The only energy consumption involved with proposed drainage improvements are related to construction activities. After construction completion, energy consumption will essentially return to that which existed prior to construction.

Chapter 8 – LIST OF AGENCIES, ORGANIZATIONS AND INDIVIDUALS CONSULTED

8.1 PRELIMINARY ENGINEERING PLAN/REPORT DISTRIBUTION

During the planning stage for this project a preliminary engineering report or preliminary construction plans were distributed to the following government agencies or organizations:

Federal Government

U.S. Army 30th Signal Battalion

State Government

Department of Land and Natural Resources
Historic Preservation Division

City and County Government

Board of Water Supply
Department of Facility Maintenance
Department of Design and Construction
Civil Division
Mechanical Electrical Division

Other Organizations

AT&T
The Gas Company
Hawaiian Electric Company
Hawaiian Telcom
Oceanic Time Warner Cable

8.2 CHAPTER 343, HRS DRAFT DISTRIBUTION

The following is a list of government agencies, organizations or individuals that will be notified regarding the 30-day public comment period for the Draft Environmental Assessment (EA).

Federal Government

U.S. Army Corps of Engineers, Honolulu District
U.S. Fish and Wildlife Service

State Government

Department of Accounting and General Services
Department of Agriculture
Department of Business, Economic Development and Tourism
Office of Planning
Department of Hawaiian Home Lands
Department of Health
Environmental Health Administration
Clean Water Branch
Office of Environmental Quality Control
Department of Land and Natural Resources
Aquatic Resources

Engineering Division
Commission on Water Resource Management
Historic Preservation Division
Land Division
Department of Transportation
Office of Hawaiian Affairs
State Representative
 District 21 – Kaimuki, Kapahulu, Waikiki, Ala Wai, Diamond Head
State Senator
 District 9 – Palolo, St. Louis Heights, Maunalani Heights, Kaimuki,
 Kapahulu, West Diamond Head, Waikiki Gold Coast

City and County Government

Board of Water Supply
Department of Environmental Services
Department of Facility Maintenance
Department of Parks and Recreation
Department of Planning and Permitting
Department of Transportation Services
Fire Department
Honolulu City Council
 District 5 – A portion of Kapahulu and Kaimuki; Palolo Valley, St. Louis
 Heights, Manoa, Moiliili, McCully, Kakaako, and a portion of Ala Moana
 and Makiki.
Police Department

Other Organizations

Waikiki/Kapahulu Public Library
Diamond Head/Kapahulu Neighborhood Board No. 5
The Gas Company
Hawaiian Electric Company
Hawaiian Telcom
Oceanic Time Warner Cable

Residents along Date Street, Kamuela and Palani Avenue

Chapter 9 – LIST OF PREPARERS

The following list identifies the persons, firms, and government agency involved with the preparation of the environmental assessment for the proposed action.

1. Michael Nojima
Gray, Hong, Nojima & Associates, Inc. EA Project Manager
2. Joseph Kennedy
Archaeological Consultants of the Pacific, Inc. Cultural Assessment and
Archaeological Monitoring Plan
3. Eric Guinther
AECOS, Inc. Flora/Fauna Survey
4. Edward Visaya, Civil Engineer
Civil Design and Engineering Division
Department of Design and Construction
City and County of Honolulu Project Coordinator

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The U.S. Congress Pursuant to Sections §303(D) and §305(B) Clean Water Act (P.L. 97-117), January 11, 2008.

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Ala Wai Watershed Project

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City and County of Honolulu: Department of Planning and Permitting

Interactive GIS Maps and Data

<http://gis.hicentral.com>

City and County of Honolulu: Revised Ordinances of Honolulu

<http://www1.honolulu.gov/council/ocs/roh/>

Environmental Protection Agency

Water Quality Assessment and Total Maximum Daily Loads Information

<http://www.epa.gov/waters/ir/index.html>

National Oceanic and Atmospheric Administration

Western Regional Climate Center

<http://www.wrcc.dri.edu/>

National Weather Service

Hawaiian Forecast Office

<http://www.prh.noaa.gov/hnl/>

State of Hawaii: National Flood Insurance Program

Flood Hazard Assessment Tool

<http://gis.hawaiiinfip.org/fhat/>

State of Hawaii: Land Use Commission

<http://luc.state.hi.us/about.htm>

http://luc.state.hi.us/luc_maps.htm

State of Hawaii: Hawaii Administrative Rules

<http://hawaii.gov/lrb/desk/hi3.html>

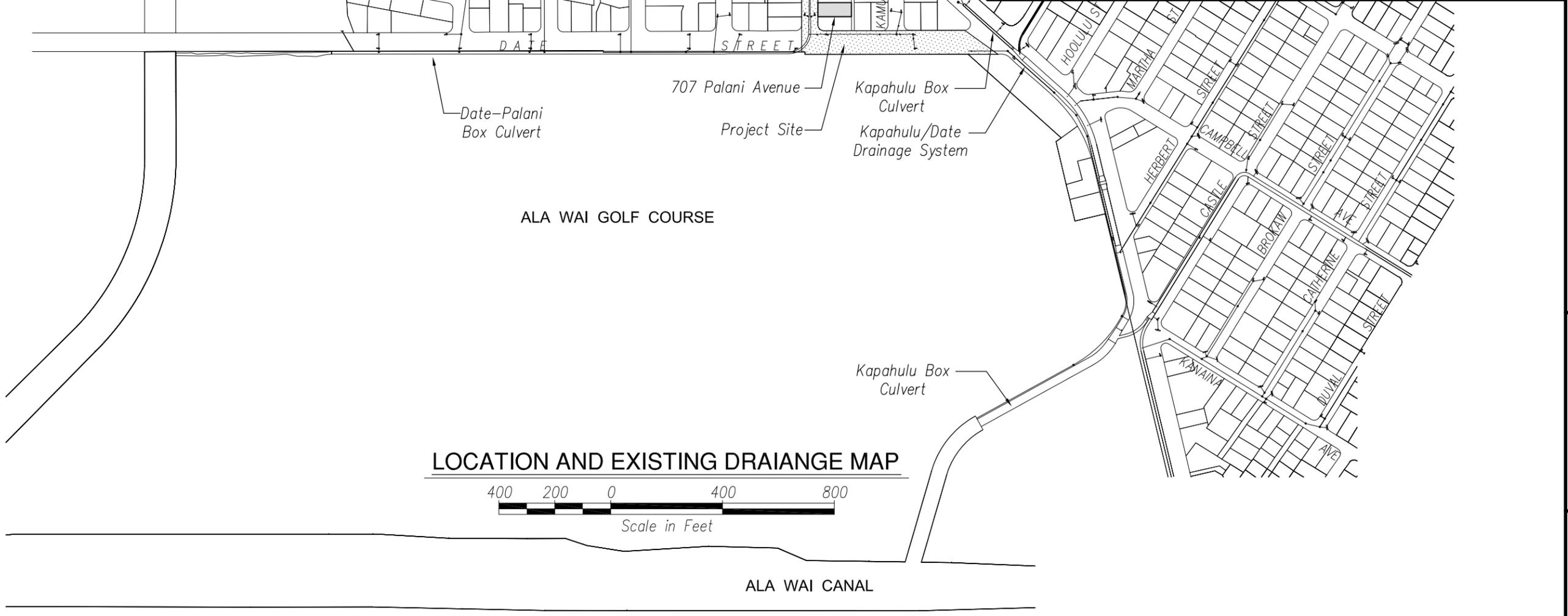
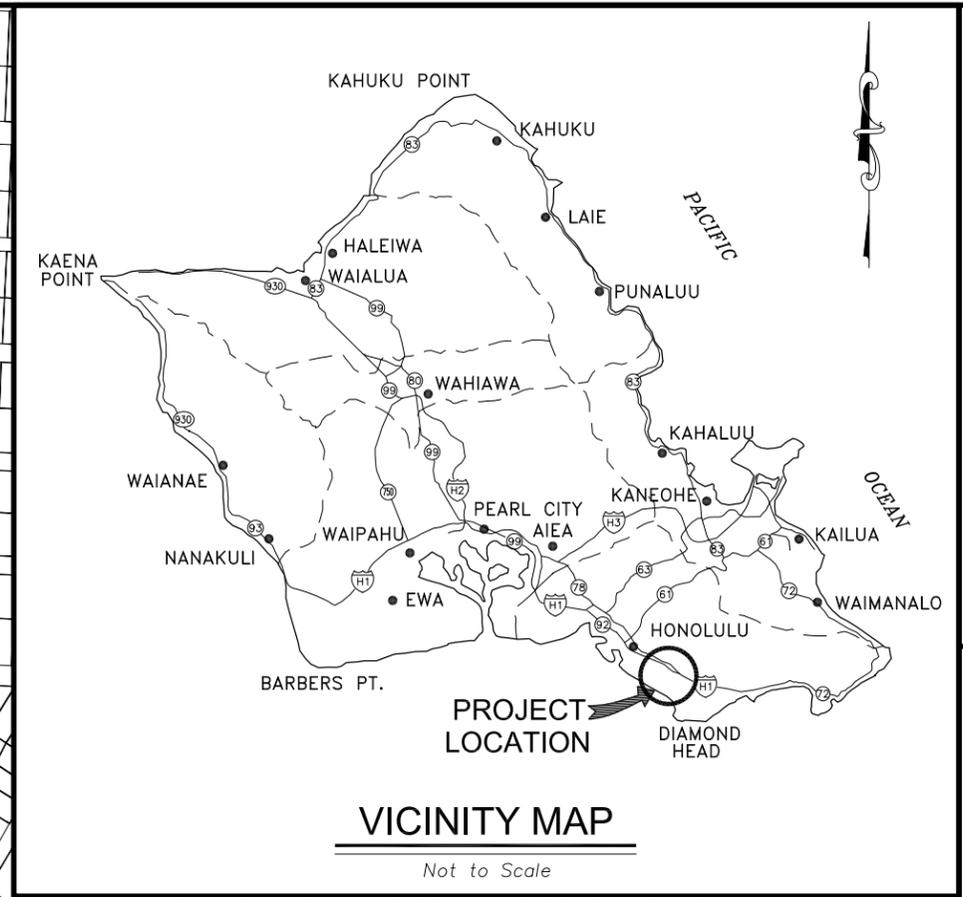
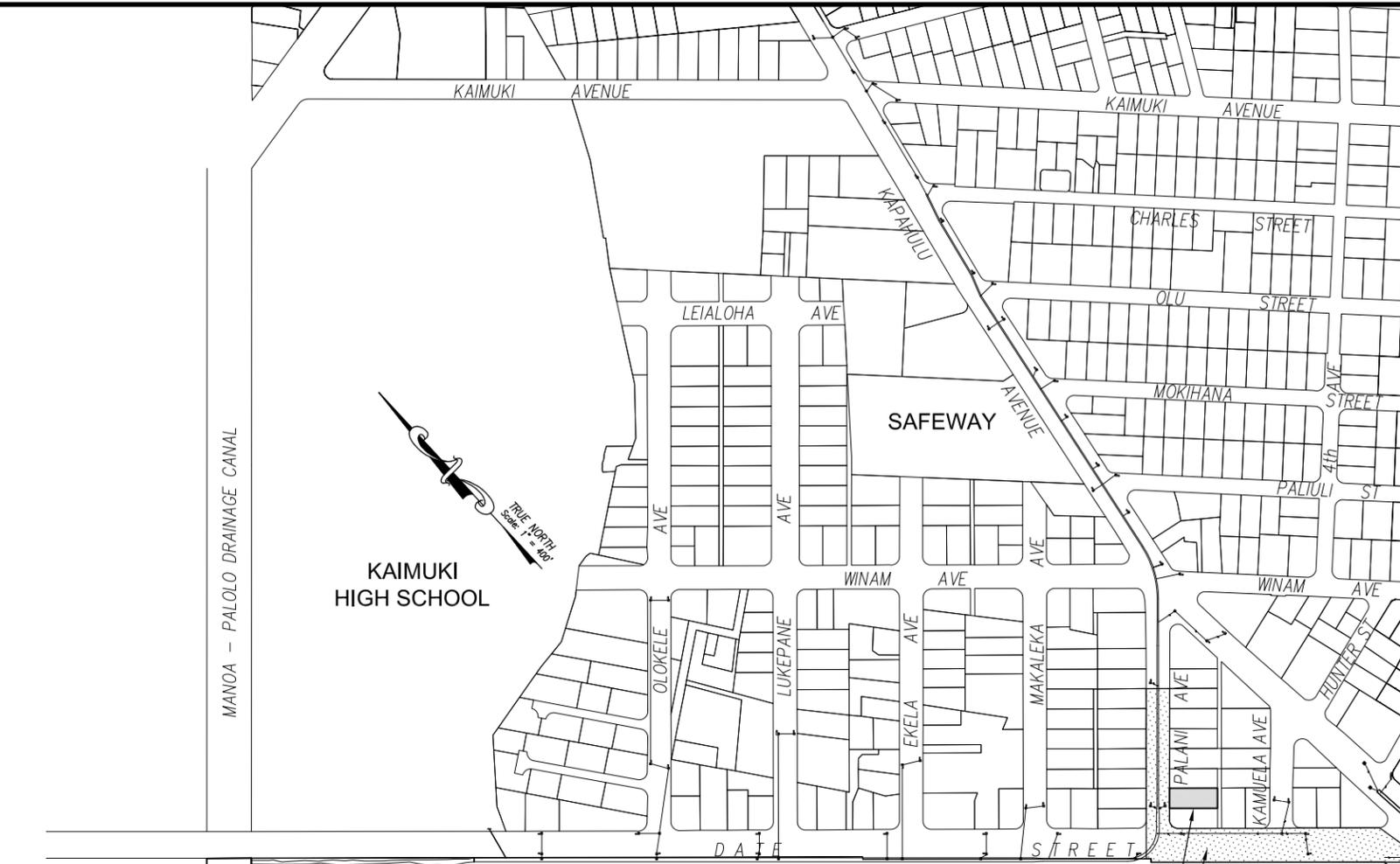
State of Hawaii: House Revised Statutes

<http://www.capitol.hawaii.gov/site1/HRS/HRS.htm>

<http://www.capitol.hawaii.gov/hrscurrent/>

LIST OF FIGURES

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- Figure 2 Proposed Action
- Figure 3 Proposed Action
- Figure 4 USGS Map
- Figure 5 Flood Insurance Rate Map
- Figure 6 Alternative 2 – Extend Existing Kapahulu Box Culvert
- Figure 7 Alternative 2 – Extend Existing Kapahulu Box Culvert
- Figure 8 Alternative 3 – Extend Existing Kapahulu/Date Street Drain to Palani and Kamuela Avenue
- Figure 9 Alternative 3 – Extend Existing Kapahulu/Date Street Drain to Palani and Kamuela Avenue
- Figure 10 Alternative 4 – Extend Existing Kapahulu/Date St Drain to Kamuela and Palani Avenue without Lowering the 30-In Water Line
- Figure 11 Alternative 4 – Extend Existing Kapahulu/Date St Drain to Kamuela and Palani Avenue without Lowering the 30-In Water Line



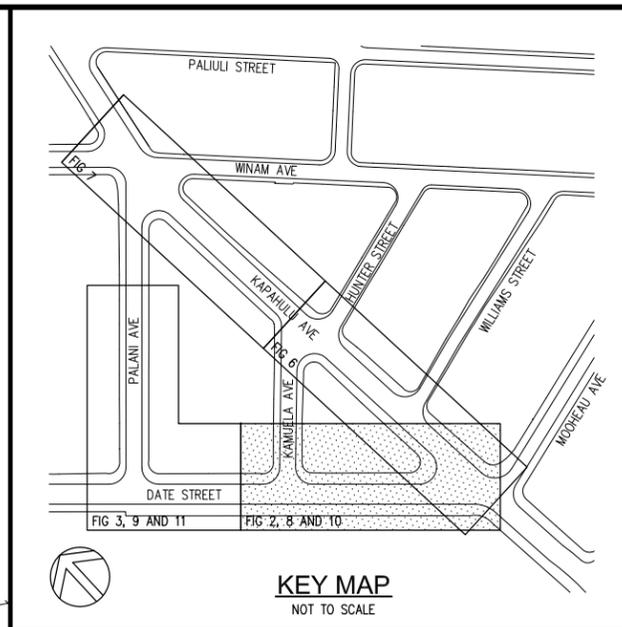
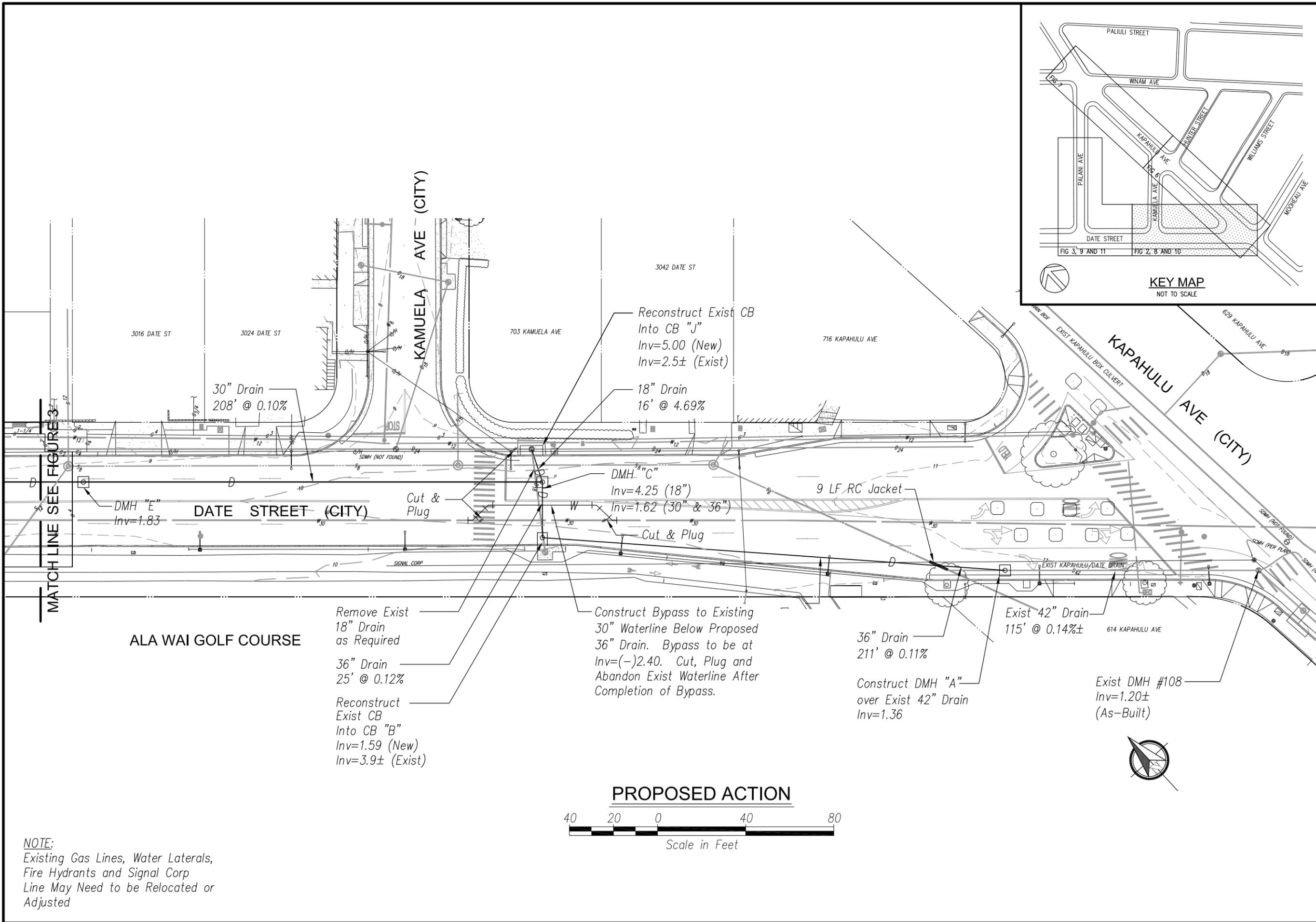
Gray, Hong, Nojima & Associates, Inc.
 201 Merchant Street, Suite 1900
 Honolulu, Hawaii 96813
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 Telephone: (808) 521-0306

CONSULTING ENGINEERS

**PALANI AVENUE DRAINAGE IMPROVEMENTS
 LOCATION AND EXISTING DRAINAGE MAP**

CAD DRAWING:
 3022 EA FIG 1 LOC
 SCALE: 1" = 40'-0"
 DATE: MAY 10, 2011
 PROJECT #: 3022-00

**FIGURE
 1**



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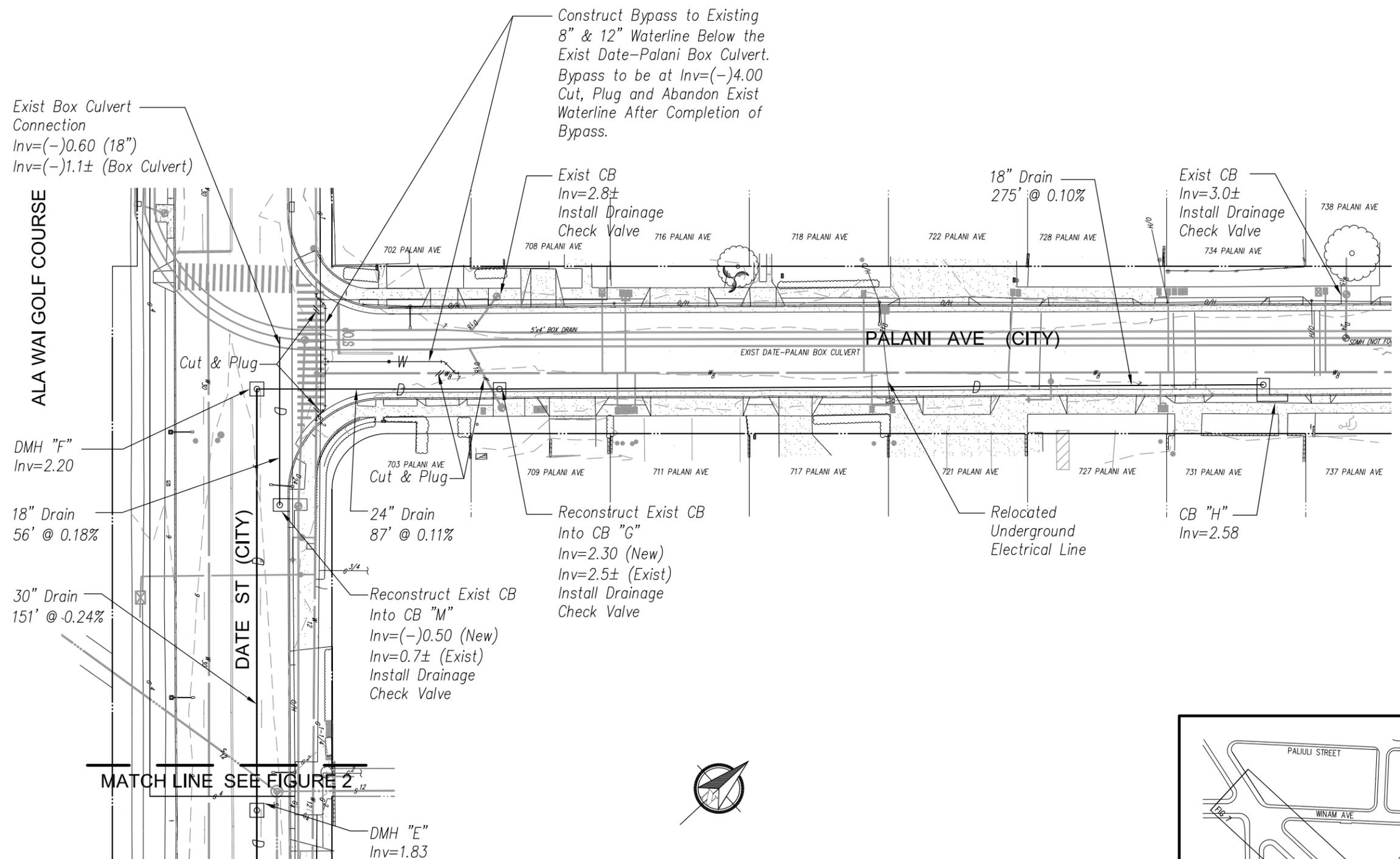
PALANI AVENUE DRAINAGE IMPROVEMENTS
PROPOSED ACTION

CAD DRAWING:
 3022 EA FIG 2-3 8-11 ALTS
 SCALE: 1" = 40'-0"
 DATE: JUNE 1, 2011
 PROJECT #: 3022-00

FIGURE
2

NOTE:
 Existing Gas Lines, Water Laterals,
 Fire Hydrants and Signal Corp
 Line May Need to be Relocated or
 Adjusted





Exist Box Culvert Connection
 Inv=(-)0.60 (18")
 Inv=(-)1.1± (Box Culvert)

Construct Bypass to Existing 8" & 12" Waterline Below the Exist Date-Palani Box Culvert. Bypass to be at Inv=(-)4.00 Cut, Plug and Abandon Exist Waterline After Completion of Bypass.

Exist CB
 Inv=2.8±
 Install Drainage Check Valve

Exist CB
 Inv=3.0±
 Install Drainage Check Valve

Reconstruct Exist CB Into CB "G"
 Inv=2.30 (New)
 Inv=2.5± (Exist)
 Install Drainage Check Valve

Reconstruct Exist CB Into CB "M"
 Inv=(-)0.50 (New)
 Inv=0.7± (Exist)
 Install Drainage Check Valve

DMH "F"
 Inv=2.20

18" Drain
 56' @ 0.18%

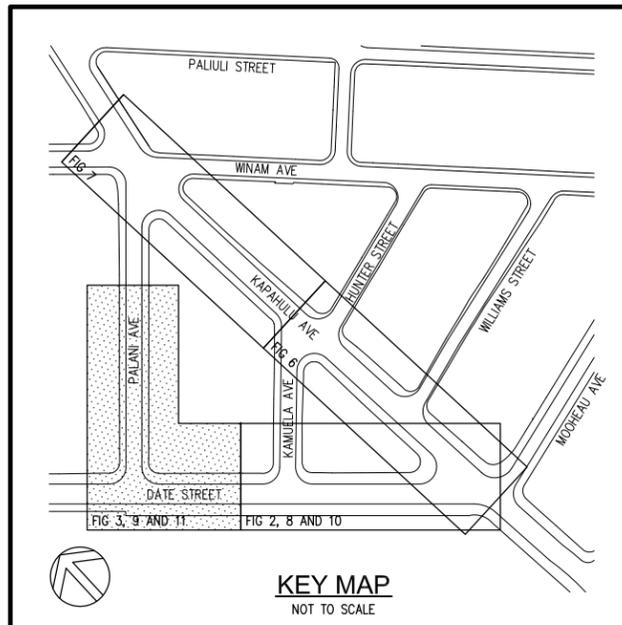
30" Drain
 151' @ 0.24%

DMH "E"
 Inv=1.83

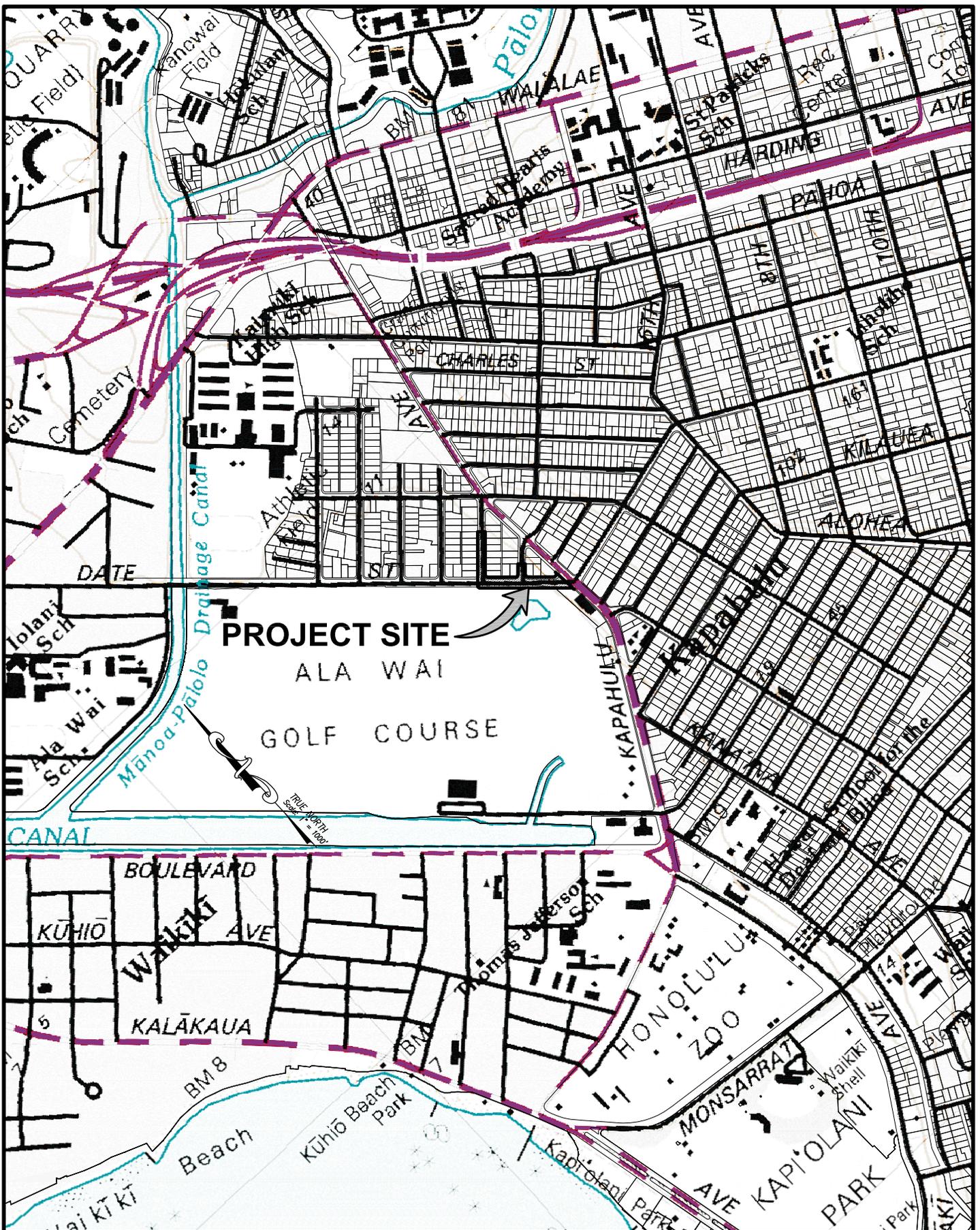
MATCH LINE SEE FIGURE 2



NOTE:
 Existing Gas Lines, Water Laterals, Fire Hydrants and Signal Corp Line May Need to be Relocated or Adjusted



CAD DRAWING: 3022 EA FIG 2-3 8-11 ALTS
SCALE: 1" = 40'-0"
DATE: JUNE 1, 2011
PROJECT #: 3022-00



CAD DRAWING:
3022 EA FIG 4 USGS

DATE: JUNE 1, 2011

SCALE: 1" = 1000'

PROJECT #: 3022-00

USGS MAP

Gray, Hong, Nojima & Associates, Inc.



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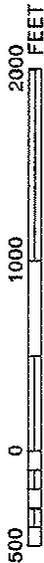
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FIGURE

4



MAP SCALE 1" = 1000'



FIRM
FLOOD INSURANCE RATE MAP
 CITY AND COUNTY
 OF HONOLULU,
 HAWAII

PANEL 370 OF 395
 (SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
HONOLULU	150001	0370	F

MAP NUMBER
15003C0370F

MAP REVISED
SEPTEMBER 30, 2004

Federal Emergency Management Agency

Notice to User: The Map Number shown below should be used when placing map orders; the Community Number shown below should be used on insurance applications for the subject community.



This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at www.msc.fema.gov



CAD DRAWING:
3022 EA FIG 5 FEMA

DATE: MAY 31, 2011

SCALE: 1" = 1000'

PROJECT #: 3022-00

FLOOD INSURANCE RATE MAP

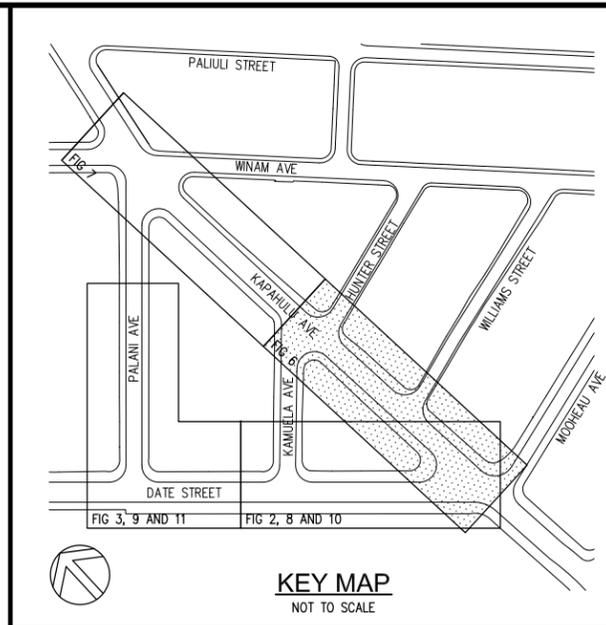
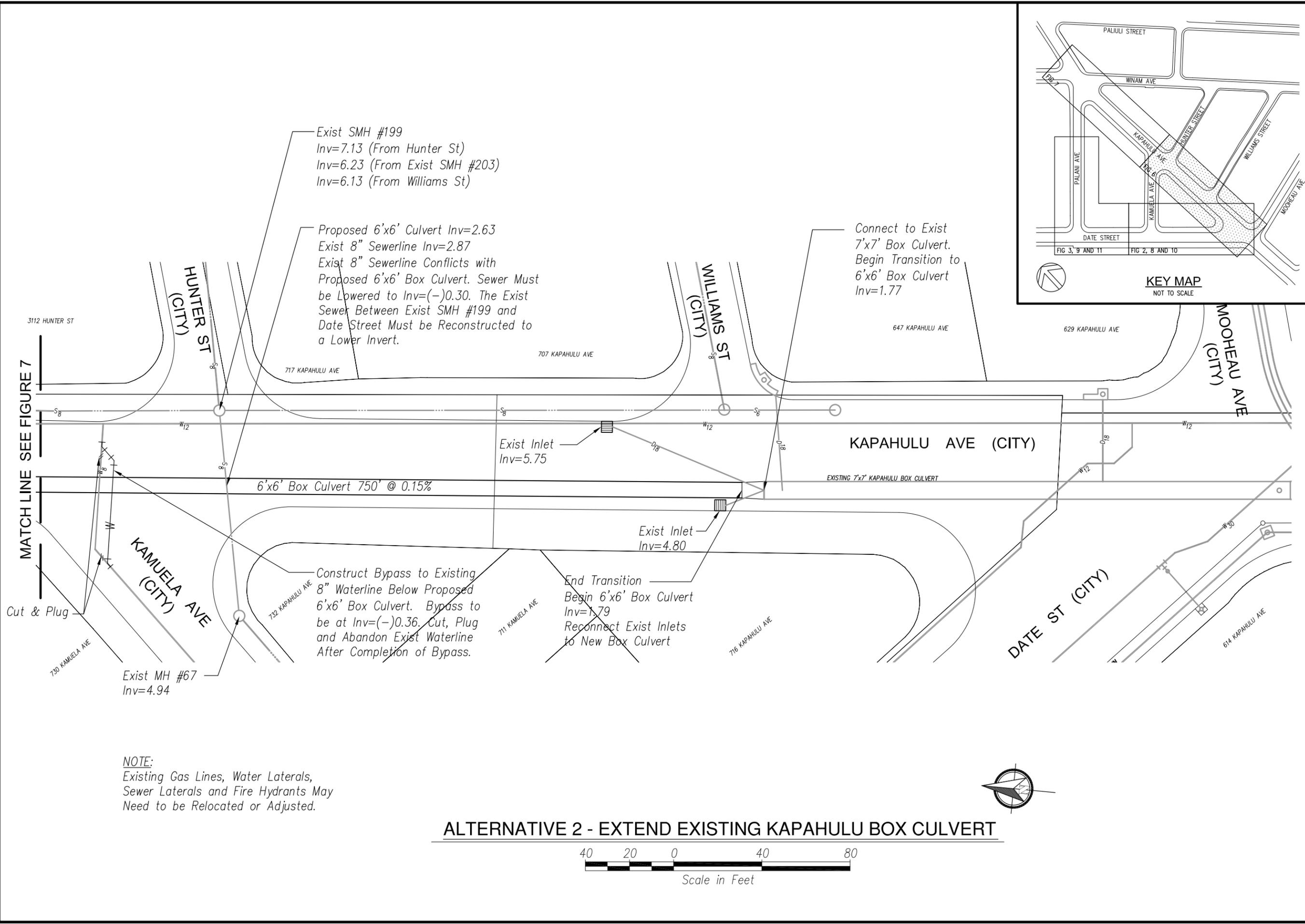
Gray, Hong, Nojima & Associates, Inc.



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FIGURE
5



Exist SMH #199
 Inv=7.13 (From Hunter St)
 Inv=6.23 (From Exist SMH #203)
 Inv=6.13 (From Williams St)

Proposed 6'x6' Culvert Inv=2.63
 Exist 8" Sewerline Inv=2.87
 Exist 8" Sewerline Conflicts with
 Proposed 6'x6' Box Culvert. Sewer Must
 be Lowered to Inv=(-)0.30. The Exist
 Sewer Between Exist SMH #199 and
 Date Street Must be Reconstructed to
 a Lower Invert.

Connect to Exist
 7'x7' Box Culvert.
 Begin Transition to
 6'x6' Box Culvert
 Inv=1.77

Exist Inlet
 Inv=5.75

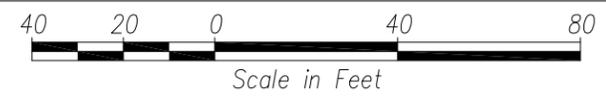
Exist Inlet
 Inv=4.80

Construct Bypass to Existing
 8" Waterline Below Proposed
 6'x6' Box Culvert. Bypass to
 be at Inv=(-)0.36. Cut, Plug
 and Abandon Exist Waterline
 After Completion of Bypass.

End Transition
 Begin 6'x6' Box Culvert
 Inv=1.79
 Reconnect Exist Inlets
 to New Box Culvert

NOTE:
 Existing Gas Lines, Water Laterals,
 Sewer Laterals and Fire Hydrants May
 Need to be Relocated or Adjusted.

ALTERNATIVE 2 - EXTEND EXISTING KAPAEHULU BOX CULVERT

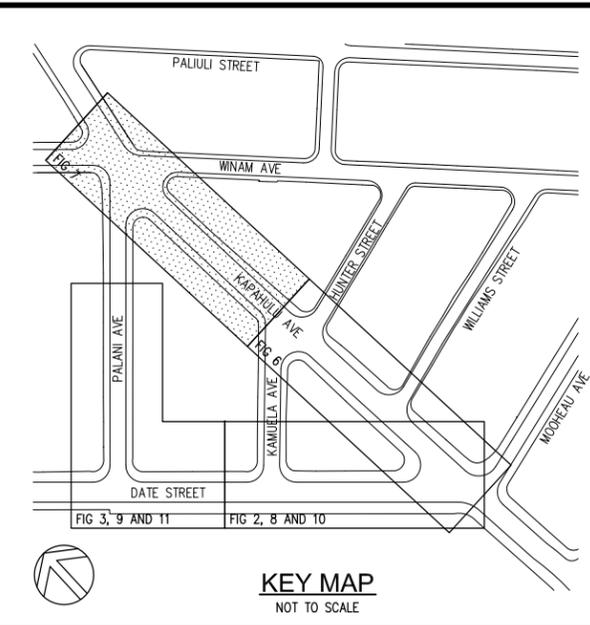
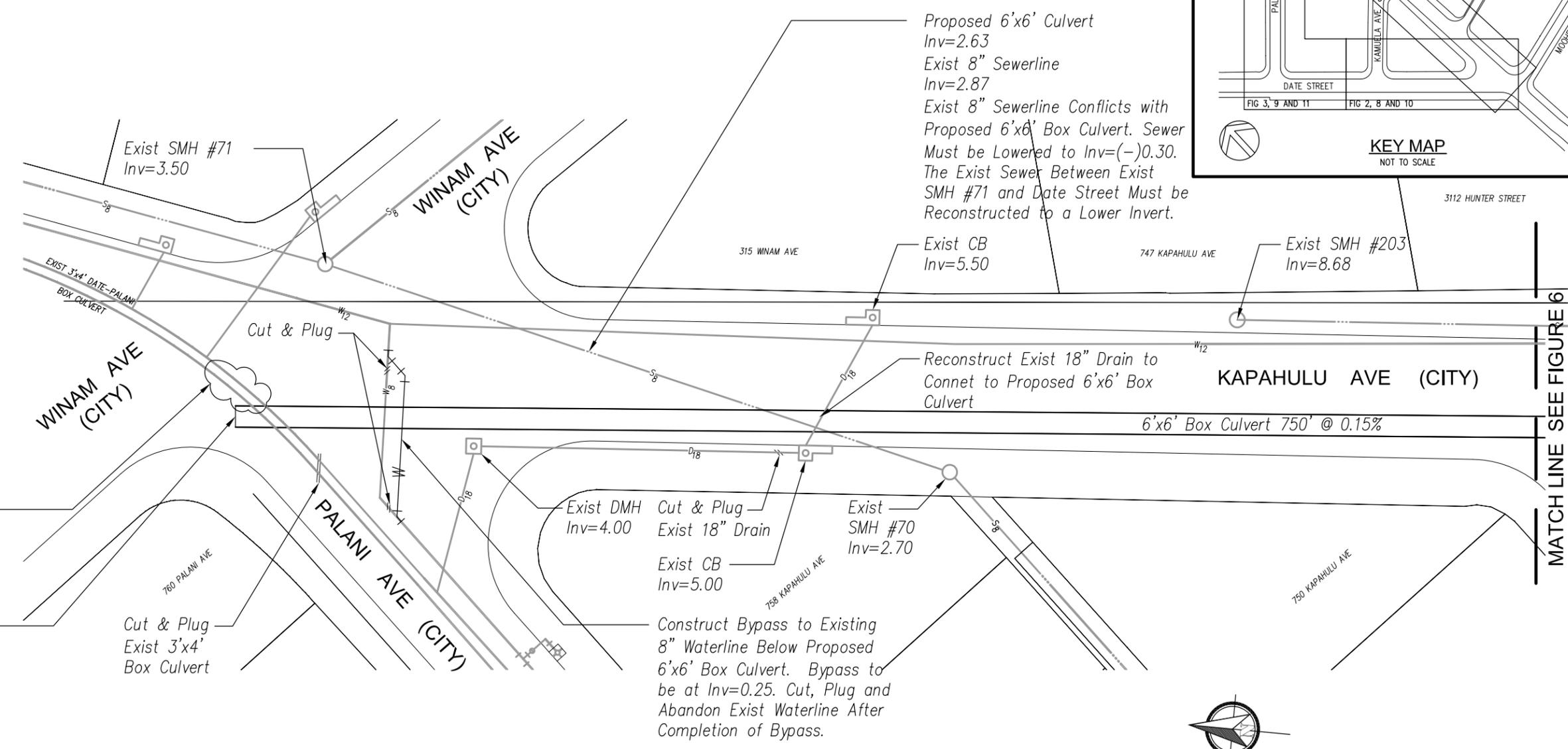


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PALANI AVENUE DRAINAGE IMPROVEMENTS
ALTERNATIVE 2
 EXTEND EXISTING KAPAEHULU BOX CULVERT

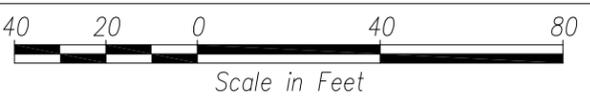
CAD DRAWING:
 3022 EA FIG 6-7 ALTS
 SCALE: 1" = 40'-0"
 DATE: MAY 31, 2011
 PROJECT #: 3022-00

FIGURE
6



Proposed 6'x6' Culvert
Inv=2.63
Exist 8" Sewerline
Inv=2.87
Exist 8" Sewerline Conflicts with
Proposed 6'x6' Box Culvert. Sewer
Must be Lowered to Inv=(-)0.30.
The Exist Sewer Between Exist
SMH #71 and Date Street Must be
Reconstructed to a Lower Invert.

Reconstruct Exist
3'x4' Box Culvert to
Connect to Proposed
Box Culvert
Inv = 2.90
End 6'x6' Proposed
Box Culvert
Inv=2.90



ALTERNATIVE 2 - EXTEND EXISTING KAPAEHULU BOX CULVERT

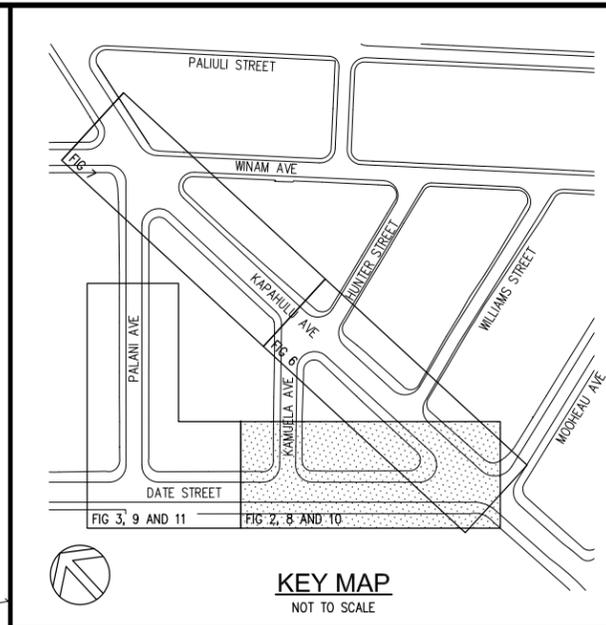
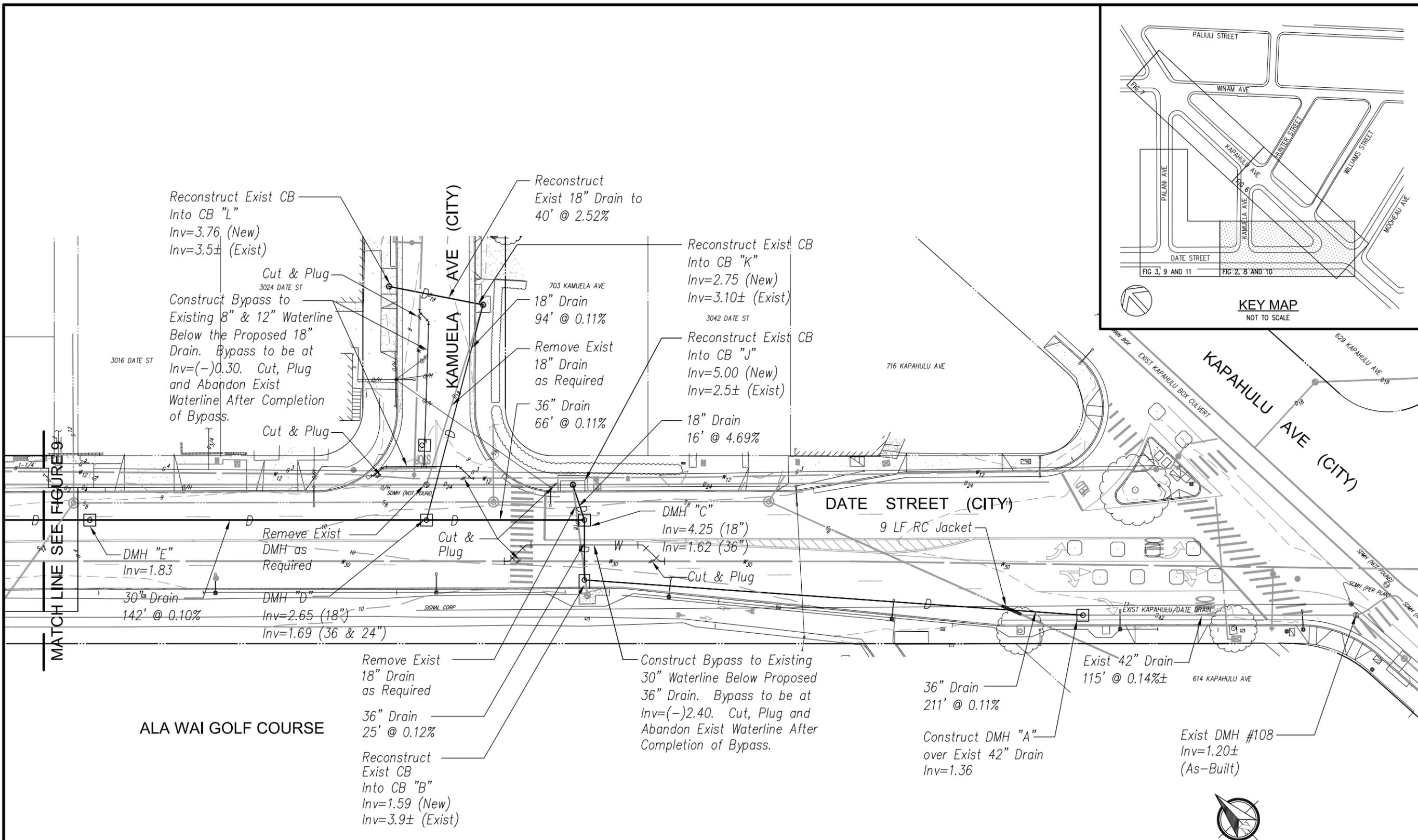
NOTE:
Existing Gas Lines, Water Laterals,
Sewer Laterals and Fire Hydrants May
Need to be Relocated or Adjusted.

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PALANI AVENUE DRAINAGE IMPROVEMENTS
ALTERNATIVE 2
EXTEND EXISTING KAPAEHULU BOX CULVERT

CAD DRAWING:
3022 EA FIG 6-7 ALTS
SCALE: 1" = 40'-0"
DATE: MAY 31, 2011
PROJECT #: 3022-00

FIGURE
7



ALTERNATIVE 3 - EXTEND EXISTING KAPAHULU/DATE STREET DRAIN TO PALANI AND KAMUELA AVENUE



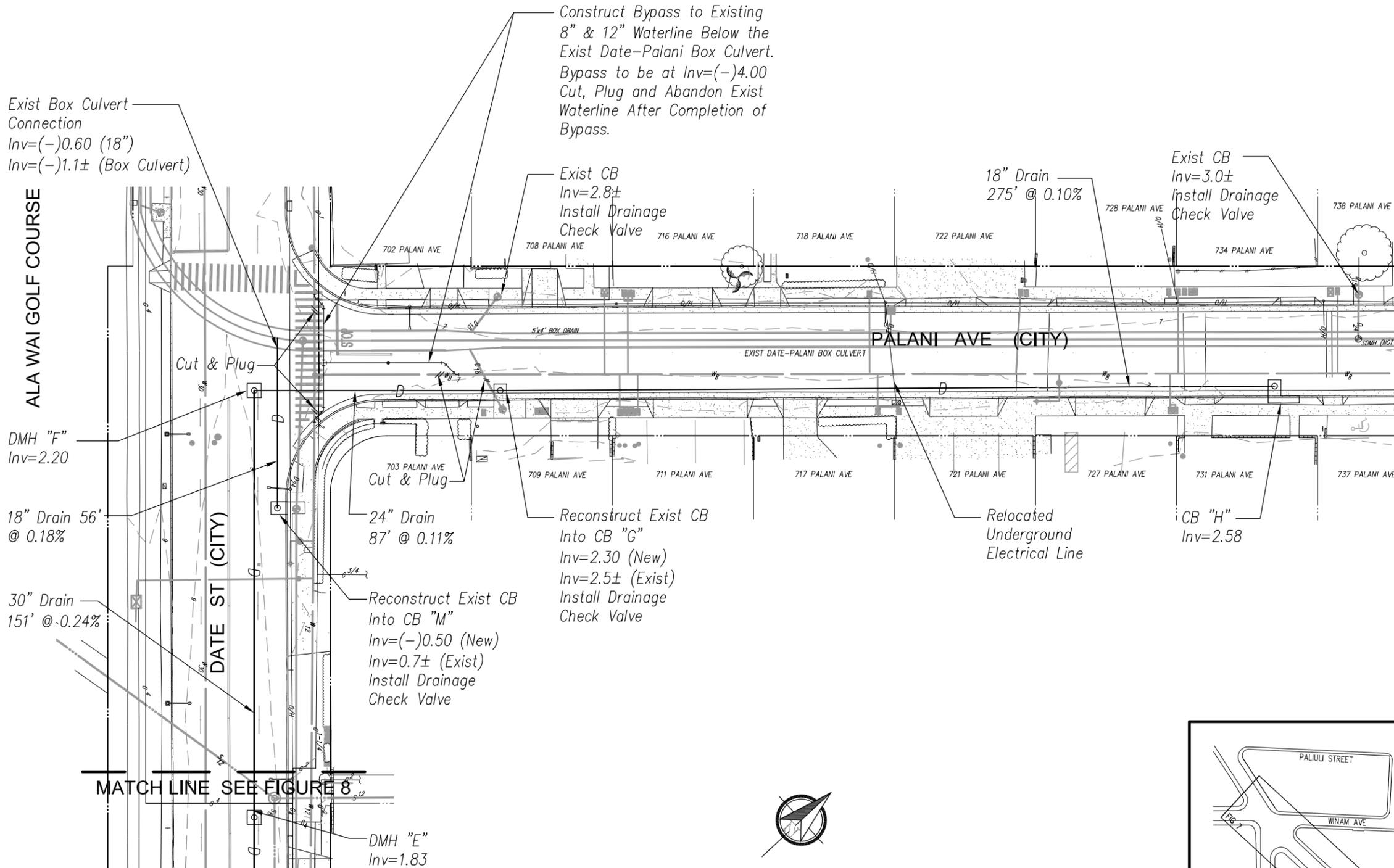
NOTE:
 Existing Gas Lines, Water Laterals,
 Fire Hydrants and Signal Corp
 Line May Need to be Relocated or
 Adjusted

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PALANI AVENUE DRAINAGE IMPROVEMENTS
ALTERNATIVE 3
 EXTEND EXISTING KAPAHULU/DATE STREET DRAIN TO PALANI
 AND KAMUELA AVENUE

CAD DRAWING:
 3022 EA FIG 2-3 8-11 ALTS
 SCALE: 1" = 40'-0"
 DATE: JUNE 1, 2011
 PROJECT #: 3022-00

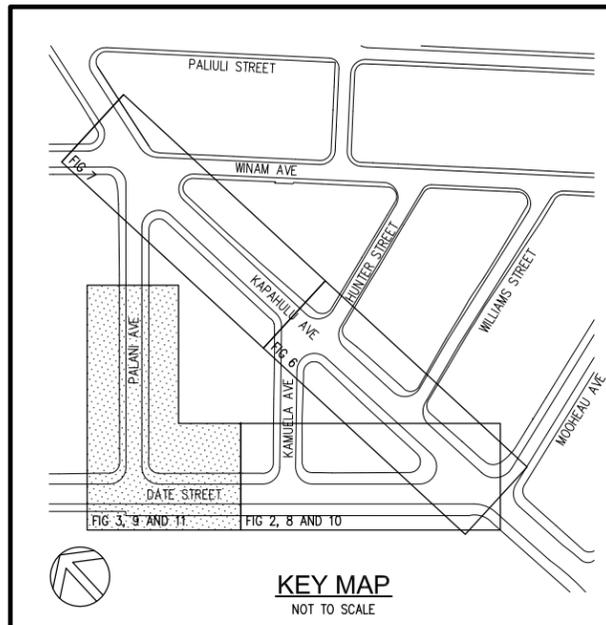
FIGURE
8

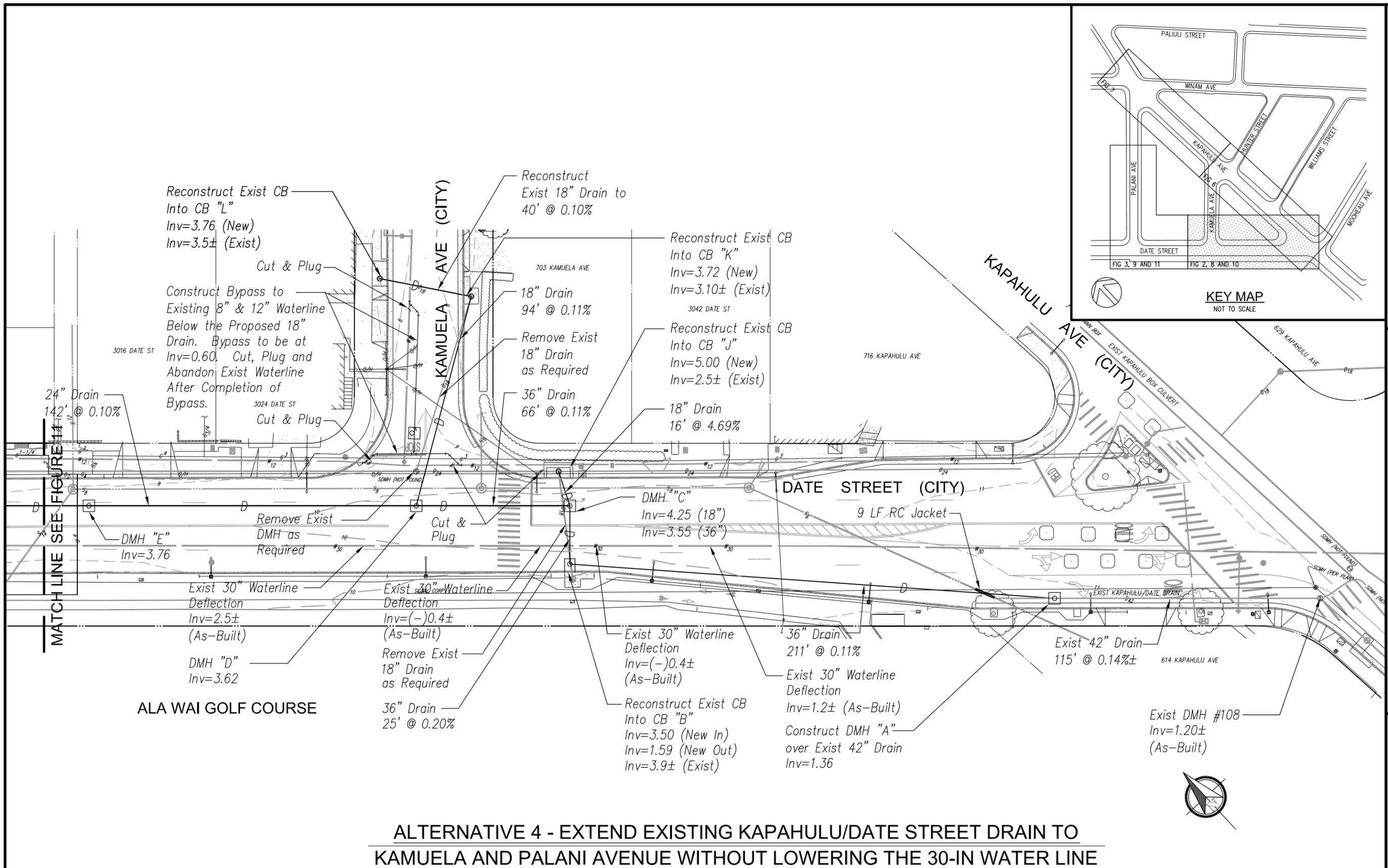


ALTERNATIVE 3 - EXTEND EXISTING KAPAHULU/DATE STREET DRAIN TO PALANI AND KAMUELA AVENUE



NOTE:
Existing Gas Lines, Water Laterals, Fire Hydrants and Signal Corp Line May Need to be Relocated or Adjusted

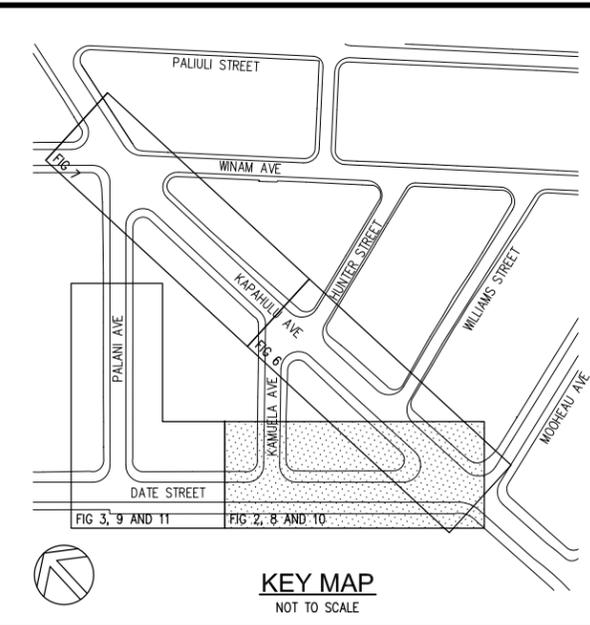




**ALTERNATIVE 4 - EXTEND EXISTING KAPAHULU/DATE STREET DRAIN TO
KAMUELA AND PALANI AVENUE WITHOUT LOWERING THE 30-IN WATER LINE**



NOTE:
Existing Gas Lines, Water Laterals,
Fire Hydrants and Signal Corp
Line May Need to be Relocated or
Adjusted



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**PALANI AVENUE DRAINAGE IMPROVEMENTS
ALTERNATIVE 4**
EXTEND EXISTING KAPAHULU/DATE ST DRAIN TO KAMUELA AND
PALANI AVENUE WITHOUT LOWERING THE 30-IN WATER LINE

CAD DRAWING:
3022 EA FIG 2-3 8-11 ALTS
SCALE: 1" = 40'-0"
DATE: JUNE 1, 2011
PROJECT #: 3022-00

FIGURE
10

APPENDICES

Appendix A: *Biological Survey for the Palani Avenue Drainage Improvements Project, Kapahulu, Honolulu O`ahu.* Prepared by AECOS Inc., dated June 2, 2011.

Appendix B: *An Archaeological Monitoring Plan for a Property Located at TMK: (1) 2-7-034 in Waikiki Ahupua`a, Kona District, Island of Oahu,* prepared by Archaeological Consultants of the Pacific Inc., dated March 2011.

Appendix C: *A Cultural Impact Assessment for a Property Located at TMK: (1) 2-7-034 in Waikiki Ahupua`a, Kona District, Island of Oahu,* prepared by Archaeological Consultants of the Pacific Inc., dated March 2011.

APPENDIX A

Biological survey for the Palani Avenue Drainage Improvements Project, Kapahulu, Honolulu, O‘ahu.

June 2, 2011

DRAFT

AECOS No. 1264

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AECOS Inc.
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Kāne‘ohe, Hawai‘i 96744
Phone: (808) 234-7770 Email: guinther@aecos.com

Introduction

This report presents results of a biological survey—essentially a botanical survey with consideration for likely faunal inhabitants—for a drainage improvements project involving portions of Date Street, Palani Avenue, and Kamuela Avenue in the Kapahulu neighborhood of Honolulu. The project area encompasses portions of these streets in the vicinity of the Date Street/Kapahulu Avenue intersection (Fig. 1). This report is part of the environmental due diligence under the direction of Gray Hong Nojima & Assoc., Inc.¹ for a proposed drainage improvement project by the City and County of Honolulu (C & C). The project involves modifications to the existing street drains within the right-of-way of the three streets.

Methods

A visit to the project area was made on May 26, 2011. The survey involved walking along the public sidewalks and identifying plants growing in the parkway or verge. The survey area was limited to the city rights-of-way, extending outward beyond the paved sidewalks only to include larger plants (essentially ornamental shrubs and trees) observed immediately adjacent and presumably on either private properties or extending into the right-of-way. For the C & C Ala Wai Golf Course—bordering much of the project along the south side of Date Street—the survey stopped at the chainlink fence, but again with the addition of the larger shrubs and trees planted along the golf course (south side of the fence.

¹ This report will become part of the public record for the project environmental assessment.



Figure 1. Project area map for the Palani Avenue Drainage Improvements Project in Kapahulu.

Results

The project area is mostly a residential neighborhood (Palani and Kamuela avenues, and the north side of Date Street), with commercial properties present at the east end of Date Street at Kapahulu Ave. A golf course borders the south side of Date Street west of the commercial property lot and extending further west along Date Street beyond the project area.

Plants and plantings are limited to relatively narrow strips adjacent to the sidewalks and a median area on Date Street at the intersection with Kapahulu Ave. Thus, the plants are entirely plantings (ornamentals) with a smattering of naturalized ruderal weeds. Of course, many ornamentals are naturalized in Hawai'i and are so listed in Table 1, although present in the project area as landscape plants. In all, 58 species of plants (57 flowering plants and one fern) were identified in the project area. Of these, only two are native plants (both indigenous species): a common ruderal species known as 'uhaloa (*Waltheria indica*) and beach *naupaka* (*Scaevola taccada*), planted as an ornamental in the median at the east end of Date Street.

Table 1. Flora listing for a drainage improvements project in Kapahulu, Honolulu, O'ahu.

Species listed by family	Common name	Status	Abundance
<i>FERNS</i>			
POLYPODIACEAE			
<i>Phymatosorus grossus</i> (Langsd. & Fisch.)	<i>laua'e</i>	Nat	R
<i>FLOWERING PLANTS</i>			
DICOTYLEDONES			
ACANTHACEAE			
<i>Barleria repens</i> C. Nees	pink-ruellia	Orn	U
AMARANTHACEAE			
<i>Alternanthera pungens</i> Kunth	khaki weed	Nat	O
<i>Ameranthus viridis</i> L.	slender amaranth	Nat	R1
ANACARDIACEAE			
<i>Mangifera indica</i> L.	mango	Nat	R
APOCYNACEAE			
<i>Nerium oleander</i> L.	oleander	Orn	R
<i>Plumeria obtusa</i> L.	Singapore plumeria	Orn	R
ASTERACEAE (COMPOSITAE)			
<i>Calyptocarpus vialis</i> Less.	---	Nat	A
<i>Conyza</i> sp.	horseweed	Nat	U
<i>Emilia fosbergi</i> Nicolson	Flora's paintbrush	Nat	O
<i>Tridax procumbens</i> L.	coat buttons	Nat	U
Indet. Asteraceae	milkweed	Nat	R
BORAGINACEAE			
<i>Carmona retusa</i> (Vahl) Masam..	Fukien-tea	Nat	R

Table 1 (continued).

Species listed by family	Common name	Status	Abundance
BRASSICACEAE			
<i>Lepidium virginicum</i> L.	---	Nat	U
CASUARINACEAE			
<i>Casuarina equisetifolia</i> L.	common ironwood	Nat	R
CONVOLVULACEAE			
<i>Ipomoea obscura</i> (L.) Ker-Gawl.	---	Nat	O
CUCURBITACEAE			
<i>Coccinea grandis</i> (L.) Voigt	ivy gourd	Nat	R
EUPHORBIACEAE			
<i>Acalypha godseffiana</i> M.T. Masters	acalypha	Orn	R
<i>Chamaesyce hirta</i> (L.) Millsp.	garden spurge	Nat	O1
<i>Chamaesyce hypericifolia</i> (L.) Millsp.	graceful spurge	Nat	U
<i>Chamaesyce prostrate</i> (Aiton) Small	prostrate spurge	Nat	U1
<i>Codiaeum variegatum</i> (L.) Blume	croton	Orn	R
FABACEAE			
<i>Albizia saman</i> F. Muell.	monkey pod	Nat	R
<i>Desmanthus virgatus</i> (L.) Willd.	virgate mimosa	Nat	R
<i>Indigofera hendycaphylla</i> Jacq.	creeping indigo	Nat	U
<i>Pithecellobium dulce</i> (Roxb.) Benth.	'opiuma	Nat	R
GOODENACEAE			
<i>Scaevola taccada</i> (J. Gaert.) Roxb.	<i>naupaka kahakai</i>	Ind	R1
MALVACEAE			
<i>Sida spinosa</i> L.	prickly sida	Nat	U1
<i>Sida ciliaris</i> L.	---	Nat	O
<i>Malvastrum coromandelianum</i> (L.) Garcke	false mallow	Nat	U2
MORACEAE			
<i>Ficus microcarpa</i> L.	Chinese banyan	Nat	R
NYCTAGINACEAE			
<i>Boerhavia coccinea</i> Mill.	false <i>alena</i>	Nat	O
PASSIFLORACEAE			
<i>Passifloa suberosa</i> L.	<i>huehue haole</i>	Nat	U
PLANTAGINACEAE			
<i>Plantago lanceolata</i> L.	narrow leaved plantain	Nat	U
PLUMBAGINACEAE			
<i>Plumbago auriculata</i> Lam.	blue plumbago	Orn	R
PORTULACACEAE			
<i>Portulaca oleracea</i> L.	pigweed	Nat	R

Table 1 (continued).

Species listed by family	Common name	Status	Abundance
RUBIACEAE			
<i>Hedyotis corymbosa</i> (L.) Lam.	---	Nat	R
RUTACEAE			
<i>Murraya paniculata</i> (L.) W. Jack	mock orange	Orn	U
STERCULIACEAE			
<i>Walteria indica</i> L.	'uhaloa	Ind	R
VERBENACEAE			
<i>Duranta erecta</i> L.	duranta, golden dewdrop	Orn	R
MONOCOTYLEDONES			
ALOEACEAE			
<i>Aloë vera</i> L.	aloe	Orn	R1
ARACEAE			
<i>Monstera deliciosa</i> Liebmann	monstera	Orn	R1
<i>Philodendron bipinnatifidum</i> Endl.	selloum	Orn	R1
ARECACEAE			
<i>Cocos nucifera</i> L.	coconut	Nat	R
CYPERACEAE			
<i>Cyperus gracilis</i> R. Br.	McCoy grass	Nat	R
<i>Cyperus rotundus</i> L.	nut grass	Nat	O
POACEAE			
<i>Axonopus fissifolius</i> (Raddi) Kuhlmann	carpetgrass	Nat	AA
<i>Bothriochloa pertusa</i> (L.) A. Camus	pitted beardgrass	Nat	C
<i>Cenchrus echinatus</i> L.	common sandbur	Nat	R1
<i>Cynodon dactylon</i> (L.) Pers.	Bermuda grass	Nat	AA
<i>Cynodon x magennisii</i> Hurcomb	Bermuda hybrid	Orn	O
<i>Chloris barbata</i> (L.) Sw.	swollen finger grass	Nat	O2
<i>Eleusine indica</i> (L.) Gaertn.	wiregrass	Nat	A
<i>Eragrostis pectinacea</i> (Michx.) Nees	Carolina lovegrass	Nat	U2
<i>Eragrostis tenella</i> (L.) P. Beauv ex Roem. & Schult.	lovegrass	Nat	R
<i>Setaria verticillata</i> (L.) P. Beauv.	bristly foxtail	Nat	R1
<i>Zoysia matrella</i> (L.) Merr.	Mascarene grass	Orn	R

Legend to Table 1

STATUS = distributional status for the Haaiian Islands:

- Ind** = Indigenous; native to Hawaii, but not unique to the Hawaiian Islands.
Nat = Naturalized, exotic, plant introduced to the Hawaiian Islands since the arrival of Cook Expedition in 1778, and well-established outside of cultivation.
Orn = Ornaments; plants that are maintained as part of the landscaping.

ABUNDANCE = occurrence ratings for plant species:

- R** - Rare seen in only one or perhaps two locations.
U - Uncommon seen at most in several locations
O - Occasional seen with some regularity
C - Common observed numerous times during the survey

Table 1 (continued).

A - Abundant	found in large numbers; may be locally dominant.
AA - Very abundant	abundant and dominant; defining vegetation type.
Numbers (1 – 3) following qualitative rating of abundance indicate localized abundance is greater than occurrence rating. For example, R2 would indicate a species that is rare (encountered only a few times), but having numerous individuals where encountered.	

Trees in this area are all plantings and alien or introduced species: Chinese banyan (*Ficus microcarpa*), mango (*Mangifera indica*), ironwood (*Casuarina equisetifolia*), 'opiuma (*Pithecellobium dulce*), monkeypod (*Albizia saman*), coconut (*Cocos nucifera*), and an as yet to be identified street tree. Only a very few of these are planted in the verge between the sidewalk and the street curb; most are on adjacent parcels near or hanging over the street right-of-way.

Discussion

The Palani Avenue Drainage Improvements Project area is level ground and a fully developed urban landscape. No streams, relatively permanent or non-relatively permanent waterways, or wetlands occur in the project area.

Flora

No botanical resources of concern are located in the project area. Native plants are all but absent here and there are no plant species present that would be of particular concern from a regulatory standpoint. No exceptional trees as defined by Revised Ordinances of Honolulu, Chapter 41, Article 13 occur in the area (C&C, 2010).

Fauna

Although a survey to develop a faunal listing for the project area was not undertaken, no animals of particular concern were encountered by the biologist on May 26. No habitats other than those supporting common lowland birds and introduced wild, feral, and domesticated mammals are present. Although no federally listed (threatened or endangered) species (USFWS, 2005a,b, 2011) were encountered during the survey, and none is anticipated to utilize habitats in the project area, White tern or *Manu-o-Ku* (*Gygis alba rothschildi*) could utilize trees in the project area. Although not an ESA listed species, the *Manu-o-Ku* is protected under the federal Migratory Bird Treaty Act (MBTA) and listed as threatened by the State of Hawai'i (DLNR, 1997). The *Manu-o-Ku* is a tree nesting species that lays its eggs on bare branches without building a typical nest. Since this bird is known to nest in Honolulu (in particular, in large street

and grounds trees between Waikiki and the Capitol District (Vanderwerf, 2003), if trimming or removal of large trees is anticipated for the project, an inspection for nesting by *Gygis alba* must precede the tree cutting and any active nesting by *G. alba* left undisturbed until the fledglings have moved on their own out of the area.

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- U.S. Fish and Wildlife Service (USFWS). 2005a. Department of the Interior, Fish and Wildlife Service, 50 CFR 17. Endangered and Threatened Wildlife and Plants. Review of Species That Are Candidates or Proposed for Listing as Endangered or Threatened; Annual Notice of Findings on Resubmitted Petition; Annual Description of Progress on Listing Actions. *Federal Register*, 70 (90; Wednesday, May 11, 2005): 24870-24934.
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APPENDIX B

NEIL ABERCROMBIE
GOVERNOR OF HAWAII



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
STATE HISTORIC PRESERVATION DIVISION
601 KAMOKILA BOULEVARD, ROOM 555
KAPOLEI, HAWAII 96707

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KAHOOLAWE ISLAND RESERVE COMMISSION
LAND
STATE PARKS

April 28, 2011

Joseph Kennedy
Archaeological Consultants of the Pacific
59-624 Pupukea Road
Haleiwa, Hawaii 96797

LOG NO: 2011.0888
DOC NO: 1104MV28
Archaeology

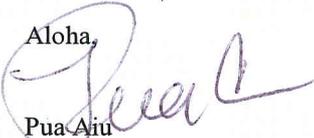
**SUBJECT: HRS Chapter 6E-42 Historic Preservation Review –
Archaeological Monitoring Plan for a Property Located at TMK: (1) 2-7-034
Waikiki Ahupua‘a, Kona District, Island of O‘ahu
TMK: (1) 2-7-034**

Thank you for the opportunity to review this draft plan *Archaeological Monitoring Plan for a Property Located at TMK: (1) 2-7-034 Waikiki Ahupua‘a, Kona District, Island of O‘ahu* (Syrop, Jeff and Kennedy, Joseph, march 2011). This draft was received by our office on March 30, 2011. This AMP is well written and concise. This project involves excavation up to 16 feet deep for Drainage improvements on Palani Avenue in Waikiki. The background information included in this AMP indicates that subsurface cultural deposits, including human skeletal remains could potentially be located within this project area. .

Your description of the construction methods provides an adequate description of the project effects, and your 'Methodology of archaeological monitoring' section indicates how these effects will be mitigated. We agree that a qualified archaeological monitor should be on site for all (100%) of the ground disturbing activity. This plan meets the standards set forth in HAR §13-279-4 and is accepted by SHPD. Please send one hardcopy of the document, clearly marked FINAL, along with a copy of this review letter and a text-searchable PDF version on CD to the Kapolei SHPD office, attention SHPD Library.

Please contact Mike Vitousek at (808) 692-8029 or Michael.Vitousek@Hawaii.gov if you have any questions or concerns regarding this letter.

Aloha,



Pua Aiu

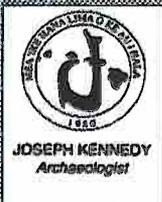
Administrator

State Historic Preservation Division

**AN ARCHAEOLOGICAL MONITORING PLAN
FOR A PROPERTY LOCATED AT TMK: (1) 2-7-034
IN WAIKIKI AHUPUA'A, KONA DISTRICT,
ISLAND OF OAHU
MARCH 2011**

**Prepared for: Mrs. Sheryl Nojima
Gray, Hong, Nojima and Associates, Inc.
201 Merchant St., Suite 1900
Honolulu, HI 96813**

**Prepared by: Archaeological Consultants of the Pacific, Inc.
Jeff Syrop, B.A.
Joseph Kennedy, M.A.
59-624 Pupukea Road
Haleiwa, Hawaii 96712**



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**An Archaeological Monitoring Plan
for a Property Located at TMK: (1) 2-7-34
in Waikīkī Ahupua‘a, Kona District,
Island of O‘ahu**

Section 1: Introduction

At the request of Sheryl Nojima of Gray, Hong, Nojima and Associates, Inc., Archaeological Consultants of the Pacific, Inc. (ACP) has prepared this Monitoring Plan for the on-site archaeological monitoring of all below grade construction activities associated with the Palani Avenue Drainage Improvements, Job Number, 3022-00. The current subject property consists of Palani Avenue, and portions of Date Street, Kamuela Avenue and Kapahulu Avenue in the Waikīkī Ahupua‘a, Kona District, on the island of O‘ahu (see Figure 1). The subject property is currently owned by City and County of Honolulu.

The current project will consist of the improvement of the drainage system to alleviate flooding in Palani Avenue due to the inadequacy of the existing drainage system. The objective is to redirect some of the runoff into the existing drainage system in Kapahulu Avenue. The archaeological monitoring of all ground disturbing activities will help mitigate the effects of those activities on potentially significant cultural properties that may be encountered during subsurface construction activities.

This plan briefly summarizes the physical setting of the subject property and the proposed improvements involved with the Project. In addition, the methodology of archaeological monitoring is described. Recommendations are also made regarding the treatment of significant historic properties and/or cultural deposits that may be encountered during archaeological monitoring.

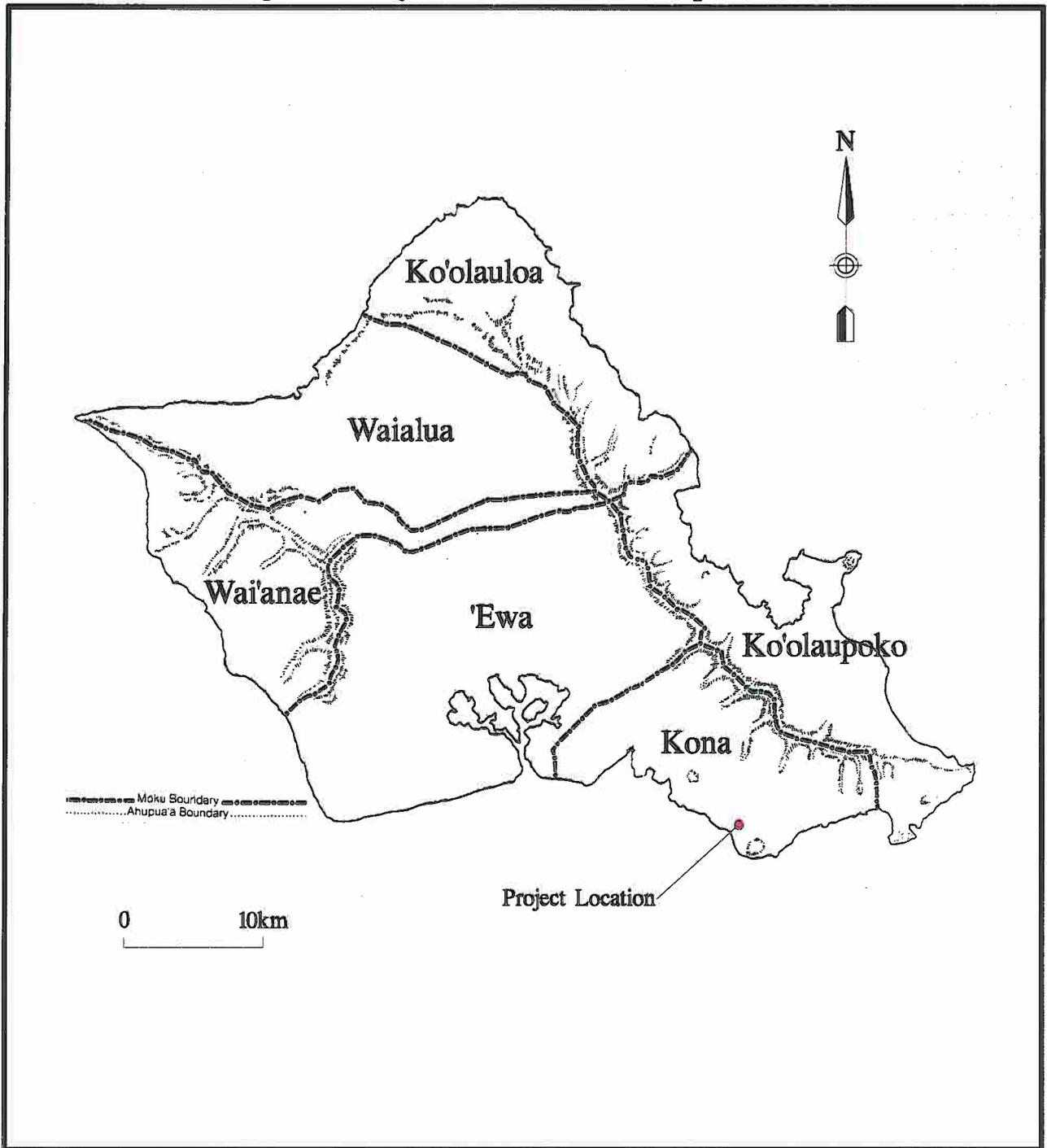
Section 2: Physical Setting

The current subject property (TMK: (1) 2-7-34) consists of an area of work which has a perimeter of approximately 860m in length. The project area is located at the southwestern side of the Waikīkī Ahupua'a, in the Kapahulu District. Although the property is in an area more commonly known as Kapahulu, for the purposes of this report we are going to refer to the area by its pre-contact distinction, Waikīkī Ahupua'a. The property is triangulated between Palani Avenue, Date Street, and Kapahulu Avenue. (see Figure 2).

The subject property is located on land that is relatively flat and level, a characteristic that is attributed to the development of Waikīkī as a resort area as well as an area that houses many residential and commercial buildings. The project area is located between 1.15 and 1.30 Kilometers from the coast at an elevation of approximately 10 feet (ft) above mean sea level (AMSL).

The *Soil Survey of the Islands of Kauai, Oahu, Maui, Molokai, and Lanai, State of Hawaii* depicts the soils in the project area as consisting of smooth slopes with Kawaihapai clay loam. There are small areas where the matrix is silty clay and Jaucus sands. The natural vegetation consists of *guava*, *honohono*, *kukui*, and *hala*. Located on the leeward side of O'ahu, rainfall on the subject property averages between 20 and 30 inches a year and the mean annual temperature is approximately 75° Fahrenheit (Armstrong 1973). There are no streams or intermittent water channels passing through this portion of Waikīkī Ahupua'a.

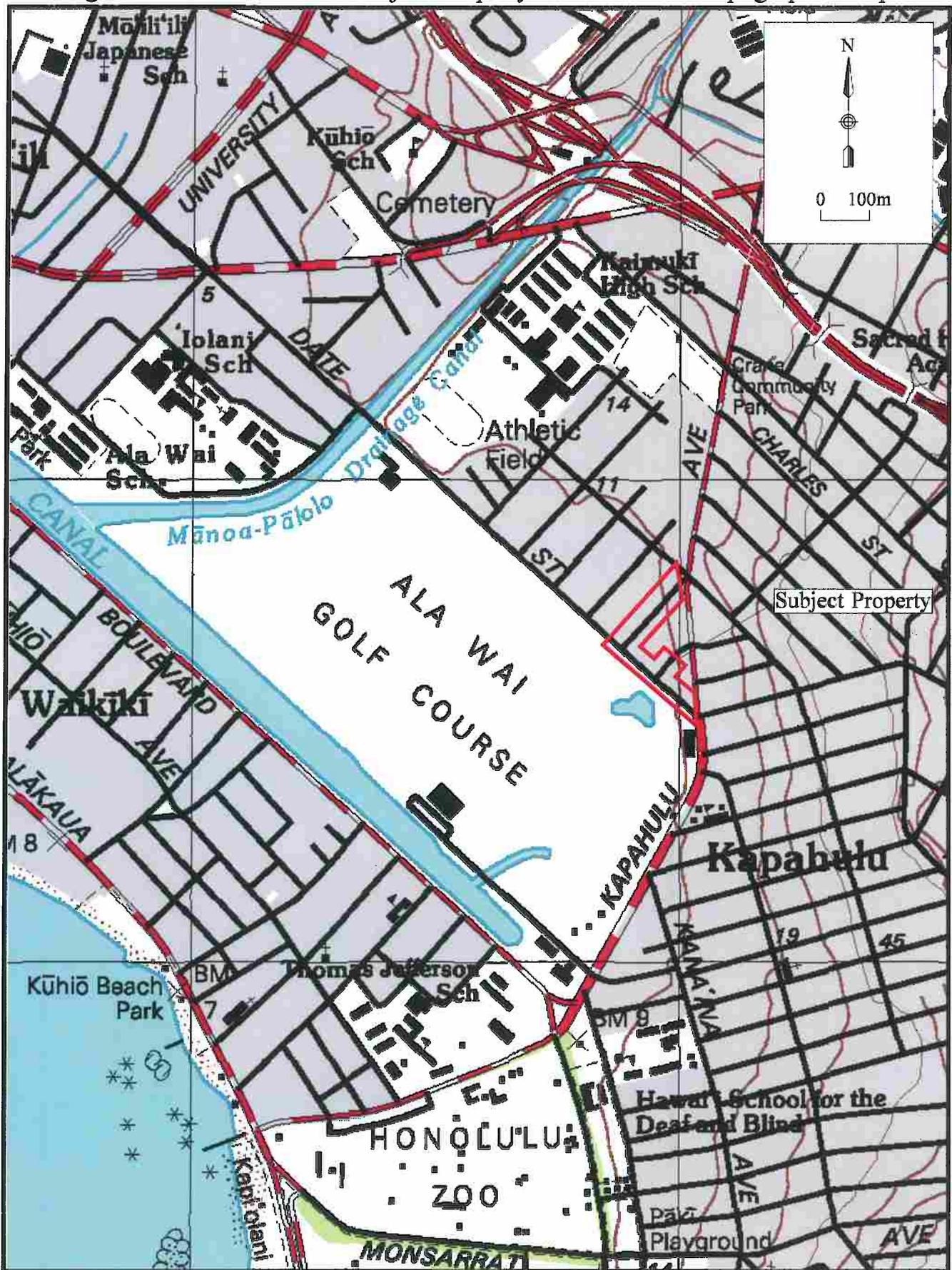
Figure 1: Project Location on a Map of Oahu



Palani Ave. TMK: (1) 2-7-34

Source: Adapted from Nogelmeier in Snakenberg 1990

Figure 2: Location of the Subject Property on a U.S.G.S. Topographic Map



Palani Ave. TMK: (1) 2-7-34

source: U.S.G.S. 7.5 Minute Series (Topographic)
Honolulu Quadrangle 1998

Section 3: Summary of Proposed Developments

The Palani Avenue Drainage Improvement Project will consist of several procedures. These procedures will establish an underground drainage system in Palani Avenue and on a portion of Date Street in order to connect with the existing underground drainage system in Kapahulu Avenue:

- 1) Relocation of existing utilities through excavation.
- 2) The installation of new underground drain pipes and structures that will connect to the existing drain pipes in Kapahulu Avenue.
- 3) Trenching up to 16 feet below the existing road elevation to complete above tasks.

The purpose of the Palani Avenue Drainage Improvements is to alleviate flooding on Palani Avenue by diverting some of the runoff to the Kapahulu Avenue drainage system. In order to connect the Palani Avenue drainage system to the Kapahulu Avenue drainage system, the City Department of Design and Construction plans to construct an underground drainage system in Palani Avenue and a portion of Date Street. The project will also affect a portion of Kamuela Avenue.

Section 4: Previous Archaeology

The Waikīkī Ahupua'a was occupied for centuries by Native Hawaiians before the arrival of Europeans. During the pre-contact era, this area was abundant with natural and cultivated resources. This included a large system of irrigated taro fields and many fishponds. The Waikīkī Ahupua'a had a large population of Native Hawaiian people, which later included the highest-ranking ali'i (Hawaiian Royalty).

In past archaeological studies within the Waikīkī Ahupua'a, there have been many recorded instances of the presence of subsurface pre-contact Hawaiian and historic-era deposits, including pre-contact Hawaiian Burials. Historic-era burials have also been documented. Historic-era trash pits associated with early twentieth century house sites have been archaeologically documented and may also lay subsurface.

Although there have been more accounts of burials closer the ocean where Jaucus sands are more abundant, archaeological records show that there is still a very likely chance that burials and associated artifacts may lay undisturbed beneath the surface in more mauka areas as well. During the construction process of Walmart and Whole Foods in the district of Honolulu, many burials were located. In these controversial cases, the construction areas were not directly on the shoreline. This shows that even though the project area is not directly on the shoreline, there is still a possibility of encountering both pre-contact and early historic burials.

Table 1: Previous Archeological Investigations in Waikiki

Site Number	Reference	Type of Investigation	Location	Description	Radiocarbon Dates (AD)
	Thurm 1916	Recording	Waikiki Ahupua'a near lower Manoa Valley	detailed recording of the Hipawai, Kawapopo and Hakika Heiau	
3986	McAllister 1933	Limited Reconnaissance Survey	<i>Mauka</i> portion of the Waikiki Ahupua'a	detailed recording of 5 Waikiki Heiau: Kawapopo, Kukaoo, Mauoki, Hakiki/Paliuahine and Papaenacna	
	Niu 1940		Helumoa	unnamed <i>heiau</i> reported to have been present in the late 1700's	
	Emerson 1902		Near Kapiolani Park	human remains in eroding beach front	
3706	Bishop Museum 1961		Saratoga Road near Ft. DeRussy	human burial/1800's artifacts	
3707	Bishop Museum 1963		Prince Edward Street, Pua'ali'ili'i	human burials	
3705	Bishop Museum 1964		Surfrider Hotel, Helumoa	human remains in eroding beach front	
9500	Bishop Museum 1976		Hale Koa Hotel	human burials	
2870	Neller 1980		Tapa Tower, Hilton Hawaiian Village Hotel	human burials/1800's artifacts	
9957	Neller 1981; Davis 1984		Halekulani Hotel, Kalia	human burials/pre-, post-Contact deposits	
	Neller 1984		Queen Liliuokalani Gardens Condominium, Ala Wai Blvd	human burials/pre-, post-Contact deposits	
	Kaschko 1985		Pacific Beach Hotel, Pua'ali'ili'i	human burials/pre-, post-Contact deposits	1400's
2870	Estioko-Griffin 1987		Hilton Hawaiian Village Hotel	post-Contact remains	
3745	Estioko-Griffin 1987		Kalakaua Ave fronting Moana Hotel, Helumoa	human burial	
9901	Simmons 1988; Simmons <i>et al.</i> 1991	Monitoring and Data Recovery	Moana Hotel, Helumoa	human burials/pre-, post-Contact deposits	
9500	Davis 1989	Reconnaissance	Ft. DeRussy	pre-, early post-Contact fishponds, habitation deposits (trash pits, hearths, postholes, midden)	1429-1512
	Rosendahl 1989a; 1989b	Reconnaissance	Hale Koa Hotel, Ft. DeRussy	no intact findings	
	Bath & Kawachi 1989	Monitoring	Ala Wai Golf Course property	human burials	
	Davis 1991	Monitoring	LCA 1515:2, Ft. DeRussy	hearths, pits, postholes, human burial	1792-1949 1872-1920 1450-1676
	Hurlbert, Carter & Goodfellow 1992	Monitoring	Hilton Hawaiian Village	post-Contact trash pits	
	Carlson <i>et al.</i> 1994	Monitoring/Excavation	Ft. DeRussy near Kalia Road	post hole remnants discovered in rich layer of cultural deposits/ approximately 40 human burials present	
	McMahon 1994	Monitoring	Kalakaua Avenue and Kuamo'o Street intersection	human burial	
	Jourdane 1995	Monitoring	Waikiki Sunset Hotel	human burial	

Table 1: Previous Archeological Investigations in Waikiki (cont.)

Site Number	Reference	Type of Investigation	Location	Description	Radiocarbon Dates (AD)
	Simmons <i>et al.</i> 1995	Data Recovery	Ft. DeRussy	investigation of 'auwai, ponds, habitation features, human burial	
	Cleghorn 1996	Inventory Survey	King Kalakaua Plaza	No sites	
4224	Beardsley & Kaschko 1997	Inventory Survey	Pacific Beach Hotel, Office Annex	human burials/ pre-Contact layer with evidence of midden, post molds and fire pits	late pre-contact
4574 4570 4966	Denham & Pantaleo 1997a	Monitoring	Ft. DeRussy	Loko Paweo I, post-Contact trash pits, human burials (4574); temporary and permanent habitation deposits, human burials, fire pits, ash lens (4570); pre-Contact permanent habitation, human burials (4966)	<i>Site 4570:</i> 1650-1950 1480-1950 1750-1410 1530-1550 1440-1690 <i>Site 4966:</i> 1200-1640 1400-1530
4570 4970 4574 4575 4576 4579	Denham & Pantaleo 1997b	Data Recovery	Ft. DeRussy	investigation of LCA 2511, former spit with fire pits, post hole, cultural deposit (4570); 'auwai and bund system (4970); Loko Paweo I (4574); Loko Ka'ihikapu (4575); Loko Paweo II (4576); LCA 1758,3, human burial, fire pits, pit, stains, midden (4579)	1680-1740 1440-1690 1440-1690 1510-1950 1430-1670 1430-1640 1290-1460
4570 4580	Denham & Pantaleo 1998	Monitoring	Hale Koa Hotel	pits, trash pits, fire pits, human burials (4570); pits, post holes, trash pits, horse burial, bottle dump, cultural layer (4580)	
	Hammatt & McDermott 1999		Kalakaua, near Ena Rd.	Human remains	
4970 5796	LeSuer <i>et al.</i> 2000	Inventory Survey	King Kalakaua Plaza	<i>Site 4970</i> -'Auwai O Pau <i>Site 5796</i> -pre-Contact to early 20 th century wetland ground surface under fill material from the 1910-1930 dredging of the Ala Wai Canal.	
	Corbin 2001	Inventory Survey	Hilton Waikikian	No sites	
	Roberts & Bower 2001	Monitoring	Ft. DeRussy	No sites	
5937	Elmore & Kennedy 2001	Inadvertent Discovery	Royal Hawaiian Hotel, Helumoa	post-Contact human burial	
6407	Borthwick <i>et al.</i> 2002	Inventory Survey	71,000 sq.ft. parcel near Ala Wai Canal	Subsurface cultural deposit, Site 6407; Feature A - a berm described as a <i>kuāuna</i> bordering a "paukū ditch", Feature B- former agricultural ground surface	1390-1480 1400-1660

Section 5: Expected Finds

The pre-contact deposits could include but are not limited to human burials. The majority of the pre-contact burials were found in Jaucus sands. Although burials are more prevalent closer the shore where Jaucus sands are abundant, small amounts of Jaucus sands deposits are found in the Palani Avenue area which increases the chances of pre-contact Hawaiian burials. While burials are more likely to be found in Jaucus sand, there is a possibility of uncovering pre-contact and early historic burial in any type of soil. Additionally, there is a possibility that pre-contact cultural deposits are lying undisturbed beneath the modern fill levels. These deposits may include Hawaiian habitation, recreation, agricultural, and work sites, along with associated artifacts. Typically, subsurface cultural remains could include buried stone structures, midden deposits, post holes, fire pits and traditional artifacts such as fishing gear and stone tools.

With the urbanization of Waikīkī, the surface evidence of traditional Hawaiian cultivation process has been obliterated from the area and therefore, there is only a very small chance of finding any pre-contact Hawaiian surface features. Historic-era deposits may include metal, ceramic, glass related artifacts. These Historic-era deposits come from the many layers of occupation that came following European contact.

Section 6: Build Environment

The Waikīkī Ahupua'a has seen several occupation episodes during the historic-era. There have been many rice farms along with post-contact Hawaiian taro farms in the area. As the 20th century progressed, many modern single family dwellings were constructed in this area. Many of these historic, single family dwellings were since demolished to make room for multifamily dwellings and businesses. The Built Environment now consists of concrete sidewalks, asphalt roadways, apartment buildings, many residential and commercial buildings, and utility infrastructure.

Figure 4: Subject Property on a Map of Google Earth



Palani Ave. TMK: (1) 2-7-34

Section 7: Methodology of Archaeological Monitoring

On site archaeological monitoring of 100% of subsurface construction activities conducted on the subject property will be under the supervision of the Principle Investigator, Joseph Kennedy, M.A. Fieldwork is expected to commence following the approval of this Monitoring Plan.

Prior to the commencement of ground disturbing activities, the monitoring archaeologist will conduct a coordination meeting with the construction crew in order to brief the team on the expected finds and plans for monitoring. The monitoring archaeologist will make the crew aware of the possibility of encountering subsurface deposits which could range from individual cultural artifacts to subsurface cultural layers, subsurface structures and/or human burials.

In the event that significant historic properties are encountered, the monitoring archaeologist has the authority to halt construction in the immediate vicinity of the find until the proper authorities are notified and/or proper mitigation measures are undertaken. Construction activities may shift to other areas of the subject property in this event.

The treatment of possible sites encountered is dependent upon the feature type. Previous investigations have demonstrated that cultural deposits can be found in deposits of Jaucas sand along coastal plains. During the on site archaeological monitoring of construction activities on the subject property, the field monitor will visually inspect all ground disturbing activities and rake through excavated materials in order to identify any possible culturally deposited materials.

If traditionally manufactured artifacts are recovered, they will be collected, bagged and labeled with the appropriate excavation information. If artifacts of traditional manufacture are collected, the provenience of the find will be documented and, if appropriate, stratigraphic profiles will be recorded and soil samples collected from each stratum identified.

In the event that deposits are encountered containing significant amounts of midden and artifactual materials, ground disturbing activities will cease at that location and archaeological salvage excavations will be conducted. These excavations will be limited to a single 1m by 1m test unit at any individual deposit containing significant cultural materials.

If archaeological salvage excavations are warranted, all sampling will be conducted using standard archaeological methods including the screening of soils using one eighth inch mesh in order to retrieve significant cultural deposits. Profiles of the stratigraphy encountered will be documented and soil samples will be collected from all

layers and features encountered, placed in resealable plastic bags and labeled with the appropriate provenience information for use in laboratory analyses. Similarly, all cultural materials will be collected, placed in resealable plastic bags and labeled with the appropriate provenience information for use in laboratory analyses. Carbon samples will be recovered, when possible and appropriate, for the purpose of radiocarbon testing. The samples will be collected with trowel or tweezers without coming into contact with human skin, carefully wrapped in aluminum foil in order to prevent the carbon from being exposed to sunlight and to avoid contact with other carbon based materials which would also adversely affect the sample, placed in resealable plastic bags and labeled with the appropriate provenience information.

Laboratory analyses will include a range of diagnostic endeavors. All analyses will be conducted according to standard scientific and archaeological methods and recorded on standardized analysis forms. Soils will be analyzed according to USDA standards in order to obtain a scientific determination of their composition and color. Artifacts will be sorted by type, described in detail, weighed, measured and tabulated with the results presented by provenience in a detailed accession list. Invertebrate faunal remains will be identified to the genus level as possible. Vertebrate faunal remains will be analyzed by ACP personnel with the samples identified to the class level, as possible. The results of all faunal analyses will be prepared by being tabulated and presented by provenience and weight. Ultimately, these analyses will provide information which will help determine the age of utilization and range of activities that likely took place at the sites at which salvage investigations take place.

In the event that human burials are encountered during archaeological monitoring they will be considered inadvertent finds and will be treated in accordance with Chapter 6E-43.6, Hawaii Revised Statutes. The proper personnel at the Department of Land and Natural Resources, State Historic Preservation Division and the State Burials Program will be notified and their recommendations implemented. Upon the positive identification of human remains, no screening of back dirt piles or other invasive procedures (e.g., cleaning of soil profiles, digging into trench walls) will be conducted unless instructed by the SHPD. In the event that human remains are discovered, the Burials Sites Program may request additional documentation including letter memos and/or other reports, as necessary.

A complete Archaeological Monitoring Report will be prepared following the completion of all subsurface construction activities documenting all finds encountered during archaeological monitoring. All materials collected during the monitoring of below grade construction activities on the current subject property will be bagged and labeled appropriately, placed in labeled and inventoried boxes, and curated at ACP facilities located at 59-624 Pupukea Road, Haleiwa, Hawaii.

Conclusion

Archaeological Consultants of the Pacific, Inc. has prepared this plan for the onsite archaeological monitoring of all below grade construction activities associated with the Palani Avenue Drainage Improvements Project. The current subject property consists of Palani Avenue and portions of Date Street, Kamuela Avenue and Kapahulu Avenue.

The current project will consist of the relocation of existing utilities, insertion of new drain pipes and structures, and trenching up to 16 feet below the existing road elevation to accomplish these tasks. The new drain pipes will alleviate flooding in Palani Avenue by redirecting the runoff to the already existing drainage system in Kapahulu Avenue. The archaeological monitoring of all ground disturbing activities will help mitigate the effects of those activities on potentially significant cultural properties that may be encountered during construction activities.

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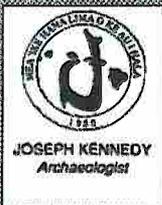
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APPENDIX C

**A CULTURAL IMPACT ASSESSMENT
FOR A PROPERTY LOCATED AT TMK: (O) 2-7-034
IN WAIKIKI AHUPUA'A, KONA DISTRICT,
ISLAND OF OAHU
MARCH 2011**

**Prepared for: Ms. Sheryl Nojima
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**A Cultural Impact Assessment for a Property
Located at TMK: (1) 2-7-34
Waikīkī Ahupua‘a, Kona District,
Island of O‘ahu**

Section 1: Introduction

At the request of Sheryl Nojima of Gray, Hong, Nojima and Associates, Inc., Archaeological Consultants of the Pacific, Inc. (ACP) has prepared this Cultural Impact Assessment for a property located at TMK: 2-6-34 in the *ahupua‘a* of Waikīkī, district of Kona, island of O‘ahu (see Figure 1).

The purpose of this cultural impact assessment is to comply with the requirements of Chapter 343, HRS, as amended and as administered by the office of Environmental Quality Control as a part of the Environmental Assessment process which requires that environmental assessments (EA) and impact statements (EIS) identify and assess the potential effects of “a proposed action on cultural practices and features associated with the project area.” These investigations were conducted in an effort to promote and preserve cultural beliefs practices, and resources of native Hawaiians and other ethnic groups.

The current assessment took the form of a historic background study, consultations with the Department of Land and Natural Resources, State Historic Preservation Division (DLNR-SHPD) and community consultations. The historic background research addresses traditional accounts and land use for Waikīkī Ahupua‘a and the current subject property as well as previous archaeological investigations that have occurred in the vicinity of the project area. Community consultations addressed concerns of community members regarding the effect of the proposed construction on places of cultural or traditional importance. As a result of the current study, recommendations regarding the impact of the proposed development on cultural practices and features associated with the project area have been made.

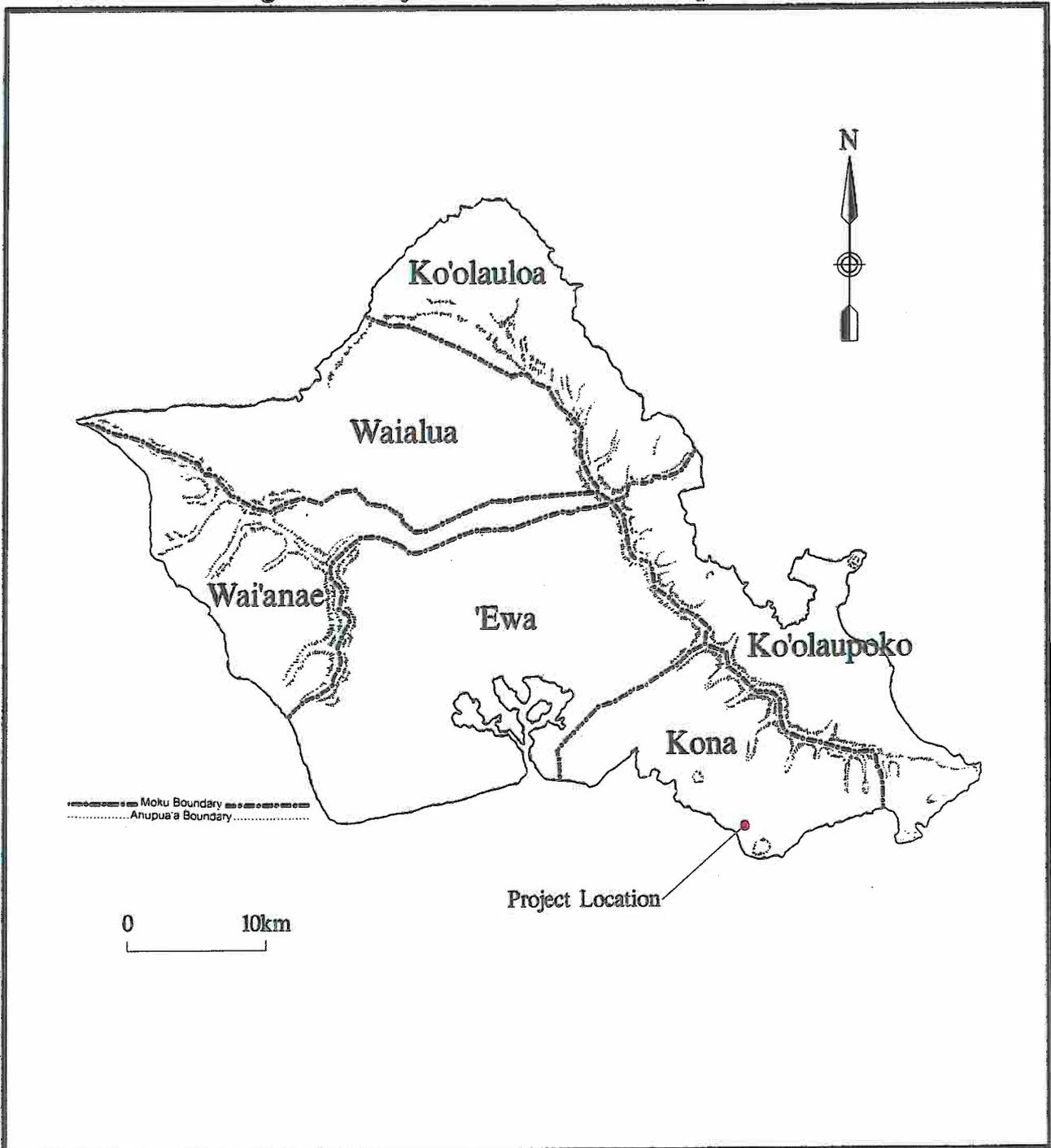
Section 2: Physical Setting

The current subject property (TMK: (1) 2-7-34) consists of an area of work which has a perimeter of approximately 860m in length. The project area is located at the southwestern side of the Waikīkī Ahupua'a, in the Kapahulu District. Although the property is in an area more commonly known as Kapahulu, for the purposes of this report we are going to refer to the area by its pre-contact distinction, Waikīkī Ahupua'a. The property is triangulated between Palani Avenue, Date Street, and Kapahulu Avenue. (see Figure 2).

The subject property is located on land that is relatively flat and level, a characteristic that is attributed to the development of Waikīkī as a resort area as well as an area that houses many residential and commercial buildings. The project area is located between 1.15 and 1.30 Kilometers from the coast at an elevation of approximately 10 feet (ft) above mean sea level (AMSL).

The *Soil Survey of the Islands of Kauai, Oahu, Maui, Molokai, and Lanai, State of Hawaii* depicts the soils in the project area as consisting of smooth slopes with Kawaihapai clay loam. There are small areas where the matrix is silty clay and Jaucus sands. The natural vegetation consists of *guava*, *honohono*, *kukui*, and *hala*. Located on the leeward side of O'ahu, rainfall on the subject property averages between 20 and 30 inches a year and the mean annual temperature is approximately 75° Fahrenheit (Armstrong 1973). There are no streams or intermittent water channels passing through this portion of Waikīkī Ahupua'a.

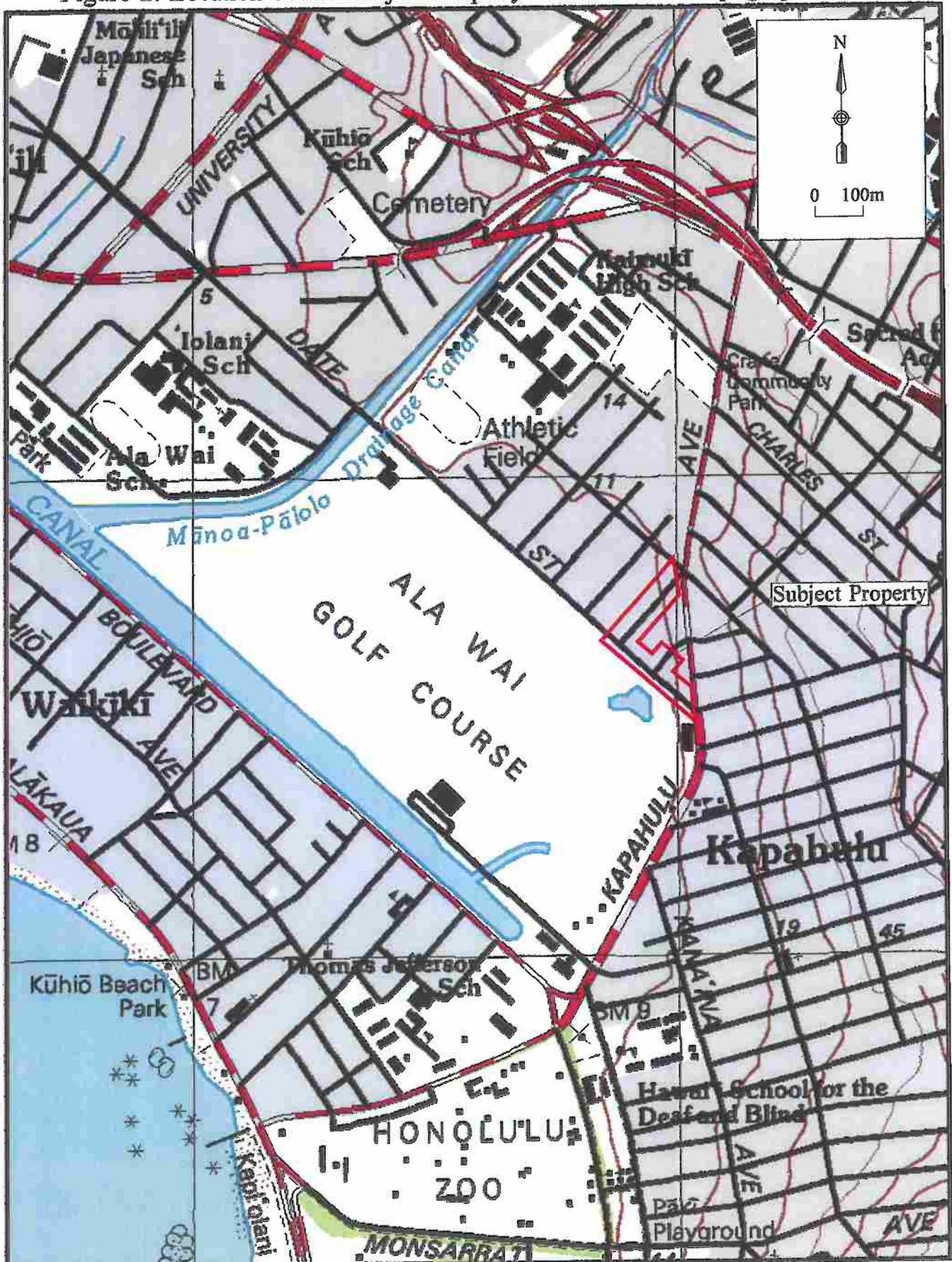
Figure 1: Project Location on a Map of Oahu



Palani Ave. TMK: (1) 2-7-34

Source: Adapted from Nogelmeier in Snakenberg 1990

Figure 2: Location of the Subject Property on a U.S.G.S. Topographic Map



Palani Ave. TMK: (1) 2-7-34

source: U.S.G.S. 7.5 Minute Series (Topographic)
Honolulu Quadrangle 1998

Section 3: Historic Background

Traditional Accounts

During traditional times, Waikīkī was the seat of the ruling chiefs of O‘ahu and the location of a thriving community with a wealth of agriculture and aquaculture. According to Handy (1940:74), the *lo‘i* systems of Waikīkī were developed by Chief Kalamakua and were “one of the most extensive single terrace areas on the island.”

Legendary accounts associated with Waikīkī include tales concerning a group of boulders known as the Wizard Stones as well as another group of stones known as Pae-ki‘i. Van James, in *Ancient Sites of Oahu* (1991:24), summarizes the legend of the Wizard Stones and provides a bit of history regarding this site:

These ancient stones, according to tradition, were once empowered with the *mana* (spiritual power) of four great *kāhuna* who arrived from Kahiki (Tahiti) before the reign of the sixteenth-century ruler of O‘ahu, chief Kakuihewa. These *kāhuna*, who became widely known throughout the islands as healers, instructed the people that four large stones should be placed on the beach in Waikīkī near the present Moana and Surfrider hotels. Kapaemahū, the head *kāhuna*, named the larger of the stones after himself and imbued it with special powers. His companions, Kahaloa, Kaup‘i [sic.], and Kinahi, one by one did the same with each of the remaining stones. The four *kāhuna* then left Hawai‘i for parts unknown.

It is said that in the late 1800s, Princess Likelike, sister of King Kalākaua, always placed a *lei* on each of the stones and offered a prayer before entering the water at Waikīkī. Governor A.S. Cleghorn, husband of Likelike, asked in this will of 1910 that the stones “not be defaced or removed.” However, during the decades of development in Waikīkī, the stones have been moved and broken a number of times. The Wizard Stones came to rest at their present location in Kūhiō Beach Park in 1980. Here they go largely unnoticed by the daily crowds of beachgoers who use them to sit on while waiting in line for the public showers.

Beckwith, in *Hawaiian Mythology* (1970:89), describes the legend of the Pae-ki‘i:

According to Mrs. Pukui, near the old Hawaiian hotel at Waikiki is a row of rocks called Pae-ki‘i to which it was the custom in old days to take strangers caught along the coast and suspected of a war trip or a search for a human victim for their gods, and hold their heads under water until they were drowned. This method of putting to death was called *kai he‘e kai*. An old Hawaiian who was asked to point them out refused lest “our lives should pay the forfeit.”

Accounts of Waikīkī by early western visitors provide insight as to the nature of land use in the area during traditional times. Captain George Vancouver describes the cultivation of the lands of Waikīkī in 1792 with particular attention to the numerous taro pondfields:

On the shores, the villages appeared numerous, large, and in good repair; and the surrounding country pleasingly interspersed with deep, though not extensive valleys; which, with the plains near the sea-side, presented a high degree of cultivation and fertility. ... on inquiring for water ... Our guides led us to the northward through the village, to an exceedingly well-made causeway, about twelve feet broad, with a ditch on each side.

This opened to our view a spacious plain, which, in the immediate vicinity of the village, had the appearance of the open common fields of England; but on advancing, the major part appeared to be divided into fields of irregular shape and figure, which were separated from each other by low stone walls, and were in a very high state of cultivation. These several portions of land were planted with the eddo or *taro* root, in different stages of inundation; none being perfectly dry, and some from three to six or seven inches under water. The causeway led us near a mile from the beach, at the end of which was the water we were in quest of. It was a rivulet five or six feet wide, and about two or three feet deep, well banked up, and nearly motionless; some small rills only, finding a passage through the dams that checked the sluggish stream, by which a constant supply was afforded to the *taro* plantations. ... In this excursion we found the land in a high state of cultivation, mostly under immediate crops of *taro*; and abounding with a variety of wild fowl, chiefly of the duck kind, ... The plains, however, if we may judge from the labour bestowed on their cultivation, seemed to afford the principal proportion of the different vegetable productions on which the inhabitants depend for their subsistence (Vancouver 1984, Vol. II:453-456).

Also on board with Vancouver was surgeon and naturalist Archibald Menzies, who further discussed the cultivation of taro and various crops as well as the presence of fishponds:

The verge of the shore was planted with a large grove of coconut palms, affording a delightful shade to the scattered habitations of the natives. Some of those near the beach were raised a few ft. from the ground upon a kind of stage, so as to admit the surf under them. We pursued a pleasing path back to the plantation, which was nearly level and very extensive, and laid out with great neatness into little fields planted with taro, yams, sweet potatoes, and the cloth plant. These, in many cases, were divided by little banks on which grew the sugar cane and a species of *Dracaena* without the aid of much cultivation, and the whole was watered in a most ingenious manner by dividing the general stream into little aqueducts leading in various directions so as to be able to supply the most distant fields at pleasure, and the soil seemed to repay the labor and industry of these people by the luxuriancy of its productions. Here and there we met with ponds of considerable size, and besides being well stocked with fish, they swarmed with waterfowl of various kinds such as ducks, coots, water hens, bitterns, plovers and curlews (Menzies 1920:23-24).

Some years later, another naturalist who visited Waikīkī aboard the *Blonde* in 1825, Andrew Bloxam, gave further description of the extent of fishponds along the coastal plain of Waikīkī:

The whole distance to the village of Whyteetee is taken up with innumerable artificial fishponds extending a mile inland from the shore, in these the fish taken by nets in the sea are put, and though most of the ponds are freshwater, yet the fish seem to thrive and fatten. Most of these fish belong to the chiefs, and are caught as wanted. The ponds are several hundred in number and are the resort of wild ducks and other water fowl. It is pleasantly situated and built along the shore among numerous groves of coconut and other trees ... (Bloxam 1925:35-36).

Given the prominence of Waikīkī as the seat of the ruling chiefs of O‘ahu, there are many famous rulers and prominent families which are associated with the area. Of particular note are the residences of Kamehameha I and the Luluka Family at Waikīkī. John Papa I‘i, a member of the Luluka Family, describes both these residences:

The person whose writing this is, John Papa Ii, first appeared amongst the chiefs when but a small child, at Kawehewehe in Waikiki, Oahu. His uncle, Papa Ii, and most of their people were there at that time, for that was their first residence when the company arrived from Lahaina at the time of the coming of Kamehameha with his great *peleleu* fleet of canoes intended for the invasion of Kauai.

Kamehameha’s houses were at Puaaliilii, makai of the old road, and extended as far as the west side of the sands of Apuakehau. Within it was Helumoa, where Kaahumanu *ma* went to while away the time. The king built a stone house there, enclosed by a fence; and Kamalo, Wawae, and their relatives were in charge of the royal residence. Kamalo and Wawae were the children of Luluka and Keaka, the childhood guardians of Kamehameha.

This place had long been a residence of chiefs. It is said that it had been Kekuapoi’s home, through her husband Kahahana, since the time of Kahekili (I‘i 1959:17).

Helumoa is located in the vicinity of the Royal Hawaiian Hotel, and Kawehewehe is located in the surrounding area of Saratoga Road.

Waikīkī has also been known from traditional times for its excellent surf. It was a favorite among the *ali‘i*, such that on one occasion warfare was reported to have been delayed when the wave conditions were good (I‘i 1959:51).

Land Use History

Waikīkī is one of the most striking examples of the dramatic change which took place subsequent to the arrival of foreigners. As was the case throughout the Hawaiian Islands, with the coming of foreign-introduced illnesses for which the native peoples had no natural resistance, a significant decline in population resulted. With the reduction in numbers of people able to work and maintain the agricultural fields and fishponds as well as the number of consumers, much of these systems fell into disuse. Descriptions of this demise came as early as 1828 in an account by Levi Chamberlain:

Our path led us along the borders of extensive plats of marshy ground, having raised banks on one or more sides, and which were once filled with water, and replenished abundantly with esculent fish; but now overgrown with tall rushes waving in the wind. The land all around for several miles has the appearance of having once been under cultivation. I entered into conversation with the natives respecting this present neglected state. They ascribed it to the decrease of population (Chamberlain 1957:26).

Despite the diminished population and state of cultivation, these traditional practices did not completely disappear. An article in the newspaper *Ku'oko'a* (November 28, 1863, Pukui translation in Handy & Handy 1972) describes Kamehameha IV's attempts at restoring taro pondfields that had been taken over by bulrushes:

Our King's project at Keokea, in Waikiki, is successful. The work in his taro patch, Keokea, was commenced the first of June, last, and finished on the 22nd of October, just passed. The taros are thriving from up at Keokea down to the shore, a pleasing sight to the eyes. The leaves are green and much admired by every one here in Waikiki. Our King had cultivated these huge taro patches before in years past. Many commoners and chiefs worked in them. All of this patch has not been worked in because of the great size and the toughness of the bulrushes. They defy the great number of workmen, the chiefs, and the sharpness of the spades. The work is very hard but the heart of our King is neither dismayed nor discouraged. He is determined to have his patches worked until the time, mentioned above, arrived.

Information presented in Native and Foreign Testimony and Register for Land Commission Awards (LCA's) during the Great Mahele in the mid-1800's provides additional insight into the continued traditional land use of Waikīkī. A total of 431 claims were made for land in Waikīkī, of which 241 were awarded. The LCA's in Waikīkī consisted primarily of house lots towards the shoreline with plots inland of the sand dunes used for fishponds and *lo'i* (Davis 1989). Portions of five LCA's are located on the current subject property, LCA 867:2, LCA 1758:2, LCA 1765:2, LCA 6386:7 and a small portion of LCA 8559B:29 (see Figures 3 & 4).

Information within the Native and Foreign Register and Testimony was obtained regarding land use for three of the five LCA's located on the current subject property (Board of Commissioners to Quiet Land Titles 1946-1955). LCA 867:2 was awarded to Nihopu'u and is documented as containing "4 [taro] patches with a section of the creek." LCA 1758:2 was awarded to Kalaeone and is documented as containing a "taro patch and pauku stream." LCA 1765:2 was awarded to Kahikaele and Kamalie, documented as containing a single patch, called "Niukukahi", bordered on one side by a ditch. LCA 6386:7 was awarded to Kauhao, however no land use information was documented for this parcel. Similarly, no information specifically regarding the land use of LCA 8559B:29, awarded to Lunalilo, was documented. Complete testimonies regarding the LCA's are provided in Appendix A.

The latter half of the nineteenth century saw a marked change in land use and the ethnicity of the residents of Waikīkī with much of the land passing into the hands of foreigners (Davis 1989). Many of the former taro fields were purchased by Chinese immigrants and subsequently converted into rice fields. Borthwick *et al.* describe this transition:

As was happening in other locales, in the 1880's, groups of Chinese began leasing and buying – from the Hawaiians of Waikīkī – former taro lands for conversion to rice farming. The taro lands' availability throughout the islands in the late 1800's reflected the declining demand for taro as the native Hawaiian population diminished.

... By 1892, Waikīkī had 542 acres planted in rice, representing almost 12% of the total 4,659 acres planted in rice on O'ahu. Most of the former taro *lo'i* converted to rice fields were located *mauka* of the present Ala Wai Boulevard.

Montserrat's 1901 map of Waikīkī indicates large areas planted in rice (see Figure 5). The current subject property is located in an area between rice fields and a banana plantation.

Efforts to fill in the old fishponds and taro pond fields began in 1896 with the passage of Act 61 requiring the filling of these marshy areas for public health purposes (Simmons *et al.* 1995). Corbin (2001) describes how this infilling process was completed in the early 1900's during the Waikīkī Reclamation Project:

The 1900s saw a new face put on Waikiki. Between 1921 and 1929, the Dillingham Construction Company worked on the Waikiki Reclamation Project; this consisted of dredging the entire length of the Ala Wai Canal. The material dredged from the canal was then used to fill a large portion of Waikiki – mainly the many ponds and terraces, thus making the previous “swamp land” useable to the United States Military (for Fort DeRussy) and to others for commercial use (Nakamura 1979).

During the early twentieth century Waikīkī began its transformation into a modern western city with resort and commercial industry predominating and the presence of a United States military fortification. Beginning with two batteries at what was called the Waikīkī Military Reservation, the construction of a fortification at Fort DeRussy began in 1909 and by 1914-1915 was completed (Davis 1991).

Previous Archaeology

Numerous archaeological investigations have been conducted in Waikīkī. Table 1 provides a brief description of each of these investigations. The majority of these have been investigations of inadvertently discovered human remains. Archaeological Reconnaissance, Inventory Survey, Data Recovery and Monitoring have identified both pre- and post-Contact deposits including fishponds and associated features such as *'auwai* and bund systems, burials, and habitation deposits such as trash pits, fire pits, post holes, etc.. These deposits have been found to date primarily from the AD 1400's to the 1900's (Kaschko 1985; Davis 1989; Davis 1991; Denham & Pantaleo 1997a & 1997b), although two dates may indicate earlier use from as early as the AD 1200's (Denham & Pantaleo 1997a & 1997b).

Thrum's "Heiau and Heiau Sites Throughout the Hawaiian Islands" (1907) included descriptions of heiau in Waikīkī. Helumoa Heiau is described as a "Heiau pookanaka, the place of sacrifice of Kauhi-a-Kama, the defeated Moi of Maui, in his raid on Oahu about 1610, in the reign of Kaihikapu." Kalanihakoi Heiau is described as the "site of grass house Kalakaua premises. Ruins noticed at time of Prince of Hawaii's death, 1862; walls torn down much earlier."

The Waikīkī Ahupua'a was occupied for centuries by Native Hawaiians before the arrival of Europeans. During the pre-contact era, this area was abundant with natural and cultivated resources. This included a large system of irrigated taro fields and many fishponds. The Waikīkī Ahupua'a had a large population of Native Hawaiian people, which later included the highest-ranking ali'i (Hawaiian Royalty).

Although there have been more accounts of burials closer the ocean where Jaucus sands are more abundant, archaeological records show that there is still a very likely chance that burials and associated artifacts may lay undisturbed beneath the surface in more mauka areas as well. During the construction process of Walmart and Whole Foods in the district of Honolulu, many burials were located. In these controversial cases, the construction areas were not directly on the shoreline. This shows that even though the project area is not directly on the shoreline, there is still a possibility of encountering both pre-contact and early historic burials.

Table 1: Previous Archeological Investigations in Waikiki

Site Number	Reference	Type of Investigation	Location	Description	Radiocarbon Dates (AD)
	Thurn 1916	Recording	Waikiki Ahupua'a near lower Manoa Valley	detailed recording of the Hipawai, Kawapopo and Hakika Heiau	
3986	McAllister 1933	Limited Reconnaissance Survey	<i>Mauka</i> portion of the Waikiki Ahupua'a	detailed recording of 5 Waikiki Heiau: Kawapopo, Kukao, Mauoki, Hakiki/Paliuahine and Papaenaena	
	Niu 1940		Helumoa	unnamed <i>heiau</i> reported to have been present in the late 1700's	
	Emerson 1902		Near Kapiolani Park	human remains in eroding beach front	
3706	Bishop Museum 1961		Saratoga Road near Ft. DeRussy	human burial/1800's artifacts	
3707	Bishop Museum 1963		Prince Edward Street, Pua'ali'ili'i	human burials	
3705	Bishop Museum 1964		Surfrider Hotel, Helumoa	human remains in eroding beach front	
9500	Bishop Museum 1976		Hale Koa Hotel	human burials	
2870	Neller 1980		Tapa Tower, Hilton Hawaiian Village Hotel	human burials/1800's artifacts	
9957	Neller 1981; Davis 1984		Halekulani Hotel, Kalia	human burials/pre-, post-Contact deposits	
	Neller 1984		Queen Liliuokalani Gardens Condominium, Ala Wai Blvd	human burials/pre-, post-Contact deposits	
	Kaschko 1985		Pacific Beach Hotel, Pua'ali'ili'i	human burials/pre-, post-Contact deposits	1400's
2870	Estioko-Griffin 1987		Hilton Hawaiian Village Hotel	post-Contact remains	
3745	Estioko-Griffin 1987		Kalakaua Ave fronting Moana Hotel, Helumoa	human burial	
9901	Simmons 1988; Simmons <i>et al.</i> 1991	Monitoring and Data Recovery	Moana Hotel, Helumoa	human burials/pre-, post-Contact deposits	
9500	Davis 1989	Reconnaissance	Ft. DeRussy	pre-, early post-Contact fishponds, habitation deposits (trash pits, hearths, postholes, midden)	1429-1512
	Rosendahl 1989a; 1989b	Reconnaissance	Hale Koa Hotel, Ft. DeRussy	no intact findings	
	Bath & Kawachi 1989	Monitoring	Ala Wai Golf Course property	human burials	
	Davis 1991	Monitoring	LCA 1515:2, Ft. DeRussy	hearths, pits, postholes, human burial	1792-1949 1872-1920 1450-1676
	Hurlbert, Carter & Goodfellow 1992	Monitoring	Hilton Hawaiian Village	post-Contact trash pits	
	Carlson <i>et al.</i> 1994	Monitoring/Excavation	Ft. DeRussy near Kalia Road	post hole remnants discovered in rich layer of cultural deposits/ approximately 40 human burials present	
	McMahon 1994	Monitoring	Kalakaua Avenue and Kuamo'o Street intersection	human burial	
	Jourdane 1995	Monitoring	Waikiki Sunset Hotel	human burial	

Table 1: Previous Archeological Investigations in Waikīkī (cont.)

Site Number	Reference	Type of Investigation	Location	Description	Radiocarbon Dates (AD)
	Simmons <i>et al.</i> 1995	Data Recovery	Ft. DeRussy	investigation of 'auwai, ponds, habitation features, human burial	
	Cleghorn 1996	Inventory Survey	King Kalakaua Plaza	No sites	
4224	Beardsley & Kaschko 1997	Inventory Survey	Pacific Beach Hotel, Office Annex	human burials/ pre-Contact layer with evidence of midden, post molds and fire pits	late pre-contact
4574 4570 4966	Denham & Pantaleo 1997a	Monitoring	Ft. DeRussy	Loko Paweo I, post-Contact trash pits, human burials (4574); temporary and permanent habitation deposits, human burials, fire pits, ash lens (4570); pre-Contact permanent habitation, human burials (4966)	<i>Site 4570:</i> 1650-1950 1480-1950 1750-1410 1530-1550 1440-1690 <i>Site 4966:</i> 1200-1640 1400-1530
4570 4970 4574 4575 4576 4579	Denham & Pantaleo 1997b	Data Recovery	Ft. DeRussy	investigation of LCA 2511, former spit with fire pits, post hole, cultural deposit (4570); 'auwai and bund system (4970); Loko Paweo I (4574); Loko Ka'ihikapu (4575); Loko Paweo II (4576); LCA 1758,3, human burial, fire pits, pit, stains, midden (4579)	1680-1740 1440-1690 1440-1690 1510-1950 1430-1670 1430-1640 1290-1460
4570 4580	Denham & Pantaleo 1998	Monitoring	Hale Koa Hotel	pits, trash pits, fire pits, human burials (4570); pits, post holes, trash pits, horse burial, bottle dump, cultural layer (4580)	
	Hammatt & McDermott 1999		Kalakaua, near Ena Rd.	Human remains	
4970 5796	LeSuer <i>et al.</i> 2000	Inventory Survey	King Kalakaua Plaza	<i>Site 4970-</i> 'Auwai O Pau <i>Site 5796-</i> pre-Contact to early 20 th century wetland ground surface under fill material from the 1910-1930 dredging of the Ala Wai Canal.	
	Corbin 2001	Inventory Survey	Hilton Waikikian	No sites	
	Roberts & Bower 2001	Monitoring	Ft. DeRussy	No sites	
5937	Elmore & Kennedy 2001	Inadvertent Discovery	Royal Hawaiian Hotel, Helumoa	post-Contact human burial	
6407	Borthwick <i>et al.</i> 2002	Inventory Survey	71,000 sq.ft. parcel near Ala Wai Canal	Subsurface cultural deposit, Site 6407; Feature A – a berm described as a <i>kuāuna</i> bordering a "paukū ditch", Feature B- former agricultural ground surface	1390-1480 1400-1660

Figure 4: Subject Property on a Map of Google Earth



Summary of Expected Finds

The pre-contact deposits could include but are not limited to human burials. The majority of the pre-contact burials were found in Jaucus sands. Although burials are more prevalent closer the shore where Jaucus sands are abundant, small amounts of Jaucus sands deposits are found in the Palani Avenue area which increases the chances of pre-contact Hawaiian burials. While burials are more likely to be found in Jaucus sand, there is a possibility of uncovering pre-contact and early historic burial in any type of soil. Additionally, there is a possibility that pre-contact cultural deposits are lying undisturbed beneath the modern fill levels. These deposits may include Hawaiian habitation, recreation, agricultural, and work sites, along with associated artifacts. Typically, subsurface cultural remains could include buried stone structures, midden deposits, post holes, fire pits and traditional artifacts such as fishing gear and stone tools.

With the urbanization of Waikīkī, the surface evidence of traditional Hawaiian cultivation process has been obliterated from the area and therefore, there is only a very small chance of finding any pre-contact Hawaiian surface features. Historic-era deposits may include metal, ceramic, glass related artifacts. These Historic-era deposits come from the many layers of occupation that came following European contact.

Section 4: Methodology

The current study was conducted in April 2011 under the direction of the Principal Investigator, Joseph Kennedy, M.A. Community consultations were conducted by Jeff Syrop, and Mina Elison, M.A. Report preparation was completed by Jeff Syrop, B.A. and Joseph Kennedy, M.A.

Although the subject property area is in an area of Waikiki more commonly known as Kapahulu, the geographical extent of inquiry for the current study included all of Waikīkī Ahupua'a. Research was conducted including an examination of traditional accounts, land use from earliest occupation to present day and previous archaeological investigations. This research was conducted through a review of historical texts and documents, such as *Sites of O'ahu* (Sterling & Summers 1978), "Heiau and Heiau Sites Throughout the Hawaiian Islands" (Thrum 1907), *Archaeology of O'ahu* (McAllister 1933) and *Place Names of Hawaii* (Pukui, Elbert & Mookini 1974). An examination of Land Commission Awards was completed by researching the Board of Commissioners to Quiet Land Titles (1846-1855) Native and Foreign Registers and Testimonies Award Books at the Archives of Hawai'i. Research relating to previous archaeological investigations was conducted at the DLNR, State Historic Preservation Division library in Kapolei.

Individuals and organizations with expertise concerning cultural resources, practices and beliefs in Waikīkī as well as those knowledgeable of the area potentially affected by the proposed developments were identified and contacted, and willing individuals were consulted. DLNR-SHPD was also contacted, who suggested Mr. George Downing, Mr. Van Horn Diamond and

Mr. Jeffrey Apaka. Both Mr. Diamond and Mr. Apaka were interviewed on November 20th and 21st, 2003, respectively in a past cultural impact assessment conducted by ACP (Kennedy 03). Portions of these 2003 interviews were relevant to this Cultural Impact Assessment. Mr. George Downing was interviewed on April 11th, 2011.

A list of interview questions was compiled for the cultural consultations. These included the informant's full name, address, birth date, birthplace, ethnicity, historical and geographical associations with Waikiki and the subject property, and finally, how the proposed developments would affect or physically alter any place of cultural/traditional importance, or access to any such place. Cultural consultations were conducted in person and by phone, and the interviews were recorded by audio-cassette or by recorded phone call.

Section 5: Community Consultations

Three knowledgeable individuals were consulted regarding their knowledge of the Waikiki Ahupua'a. Interviews with these individuals were conducted in person. The concerns of the individuals are discussed below.

Section 5.1: Mr. George Downing

Mr. George Downing has lived in Hawaii for over 80 years, most of which were spent in Waikiki. He is very active in the community and has participated in many community meetings. Mr. Downing was a Waikiki Beach Boy for over 20 years and has expressed his love and knowledge for the area. He was born in 1930 and has seen many changes in Waikiki. Mr. Downing had ideas on how the runoff water from the valleys could be used differently. George Downing was a legendary surfer and the owner of a popular surf shop named Downing Hawaii. Downing Hawaii was established in 1949 when he shaped his first Redwood surfboard with close friend Wallace Froiseth. The Downing Hawaii surf shop is located less than one kilometer from the subject property. He was also an avid paddler.

Name: George Downing
Address: 928 Punahale Place, Honolulu, HI 96821
Ethnicity: English, Irish, Portuguese
Birthplace: Honolulu, HI
Date of Birth: May, 2nd, 1930

Background Profile:

JS: What is your name?

GD: George Downing.

JS: Address?

GD: 928 Punahale Place, Honolulu, HI 96821.

JS: Date of birth?

GD: May, 2nd, 1930.

JS: What is your ethnicity?

GD: English, Irish, Portuguese.

JS: How long have you lived in the Waikiki area?

GD: I have lived almost all my life in the Waikiki area, between Waikiki and Kaimuki.

Geographic Association with Area:

JS: What is your geographical history with this area?

GD: I was a beach boy for 24- 25 years working the beach of Waikiki, and my job was taking care of tourists, you know? And then the rest was surfing and enjoying myself. I lived in Waikiki, off Tusitala St. for years, off of Liliokulani, the whole Waikiki area.

JS: Do you feel a connection to the Waikiki area?

GD: Number one, I love Waikiki. It is my passion. I've gone out of my way to protect it, whether people are consciously doing it or not.

Concerns regarding the proposed construction:

JS: Would the proposed construction affect access to places of cultural or traditional importance?

GD: There was a burial site on the corner of Kapahulu and Kalakaua... they put up a monument... that's one place.

JS: So you believe there is a possibility of burials?

GD: Yeah, there must have been a lot of burials on places like Kuhio and Liliokulani.

JS: Do you have any concerns about the purposed construction?

GD: What are they doing again?

JS: They are going to establish an underground drainage system in Palani Avenue and on a portion of Date Street and connect it with the existing underground drainage system in Kapahulu Avenue.

GD: They're thinking of putting it down the Kapahulu storm drain?

JS: I believe so.

GD: (Laughs) They're crazy, they're insane if they even think about it... because engineers found out that all the stuff will end up west near all of the hotels! That is what brings in all of our income, as far as Oahu is concerned. In the treasury and hotel business, the quality of water. When they have a big problem, they have no answer, they clam up. What are they going to do with the water?

JS: The information I have says that the runoff is going to be diverted into the Kapahulu drainage.

GD: When they say that they are going to divert it, into the Kapahulu drainage, where is that going, into the normal drainage or the sewer system? If they start draining into the storm drain, that's insane. If they start draining into the sewer system, that's insane. It will flood the hotels if it goes into the storm drain and or it will flood the sewer system. Some of those pipes are very old, you know? Every once in a while you here of pipes breaking in Waikiki.

JS: Do you think there is a better option for the runoff?

GD: Put it in the canal (Ala Wai), pump it in the canal. That was what the canal was designed for. They use over 3000 gallons of drinkable water every day to fertilize the Ala Wai Golf Course. Why are they doing that for? We could be using this water for drinking. I purposed that they use a holding basin and pump the water from the runoff for irrigation.

JS: Wow that sounds like a great idea.

GD: I proposed this idea years ago in a community meeting.

JS: How did that go?

GD: Well, the funny thing is there was a man there that was in his 80's at the time that said that he proposed the same thing years before I did.

JS: I see.

Interviews with Mr. Van Horn Diamond and Jeffrey Apaka

Both Mr. Diamond and Mr. Apaka were interviewed on November 20th and 21st, 2003, respectively in a past cultural impact assessment conducted by ACP (Kennedy 03). Portions of their interviews were used for this cultural assessment due to the relationship between the two construction project's locations. Their interviews give further information on Waikiki through their personal historical accounts.

Section 5.2: Mr. Van Horn Diamond

Mr. Van Horn Diamond expressed his knowledge of and association with the project area and Waikiki Ahupua'a. Mr. Diamond, who is of Hawaiian-Chinese descent, comes from a family of entertainers. His grandmother and grand-aunt had their own hula troupes with whom his mother and mother's sister would perform, during and throughout World War II at various venues and major hotels, specifically mentioning the Royal Hawaiian, Moana and Halekulani. His mother's sister's troupe, the Royal Hawaiian Girls provided the entertainment at the Kodak Hula Show over the show's seventy year duration. His parents moved to Waikiki in the mid-1930's and lived there until the late 1960's. Mr. Diamond attended St. Louis School and pursued a degree in political science at the University of Notre Dame. Mr. Diamond currently serves as a member of the Burial Council. Diamond enjoys playing music and singing and also provides music and entertainment at various events.

Mr. Diamond was raised in Waikiki, and grew up on Kanekapolei Place, which is located eight blocks from the subject property on the Diamond Head side. As well-known entertainers, the two families knew each other as performers and also belonged to the founding chapter of a Hawaiian Society called Hale O Na Alii. Jeffrey Apaka, son of the famous Alfred Apaka, was referred to as another member of the community who could provide information of the Waikiki Ahupua'a.

Interview with Van Horn Diamond

Name: Van Horn Diamond
Address: 1523 F Halekula Way, Honolulu
Date of Birth: May 30, 1939
Birthplace: Honolulu, Hawaii
Ethnicity: Hawaiian, Chinese, Caucasian

Background Profile:

VH: "My name is Van Horn Diamond. I live at 1523 F, as in Frank, Halekula Way, Honolulu, zip code 96822."

ME: *"And what year were you born?"*

VH: "Thirty, May, 1939."

ME: *"And where were you born?"*

VH: "Here, in Hawaii, Queen's Hospital, and I was raised at 451 Kanekapolei Place, in Waikiki."

ME: *"That's where you grew up?"*

VH: "Yes."

ME: *And your ethnicity?"*

VH: "Hawaiian, Chinese, *Haole*."

ME: *"And how did you meet, how did you know this family (Jeffrey Apaka)? Were they related to you?"*

VH: "Alfred's ... Jeff's father was a recognized, renowned Hawaiian performer in Waikiki. He was to his time what Alfred and Michael Jackson might be...here in Waikiki."

ME: *"Oh wow. Sounds familiar [the name]."*

VH: "Well he opened the, opened the Hawaiian Village. He was on the Bob Hope Show, the television show. Let's see ... and he was the main act for the Village, the Hawaiian Village, until he died. About 19 ... he died about—in the mid-1950's."

ME: *"And how did you know them, or of them?"*

VH: "My grandmother had a hula troupe in Waikiki. And her sister had another one. My mom and my aunt were all performers and my grandma's troupe was the Honolulu Girl's Glee Club. They played/performed from before World War II through World War II, into, almost the 1950's at major hotels, especially the Royal Hawaiian, Moana, and Halekulani. The anchor place was the Halekulani. And then her sister, her troupe the Royal Hawaiian Girl's is the troupe that provided the music and everything for the Kodak Show, all the seventy years or so. They all kind of knew each other as far as performers are concerned. Alfred's father, Alfred Sr. was also a performer. And then Alfred Sr. and my grandparent's, they all belonged to a Hawaiian society called *Hale O Na Alii*. To

make it easier, it's the Honolulu Chapter, but it's really the founding chapter of the whole society."

ME: "So they would see each other, perform together, sort of family friends?"

VH: "Yeah."

Geographic Association with Area:

ME: "Could you describe your geographical association with the place?"

VH: "So all of us that lived in Waikiki didn't ride bus to go to the theaters, we just walked and there we were, so it was not hard to go from Kanekapolei to walk to the theaters. We went through the Filipino Camp that was there all the way up Seaside Avenue and then just came out of there and then just walked up Kuhio Avenue. So our choices to get there was Kalakaua-Kuhio, which was party there, and then Ala Wai Canal. There was a bus, too, in the 40's and 50's that ran from Manoa all the way to Waikiki and then ended up at the fire-station but it went along the Ala Wai Canal."

ME: "What elementary school did you go to? Did you have to walk to school?"

VH: "I went to kindergarten at St. Augustine's in Waikiki. And then I was supposed to go to Thomas Jefferson, and then I got accepted to St. Louis ... "

ME: "Sounds like there was good food around that area."

VH: "Well, you know what, Wagon Wheel was a good place and then they had, for years and years and years during the war, they had like a container truck full of these—they drive up and park and then they cook and then they sell. They had one right close in the area, they made the best hamburgers, everybody from all over would come to Waikiki to eat hamburgers from the guy and then it disappeared ... There isn't much to say about this place, you know that I can tell you directly. Only what surrounds it. I would suspect that it's, over the years it's acquired landfill, you know, just based on the fact that they have these high pole-beds(?) and they've had stuff in-between."

VH: "Another person that might know people from Waikiki, that's actually his job, and now that he's back at work—his works for Historic Preservation. His name is Nathan Napoka. He's the history and culture branch chief."

ME: "Or affect access to any kind of cultural or traditional place?"

VH: "No, other than the Ala Wai Canal." [laughs] Um, what you might want to check—you might want to check the names. You might want to find out why Kalaimoku was named what it was, and Launiu. Sometimes the name will give the indication of what

might have been there before, OK, or at least the rationale. Don't use the current—there's a one though, of street names, use an older version, don't use the newer one. Uh, the reason that I say that is, Kanekapolei was named in the 1930's and was named for my Mom, and it's her Hawaiian name and one of the things about Waikiki was street names—they are all associated with Kamehameha. So, Kanekapolei is one of the wives of—you know, the Kamehameha line and that's for who she's named after."

ME: "What is that name again?"

VH: "Kanekapolei ... the reason why I'm giving you that example, it might be helpful to find out if there was anything long ago, historically speaking, by checking the name of the street, who named it and what was the rationale. You know, like if it's named for a person, why was it named for that person..."

Section 5.3: Mr. Jeffrey Apaka

Mr. Jeffrey Apaka expressed his knowledge of and association with the Waikiki Ahupua'a. Mr. Apaka, of Hawaiian, English and Chinese descent, currently works at the Waikiki Community Center, not very far from where he grew up as a child. He was raised on Launiu Street. Mr. Apaka lived in a four-plex on the corner of Launiu and Kuhio, which is now a parking structure for the condominium building where he currently owns a condo. His grandmother, Mrs. Carrie Blake lived around the corner on Kalaimoku where he remembers setting up his tent and camping in her large front yard on Kuhio Avenue. Her five-bedroom house at 2102 Kuhio Avenue was eventually sold and the current Tropic Surf Apartments now exist on that particular parcel of land. Mr. Apaka's father, the renowned Hawaiian entertainer Alfred Apaka, moved the family to the mainland around 1961, as his popularity grew nationally.

Mr. Apaka remembered several stores and establishments that lined Kuhio Avenue. He recalled a Jaguar dealership, a soda fountain, a dry cleaners and beauty salon. Mr. Apaka talked about the importance of the Kuhio Theater and how it should have been preserved and designated as a historical site.

Interview with Jeffrey Apaka

Name: Jeffrey Aholo Apaka

Address: 2140 Kuhio Avenue, Honolulu

Date of Birth: June 22, 1946

Birthplace: Honolulu

Ethnicity: *Hawaiian-English-Chinese*

Historical and Geographical Association with the Area:

JA: Um ... towards the Ala Wai Boulevard, where the Magoon house, the Magoon real estate here, I know the back house was owned by the Shiate family and I don't know if they were leasing the land from Magoon or what, I am not too sure when Magoon took over all of the land here, including the four-paddle condominium. The one thing that they did tear down, on kiddy-corner from Kalaimoku—well, the corner of Kalaimoku and Kuhio, on the *makai*/*Ewa* side was the Kuhio Theater which was very—well, it should've been a historical site and the same thing they are doing right now at the Waikiki Three Theaters, which I am going to, am invited to the assessment people ...

ME: *“So, you were born in Honolulu and raised at that house on the corner (of Launi'u and Kuhio)?”*

JA: “Here and in my Grandmother's house right around the corner. I used to sleep in her front yard, in my little tent and my sleeping bag on Kuhio Avenue, was a little 'hana-bada' kid. But now you couldn't do that on Kuhio Avenue.”

ME: *[laughs] “And then you lived there until when?”*

JA: “Around '61-ish, moved to the mainland.”

ME: *“And your parents lived there too.”*

JA: “My parents lived there at the same time, we all moved. Show biz called to my Father. But um, you know now, across the street here [points to area across the street on Kuhio Avenue] you've got this whole (?) group and this used to come to—the continuation of Launi'u came across here to a dead end right here. And, um, I had classmates, his sister who lived right over here, went to Punahou School, um, Billy ... Billy, Billy, Billy—I forget his last name, his father owned a Jaguar dealership here. There used to be a soda jerker store right here across the street from the Kuhio Theater on Kalaimoku, dry cleaners, um, then around the corner here was another, um, beauty salon, real small kind, you know Japanese grass around there. And then right down here had small apartment building, owned by Magoon of course, right to Lewers Street—no, no, I'm sorry—I mean Kaiolu, Kaiolu, right along here were small apartments that was owned by Magoon. And then further up here to Lewers Street, a beautiful little house on the corner here, that I remember, um, it had a little carp fishpond in the front long time ago. And then over here at this house on Lewers Street was the um, belonged to Dolly Lopez and she went to Italy with her daughter and they came back and they tore down their house and built a villa, an Italian villa. So, um ... ”

ME: *[laughs] “We kind of went into this already, of how you obtained knowledge of the place and time period, just living there, hanging out, playing.”*

JA: “When I was a little child, yeah, I was playing all the time around the neighborhood, all the little neighbors, young children there, um, it's kind of *deja-vu* right now that I'm living, that I bought a condo and am returning to where I was a little kid, in the same

vicinity, you know. However, but now being a homeowner, it's a whole different ball of wax. My parents were only renting over here and my mother—my grandmother owned this house right over here—it was a five-bedroom house. It had a lovely yard. And, um, then Grandmother became ill and had a stroke and so, before that, before she came ill with a stroke, we had leased the land out to, um, I can't remember who the Japanese people were, but they built this Tropic Surf on it. They later—when the bills were getting a little higher, we then sold them the land. So the Tropic Surf sits there, at 2102. I can't—I'll never forget, I'll never forget the address of 2102 on Kuhio.”

Summary and Recommendations

The purpose of this cultural impact assessment was to comply with the requirements of Chapter 343, HRS, as amended which requires that Environmental Assessments (EA) and Environmental Impact Statements (EIS) identify and assess the potential effects of “a proposed action on cultural practices and features associated with the project area.” The current assessment took the form of a historic background study, consultations with the DLNR-SHPD and community consultations. The historic background research addressed traditional accounts and land uses for Waikīkī Ahupua‘a and the current subject property as well as previous archaeological investigations that have occurred in the vicinity of the project area.

The review of the historic background of the Waikīkī area has indicated that sites of potential significance to the interests of historic preservation possibly lay sub-surface on the subject property. It is likely that subsurface construction activities associated with the proposed development of the subject property would have an adverse effect upon these potentially significant sites.

Consultations with members of the local community did not bring to light significant objections to the proposed development. Although Mr. Downing was concerned about Kapahulu Drainage system flooding into Waikiki, it is ACP's opinion that his concerns were secular in nature and stand apart from culturally based concerns. Mr. Downing also expressed that there could be a possibility of human burial, which is always a possibility. Based upon an absence of significant cultural objections by the community informants, no obstructions to the implementation of the proposed construction project are present with regards to any areas of cultural or traditional importance.

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LCA Testimony

LCA: 867:2 Waikiki, O'ahu Awardee: Nihopu'u

Native Testimony: 10v3

Kamainui sworn and stated, "I have seen Nihopuu's house-lot and taro land at Waikiki and here are the boundaries of the house-lot: toward the mountain and on the Honolulu side, Kaeina's lots: in the direction of the sea and Kahikaele's house-lot, Waikiki. This place has a wooden fence with one house on it and he is living there. This had been an idle land during Ka'ahumanu's reign and since that time Nihopuu has lived there to the present in absolute peace.

The boundaries of the taro land are: Kuiwailehua's land, toward the mountain; my land, Waikiki; Peleuli's land, toward the sea and Makuahine's land is on the Honolulu side. This place has an enclosure and the house within is for Nihopuu. These are four patches with a section of the creek. Nihopuu had received this from Peleuhi and he occupied this for the same length of time as he had the house-lot.

The boundaries of the second section of Nihopuu's land are Kaluahinenui's land, toward the mountain, Waikiki and on all of the rest of the sides. This is a taro land but there is no enclosure there. Nihopuu's land had been from Kaluahinenui and no one has objected to him."

Lae sworn and said, "I have seen this taro land and everything is just as Mainui has just stated here. No one has ever objected."

Native Register: 487v2

"To the Honorable Land Commisioners, Greetings:

I, Nihopuu, hereby present my little claim to you, four small taro patches and two sections of irrigation ditch from which I gain my livelihood.

This place is at Kalia. My interest and occupancy has been since 1844 but this is a very old interest for my keiki from his kupunas. Also from him is my section of seashore at Kalia, from 1843 until now. I have lived at this place since Boki sailed and died.

I have a small houselot at the shore at Kalia and the boundaries are known since they have been surveyed by your surveyor. These claims are situated in the Ahupua'a of Waikiki on O'ahu. Farewell to you.

NIHOPUU X

His Mark

The witness who know of my taro patches and the section of shore are Pualinui. Witness for the houselot is Puali. They two and Z. Kaauwa. November 2 Waikiki"

LCA 1758:2 Kamoku & Kalia, Waikiki, Oahu Awardee: Kalaeone

Native Testimony: 81v10

“Kahonu sworn I have seen this land in Kalia, ili of Waikiki, Oahu – 2 land sections.

Section 1- 1 house site and 2 fish (pua) wells.

Section 2- 1 taro patch and pauku stream.

Section 1:

Mauka and Waialae

Konohiki land

Makai

“Kaululua, M. Kekuanaoa’s land

Honolulu

konohiki’s land

Section 2:

Mauka and Waialae

Konohiki’s land

Makai

Waalani’s land/Kamalie’s land

Honolulu

Nihopuu’s land

Land from his wife Kameenui, she had received it from Kahanaumaikai at the time of Kam. I. In 1851, Kekuainulama raised objections to the fish deposits and took them without provocation. These wells have never been koeles or poalimas and he had no right to take them.

Native Register: 243v3

Date: December 10th, 1847

“To the Land Commissioners, Greetings:

I hearby state to you my claim for some small lo‘is in Kamoku, an ‘ili in the ahupua‘a of Waikiki. I have two lo‘i, a small section of irrigation ditch and a small houselot for my makuakane; this is makai of the place named Keomuku. I have held this with no objections to this day.

Here is a claim of ours, from my wahine. There is one pond and a section of irrigation ditch, which is objected to by my tenent, thinking to be independent, /who/ is supported by Kaluahinenui. This is of very old interest from our kupunas and our makuas and my kane, who occupied this land until now when I am living here. There is also a hale lei tree and also one for /making/ mats, and some ponds in two other places, and the houselot where we are living. That is my claim, and the length of my interest. I am working on it, and also, here are the names of some witness who know rightly. I am, the claimant, with thanks,

Witness: Makuahine, Nihopuu

Waikiki, Oahu Dec. 10, 1847

Kalaeone X his mark”

/translator notes: some of the statements at the end seem to be made by the wahine of Kalaeone./

Foreign Testimony: 179v3

Kalaione testifies that in the Kamoku-Wakiki lot is one kalo patch. Mauka is the Kulewailehua, Waialai Stream. Makai is Kulewailehua, Honolulu foot-path. Claimant received this from Kulewailehua, his father-in-law in 1836 and claims that land has never been disturbed since.

LCA 1765:2 Waikiki, Oahu

Awardee: Kahikaele & Kamalie

Native Testimony: 321v10

Date: October 20th, 1853

“Kameenui sworn the claim is in Kalia, Waikiki, Oahu of two sections.

Section 1: house site. Surrounded on all sides by konohiki’s land.

Section 2: 1 patch “Niukukahi”.

Mauka	Kalaeone’s land/Nihopuu’s land
H.	Naluai’s land/a ditch
I.	“Pau”/“Niukukahi” patch
J.	“Pau”

Their land from Kaluahinemi at the time of Kaahumanu 1. Kahikaele died in 1848, bequest made to Kamalie, and older brother. Kamalie bequested this land to Moa, son of the generation of their grandfather.

Keanuanu sworn this claim is at Kahakuhia but has no claim here, foreigner Bill has this interest.

Pauahi’s claim is in the ili of Paepaealii, the land of his parents, Kahuepu and Kawahinemakua. They have passed on and Pauahi is heir.

POSTPONED: until the claim of Kahuepu and Kawahinemakua is found.”

Native Register: 245v3

Date: December 15th, 1847

“To the Land Commissioners, Greetings:

I hearby state my claim for a houselot in Kalia, which is called Kapapale. This is a very ancient interest from my kupunas and my makuas. They have all died and only I remain and since this is such an old right no one has objected to this day. There is a planted hau tree, and two houses. There is a single lo‘i which I have given to my kaikuaana to work because of my weakness. Those are my claims. I am with thanks.

I, Kamalie, the kaikuaana of Kaihikaele have helped my kaikaina for five years, with no oppositions between us, therefore, we are combined.

Waikiki, Oahu Kaihikaele X his mark

16 December 1847 Kamalie X his mark”

LCA 6386:7 Niukukahi, Waikiki, Oahu Awardee: Kauhao

Native Register: 366v5

Date: February 5th, 1848

“This land is for Kauhao: Niukukahi, Ili of Waikiki, Kona, Oahu. Kindly enter it to have title quieted. Kauhao”

