

DRAFT ENVIRONMENTAL ASSESSMENT
WAI'AU AREA SEWER REHABILITATION/RECONSTRUCTION

PREPARED FOR:

DEPARTMENT OF DESIGN AND CONSTRUCTION
WASTEWATER DIVISION

CITY AND COUNTY OF HONOLULU

PREPARED BY:



841 Bishop Street, Suite 1900
Honolulu, Hawaii 96813

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Executive Summary

The City and County of Honolulu, Department of Design and Construction is proposing to reconstruct / rehabilitate and replace selected sewer lines in the Waiau area of the Island of Oahu. The project is part of the City's overall long-term effort to upgrade and reconstruct / rehabilitate Honolulu's aging sewer system. This environmental assessment has been prepared for the Waiau Area Sewer Rehabilitation / Reconstruction project in accordance with the State of Hawaii, Chapter 343, Hawaii Revised Statutes environmental guideline and requirements.

The sewers in the project area are old. A recent survey performed revealed that approximately 10,800 linear foot of sewer lines in the project area are in need of reconstruction/rehabilitation and in some cases, replacement, due to reasons ranging from sewer lines nearing capacity, cracks, and deterioration. Those sections with capacity issues are shown on Figure 1-2 of this report.

The project involves couple of construction methods to either replace the existing lines with new lines or rehabilitate in place. Replacement or upsizing of sewer lines will be done by conventional open trenching method. This work typically takes one to three weeks for any one manhole to manhole segment, which may measure up to 350 feet long. Where new sewer lines are installed in the same alignment as the existing sewers, temporary bypass sewer lines will be installed to maintain sewer service during the work.

Reconstruction / rehabilitation work is proposed to be performed as much as practical with a less invasive trenchless technology, which involves rehabilitating the pipes using a cured-in-place pipe liner. Work is done through the manholes, and one or more segments can be accomplished within three days. A temporary bypass sewer line will be installed as required to maintain sewer service during the work. This method is less costly and causes less disruption to the surrounding area than open trenching method. The net end result would be the minimizing of infiltration and the regaining of pipe capacity. However, it is not applicable to all segments: some open trench work is inevitable.

During construction, the project is likely to result in temporary noise, air quality, and traffic impacts. These impacts will shift to different locations within the project area as each sewer line segment is completed. The degree of impacts would be generally much greater with the open trench method than cured-in-place pipe method. In either case, there would be minimal disruption to sewer service.

Major sources of noise include sheet pile driving, pavement saw cutting, operating pumps and generators, compaction equipment, and other construction equipment. There would not be significant odors during construction, as temporary bypass lines would be provided, and sewage will generally not be exposed to the atmosphere. Nonetheless, trench work will result in dust and there may be short-term odors due to manhole venting and the use of resins in the cured-in-place pipe process.

Because most sewer lines are within the public right-of-way, lane closures and traffic diversion will be involved. To mitigate these impacts, vehicle and pedestrian detours, traffic control devices, and warning signs will be used. Where necessary, traffic flow will be directed by construction workers or special duty police officers. Access for local traffic and emergency vehicles will be maintained at all times. Residents and businesses in the affected areas will be notified in advance when work is scheduled through community meetings, distribution of flyers, and press releases.

The proposed project would have long-term beneficial impacts on the project area by correcting the existing conditions that have resulted in sewer spills and backups, thereby safeguarding public health and welfare.

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Acronyms and Abbreviations

BMP	best management practices
CAB	Clean Air Branch
CCH	City and County of Honolulu
CCTV	closed circuit television
CDA	Civil Defense Agency
CFR	Code of Federal Regulations
CIP	capital improvement project
CIP	cast iron pipe
CIPP	cured-in-place pipe
CO	carbon monoxide
CWRM	Commission on Water Resource Management
DAR	design alternatives report
dB	decibel
dBA	A-weighted decibels
DLNR	Department of Land and Natural Resources
DOH	Department of Health
DOT Highways	Department of Transportation, Highways division
DPP	Department of Planning and Permitting
DTS	Department of Transportation Services
EA	environmental assessment
EIS	Environmental Impact Statement
ENV	Department of Environmental Services
FEMA	Federal Emergency Management Agency
FHA	Federal Highways Administration
FIRM	Flood Insurance Rate Map
FONSI	Finding of No Significant Impact
fps	feet per second
GIS	Geographic Information System
HAR	Hawaii Administrative Rules
HECo.	Hawaiian Electric Company
HRHP	Hawaii Register of Historic Places
HRS	Hawaii Revised Statutes
IBC	International Building Code
I/I	infiltration and inflow
kV	kilo volt
LCA	Land Commission Award
LUC	Land Use Commission
M&E	M&E Pacific, Inc.
MSL	mean sea level
NPDES	National Pollutants Discharge Elimination System
NRHP	National Register of Historic Places
OEQC	Office of Environmental Quality Control
OIBC	Oahu Island Burial Council
OSHA	Occupational Safety and Health Act
OTS	Oahu Transit Services
PPT	parts per thousand
PUCDP	Primary Urban Center Development Plan

PVC	polyvinyl chloride
RDII	rain derived infiltration and inflow
ROH	Revised Ordinance of Honolulu
ROW	right-of-way
SHPD	State Historic Preservation Division
SMA	Special Management Area
SMH	sewer manholes
SSO	sanitary sewer overflow
TMK	tax map key
UIC	underground injection control
USDA	United States Department of Agriculture
USFWS	United States Fish and Wildlife Services
VCP	vitrified clay pipe

Project Profile

Applicant:	City and County of Honolulu Department of Design and Construction, Wastewater Division 650 South King Street Honolulu, Hawaii 96813
Agent:	AECOM 841 Bishop Street, Suite 1900 Honolulu, Hawaii 96813 Contact: Lambert Yamashita (808) 529-7248
Project Name:	Waiiau Area Sewer Rehabilitation/Reconstruction
Determination:	Environmental Assessment
Project Location:	The project area is located in the Waiiau ahupua‘a, adjacent to the Pearl Harbor, Pearl City, Blaisdell Park, and Waimalu neighborhood. The project area is bounded by Moanalua Road, Ka‘ahumanu Street, Neal Blaisdell Park, Pearl Harbor (East Loch), Hawaiian Electric Company (HECo.) Waiiau Substation, and Kuleana Road. The project area is bisected by Kamehameha Highway into mauka and makai areas.
Tax Map Keys:	9-8-05; 06, 08, 20, 21
Land Area:	Approximately 53 acres
State Land Use District:	Urban
Land Use Zoning:	A-1 (low-density apartment), AG-2 (general agriculture), B-2 (community business), I-2 (intensive industrial), and R-5 (residential). Additionally, there is a Federal parklands easement traversing the project area abutting the shoreline.
Special Management Area:	Area makai of Kamehameha Highway is within Special Management Area.
Flood Zone:	D (undetermined, but possible flood hazards) according to Federal Emergency Management Agency Flood Insurance Rate Map

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1 PROJECT DESCRIPTION

1.1 General Project Description

The project area is located in the Waiiau ahupua'a area in Pearl City on the Island of Oahu. The project area encompasses approximately 53 acres, approximately 10,800 linear feet of gravity sewers, and 75 sewer manholes (SMHs). The project includes all sewer lines that enter the sewer line on Kamehameha Highway from the manhole downstream of Kuleana Road to three manholes downstream of Ka'ahumanu Street, near Waimalu Stream. See Figure 1-1.

The project area is bounded by Moanalua Road, Ka'ahumanu Street, Neal Blaisdell Park, Pearl Harbor (East Loch), Hawaiian Electric Company (HECo.) Waiiau Substation, and Kuleana Road. The collection system services both commercial and residential developments and requires constant maintenance.

1.2 Project Background

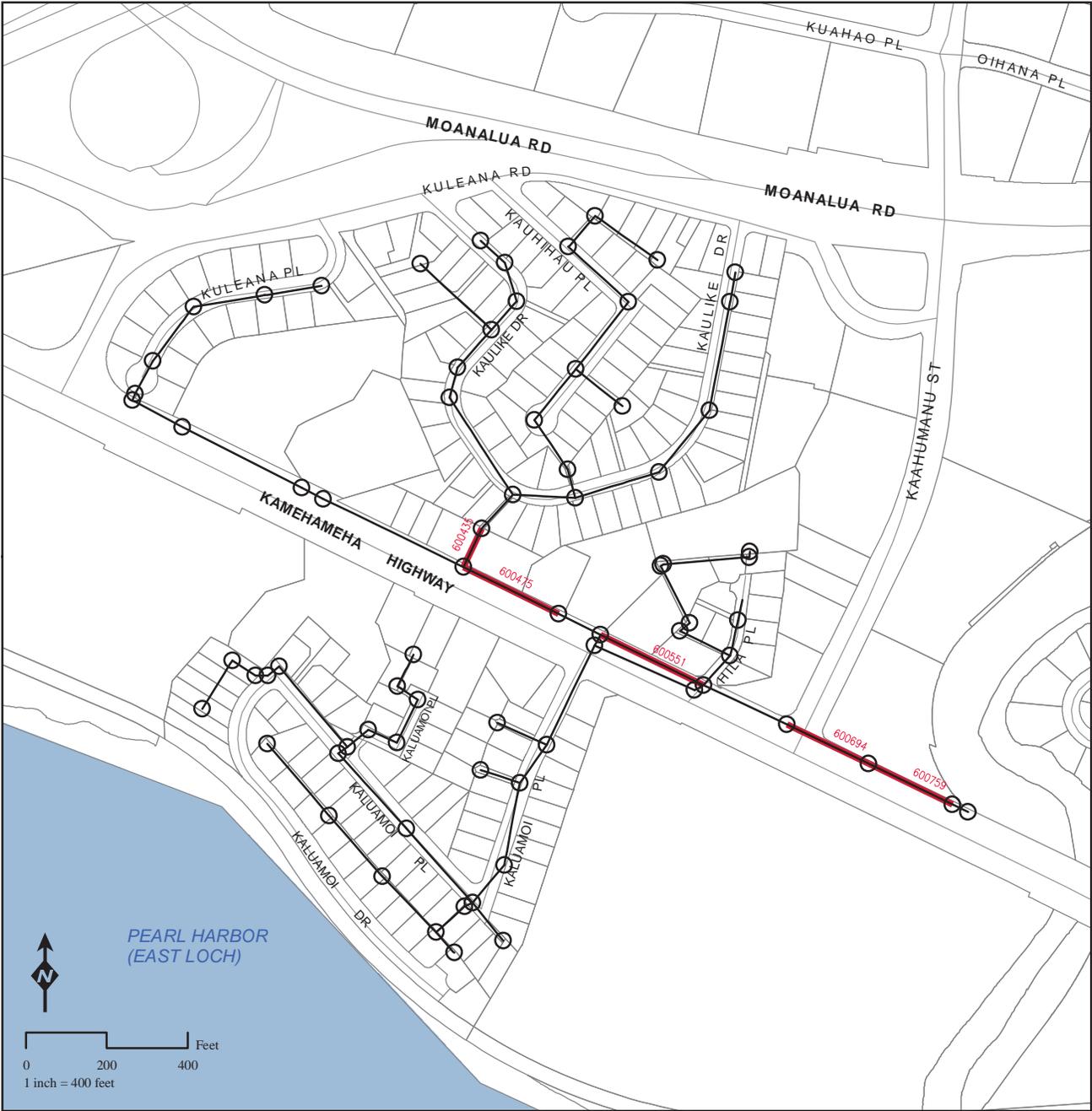
The Waiiau Area Sewer Rehabilitation/Reconstruction project is a result of the recommendations for capital improvement projects (CIPs) from the *Final Sewer Infiltration and Inflow (I/I) Plan* (December 1999). The *Final Sewer I/I Plan* and the accompanying *Volume 1 of 9—Honouliuli I/I Engineering Report of the Sewer Rehabilitation and Infiltration & Inflow Minimization Study* (December 1999) determined that basin 7D01A in the Pearl City area had a high R factor—the ratio of rain derived infiltration and inflow (RDII) to wastewater volume or percentage of storm water entering the collection system—and high maintenance. As such, rehabilitation for I/I reduction was recommended.

A design alternatives report (DAR) was completed to evaluate the existing project area sewer system (hydraulic and structural deficiencies) and to recommend alternatives to reduce I/I to prevent sanitary sewer overflows (SSO) in the project area.

The sewer systems in the project area were assessed using data collected from the topographic survey, surface reconnaissance, closed-circuit television (CCTV) inspections, sewer life span, sewer capacity analysis, and sewer manhole inspections. The assessment revealed several issues with the existing sewer lines:

- **Pipes above their capacity:** According to the INFIX program, there are five segments in the project area that are over pipe capacity. Four pipes are main trunk lines on Kamehameha Highway and the other is in an easement between Kaulike Drive and Kamehameha Highway. Refer to Figure 1-2.
- **Broken pipes:** According to the CCTV in the project area, there are seven broken pipes. These pipes are located in different parts of the project area. Refer to Figure 1-3.
- **Pipes with slopes less than or equal to zero (sags):** There are two pipes in the project area that have slopes less than zero. The pipe segments with negative slopes and their location are shown in Figure 1-4. It does not appear that the negative slopes result in sewer backup or cause hydraulic problems.

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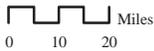
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-  SEGMENTS ABOVE CAPACITY
-  COLLECTION SYSTEM
-  SEWER MANHOLE

Source: City and County of Honolulu

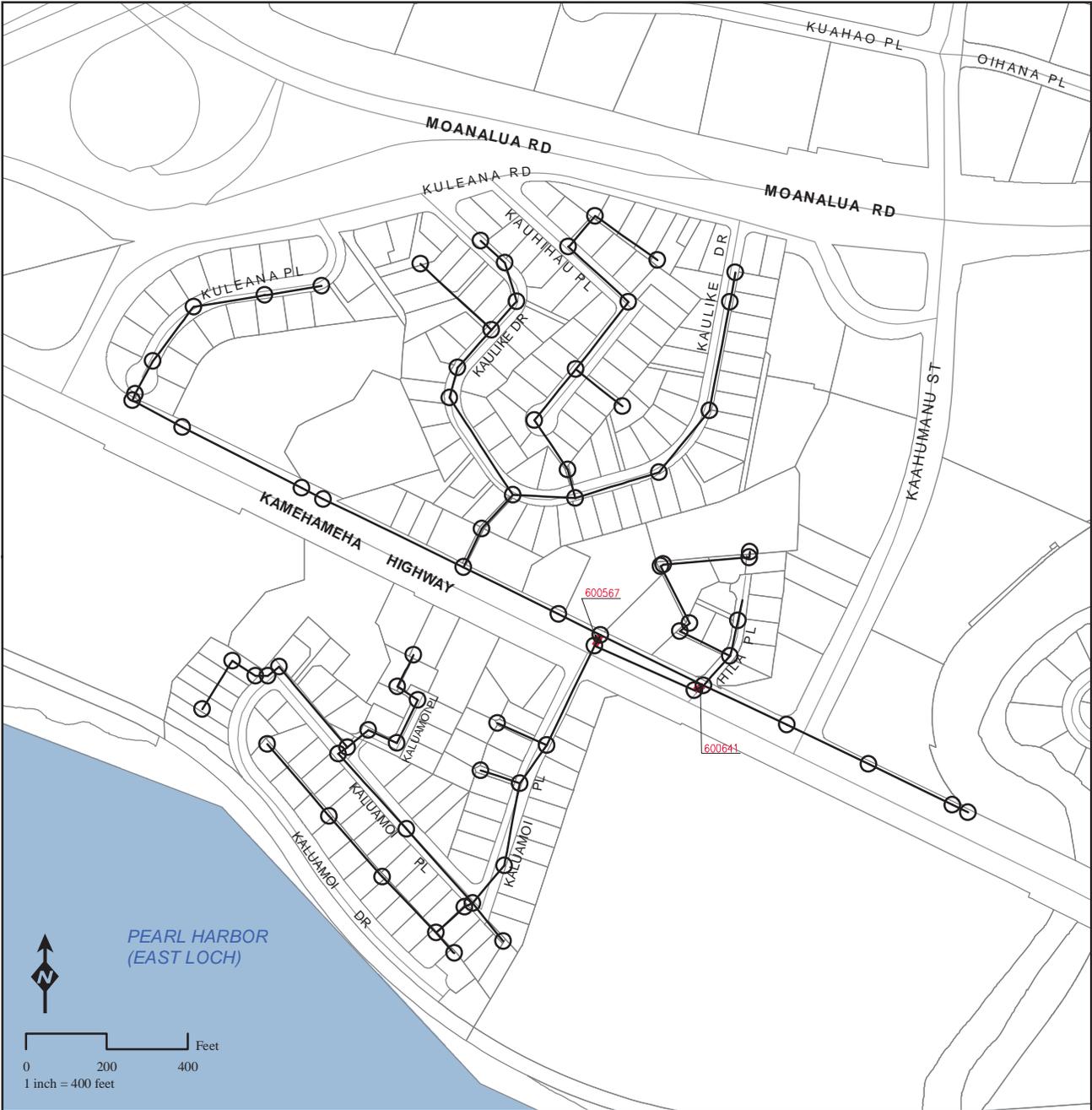
City and County of Honolulu

Department of Design and Construction



Project Site

**FIGURE 1-2
PIPES ABOVE PIPE
CAPACITY
EXISTING PROJECT FEATURES
WAIU AREA SEWER
REHABILITATION/RECONSTRUCTION
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JANUARY 2010**



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-  SLOPE LESS THAN OR EQUAL TO ZERO
-  COLLECTION SYSTEM
-  SEWER MANHOLE

Source: City and County of Honolulu

City and County of Honolulu

Department of Design and Construction

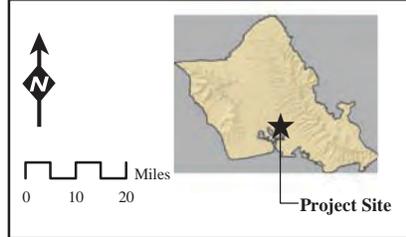


FIGURE 1-4
PIPES WITH SLOPE LESS THAN ZERO
 EXISTING PROJECT FEATURES
 WAI'AU AREA SEWER REHABILITATION/RECONSTRUCTION
 DRAFT EA
 JANUARY 2010

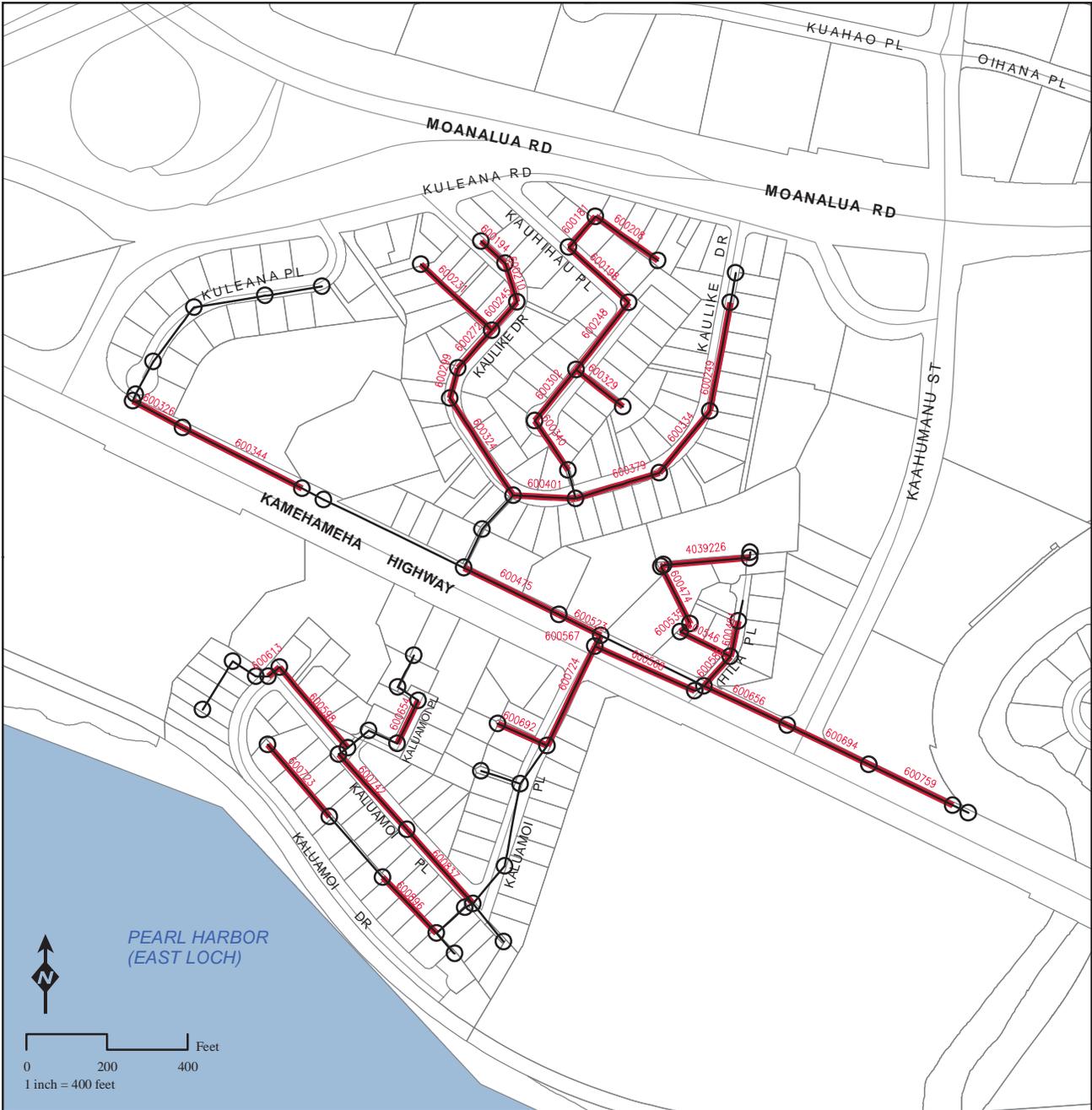
- **Pipes that do not meet minimum slope:** Many of the sewer lines in the project area do not meet the minimum slope defined in the CCH's *Design Standards of the Department of Wastewater Management, Volume 1* (July 1993). Most sewer lines in the project area were designed prior to these standards; as such, some sewer lines were designed with slopes less than the minimum standard. The minimum slope requirements ensure a minimum velocity of 2 feet per second (fps) when flowing full and minimize odor and grease buildup. For most pipes with this deficiency, raising the upstream invert or lowering the downstream invert less than six inches will change the slope to meet the minimum slope. The locations of the pipes that do not meet the minimum slope are shown in Figure 1-5.
- **Pipes with cracks and fractures:** There are numerous pipes in the project area with cracks (visible lines along the length or circumference) and fractures (open cracks with the pipe in place). Nevertheless, the collection system is in a relatively good condition considering the age of the sewer lines. Cracks can lead to fractures and eventually lead to broken pipes. Refer to Figure 1-6.
- **Pipes with debris and deposits:** The majority of the pipes in the project area have debris and deposits. Debris and deposits may result from sewer lines that do not meet the minimum slope and the wastewater does not meet the minimum velocity of 2fps. Grease deposits could be a result of improper disposal of grease from residential and commercial uses. In many of the pipes, the debris and deposits do not affect the capacity of the pipes. It is inferred that pipes with debris and deposits require frequent cleaning. Refer to Figure 1-7.
- **Pipes with other issues:** There are some pipes with various deficiencies, including corrosion, root-penetration, infiltration, intruding seal, and offset or separated joints. All five cast-iron pipes in the project area have some corrosion. According to the CCTV in the project area, there are a number of pipes with root penetration. Also shown in the CCTV are two areas of infiltration, a section with an intruding seal, and areas with offset or separated joints. Refer to Figure 1-8.

Additionally, of the 75 manholes in the project area, 74 were located and inspected. Visual observation noted that most SMHs have a flow guard and all SMHs are unlined. The results from the inspection are shown in the final DAR of May 2009 (Section 3.4.6, Table 4). The assessment concludes that rehabilitation is required some of the manholes. Of the 74 manholes inspected, 60 are in good condition and the other 14 require rehabilitation. Problems associated with the 14 manholes include cracks, missing concrete or mortar, flaking cone, and/or required removal and replacement of the rungs. See Figure 1-9.

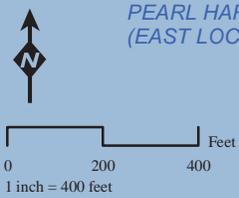
Based on the assessment discussed above, it was determined in the DAR (finalized May 2009) that reconstruction, rehabilitation, and/or replacement of the existing sewer lines would be warranted.

Four alternatives were presented in the DAR:

- **Alternative 1 (No-Action Alternative):** No actions proposed to remediate the existing condition of the sewer lines;
- **Alternative 2:** Replace the existing sewer lines with open trenching or pilot tube micro-tunneling;
- **Alternative 3:** Rehabilitate the existing sewer lines using the cured-in-place pipe (CIPP) method;
- **Alternative 4 (Preferred Alternative):** A combination of sewer line replacement using open trenching method and rehabilitation using CIPP method.



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Legend

- PIPES WITH CRACKS AND FRACTURES
- COLLECTION SYSTEM
- SEWER MANHOLE

Source: City and County of Honolulu

City and County of Honolulu

Department of Design and Construction

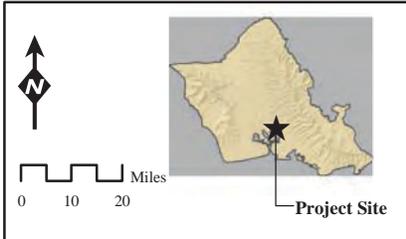
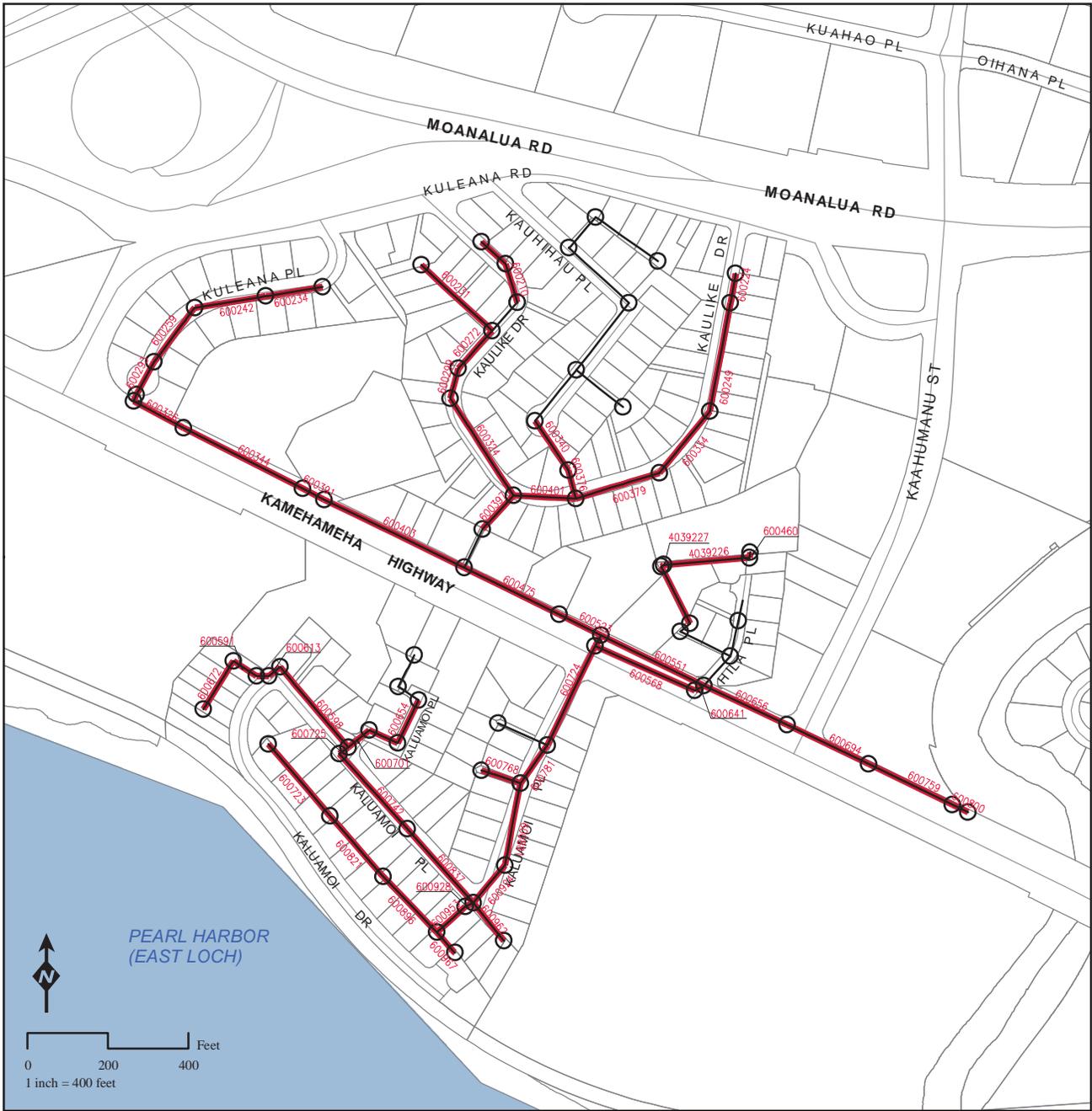


FIGURE 1-6
PIPES WITH CRACKS AND FRACTURES
 EXISTING PROJECT FEATURES
 WAI'AU AREA SEWER
 REHABILITATION/RECONSTRUCTION
 DRAFT EA
 JANUARY 2010

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- PIPES WITH DEBRIS AND DEPOSITS
- COLLECTION SYSTEM
- SEWER MANHOLE

Source: City and County of Honolulu

City and County of Honolulu

Department of Design and Construction

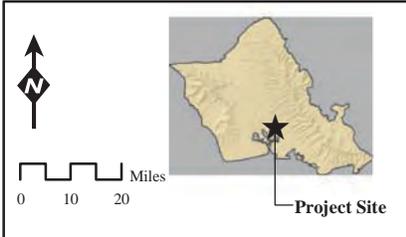
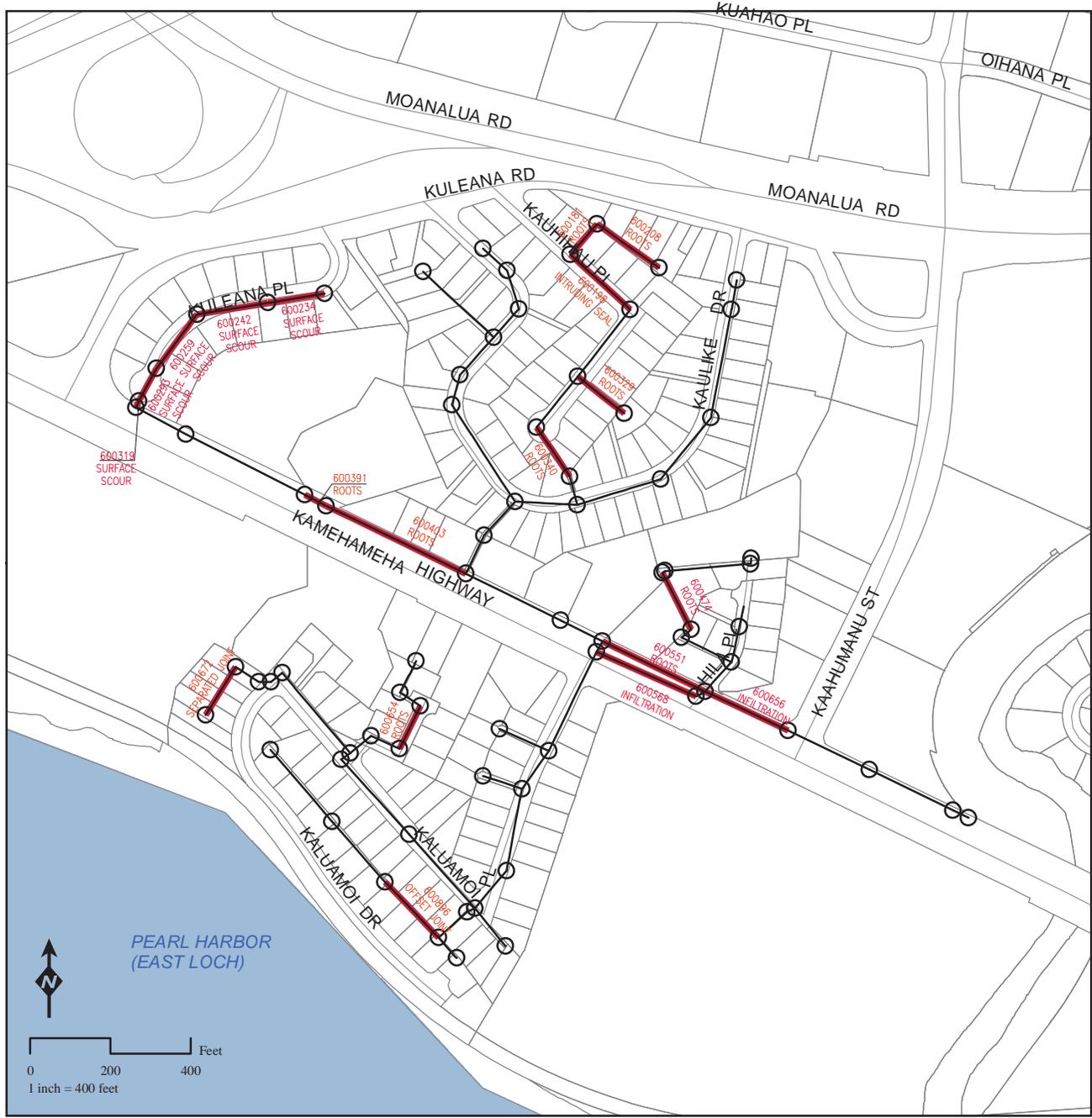
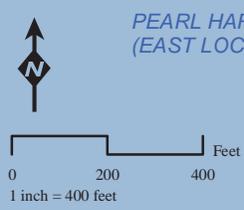


FIGURE 1-7
PIPES WITH DEBRIS AND DEPOSITS
 EXISTING PROJECT FEATURES
 WAIIAU AREA SEWER
 REHABILITATION/RECONSTRUCTION
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Legend

- PIPES WITH OTHER ISSUES
- COLLECTION SYSTEM
- SEWER MANHOLE

Source: City and County of Honolulu

City and County of Honolulu

Department of Design and Construction

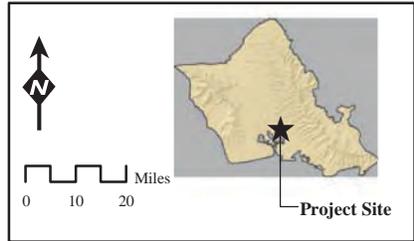


FIGURE 1-8
PIPES WITH OTHER ISSUES
 EXISTING PROJECT FEATURES
 WAIIAU AREA SEWER
 REHABILITATION/RECONSTRUCTION
 DRAFT EA
 JANUARY 2010

The Preferred Alternative (Alternative 4) proposes the following:

- Replacing the existing cast-iron pipes, broken pipes, undersized pipes, and select pipes with slope issues. The existing cast-iron pipes are proposed to be replaced with polyvinyl chloride (PVC) pipes. Pipes nearing capacity would be upsized to meet their peak flow.
- Rehabilitating pipes with cracks, fractures, and other issues (e.g., roots) with CIPP; and
- No rehabilitation for pipes without structural issues. Not all pipes with slopes less than minimum would be replaced as it may be infeasible to achieve the minimum allowable slope. This is especially true if the pipe segment is structurally sound and is not experiencing any hydraulic problems.

1.2.1 Project Funding

The estimated construction cost for Alternative 4 (Preferred Alternative) is approximately \$7,000,000, based on conceptual sketches and diagrams provided in the DAR, and not based on actual quantity take-off from design details. Consequently, it is recommended the costing provided in the environmental assessment to be used for comparing alternatives and not actual budgeting purposes.

1.2.2 Project Schedule

Construction of the project is expected to commence in 2011 at the earliest.

1.2.3 Permits and Approval Required

Table 1-1 Required Approvals and Permits

City and County of Honolulu	
Department of Planning and Permitting (DPP)	Construction Plans Approval
	Public Right-of-Way (ROW) Permit to Excavate
	Grubbing, Grading, and Stockpiling Permit
Department of Environmental Services, Environmental Quality Division (ENV)	Discharge of Effluent (Hydrotesting – temporary)
Department of Transportation Services (DTS)	Street Usage Permit
State of Hawaii	
Department of Health (DOH)	Community Noise Permit for Construction Activities
	Community Noise Variance
	National Pollutants Discharge Elimination System (NPDES) Construction Dewatering Permit
	NPDES Hydrotesting Permit
	NPDES Construction Stormwater Discharge
	Initial Non-covered Source Permit
Department of Transportation, Highways Division (DOT Highways)	Construction Plan Approval
	Use and Occupancy Agreement to Perform Work Upon a State Highway
Disability and Communication Access Board	Conformance with Accessibility Guidelines
Office of Environmental Quality Control (OEQC)	Environmental Assessment (EA)

Source: M&E Pacific, 2009

2 ENVIRONMENTAL SETTING

2.1 Location, Land Use, and Topography

A survey of the ground elevation and invert elevation of the existing manholes were performed by M&E Pacific, Inc. (M&E) from May to July 2008. The ground elevations and invert elevations would be compared with the City and County of Honolulu (CCH) Geographic Information System (GIS) database elevations to determine if the manholes have settled. The topography of the project site is generally flat. Elevations along the project alignment range from nine feet to 43 feet above mean sea level (MSL).

2.2 Climate

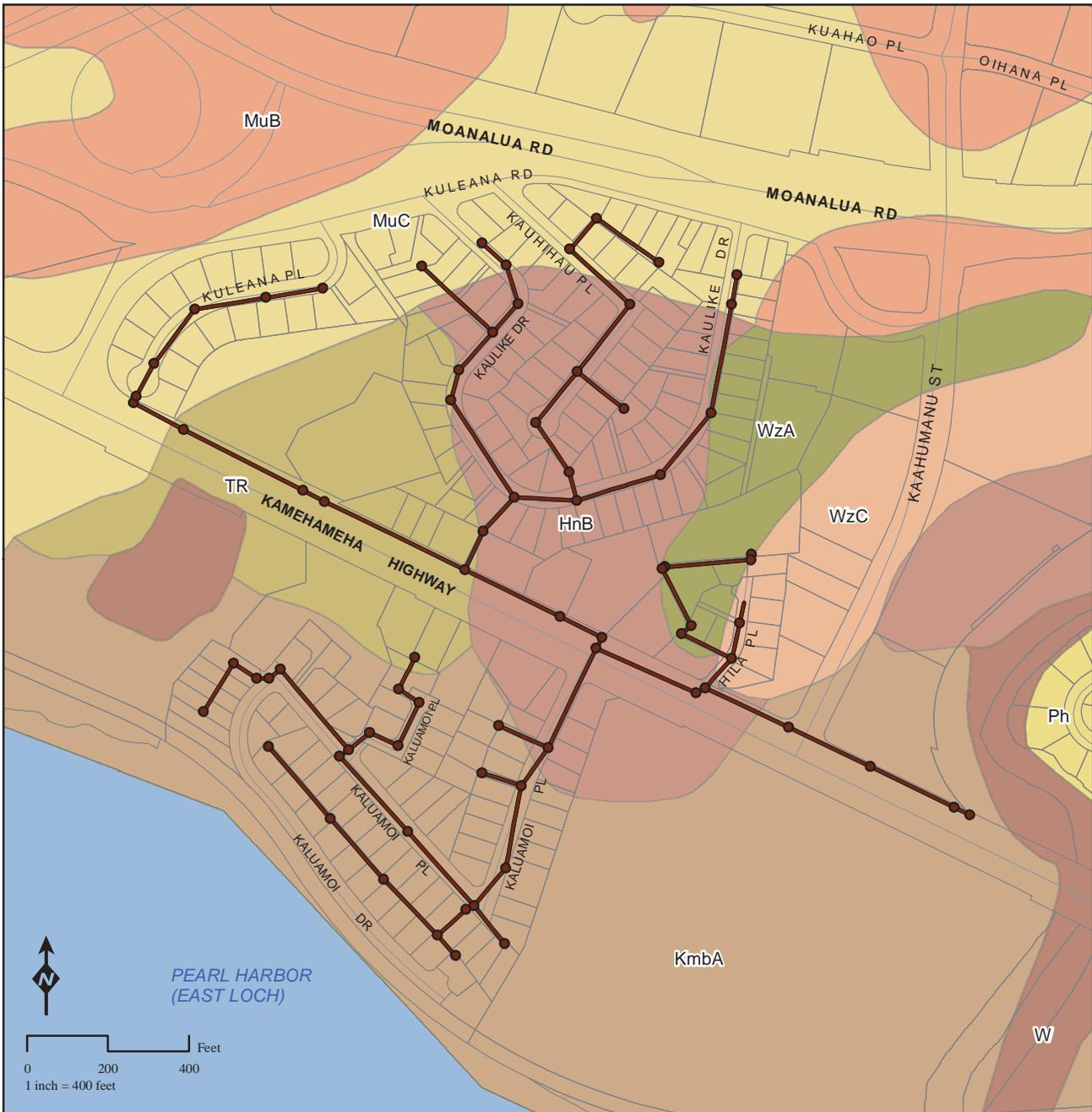
Honolulu's climate and that of the project area in Waiau are typical of the leeward coastal lowlands characterized by mild temperatures, abundant sunshine, infrequent severe storms, moderated humidity, and persistent north easterly trade winds. For most of Hawaii there are two seasons, summer from May to October and winter from October to April. The warmest month is in August with an average high of 89° Fahrenheit (°F) and a low of 75°F, while the coldest month is February with a high of 81°F and a low of 65°F. Typically rainfall occurs between the months of November and April however, varies from year to year; the mean annual rainfall is approximately 23 inches. The relative humidity ranges between 56 and 72 percent. Typically prevailing trade winds are from the northeast throughout most of the year. However, the occasional Kona winds bring warm humid air from the south. The project area is located in an urbanized environment; its microclimate varies somewhat from the overall climate of the region. The core of the project area, with its abundance of brick, concrete, and asphalt surfaces tend to absorb the solar energy, heat up, and re-radiate that heat to the ambient air resulting in slight temperature differences.

2.3 Geology and Soils

Figure 2-1 shows the soil types within the project area, according to the *Soil Survey of Islands of Kauai, Oahu, Maui, Molokai, and Lanai, State of Hawaii* (United States Department of Agriculture [USDA] Soil Conservation Service, 1972).

- Hanalei silty clay (HnB), with two to six percent slopes. Runoff is slow and erosion hazard is slight.
- Keaau clay (KmbA), saline with zero to two percent slopes. Keaau clay occurs in depressions adjacent to the ocean or in pockets within the limestone areas where seepage water evaporates.
- Molokai silty clay loam (MuB), with three to seven percent slopes. Runoff is slow to medium and the erosion hazard is slight to moderate.
- Molokai silty clay loam (MuC), with seven to 15 percent slopes. This soil occurs on knolls and sharp slope breaks. Runoff is medium and the erosion hazard is moderate.
- Tropaquepts (TR), are poorly drained soils that are periodically flooded by irrigation in order to grow crops that thrive in water.
- Waipahu silty clay (WzA), with zero to two percent slopes. This soil is nearly level and occurs on dissected terraces adjacent to the ocean. Runoff is slow or very slow and erosion hazard is none to slight.
- Waipahu silty clay (WzC), with six to 12 percent slopes. Runoff is medium and the erosion hazard is moderate.

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Legend

Sewer Manhole	HnB	MuC	W
Sewer Line	KmbA	Ph	WzA
	MuB	TR	WzC

Source: City and County of Honolulu, U.S. Department of Agriculture, Natural Resources Conservation Service

City and County of Honolulu

Department of Design and Construction

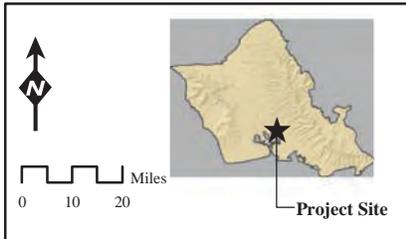


FIGURE 2-1

SOILS MAP

EXISTING PROJECT FEATURES

WAI'AU AREA SEWER REHABILITATION/RECONSTRUCTION

DRAFT EA

JANUARY 2010

2.4 Flood, Tsunami, and Earthquake Hazards

As indicated by the Federal Emergency Management Agency's (FEMA) Flood Insurance Rate Map (FIRM), the project area is located in Zone D. In an area as such, flood hazard is possible even though its base elevation or the possibility of flood hazard has not been determined.

According to the Oahu Civil Defense Agency (CDA) Tsunami Inundation Map for Oahu, the project area is outside of the tsunami inundation zone. Nevertheless, in anticipation of future natural disasters, the Oahu CDA has identified two emergency shelters at Ilima Intermediate School and Campbell High School in Ewa Beach.

Oahu is in Seismic Zone 2A, which is characterized as being susceptible to earthquakes that may cause minor damage to structures. Zone 2A is based on the International Building Code (IBC), which contain six seismic zones, ranging from 0 (no chance of severe ground shaking) to 4 (10 percent chance of severe shaking in a 50-year interval); Zone 2 is subdivided into two zones that correspond numerically to the effective horizontal peak bedrock acceleration (or equivalent velocity) that is estimated as a component of the design base shear calculation. Seismic Zone 2A has a Z-factor (seismic zone factor) of 0.15 and is not associated with a particular fault zone. Seismic Zone 2B has a factor of 0.20 and indicates an association with known crustal faults (Department of Land and Natural Resources [DLNR], 2008).

2.5 Hydrology

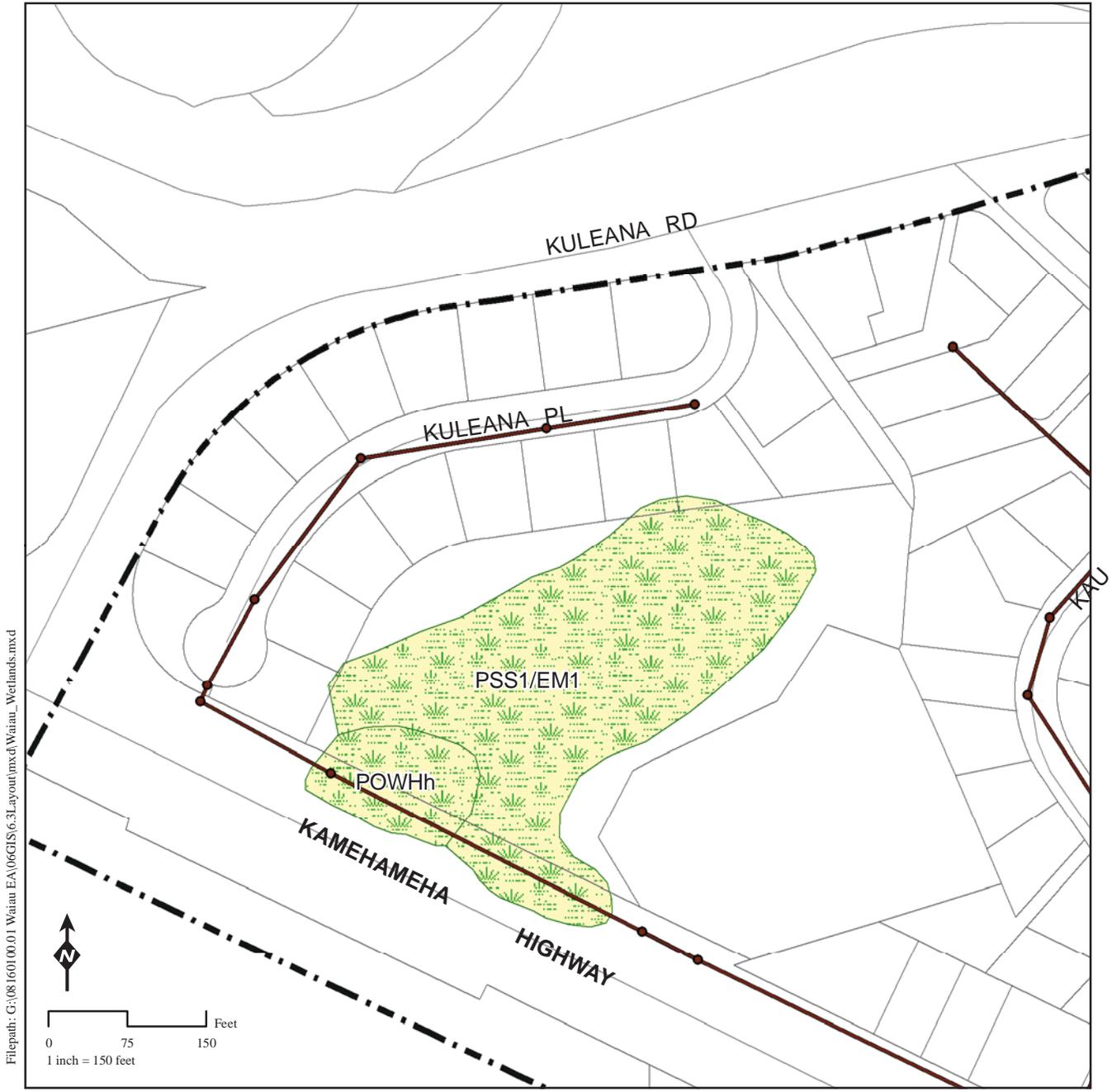
Nearby the project site are Waiau and Kalauao springs situated to the east of the project site (0.04 miles at the closest point from the project site). The project area is located within the Waimalu aquifer system, a major source of potable water with a sustainable yield of 45 million gallons per day (DLNR, Commission on Water Resource Management [CWRM], 2008). The underground injection control (UIC) line, or the boundary between non-drinking water aquifers and underground sources of potable water, abuts the Pearl Harbor shoreline (DOH, 1999). Some of the basal groundwater in the Pearl Harbor area exit through these springs.

2.6 Flora and Fauna

Within the project area, fauna is limited to birds and mammals that have adapted to urban environment. There are no endangered or threatened species occurring in the project area and no critical habitats within the project area. There have been recorded sights of the endangered Hawaiian Stilt (ae'o) and Hawaiian Gallinule ('alae 'ula) water birds in the adjacent Pearl Harbor coastlines.

Most of the project area is a highly modified urban environment with no significant naturally occurring vegetation; the exception is a vacant parcel with an AG-2 use (tax map key [TMK] 9-8-005-002) containing a wetland (Figure 2-2). A wetland is an area of land where soil is saturated with moisture either permanently or seasonally. The area may also be covered partially or completely by shallow pools of water. Wetlands are considered the most biologically diverse of all ecosystems. According to the United States Fish and Wildlife Service (USFWS) said parcel contains three designations:

- PAB3H: [P] palustrine, [AB] aquatic bed, [3] rooted vascular, [H] permanently flooded.
 - [P] palustrine: Includes all non-tidal wetlands dominated by trees, shrubs, emergent (vegetation that is rooted below water but grows above the surface), mosses or lichens, and all such wetlands that occur in tidal areas where salinity due to ocean derived salts is below 0.5 parts per thousand (ppt).



Filepath: G:\08160100.01 Wai'au EA\06GIS\6.3\Layout\mxd\Wai'au_Wetlands.mxd

Legend

- Sewer Manhole
- - - Project Boundary
- [Green Hatched] Wetland Areas
- Sewer Line

Source: City and County of Honolulu, U.S. Department of the Interior, Fish and Wildlife Service

City and County of Honolulu

Department of Design and Construction

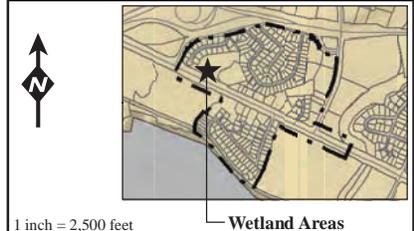


FIGURE 2-2
WETLANDS IN THE PROJECT AREA
 EXISTING PROJECT FEATURES
 WAI'AU AREA SEWER REHABILITATION/RECONSTRUCTION
 DRAFT EA
 JANUARY 2010

- [AB] aquatic bed: Includes wetlands and deepwater habitats dominated by plants that grow principally on or below the surface of the water for most of the growing season in most years. Aquatic beds generally occur in water less than 6.6 feet deep and are placed in the Littoral Subsystem.
- [3] rooted vascular: Includes a large array of vascular species in the Marine and Estuarine systems. Commonly referred to as grassflats. In the Riverine, Lacustrine, and Palustrine systems, these species occur at all depths in the photic (pertaining to light) zone. They often are in sheltered areas that have little water movement, and can also be found in the flowing water of the Riverine System, where they may be streamlined or flattened in response to high water velocities. Some species are characterized by floating leaves.
- [H] permanently flooded: Water covers the land surface throughout the year in all years.
- PEM1F: [P] palustrine, [EM] emergent, [1] persistent, [F] semi-permanently flooded.
 - [P] palustrine: see above for description.
 - [EM] emergent: Characterized by erect, rooted, herbaceous hydrophytes, excluding mosses and lichens. This vegetation is present for most of the growing season in most years.
 - [1] Persistent: Dominated by species that normally remain standing at least until the beginning of the next growing season. This subclass is found only in the Estuarine and Palustrine systems.
 - [F] Semi-permanently Flooded: Surface water persists throughout the growing season in most years. When surface water is absent, the water table is usually at or very near the land's surface.
- R4SBCx: [R] riverine, [4] intermittent, [SB] streambed, [C] seasonally flooded, [x] excavated.
 - [R] riverine: Includes all wetlands and deepwater habitats contained in natural or artificial channels periodically or continuously containing flowing water or which forms a connecting link between the two bodies of standing water. Upland islands or Palustrine wetlands may occur in the channel, but they are not part of the riverine System.

2.7 Historic and Archaeological Sites

There are no sites listed on the Hawaii or National Register of Historic Places (H/NRHP) or known archaeological resources within the project area. The area of potential effect with respect to historic and archaeological resources is limited to the public ROW (including the portion of Kamehameha Highway within the project area) and sewer easements that have been previously disturbed, filled, or developed. The shoreline of the Pearl Harbor was heavily utilized by early Hawaiians for fishing, food gathering, and fish cultivation in dozens of fishponds prior to the 20th century (Bishop Museum, 1997). Human skeletal remains that may possibly date back to the nineteenth century were identified by the DLNR, State Historic Preservation Division (SHPD) staff at the adjoining Blaisdell Park (Engineers Surveyors Hawaii, 2003). There are many historic sites associated with the nearby Pearl Harbor Naval Base, but none are situated in the confines of the project area to be directly or indirectly affected.

2.8 Cultural Resources and Practices

Pearl City, which encompasses the project area, is associated with aquaculture and traditional agriculture (taro terraces and patches, or *loi kalo*, and other subsistence crops such as sweet potatoes, yams, and bananas) during the pre and post-contact periods. These practices continued through the late nineteenth century, when cash cropping (sugar cane, rice) dominated the area. In the late nineteenth century, the northern coastline of Pearl Harbor became the site of population growth. Government and military

acquisition of lands in the area began at the turn of the century and much of the lands became utilized as military zones (Dega and O'Rourke 2003).

Many streams, including Waiau Stream, flowed into Pearl Harbor, bringing nutrients and life to native *gobi*, whose lifecycle included moving from the mountains to the sea for spawning/mating, and to other endemic fish (Honolulu High-Capacity Transit Corridor Project 2008). The ancient Hawaiians took advantage of the nutrient-rich areas by constructing networks of fishponds, or *loko*, to nurture natural resources. Abutting the project area to the east is a present-day Neal Blaisdell Park, which has a documented site of the *Loko Paakea (1897)*. Most fish ponds have been destroyed, dredged, or filled to accommodate urban expansion.

No cultural resources, practices, or beliefs associated with the project area or the surrounding area have been identified to date. The project area is highly urbanized, wherein uses ranging from residential development, commercial activities, and inactive agricultural use are noted.

2.9 Air Quality

Vehicular traffic is the primary source of air pollutants affecting the project area. The Kamehameha Highway, H-1 freeway, and Moanalua Road are major roadways that impact the air quality of the project area.

Hawaii's oceanic setting and trade wind-dominated climate account for exceptionally clean air. Generally speaking, air quality in the State of Hawaii is one of the best in the nation and criteria pollutant levels remain well below state and federal ambient air quality standards. Favorable topography and relatively little heavy industry are other contributing factors. However, the large number of automobiles concentrated in the Honolulu urban core (Pearl Harbor to Diamond Head) is a recognized source of air pollution. During times of unfavorable meteorological conditions (e.g., low wind speed) and heavy traffic, carbon monoxide can reach relatively high levels in the immediate vicinity of major traffic corridors, but long-term persistence of air pollution is rare.

The DOH Clean Air Branch (CAB) maintains nine air quality monitoring stations on Oahu that measure various types of pollutants. Air quality monitoring data compiled by DOH in 2007 indicates that the established air quality standards for all monitored parameters are consistently met on the Island of Oahu (DOH, 2008).

The DOH air quality monitoring site nearest the project area is located in Pearl City at the Leeward Health Center (860 4th Street, Pearl City). The site is located approximately 1.5 miles west of the project area. The monitoring site was established in 1971 and currently only monitors particulate matter.

According to the *Annual Summary of the Hawaii Air Quality Data 2007* (DOH, 2008), all except one of the 597 samples collected and tested for PM₁₀ (10 microns or less) met the Hawaii State air quality standards. The State PM₁₀ standards are 150 micrograms ($\mu\text{g}/\text{m}^3$) of particulate matter less than 10 microns in diameter per cubic meter (m^3) over a 24-hour period, and 50 $\mu\text{g}/\text{m}^3$ on an annual arithmetic average basis. The Pearl City sampling site had annual mean PM₁₀ particulate concentration of 15 $\mu\text{g}/\text{m}^3$ for 2007. The PM₁₀ particulate data represents coarser particles from sources such as road and windblown dust.

In 2007, PM_{2.5} particulate matter data, which monitors fine particles typically produced by fuel combustion, was also monitored at the Pearl City site. Based on 186 readings, the PM_{2.5} particulate averaged 4 $\mu\text{g}/\text{m}^3$ at the Pearl City site. The Federal standards are 65 $\mu\text{g}/\text{m}^3$ over a 24-hour period and 15 $\mu\text{g}/\text{m}^3$ for the annual average.

DOH operates four monitoring stations for carbon monoxide (CO), none of which are located near the project area. Data from the monitoring stations located in downtown Honolulu, Waikiki, Kapolei, and West Beach indicate that CO concentrations are also well below State and Federal standards, even in areas with heavy vehicular traffic. In the 8,687 one-hour readings taken in Waikiki in 2007, the highest maximum CO reading recorded was $3,420\mu\text{g}/\text{m}^3$, which is substantially lower than the $10,000\mu\text{g}/\text{m}^3$ and $40,000\mu\text{g}/\text{m}^3$ for Hawaii and Federal standards, respectively.

2.10 Noise

According to Title 11, Chapter 46 of the Hawaii Administrative Rules (HAR), *Community Noise Control*, “noise” means any sound that may produce adverse physiological effects or interfere with individual or group activities, including, but not limited to, communication, work, rest, recreation, or sleep. “Noise pollution” is noise emitted from any excessive noise source in excess of the maximum permissible sound levels. The accepted unit of measure for noise levels is the decibel (dB) because it reflects the way humans perceive changes in sound amplitude. Sound levels are easily measured, but human response and perception of the wide variability in sound amplitude is subjective.

Various local and federal agencies have established guidelines and standards for assessing environmental noise impacts and set noise limits as a function of land use. Chapter 46, HAR defines three classes of zoning districts and specifies corresponding maximum permissible sound levels due to stationary noise sources, such as air conditioning units, exhaust systems, generators, compressors, pumps, etc., and equipment related to agricultural, construction, and industrial activities. In determining the maximum permissible sound level, the background noise level is taken into account. These levels are enforced by DOH for any location at or beyond the property line.

The DOH monitors noise issues in accordance with Chapter 19-342F, HRS. The Occupational Safety and Health Act (OSHA) of 1970 was established to “assure the safe and healthy working conditions for working men and women”. OSHA regulations established a maximum noise level of 90 A-weighted decibels (dBA) for a continuous eight-hour exposure (i.e., typical work day) with higher maximum noise levels for shorter duration periods. The A-weighted sound level is a unit of sound pressure that accounts for the difference in human sensitivity to higher and lower frequency sounds at the same decibel level. Thus, different sounds with the same A-weighted sound level are perceived as being equally loud. Table 2-1 summarizes the maximum sound levels for various noise durations.

The current allowable noise limits for single and multi-family residential and commercial uses on Oahu are shown in Table 2-2. No existing baseline noise levels for the project location were taken previously:

Although no existing baseline for noise levels were taken for the project area, The project area experiences ambient noise resulting from four principal sources: automobile-induced traffic; operation of industrial equipment; operation of construction equipment; and occasional distant fly-bys from aircraft. Noise from stationary equipment and business activities within the project area are generally masked by traffic noise during daytime periods. Traffic and construction activities are among the more audible and consistent source of noise within the project area.

Table 2-1 Maximum Sound Levels for Various Noise Durations

Duration (Hours/Day)	Permissible Sound Level (dBA)
8	90
6	92
4	95
3	97
2	100
1 to 1 ½	102
1	105
½	110
¼ or less	115

Source: 29 Code of Federal Regulations (CFR) 1910.95

Table 2-2 Allowable Noise Limits for Single and Multi-Family Residences and Commercial Uses

Zoning District	Day Hours (7AM to 10PM)	Night Hours (10PM to 7AM)
Class A: residential, conservation, preservation, public space, open space	55 dBA (exterior)	45 dBA (exterior)
Class B: multi-family dwellings, apartments, business, commercial, hotel, resort	60 dBA (exterior)	50 dBA (exterior)
Class C: agriculture, country, industrial	70 dBA (exterior)	70 dBA (exterior)

Source: Title 11, Chapter 46, HAR

2.11 Utilities Infrastructure

2.11.1 Sewer

The Waiau Basin sewer collection system consists of approximately 10,800 linear feet sanitary sewer lines and 75 sewer manholes. According to the GIS, the earliest sanitary sewer lines in the project area were installed in 1952, and the most recent sanitary sewer lines were installed in 2005. The majority of the infrastructure was installed in 1957. The sanitary sewer lines that were installed in 1952 are cast iron pipes (CIP). All known pipes from 1957 to 1989 are vitrified clay pipes (VCPs). The sanitary sewer lines installed in 2005 are PVC pipes. The diameters of the existing sanitary sewer lines range in size from six inches to 12 inches, with eight inches being the most common diameter in the project area. The sanitary sewer lines consists of approximately 1,500 linear feet of six-inch sewers, 7,300 linear feet of eight-inch sewers, 1,300 linear feet of 10-inch sewers, and 700 linear feet of 12-inch sewers.

There are 75 SMHs in the project area. The majority of the manholes are concrete manholes; however, there are a few brick manholes. The existing manholes were installed between 1957 and 2005. The installation year of several of these SMHs is unknown, however.

2.11.2 Drainage

The drainage system consists of inlets, catch basins, storm drain manholes, and underground storm drain lines. These underground storm drain lines are composed of reinforced concrete pipe ranging in size from 15-inch to 36-inch diameter, reinforced concrete box culverts ranging in size from 72-inch by 42-inch to 72-inch by 44-inch (width and height). The drainage system collects storm runoff in the project area and discharges into TMK 9008005002, Waimalu Stream, or into Pearl Harbor.

2.11.3 Water

The water system consists of valves, valve boxes with manholes, fire hydrants, underground water mains (ranging in size from six inches, eight inches, and 12-inch) and water laterals (four inches or smaller).

2.11.4 Gas

The gas utility consists of two supply lines, valves and valve boxes. The two gas supply lines—six inch and 16-inch—are located in Kamehameha Highway. The gas utility consists of a six-inch and a 16-inch supply lines, valves, and valve boxes. The gas laterals range in size from ¾-inch, one inch, and two inches.

2.11.5 Electrical

The electrical system consists of a 138 kilo volt (kV) overhead high voltage power lines. The power poles are mainly located along Kamehameha Highway. Additionally, there are underground transmission lines, transformers, and appurtenances in the project area.

2.11.6 Telephone

There are overhead and underground telephone lines in the project area. The main line runs along Kamehameha Highway.

2.11.7 Miscellaneous Utilities Infrastructure

There are miscellaneous conduits in the project area, which include underground cable television lines, underground AT&T fiber optic lines, fuel lines, and irrigation lines.

2.12 Roadways and Traffic

The proposed project involves rehabilitation, reconstruction, and replacement of sewer lines and manholes along heavily traveled Kamehameha Highway and residential streets. Kamehameha Highway has six through lanes of traffic (three in each direction).

2.13 Socio-Economic Setting

2.13.1 General

The project area is situated in the Waiau ahupua'a neighborhood in Waiau, represented by the Pearl City Neighborhood Board Number 21. The Neighborhood measures approximately 3.88 square miles. Some characteristics that define the project area include single and multi-family residences, high level of commercial activities, and heavy traffic on Kamehameha Highway and Moanalua Road.

2.13.2 Population

The Waiiau neighborhood, with a population of 6,988, is a community that is not a census designated area (city-data.com, 2009). The average family size is 3.4 members, which is relatively higher due to a fair number of single and multi-family residences within the project area.

2.13.3 Socio-Economic Background

In the project area, 80 percent of households have individuals over 18 years of age and 15.7 percent of the households have individuals above 65 years and older (CCH, 2008). In comparison, 74.3 percent of the households on Oahu have individuals over 18 years of age and 12.4 percent of households have individuals above the age of 65. The median age on Oahu is 35.7.

Workforce and economic statistics for the project area have also been compiled (CCH, 2008). Approximately 91 percent of the residents older than 25 have a high school education or better. The median household income of \$61,000 is substantially higher than the median household income of \$44,000 for Oahu. The unemployment rate for the civilian workforce is five percent and the percentage of the families below the poverty level is 4.1 percent.

The project area is primarily a residential area comprised of single and multi-family residences. Commercial uses in the project area generate significant traffic during lunch and dinner hours.

2.14 Land Ownership

The majority of the parcels within the project area are privately owned. With the exception of some work in sewer easements in private property, the majority of work will take place in the public right-of-way of the City and State-owned roadways. The State owns Kamehameha Highway and land under the H-1 Freeway. The City owns all the other streets in the project area.

2.15 Land Use and Land Use Designations

The project site is classified as urban by the State Land Use Commission (LUC). The existing land uses include: A-1 (low-density apartment), AG-2 (general agriculture), B-2 (community business), I-2 (intensive industrial), and R-5 (residential). Additionally, there is a Federal parklands easement traversing the project area abutting the shoreline. The Special Management Area (SMA) boundary, designated to control development along the shoreline, is located along the makai boundary of the Kamehameha Highway. See Figure 2-3.

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3 POTENTIAL IMPACTS AND MITIGATION MEASURES

This chapter discusses the potential environmental impacts and proposed mitigation measures for the proposed project. Generally speaking, long term adverse impacts associated with the proposed project are not anticipated. Environmental impacts will be limited primarily to short-term disruptions associated with construction activities. The project will have the beneficial effect of providing a reliable, low-maintenance sewer system for the project area.

3.1 Land Alteration and Aesthetics

Short-term impacts associated with land alteration and aesthetics will result from construction activities. The work will include trench excavation, shoring, and backfill; installation of piping and manholes; stockpiling of materials; treatment and disposal of dewatering effluent; and traffic detours. The general visual and aesthetic alteration from the work will cease upon completion of construction and the affected areas will be restored to their original conditions to the extent possible. Construction inspection and monitoring services will help ensure that the contractor performing the work adheres to all environmental regulations applicable to construction activities. Construction waste will be hauled to a DOH permitted solid waste disposal or recycling facility as required.

Construction activities may increase the potential for erosion slightly in localized active work areas due to removal of asphalt pavement in roadways and groundcover in yard easement areas. Erosion control measures will be implemented during the construction to minimize the impacts of erosion during and following construction. The contractor will be required to comply with the best management practices (BMPs) for erosion control in the project's construction drawings and Erosion Control Plan. As part of the trenching permit approval process, the erosion control documents will be reviewed by DPP for conformance to applicable regulations and guidelines.

Long-term adverse impacts to visual resources are not anticipated because repaired/replaced sewer lines would be located below grade.

3.2 Flood Hazard

The FIRM indicates that the project site is located in Zone D, which is an area of undetermined, but possible flood hazards. Flooding in the lower makai areas of the project area is possible due to drainage problems in the area. The construction contract documents will require the contractors to monitor weather conditions and prepare the work area to prevent flood damage, prevent sewage overflows, and maintain continuity of wastewater services. The contractors will be required to provide sewage bypass pumps adequately sized for peak wet weather sewage flows and backup bypass pumps.

3.3 Hydrology

The proposed project is not anticipated to have any impact on groundwater resources. The open trenching method proposed will be used for select sewer line replacement and the installation of new sewer line. Using trenchless construction methods minimizes the potential for sediments from entering surface waters through stormwater runoff. When applying open trenching method for sewer line replacement, 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. Impacts will also be mitigated by complying with the conditions of the project NPDES stormwater permit.

3.3.1 Surface Water Quality

The proposed project will not increase the volume of peak stormwater runoff or contribution of contaminants to stormwater runoff. The project will restore pavements and groundcover that would be disturbed during construction. Implementation of the project will have beneficial impacts on water quality because the project would help minimize SSO problems that may result from wet water infiltration/inflow.

Materials that may potentially enter nearby Waimalu Stream as the result of the construction work include soils from excavation and material stockpiles, particles from asphalt concrete pavement materials, fuel and oil from construction equipment, and suspended clay particles in dewatering effluent. Potentially adverse impacts to the water quality of Waimalu Stream will be mitigated by employing erosion control measures, keeping the construction site as clean as possible to minimize contaminants in stormwater runoff, and treating dewatering effluent discharges to remove silt. Silt fences and sediment trapping drain inlet filters will be used to minimize the entry of contaminants through storm drain inlets. Construction will be phased and scheduled to limit the extent and time that bare ground is exposed to minimize erosion from rainfall and stormwater runoff. Construction vehicles will be fueled offsite or in a designated area with appropriate spill containment features.

The contractor will be required to treat the dewatering effluent using appropriate BMP methods, such as sedimentation, chemical pretreatment, and filtration prior to discharge to the stream. NPDES general permit coverage will be obtained from DOH for: 1) construction activities; 2) construction dewatering effluent disposal; and, 3) hydrotesting water disposal. Water quality testing would be performed as required to comply with requirements of the NPDES general permit. Discharge pollution controls will be required to be monitored and maintained by the contractor on a routine basis and immediately (within 24 hours) after each significant rain event (1/2 inch or greater rainfall within a 24 hour period). The contractor will be required to halt work and take action as necessary to protect the work site and stored materials from storm damage and erosion.

Dewatering effluent that is contaminated with sewage will be discharged to the sewer system. Accidental sewage spills during construction will be reported in accordance with standard DOH protocol. The contractor will be required to submit a spill mitigation plan prior to commencing work.

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

3.3.2 Groundwater Quality

During construction, contractors would be required to minimize spillage of sewage on the streets to minimize potential groundwater contamination. BMPs for consideration include dewatering effluent contaminated with sewage to be discharged to the sewer system; and perform groundwater water quality testing during design phase to verify that no hazard constituents are present in the discharge. The impact of any contamination of groundwater in the pipe trenches would not be significant because little or no contamination water would exfiltrate (groundwater would be entering the trench) into the surrounding soil during trench dewatering. Application of the BMPs discussed above would minimize potentially adverse impacts to groundwater quality. Therefore, mitigation measures are not proposed.

3.4 Flora and Fauna

No significantly adverse impacts to flora and fauna at the project site or in the general area are anticipated from the proposed project. No endangered flora or fauna are known to exist at the project area. Native and adapted species are the dominant components of the vegetation and animal communities within the project limits. Construction work will be generally limited to the paved sidewalk and shoulder areas within the public ROW.

3.5 Air Quality and Wastewater Odors

The use of construction equipment at the project site will create dust and exhaust emissions. The contractor will be required to comply with Chapter 11-60.1, HAR, *Air Pollution Control*, which includes the requirements of Section 1-33 on fugitive dust.

The air quality impacts during construction will be temporary and will cease upon completion of the construction. The project will be implemented in appropriate incremental phases to minimize the extent of dust generating materials and activities.

The trench excavation work is not expected to generate a significant amount of fugitive dust because the high water table will tend to minimize dry soil conditions. The contractor will be required to control the generation of dust by adequately watering down the construction site and soil stockpiles, keeping the construction site and access roadways reasonably free of dust causing materials, covering trucks hauling materials, and implementing other appropriate dust control practices.

The contractor will be required to control exhaust emissions by maintaining construction equipment, including emission control devices, in proper working condition and minimizing unnecessary idling of engines. The construction emissions should not significantly change the quality of air in the project area due to prevailing winds and existing exhaust emissions generated from traffic in the area.

The proposed project is not anticipated to generate a significant amount of odors during construction because the contractor will be required to bypass sewage flow around impediments using enclosed pumping/piping systems and not allow stagnation to occur.

3.6 Noise

The noise level will increase during the construction period due to the use of construction equipment such as sheet pile drivers, backhoes, trucks, compactors, and pavers. Homes and business near the active construction area will be impacted by construction equipment that are anticipated to typically generate noise levels ranging from 80 to 90 dBA at a distance of 50 feet. The noise impact of construction equipment will be minimized by requiring properly functioning mufflers on machinery and restricting construction activity to normal working hours to the extent possible. The noise impacts from construction will be temporary and will generally shift to different areas of the project site as each sewer line segment is completed.

Work on weekends and at night will be limited to the extent possible. Work on the sewers in many areas will likely require operation of sewage pumps to bypass flow around the work area and pumps to dewater the pipe trenches. The pumps may be required to operate intermittently or continuously throughout the night. Although the pumps would be housed in noise-attenuation enclosures, noise standards may still be

exceeded occasionally. Due to heavy traffic on Kamehameha Highway, it is anticipated that work at night may be anticipated.

Construction activities will be required to meet Chapter 11-46, HAR, *Community Noise Control*. The contractor will be required to obtain a noise permit from DOH to allow the daytime noise level to be exceeded during the working hours of 8:30 AM to 3:30 PM, Monday through Friday, and 9 AM to 6 PM on Saturday. A noise variance will be required for all other hours to allow continuous operation of the pumps at night and weekends, and for night work on Kamehameha Highway. There will be no construction activities on Sundays and holidays to the extent possible.

The implementation of the project would have beneficial impact on noise due to the reduction of sewer cleaning frequency. Noise from sewer cleaning operations is generated by high pressure water pumps used for sewer cleaning water, vacuum pumps used to collect debris, and pipeline auger equipment.

3.7 Archaeological and Historic Sites

The proposed construction will take place within roadway and easement areas that have been previously disturbed and where no historic sites are known to exist. The would-be affected areas would be on constructed spaces that have been significantly altered due to past cultivation of the land, grubbing, and grading work.

To mitigate potential impacts resulting from inadvertent encounter with artifacts or *iwi* (remains), an archaeological monitoring plan would be submitted to DLNR-SHPD for review and approval prior to the commencement of any ground-altering activities. A qualified archaeological monitor shall be present during all ground-altering activities conducted in the project area in order to document any historic properties. In the event an *iwi* is encountered, work will be halted in the immediate vicinity of the *iwi* and archaeological consultation will be sought with DLNR-SHPD in accordance with applicable regulations. Upon the on-set and completion of the proposed project, DLNR-SHPD will be notified by facsimile as requested in a letter dated May 29, 2009.

3.8 Cultural Resources

Cultural practices discussed in Section 2.7 of this report have been documented on a regional scale; however, there are no known cultural practices specific to the project area. Based on conversations with SHPD, it does not appear that there are known cultural descendants in and/or associated with the project area (DLNR, SHPD 2009). According to SHPD staff, this reveals that: 1) no burials were discovered in Waiau that came to the Oahu Island Burial Council (OIBC) attention for determination—to relocate or preserve in place; 2) there are no “recognized descendants” affiliated either culturally or lineally to any known or unmarked burials in Waiau that required “recognition” by OIBC; 3) most folks became aware of burials when a Legal Notice is posted by the archaeology company doing the work and it lists land commission awards (LCA), traditional landowners, and etc. This fact notwithstanding, the proposed project to rehabilitate, reconstruct, and in some cases, replace, the sewer lines would not extend beyond the existing sewer line network. The proposed project would neither erode nor revive the activities that are no longer in use at the present time. Therefore, the proposed project is not anticipated to cause negative impacts to the known cultural resources within the region; as such, no mitigation measures are proposed.

3.9 Traffic

Traffic on roadways near the construction work will be temporarily disrupted during installation of the sewer lines and rehabilitation work. Increased congestion on Kamehameha Highway and Moanalua Road are likely to result from construction work on or near these two heavily traveled major thoroughfares. Increased traffic due to the sewer construction work will also be a concern for collector streets of Kuleana Road and Kaluamoi Place.

On Kamehameha Highway, open trench works will be limited to non-peak hours between 8:30 AM and 3:30 PM, Monday through Friday, to reduce potentially significant impact to the vehicular traffic. Additionally, open trench works will not be performed during back-to-school week and holidays. During non-work hours, open trenches will be covered as required with steel plates.

Much of CIPP lining installation work would be conducted at night on weekdays and weekends, from 9AM to 6PM, because CIPP rehabilitation work requires that installation and curing of the liner be completed with adequate time and without interruption to ensure proper curing of the liner. Similar to open trenching methods, lane closure would result. It may be necessary for the contractor to use the public right-of-way as a staging area to park and temporarily store vehicles and construction equipment. The contractor will be required to provide adequate and safe sidewalk widths, allow for adequate visibility, and institute other actions to ensure pedestrian and motorist safety.

The contractor will be required to comply with traffic control plans approved by DPP and DOT Highways. Construction will be phased and the contractor will generally be required to limit the work area to one where the work within the area can be completed during the day. Traffic control plans will cover each phase of work.

The contractor will be required to comply with safety precautions and measures as prescribed in the “Administrative Rules of Hawaii Governing the Use of Traffic Control Devices at Work Sites on or Adjacent to Public Streets and Highways,” as adopted by the Director of DOT, and Part IV, “Standards and Guides for Traffic Controls for Street and Highway Construction, Maintenance, Utility, and Incident Management Operations,” of the “Manual of Uniform Traffic Control Devices for Streets and Highways,” as published by the Federal Highways Administration (FHA). Special duty police officers will be employed as required to facilitate traffic flow and minimize traffic hazards. Monitoring will be performed to verify compliance with conditions imposed by permits issued for the construction work in the streets and highway. Existing traffic control devices, which may be damaged or removed during construction, will be required to be replaced immediately after the construction in the area is completed.

Area residents and businesses will be kept informed of the project prior to and during the construction work. Information will be published in the major daily newspapers and on a project website to inform affected residents and commuters of upcoming major construction work, road closures, detours, and suggested alternate routes.

The contractor will be required to minimize inconvenience to residents. Residents in the immediate work area may be inconvenienced by restrictions to driveway access and roadway frontage usage. Vehicular and pedestrian access to and from the private properties will be provided at all times, or the contractor will provide other suitable temporary accommodations. The contractor and the City will coordinate any temporary closure of private driveways with the affected property owners prior to the closure. Where necessary, parking may be temporarily restricted on both sides of the streets during construction.

The contractor will be required to make provisions for emergency access and will be required to provide full access during non-working hours. Emergency services (e.g. fire, ambulance, and police) will be notified prior to implementation of any required detours or street closures. The Honolulu Police Department may see an increase in complaints and calls related to traffic and other project related concerns.

The contractor will be required to notify Oahu Transit Services (OTS) a minimum of two weeks prior to construction of the location, scope of work, proposed closure of any streets, or traffic lanes, and the need to relocate any bus stops. Bus routes potentially affected by increased traffic are likely to be:

- Kamehameha Highway: Route 40/A (Makaha Beach/Towers-Honolulu/Ala Moana); Route 42 (Ewa Beach-Waikiki); Route 52 (Wahiawa Circle Isle/Heights-Halawa/Ala Moana); Route 53 (Pacific Palisades-Halawa/Ala Moana); Route 62 (Honolulu-Ala Moana Center); Route 88A (Express-North Shore; Honolulu); and Route A (Waipahu-U.H. Manoa).

Traffic control plans include temporary relocation of the bus stops as required based on input from OTS.

The project will have beneficial long-term impacts on traffic. Due to reduced amount of maintenance required for the new sewers, there should be less traffic impacts associated with sewer maintenance vehicles and personnel working in the streets to clean or unclog sewer lines.

3.10 Utilities, Roads, and Other Infrastructure

The construction work will take place within existing roadways with various utility lines. There will be temporary localized disruptions to sewer, water, and possibly other utility services during the project. The new sewer lines will be designed to minimize interferences with other utility lines. Construction plans will be submitted to the utility companies and City and State agencies for review and approval and the work will be scheduled and coordinated to the extent possible to minimize impacts to other utilities. Existing utility lines will be located by toning, potholing, or hand excavation as required to minimize the risk of damaging the lines. Residents will be given advance notice of utility outages for such work as relocation of water and other utility lines, and connections to new sewer lines. All existing street improvements (i.e., pavement, curbs, gutters, sidewalks, driveways, traffic control devices, and etc.), utilities, and other public and private property improvements will be restored to their original or upgraded condition after the installation or repair of the sewer lines.

Due to high water table conditions, dewatering of trenches for installation of new sewer lines and SMHs will be required in the majority of the lower basin areas.

There are no significant recreational activities occurring at the project site and within the adjacent area. Increased traffic congestion during construction may have some short-term impacts on the visitors to the adjoining Blaisdell Park and other parks and recreational facilities in the area.

3.11 Socio-Economic and Land Use Impacts

The estimated cost of the proposed project is \$7,000,000. The CIP project will be funded by CCH. Since sewer user fees are assessed uniformly islandwide, this project and other proposed sewer projects on Oahu are projected to result in increases to user fees for all sewer customers.

The project will provide employment for contractors and their employees, material suppliers, and others associated with the construction. The increased employment, however, will be temporary and will

generally not directly benefit residents in the project area. Traffic impacts during construction may temporarily reduce the number of customers at the existing commercial uses in the project area.

Since the project area is fully developed, the project would have no effect on future land use unless the land is rezoned for higher density use. Although the project increases sewer capacity, the intent is to rectify past capacity deficiencies and to provide a greater factor of safety against sewer overloading.

The project will benefit the residents of the service area by minimizing the probability of future public health hazards and sewer service disruptions caused by sewage spills and clogged pipes. CCH will benefit from reductions in the expenditure of manpower for maintenance of the sewer lines, for cleanup of wastewater spills, and for reporting/administrative tasks associated with wastewater spills.

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4 RELATIONSHIP TO LAND USE POLICIES AND CONTROLS

4.1 State Land Use Plan

The State Land Use Law, Chapter 205, HRS, is intended to preserve, protect, and encourage the development of lands in the State for uses which are best suited to the public health and welfare for Hawaii’s people. The project area is located within the State “urban” land use district and the proposed project is consistent with this designation.

4.2 Hawaii State Plan

The Hawaii State Plan, Chapter 226, HRS, adopted in 1978, outlines broad goals, policies, and objectives to serve as guidelines for the future growth and development of the State. The proposed project is consistent with the objective of “maintenance and pursuit of improved quality in Hawaii’s land, air, and water resources” (§226-13[a][2]). It is also consistent with the policy of the State to “promote the proper management of Hawaii’s land and water resources,” (§226-13[b][2]) and “promote effective measures to achieve desired quality in Hawaii’s surface, ground, and coastal waters” (§226-13[b][b]). The project will decrease the risk of sewage spills and thereby protect stream and coastal water quality. The project will meet the needs of the Waiau community and does not conflict with the State Plan with respect to the well-being of the residents and protection of the environmental and cultural resources.

4.3 City and County of Honolulu General Plan

The CCH General Plan sets forth broad statements of social, economic, environmental, and design objectives and policies which are desired over the long-term. The General Plan was originally adopted in 1972; revised in 1992; and was most recently amended in 1992 and 2002.

The proposed project is consistent with the following policies and objectives of the General Plan:

III. Natural Environment

- Objective A To protect and preserve the natural environment
- Policy 7 Protect the natural environment from damaging levels of air, water, and noise pollution.

V. Transportation and Utilities

- Objective B To meet the needs of the people of Oahu for an adequate supply of water and for environmentally sensitive waste collection and waste disposal services
- Policy 5 Provide safe, efficient, and environmentally sensitive wastewater collection and waste disposal services

- Objective C To maintain a high level of services for all utilities
- Policy 1 Maintain existing utility systems in order to avoid major breakdowns.

The proposed project will result in rehabilitation and upgrade of the existing sewer lines to decrease the risk of sewage spills and water pollution.

4.4 Primary Urban Center Development Plan

The Primary Urban Center Development Plan (PUCDP) helps to implement the objectives and policies of the General Plan by providing relatively detailed development schemes for Central Oahu. The PUCDP was approved on June 21, 2004 as Ordinance 04-14. The proposed project is consistent with the following sections of PUCDP:

- The vision statement in Section 2.1 of the PUCDP projects a vision in which beaches and coastal waters are actively managed and improved. The proposed project will protect beaches and coastal waters by improving water quality through reduction of sewage spills.
- Under Section 4.2.2 of the PUCDP, one of the stated wastewater policies is to “implement wastewater collection system improvements to provide adequate service and sound facilities to existing neighborhoods.” Under Section 4.2.3., the stated development plan guidelines include, “complete current projects needed to correct identified service or facility inadequacies to neighborhoods where change in service demand is not anticipated.” The proposed project to rehabilitate the Waiau sewer lines conforms to the wastewater policies and guidelines of the PUCDP.

4.5 Public Infrastructure Map

In its pre-assessment consultation response letter, DPP indicated that the proposed project would not require the addition of a symbol for the publicly funded facility to the PUC Infrastructure Map. Underground sewer lines are not a type of public infrastructure that is required to be shown on the map.

4.6 Special Management Area

The proposed project is excluded from consideration as “development” subject to approval of the SMA Use Permit. The Revised Ordinance of Honolulu (ROH) Section 25-1.3.2.D reads:

“Development does not include the following: The repair and maintenance of underground utility lines, including but not limited to water, sewer, power and telephone and minor appurtenant structures such as pad mounted transformers and sewer pump stations,”

Therefore, although some parts of the project are situated in the SMA, the approval of the Use Permit would not be required.

5 ALTERNATIVES CONSIDERED

5.1 Alternatives

5.1.1 Alternative 1: No-Action Alternative

This alternative involves no improvements to the existing collection system.

Advantages:

- Least expensive;
- No traffic disruption;
- No disturbance to underground pipes and utilities; and
- No wastewater spills in project area since September 15, 2005.

Possible limitations include:

- Cleaning frequency in the area would continue at current rate;
- Existing sewer lines may not be structurally sound since some pipes are broken;
- Additional monitoring is required to determine when rehabilitation and reconstruction is necessary;
- Reactive maintenance—wait until there is a leak, spill, and/or broken pipe before fixing;
- Infiltration; and
- Public health is placed at unacceptable risk (i.e., risk of sanitary sewer overflows).

The construction estimated cost of the No-Action Alternative is zero dollars and the estimated product lifecycle is \$12,000,000. The No-Action Alternative involves no work on the existing collection system in the project area. Areas of concern in the existing sewer lines include heavy grease deposits, sag, and flat pipe sections. This Alternative does not repair flat areas and pipe sag or reduce risk of sanitary sewer overflow; therefore, does not meet the project objective.

5.1.2 Alternative 2: Replace All Pipes

Alternative 2 proposes to replace all sewer lines in the project area with either open trench excavation and backfill or pilot tube micro-tunneling. This allows for the redesign of the collection system to meet the requirements described in the CCH Wastewater Standards. This Alternative is the most expensive because it requires replacement of all pipes in the project area.

Advantages:

- New pipes—adjust to meet the minimum slope and upsize as necessary;
- Less likelihood of leaks, spills and/or broken pipes;
- Meet CCH Wastewater Standards;
- Cleaning frequency in the area would be reduced;
- Structural stability of the sewer lines would be known;
- Proactive maintenance—fix before there is a problem;
- Lowest risk of affecting public safety (i.e., lower risk of sanitary sewer overflow);
- Less expensive than pilot tube micro-tunneling; and
- Minimizes infiltration.

Possible limitations may include:

- Most traffic disruption; and
- Possible relocation of existing underground pipes and utilities.

Advantages for pilot tube micro-tunneling:

- New pipes—adjust to meet minimum slope and upsize as necessary;
- Less likelihood of leaks, spills, and/or broken pipes;
- Meet CCH Wastewater standards;
- Cleaning frequency in the area will be reduced;
- Structural stability of the sewer lines will be known;
- Proactive maintenance;
- Lowest risk of affecting public safety (lower risk of sanitary sewer overflow);
- Possible installation in tighter areas;
- Less traffic disruption compared to open trenching; and
- Minimize infiltration.

Possible limitations for pilot tube micro-tunneling include:

- More expensive than open trench excavation and backfill;
- Less likelihood of possible relocation of existing underground pipes and utilities; and
- Need to abandon or remove existing sewer lines.

The estimated construction cost of the Alternative is \$12,600,000 for open trench replacement and \$32,300,000 for pilot tube micro-tunneling. The lifecycle costs are \$13,000,000 and \$32,600,000 for open trench replacement and pilot tube micro-tunneling, respectively. This Alternative would result in the replacement of the existing collection system in the project area. Under this Alternative, sewer lines in flat areas and sagging pipes would be repaired as well.

5.1.3 Alternative 3: Rehabilitation Using Cured-in-Place Pipe Method

Alternative 3 proposes to cured-in-place pipe the existing sewer lines.

Advantages:

- No re-routing of existing pipe alignment required;
- No disturbance to underground utilities or surrounding soils;
- No pavement or surface restoration will be required;
- Minimal disruption to traffic and surface conditions;
- Short construction period;
- Improved flow characteristics due to lower pipe roughness coefficient;
- Liner can bridge gaps and misaligned joints, and negotiate small snags;
- Infiltration along pipe will be eliminated; and
- Trenching or dewatering would not be required.

Possible limitations include:

- Bypassing of flows required during construction;
- Must allow adequate curing time;
- Defective installation may be difficult to rectify;
- Resin may clump together on bottom of pipe depending on the amount of corrosion;
- Reduced pipe diameter; and
- Slopes cannot be adjusted.

The estimated construction cost is \$4,400,000. The lifecycle cost is \$4,800,000. This alternative involves lining the existing collection system with CIPP in the project area. The Alternative does not repair flat areas and sagging pipes.

5.1.4 Alternative 4: Open Trenching and Cured-in-Place Pipe Method

Alternative 4 proposes a combination of replacement and rehabilitation for the project area.

The advantages and possible limitations for open trench excavation and backfill are the same as those described under Alternative 2.

The advantages and possible limitations for CIPP are the same as those described under Alternative 3.

Under Alternative 4, pipes recommended for replacement are at-capacity pipes, broken pipes, and pipe sections displaying signs of surface scour (cast iron pipes). Areas recommended to be CIPP are pipes with cracks and fractures and areas with other issues, such as roots. No rehabilitation is recommended for pipes without structural defects.

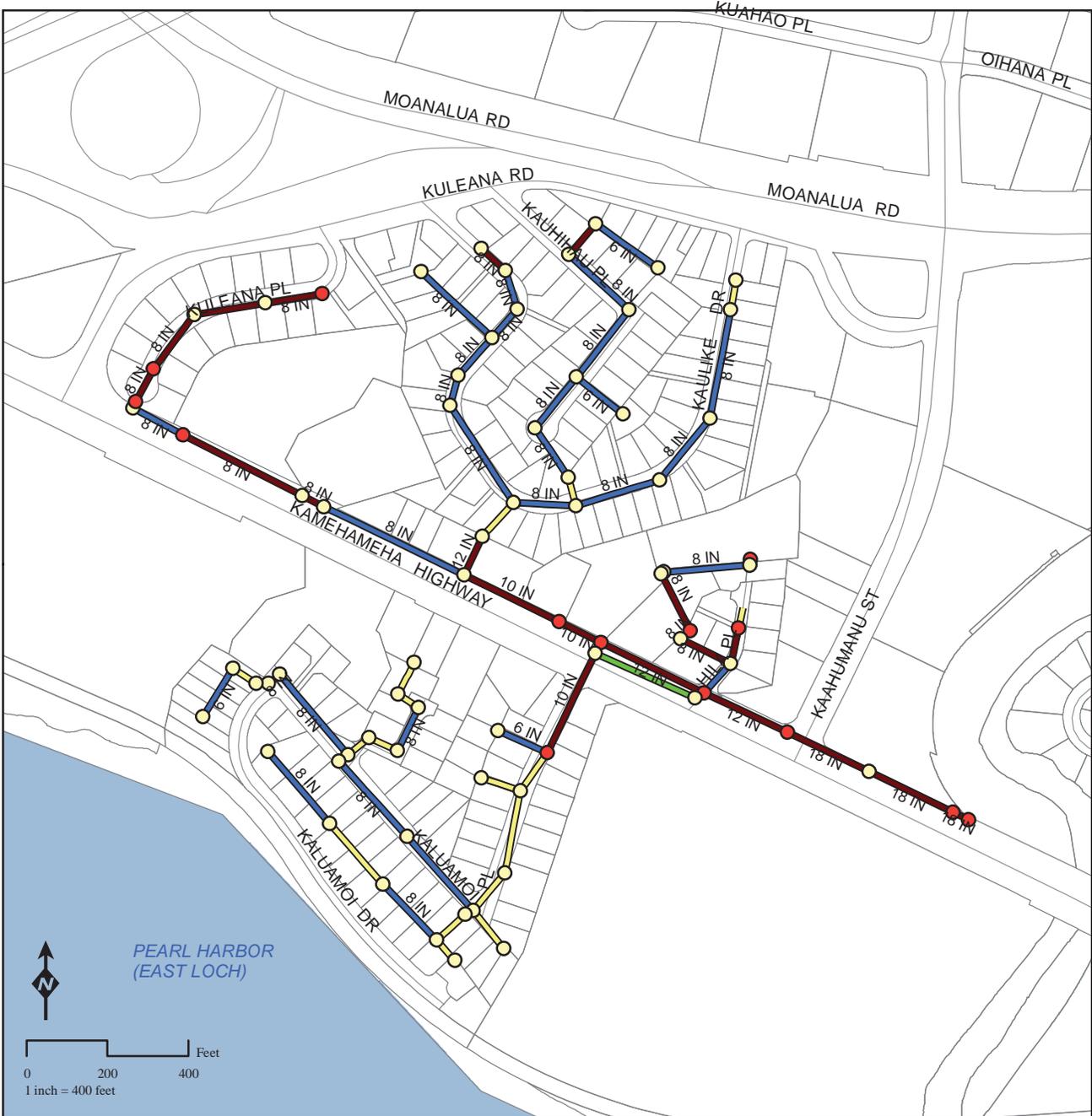
The estimated construction cost of the Alternative is \$7,000,000 and the estimated lifecycle is \$7,700,000. Under Alternative 4, issues associated with flat areas and sagging pipes are proposed to be repaired. Figure 5-1 shows the Preferred Alternative.

5.2 Alternatives Evaluation Criteria

A decision matrix, presented as Table 5-1, was developed to select the alternative for the Waiiau collection system. The selection was based on the following criteria:

1. Spills and broken pipe
2. Capital costs
3. Operation and maintenance
4. Constructability
5. Social disturbance
6. Meeting CCH standards

To compare each alternative, each selection criterion was assigned a weight value from 1 to 6, with 1 representing a relatively low importance, and 6 representing most important. Each alternative was then scored for each criterion on a scale from 1 to 4, with 1 being the least favorable and 4 being the most favorable. The overall score for each alternative was calculated by taking the total of the criterion weight and multiplying that by the benefit score per criterion. The alternative with the highest overall score was then ascertained. Based on the results of this comparison, the recommended alternative for the Waiiau



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Legend

Sewer Manhole	Sewer Line	
○ Non-Rehabilitate/Replace	Non-Rehabilitate/Replace	⋈ Cure-in-place Pipe
● Rehabilitate	Replace (open trenching method)	⋈ Abandon

Source: City and County of Honolulu

City and County of Honolulu

Department of Design and Construction

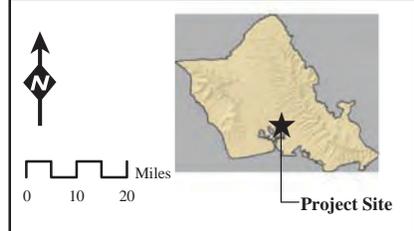


FIGURE 5-1
ALTERNATIVE 4
(Preferred Alternative)
EXISTING PROJECT FEATURES
WAI'AU AREA SEWER
REHABILITATION/RECONSTRUCTION
DRAFT EA
JANUARY 2010

Sewer System is Alternative 4 (Combination of Replacement with Open Trench and Rehabilitation with CIPP).

Table 5-1

	Spills and Broken Pipe	Capital Costs	O&M	Constructability	Social Disturbance	Meets CCH Standards	Total
Weight / Importance	6	5	4	3	2	1	
Alternative 1	1	4	1	4	4	1	51
Alternative 2	4	1	4	1	1	4	54
Alternative 3	2	3	2	3	3	2	52
Alternative 4	3	2	3	3	2	3	56

Source: M&E Pacific, 2009

The benefits of Alternative 4 include: cost competitiveness; shorter construction time; reduced system maintenance (reduced cleaning frequency); and minimal social disturbance. Under Alternative 4, the existing cast-iron, broken, undersized pipes, as well as select pipes with slope issues, would be replaced. Pipes with cracks, fractures, and other issues (e.g., roots) will be rehabilitates using CIPP method. Pipes without structural issues would not be rehabilitated. Not all pipes with slopes less than minimum will be replaced as it may be infeasible to achieve the minimum allowable slope. This is particularly true if the pipe segment is structurally sound and is not experiencing any flow problems. Additionally, the proximity of some of the sewer lines to homes may pose a challenge for pipe replacement. Rehabilitation with CIPP will lower the pipe roughness coefficient and improve flow. As a result, a lower cleaning frequency is expected. Pipes that will not be replaced or rehabilitated under this project will require continued cleaning at the current frequency.

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6 DETERMINATION AND FINDINGS

6.1 Anticipated Determination Pursuant to Chapter 343, HRS

Based on the information and analysis disclosed in this document, the CCH anticipates finding that the project will not result in a significant impact on the environment. As such, a Finding of No Significant Impact (FONSI), pursuant to requirements of Chapter 343, HRS, will be issued with a recommendation that an Environmental Impact Statement (EIS) is not required.

6.2 Chapter 343, HRS, Significance Criteria

In determining whether an action may have significant impact on the environment, the applicant must consider all phases of the project, its expected primary and secondary consequences, the cumulative impacts with other projects, and its short and long-term effects. Section 11-200-12, HAR (revised 1996) established 13 significance criteria to be used as a basis for identifying whether significant environment will result.

An applicant/agency will determine an action may have a significant impact on the environment if it meets any of the following criteria:

1. Involves an irrevocable commitment to loss or destruction of any natural or cultural resources;

The sewer rehabilitation work would take place mostly within ROWs. There are no significant biological resources within the area where improvements are proposed, including threatened or endangered species or their habitats. No contemporary or continuing cultural practices occur at the project area. On-site archaeological monitoring would be conducted when excavation occurs near or within identified areas of concern. On-call archaeological monitoring is proposed for the remainder of the project area in the event inadvertent encounter with *iwi* occurs.

2. Curtail the range of beneficial uses of the environment;

The proposed project does not curtail the range of beneficial uses of the environment. The project improvements would occur within or adjacent to the ROW with few, if any, alternative beneficial uses.

3. Conflicts with the State's long-term environmental policies or goals and guidelines as expressed in Chapter 344, HRS; and any revisions thereof and amendments thereto, court decisions, or executive orders;

The proposed project is consistent with the environmental policies in Chapter 344, HRS, which establishes a state policy to encourage productive and enjoyable harmony between people and their environment, promotes efforts to prevent or eliminate damage to the environment, and stimulate community health and welfare.

The project is consistent with the environmental policy to "Conserve the natural resources so that land, water, mineral, visual, air, and other natural resources are protected by controlling pollution (§344.3). It is consistent with the stated guideline to "Encourage the reduction of environmental pollution which may degrade a community (§344.4.8.C).

4. Substantially affects the economic or social welfare of the community or state;

The proposed project would not substantially affect the economic or social welfare of the community or the State. Construction would have minor short-term air, noise, and traffic impacts. However, the project would have beneficial long-term impacts to the economic and social environments by providing properly functioning wastewater collection infrastructure, reducing sewer maintenance costs, and eliminating the threat of significant Federal fines in the event the sewer system is found to be in need of rehabilitation.

5. Substantially affects public health;

The proposed project would have a positive impact on public health by preventing potential wastewater backups and spills into streams and waterways, which would jeopardize public safety and health. The temporary construction-related impacts to air quality, noise, and traffic are considered significant when contrasted against the potential adverse impacts resulting from inaction.

6. Involves secondary impacts such as population changes or effects on public facilities;

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

7. Involves a substantial degradation of environmental quality;

Construction period impacts related to traffic, noise, and air quality would be temporary and short-term. Short-term impacts would be mitigated through phased construction, traffic management and control, equipment noise attenuation, and the use of BMPs to control erosion and dispose of dewatering effluent. Completion of the sewer line improvements would have beneficial impacts on the environmental quality.

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

The proposed project is limited in scope to the rehabilitation work on the existing sewer lines, and is part of a long-term effort by the City to rehabilitate Honolulu's aging sewer system. It would have beneficial impacts on the environment.

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

No rare, threatened, or endangered species or its habitat would be impacted by the proposed project. The project area is highly urbanized, and there are no significant biological resources located where the improvements are proposed.

10. Detrimentially affects air or water quality or ambient noise levels;

The proposed project would result in fugitive dust and noise generation during construction. These impacts would be minimized by applying the BMPs identified, as well as adherence to the applicable controls. In the long-term, the proposed project would reduce noise and odor by reducing the frequency of sewer maintenance activities. The proposed project would have beneficial impacts on air and water quality by reducing the likelihood of wastewater backups and spills.

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

The proposed project is not in an environmentally sensitive area.

12. Substantially affects scenic vista and view plane identified in county or state plans or studies;

Neither the PUCDP nor the project area contains a scenic vista to be protected. This fact notwithstanding, the proposed project would be located underground.

13. Requires substantial energy consumption.

The proposed project would not require substantial energy consumption. Energy resources would be consumed during project construction. In the long-term, the project improvements would decrease energy consumption associated with ongoing maintenance and repair of the City's aging sewer facilities.

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7 PERSONS AND AGENCIES CONSULTED FOR PRE-ASSESSMENT CONSULTATION

A pre-assessment consultation was conducted for the proposed project from April 29, 2009 to May 30, 2009. The parties who provided written comments are identified by a check mark (✓). Written comments received during this procedure are included in their entirety in Appendix A (“Comments Received”) of this report.

7.1 Federal Government

Department of Interior, Fish and Wildlife Services

7.2 State Government

- Department of Health, Environmental Planning Office
- ✓ DLNR, Division of Aquatic Resources
- ✓ DLNR, Land Division-Oahu District
- ✓ DLNR, Engineering Division
- ✓ DLNR, Commission on Water Resource Management
- ✓ DLNR, State Historic Preservation Division
- ✓ Department of Transportation
- ✓ University of Hawaii at Manoa, Hawaii Natural Heritage Program, Hawaii Biodiversity Mapping Program

7.3 County Government

- ✓ Board of Water Supply
 - Department of Environmental Services
- ✓ Department of Facility Maintenance
- ✓ Department of Planning and Permitting
- ✓ Department of Transportation Services

7.4 Elected Officials

City Councilmember Gary Okino
State Representative Lynn Finnegan, 32nd District
State Representative Blake Oshiro, 33rd District
State Representative Henry Aquino, 35th District
State Representative Roy Takumi, 36th District
State Senator Sam Slom

7.5 Others

Aiea Neighborhood Board
Neighborhood Commission Office
Pearl City Neighborhood Board
Sierra Club

8 REFERENCES

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- Department of Land and Natural Resources, State Historic Preservation Division. 2009. Personal Communication via email with Phyllis “Coochie” Cayan, History and Cultural Branch Chief, 5 August and 10 August. Information regarding cultural descendants in or associated with the project area. Honolulu, Hawaii.
- Engineers Surveyors of Hawaii, *Final Environmental Assessment, Waimalu Stream Dredging, City and County of Honolulu*, prepared for the City and County of Honolulu, Department of Design and Construction, July 2003.
- Honolulu High-Capacity Transit Corridor Project, Draft Environmental Impact Statement, Cultural Resources Technical Report, 2008
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- State of Hawaii, Department of Health, Clean Air Branch, *2007 Annual Summary, Hawaii Air Quality Data*, 2008.
- United States Department of Agriculture, Soil Conservation Service, *Soil Survey of Islands of Kauai, Oahu, Maui, Molokai, and Lanai, State of Hawaii*, August 1972.

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Appendix A

Comments



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Comments Received

Pre-Assessment Consultation

29 April to 30 May, 2009



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STATE AGENCIES

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LINDA LINGLE
GOVERNOR OF HAWAII



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

May 26, 2009



LAURA H. THIELEN
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

RECEIVED
MAY 28 2009

LINDA LINGLE
GOVERNOR OF HAWAII



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

May 1, 2009



LAURA H. THIELEN
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

MEMORANDUM

AECOM
841 Bishop Street Suite 1900
Honolulu, Hawaii 96813

Attention: Ms. Kristen Sohn

Ladies and Gentlemen:

Subject: Proposed Waiiau Sewer Rehabilitation/Reconstruction

Thank you for the opportunity to review and comment on the subject matter. The Department of Land and Natural Resources' (DLNR), Land Division distributed or made available a copy of your report pertaining to the subject matter to DLNR Divisions for their review and comment.

Other than the comments from Commission on Water Resource Management, Land Division-Oahu District, Engineering Division, the Department of Land and Natural Resources has no other comments to offer on the subject matter. Should you have any questions, please feel free to call our office at 587-0433. Thank you.

Sincerely,

Morris M. Atta
for Morris M. Atta
Administrator

FROM:

DLNR Agencies:

- Div. of Aquatic Resources
- Div. of Boating & Ocean Recreation
- Engineering Division
- Div. of Forestry & Wildlife
- Div. of State Parks
- Commission on Water Resource Management
- Office of Conservation & Coastal Lands
- Land Division - Oahu District

TO:

FROM: Morris M. Atta *M. Atta*
SUBJECT: Proposed Waiiau Sewer Rehabilitation/Reconstruction
LOCATION: Waiiau, Oahu
APPLICANT: City & County of Honolulu, Department of Design & Construction

Transmitted for your review and comment on the above referenced document. We would appreciate your comments on this document. Please submit any comments by May 25, 2009.

If no response is received by this date, we will assume your agency has no comments. If you have any questions about this request, please contact my office at 587-0433. Thank you.

Attachments

- We have no objections.
- We have no comments.
- Comments are attached.

Signed: *[Signature]*
Date: 5/4/09

LINDA LINGLE
GOVERNOR OF HAWAII



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

May 1, 2009

MEMORANDUM

TO: DLNR Agencies:
 Div. of Aquatic Resources
 Div. of Boating & Ocean Recreation
 Engineering Division
 Div. of Forestry & Wildlife
 Div. of State Parks
 Commission on Water Resource Management
 Office of Conservation & Coastal Lands
 Land Division - Oahu District

FROM: Morris M. Atta
SUBJECT: Proposed Waiiau Sewer Rehabilitation/Reconstruction
LOCATION: Waiiau, Oahu
APPLICANT: City & County of Honolulu, Department of Design & Construction

Transmitted for your review and comment on the above referenced document. We would appreciate your comments on this document. Please submit any comments by May 25, 2009.

If no response is received by this date, we will assume your agency has no comments. If you have any questions about this request, please contact my office at 587-0433. Thank you.

Attachments

- We have no objections.
- We have no comments.
- Comments are attached.

Signed: *Eric T. Hirono*
Date: 5/15/09

RECEIVED
LAND DIVISION
2009 MAY 15 P 3:20
ERIC T. HIRONO
NATURAL RESOURCES
STATE OF HAWAII

LAURA H. THIFLEN
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

DEPARTMENT OF LAND AND NATURAL RESOURCES
ENGINEERING DIVISION

LD/MorrisAtta
Ref.: Proposed Waiiau Sewer Rehab/Reconstruction
Oahu.682

COMMENTS

- We confirm that the project site, according to the Flood Insurance Rate Map (FIRM), is located in Flood Zone ____.
- Please take note that the project site, according to the Flood Insurance Rate Map (FIRM), is located in Flood Zone D. The Flood Insurance Program does not have any regulations for developments within Flood Zone D.
- Please note that the correct Flood Zone Designation for the project site according to the Flood Insurance Rate Map (FIRM) is ____.
- Please note that the project must comply with the rules and regulations of the National Flood Insurance Program (NFIP) presented in Title 44 of the Code of Federal Regulations (44CFR), whenever development within a Special Flood Hazard Area is undertaken. If there are any questions, please contact the State NFIP Coordinator, Ms. Carol Tyau-Beam, of the Department of Land and Natural Resources, Engineering Division at (808) 587-0267.

Please be advised that 44CFR indicates the minimum standards set forth by the NFIP. Your Community's local flood ordinance may prove to be more restrictive and thus take precedence over the minimum NFIP standards. If there are questions regarding the local flood ordinances, please contact the applicable County NFIP Coordinators below:

- Mr. Robert Sumitomo at (808) 768-8097 or Mr. Mario Siu Li at (808) 768-8098 of the City and County of Honolulu, Department of Planning and Permitting.
- Mr. Kelly Gomes at (808) 961-8327 (Hilo) or Mr. Kiran Emler at (808) 327-3530 (Kona) of the County of Hawaii, Department of Public Works.
- Mr. Francis Cerizo at (808) 270-7771 of the County of Maui, Department of Planning.
- Mr. Mario Antonio at (808) 241-6620 of the County of Kauai, Department of Public Works.

- The applicant should include water demands and infrastructure required to meet project needs. Please note that projects within State lands requiring water service from the Honolulu Board of Water Supply system will be required to pay a resource development charge, in addition to Water Facilities Charges for transmission and daily storage.
- The applicant should provide the water demands and calculations to the Engineering Division so it can be included in the State Water Projects Plan Update.

Additional Comments: _____

Other: _____

Should you have any questions, please call Ms. Suzie S. Agraan of the Planning Branch at 587-0258.

Signed: *Eric T. Hirono*
ERIC T. HIRONO, CHIEF ENGINEER

Date: 5/15/09

LINDA LINGLE
GOVERNOR OF HAWAII



RECEIVED
COMMISSION ON WATER
RESOURCE MANAGEMENT
2009 MAY -1 PM 4:30

LAURA H. THELEN
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

May 1, 2009

MEMORANDUM

TO: DLNR Agencies:
x Div. of Aquatic Resources
Div. of Boating & Ocean Recreation
x Engineering Division
Div. of Forestry & Wildlife
x Div. of State Parks
x Commission on Water Resource Management
x Office of Conservation & Coastal Lands
x Land Division - Oahu District

FR:

TO:

FROM: Morris M. Atta
SUBJECT: Proposed Waiau Sewer Rehabilitation/Reconstruction
LOCATION: Waiau, Oahu
APPLICANT: City & County of Honolulu, Department of Design & Construction

Transmitted for your review and comment on the above referenced document. We would appreciate your comments on this document. Please submit any comments by May 25, 2009.

If no response is received by this date, we will assume your agency has no comments. If you have any questions about this request, please contact my office at 587-0433. Thank you.

Attachments

- () We have no objections.
- () We have no comments.
- (X) Comments are attached.

Signed: *Ken C. Kawahara*
Date: MAY - 7 2009

RECEIVED
LAND DIVISION
2009 MAY 11 AM 10:00
DEPT. OF LAND & NATURAL RESOURCES
STATE OF HAWAII

LINDA LINGLE
GOVERNOR OF HAWAII



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

P.O. BOX 621
HONOLULU, HAWAII 96809

May 7, 2009

LAURA H. THELEN
CHAIRPERSON
MEREDITH J. CHING
JAMES A. FRAZIER
NEAL S. FUJIWARA
CHRYDOME L. FUKINO, M.D.
DONNA FAY K. KYOSAKI, P.E.
LAWRENCE H. NIKE, M.D., J.D.
KEN C. KAWAHARA, P.E.
DEPUTY DIRECTOR

TO: Morris Atta, Administrator
Land Division
FROM: Ken C. Kawahara, P.E., Deputy Director
Commission on Water Resource Management
SUBJECT: Proposed Waiau Sewer Rehabilitation / Reconstruction
TMK NO.: 9-8-005:006, 008, 020, 021

Thank you for the opportunity to review the subject document. The Commission on Water Resource Management (CWRM) is the agency responsible for administering the State Water Code (Code). Under the Code, all waters of the State are held in trust for the benefit of the citizens of the State, therefore, all water use is subject to legally protected water rights. CWRM strongly promotes the efficient use of Hawaii's water resources through conservation measures and appropriate resource management. For more information, please refer to the State Water Code, Chapter 174C, Hawaii Revised Statutes, and Hawaii Administrative Rules, Chapters 13-167 to 13-171. These documents are available via the internet at <http://www.hawaii.gov/dlnr/cwrm>.

Our comments related to water resources are checked off below.

- 1. We recommend coordination with the county to incorporate this project into the county's Water Use and Development Plan. Please contact the respective Planning Department and/or Department of Water Supply for further information.
- 2. We recommend coordination with the Engineering Division of the State Department of Land and Natural Resources to incorporate this project into the State Water Projects Plan.
- 3. We recommend coordination with the Hawaii Department of Agriculture (HDOA) to incorporate the reclassification of agricultural zoned land and the redistribution of agricultural resources into the State's Agricultural Water Use and Development Plan (AWUDP). Please contact the HDOA for more information.
- 4. We recommend that water efficient fixtures be installed and water efficient practices implemented throughout the development to reduce the increased demand on the area's freshwater resources. Reducing the water usage of a home or building may earn credit towards Leadership in Energy and Environmental Design (LEED) certification. More information on LEED certification is available at <http://www.usgbc.org/leed>. A listing of fixtures certified by the EPA as having high water efficiency can be found at <http://www.epa.gov/watersense/pp/index.htm>.
- 5. We recommend the use of best management practices (BMP) for stormwater management to minimize the impact of the project to the existing area's hydrology while maintaining on-site infiltration and preventing polluted runoff from storm events. Stormwater management BMPs may earn credit toward LEED certification. More information on stormwater BMPs can be found at <http://hawaii.gov/dbedt/czm/initiative/lid.php>.

Morris Atta, Administrator
Page 2
May 7, 2009

- 6. We recommend the use of alternative water sources, wherever practicable.
- 7. There may be the potential for ground or surface water degradation/contamination and recommend that approvals for this project be conditioned upon a review by the State Department of Health and the developer's acceptance of any resulting requirements related to water quality.

Permits required by CWRM:

Additional information and forms are available at http://hawaii.gov/dlnr/cwrwm/resources_permits.htm.

- 8. The proposed water supply source for the project is located in a designated water management area, and a Water Use Permit is required prior to use of water.
- 9. A Well Construction Permit(s) is (are) required any well construction work begins.
- 10. A Pump Installation Permit(s) is (are) required before ground water is developed as a source of supply for the project.
- 11. There is (are) well(s) located on or adjacent to this project. If wells are not planned to be used and will be affected by any new construction, they must be properly abandoned and sealed. A permit for well abandonment must be obtained.
- 12. Ground water withdrawals from this project may affect streamflows, which may require an instream flow standard amendment.
- 13. A Stream Channel Alteration Permit(s) is (are) required before any alteration(s) can be made to the bed and/or banks of a stream channel.
- 14. A Stream Diversion Works Permit(s) is (are) required before any stream diversion works is (are) constructed or altered.
- 15. A Petition to Amend the Interim Instream Flow Standard is required for any new or expanded diversion(s) of surface water.
- 16. The planned source of water for this project has not been identified in this report. Therefore, we cannot determine what permits or petitions are required from our office, or whether there are potential impacts to water resources.
- OTHER:

If there are any questions, please contact Ed Sakoda at 587-0234.

AECOM

AECOM
841 Bishop Street, Suite 1900, Honolulu, HI 96813
T 808.521.3051 F 808.524.0246 www.aecom.com

Mr. Ken C. Kawahara, P. E., Deputy Director
Commission on Water Resource Management
Department of Land and Natural Resources
State of Hawaii
P. O. Box 621
Honolulu, Hawaii 96809

August 10, 2009

Dear Mr. Kawahara,

**Subject: Request for Review of the Proposed Wai'au Sewer Rehabilitation/Reconstruction
TMK 9-8-05; 06, 8, 20, 21**

Thank you for your letter dated May 7, 2009 regarding the proposed project. We acknowledge that DLNR-CWRM requires a Stream Channel Alteration Permit before any alterations can be made to the bed and/or banks of a stream channel.

We appreciate your participation in the environmental review process.

Yours sincerely,



Kristen Sohn
Planner
kristen.sohn@aecom.com

LINDA LINGLE
GOVERNOR OF HAWAII



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES

STATE HISTORIC PRESERVATION DIVISION
601 KAMOKILA BOULEVARD, ROOM 555
KAPOLEI, HAWAII 96707

LAIHA H. THIELEN
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION OF WATER RESOURCES MANAGEMENT
RUSSELL Y. TSUJI
FIRST DEPUTY
KEN C. KAWABARA
DEPUTY DIRECTOR - WATER
ADVISORY BOARD
BOATING AND OCEAN RECREATION
COMMISSION ON WATER RESOURCE MANAGEMENT
CONSERVATION AND CULTURAL LANDS
CONSERVATION AND RESOURCES ENFORCEMENT
INVESTIGATIVE
FORESTRY AND WILDLIFE
HISTORIC PRESERVATION
KAOIOLA ISELAND RESERVE COMMISSION
LAND
STATE PARKS

May 29, 2009

Mr. Lambert Yamashita
AECOM
841 Bishop Street, Suite 1900
Honolulu, Hawai'i 96813

LOG NO: 2009 1991
DOC NO: 0905WT108
Archaeology

Dear Mr. Yamashita:

**SUBJECT: Chapter 6E-8 Historic Preservation Review--
Proposed Waiuu Sewer Rehabilitation/Reconstruction--
Waimalu Ahupua'a, 'Ewa District, O'ahu, Hawai'i
TMK: (1) 9-8-05: 06, 08, 020, 021**

Thank you for providing the opportunity to comment on this project which we received on April 30, 2009. We apologize for the delay in reviewing this project as we needed more information from the planner to complete the review.

This current project area is the removal and rehabilitation of sewer lines through Waiuu. Most of the project area lays mauka or north of Kamehameha Highway; however some of the work will be conducted on streets adjacent to Kaluamoi Drive which fronts Pearl Harbor. A total of 3,360 linear feet of 8", 10", 12" and 18" pipe will be laid, with trench widths range from 24" to 41" and depths from 6' to 15'.

The area makai of Kamehameha Highway was developed by filling in fishponds that lined that part of the shoreline in Pearl Harbor. The depths of some of the trenches may result in encountering fishpond sediments below this fill, which may be archaeologically sensitive, especially around the boundaries of the former fishponds, as human burials have been recorded along these shoreline boundaries.

We believe that any adverse effect may be mitigated through precautionary monitoring. Therefore, we recommend the following conditions be attached to the permit, should it be approved.

- 1) A qualified archaeological monitor shall be present during all ground-altering activities conducted in the project area in order to document any historic properties which may be encountered during the proposed undertaking and to provide mitigation measures as necessary. An acceptable archaeological monitoring plan will need to be submitted to the State Historic Preservation Division for review, prior to the commencement of any ground-altering activities. An archaeological monitoring plan must contain the following nine specifications: (1) The kinds of remains that are anticipated and where in the construction area the remains are likely to be found; (2) How the remains and deposits will be documented; (3) How the expected types of remains will be treated; (4) The archaeologist conducting the monitoring has the authority to halt the construction in the immediate area of the find in order to carry out the plan; (5) A coordination meeting between the archaeologist and construction crew is scheduled, so that the construction team is aware of the plan; (6) What laboratory work will be done on remains that are

Mr. Lambert Yamashita
Page 2

collected; (7) A schedule of report preparation; (8) Details concerning the archiving of any collections that are made; and (9) An acceptable report documenting the findings of the monitoring activities shall be submitted to the State Historic Preservation Division for review following the completion of the proposed undertaking.

- 2) The State Historic Preservation Division (O'ahu office) shall be notified via facsimile upon the on-set and completion of the proposed undertaking.

In the event that historic resources, including human skeletal remains, are identified during the construction activities, all work needs to cease in the immediate vicinity of the find, the find needs to be protected from additional disturbance and the State Historic Preservation Division contacted at (808) 692-8015.

Please contact Wendy Tolleson at (808) 692-8024 if you have any questions or concerns regarding this letter.

Aloha,

Nancy A. McMahon (Deputy SHPO)
Archaeology and Historic Preservation Manager

CC:

Mr. David Tanoue
Department of Planning and Permitting
Honolulu Municipal Building
650 South King Street
Honolulu, Hawai'i 96813

AECOM

AECOM
841 Bishop Street, Suite 1900, Honolulu, HI 96813
T 808.521.3051 F 808.524.0246 www.aecom.com

Ms. Nancy A. McMahon
Archaeology and Historic Preservation Manager
Department of Land and Natural Resources
State Historic Preservation Division
601 Kamokila Boulevard, Room 555
Kapolei, Hawaii 96707

August 10, 2009

Dear Ms. McMahon,

**Subject: Request for Review of the Proposed Waiiau Sewer Rehabilitation / Reconstruction
TMK 9-8-05; 06, 8, 20, 21**

Thank you for your letter dated May 29, 2009 regarding the proposed project. We note your comment that the area makai of Kamehameha Highway was developed by filling in former fish ponds that line a part of the Pearl Harbor shoreline; as the result, the depth beyond the fill may be archaeologically sensitive. To mitigate any adverse impacts to the archaeologically sensitive area, we propose to abide by the conditions of approval stated in your letter, which reads:

A qualified archaeological monitor shall be present during all ground-altering activities conducted in the project area in order to document any historic properties which may be encountered during the proposed undertaking and to provide mitigation measures as necessary. An acceptable archaeological monitoring plan will need to be submitted to the State Historic Preservation Division (SHPD) for review, prior to the commencement of any ground-altering activities. An archaeological monitoring plan must contain the following nine specifications:

1. The kinds of remains that are anticipated and where in the construction area the remains are likely to be found;
2. How the remains and deposits will be documented;
3. How the expected types of remains will be treated;
4. The archaeologist conducting the monitoring has the authority to halt the construction in the immediate area of the find in order to carry out the plan;
5. A coordination meeting between the archaeologist and construction crew is scheduled, so that the construction team is aware of the plan;
6. What laboratory work will be done on remains that are collected;
7. A schedule of report preparation;
8. Details concerning the archiving of any collections that are made;
9. An acceptable report documenting the findings of the monitoring activities shall be submitted to the State Historic Preservation Division for review following the completion of the proposed undertaking.

The SHPD (Oahu office) shall be notified via facsimile upon the on-set and completion of the proposed undertaking.

We appreciate your participation in the environmental review process.

Yours sincerely,



Kristen Sohn
Planner
kristen.sohn@aecom.com

AECOM Water

AECOM

LINDA LINGLE
GOVERNOR



STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
869 PUNCHBOWL STREET
HONOLULU, HAWAII 96813-5097

BRENNON T. MORIOKA
DIRECTOR

Deputy Directors:
MICHAEL D. FORBES
FRANCIS PAUL KEENO
BRIAN H. SEKIGUCHI
JIRO A. SUMADA

IN REPLY REFER TO:
STP 8.3271

May 28, 2009

RECEIVED
JUN 03 2009

Ms. Kristen Sohn
Project Manager
AECOM
841 Bishop Street, Suite 1900
Honolulu, Hawaii 96813

Dear Ms. Sohn:

Subject: Waiiau Sewer Rehabilitation/Reconstruction
Pre-Consultation for Draft Environmental Assessment (DEA)

Thank you for providing the subject project for the State Department of Transportation's (DOT) review and comments.

DOT understands that the subject project consists of rehabilitating/reconstructing existing sewer lines in the Waiiau area of Pearl City. The project area encompasses approximately 53 acres and is comprised of commercial and residential uses. The project area also includes a segment of Kamehameha Highway.

The DOT Highways Division Planning Branch, telephone number (808) 587-1830, recommends that the DEA discuss and evaluate project impacts to State highway (Kamehameha Highway) facilities, such as, but not limited to:

1. Short-term traffic impacts generated by the project during construction, including inconvenience to the motoring public, bicyclists, pedestrians, joggers, residents, business merchants, etc. should be addressed.
2. The construction vehicles and types of equipment that will be used at the job site must be identified. Please note that a DOT Highways Division permit is required to transport any oversized equipment/overweight loads on State highway facilities.
3. The hours that construction activity will be occurring should be noted and included in any impact assessment.
4. Compliance with DOT's "Pipeline Removal Policy". If the applicant encounters any abandoned pipes/conduits within the State highway right-of-way, the pipeline should not be abandoned in place and allowed to cause future problems such as creating "voids" in the ground when the lines eventually rust, deteriorate and break. The applicant must also prepare and submit as-built plans.

Ms. Kristen Sohn
May 28, 2009
Page 2

STP 8.3271

5. A permit application and detailed construction plans must be submitted to the Highways Division for review and approval for any work done within the State highway right-of-way. All improvements within the State highway right-of-way must conform to nationally accepted design standards and must be done at no cost to the State.

Four copies of the DEA should be provided to DOT to facilitate review by the Highways Division. If there are any other questions, please contact Mr. David Shimokawa of the DOT Statewide Transportation Planning Office at (808) 587-2356.

Very truly yours,

BRENNON T. MORIOKA, PH.D., P.E.
Director of Transportation

c: Katherine Kealoha, Office of Environmental Quality Control

AECOM

AECOM
841 Bishop Street, Suite 1900, Honolulu, HI 96813
T 808.521.3051 F 808.524.0246 www.aecom.com

Mr. Brennon T. Morioka, Ph.D., P.E., Director
State of Hawaii
Department of Transportation
889 Punchbowl Street
Honolulu, Hawaii 96813-5097

August 10, 2009

Dear Mr. Morioka,

**Subject: Request for Review of the Proposed Waiau Sewer Rehabilitation/Reconstruction
TMK 9-8-05; 06, 8, 20, 21**

Thank you for your letter dated May 28, 2009 regarding the proposed project. We offer the following responses in the respective order of your comments.

1. The environmental assessment (EA) will disclose and address short-term traffic impacts generated by the proposed project during construction. Potential impacts include: inconvenience to the motoring public, bicyclists, pedestrians, joggers, residents, business merchants, and etc.
2. The EA will identify the construction vehicles and types of equipments to be used at the job site. We note that a Department of Transportation (DOT) Highways Division permit would be required to transport any oversized equipment/overweight loads on State highway facilities.
3. The EA will disclose the hours of, and any potential impacts associated with the construction activities of the proposed project.
4. We will comply with DOT's "Pipeline Removal Policy", wherein encountered pipes/conduits previously abandoned within the State Highway right-of-way (ROW) will not be left abandoned. As-built plans will be submitted DOT for review.
5. We will submit a permit application and detailed construction plans to DOT-Highways Division for review and approval for any work proposed within the State Highway ROW. All improvements within the State highway ROW will conform to nationally accepted design standards at no cost to the State.

We will submit four copies of the draft EA (DEA) for review by DOT-Highways Division. We appreciate your participation in the environmental review process.

Yours sincerely,



Kristen Sohn
Planner
kristen.sohn@aecom.com

Sohn, Kristen

From: Roy Y s Kam [rkam@hawaii.edu]
Sent: Thursday, May 14, 2009 2:17 PM
To: Sohn, Kristen
Cc: Jennifer H. Ho
Subject: AECOM Waiau Data Request

Kristen,

According to our database, there has been no recordings of rare or endangered species within your project site. Although, you may want to note that the endangered Hawaiian Waterbirds (namely Hawaiian Stilt and Hawaiian Gallinule) have been recorded throughout Pearl Harbor coastlines.

Roy Kam
Database Manager
Hawaii Biodiversity and Mapping Program
University of Hawaii at Manoa
Center for Conservation Research and Training
Ph: 956-8094
Fax: 956-8493

Mailing Address:
3050 Maile Way Gilmore Hall #406
Honolulu, Hawaii 96822

Office Address:
Biomedical and Sciences Building
Court B, Room #203

AECOM
841 Bishop Street, Suite 1900, Honolulu, HI 96813
T 808 521.3051 F 808.524.0246 www.aecom.com

Mr. Roy Kam
Hawaii Biodiversity and Mapping Program
Center for Conservation Research and Training
3050 Maile Way, Gilmore Hall #406
Honolulu, Hawaii 96822

August 10, 2009

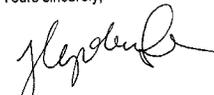
Dear Mr. Kam,

**Subject: Request for Review of the Proposed Waiau Sewer Rehabilitation/Reconstruction
TMK 9-3-05; 06, 8, 20, 21**

Thank you for your email sent on May 14, 2009 regarding the proposed project. Your comment regarding the past recording of the endangered Hawaiian Waterbirds—Hawaiian Stilt (ae'ō) and Hawaiian Gallinule ('ālae 'ūla)—throughout Pearl Harbor coastlines will be included in the draft environmental assessment (DEA) to be prepared for the proposed project.

We appreciate your participation in the environmental review process.

Yours sincerely,



Kristen Sohn
Planner
kristen.sohn@aecom.com

CITY AND COUNTY OF HONOLULU

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BOARD OF WATER SUPPLY

CITY AND COUNTY OF HONOLULU
630 SOUTH BERETANIA STREET
HONOLULU, HI 96843



May 21, 2009

MUFI HANNEMANN, Mayor
RANDALL Y. S. CHUNG, Chairman
SAMUEL T. HATA
ALLY J. PARK
ROBERT K. CUNDIFF
WILLIAM K. MAHOE
JEFFREY S. CUDIAMAT, Ex-Officio
BRENNON T. MORIOKA, Ex-Officio
WAYNE M. HASHIRO, P.E.
Manager and Chief Engineer
DEAN A. NAKANO
Deputy Manager and Chief Engineer



Mr. Lambert Yamashita, P.E.
Project Manager
AECOM
841 Bishop Street, Suite 1900
Honolulu, Hawaii 96813

Dear Mr. Yamashita:

Subject: Your Letter Dated April 29, 2009 Requesting Comment on the Proposed Waiau Sewer Rehabilitation/Reconstruction TMK: 9-8-005:006, 8, 20, 21

Thank you for the opportunity to comment on the proposed Sewer Rehabilitation project.

We have no objections to the proposed project.

The project construction drawings should be submitted for our review and approval. The construction schedule should be coordinated to minimize impact to the water system.

If you have any questions, please contact Robert Chun at 748-5443.

Very truly yours,

KEITH S. SHIDA
Program Administrator
Customer Care Division

AECOM

AECOM
841 Bishop Street, Suite 1900, Honolulu, HI 96813
T 808.521.3051 F 808.524.0248 www.aecom.com

Mr. Keith S. Shida, Program Administrator
Board of Water Supply
City and County of Honolulu
630 South Beretania Street
Honolulu, Hawaii 96843

August 10, 2009

Dear Mr. Shida,

Subject: Request for Review of the Proposed Waiau Sewer Rehabilitation/Reconstruction TMK 9-8-05; 06, 8, 20, 21

Thank you for your letter dated May 21, 2009 regarding the proposed project. The project construction drawings will be submitted to the Board of Water Supply for review and approval. We will work towards coordinating the construction schedule to minimize impact to the water system.

We appreciate your participation in the environmental review process.

Yours sincerely,

Kristen Sohn
Planner
kristen.sohn@aecom.com

DEPARTMENT OF FACILITY MAINTENANCE
CITY AND COUNTY OF HONOLULU

1000 Uluohia Street, Suite 215, Kapolei, Hawaii 96707
Phone: (808) 768-3343 • Fax: (808) 768-3381
Website: www.honolulu.gov

MUFI HANNEMANN
MAYOR



JEFFREY S. CUDIAMAT, P.E.
DIRECTOR AND CHIEF ENGINEER

GEORGE "KEDIKI" MIYAMOTO
DEPUTY DIRECTOR

IN REPLY REFER TO:
DRM 09-553

May 29, 2009

Mr. Lambert Yamashita, P.E.
AECOM
841 Bishop Street, Suite 1900
Honolulu, Hawaii 96813

Dear Mr. Yamashita:

Subject: Request for Review of Proposed Waiau Sewer
Rehabilitation/Reconstruction

Thank you for the opportunity to review and comment on the proposed Waiau
Sewer Rehabilitation/Reconstruction project.

We support the cured-in-place pipe (CIPP) lining method for rehabilitating existing
sewer lines. To lessen the impact on the project roadways we request that open trench
construction and buried temporary by-pass sewer lines be kept to a minimum and
utilized where less destructive methods may not be feasible.

A problem inherent with open trench construction is adequate compaction of the
backfill. Therefore, we also request that flowable fill or Controlled Low Strength
Material be evaluated and or considered for use as backfill material.

Should you have any questions, please call Charles Pignataro of the Division of
Road Maintenance, at 768-3697.

Sincerely,

Handwritten signature of Jeffrey S. Cudiamat in cursive.

Jeffrey S. Cudiamat, P.E.
Director and Chief Engineer

AECOM

AECOM
841 Bishop Street, Suite 1900, Honolulu, HI 96813
T 808.521.3051 F 808.524.0246 www.aecom.com

Mr. Jeffrey S. Cudiamat, P.E.
Director and Chief Engineer
Department of Facility Maintenance
City and County of Honolulu
1000 Uluohia Street, Suite 215
Kapolei, Hawaii 96707

August 10, 2009

Dear Mr. Cudiamat,

Subject: Request for Review of the Proposed Waiau Sewer Rehabilitation/Reconstruction
TMK 9-8-05; 06, 8, 20, 21

Thank you for your letter dated May 29, 2009 regarding the proposed project. We acknowledge your
support for the cure-in-place-pipe (CIPP) lining method in the proposed project. To lessen the impact
on the project roadways, open trench construction and buried bypass sewer lines will be kept to a
minimum and utilized where less destructive methods may not be feasible. Further, we will evaluate
the flowable fill and/or Controlled Low Strength Material to ensure adequate compaction associated
with open trenching method.

We appreciate your participation in the environmental review process.

Yours sincerely,

Handwritten signature of Kristen Sohn in cursive.

Kristen Sohn
Planner
kristen.sohn@aecom.com

DEPARTMENT OF PLANNING AND PERMITTING
CITY AND COUNTY OF HONOLULU

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

MUFU HANNEMANN
MAYOR



June 1, 2009

DAVID K. TANOUÉ
DIRECTOR

ROBERT M. SUNITOMO
DEPUTY DIRECTOR

09WWB053 (SG)
2009/ELOG-1052

RECEIVED
JUN 12 2009

Ms. Kristen Sohn
AECOM
841 Bishop Street, Suite 1910
Honolulu, Hawaii 96813

Dear Ms. Sohn:

Subject: Request for Review of Proposed Waiiau Sewer Rehabilitation/Reconstruction
TMK: 9-8-005: 6, 8, 20, & 21

This is in response to your April 29, 2009 letter, requesting comments for the proposed Waiiau Sewer Rehabilitation/Reconstruction project. We have reviewed the project and have the following comments:

1. The project area for the proposed sewer rehabilitation project in Waiiau is designated as Lower-Density Residential and District Commercial on the Primary Urban Center (PUC) Development Plan's Land Use Map. The project area is not within an identified town center area in Alea-Pearl City, but lies right below the Waimalu Center (PUC DP, page 3-44).
2. Projects to add or improve sewer lines are not depicted on the City's Public Infrastructure Maps (PIM); therefore, a PIM symbol is not required for this project.
3. Portions of the project (south of Kamehameha Highway) are being proposed within the Special Management Area (SMA). For purposes of the Revised Ordinances of Honolulu (ROH) Chapter 25, work involving only "repair" and "maintenance" of the sewer lines are exempt from obtaining an SMA Use Permit. However, work involving installation of new sewer lines that are otherwise not along (or within) existing corridors will require an SMA Use Permit. If the valuation of work exceeds \$125,000, then a major SMA Use Permit will be required for the project, in which case the EA must also be prepared pursuant to ROH Chapter 25. Sufficient details are not provided to determine conclusively whether the project will be subject to SMA requirements.
4. City and State Department of Health dewatering and construction permits shall be obtained, as required.

If you have any questions, please contact Mr. Scott Gushi of the Wastewater Branch at 768-8207.

Very truly yours,

David K. Tanoue
For David K. Tanoue, Director
Department of Planning and Permitting

DT:dl
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AECOM

841 Bishop Street, Suite 1900, Honolulu, HI 96813
T 808.521.3051 F 808.524.0246 www.aecom.com

Mr. David K. Tanoue, Director
Department of Planning and Permitting
City and County of Honolulu
650 South King Street, 7th Floor
Honolulu, Hawaii 96813

August 10, 2009

Dear Mr. Tanoue,

Subject: Request for Review of the Proposed Waiiau Sewer Rehabilitation/Reconstruction
TMK 9-8-05; 06, 8, 20, 21

Thank you for your letter dated June 1, 2009 regarding the proposed project. We offer the following responses in the respective order of your comments.

1. We acknowledge your comment that the project area is situated below the Waimalu Center as shown on page 3-44 of the Primary Urban Center Development Plan (PUC DP).
2. We also note that a Public Infrastructure Maps (PIM) symbol would not be required for the proposed project, as sewer improvement projects are not depicted on the City's PIM.
3. Furthermore, a request for a major Special Management Area (SMA) Use Permit will be filed in accordance with Chapter 25 ("Special Management Area") of the Revised Ordinance of Honolulu (ROH). City and State Department of Health dewatering and construction permits will be filed upon project approval.

We appreciate your participation in the environmental review process.

Yours sincerely,

Kristen Sohn
Planner
kristen.sohn@aecom.com

DEPARTMENT OF TRANSPORTATION SERVICES
CITY AND COUNTY OF HONOLULU

650 SOUTH KING STREET, 3RD FLOOR
HONOLULU, HAWAII 96813
Phone: (808) 768-8505 • Fax: (808) 528-4730 • Internet: www.honolulu.gov

MUJI HANNEMANN
MAYOR



WAYNE YOSHIOKA
DIRECTOR

SHARON ANN THOM
DEPUTY DIRECTOR

May 27, 2009

TP4/09-311705R



Mr. Lambert Yamashita, P.E.
AECOM
841 Bishop Street, Suite 1900
Honolulu, Hawaii 96813

Dear Mr. Yamashita:

Subject: Waiiau Sewer Rehabilitation/Reconstruction Pre-Assessment
Consultation

This responds to your letter of April 29, 2009, requesting consultation and
comments in preparing an Environmental Assessment for the subject project.

The Rapid Transit Division (RTD) is concerned about potential conflicts between
the sewer rehabilitation and the forthcoming Honolulu High-Capacity Transit Corridor
Project. These conflicts include the schedule of construction and the actual laying of
the pipe lines, especially as it relates to the location of the guideway columns. The
construction of the transit project in the sewer rehabilitation area is scheduled to begin
in mid-2011 and continue until 2016. In order to minimize possible conflicts between
the two projects, we would like to meet with the DDC project manager/representative at
the earliest opportunity to discuss the project. To arrange this meeting, please contact
Mr. Bruce Nagao at 768-8351.

The department reserves further comment on the project pending the preparation
of a traffic impact study for the EA document. Upon completion of the study, we request
that a copy be forwarded to our department for review and comment.

Very truly yours,

for WAYNE Y. YOSHIOKA
Director

cc: Office of Environmental Quality Control

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AECOM

841 Bishop Street, Suite 1900, Honolulu, HI 96813
T 808.521.3051 F 808.524.0246 www.aecom.com

Mr. Wayne Yoshioka
Director, Department of Transportation Services
650 South King Street, 3rd Floor
Honolulu, Hawaii 96813

August 10, 2009

Dear Mr. Yoshioka,

Subject: Request for Review of the Proposed Waiiau Sewer Rehabilitation/Reconstruction
TMK 9-8-05; 06, 8, 20, 21

Thank you for your email sent on May 27, 2009 regarding the proposed project. The concern regarding
potential scheduling conflict between the proposed sewer rehabilitation/reconstruction project and the
forthcoming Honolulu High-Capacity Transit Corridor Project is noted. We will contact Mr. Bruce
Nagao, whom you have specified in your letter, to arrange a meeting to discuss the project.

While the draft environment would disclose potential impacts caused by the proposed project on the
transportation infrastructure, a standalone traffic impact study would not be prepared. Among the
determinations made for the reason is that, although disruptions to vehicular traffic may result, the
impacts are fairly temporary in nature.

We appreciate your participation in the environmental review process.

Yours sincerely,

Kristen Sohn
Planner
kristen.sohn@aecom.com