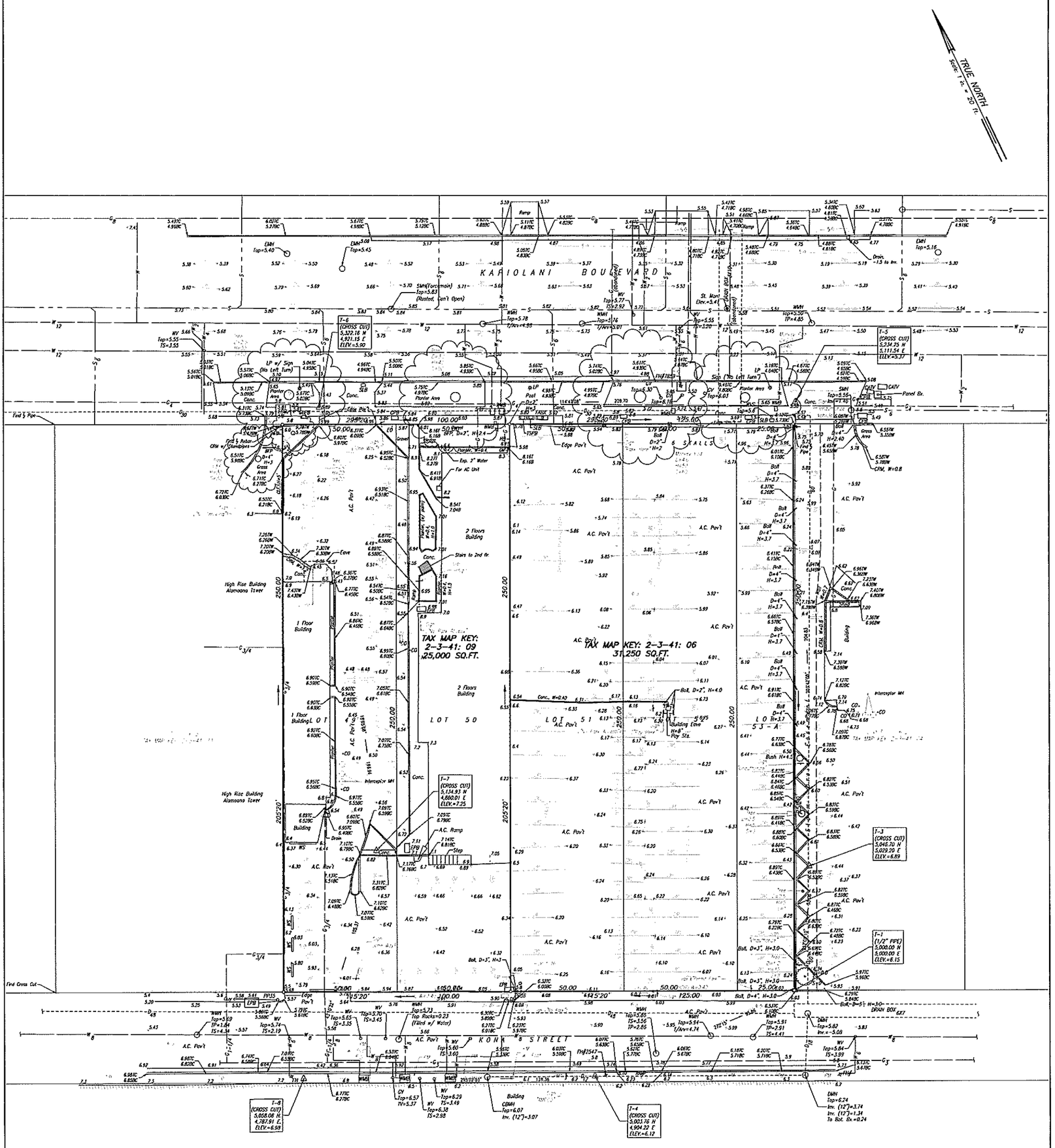
A. TOPOGRAPHIC SURVEY



TOPOGRAPHIC SURVEY

LOTS 49 TO 52, INCLUSIVE, MAP 2 AND LOT 53-A, MAP 8 OF LAND COURT CONSOLIDATION 20

TMK: 2-3-41: 06 & 09

KALIA, WAIKIKI, HONOLULU, OAHU, HAWAII

GRAPHIC SCALE IN FEET

20 10 0 20 40 60

1001 Bishop Street
Suite 1600
Honolulu, Hawaii
October 2, 2014

GEORGE S. YOSHIMURA
LICENSED PROFESSIONAL LAND SURVEYOR
No. 2927
HAWAII, U.S.A.

AECOM

Gary S. Yoshimura
Licensed Professional Land Surveyor
Certificate No. 12927, Expires 4/30/16

Abbreviation

A.C. Pav't	Asphalt Concrete Pavement	Inv.	Invert
AC Unit	Air Conditioning Unit	LP	Lamp Post
BC	Bottom Concrete Curb	N	Northing
BFP	Backflow Preventer	Mon.	Monument
Bollt	Bollard	PM	Parking Meter
Bot.	Bottom	PP	Power Pole
Bx.	Box	S±	Approximate Spread
BW	Bottom Wall	SB	Speed Bump
CATV	Cable TV Box	SLB	Street Light Box
CBMH	Catch Basin Manhole	SMH	Sewer Manhole
CLF	Chain Link Fence	St.	Street
CRM	Concrete Rock Masonry Wall	Sta.	Station
CO	Sewer Cleanout	SWL	Solid White Line Pavement Stripe
Conc.	Concrete	UP	Utility Pole
CPB	Communication Pullbox	TC	Top Concrete Curb
Ø=	Approximate Diameter	TP	Top Pipe
DMH	Drainage Manhole	TSPB	Traffic System Pullbox
DYL	Double Yellow Line Pavement Stripe	T/Arv	Top Air Relief Valve
E	Existing	TS	Top Stem
EMH	Electrical Manhole	TW	Top Wall
ELEV.	Elevation	UNA	Unlaby
EO	Electrical Outlet	W/	With
EPB	Electrical Pullbox	W=	Width
FABX	Fire Alarm Pullbox	WMB	Water Meter Box
FH	Fire Hydrant	WMH	Water Manhole
Flr.	Floor	WV	Water Valve
Guy	Guy Wire	2nd	Second
GV	Gas Valve		
H=	Approximate Height		
HB	Hose Bibb		
H.E.C.O.	Hawaiian Electric Cooperative		
Hdcp	Handicapped		

Notes:

1. Azimuths are referred to Land Court Consolidation 20 & Government Survey Triangulation Station "PUNCHBOWL".
2. Coordinates are ASSUMED. Traverse Point "1-1" held at 5000.00 N, 5000.00 E.
3. Owners of adjoining lands as shown on map are from available records filed at the Real Property Tax Mapping Branch.
4. Map is compiled from records found at the State Survey Office, Real Property Tax Mapping Branch and Bureau of Conveyances. Recorded data has not been verified by an actual survey on the ground.
5. The underground utilities shown have been located from field survey information and existing drawings. The surveyor makes no guarantees that the underground utilities shown comprise all such utilities in the area, either in service or abandoned. The surveyor further does not warrant that the underground utilities shown are in the exact location indicated although he does certify that they are located as accurately as possible from information available. The surveyor has not physically located the underground utilities.
6. Elevations are referred to City & County Street Monument at the intersection of Kona Street & Kalakaua Street, Elev. = 3.87 ft. M.S.L.
7. Date of Survey: July 25, 2014

Legend:

- Major Contour
- Minor Contour
- Existing Sewer Line
- Existing Drainage Line
- Existing Water Line
- Traverse Line
- Traverse Station
- Tree
- Fire Hydrant
- Lamp Post
- Sign

B. DPP CORRESPONDENCE

DEPARTMENT OF PLANNING AND PERMITTING
CITY AND COUNTY OF HONOLULU
650 SOUTH KING STREET, 7TH FLOOR • HONOLULU, HAWAII 96813
PHONE: (808) 768-8000 • FAX: (808) 768-6041
DEPT. WEB SITE: www.honoluludpp.org • CITY WEB SITE: www.honolulu.gov

KIRK CALDWELL
MAYOR

GEORGE I. ATTA, FAICP
DIRECTOR

ARTHUR D. CHALLACOMBE
DEPUTY DIRECTOR

2014/ELOG-1519 (JP)

August 27, 2014

Mr. Lowell K.W. Chun, President
Pacific Catalyst, LLC
1296 Kapiolani Boulevard, Suite 1907
Honolulu, Hawaii 96814

Dear Mr. Chun:

SUBJECT: Sam Koo Affordable Housing Project
Eligibility for Affordable Housing Exemptions
Chapter 201H-38, Hawaii Revised Statutes (HRS)
1391 Kapiolani Boulevard - Kalia
Tax Map Key 2-3-39: 11

This responds to your request, received August 13, 2014, concerning whether a planned affordable housing project on the subject 1.431-acre property, which is in the BMX-3 Community Business Mixed Use District with a 250-foot zoning height limit, will be eligible for processing by the Department of Planning and Permitting (DPP). We understand that the project will involve the development of multi-family dwellings for households earning 100-140 percent of the median income for Honolulu. Under those particular circumstances, the project will not be eligible for processing by the DPP.

To be eligible for processing by the DPP, projects must include a minimum of 10 percent of the total units being affordable to households earning annual incomes which do not exceed 80 percent of the median income. And, a minimum of 20 percent of the total units must be affordable to households earning between 81 to 120 percent of the median income. The remaining affordable units to be provided may be affordable to gap group (i.e., 121 to 140 percent) households. A maximum of 50 percent of the total units can be sold at market rates. It is our understanding that the eligibility requirements for processing requests for exemptions pursuant to Chapter 201H-38, HRS by the Hawaii Housing Finance and Development Corporation are less restrictive than our own.

I hope this clarifies the matter. Please contact Jamie Peirson of our Land Use Permits Division at 768-8011 if you have any questions.

Very truly yours,

George I. Atta, FAICP
Director

C. MARKET STUDY

AFFORDABLE HOUSING MARKET STUDY

1631 Kapiolani Blvd, Honolulu Hawaii

For: Sam Koo Pacific LLC

By Ricky Cassiday

1029 Iiwi Street, Honolulu, Hawaii

(808) 291-4407

http://www.rcassiday.com

I. INTRODUCTION OF RESEARCHER

Ricky Cassiday, an independent market research analyst who specializes in analyzing residential real estate markets for developers, has been asked to analyze the market relative to a prospective housing development project in the area around Ala Moana Shopping Center that targets the affordable for-sale and the market for-sale housing market.

The study entailed collecting, comparing and analyzing information that has a bearing on housing market supply and demand relative to the proposed project, including but not limited to publicly available real property, economic and commercial data. Income and demographic information was obtained from the State of Hawaii, City and County of Honolulu, Bureau of the Census, and CLARITAS, a Nielsen Company.

The data and statements herein are based on independent research and are in no way contingent upon outside findings or recommendations.

II. OVERVIEW

STUDY SCOPE OF WORK:

- Describe and analyze the current economic conditions and socio-political realities that impact housing demand and supply, both island-wide and in Kakaako/Kapiolani market, as it pertains to these units.
- Describe and analyze the current housing stock (a.k.a., housing inventory), in terms of (a) past market capacity to absorb past housing production; (b) the effect on the current housing stock in the area of the projected future (potential) supply.
- Describe and analyze the current housing market, in terms of sales and prices, and put this into a historical context.
- Describe and analyze the specific target market of this development, relative (1) to the affordable housing considerations and obligations, and relative to (2) the normal market rate housing opportunities and risks, as seen through the eyes of developers.
- Describe and analyze the market and the project according to the affordable housing guidelines for market studies, as published by HUD and HCDCH.

PROJECT:

The developer is proposing to build an affordable and market for-sale project of 485 units – studios, one-bedroom, two-bedroom and three-bedroom units for families earning 80 to 120 percent of the area median income (AMI) or below. The following table describes the unit and bedroom counts for this project:

UNIT COUNT OF PROJECT BY BEDROOM TYPE & AMI

AMI Target	80%-120%	Market	Totals
Studio	56	32	88
1-Bedroom	104	72	176
2-Bedroom	108	69	177
3-Bedroom	24	20	44
Totals	291	194	485

The site is located three blocks west of the intersection of Kalakaua Avenue and Kapiolani Blvd, arguably the two best-known streets in Honolulu. It is located at the western edge of Waikiki and right in the middle of the Ala Moana district.

The project's strongest selling points:

- Affordability
- Newly built construction
- Next to the new rail station terminus
- Convenience of being close to the major employment centers of the state, plus the state's largest retail establishment and the largest public park.

III. MARKET DEFINITION AND DESCRIPTION

MARKET

The subject studied is the City and County of Honolulu, located on the Island of Oahu, in the state of Hawaii. Oahu is the third largest of the Hawaiian Islands and the most populous island in the state. Oahu has a total land area of 896.7 square miles. The City and County of Honolulu are consolidated and it is the only incorporated city in the state of Hawaii.

The property is located on the Island of Oahu, within the Honolulu, HI MSA. Oahu is the most populous island in the state, with a total land area of 896.7 square miles. The City and County of Honolulu are consolidated and it is the only incorporated city in the state of Hawaii. .

Specifically, the site is in the Ala Moana neighborhood, which sits between downtown Honolulu, the island's and the state's financial center, and Waikiki, the state's largest resort, which, draws millions of visitors each year. This resort is one of the premier visitor destinations worldwide, thanks to Hawaii's diverse culture, subtropical weather, American jurisprudence, a pristine landscape and the "aloha spirit" of the people. By the same token, the quality of visitor experience equates to the quality of life: so as Honolulu has long been considered at top vacation destination, it also has long been considered among the world's most desirable places to live.

In the narrowest sense, the competitive market area consists of the sales of condominium apartments in and around general area of Ala Moana. This would be included in TMK Zone 1-2-3.

In the broadest sense, we define the market area for these units geographically as being island-wide. The facts that support this definition of market area are:

- That the entire island's population is within a 20-mile radius (and over 90% is within a 10 mile one);
- There are few if any for-sale properties that are comparable to this one, given the affordable guidelines for prices.
- That there is a clear and present housing shortage on the island, for both open market and affordable-restricted units (as well as owner-occupied).

STATE & COUNTY HOUSING CHARACTURISTICS

The following are highlights from the 2013 American Community Survey 1-Year Estimates:

- Hawaii's **median housing value** increased from $496,600 in 2012 to $500,000 in 2013. This increase, however, was not statistically different. Hawaii remained #1 in the ranking with the highest median housing value in the U.S.

- **Median housing value** was the highest on Oahu at $573,800 in 2013, followed by Kauai County at $498,300. Median housing value on Maui was $471,800 while Hawaii County had the lowest median housing value at $291,900 in 2013.

- Oahu rents paid the highest **median rent** in 2013 at $1,535 per month, followed by Maui County renters at $1,292 per month, Kauai County rents at $1,281, and Hawaii County renters with the lowest rent at $1,017 per month.

Just looking at the county, as seen below, most of Oahu's condominium housing stock is quite old:

- 17% of the total condo housing stock was built before 1970,
- 46% of it was built between 1970-1979,
- 18% was built between 1980-1989, and,
- 15% was built between 1990-1999.

Furthermore, most of Oahu's condominium housing stock is quite small:

- 13% of all condominium units on Oahu are between 1,250 and 1,500 sq. ft.,
- 7% of all units are between 1,500 and 1,750 sq. ft.,
- 3% of all units are between 1,750 and 2,000 sq. ft., and
- 1% of all units are over 2,000 sq. ft.

The rest of the condo stock averages less than 1,250 sq. ft. in size. What this says is that this market is characterized by older units, units that are small in size, and units that are not very highly valued. In terms of the recent trend in housing stock creation, the following tables describe the types of housing and their growth since 1992.

HOUSING STOCK, OAHU, BY UNIT COUNT

	Totals	Single Family	Condo	Apartment	Military	Student	Cooperative
1992	285,557	137,299	81,293	40,535	19,324	4,392	2,714
1997	309,473	145,078	92,503	43,732	20,071	4,405	3,684
2003	311,466	150,957	91,913	39,602	21,843	4,270	2,881
2006	319,405	160,686	94,640	43,275	14,737	3,419	2,648
2010	329,724	165,440	100,438	43,424	14,737	3,408	2,277

Source: 2011 Rental Housing Study

HOUSING STOCK, PERCENT GROWTH OVER PRECEEDING PERIOD

	Totals	Single Family	Condo	Apartment	Military	Student	Cooperative
1997	8%	6%	14%	8%	4%	0%	36%
2003	1%	4%	-1%	-9%	9%	-3%	-22%
2006	3%	6%	3%	9%	-33%	-20%	-8%
2010	3%	3%	6%	0%	0%	0%	-14%

Per the 2010 Census, the total number of housing units in Honolulu was 329,724, with 92% of them occupied. This left some 26,000 units vacant, with about one-third of them 9,477 accessible to those seeking a residential housing unit. Most of these are in locations and in a condition conducive to high rental rates, such as Waikiki (high visitor demand) and Makiki (high demand for middle and upper income households, due to close proximity to employment centers and good schools). Thus, they remained unaffordable to households with low- to moderate-incomes.

Given high demand and low supply, the large numbers of low- to moderate-income households currently have very few options for housing. Further, this condition has existed for over 25 years, since the implementation of land zoning regulations at the county level (supply constraints) and the dramatic rise in the price of housing, fed by the Japanese visitor and housing demand explosion. These conditions, high prices and low supply, continue on today, with Honolulu being named as the least affordable housing market in the nation in a number of studies.

TARGET MARKET

The project is targeted on buyers who can qualify to purchase these units, under the guidelines of the affordable housing policy of the state of Hawaii. These guidelines consider the potential buyers in the market according to family size and family income guidelines (to be described further).

In general, the target market for this project will be making within 75% to 140% of the Area Median Income (per HUD, as defined by the state), and consist of households having 1 person to 7 persons. Given the needs and desires typical of these homebuyers, we will quantify the potential demand for these units as follows:

- All households within 30 miles of the proposed project that can qualify under the income guidelines of the state HHFDC and still be able to qualify for a market rate mortgage.

- All households within 30 miles of the proposed project that have the commensurate income and/or assets allowing them to qualify for a market rate mortgage.

In accessing the size and strength of the target market from local residents, we expect the most likely candidates would be families looking for a shorter commute, looking to secure quality housing in an area characterized by very tight supply and very high demand, looking to downsize, looking for a good public school district and looking to buy at a time when household finances are strong and incomes are rising

IV. THE ECONOMIC BACKGROUND:

Simply put, real estate sales and values move closely in synch with an area's economic growth, and the mechanism by which this growth occurs is via rising incomes and higher job counts. Both feed directly into demand for housing.

In the short run, economic growth is determined by trading activity, the most important of which is the level and balance of trade between the area and it's major trading partners. In the case of Oahu, the major trade is in recreational goods and services, the largest of which is the visitor industry. The health of this industry is tied to the health of the economies that send visitors to Oahu.

In the longer run, economic growth is also determined by population changes (both migration and demographic) and lifestyle preferences.

We start by looking at the economic outlook for Oahu, which will be closely followed by examining the residential market. Both the Oahu's economy and Oahu's residential real estate market are affected by the global and national economy, as well as the national real estate market.

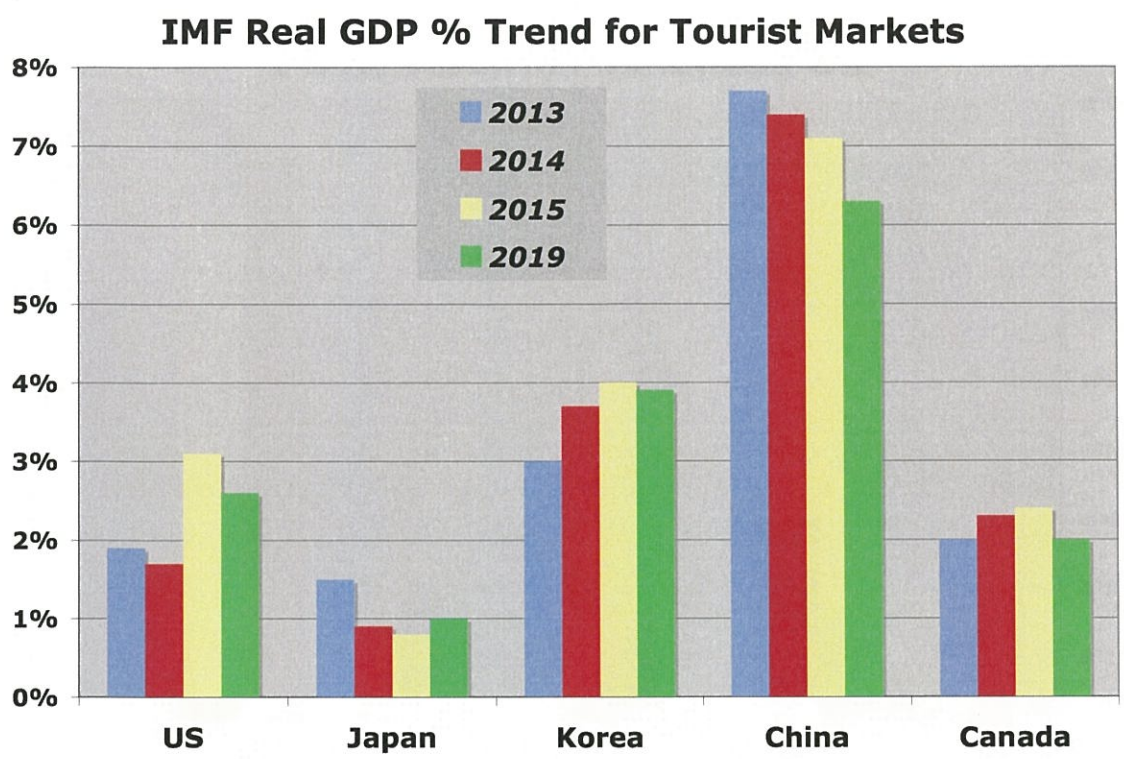
As Oahu's major industry is tourism, the major trading partners here would be the US, Canada and Asia on the international level: then California, and the west coast states, on the national level: and finally on the state level. As such, we examine the economic health of these trading partners in order to get an understanding of their ability to trade (send visitors, home owners and capital funding) with Oahu, currently and for the future.

GLOBAL ECONOMY:

The overall global economic forecast by the IMF earlier this year noted that the recovery had solidified, but the unemployment and underemployment has remained stubbornly high. In October, 2014, it said that in spite of setbacks, an uneven global recovery continues but they revised downwards their expectation for 2014's global economic activity to 3.3 percent for this year, 0.4 percentage point lower than in April, due to weaker-than-expected global activity. The global growth projection for 2015 was lowered to 3.8 percent.

The forecast envisages a rebound in growth for both advanced economies and emerging markets in the remainder of 2014 and in 2015, predicated on the assumption that key drivers supporting the recovery remain in place, a moderating of fiscal consolidation (Japan being one exception) and the continuation of highly accommodative monetary policy.

In most economies, raising actual and potential growth must remain a priority. Robust demand growth in advanced economies has not yet emerged despite continued very low interest rates and easing of brakes to the recovery. Avoiding premature monetary policy normalization remains a priority, as does fiscal adjustment supporting both the recovery and long-term growth. In particular, an increase in public infrastructure investment, particularly for advanced economies, could provide a boost to demand in the short term and help raise potential output in the medium term.



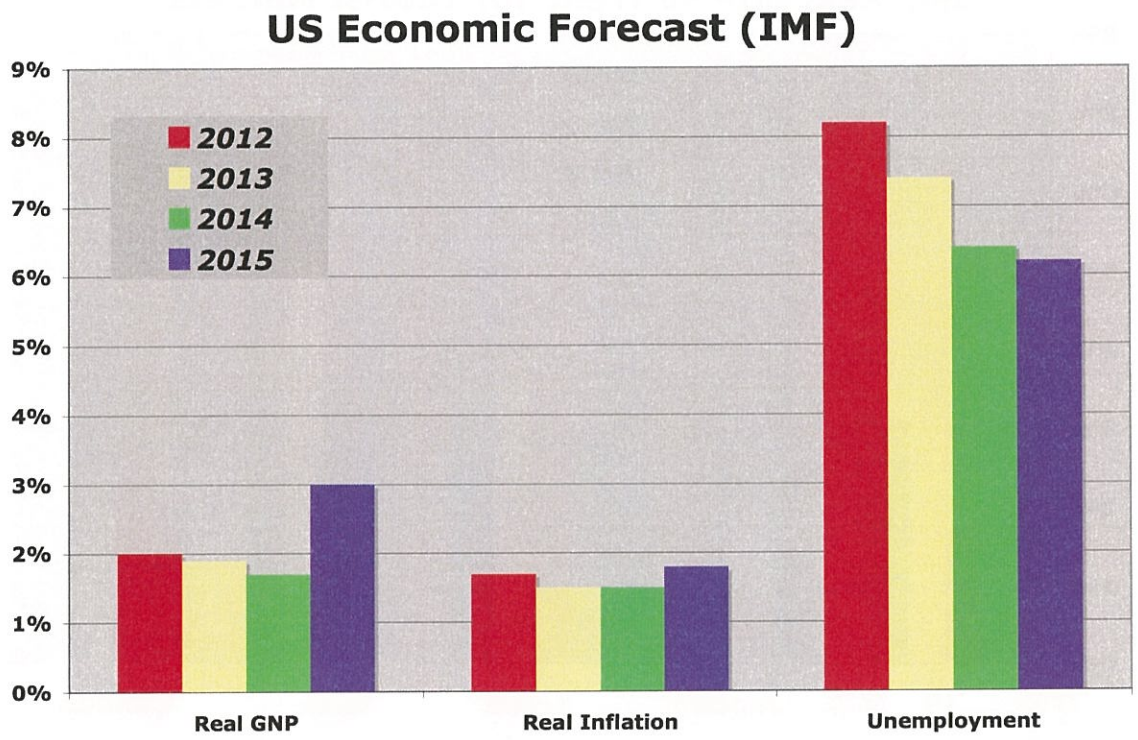
It predicted that if the advanced economies continue to repair their public and financial balance sheets, and stimulate employment, and if emerging markets do not overheat their economies, global financial markets and property markets will continue to grow. Indeed, this is what seems to be happening, as witnessed by the willingness of the US Fed to begin to talk to the markets about reducing their support of low interest rates.

UNITES STATES:

US economic growth is projected to remain above forecast potential for the rest of the year and into 2015, underpinned by an improving labor market, better household balance sheets, favorable financial conditions, a healthier housing market as household formation gradually returns to levels that are more closely aligned with demographic factors, higher nonresidential investment and a smaller fiscal drag. However, medium-term prospects are generally subdued. Potential growth is estimated at only about 2 percent, weighed down by population aging and lower productivity growth compared with previous decades.

Improving housing activity, stronger nonresidential investment, and steady payroll gains suggest that the rebound is becoming more sustainable and, above all, price pressures remain contained,

That said, the key markets for Hawaii, the higher income households and the West Coast, are well positioned to spend more and more of their discretionary income on vacationing, particularly to the outer islands.


US Economic Forecast (IMF)
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Real GNP
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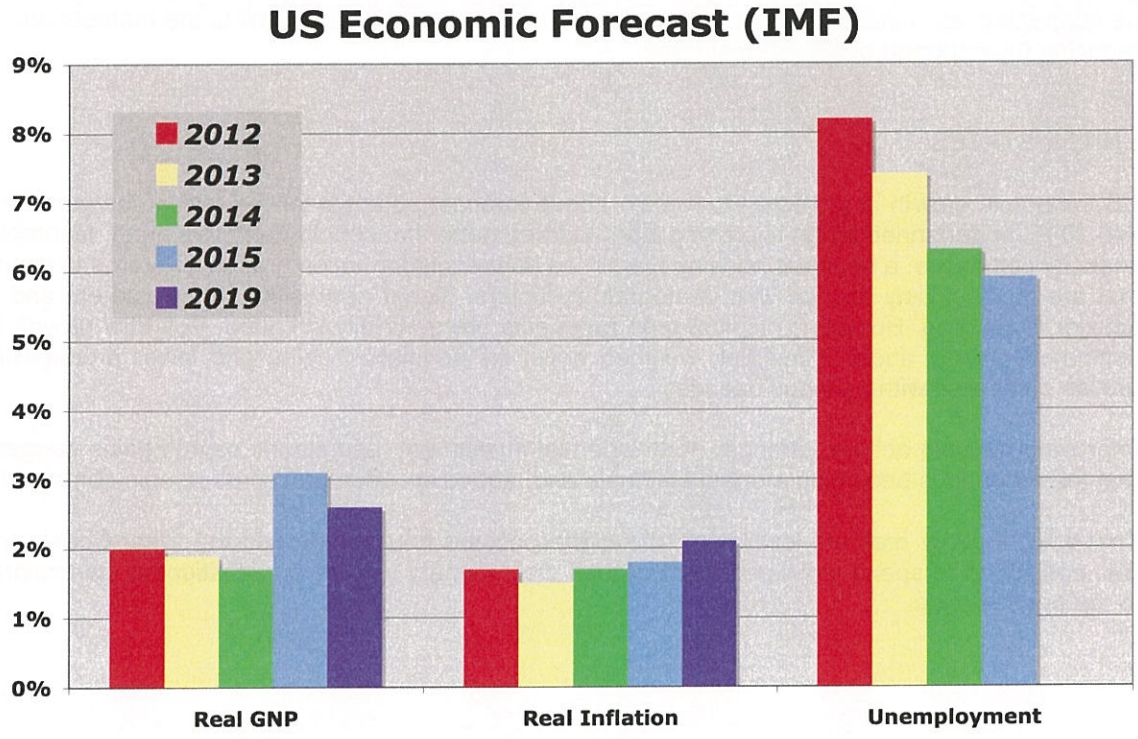
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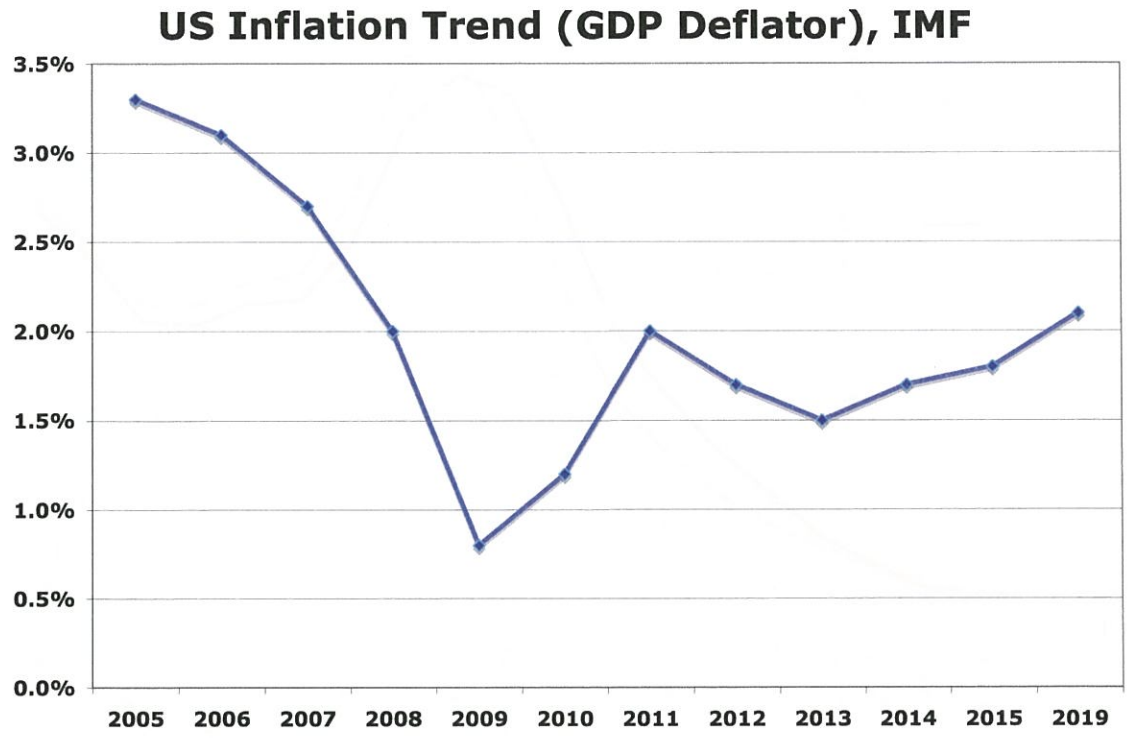
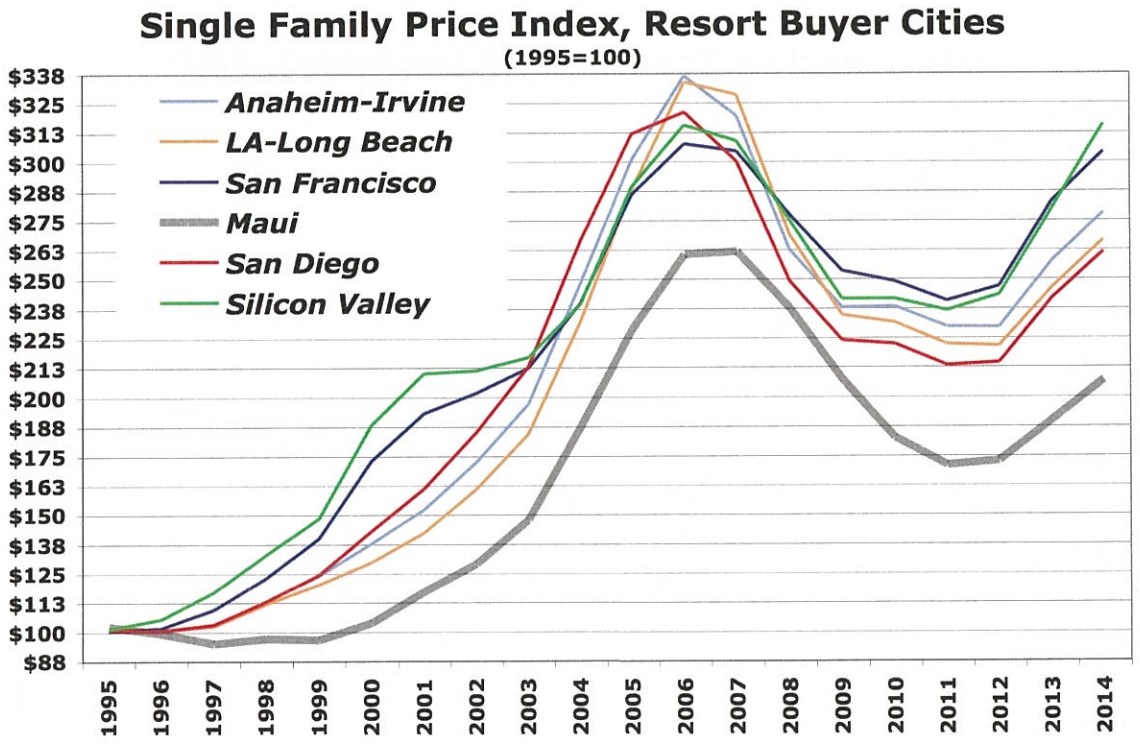


CALIFORNIA:

California's economy will continue to expand at a respectable pace in 2015, despite the drought and outsized economic gains over the past several years. Both employment and personal income growth are expected to be above the national average and population is expected to grow steadily, 0.2 percentage points faster than the national average. The most dynamic sectors in the state will continue to be professional and business services, leisure and hospitality, trade, and education and healthcare. All private sector industries are expected to add jobs and create new business opportunities for investors in traditional and emerging industries. Best of all, there is the better-than-expected budget outlook. Income tax revenues, the main driver of this positive force, will continue growing due to job and earnings advancement as well as expanding capital gains.

The Bay Area is projected to grow the fastest of any region of the state over the next few years as long as it remains competitive, continues attracting and retaining high-quality intellectual capital, and the elevated rate of IPO's, venture capital deals, and rapid increase in equity prices does not lead to an overheating in stock and housing prices. California Association of Realtor's forecast projects that the average interest rate for 30-year fixed mortgage will rise only slightly to 4.5 percent, still at historically low levels. Lastly, housing prices are positive and increasing, as has new homes production all positive. This is of particular import to the Oahu visitor industry, as California is a major source of Hawaii tourists and second homebuyers



Finally, the chart shows the price trends in cities where second home buyers (and short-term visitors) are located. Note that as the home prices rise in these communities on the mainland, they push prices in Hawaii up, as well.

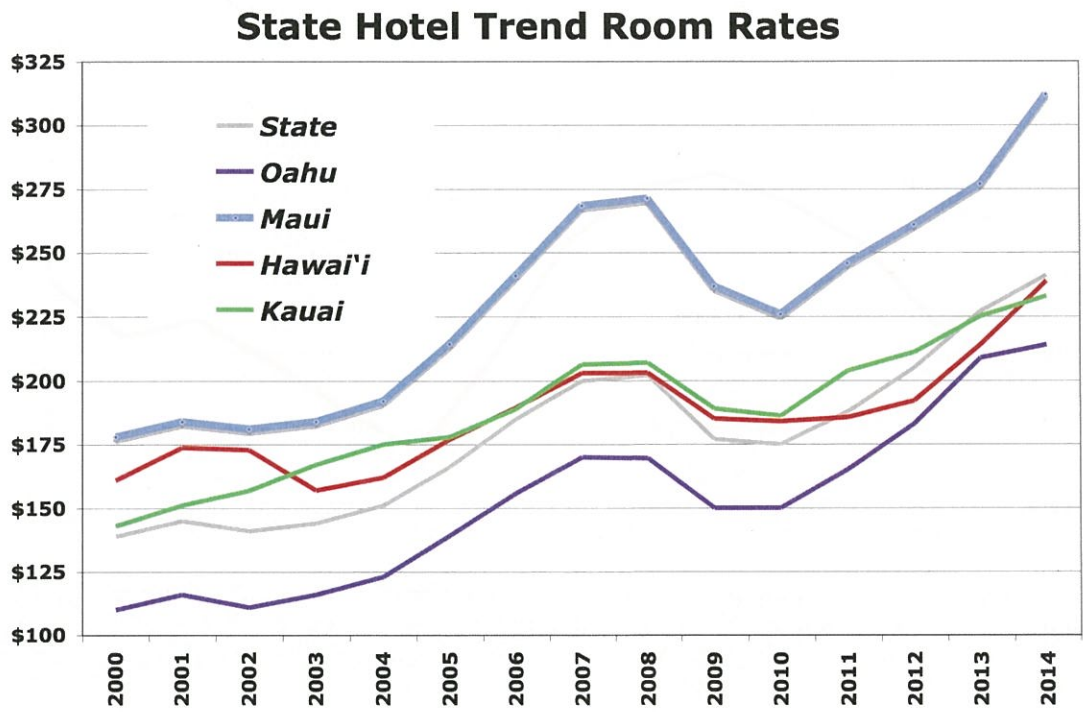
HAWAII STATE:

According to economists, Hawaii's gross domestic product is expected to hit a record $72 billion in 2014 and growth is expected to continue into 2015, although tourism could be tapering off and the state is still waiting for an anticipated boom in construction to materialize. Job growth has been uneven by sector and counties, with most hiring happening in the visitor industry, and Oahu recovering its jobs while the other counties lag.

Tourism remains the prime force in Hawaii's economy. Last year turned out to be a record year and the industry has struggled in 2014 but is keeping pace. Construction has picked up in some areas, such as Honolulu's rail system and Kakaako, but not in others - a drop-off in federal construction and solar photovoltaic systems. The move to condominium high-rise construction requires more concrete and specialized labor, while single-family home construction uses more lumber and carpenters. That notwithstanding, the state's unemployment rate dropped to 4.1 percent in October, from 4.9 percent during the same month a year ago, (the lowest jobless rate in more than six years).

Overall, the current 4Q 2014 DBEDT forecast is more optimistic compared with the previous one, as HTA is projecting 158,000 more visitors in 2015 than in 2014 spending over a half-billion dollars more (both new records).

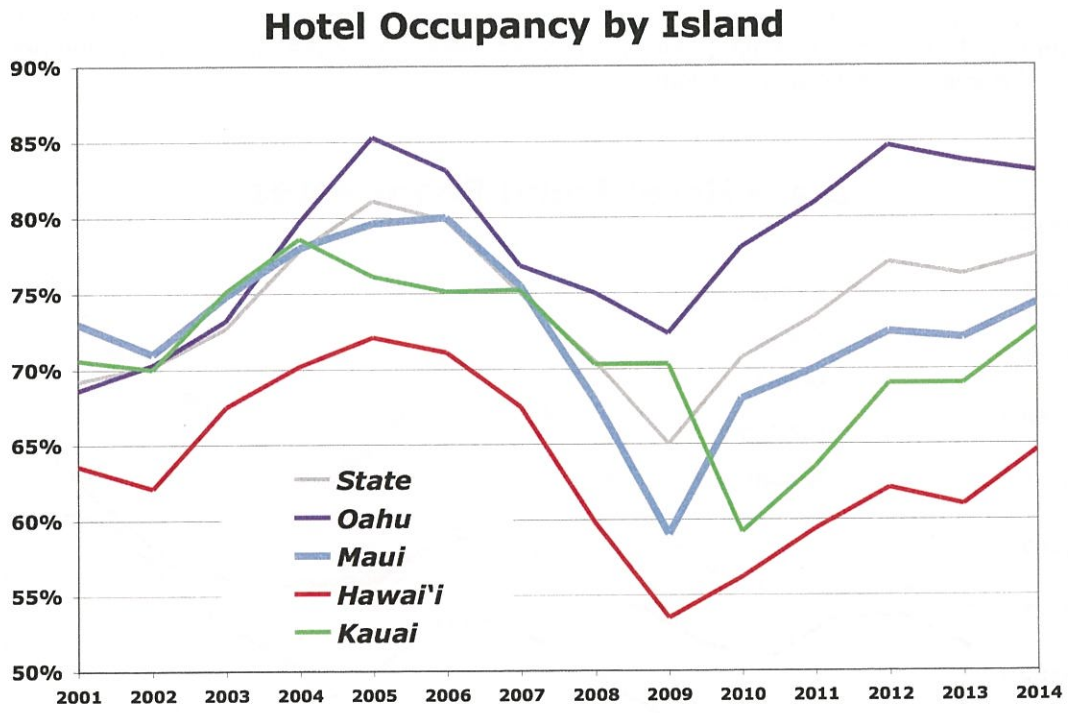
The thought is that Hawaii in 2015 will gain nearly 10,000 new jobs, and the unemployment rate will drop to 4 percent, very close to full employment (judging from the number of building permits pulled this year, 2015 will be a big year).



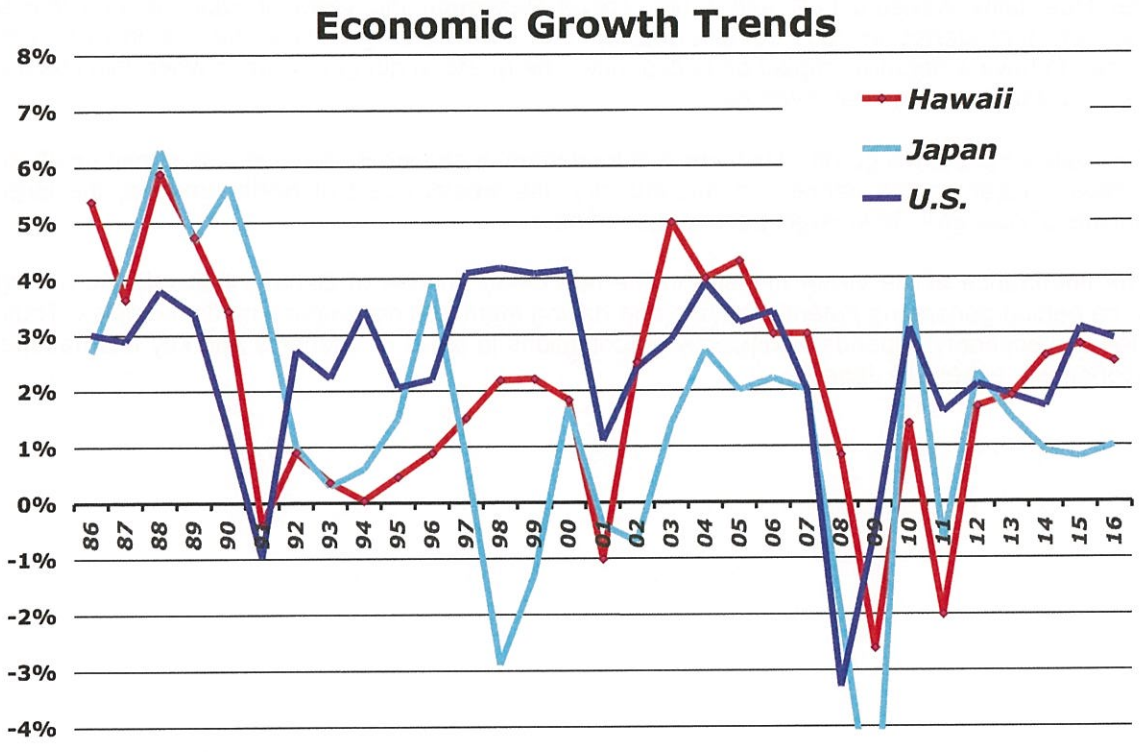
Per Hospitality Advisors LLC and Smith Travel Research, the visitor industry is well into a recovery that started in 2009-2010. Currently, it is into the stage where the rise in rates has begun to have a negative impact on occupancy. The question going forward is when this tips the industry into declining total revenues.

This balancing act will go on until there is a fundamental change in the macroeconomic health of Hawaii's major trading partners in this industry: the western part of North America, the large nations of Asia and the emerging economies of Asia.

The importance of the visitor industry to the real estate market of Oahu is that it is the driving force behind generating potential buyers and driving them to a developer's model complex. Thus, Hawaii's economy depends significantly on conditions in the U.S. economy and key international economies, especially Japan,



Thus, Hawaii's economy depends significantly on conditions in the U.S. economy and key international economies, especially Japan, The following chart shows the forecasts for this year and the next, according to the ECONOMIST Magazine's forecast group, UCLA and DBEDT for Hawaii.

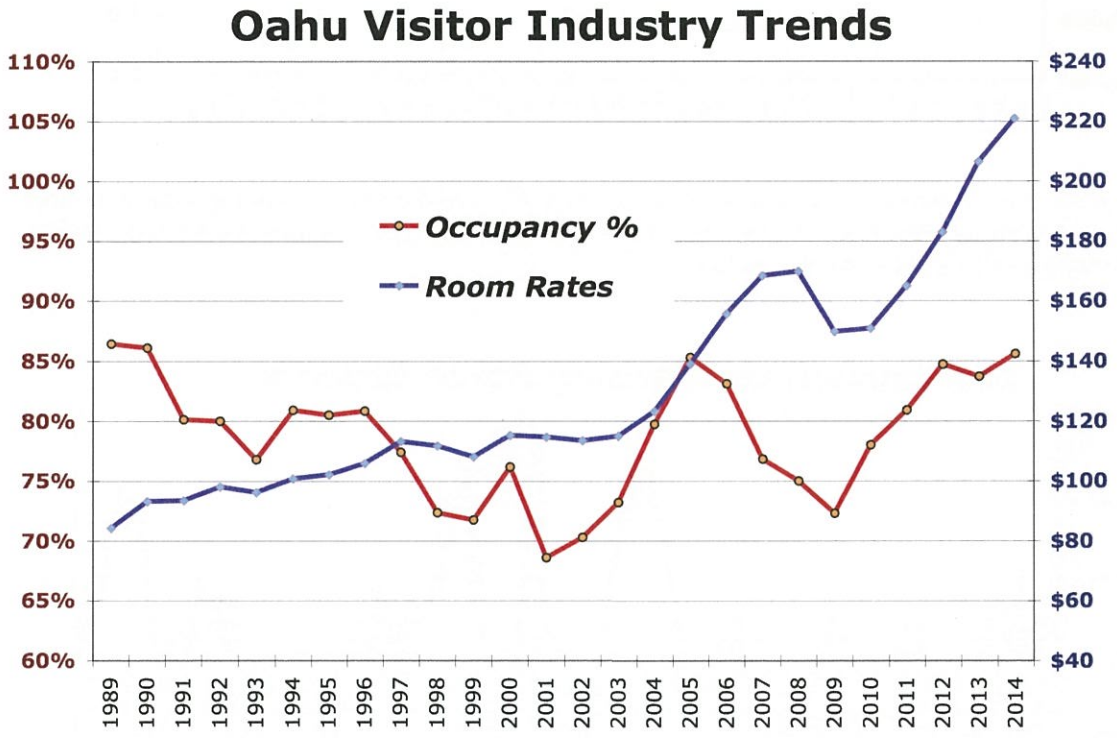


V HONOLULU HOUSING MARKET OVERVIEW

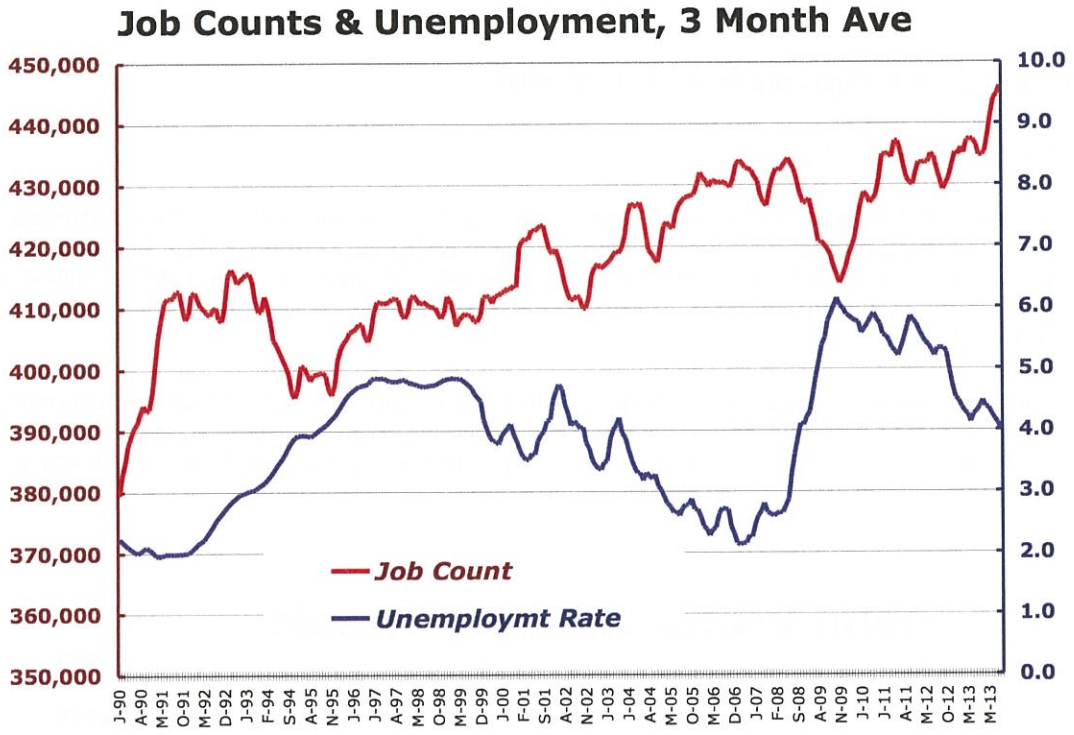
ECONOMIC BACKGROUND:

Honolulu draws more than 4.4 million visitors each year, with more than 2,600 businesses involved in the leisure and hospitality sector. It also is home to the United States Pacific Command headquarters, which contributes approximately 90 percent of the $12.2 billion in military economic impact in the state. Together, the growth in these two sectors fuel economic growth in Honolulu.

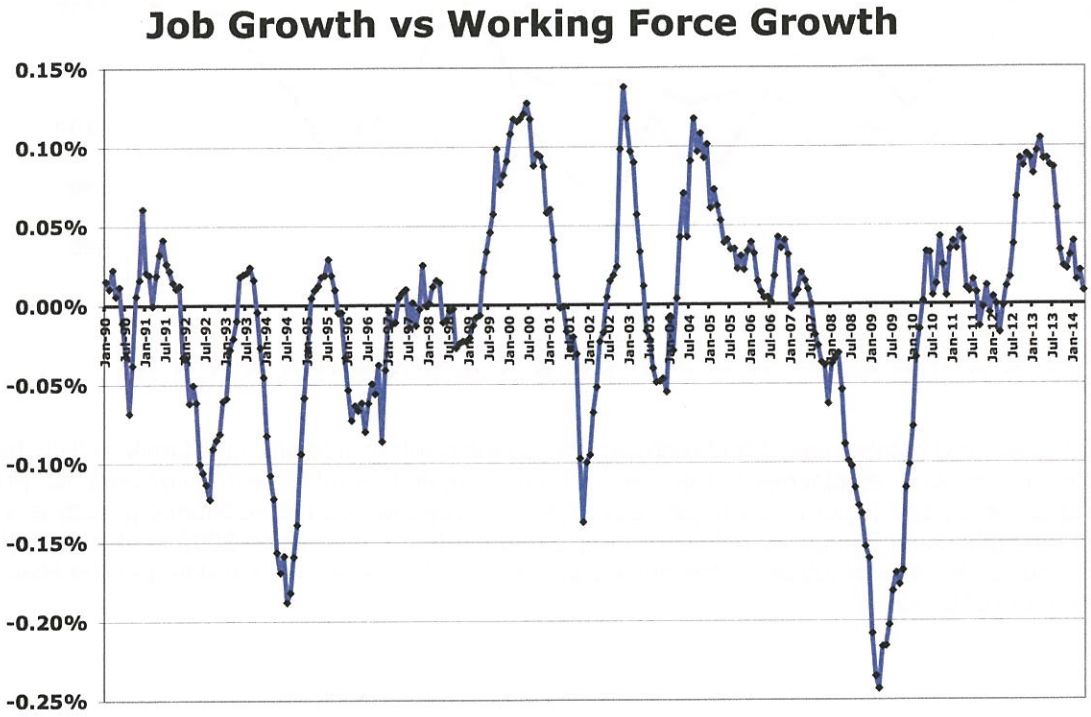
To date, visitor spending keeps pushing higher, with Waikiki hotels setting records for occupancy, daily room rates, and revenue per available room. Advantageous exchange rates are enticing droves of foreigners from Asia to vacation and shop, supporting job growth in retail trade and leisure/hospitality.



This has spurred hotels to build and renovate and coupled with increasing multifamily activity has firmed construction employment. Last year, tourism-related employment surpassed its pre-recession peak, and looks to continue again this year. Another sign of economic growth is the latest unemployment figures: Honolulu's unemployment rate declined since 2009, and is currently within the top ten lowest jobless rates among 372 metropolitan areas nationwide, per the Hawaii Department of Labor.



In addition, the job growth has increased faster than the working force, meaning both that local workers looking for jobs have choice, and that leads to either higher wages, better satisfaction, and that job seekers could immigrate to Oahu.



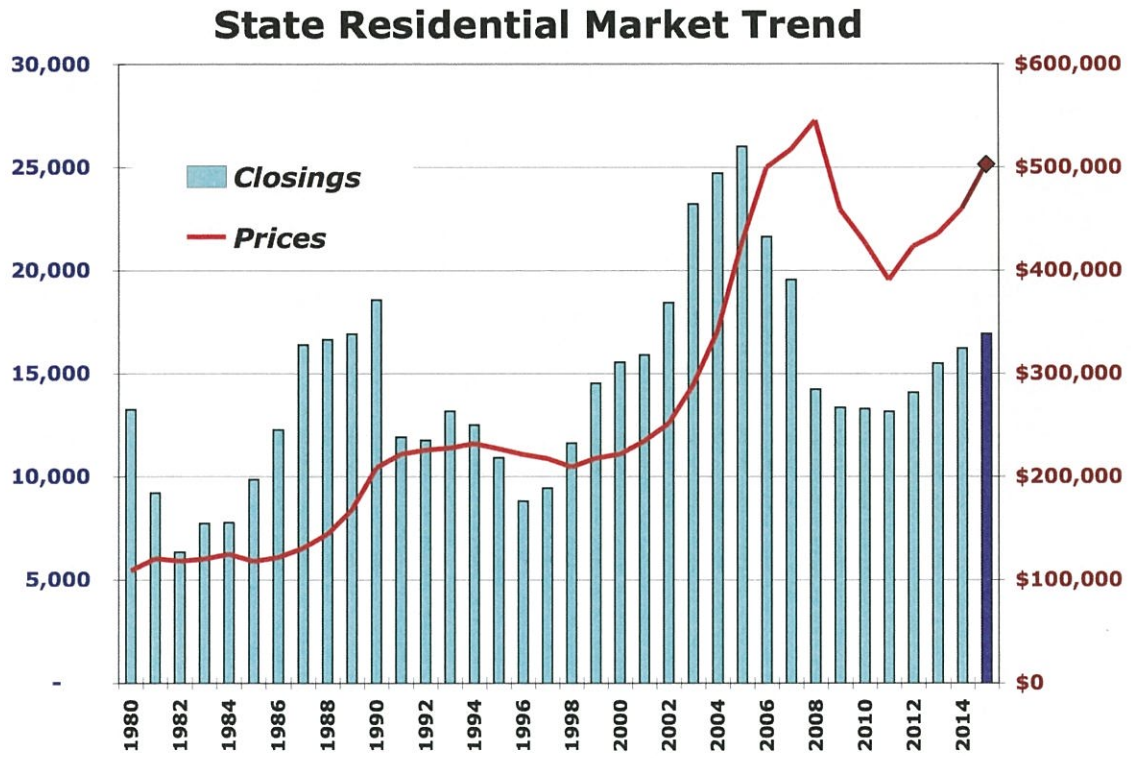
VI. STATE HOUSING MARKET

It is important to understand that the market for residential property in the state of Hawaii is and has been constrained in terms of supply, and flexible and deep in terms of demand. The net result is that the sales activity and the values of housing this market are often volatile, especially in an up market, but not as much in a down market.

Of note is how values (prices) are relatively free and uninhibited when the market is on the way upward – but that they are 'sticky' on the way downward (generally, prices do not give up the whole of their appreciation, but instead they 'hold' on to accumulated values).

Currently, Hawaii's residential markets are in the consolidation phase of the down-cycle, having gone through 5-6 years of dramatically lower sales and falling prices. The chart below shows total residential sales (combining resales and newly built units, as well as detached and attached housing) statewide, as well as an aggregate price index.

It confirms the cyclicality of the market, particularly the compressed price appreciation. A feature of the current market, not seen in times past, is the price deceleration (please note the 2013 data point is a personal projection, using data through July 2014, showing continued price appreciation and rising activity)



The following table takes the above 30 years of data from 1980-2010 and summarizes the swings in the market sales activity and sales prices.

TOTAL SALES ACTIVITY CYCLES, TERM AND CHANGES STATEWIDE

Period	Term	Start Sales	Finish Sales	Delta, Unit Sales	Delta, %ages
1982-1990	8	6,341	18,557	12,216	193%
1990-1996	6	18,557	8,801	-9,756	-53%
1996-2005	9	8,801	26,005	17,204	195%
2005-2011	6	26,005	13,235	-12,770	-49%
2011-2014	4	13,235	16,235	3,000	23%

It shows that the up cycle, 1982-1990, lasted 8 years, and saw an increase in 12,216 sales, or a change of 193%. It then saw a down cycle, lasting 6 years, losing almost 9,800 sales, or a falloff of 53%.

Generally speaking, the up cycles last 2-5 years longer the down cycles, and show 3-4 times more change (in this case, the growth cycle 1996-2005 of 195% is three times greater than the -49% deceleration in the following down cycle, 2005-2009).

Turning from sales activity to price changes, the following table analyzes the price cycle over the last 30 years. It shows that price wise the first up cycle was 1985-1994, lasted 9 years, and saw prices grow 96%. Following that, the down cycle saw prices retrench -13% over 4 years.

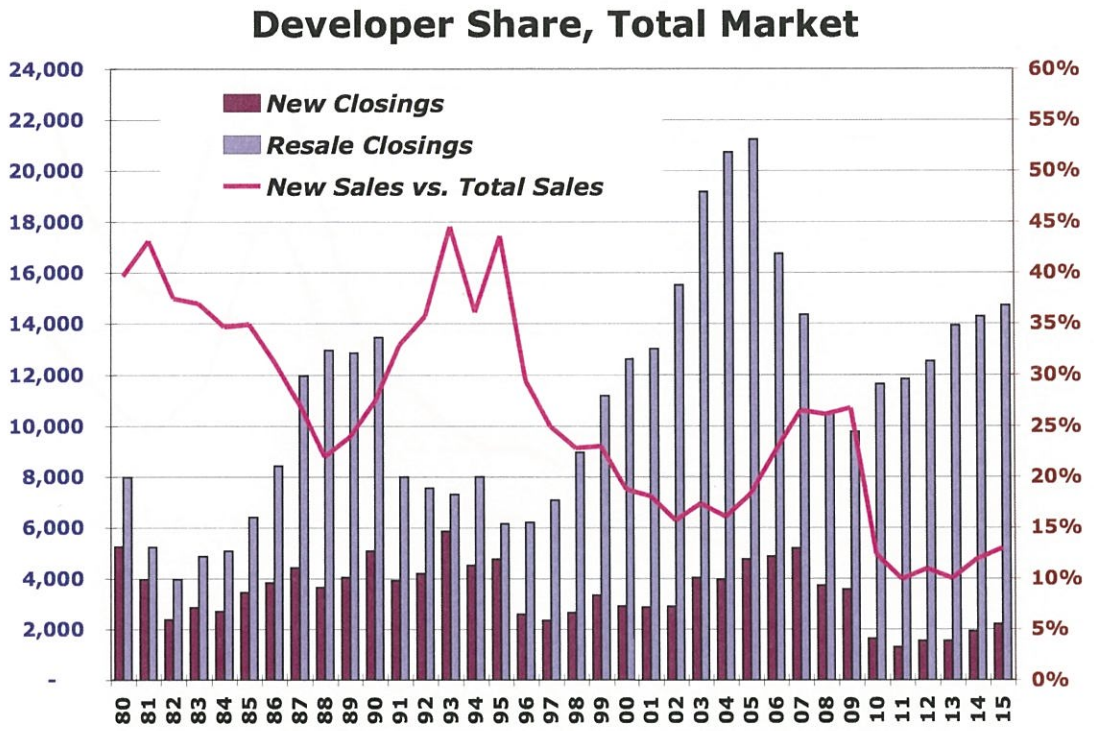
PRICE CYCLES, TERM AND CHANGES STATEWIDE

Period	Term	Start Price	Finish Price	Delta $	Delta %
1985-1994	9	$117,800	$231,966	$114,166	97%
1994-1998	4	$231,966	$209,027	-$22,939	-9.9%
1998-2008	10	$209,027	$545,254	$336,227	161%
2008-2011	3	$545,254	$389,089	-$156,165	-29%
2011-2014	3	$389,089	$459,000	$69,089	18%

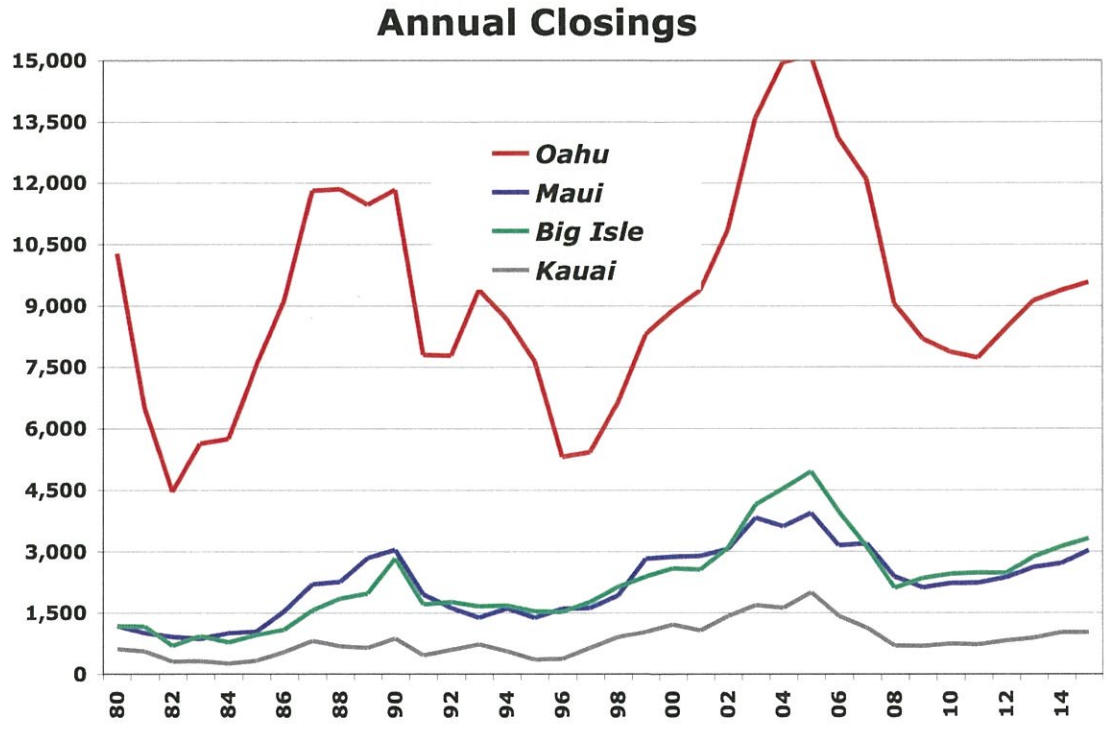
Then, the time it takes for pricing to go from trough to peak is longer than the time it takes to do the reverse, to go from peak to trough. As seen in the table, it takes 9+ years for the total move to happen on the upside, as opposed to 3-4 years going downwards.

Next, we look at total sales of all residential property in the state. Last year, 2013, there were 14,103 units sold (both SF & MF, and Resales & Newly Built). Of this, 10% were newly built 1,468) and the remainder were resales.

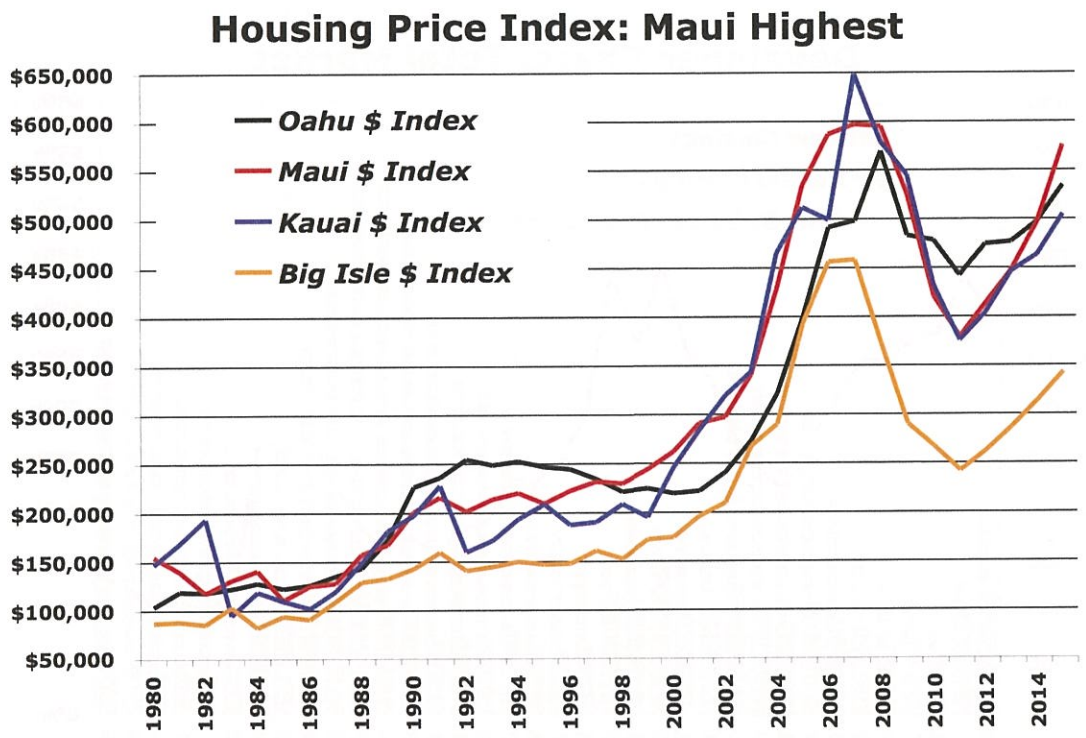
For the new homes segment, this was one of the lowest shares of market ever, as seen in the next chart.



Finally, we break the state markets into their respective island (separate counties), and see how their sales and price trends compare to the overall state ones.



As seen, Oahu is the state's major market, with Maui and the Big Island tied for second.



Per prices, Maui was the most expensive market statewide, but Oahu came in higher in 2011, Maui has the highest volatilities and Oahu is the least volatile island this cycle, but the most in the last one. This is because the 'hot' money chasing the high end in the last cycle was Japanese, focused on Oahu's south shore. This time, it was West Coast money focused on the outer islands.

VII. HONOLULU'S CONDOMINIUM MARKET

HISTORY

Inasmuch as the Hawaiian real estate market has been, is, and will be characterized by tight supply and high demand, it will experience dramatic swings in sales and values. Given this, the most critical component to successful development is timing the delivery of the units during the market upswing. This is when demand is being fueled by buyer capability and confidence. The next critical component is location, doing it in an area that is desirable AND equal or better than the comparable competition. The third component is doing it at a cost that allows pricing to be equal or lower than the comparable competition

Demand: Simply put, the high quality of life, especially in comparison with other locations, is the foundation of demand, both for residents and migrants, which supplement housing demand significantly. Hawaiian lifestyle is our comparative advantage, and is based on a unique combination of attributes, which include temperate climate, beautiful surroundings, accommodating society and culture, American jurisprudence and a dollar-denominated economy.

Supply: By national and international standards, Hawaii's, and Oahu's, housing development process is extremely restrictive: it is uncertain, time consuming and expensive. As such, the supply of entitled units is thin and tight.

This is firstly due to geography: land is limited, rugged and isolated.

Secondly, the body politic and its elected representatives have implemented a set of laws that making zoning and building a very lengthy process, as well as one fraught with controversy, by dint of having to consult with the public.

In the third place, building is costly: labor is in small supply and therefore expensive; the cost of inputs are driven up because of a long supply chain, plus expensive warehousing; and the weather, especially in the mauka mountain areas, like Mililani, cause construction schedules to lengthen (the counterpart to the urban construction process is finding bones on property).

The combination of inelastic supply and elastic demand makes this market extremely volatile: over the swing between the bottom and the top of the market, sales can more than triple and prices can more than double. Furthermore, the length of the cycle is usually 5 to 8 years, depending often on external conditions: the direction of interest rates, economic growth in the visitor and offshore buyer markets, and the costs of materials.

Demand:

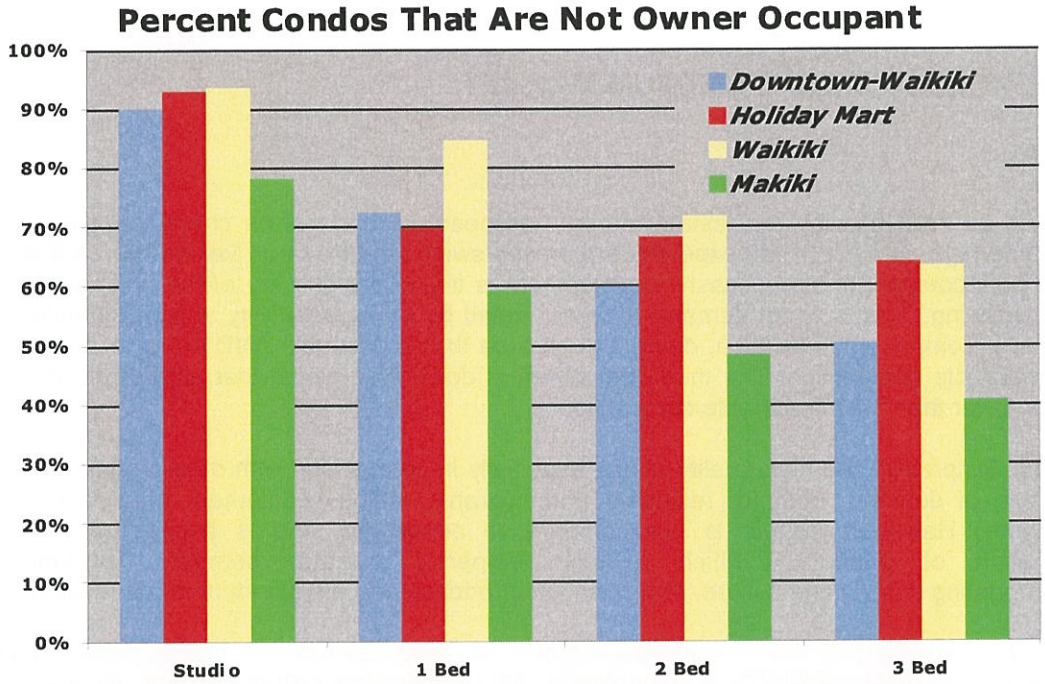
There are two components to residential housing demand:

1. Local residential housing demand (primary housing); and
2. Offshore demand (secondary housing, or second homes).

In terms of condominium ownership, the offshore buyers are significant. For instance, around 70% of all Maui Condos are owned offshore.

This not the case for Oahu or Honolulu, where most owners live and work on the island, except for certain areas: Waikiki, Ala Moana and Kakaako, where offshore ownership can be upwards of 60% of total units.

The following shows the percentage of condos that are not lived in by owners, meaning they are



investor units. Of 100% of these inventors, about 50% are non-resident of Hawaii.

Historically, this demand has been driven by economic growth and personal prosperity in the Pacific Rim countries. Indeed when there is an accumulation of wealth in these offshore markets, there is then a coincident and concurrent rise in the sales and the prices of residential units in and around Waikiki and Kapiolani on Oahu, and the resorts on the neighbor islands.

For example, demand in the last real estate cycle came from California residents who benefited from the growth of the technology, the real estate and the natural resource markets. The importance of the offshore market is shown in the chart above – very few units are ones in which their owners are the occupants.

Demand for residential units locally is driven by the visitor industry, in the first place, and then by government spending, which includes federal defense spending and local service spending and construction activities.

Currently, both these stimulants of economic activity and housing demand (which have been on the upswing) are flat: tourism has plateaued after hitting all-time highs, and federal spending in the Pacific has slowed, thanks to the miserable budget outlook. What is left is the growth in construction spending and the in-migration of second home buyers.

In terms of the real estate market cycle, we currently have come off of the cyclical bottom, and are now 3-4 years out from the low point, in terms of the average for sales and prices. On average, the up cycle for the market runs for 5-6 years, so we are 1 to 2 years away from that.

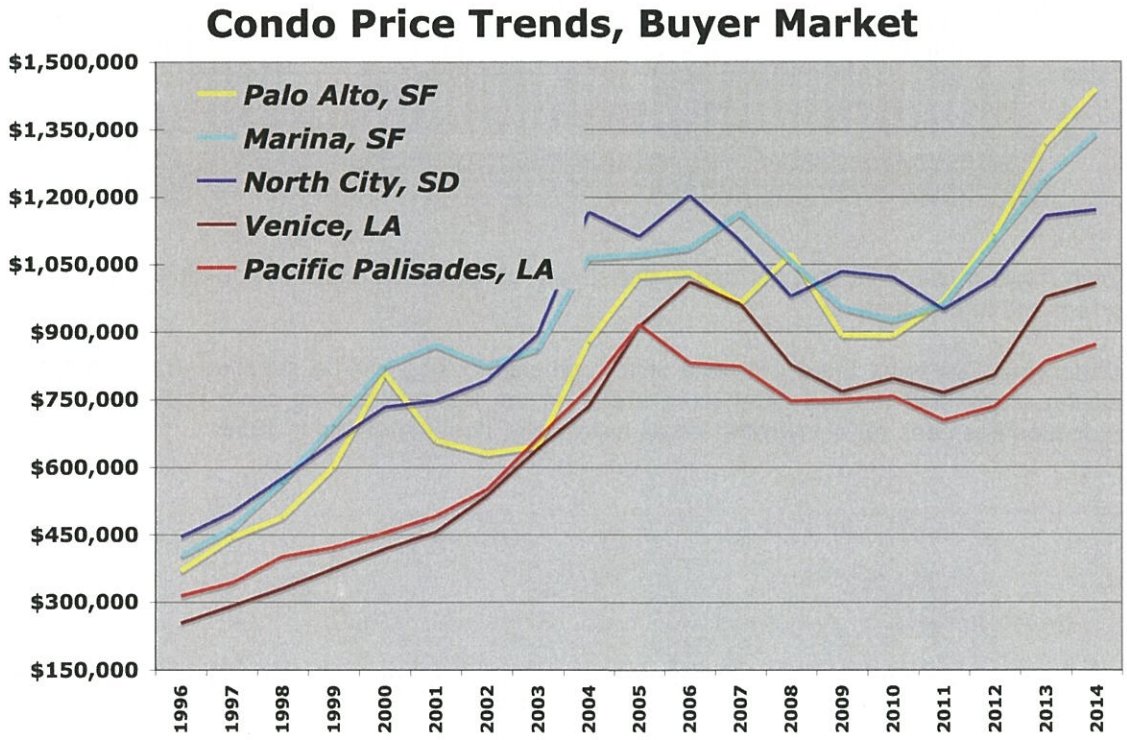
However, there are real observable differences in this recovery that might extend this up cycle.

First, the down cycle was particularly long and painful, meaning a sharp contraction of all sales activity. This however leads to the expectation that the up cycle, in kind, could also be long, and painful, meaning slow to take hold. To some extent, this is what is happening, although the recovery to date has not been particularly painful (nor has it been particularly pleasurable, in the sense that the rebound has been particularly festive. Suffice it to say the market is less volatile upwards than it was in the post-9/11 period, when prices spiraled upwards in a dramatic and in a sustained fashion).

Second, the interest rate regime has stayed particularly stable, meaning lower than average, given that the economy is coming out of a bad recession. This is caused by excess capacity in the US economy and a slowing global economy. And our expectation is that it will remain low for the near term, and perhaps into the mid term. This would extend the length of this housing recovery by a couple of years.

As such, we expect that the number of condominium sales will rise in each of the coming 3-4 years, albeit at lower rates than we have been experiencing. Indeed, the rise in prices recently has something to do with this. As for prices, we expect them to moderate, perhaps even flatten, particularly in the higher-end markets that cater to local residents and primary home owners, Hawaii Kai, Manoa, etc. The lower-end markets, Salt Lake and Downtown, still have good potential in terms of raising prices.

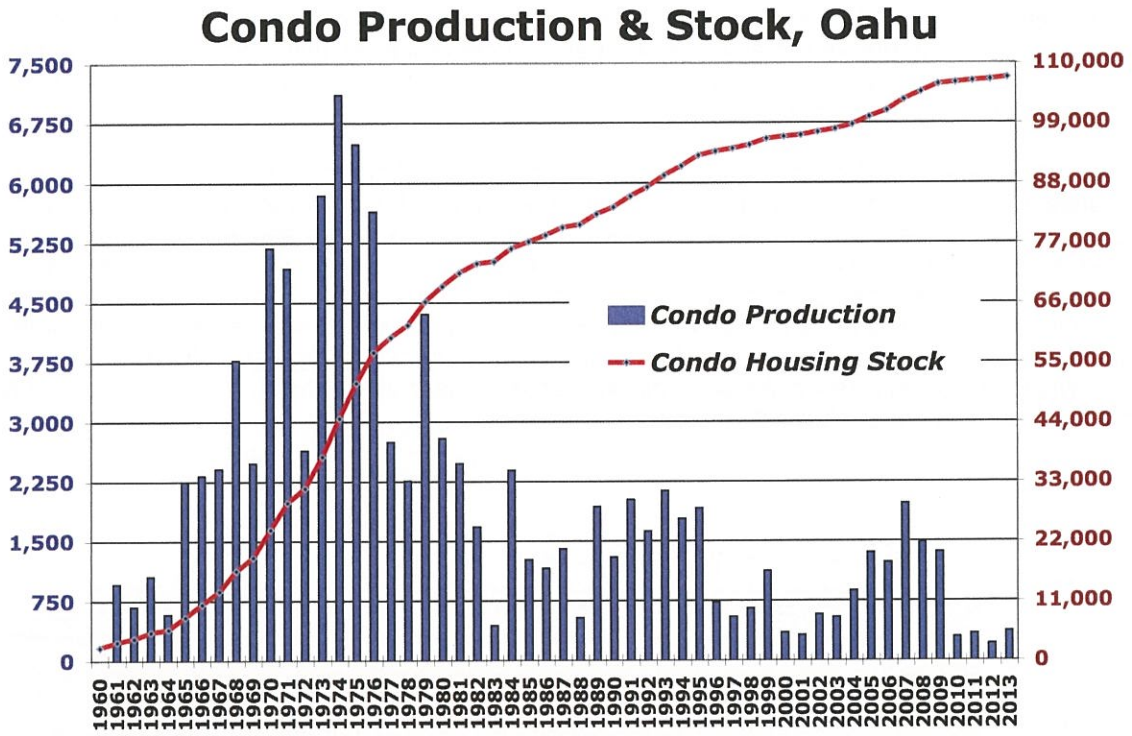
Finally, the highest end of the market, the one for second homes being bought by offshore investors, we do not expect there to be much change. On the demand side, there has been good growth in the numbers of high-net worth individuals in North America and Asia. Indeed, Credit Suisse reported the number of those with $50 million plus in assets grew in the US by over 15%, an "an astonishing rise for a single year." On the supply side, it is clear that high-end development is growing just as quickly, if not more. The question however is less one about the trend than about absolute numbers: will there be sufficient demand from the 128,000 individuals world-wide with assets above the $50 million market (plus their brethren) to absorb the 3,100 units being built at prices above $1 million.



Supply:

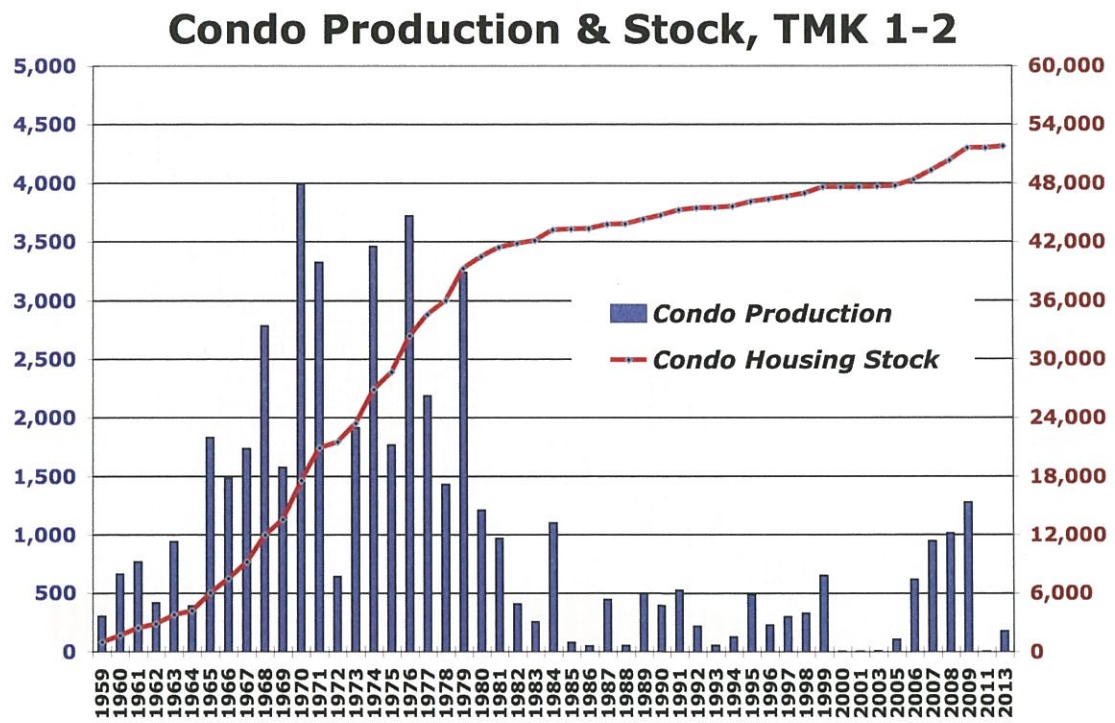
On the supply side of the market, we see low capacity, due to the long recession that eroded developer's capacity to build homes (as well as depleted the ranks of construction labor).

As seen in the chart below, condo production has been declining since the 1970s, for reasons noted above. This is true both island-wide and urban core.

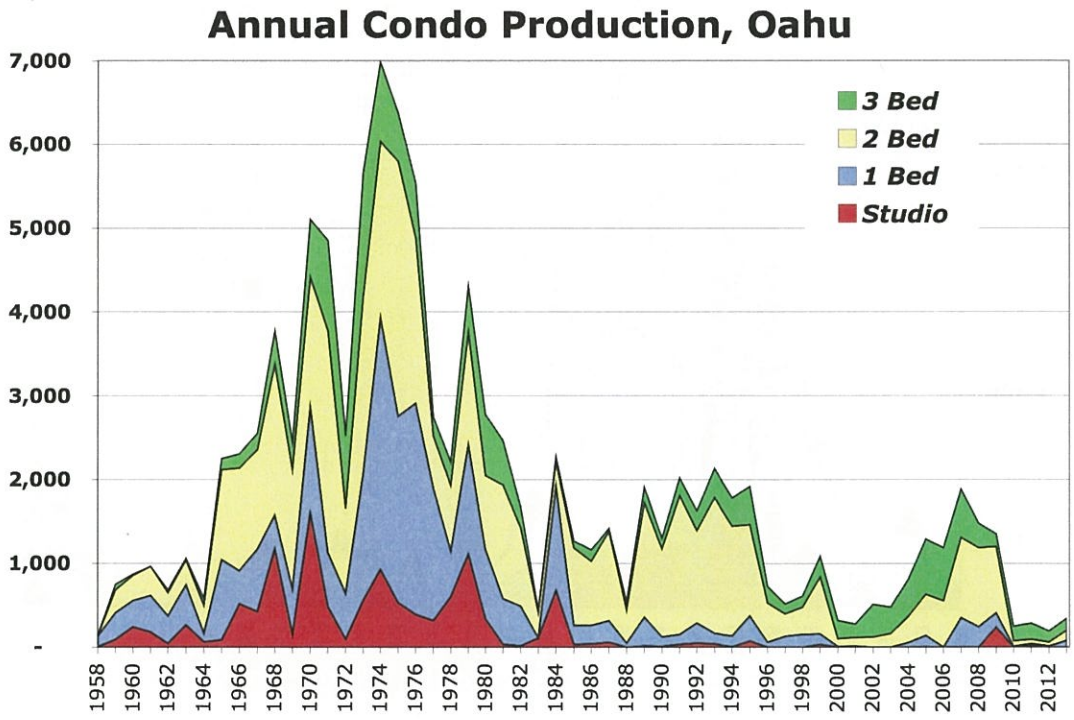


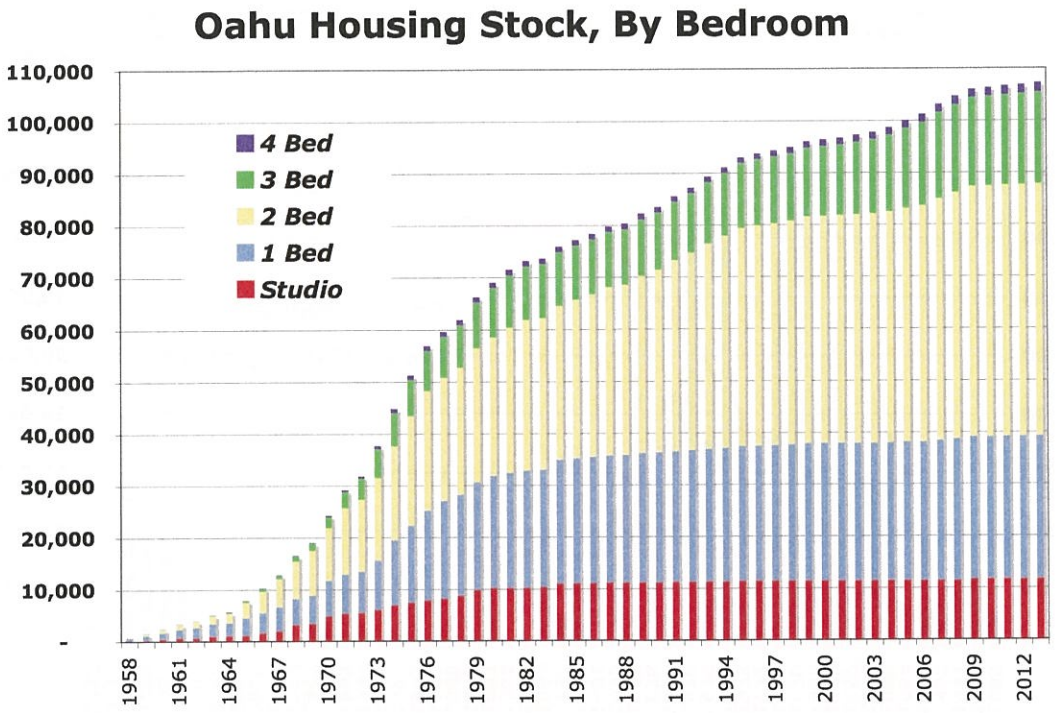
Going forward, we think that, as usual, the supply of residential units will be slow to respond to current and future demand.

Furthermore, we think there will be a shift in where housing will be supplied, moving from the outlying areas and into the urban core areas. In the last two market cycle upswings, housing production has been far below what it was historically, post-statehood in 1959.

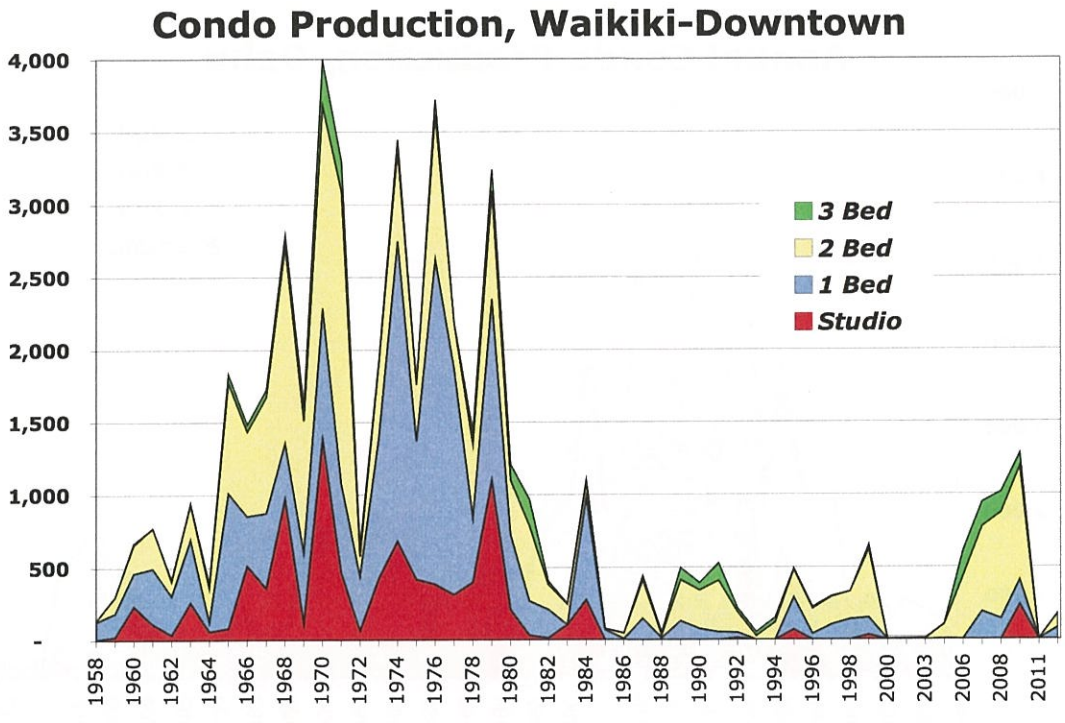


Next, we look at the composition of housing stock on Oahu and in the Downtown-Waikiki area, in terms of their bedroom counts.



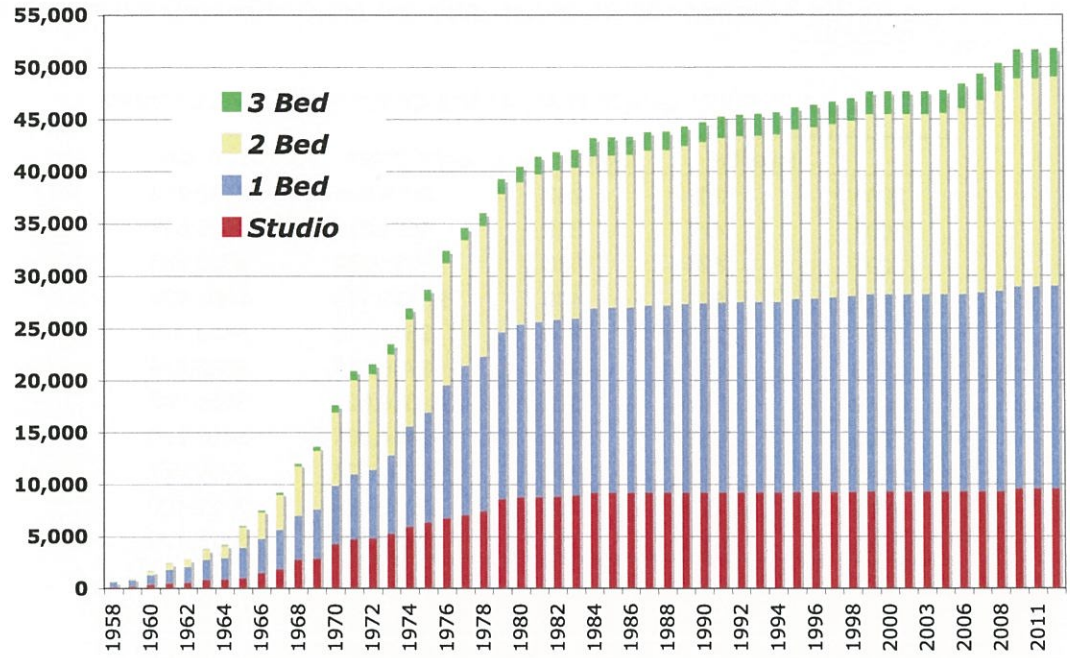


Note that, in the last two cycles, condominium production was concentrated in larger (more bedrooms, two and three bedroom) units, both for all Oahu and for the urban area.



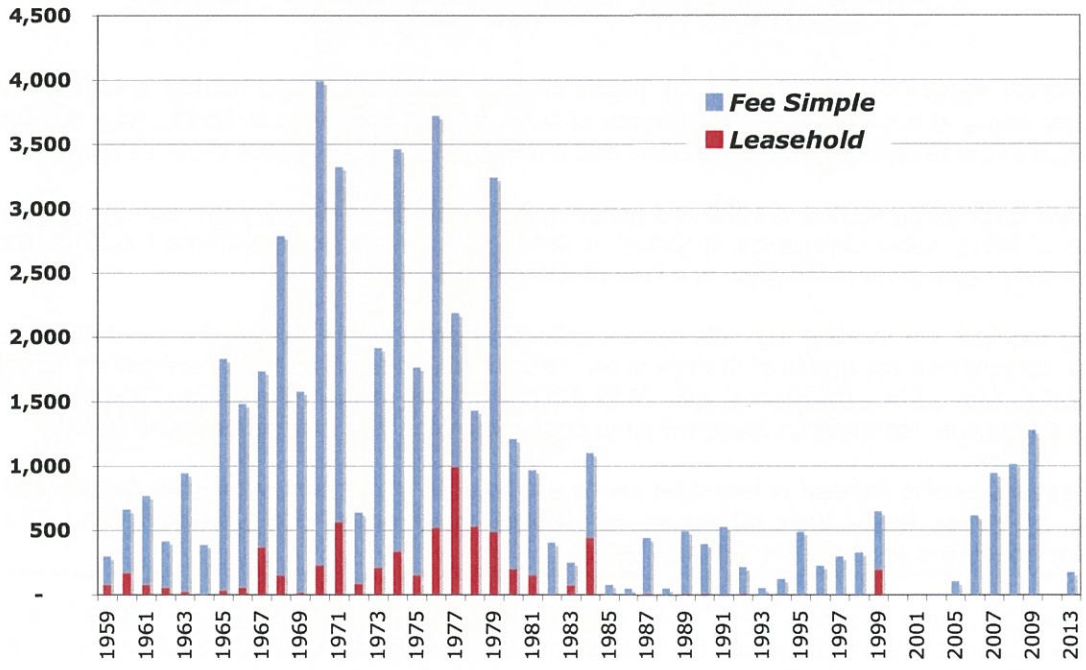
Note also that the studio and one bedroom units are much more prevalent in the urban core, thanks to Waikiki.

Waikiki-Downtown Condos, By Bedroom



Although less profitable, the three bedroom unit is under-represented in the urban core, relative to the other bedroom types – thus, this might be a market opportunity. The other market opportunity we see is converting leasehold units to fee-simple ones, the landlord permitting (the red bar area, converting to blue).

Condo Production, Waikiki to Downtown



This especially is viable in areas of highest demand, like Waikiki to Kakaako.

Looking at the Owner-Occupant vs. Investor, the following tables show just how big that market has been (and growing) in importance for developer sales and prices. The units described were new units closed, 2003-2013

OWNER OCCUPANT VS INVESTORS, DEVELOPER SALES, ALL OAHU

	Investor	Owner	Investor Prices	Owner Prices
2003	307	232	$579,673	$520,213
2004	477	399	$564,677	$529,508
2005	824	530	$485,668	$460,655
2006	823	409	$1,063,170	$992,499
2007	1,229	744	$654,746	$452,149
2008	861	627	$766,002	$606,579
2009	1,044	322	$1,058,923	$684,708
2010	93	203	$414,561	$407,720
2011	98	237	$391,921	$390,487
2012	78	131	$340,094	$402,480
2013	170	197	$419,486	$426,139

OWNER OCCUPANT VS INVESTORS, DEVELOPER SALES, TMK 1-2 ONLY

	Investor	Owner	Investor Prices	Owner Prices
2003	8		$660,613	
2005	77	29	$732,964	$688,245
2006	429	188	$1,638,205	$1,654,020
2007	657	289	$664,854	$611,251
2008	631	384	$896,143	$735,847
2009	1,009	269	$1,081,704	$736,017
2011	4		$726,300	
2013	102	74	$407,075	$390,504

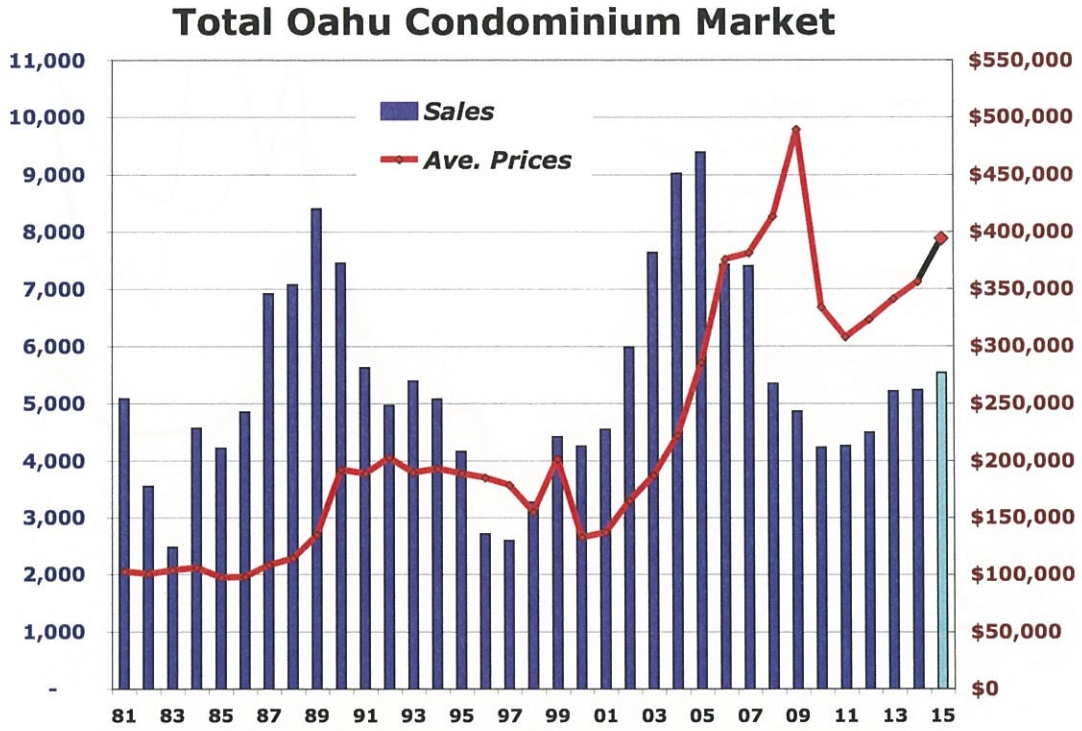
CURRENT MARKET TREND: Like the larger market, the condominium market is well into the upward swing of the housing cycle in terms of sales activity and for price levels (data source is the MLS of the Honolulu Board of Realtors and the Bureau of Conveyances of the State).

The last such swing started in 1998 and ended in 2005, ran for some 7-8 years and then had 4-5 years of falling sales and prices. It turned in 2011-2012, with a reversal of the trend for lower sales and prices, as demand grew at a time of shrinking inventory.

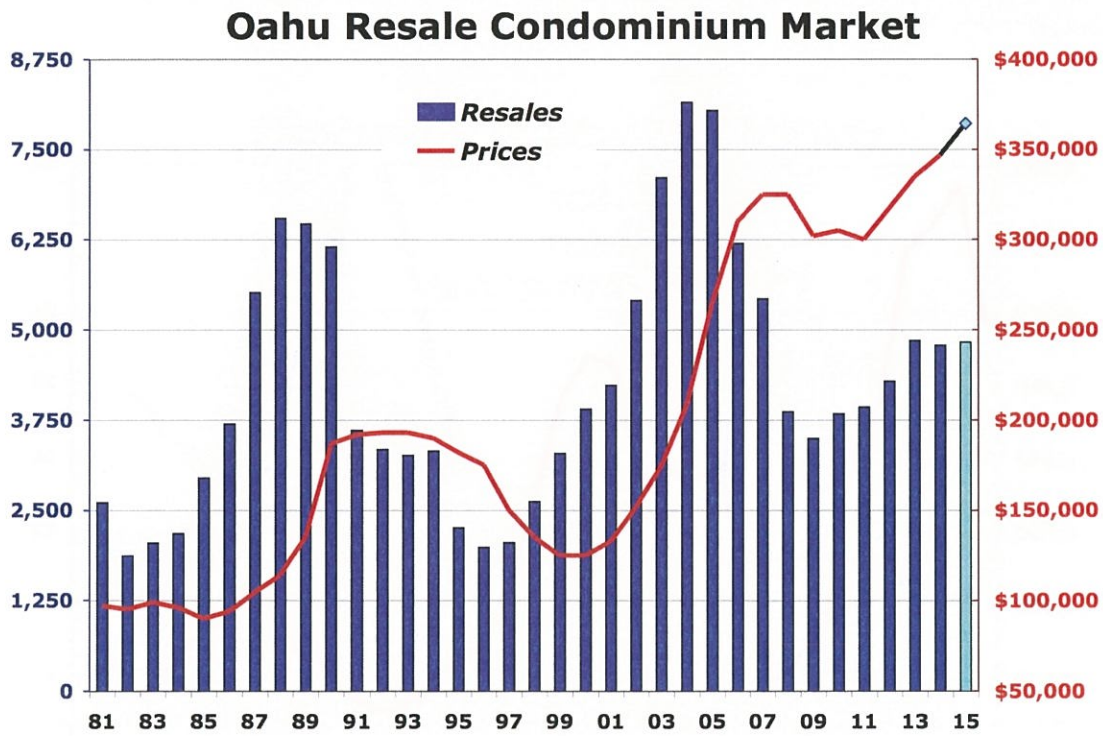
Going forward, we foresee that this cycle's sales and price levels will run for the next several years, and exceed the peaks of the last cycle. The chart above shows the actual activity through 4Q 2014, with 2014 extrapolated and 2015 forecasted. As seen in the extrapolation for 2015 sales and prices, the trend for these will jump again next year, and in an accelerated fashion.

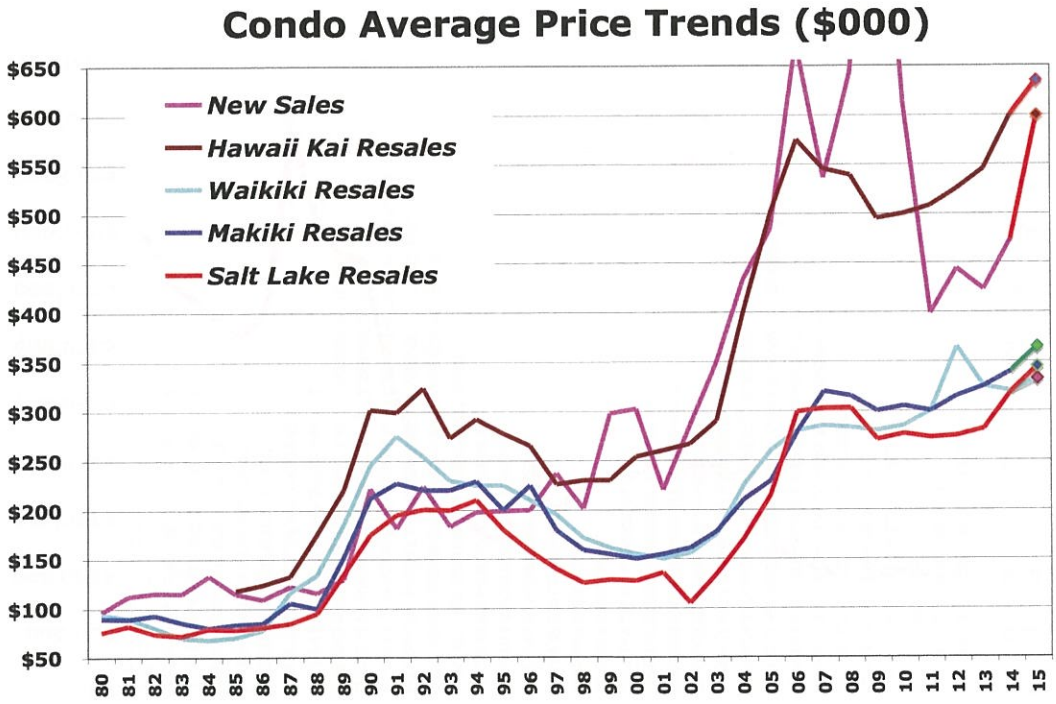
The question going forward is how high prices are likely to go, as that will impact negatively the rental market by taking units off the market. Indeed, as prices of one type of housing rise, it usually affects the price of other housing types.

Many in the industry gage the market by looking at just the resale component. This is because they are a better indicator of spot (actual) demand, inasmuch as they can close as soon as 3 months after going to contract.

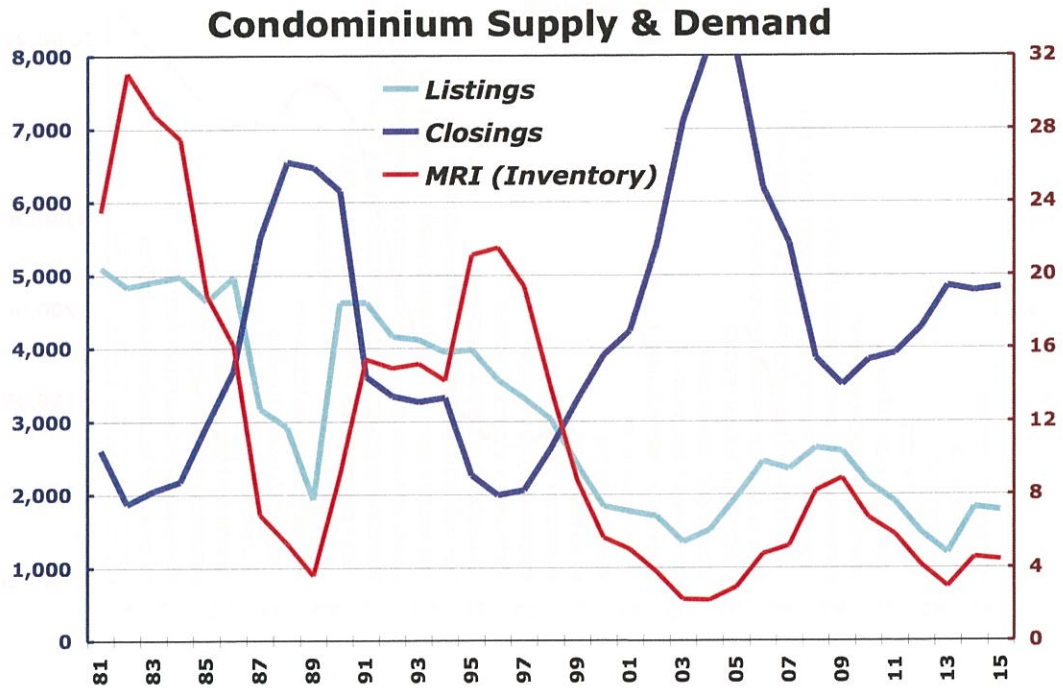


In comparing the two charts, one can see that resales prices have risen to a point higher than their last peak. Many developers take that as a sign that the market will support development.

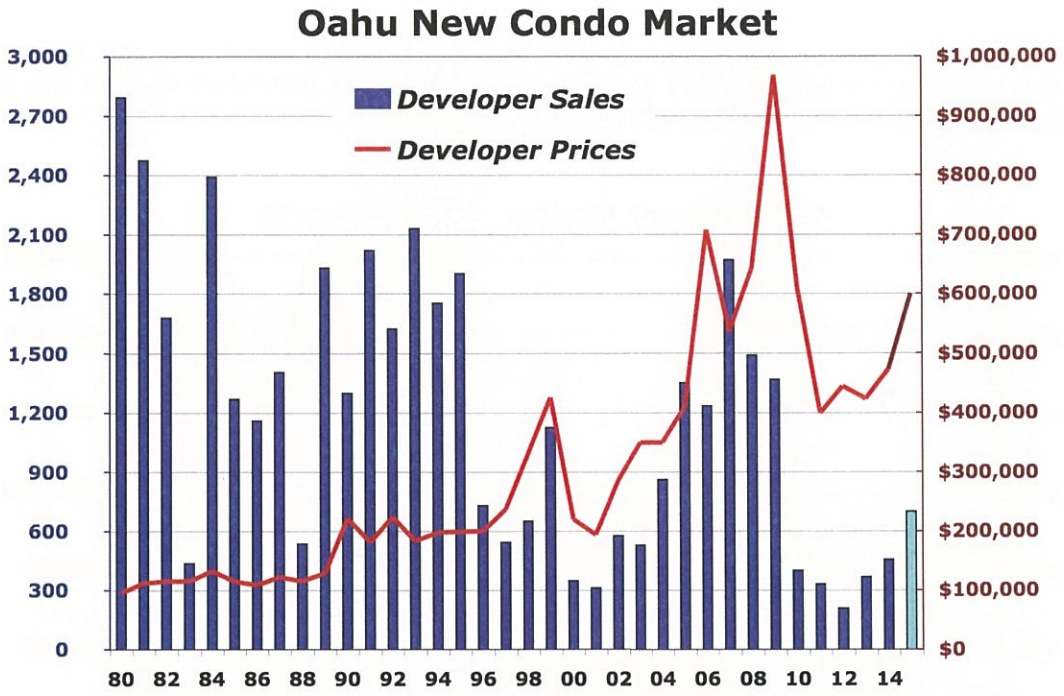




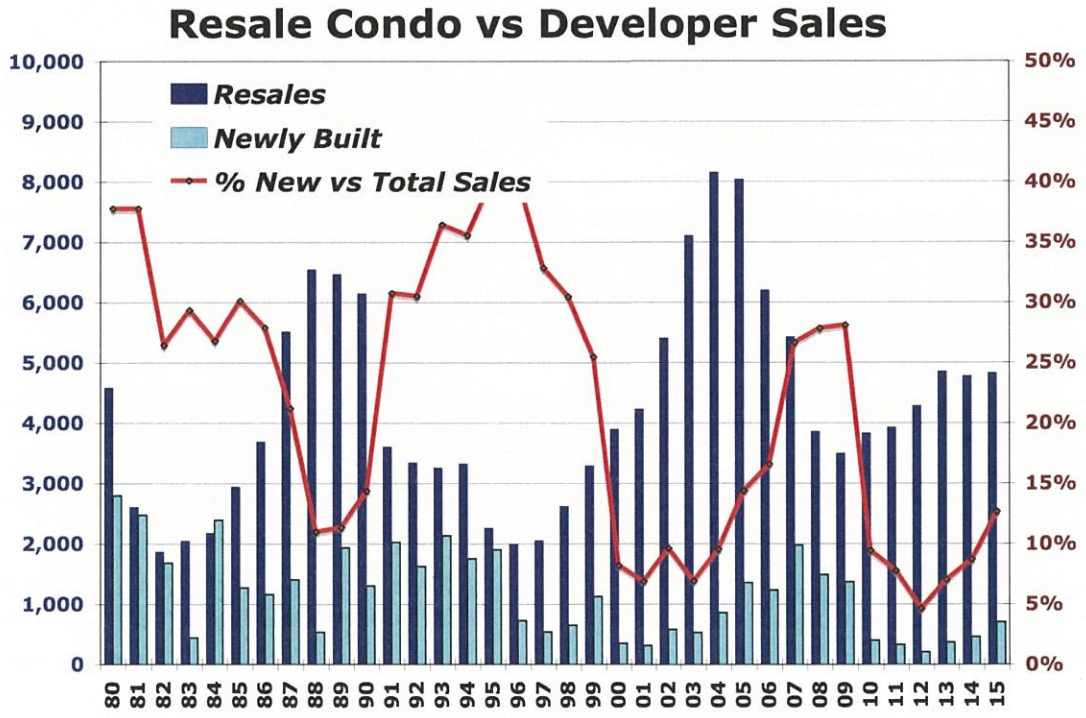
The chart above shows how prices have risen, with next year building on this one. The prices in 2014 are slowing at the high end, but picking up at the lower ends. The chart below compares supply and demand, with supply being listings and sales being demand. Currently, fewer listings (Tighter Supply) and higher sales (Strong Demand) leads us to expect that prices will rise, especially in light of low interest rates.



The following chart shows developer activity in the condo market. As seen, is very low.

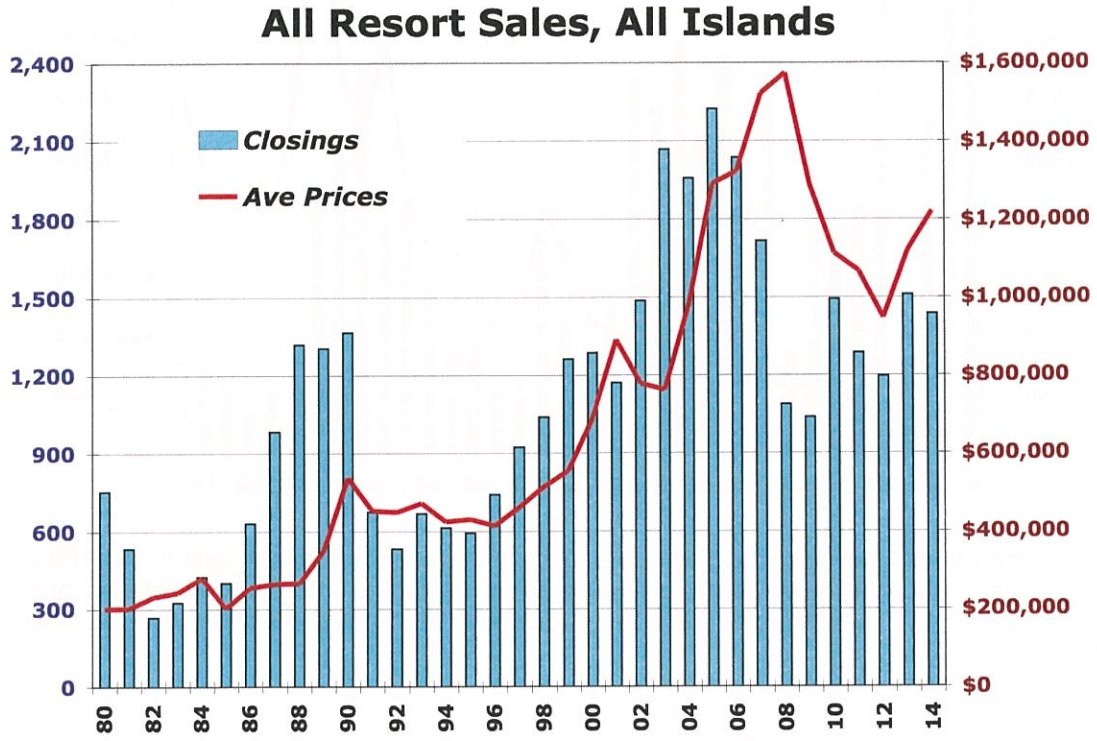


Per the chart above, developer supply is dramatically down since 1984-94, with the last 20 years being woeful. The chart below shows the same thing: new sales, compared to resales, are only around 10-15% of the total sales, whereas traditionally, in the last up cycle, they went above 25%.



Further, not only is the supply of housing down in terms of new production, it also is down in terms of the inventory of resales, listings, as seen in the previous chart.

This low inventory, coupled with higher demand, will result in higher prices. Note that the resort market is a leading indicator for condo prices on Oahu traditionally, particularly the high-end, and it is signaling today that there will be higher prices ahead.



It is worth noting that, of the visitor industry, demand that normally falls on hotel rooms is being extended into demand for residential units in the resort area, or a suitably high quality one (Kailua Beach). With no more hotels being built, this demand can find it's way into condo units in and around Waikiki and Ala Moana.

The antidote here would be an increase in the supply of reasonably priced housing, either via more listings or more new units from developers. However, little new housing was developed and built during the recent market downturn – no financing, too risky – and what was delivered was targeted to a higher income market. Indeed, the bias in new development of condos continues being weighted towards the high-end of the market, as seen in the previous chart.

The longer these trends stay in place – higher demand, lower (than necessary) supply, the more pressure there will be on prices to move higher. And they (and rental prices) already are extremely high. Indeed, there are many studies (the Center for Housing Policy's Paycheck to Paycheck Rankings, 2013) showing that Honolulu is the most expensive of 206 Metropolitan areas, nationwide for renting (and the fifth for home ownership).

To wit: the table below shows the income needed in order to afford the Fair Market Rent for a one or a two-bedroom rental (no more than 30% of income for fair market rent, which includes utilities).

MOST EXPENSIVE CITIES TO RENT A UNIT: MINIMIUM INCOME NEEDED

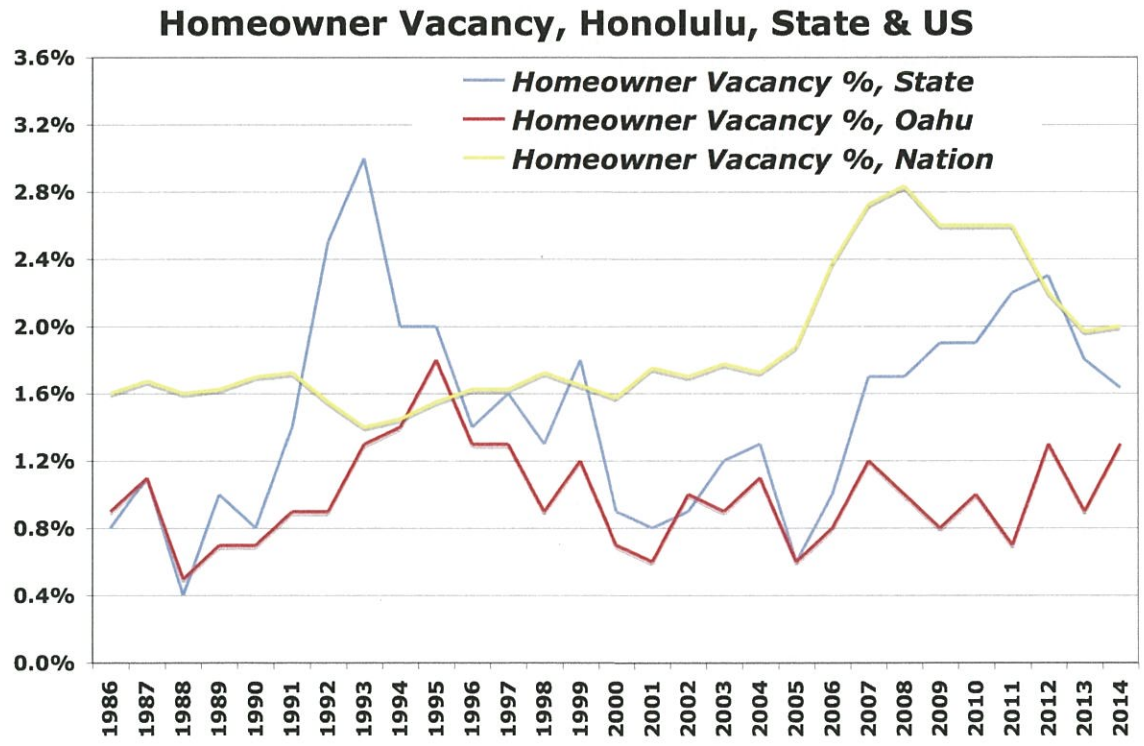
City	2 Bedroom	1 Bedroom
Honolulu, HI	$73,320	$55,680
San Francisco, CA	$71,800	$56,920
Santa Ana, CA	$64,840	$51,760
San Jose, CA	$64,400	$50,480
Santa Cruz, CA	$63,480	$46,920
Suffolk-Nassau, NY	$63,320	$51,400
Oxnard, CA	$59,960	$44,640
New York, NY	$58,960	$49,720
Boston, MA	$57,760	$46,240

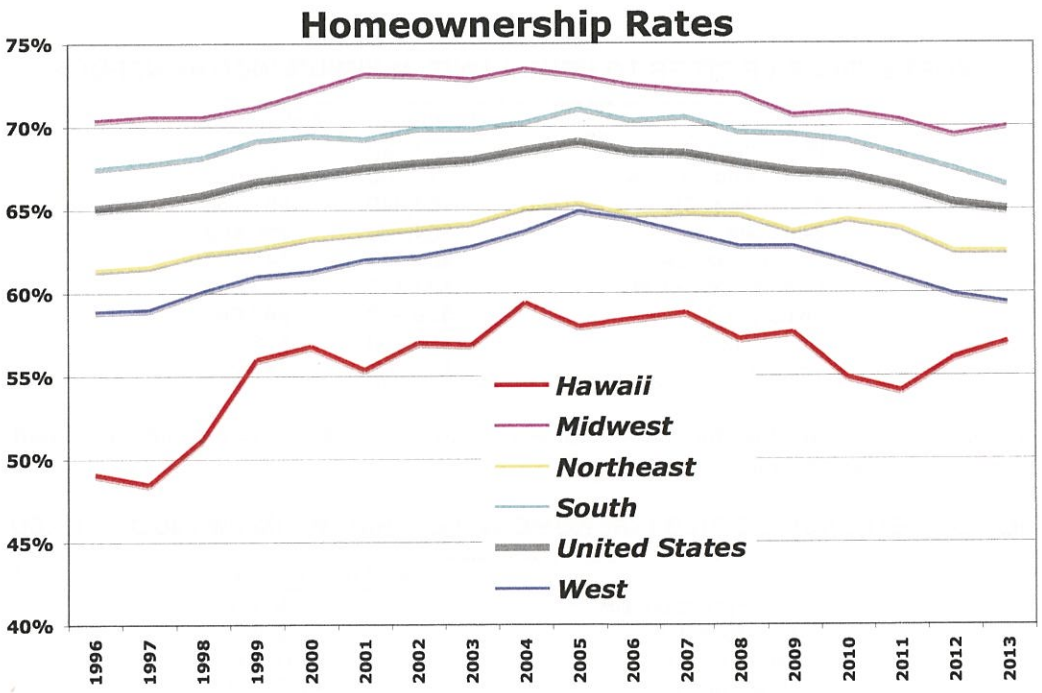
And the next table shows the minimum income (1Q 2013) needed to buy a median priced home in, with Honolulu coming in fifth.

THE MOST EXPENSIVE CITIES FOR HOMEOWNERSHIP: MINIMIUM INCOME NEEDED

City	Minimum Income
San Francisco, CA	$179,097
San Jose, CA	$145,931
Santa Ana, CA	$131,868
New York, NY	$119,133
Honolulu, HI	$115,949

Another way of looking at this is to see the low levels of homeowner vacancy and homeownership in the state and in the county, particularly when compared to national levels.




Homeownership Rates
75%
70%
65%
60%
55%
50%
45%
40%
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
Hawaii
Midwest
Northeast
South
United States
West

VIII. HOUSING DEMAND POTENTIAL & PROJECTION

The prime determinant of housing demand is household formation, which itself is a function of the economy growth and demographic trends. As noted above, in the short term, residential housing demand is driven by economics – specifically of job creation/income growth, as well as interest rate trends. In the long term, housing demand is driven by population growth, demographic changes and lifestyle attitudes (indeed, faster population growth means higher land and housing values).

JOB CREATION:

Second to none, housing demand is driven by the creation of jobs – jobs provide the incomes to buy homes, and they drive immigration, which is a prime source of housing demand (sometimes linked to population growth). This linkage is best illustrated in the Residential Sales & Job Growth Chart.

What is notable is how job creation was quite steady up until 2008, when the financial conflagration globally caught up with Oahu's economy. Since then, the market has stabilized somewhat, with fewer and fewer job losses in the ensuing two years.

What's also notable is that, in the short run, housing sales are a leading indicator for job creation: as can be seen in the early 1980s and the late 1990s.

JOB GROWTH TO HOUSING DEMAND:

In the tables below, we describe DBEDT's predictions for wage and salary job creation on Oahu, and derive from that a general expectation for housing demand over the next five to nine years (in

other words, we will translate it into housing demand). Note that the model* used here ran from 2007, but was updated in 2009

DBEDT'S 2035 JOB FORECAST FOR HONOLULU COUNTY, WAGE & SALARY JOBS

	2007	2015	2020
Total civilian wage and salary jobs	479,629	506,210	527,530
5 Year Growth		26,581	21,320
Annual Job Growth		3,797	4,264
Annual Housing Demand (2 Jobs: 1 Home)		1,899	2,132

*(http://hawaii.gov/dbedt/info/economic/data_reports/2035LongRangeSeries/LRFreport_2035series_revised_Aug09.pdf)

As seen, we use the annual changes in job counts to derive housing demand on the conservative premise that it will take 2 new jobs to generate demand for one new house (with the lower the salaries, the smaller or cheaper the house needs to be).

However, the job counts used in the charts and tables above are just the number of wage and salary jobholders, and do not encompass the self-employed or home worker. According to DBEDT's projections, self-employed workers consist of about 20% of the total work force, but are growing to 25% in the next ten to twenty years.

The following takes the annual job creation demand for housing and expands it by 20% to reflect the growth of self-employed workers. It then summarizes it in a complete DBEDT projection table.

DBEDT'S 2035 JOB FORECAST FOR HONOLULU COUNTY, TOTALED

	2007 to 2015	2015 to 2020
Annual Housing Demand (2 Jobs: 1 Home)	2,278	2,558

Note that the average production of new housing on Oahu over the last ten years has been 1,872 dwellings per year. This is about 20% under what future job growth will be generating, in terms of housing demand. This will put pressure on prices, both for-sale and rental housing, upwards.

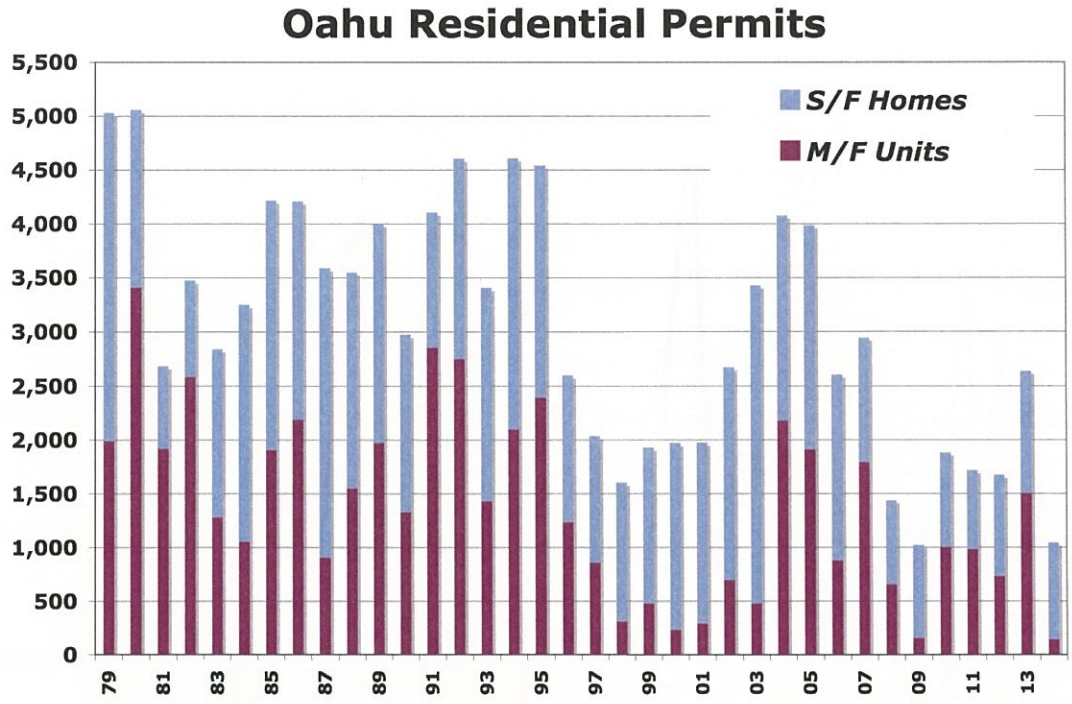
VII. HOUSING SUPPLY PROJECTION

NEAR TERM SUPPLY – PERMITS:

The easiest way to look ahead to where the housing market is going in the short-term is by examining the activity in permits (where developers apply for permission, and pay their fees, for building residential units).

A high level of activity indicates more supply, which means that more demand will be met, and the potential for prices adjusting downwards. Obviously, a low level of permits indicates less supply of housing (and potentially higher prices).

It should be noted that the long-term trend for permits – 1976 to 2014 (data through Sept 2104), over 30 years - is downward. This is a function primarily of land use laws, which started in the 70s, and took hold thereafter. Indeed, this restriction in the supply of land, nominally done in order to promote good planning, has acted also to raise the price of housing. It has done this by raising the cost via a limitation of supply, as well as via making the process of entitling land more time consuming, more costly and particularly more risky.



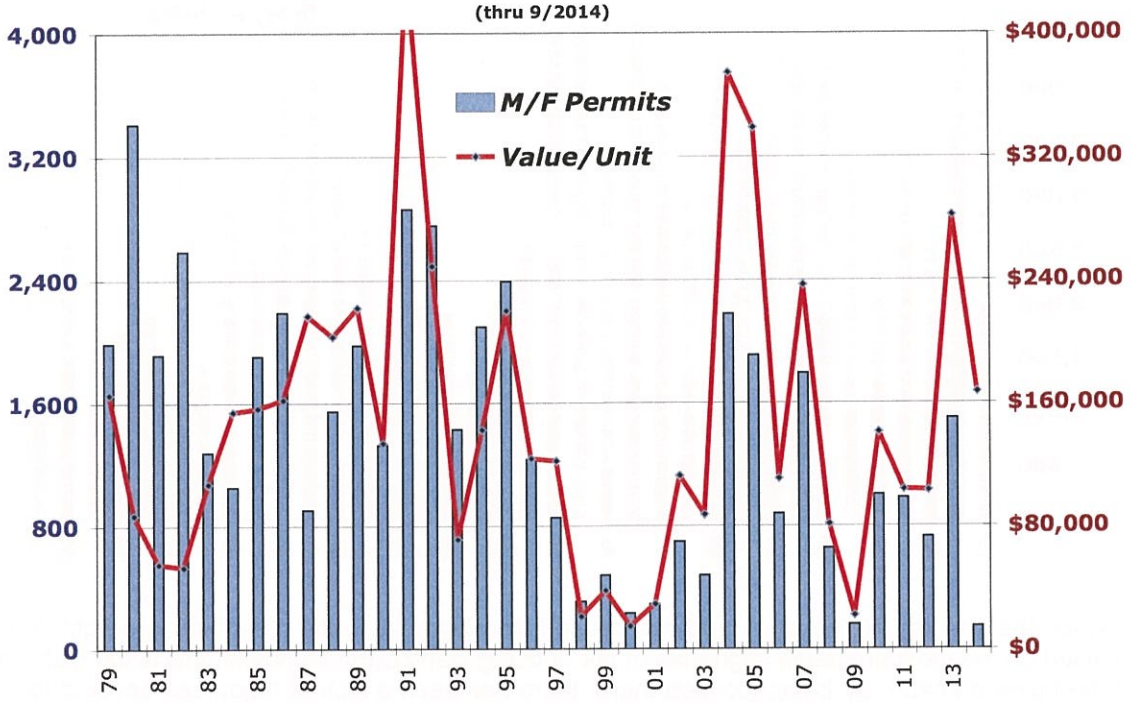
Further, the ensuing high cost of land has caused development, when conditions are right, to be focused on the most profitable segments of the housing market. For Honolulu, this is the high-end of the buyer demand. By being focused there, there has been a lack of resources devoted to the housing of the lower and mid-level income households.

This fact is evident in the trend in the average dollar value per permit, in the next chart. For condos, as seen, it is almost always over $100,000 (which translates to a unit price of 3-4 times that amount).

In addition, what is also seen in the Condominium Permit chart is just how low the number of permits that have been pulled this year – and this is in great contrast to how many have been pulled in the Single Family market.

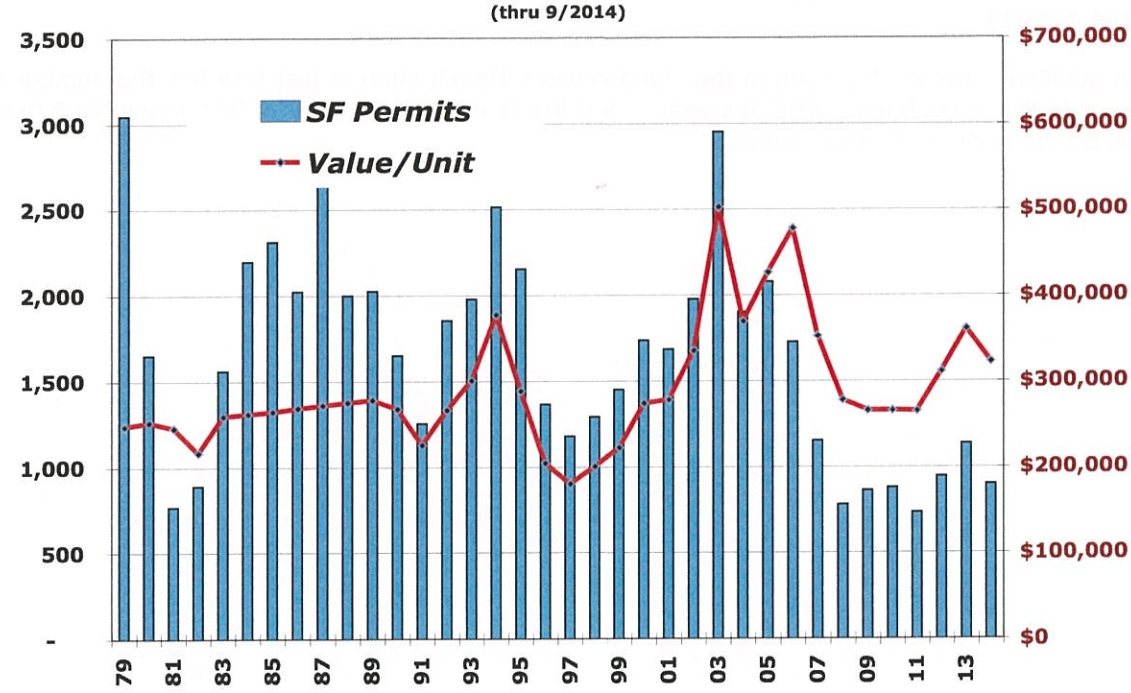
Oahu Condominium Permits

(thru 9/2014)



Residential Market Single Family

(thru 9/2014)



IX. DEMOGRAPHIC ANALYSIS OF TARGET MARKET

The table below describes and quantifies the number of Oahu households by income and age group:

CLARITAS AGE/INCOME TABLES, HONOLULU CITY & COUNTY

	25 - 34	35 - 44	45 - 54	55 - 64	65 - 74	75 - 84	85+	Totals
Under $15K	3,630	3,163	4,070	4,732	3,257	3,370	2,415	24,637
$15-$25K	3,098	2,772	2,983	3,325	3,047	3,458	2,234	20,917
$25-$35K	3,875	3,558	3,263	3,525	3,272	3,010	1,956	22,459
$35-$50K	6,989	6,044	5,516	6,254	5,275	3,948	1,675	35,701
$50 - $74.9K	9,664	10,101	10,595	10,316	8,009	4,389	1,893	54,967
$75 - $100K	7,575	9,446	9,702	9,060	6,725	3,438	1,103	47,049
$100 - $125K	4,479	7,241	8,267	7,394	4,631	2,106	1,121	35,239

Given that, one can calculate the number of potential buyers from the income ranges the range of their purchasing power, in terms of buying a home. In doing this, one will be using a 4.5% interest rate, a 95% LTV, and a housing expense of 33% of income, fairly standard parameters.

The table below shows the potential demand per price range of housing. For instance, for a home between $158,408 and $244,105, there are some 35,701 households who could qualify and complete a purchase of a dwelling priced in this range.

HOUSEHOLD INCOME HOUSING PURCHASING POWER TABLE

	Starting Price	Ending Price	Total Households
$15-$25,000	$64,921	$111,665	20,917
$25-$35,000	$111,665	$158,408	22,459
$35-$50,000	$158,408	$244,104	35,701
$50-$75,000	$244,104	$386,932	54,967
$75-$99,000	$386,932	$519,371	47,049
$99-$125,000	$519,371	$672,378	35,239

This table says that a household making a combined income of $35,000 to $50,000 a year has the purchasing power to go out and buy a house at a price in the potential price range of this project, or within the $244,000 to $384,854 ranges.

The unit the proposed project will be supplying that this group could qualify financially to purchase would be the studio unit, tentatively priced at $300,000 to $310,000 price range for the 120% of AMI units and $330,000 to $340,000 for the 140% of AMI units. The number of households on Oahu that could make a purchase in this range numbers about 35,000. This compares with 52 affordable studios to be supplied by the proposed project.

By the same token, the table shows those making $50,000 to $75,000 is some 55,000 households able to purchase a unit priced between $386,932 to $519,371. This price range fits within the $420,000 to $519,200 price range posited for the one and the two bedroom affordable units in the proposed project. Thus the 202 units to be supplied by the project will have some 55,000 potential buyers interested.

Note, since this analysis does not consider the asset base of the household, only the income, it cannot take into account the possibility that any of these particular households would be able to purchase a home using built up home equity, in addition to their potential purchasing power.

Next, the table describes the affordable guidelines on income limits, which can then be used to calculate a price range that a family potentially could pay for housing.

HUD AFFORDABLE INCOME GUIDELINES, 2014 HONOLULU

	1 Person	2 Person	3 Person	4 Person	5 Person	6 Person	7 Person
80%	$53,700	$61,350	$69,000	$76,650	$82,800	$88,950	$95,050
100%	$67,100	$76,700	$86,300	$95,800	$103,500	$111,200	$118,800
120%	$80,520	$92,040	$103,560	$114,960	$124,200	$133,440	$142,560
140%	$93,940	$107,380	$120,820	$134,120	$144,900	$155,680	$166,320

Using these income guidelines, HCDCH then sets the prices that can be charged to households under the affordable housing regulations. These affordable housing prices are set according to, primarily, the size of household (number of persons) and annual interest rates. Per household size, there is an occupancy requirement for the minimum and maximum number of persons in a household buying (or renting) an affordable unit.

OCCUPANCY REQUIREMENT

Bedrooms	Occupancy Range	Occupancy Likely
0 Bedroom	1-2 Persons	1-2 Persons
1 Bedroom	1-3 Persons	1-2 Persons
2 Bedroom	2-5 Persons	2-3 Persons
3 Bedroom	3-7 Persons	3-4 Persons

Thus, the maximum household size for a studio unit is two persons a one-bedroom unit is three persons and for a two-bedroom unit, it is five persons. However, for practical purposes, and to be conservative, we will assume that most of these units will be bought by less than the number allowable. For instance we think the likely occupancy for a one-bedroom units will be a household having two people qualifying.

Given that, tables below describe the HUD approved maximum prices at which these units can be sold at, depending on how many people are in the household. These HUD price tables also are predicated by a certain interest rate. We show a range, assuming that the likely interest rate at the time of purchase will be 4.50%.

HONOLULU AFFORDABLE SALES PRICE GUIDELINES

Type	Units	1 pp/80%	2 pp/80%	1 pp/100%	2 pp/100%	1 pp/120%	2 pp/120%
Studio	56	$259,700	$296,600	$315,100	$370,900	$389,300	$445,000

Type	Units	2 pp/80%	3 pp/80%	2 pp/100%	3 pp/100%	2 pp/120%	3 pp/120%
1-Bedroom	104	$296,600	$333,600	$370,900	$417,300	$445,000	$500,700

Type	Units	2 pp/80%	5 pp/80%	2 pp/100%	5 pp/100%	2 pp/120%	5 pp/120%
2-Bedroom	108	$296,600	$400,400	$370,900	$500,500	$445,000	$600,600

Type	Units	3 pp/80%	7 pp/80%	3 pp/100%	7 pp/100%	3 pp/120%	7 pp/120%
3-Bedroom	24	$333,600	$459,600	$417,300	$574,400	$500,700	$689,300

PROJECT SUPPLY BY AMI TARGET MARKET:

As of January 11, 2015, the project supply per the affordables is:

UNIT COUNT OF PROJECT BY BEDROOM TYPE & AMI

AMI Target	80%-120%
Studio	56
1-Bedroom	104
2-Bedroom	108
3-Bedroom	24
Totals	292

Note, the developer has yet to place these into their respective affordable categories, as stated: 80%, 100% and 120%.

Note also that the developer has been given representations for the regulating authority that these affordable units may be sold at prices at the top end of the HUD limits. However, final pricing will depend on economic conditions, on the marketing efforts and on the specific regulations for selling a unit under the affordable rental regime.

For instance, if the prices for the market unit fall, these affordable units will not be sold for over what the market is charging.

Finally, it is worth remembering that the units are sold with conditions, such as shared appreciation, and those conditions make the unit less desirable than a market one

The next section will compare that to what average prices the market is charging currently for similar units.

X. AFFORDABLE HOUSING PRICING

To get a sense of the potential demand for these units, this analysis will start by looking at the broadest market, the one for all of Oahu, and then narrow it down by more specific areas, arriving finally at the Kakaako Ala Moana market location.

STUDIOS: The following tables look at the market the last nine years (plus the first 10 months of 2014). It shows the sales and listings for condominiums on Oahu, fee-simple sales only.

CONDO SALES & LISTINGS, ALL OAHU STUDIOS, FEE-SIMPLE ONLY

	Sold	Price	Intr sf	DOM	Sale$/List$	$/sf
2006	999	$232,745	346	36	97.8%	$673
2007	464	$225,880	375	68	96.6%	$603
2008	393	$202,311	338	79	95.5%	$599
2009	346	$253,269	377	86	93.8%	$672
2010	439	$292,959	404	79	95.5%	$725
2011	477	$243,465	403	70	96.1%	$605
2012	515	$213,114	356	72	96.0%	$599
2013	560	$186,144	342	66	97.2%	$545
2014	619	$201,616	340	76	97.2%	$592
12 Months	599	$199,257	340	75	97.1%	$587
	Listings	**Price**	**Intr sf**	**DOM**		**$/sf**
2009	146	$204,440	360	135		$567
2010	204	$260,993	360	120		$726
2011	192	$292,702	359	116		$815
2012	141	$288,705	351	94		$822
2013	178	$357,655	448	106		$798
2014-3Q-S	192	$310,804	378	96		$822

Overall, the market has stabilized since the fall off that happened in 2008, but is not quite yet back to 2006 peak levels. The last year and this one show that the market trend is higher sales, but with up and down prices. The price per square foot however shows a generally upward trend. The DOM (Days on Market) indicator is up this year, so not everything is encouraging, but that is to be expected with a rising number of listings. On the other hand, the Sales to List price ratio is trending better, which is encouraging, and listings are coming in at higher prices.

STUDIO SALES & LISTINGS, DOWNTOWN - WAIKIKI, STUDIOS, FEE-SIMPLE

	Sold	Price	Intr sf	DOM	Sale$/List$	$/sf
2006	895	$235,456	340	35	97.8%	$693
2007	383	$231,402	369	72	96.6%	$627
2008	309	$197,339	342	79	95.4%	$577
2009	308	$262,415	376	84	93.6%	$698
2010	370	$316,138	404	80	95.6%	$782
2011	409	$249,052	376	67	96.0%	$662
2012	446	$222,758	351	74	96.1%	$635
2013	469	$189,292	334	64	97.3%	$567
2014	521	$205,685	331	75	97.5%	$621
12 Months	499	$203,933	330	74	97.3%	$618
	Listings	**Price**	**Intr sf**	**DOM**		**$/sf**
2009	100	$190,178	336	146		$566
2010	204	$260,993	360	120		$726
2011	192	$292,702	359	116		$815
2012	141	$288,705	351	94		$822
2013	178	$357,655	448	106		$798
2014-3Q-S	192	$310,804	378	96		$822

The studio market in the urban core of Downtown to Waikiki (TMK Zone 1-2) shows the same trends as the larger market: higher sales, choppy prices (albeit with higher values) and rising prices per square feet.

STUDIO SALES & LISTINGS, DOWNTOWN - WAIKIKI, STUDIOS, $250-$350,000

	Sold	Price	Intr sf	DOM	Sale$/List$	$/sf
2006	92	$282,859	400	59	97.9%	$708
2007	75	$276,586	402	58	96.4%	$688
2008	32	$268,309	409	66	95.7%	$656
2009	17	$274,368	420	57	95.7%	$654
2010	8	$260,500	502	88	95.4%	$519
2011	22	$272,904	473	54	97.3%	$577
2012	32	$262,914	423	68	97.0%	$621
2013	56	$266,427	389	46	98.5%	$686
2014	55	$280,735	399	63	98.5%	$704
12 months	77	$277,127	393	59	98.6%	$705
	Listings	**Price**	**Intr sf**	**DOM**		**$/sf**
2009	5	$282,836	341	122		$829
2010	16	$274,362	431	121		$637
2011	20	$276,743	392	101		$706
2012	15	$269,361	404	86		$666
2013	28	$275,930	373	77		$740
2014-3Q-S	35	$289,786	379	91		$765

Again, this sub-market mirrors the larger ones, but with much stronger sales, along with higher prices. The Sales to List price ratio is trending better, and the listing prices are up, both of which are encouraging.

In comparison with the proposed studio product offerings, the market prices range in and around the $260,500 to $280,735, as drawn from the table above.

These prices however are units in a broader area than that of the subject property, 1360 Kapiolani, located in the Ala Moana and Kakaako community. Generally speaking, this area can command higher prices than the broader Downtown to Waikiki area. However, as seen in the table below, there are not many sales of studios in this area.

STUDIO SALES & LISTINGS, KAKAAKO-ALA MOANA, $250-$450,000

	Sold	Price	Intr sf	DOM	Sale$/List$	$/sf
2005	14	$302,571	631	54	96.8%	$480
2006	32	$280,313	334	79	96.2%	$839
2007	15	$268,333	419	78	96.3%	$640
2008	3	$310,667	471	61	94.8%	$659
2009	1	$252,000	510	13	97.7%	$494
2010	2	$253,500	510	11	96.2%	$497
2011	5	$260,800	509	25	98.0%	$513
2012	7	$264,036	479	121	97.2%	$551
2013	5	$268,400	407	55	98.4%	$659
2014	6	$306,333	451	90	97.5%	$679
	Listings	**Price**	**Intr sf**	**DOM**		**$/sf**
2010	2	$261,500	460	75		$569
2011	5	$275,000	301	76		$914
2012	2	$267,000	510	50		$524
2013	2	$277,675	299	162		$929
2014-4Q-D	4	$280,000	321	168		$874

Note that these prices are well below what would be allowed under the current AMI guidelines, $389,300, as seen earlier and as seen in the table below.

Note that the comparable sales in the sales 2006-2014 YTD table above (the $260,500 to $280,735 average) are for units that are on average 20 years old and in locations not anywhere as desirable as this one. Thus, a better comparison for these units would have to be against developer, or new units, (rather than resale ones) in Kakaako.

In that regard, there are some comparable studio units that have come to market recently and sold out completely, the 801 South Street, Tower A. They sold 90 units at an average square footage of 417 sf for an average price of $304,000, making their price per square foot around $730/sf.

This is within easy range of the $704/sf price per square foot for 2014, noted in the table above. As such, it leads us to believe that these sales can be considered in relation to the proposed units of this project.

Another Kakaako project, Franco Molla's 803 Waimanu Street, has 123 studio units in a six story building, priced at $303,000 on average, for 394 square feet, or $768 $/sf.

Mindful of this, it follows that the price range for these proposed units should valued today in the range in the $305,000 to $315,000 price range for any of the affordables with restrictions. Note that this pricing is above the maximum that a buying in the 80% AMI would have to pay, or $296,600.

POSSIBLE PRICING FOR STUDIOS, AFFORDABLE GUIDELINES

Type	Units	1 pp/80%	2 pp/80%	1 pp/100%	2 pp/100%	1 pp/120%	2 pp/120%
Studio	56	$259,700	$296,600	$315,100	$370,900	$389,300	$445,000

ONE BEDROOMS: Next, this section looks at the one bedroom affordable market.

CONDO SALES & LISTINGS, ALL OAHU, ONE BEDROOMS, FEE-SIMPLE ONLY

	Sold	Price	Intr sf	DOM	Sale$/List$	$/sf
2006	1,545	$308,906	591	51	97.3%	$523
2007	1,655	$328,647	588	58	97.1%	$558
2008	1,275	$322,042	604	64	96.4%	$533
2009	981	$294,393	601	75	95.9%	$490
2010	1,038	$327,665	615	61	96.6%	$533
2011	1,076	$313,395	610	67	96.3%	$514
2012	1,055	$309,132	601	57	97.1%	$514
2013	1,351	$320,264	595	67	98.0%	$539
2014	1,364	$326,108	592	85	97.4%	$551
12 months	1,348	$323,771	589	82	97.7%	$550
	Listings	Price	Intr sf	DOM		$/sf
2010	483	$339,173	596	98		$569
2011	487	$349,103	600	89		$581
2012	454	$358,539	606	81		$591
2013	373	$376,112	615	79		$611
2014-3Q-S	582	$350,860	600	92		$584

CONDO SALES & LISTINGS, DOWNTOWN - WAIKIKI, ONE BEDROOMS, FEE-SIMPLE

	Sold	Price	Intr sf	DOM	Sale$/List$	$/sf
2006	1,024	$318,383	583	54	97.0%	$546
2007	1,261	$339,041	587	58	97.1%	$578
2008	904	$347,731	620	69	96.1%	$561
2009	643	$310,997	601	75	95.9%	$518
2010	743	$352,785	616	61	96.4%	$572
2011	785	$332,870	606	66	96.1%	$549
2012	757	$322,407	595	55	97.3%	$542
2013	999	$335,308	589	67	98.0%	$569
2014	903	$345,792	594	85	97.6%	$582
12 months	924	$341,500	589	83	97.8%	$580
	Listings	Price	Intr sf	DOM		$/sf
2010	327	$364,981	591	97		$618
2011	335	$374,280	593	90		$631
2012	316	$396,522	602	78		$659
2013	275	$447,563	601	71		$745
2014-3Q-S	448	$347,159	593	94		$585

Even better than the market for studio units, this one has rebounded since the fall off that happened in 2009, but is not quite yet back to 2006 peak levels, neither for the island or for the urban sub-market, Downtown to Waikiki. The sales trend is rising, as is the price trend and value tend - the price per square foot values. The DOM (Days on Market) indicator is up this year on the sales side, again thanks to higher listings being available. Finally, the Sales to List price ratio is bouncing around.

Now, we focus on the specific market segment for the proposed units.

CONDO SALES & LISTINGS, DOWNTOWN - WAIKIKI, ONE BEDROOMS, $400-$600,000

	Sold	Price	Intr sf	DOM	Sale$/List$	$/sf
2006	157	$468,020	651	51	96.4%	$718
2007	261	$456,604	638	45	96.5%	$715
2008	210	$467,431	680	62	96.8%	$687
2009	71	$448,021	706	69	96.3%	$635
2010	88	$466,174	737	67	96.5%	$632
2011	118	$455,649	707	57	97.4%	$645
2012	98	$463,004	665	58	97.9%	$696
2013	209	$470,050	643	62	98.3%	$731
2014	184	$482,604	649	73	98.6%	$744
12 months	190	$481,977	638	74	98.5%	$756
	Listings	**Price**	**Intr sf**	**DOM**		**$/sf**
2010	44	$486,600	729	101		$668
2011	45	$480,096	708	90		$678
2012	58	$475,396	683	79		$697
2013	60	$472,162	655	66		$720
2014-3Q-S	77	$495,058	637	77		$777

As seen above, the market trend for prices for these units are higher than prices that existed at the top of the last cycle. In addition, the number of sales now verse then are within a close range. Thus, this leads one to believe that this market is strong, one that favors sellers over buyers.

Again, as noted in the last section, our focus is to look at just the Kakaako-Ala Moana market.

ONE BEDROOM SALES & LISTINGS, KAKAAKO-ALA MOANA, $400-$600,000

	Sold	Price	Intr sf	DOM	Sale$/List$	$/sf
2004	23	$454,900	890	46	97.1%	$511
2005	25	$498,320	829	22	97.9%	$601
2006	23	$516,522	771	81	96.4%	$670
2007	33	$495,685	759	81	95.6%	$653
2008	15	$483,367	743	71	95.9%	$651
2009	25	$457,841	738	81	96.5%	$620
2010	16	$498,175	806	90	96.7%	$618
2011	37	$464,263	767	71	96.2%	$606
2012	33	$475,466	754	64	98.0%	$631
2013	51	$491,245	736	67	98.1%	$668
2014	54	$497,555	694	69	98.8%	$717
	Listings	**Price**	**Intr sf**	**DOM**		**$/sf**
2010	14	$479,696	739	96		$649
2011	17	$480,800	749	82		$642
2012	17	$484,846	727	115		$667
2013	18	$486,611	673	59		$723
2014-4Q-D	18	$504,250	676	97		$746

Note that the sales are less, the prices higher and the units larger.

Looking at the new projects in and around the area: 803 Waimanu has a tentative pricing for their 29 one bedrooms units of $430,000, for a 606 sq ft unit or $710 $/sf. Then, 400 Keawe Street has 15 large one bedrooms at $450,000 average price, for 731 square foot unit, or $611 $/sf. The South Street Tower B has 88 units for almost $400,000, for a 564 sq ft unit. Stanford Carr's Keauhou Lane will have 130 one bedrooms at 640 square feet for a little over $500,000 per unit average price.

Given higher developer prices, the table was rebuilt but at a higher price range.

ONE BEDROOM SALES & LISTINGS, KAKAAKO-ALA MOANA, $500-$750,000

	Sold	*Price*	*Intr sf*	*DOM*	*Sale$/List$*	*$/sf*
2004	6	$544,833	940	76	97.0%	$580
2005	18	$576,833	865	41	98.1%	$667
2006	16	$537,188	810	87	96.4%	$664
2007	23	$572,348	835	102	95.5%	$685
2008	6	$555,333	820	59	96.9%	$678
2009	7	$531,000	848	121	95.8%	$626
2010	10	$564,250	902	85	96.9%	$626
2011	10	$555,817	847	33	95.9%	$656
2012	12	$568,540	862	59	98.7%	$660
2013	25	$539,540	786	56	98.9%	$686
2014	40	$587,125	763	66	98.5%	$770
	Listings	*Price*	*Intr sf*	*DOM*		*$/sf*
2010	8	$582,063	836	52		$696
2011	7	$562,482	845	67		$666
2012	6	$569,750	844	101		$675
2013	7	$547,571	685	38		$799
2014-4Q-D	13	$606,885	779	64		$779

And, in light of this market trend and the current comparable units being offered by developers, we think the one bedroom units in the subject property could be valued today in the $490,000 to $510,000 price range for these affordable units, mindful that they come with restrictions. Note that this pricing is above the maximum that a buying in the 80%, the 100% and 120% AMI would have to pay – meaning the project's gross revenues will be lower than they would be if these units were sold at market-rates.

POSSIBLE PRICING FOR ONE BEDROOMS, AFFORDABLE GUIDELINES

Type	Units	2 pp/80%	3 pp/80%	2 pp/100%	3 pp/100%	2 pp/120%	3 pp/120%
1-Bedroom	104	$296,600	$333,600	$370,900	$417,300	$445,000	$500,700

TWO BEDROOM UNITS: Next, this section looks at the two-bedroom market, all Oahu.

CONDO SALES & LISTINGS, ALL OAHU, TWO BEDROOMS, FEE-SIMPLE ONLY

	Sold	Price	Intr sf	DOM	Sale$/List$	$/sf
2006	3,648	$463,277	960	46	97.8%	$482
2007	3,197	$455,047	918	56	97.8%	$496
2008	2,485	$515,466	938	64	96.8%	$549
2009	1,996	$421,314	905	72	96.5%	$465
2010	2,097	$475,260	962	61	97.4%	$494
2011	2,363	$454,920	923	68	97.1%	$493
2012	1,993	$443,283	943	60	97.7%	$470
2013	2,308	$437,534	914	68	98.6%	$479
2014	2,519	$473,174	923	81	98.4%	$513
12 months	2,447	$456,127	916	80	98.3%	$498
	Listings	Price	Intr sf	DOM		$/sf
2010	1,094	$491,366	957	103		$513
2011	1,049	$494,045	962	94		$514
2012	834	$499,845	969	81		$516
2013	796	$517,799	945	72		$548
2014-3Q-S	859	$601,641	956	82		$629

CONDO SALES & LISTINGS, DOWNTOWN - WAIKIKI, TWO BEDROOMS, FEE-SIMPLE

	Sold	Price	Intr sf	DOM	Sale$/List$	$/sf
2006	1,390	$633,907	1,092	41	96.7%	$580
2007	1,426	$577,580	975	51	97.3%	$593
2008	1,380	$651,360	998	71	95.9%	$653
2009	762	$561,400	967	76	95.5%	$580
2010	1,000	$633,860	1,038	66	96.6%	$611
2011	1,244	$582,687	960	72	96.4%	$607
2012	914	$581,913	999	63	97.0%	$583
2013	1,027	$557,021	951	69	98.1%	$586
2014	1,036	$610,876	977	86	97.7%	$625
12 months	994	$591,302	967	86	97.7%	$611
	Listings	Price	Intr sf	DOM		$/sf
2010	403	$775,938	1,068	106		$727
2011	430	$767,304	1,078	88		$712
2012	313	$726,296	1,062	85		$684
2013	301	$785,437	1,031	71		$762
2014-3Q-S	433	$812,335	1,024	90		$793

The two-bedroom market is the largest market for all units and, as seen, has not quite recovered to the 2006 levels, either for the island for the urban sub-segment. That said, it has rebounded and the sales trend is rising, at least for the whole island. Prices, including the price per square foot values are moving up. The DOM (Days on Market) indicator is up this year, again thanks to higher listings. Finally, the Sales to List price ratio is generally up.

Note that, clearly, the values in the urban market are much higher than those for the overall market, befitting it being the choice of most in terms of location.

CONDO SALES & LISTINGS, DOWNTOWN - WAIKIKI, TWO BEDROOMS, $400-$600,000

	Sold	Price	Intr sf	DOM	Sale$/List$	$/sf
2006	323	$480,752	973	61	96.8%	$494
2007	573	$500,960	941	47	97.4%	$532
2008	399	$493,120	928	73	95.9%	$531
2009	258	$483,964	992	76	95.7%	$488
2010	316	$499,828	1,016	61	96.7%	$492
2011	517	$486,214	915	59	97.3%	$531
2012	276	$481,845	982	66	97.2%	$491
2013	376	$476,053	906	66	98.5%	$525
2014	228	$487,485	942	76	98.6%	$517
12 months	241	$486,484	932	82	98.6%	$522
	Listings	Price	Intr sf	DOM		$/sf
2010	121	$486,257	959	81		$507
2011	143	$485,027	957	76		$507
2012	109	$488,526	978	75		$500
2013	98	$491,486	928	66		$529
2014-3Q-S	110	$487,608	923	68		$528

Again, the data is narrowed down to the area of Kakaako – Ala Moana.

CONDO SALES & LISTINGS, KAKAAKO-ALA MOANA, TWO BEDROOMS, $400-$600,000

	Sold	Price	Intr sf	DOM	Sale$/List$	$/sf
2004	49	$503,051	1,161	67	96.0%	$433
2005	48	$515,141	1,038	50	98.0%	$496
2006	30	$506,650	938	66	96.2%	$540
2007	47	$525,463	959	51	97.1%	$548
2008	20	$521,050	903	59	96.6%	$577
2009	45	$492,794	927	79	97.7%	$532
2010	36	$540,416	1,021	63	98.1%	$529
2011	46	$528,575	1,005	56	97.4%	$526
2012	55	$520,789	925	61	97.7%	$563
2013	50	$520,460	952	79	98.2%	$546
2014	37	$519,849	892	79	98.6%	$583
	Listings	Price	Intr sf	DOM		$/sf
2010	25	$524,592	956	87		$549
2011	23	$537,722	984	62		$547
2012	18	$543,611	1,017	29		$534
2013	14	$503,207	893	61		$564
2014-4Q-D	6	$483,083	855	82		$565

In just the smaller Kakaako to Ala Moana market, the table shows lower sale counts, higher prices, and higher price per sq. ft. values.

As a point of reference, the next table looked at the market segment immediately above the $400,000-$600,000, and found the same trends, but a slightly larger market.

SALES & LISTINGS, KAKAAKO-ALA MOANA, TWO BEDROOMS, $600-$800,000

	Sold	Price	Intr sf	DOM	Sale$/List$	$/sf
2004	63	$682,495	1,299	73	96.1%	$525
2005	51	$690,204	1,166	57	97.0%	$592
2006	58	$702,881	1,184	69	96.7%	$594
2007	91	$709,319	1,091	66	97.5%	$650
2008	28	$717,054	1,163	54	96.3%	$616
2009	33	$672,421	1,129	68	96.5%	$596
2010	35	$683,768	1,218	87	96.5%	$561
2011	60	$689,376	1,183	60	97.1%	$583
2012	70	$693,769	1,136	70	98.0%	$611
2013	87	$694,701	1,110	66	98.7%	$626
2014	103	$689,057	1,002	92	98.0%	$688
	Listings	**Price**	**Intr sf**	**DOM**		**$/sf**
2010	32	$701,681	1,248	143		$562
2011	35	$681,913	1,188	69		$574
2012	28	$698,533	1,177	98		$594
2013	27	$711,810	1,066	66		$668
2014-4Q-D	20	$741,140	1,066	69		$695

Next, the section looks at the new projects in and around the area.

400 Keawe Street has 30 large two bedrooms at $651,375 average price, for 1,090 square foot unit, or $586 $/sf. The South Street Tower B has 264 units for almost $510,000, for a 857 sq ft unit, or $593 $/sf. Stanford Carr's Keauhou Lane will have 206 units at 929 square feet for a little over $550,000 per unit average price, or $592/sf. Note, he has 29 additional market units that will be sold at market, and they average over $730,000 a unit for 1,034 square feet, for around $705/sf value.

Relative to those developer prices, and in recognition of the clear views to the east that the upper units will have, the table for Kakaako-Ala Moana was redone at a higher price range.

CONDO SALES & LISTINGS, KAKAAKO-ALA MOANA, $700-$1,000,000

	Sold	Price	Intr sf	DOM	Sale$/List$	$/sf
2004	37	$786,197	1,310	66	96.5%	$600
2005	71	$835,155	1,246	54	97.3%	$670
2006	64	$824,855	1,257	74	96.9%	$656
2007	104	$824,267	1,196	87	97.4%	$689
2008	32	$816,844	1,207	70	96.5%	$677
2009	29	$821,086	1,238	78	95.3%	$663
2010	28	$797,460	1,337	92	96.1%	$596
2011	51	$805,807	1,238	53	96.2%	$651
2012	49	$804,061	1,208	77	97.9%	$666
2013	74	$798,301	1,208	67	98.5%	$661
2014	101	$819,681	1,130	89	98.1%	$725
	Listings	**Price**	**Intr sf**	**DOM**		**$/sf**
2010	41	$849,352	1,342	147		$633
2011	35	$846,511	1,317	116		$643
2012	23	$828,364	1,326	98		$625
2013	29	$813,717	1,132	74		$719
2014-4Q-D	47	$864,336	1,132	90		$763

Given the current prices prevailing in this two-bedroom market, it follows that prices for any of the affordable units with restrictions should be at the maximum of the current 120% AMI guidelines, or $600,600.

POSSIBLE PRICING FOR TWO BEDROOMS, AFFORDABLE GUIDELINES

Type	Units	3 pp/80%	5 pp/80%	3 pp/100%	5 pp/100%	3 pp/120%	5 pp/120%
2-Bedroom	108	$333,600	$400,400	$417,300	$500,500	$500,700	$600,600

Note that this pricing is above the maximum that a buying in the 80% and 120% AMI would have to pay, save for the largest family size, or $600,600.

THREE BEDROOM UNITS: The tables describe the three-bedroom market.

CONDO SALES & LISTINGS, ALL OAHU, THREE BEDROOMS, FEE-SIMPLE ONLY

	Sold	*Price*	*Intr sf*	*DOM*	*Sale$/List$*	*$/sf*
2006	1,541	$589,604	1,340	36	98.2%	$440
2007	1,138	$564,232	1,250	51	97.7%	$451
2008	904	$590,060	1,289	68	97.1%	$458
2009	650	$521,047	1,290	83	96.5%	$404
2010	677	$578,456	1,325	65	98.1%	$437
2011	824	$528,821	1,296	68	97.8%	$408
2012	762	$468,494	1,279	58	98.1%	$366
2013	780	$518,862	1,281	72	98.8%	$405
2014	996	$569,194	1,275	82	98.8%	$446
12 months	966	$548,924	1,268	82	98.8%	$433
	Listings	*Price*	*Intr sf*	*DOM*		*$/sf*
2010	410	$641,444	1,343	99		$478
2011	408	$549,946	1,324	96		$415
2012	335	$587,471	1,340	81		$438
2013	311	$685,350	1,355	66		$506
2014-3Q-S	335	$864,882	1,399	86		$618

CONDO SALES & LISTINGS, DOWNTOWN - WAIKIKI, THREE BEDROOMS, FEE-SIMPLE

	Sold	*Price*	*Intr sf*	*DOM*	*Sale$/List$*	*$/sf*
2006	276	$1,049,911	1,647	29	96.3%	$638
2007	232	$903,213	1,318	35	95.4%	$685
2008	245	$950,463	1,425	87	95.1%	$667
2009	91	$937,061	1,460	111	93.8%	$642
2010	123	$1,245,267	1,601	80	95.8%	$778
2011	147	$1,034,436	1,475	75	96.5%	$701
2012	100	$757,607	1,391	71	96.8%	$545
2013	125	$830,302	1,434	91	96.6%	$579
2014	135	$1,064,683	1,483	97	96.5%	$718
12 months	132	$990,091	1,443	98	96.8%	$686
	Listings	*Price*	*Intr sf*	*DOM*		*$/sf*
2010	110	$1,196,363	1,539	127		$777
2011	90	$868,383	1,419	127		$612
2012	67	$1,206,633	1,630	94		$740
2013	80	$1,338,442	1,629	79		$822
2014-3Q-S	95	$1,651,453	1,689	108		$978

For all Oahu, the trend shows sales rebounding to a level half way between the low in 2010 and the high in 2006. Prices also are up, but with a bit more volatility. For urban Honolulu, the sales and prices trends are similar to the overall market.

Turning to just the market that matches up with the affordable component of this project, the following table shows the sales in the $500,000 to $700,000 price segment, followed by the pricing for the three bedroom units.

CONDO SALES & LISTINGS, DOWNTOWN - WAIKIKI, THREE BEDROOMS, $500-$700,000

	Sold	Price	Intr sf	DOM	Sale$/List$	$/sf
2006	42	$626,488	1,467	63	96.8%	$427
2007	76	$618,086	1,216	30	95.9%	$508
2008	43	$612,479	1,274	95	94.8%	$481
2009	24	$575,663	1,298	90	95.9%	$444
2010	41	$634,915	1,349	71	96.4%	$471
2011	37	$601,839	1,341	76	96.9%	$449
2012	33	$593,806	1,326	82	97.7%	$448
2013	37	$586,514	1,286	100	97.4%	$456
2014	24	$600,000	1,262	79	98.5%	$476
12 months	31	$592,129	1,262	81	98.7%	$469
	Listings	**Price**	**Intr sf**	**DOM**		**$/sf**
2010	28	$616,474	1,278	112		$482
2011	18	$610,132	1,360	96		$449
2012	15	$594,308	1,422	75		$418
2013	20	$618,200	1,424	84		$434
2014-3Q-S	17	$602,676	1,261	70		$478

Here, there is no comparison with Kakaako – Ala Moana, as there are only a handful of sales in this price range. Therefore, the focus shifted to look at the prices being charged by the new projects in and around the area- and thus, to determine a suitable price range.

This showed that 400 Keawe Street has 15 large three bedrooms at $735,000 average price, for 1,332 square foot unit, or about $550 $/sf. Stanford Carr's Keauhou Lane will have 55 market only units at 1,390 square feet for a little over $950,000 per unit average price, or about $680/sf.

Therefore, relative to those developer prices, this table was redone for Kakaako-Ala Moana at a higher price range. It was set at $700,000 to $1.2 Million, based on the new unit pricing in Kakaako of a comparable building, Keauhou Lane.

SALES & LISTINGS, KAKAAKO-ALA MOANA, THREE BEDROOMS, $700,000 - $1.2 M

	Sold	Price	Intr sf	DOM	Sale$/List$	$/sf
2004	2	$1,037,500	2,032	67	91.3%	$511
2005	4	$822,750	1,831	35	98.8%	$449
2006	15	$973,800	1,475	77	95.5%	$660
2007	19	$861,737	1,273	81	97.9%	$677
2008	8	$845,875	1,257	89	95.5%	$673
2009	8	$853,438	1,424	101	93.2%	$600
2010	4	$879,750	1,339	134	95.6%	$657
2011	6	$845,667	1,427	70	96.1%	$593
2012	6	$831,667	1,422	48	96.0%	$585
2013	22	$903,227	1,363	87	97.5%	$663
2014	28	$920,946	1,326	131	97.2%	$694
	Listings	**Price**	**Intr sf**	**DOM**		**$/sf**
2010	6	$880,533	1,329	129		$662
2011	6	$1,017,500	1,591	78		$640
2012	10	$966,129	1,573	99		$614
2013	11	$1,045,182	1,373	82		$761
2014-4Q-D	14	$924,119	1,281	126		$721

Again, this smaller Kakaako-Ala Moana market showed lower sales counts, but much higher prices, and higher price per sq. ft. values.

Given the current prices prevailing in this three-bedroom market, it follows that prices for any of the affordable units should be at the maximum of the current 120% AMI guidelines, or $689,300.

POSSIBLE PRICING FOR THREE BEDROOMS, AFFORDABLE GUIDELINES

Type	Units	3 pp/80%	7 pp/80%	3 pp/100%	7 pp/100%	3 pp/120%	7 pp/120%
3-Bedroom	24	$333,600	$459,600	$417,300	$574,400	$500,700	$689,300

XI. MARKET RATE HOUSING PRICING

The following describes our proposed pricing for the market rate units. We set potential prices for these units, given trends in the resale market and given pricing for the new projects going forward in the Kakaako area, including ones that have affordable and/or market units. The projects that are roughly comparable to the proposed project include 400 Keawe, Keauhou Lane, 1183 Waimanu, and the two 801 South Street towers. We looked at The Collections and Symphony for reference, but did not let their pricing influence these projected prices. Starting with the studio units:

STUDIOS: Here is the table describing the sales and listings from the last section.

STUDIO SALES & LISTINGS, KAKAAKO-ALA MOANA, $250-$450,000

	Sold	*Price*	*Intr sf*	*DOM*	*Sale$/List$*	*$/sf*
2005	14	$302,571	631	54	96.8%	$480
2006	32	$280,313	334	79	96.2%	$839
2007	15	$268,333	419	78	96.3%	$640
2008	3	$310,667	471	61	94.8%	$659
2009	1	$252,000	510	13	97.7%	$494
2010	2	$253,500	510	11	96.2%	$497
2011	5	$260,800	509	25	98.0%	$513
2012	7	$264,036	479	121	97.2%	$551
2013	5	$268,400	407	55	98.4%	$659
2014	6	$306,333	451	90	97.5%	$679
	Listings	*Price*	*Intr sf*	*DOM*		*$/sf*
2010	2	$261,500	460	75		$569
2011	5	$275,000	301	76		$914
2012	2	$267,000	510	50		$524
2013	2	$277,675	299	162		$929
2014-4Q-D	4	$280,000	321	168		$874

Being mindful of recent 90 unit sales at 801 South Street, at an average price of $304,000, the market rate studio units here could be priced at a $50,000+ premium to the affordable units, or $350,000 to $370,000.

PROPOSED PROJECT PRICING, MARKET STUDIOS

	Units	Kakaako Resale Market	Kakaako New Market	Market @ 1631 Kapiolani	2015 Prices
Studio	32	$306,000	$305,000	$360,000	$370,000

ONE BEDROOMS: Here is the table describing the sales and listings from the last section.

ONE BEDROOM SALES & LISTINGS, KAKAAKO-ALA MOANA, $500-$750,000

	Sold	Price	Intr sf	DOM	Sale$/List$	$/sf
2004	6	$544,833	940	76	97.0%	$580
2005	18	$576,833	865	41	98.1%	$667
2006	16	$537,188	810	87	96.4%	$664
2007	23	$572,348	835	102	95.5%	$685
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2011	10	$555,817	847	33	95.9%	$656
2012	12	$568,540	862	59	98.7%	$660
2013	25	$539,540	786	56	98.9%	$686
2014	40	$587,125	763	66	98.5%	$770
	Listings	**Price**	**Intr sf**	**DOM**		**$/sf**
2010	8	$582,063	836	52		$696
2011	7	$562,482	845	67		$666
2012	6	$569,750	844	101		$675
2013	7	$547,571	685	38		$799
2014-4Q-D	13	$606,885	779	64		$779

With recent sales at Keola Lai coming in at an average of around $535,000 per unit, Pacifica at $567,000 and Keauhou Lane at $510,000, it is reasonable to assume that these units could come in around $550,000 to $580,000.

PROPOSED PROJECT PRICING, MARKET ONE-BEDROOMS

	Units	Kakaako Resale Market	Kakaako New Market	Market @ 1631 Kapiolani	2015 Prices
1-Bedroom	72	$587,125	$510,000	$570,000	$585,000

TWO BEDROOMS: Here is the table describing the sales and listings from the last section.

SALES & LISTINGS, KAKAAKO-ALA MOANA, TWO BEDROOMS, $600-$800,000

	Sold	Price	Intr sf	DOM	Sale$/List$	$/sf
2004	63	$682,495	1,299	73	96.1%	$525
2005	51	$690,204	1,166	57	97.0%	$592
2006	58	$702,881	1,184	69	96.7%	$594
2007	91	$709,319	1,091	66	97.5%	$650
2008	28	$717,054	1,163	54	96.3%	$616
2009	33	$672,421	1,129	68	96.5%	$596
2010	35	$683,768	1,218	87	96.5%	$561
2011	60	$689,376	1,183	60	97.1%	$583
2012	70	$693,769	1,136	70	98.0%	$611
2013	87	$694,701	1,110	66	98.7%	$626
2014	103	$689,057	1,002	92	98.0%	$688
	Listings	**Price**	**Intr sf**	**DOM**		**$/sf**
2010	32	$701,681	1,248	143		$562
2011	35	$681,913	1,188	69		$574
2012	28	$698,533	1,177	98		$594
2013	27	$711,810	1,066	66		$668
2014-4Q-D	20	$741,140	1,066	69		$695

With sales coming in at 909 Kapiolani at an average of around $650,000, Keola Lai at $650,000 per unit, and Pacifica at $660,000, a good assumption is that these units could be priced starting at $700,000 without a view, but starting at $775,000 with a view. The average could be $737,500. That is in line with Carr's Keauhou Lane units, which average over $730,000 a unit for 1,034 square feet, for around $705/sf value.

PROPOSED PROJECT PRICING, MARKET TWO-BEDROOMS

	Units	Kakaako Resale Market	Kakaako New Market	Market @ 1631 Kapiolani	2015 Prices
2-Bedroom	69	$689,000	$730,000	$737,500	$750,000

THREE BEDROOMS: Here is the table describing the sales and listings from the last section.

SALES & LISTINGS, KAKAAKO-ALA MOANA, THREE BEDROOMS, $700,000 - $1.2 M

	Sold	Price	Intr sf	DOM	Sale$/List$	$/sf
2004	2	$1,037,500	2,032	67	91.3%	$511
2005	4	$822,750	1,831	35	98.8%	$449
2006	15	$973,800	1,475	77	95.5%	$660
2007	19	$861,737	1,273	81	97.9%	$677
2008	8	$845,875	1,257	89	95.5%	$673
2009	8	$853,438	1,424	101	93.2%	$600
2010	4	$879,750	1,339	134	95.6%	$657
2011	6	$845,667	1,427	70	96.1%	$593
2012	6	$831,667	1,422	48	96.0%	$585
2013	22	$903,227	1,363	87	97.5%	$663
2014	28	$920,946	1,326	131	97.2%	$694
	Listings	**Price**	**Intr sf**	**DOM**		**$/sf**
2010	6	$880,533	1,329	129		$662
2011	6	$1,017,500	1,591	78		$640
2012	10	$966,129	1,573	99		$614
2013	11	$1,045,182	1,373	82		$761
2014-4Q-D	14	$924,119	1,281	126		$721

With sales coming in at Keola Lai at $940,000 per unit, Pacifica at $850,000 and Keauhou Lane at $920,000, these units could be priced from $915,000 to $965,000, or around $940,000.

PROPOSED PROJECT PRICING, MARKET

	Units	Kakaako Resale Market	Kakaako New Market	Market @ 1631 Kapiolani	2015 Prices
3-Bedroom	20	$920,000	$950,000	$940,000	$970,000

SUMMARY TABLE:

PROPOSED PROJECT PRICING

Type	Affordable Units	Market Units	Maximum Affordable Pricing	Potential Market Pricing
Studio	56	32	$310,000	$360,000
1-Bedroom	104	72	$500,700	$570,000
2-Bedroom	108	69	$600,600	$737,500
3-Bedroom	24	20	$689,300	$940,000

XII. TREND ANALYSIS AND PROJECTION:

SALES TREND ANALYSIS:

The future direction of the market trend here is important, as the development is supplying units into the market that have some restrictions on them – the sharing of the appreciation being the one that is most sensitive, in the eyes of potential purchasers.

The circumstances that offset the sensitivity of this condition would include living in a new unit, living in one that has a better location than other units and the fact that there is no units available to them in an affordable price range (which is akin to saying they are priced out of the market by rising prices). Arguably, this last factor is the most important one in their mind.

To that end, we looked into the historical data for resale condominium sales and used that to derive the annual percentage change when there's appreciation for periods that are three years or longer (2+ years of positive growth). The table below describes this.

PER ANNUM GROWTH IN MARKET PRICE APPRECIATION, CYCLE UPSWING

Period	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7
1986-1992	4.7%	11.2%	9.1%	18.9%	38.0%	2.7%	0.5%
2001-2007	6.4%	14.3%	15.1%	19.1%	27.1%	17.0%	4.8%
2012-2014	5.8%	5.5%	3.6%				

This indicates that – given past history - there could well be potential for price appreciation in the future for condos sold on Oahu. If that is then the case, this makes it more likely that the demand going forward for these housing units will strengthen, and to so in a way that make it likely that the project will enjoy sell-out within a 2-3 year time frame.

XIII. CONCLUSIONS

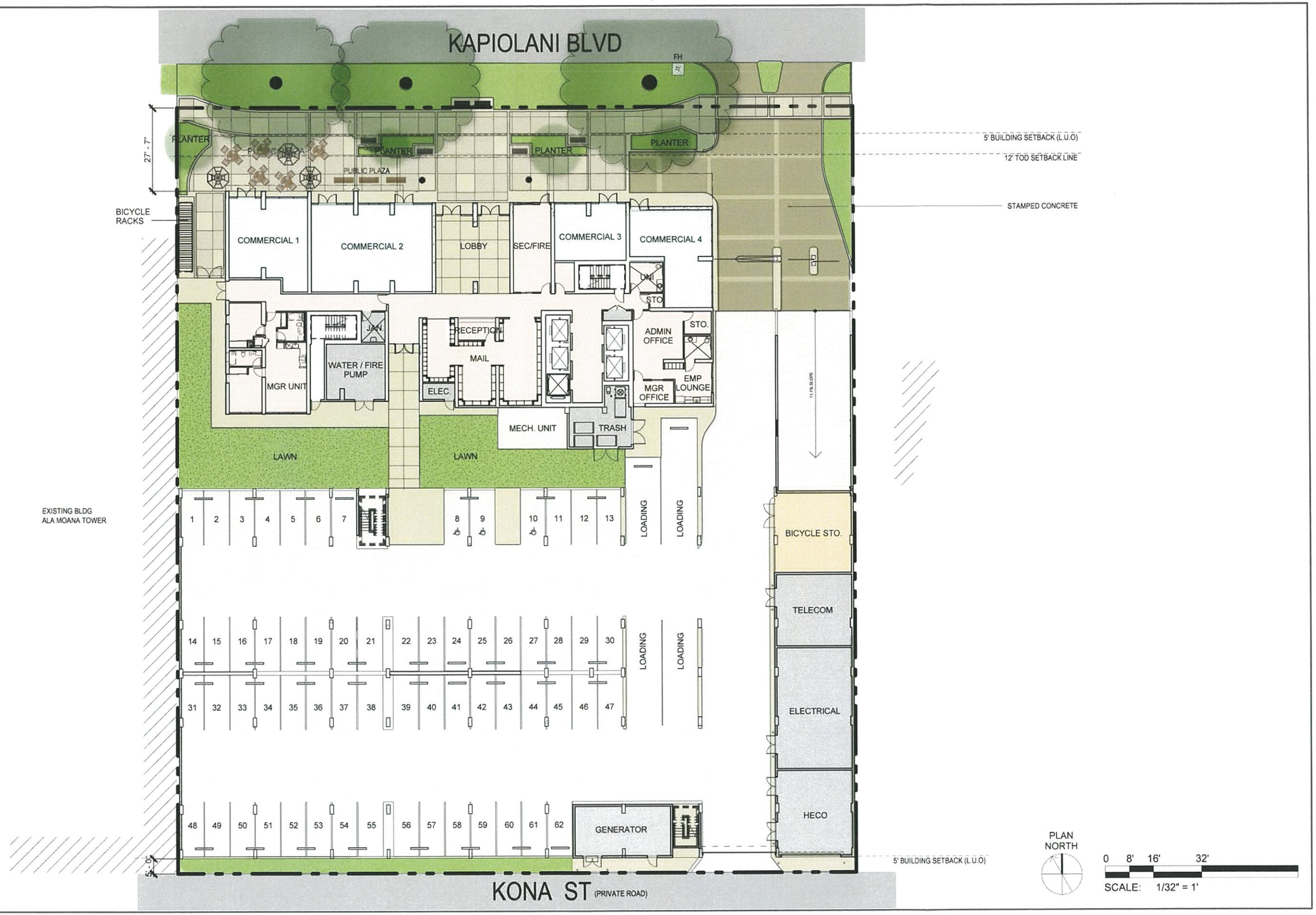
Simply put, it has been shown that there is sufficient potential demand in place to absorb all (and then some more) of the supply of new housing priced under the HHFDC affordable guidelines, as is being contemplated here. Additionally, the comparable market for the market rate units were examined and found to be sufficient to assume that these units have the potential to be sold out in a 2-3 year time frame. Finally, if current conditions continue into 2015 and beyond to 2017, the proposed project should be able to complete both pre-sales and final closings in that time frame.

D. ARCHITECTURAL DRAWINGS

KAPIOLANI RESIDENCE
1631 KAPIOLANI BOULEVARD, HONOLULU HAWAII

PERSPECTIVE VIEW

SAMKOO

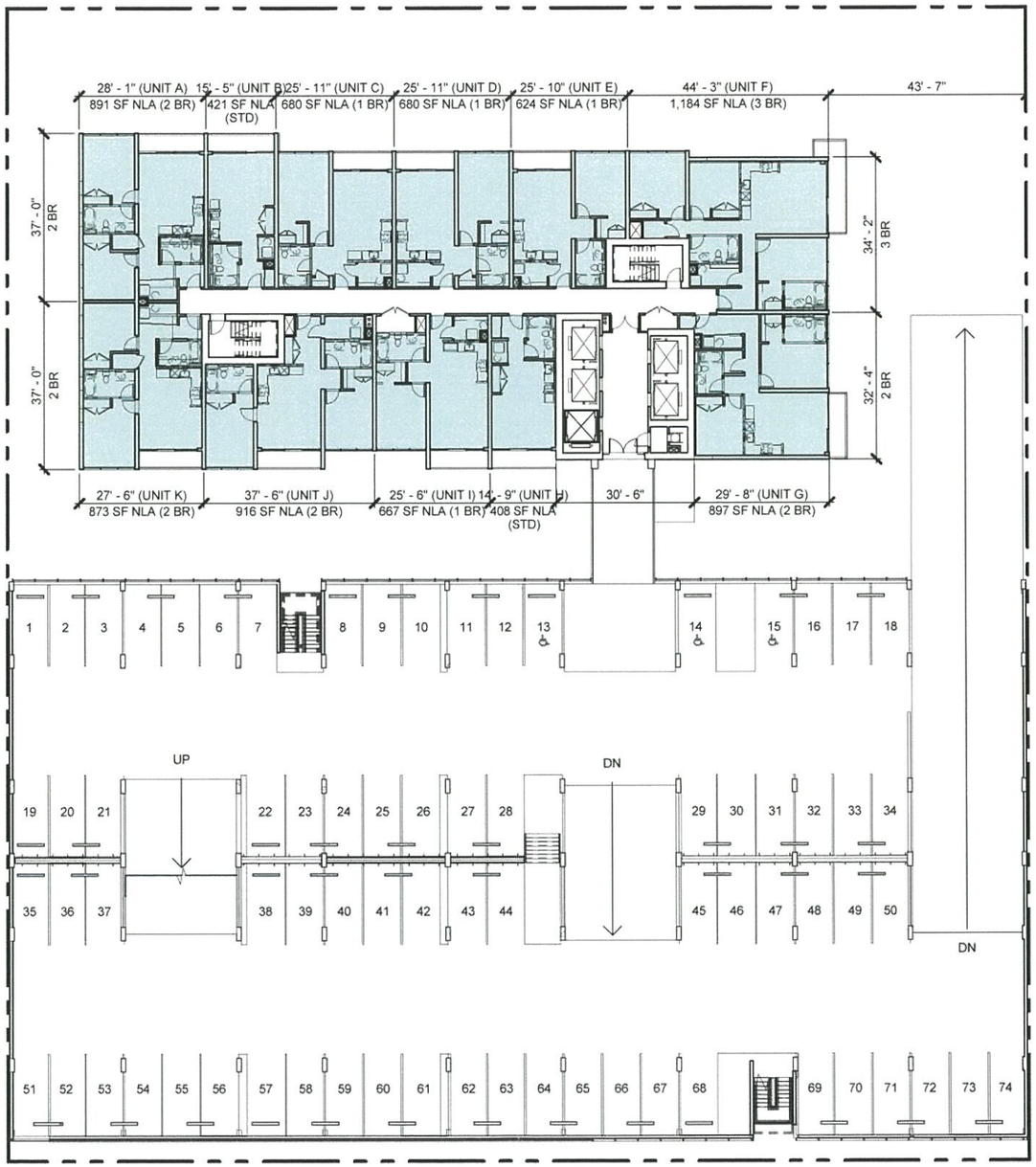


KAPIOLANI RESIDENCE

1631 KAPIOLANI BOULEVARD, HONOLULU HAWAII

SITE PLAN

SAMKOO



PLAN NORTH

0 8' 16' 32'

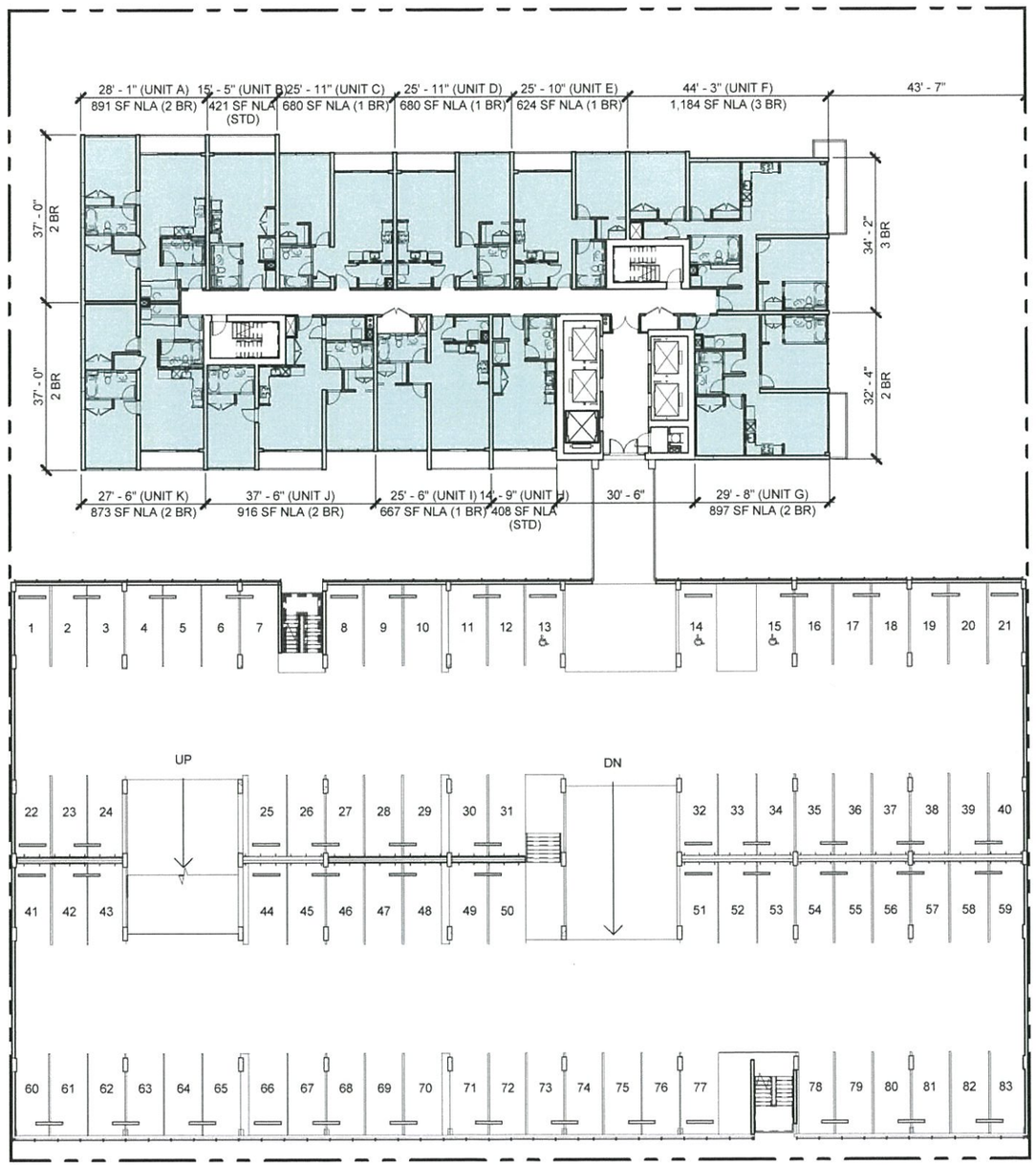
SCALE: 1/32" = 1'

KAPIOLANI RESIDENCE

1631 KAPIOLANI BOULEVARD, HONOLULU HAWAII

OVERALL 2ND FLOOR PLAN

SAMKOO



PLAN NORTH

0 8' 16' 32'

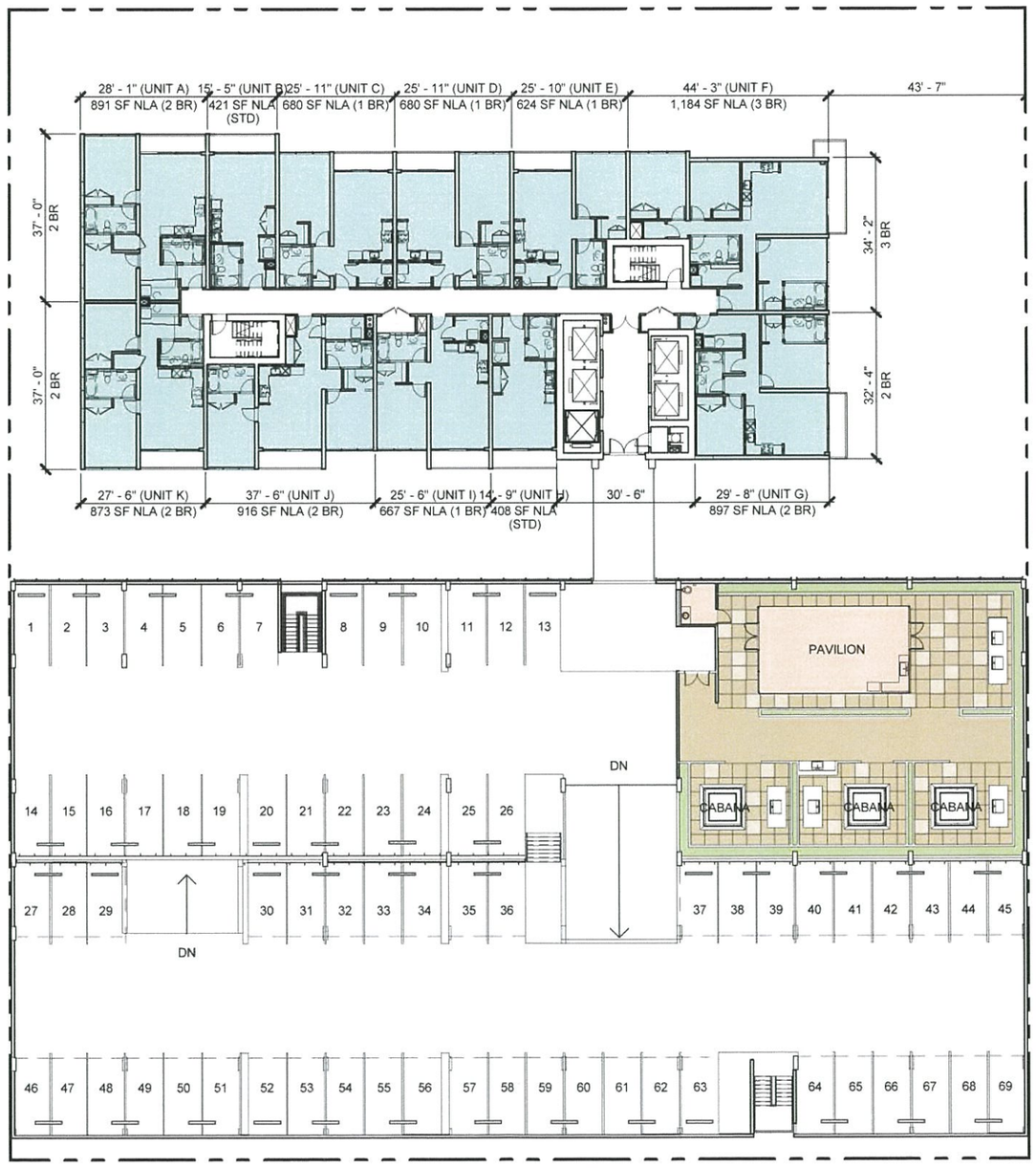
SCALE: 1/32" = 1'

KAPIOLANI RESIDENCE

1631 KAPIOLANI BOULEVARD, HONOLULU HAWAII

OVERALL 3RD - 8TH FLOOR PLAN

SAMKOO



PLAN NORTH

0 8' 16' 32'

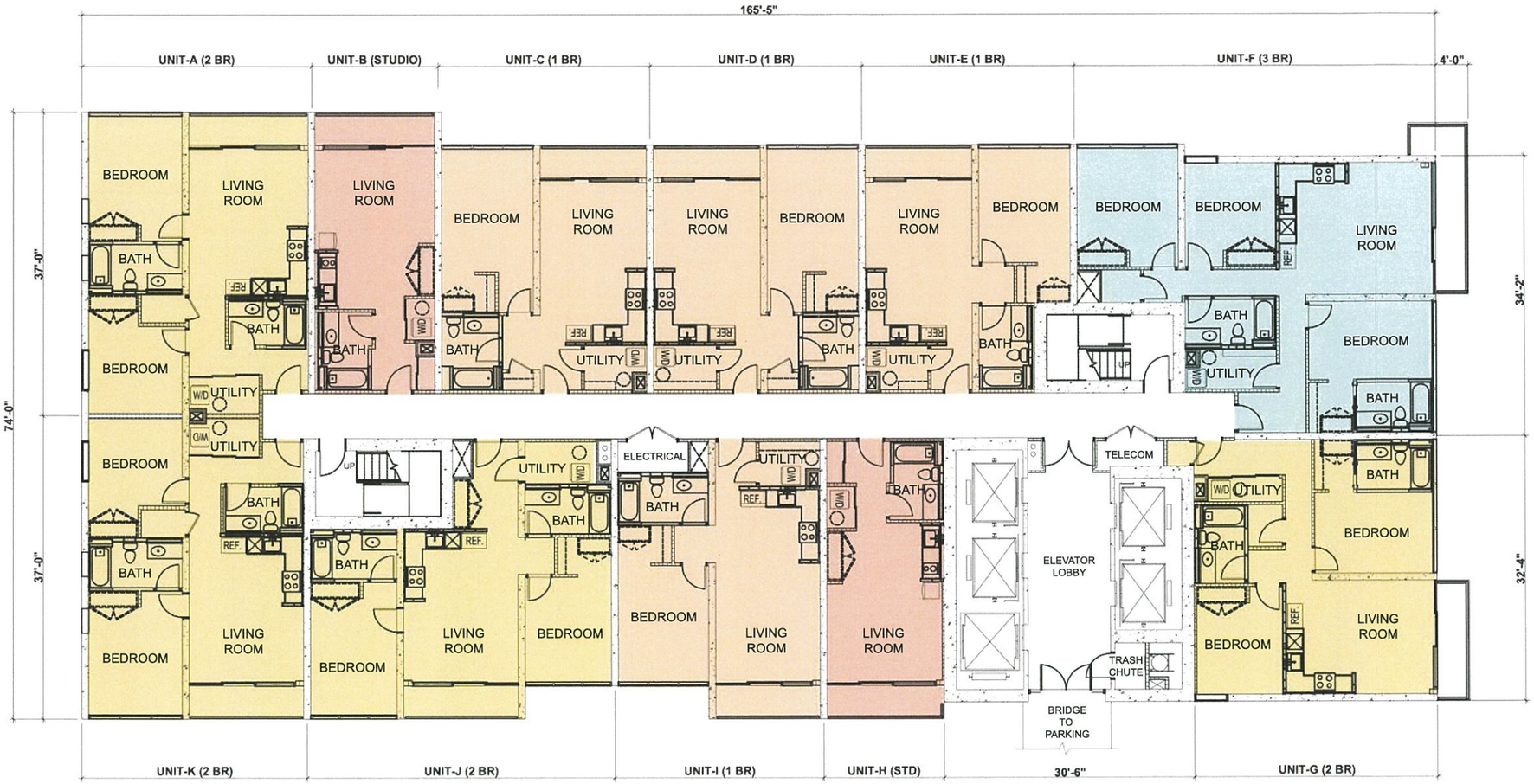
SCALE: 1/32" = 1'

KAPIOLANI RESIDENCE

1631 KAPIOLANI BOULEVARD, HONOLULU HAWAII

OVERALL 9TH FLOOR PLAN AND REC DECK

SAMKOO



FLOOR PLATE AREA: 11,656 SF

STUDIO UNITS:	2
1 BEDROOM UNITS:	4
2 BEDROOM UNITS:	4
3 BEDROOM UNITS:	1

PLAN NORTH

0 4' 8' 16'

SCALE: 1/16" = 1'

KAPIOLANI RESIDENCE

1631 KAPIOLANI BOULEVARD, HONOLULU HAWAII

RESIDENTIAL UNIT PLAN

SAMKOO

P1 P2 P3 P4 P5 P6 P7 P8 P9 P10 P11

PH PG PF PE PD PC PB PA

7' - 5" 10' - 2" 27' - 6" 16' - 3" 16' - 3" 28' - 10" 16' - 3" 122' - 8"

1 2 3 4 5 6 7 8 9 10 11 12 13 14 14 15 16 17 18 19 20 21

UP

DECK COATING

PARKING LEVEL P3

TRENCH DRAIN @ P9 ONLY

UP

22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40

12.6% SLOPE TO P3.5

DOWN

DOWN

12.6% SLOPE TO P2.5

41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59

METAL FLASHING CAP ON 5TH FL. OVER ADJACENT PARAPET WALL (TO BE CONFIRM)

PARKING LEVEL P2.5

DECK COATING

60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83

25' - 0" 25' - 6" 18' - 9" 27' - 3" 25' - 6" 15' - 0" 10' - 6" 25' - 6" 25' - 6" 25' - 6"

METAL SCREEN (FROM FL1 - FL3)

224' - 0"

PLAN NORTH

0 4' 8' 16'

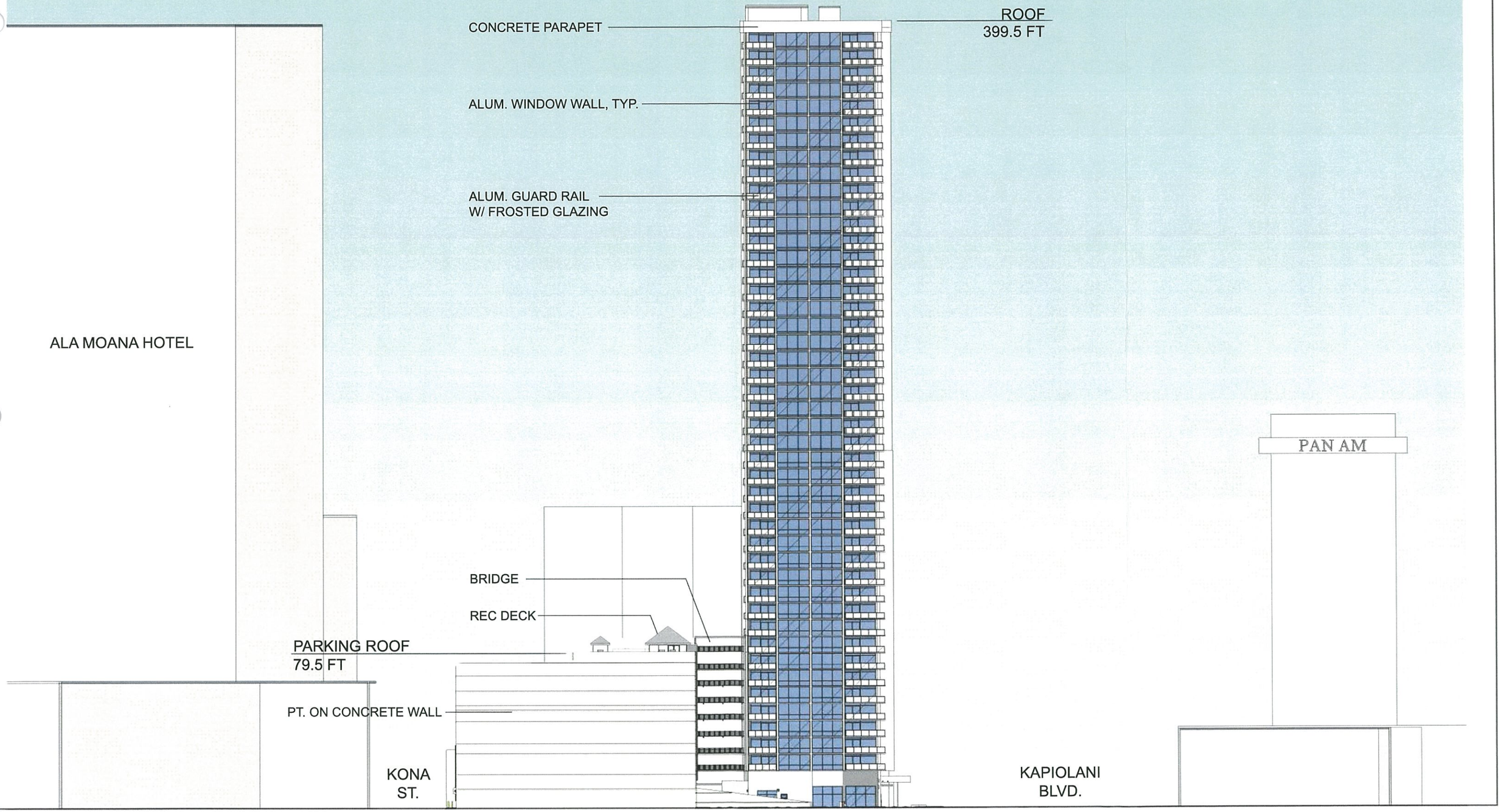
SCALE: 1/16" = 1'

KAPIOLANI RESIDENCE

1631 KAPIOLANI BOULEVARD, HONOLULU HAWAII

TYPICAL PARKING FLOOR PLAN

SAMKOO

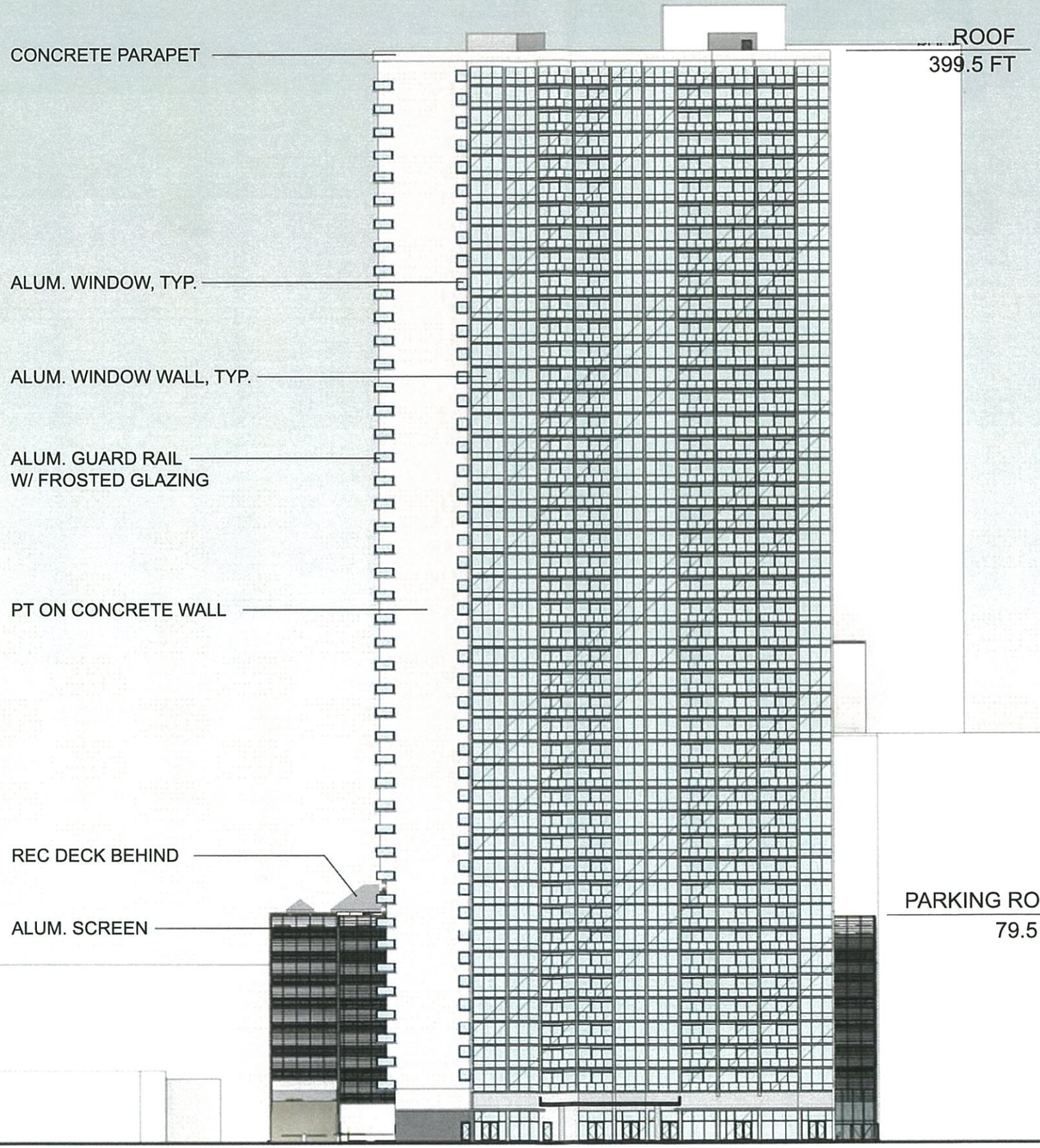


KAPIOLANI RESIDENCE

1631 KAPIOLANI BOULEVARD, HONOLULU HAWAII

EAST ELEVATION

SAMKOO



KAPIOLANI RESIDENCE

1631 KAPIOLANI BOULEVARD, HONOLULU HAWAII

NORTH ELEVATION

SAMKOO

KAPIOLANI RESIDENCE

1631 KAPIOLANI BOULEVARD, HONOLULU HAWAII

PERSPECTIVE VIEW

SAMKOO

E. PHASE I ENVIRONMENTAL ASSESSMENT

PHASE I
ENVIRONMENTAL SITE ASSESSMENT

TMK: (1) 2-3-041:009 & (1) 2-3-041:006
1631 & 1637 KAPIOLANI BOULEVARD
HONOLULU, OAHU, HAWAII

Prepared For:

Sam Koo Pacific, LLC & Sam Koo Hawaii, LLC
1631 Kapiolani Boulevard, Suite 200
Honolulu, Hawaii 96814

September 29, 2014

Prepared By:

Central Planet Repair, LLC.
236 Kuahiwi Avenue
Wahiawa, HI 96786
808/216-6555
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CPR PROJECT 74-2

Central Planet Repair, LLC

Comprehensive Environmental Services
www.geochemist.net
236 Kuahiwi Avenue, Wahiawa, Hawaii 96786
Phone: 808/216-6555

September 29, 2014

Sam Koo Pacific, LLC
Sam Koo Hawaii, LLC
1631 Kapiolani Boulevard, Suite 200
Honolulu, Hawaii 96814

Attention: Mr. Timothy Yi, General Manager

Subject: **Phase I Environmental Site Assessment**
TMK: (1) 2-3-041:009 & (1) 2-3-041:006
1631 & 1637 Kapiolani Boulevard
Honolulu, Oahu, Hawaii
CPR Project: 74-2

Dear Mr. Yi:

Central Planet Repair, LLC (CPR) has performed a Phase I Environmental Site Assessment (ESA) of the subject site. The purpose of this investigation was to evaluate the presence or likely presence of materials considered hazardous to human health and the environment that may impact the site.

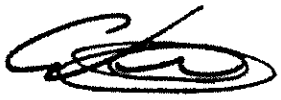
Our Phase I ESA was conducted in accordance with the scope of work contained in our proposal dated August 19, 2014. A Phase I ESA comprises a number of individual elements whose basic nature and extent are determined in accordance with the standard of care applicable to Phase I ESAs. The standard of care is commonly defined as the care applied by the ordinary practitioner at the time and in the area where the ESA was performed. We believe that we have complied with the applicable standard of care within the limits of our scope of service described in our proposal and repeated below.

The accompanying report is an instrument of service of CPR. The report summarizes our findings and relates our opinions with respect to the site and potential sources of contamination at the site. Note that our findings and opinions are based on information that we obtained on given dates through records review, site review, and related activities. It is possible that other information exists or subsequently has become known, just as it is possible for conditions we observed to have changed after our observation. For these and associated reasons, CPR and many of its peers routinely advise clients for ESA services that it would be a mistake to place unmerited faith in findings and opinions conveyed via ESA reports. CPR cannot under any circumstances warrant or guarantee that not finding indicators of hazardous materials means that hazardous materials do not exist on the site.

-oOo-

Please contact us at (808) 216-6555 with any questions or comments regarding this project.

Sincerely,
Central Planet Repair, LLC



Ned Murphy
Consulting Geochemist

Three copies submitted

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LIST OF STANDARD ACRONYMS

ASTM	American Society for Testing and Materials
CERCLA	Comprehensive Environmental Response Compensation and Liability Act
CERCLIS	Comprehensive Environmental Response Compensation and Liability Information System
CFR	Code of Federal Regulations
CPR	Central Planet Repair, LLC
DOCKET	Civil Enforcement cases
EPA	U.S. Environmental Protection Agency
ERNS	Emergency Response Notification System
ESA	Environmental Site Assessment
FIRM	Flood Insurance Rate Map
HDOH	State of Hawaii, Department of Health
HEER	Department of Health, Hazard Evaluation and Emergency Response Office
LUST	leaking underground storage tank
NASA	National Aeronautical and Space Administration
NFA	No Further Action
NPL	National Priorities List (Superfund sites)
PADS	PCB Activity Database
PAH	Polynuclear aromatic hydrocarbon
PCB	Polychlorinated biphenyl
RCRA	Resource Conservation and Recovery Act
SOSC NFA	State On-Scene Coordinator No Further Action
SSTS	Section Seven Tracking System (pesticide producers)
TMK	Tax Map Key
TRI	Toxic Release Inventory
TSCA	Toxic Substances Control Act
TSD	Treatment, storage or disposal (category of RCRA facility)
UIC	Underground Injection Control
U.S.	United States
USC	United States Code
USDA	United States Department of Agriculture
USGS	United States Geological Survey (US Dept. of the Interior)
UST	Underground storage tank
VCP	Voluntary Response Program

PHASE I
ENVIRONMENTAL SITE ASSESSMENT
TMK: (1) 2-3-041:009 & (1) 2-3-041:006
1631 & 1637 KAPIOLANI BOULEVARD
HONOLULU, OAHU, HAWAII

1.0 EXECUTIVE SUMMARY

This report presents the results of Central Planet Repair, LLC's (CPR's) Phase I Environmental Site Assessment (ESA) of TMK: (1) 2-3-041:009 & (1) 2-3-041:006, 1631 & 1637 Kapiolani Boulevard, Honolulu, Oahu, Hawaii (the "subject property").

CPR has performed this Phase I Environmental Site Assessment in accordance with the scope and limitations of ASTM Practice E1527-13 (ASTM E1527-13) and All Appropriate Inquiry (AAI) which includes 40 CFR Part 312, §312.21 and §312.31. Any exceptions to, or deletions from, this practice are described in Section 2.5 of this report.

The findings of this Phase I ESA are that the following recognized environmental conditions (RECs) were likely present on the subject property:

- The 1949 Sanborn Map shows the structure located at the west side of the Parcel 009 as "clo. clean'g" that probably means "clothes cleaning". It is noted that the Sanborn Maps typically indicate "dry cleaning" as separate from "clothes cleaning". The 1949 Sanborn Map does not show the presence of a fuel storage tank on site. The source of hot water for the laundry is not known. The presence of a laundry without indications of dry cleaning or fuel storage does not constitute a recognized environmental condition.

- The R. M. Towill Corporation noted that the general area around the property has received fill material from a number of sources over the years, including trash, construction debris, and sugar processing by products, dredged materials, and fill dirt. A subsurface investigation performed on an adjacent property did not reveal any hazardous materials. If excavation work is planned for the subject property, additional subsurface investigations may be recommended or the excavation may be monitored by

a qualified professional to allow for the identification of suspect hazardous materials (*Kapiolani Commercial Property Parcel (1)-2-3-41: 009, Honolulu, Hawaii.* R. M. Towill Corporation, February, 2002).

The following environmental conditions, which are not considered to be *recognized environmental conditions*, as defined by ASTM, were revealed during this assessment:

- Because the buildings on the subject property were built prior to 1980, suspect asbestos-containing materials (ACM) may be an issue at the subject property. An asbestos inspection was performed on February 7, 2001 by the R. M. Towill Corporation to identify any friable asbestos containing building materials. A total of seven building materials were sampled and no asbestos was in any of the samples. However, no samples of floor tiles, mastics, roofing materials or other not friable materials were collected as a part of this inspection.

- Because the buildings on the subject property were built prior to 1978, lead-based paint (LBP) could be an issue at the subject property.

The findings of this Phase I ESA are that the following Recognized Environmental Conditions (RECs) are present on the adjoining properties:

- *Ala Moana Hotel.* 410 Atkinson Dr. SSW 0.080 mi. - Small quantity generator (SQG). SQG generates between 100 kg and 1,000 kg of hazardous waste per month. Violation Status: No violations found.

- *Pan Am Bldg.* 1600 Kapiolani Blvd. NW 0.036 mi. - Conditionally Exempt Small Quantity generator (CESQG). CESQG generates less than 100 kg of hazardous waste, or less than 1 kg of acutely hazardous waste per month. Violation Status: No violations found.

  The SQG and CESQG sites will not affect the environmental condition of the subject property if they are operated and maintained in accordance with the Federal and State of Hawaii rules and regulations.

- The 1955 Sanborn Map shows an auto repairing facility including a gas station marked as "gas & oil" on the south adjoining property located across Kona street. This property is now occupied by the Ala Moana Hotel. Substantial excavation was conducted during the construction of this building. No adverse effect on the subject property is expected from the former "gas & oil" sites due to the site distance to the subject property and downgradient location.

The findings of this Phase I ESA are that the Recognized Environmental Conditions (RECs) are present on the surrounding properties. However, no adverse effects on the subject property are expected from these properties due to the distance to the subject property.

Based on the findings of this Phase I ESA, no additional environmental actions are warranted for the subject property at the date of this report.

2.0 INTRODUCTION

2.1 OVERVIEW

This report presents the results of Central Planet Repair, LLCs (CPR's) Phase I Environmental Site Assessment (ESA) for the subject site. The general location of the site is shown on the Site Location Map in Appendix A, Figure 1.

Our work was performed as summarized in our proposal, dated August 19, 2014, which constitutes the contractual agreement between CPR and Sam Koo Pacific, LLC & Sam Koo Hawaii, LLC for the services provided. Our Phase I investigation was performed in general accordance with the American Society for Testing and Materials (ASTM) "Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process" (ASTM Designation E1527-13) and All Appropriate Inquiry (AAI).

Good commercial and customary practice for conducting environmental site assessments has the goal of providing an independent, professional opinion regarding recognized environmental conditions, as defined by ASTM, associated with the subject property. The term *recognized environmental conditions* means the presence or likely presence of any *hazardous substances* or *petroleum products* in, on, or at a *property*: (1) due to any *release* to the *environment*; (2) under conditions indicative of a *release* to the *environment*; or (3) under conditions that pose a *material threat* of a future *release* to the *environment*. *De minimis* conditions are not *recognized environmental conditions*.

The term includes hazardous substances or petroleum products even under conditions in compliance with laws. The term is not intended to include *de minimis* conditions that generally do not present a material risk of harm to public health or the environment and that generally would not be the subject of an enforcement action if brought to the attention of appropriate governmental agencies. Conditions determined to be *de minimis* are not RECs.

2.2 PURPOSE

CPR conducted this ESA to evaluate whether materials considered hazardous to human health and the environment, present on the site or in the surrounding area,

may impact the subject site. We conducted the environmental assessment using available information sources with the potential to identify past or on-going problems at the subject property or adjacent properties. The ASTM Standard prescribes that the goal of the ESA process is to identify "Recognized Environmental Conditions" (RECs) which are defined as the "presence or likely presence of any hazardous substances or petroleum products on a property under conditions that indicate an existing release, a past release, or a material threat of a release of any hazardous substances or petroleum products into structures on the property, or into the ground, groundwater, or surface water of the property."

2.3 SCOPE OF WORK

CPR performed the following scope of work for this ESA:

- **Review of site history.** CPR examined readily available documents, consisting of previous environmental reports, topographic maps, and insurance maps.

- **Review of regulatory records.** We examined government records regarding environmental conditions, citations, complaints, and permits at the site and at neighboring properties. We reviewed records from or contacted the following agencies: U.S. Environmental Protection Agency (EPA), State of Hawaii Department of Health (DOH) Hazardous Waste Program, DOH Underground Storage Tank (UST) Program, DOH Underground Injection Control Program, and DOH Hazard Evaluation and Emergency Response (HEER) Program.

- **Review of site geology and hydrogeology.** We reviewed readily available published information on surface and subsurface conditions at the site and surrounding area. We used this information to assess topography, drainage, surface water bodies, anticipated subsurface geology, and groundwater occurrence and usage in the area.

- **Site reconnaissance.** We performed a site reconnaissance of the site to note visual signs of contamination, and conducted a brief assessment of neighboring properties. During our site reconnaissance we specifically looked for stained soil, dead or stressed vegetation, hazardous materials, electrical transformers and capacitors, above ground and underground storage tanks, disposal areas,

maintenance areas, groundwater wells, sumps, storm drains, and cesspools/sewers.

- **Data evaluation and report preparation.** We evaluated the information collected and prepared this report documenting our assessment and providing our conclusions.

2.4 SIGNIFICANT ASSUMPTIONS

While this report provides an overview of potential environmental conditions, both past and present, the environmental assessment is limited by the availability of information at the time of the assessment. It is possible that unreported disposal of waste or illegal activities impairing the environmental status of the property may have occurred which could not be identified. The conclusions and recommendations regarding environmental conditions that are presented in this report are based on the scope of work authorized by Sam Koo Pacific, LLC & Sam Koo Hawaii, LLC. Note, however, that virtually no scope of work, no matter how exhaustive, can identify all contaminants or all conditions above and below ground.

No assumptions apply to the findings of this Phase I ESA other than specifically referenced in the individual sections of text or as provided in the ASTM E1527-13 Standard (ASTM E1527-13).

2.5 LIMITATIONS AND EXCEPTIONS OF ASSESSMENT

The report has been prepared in accordance with generally accepted environmental methodologies referred to in ASTM E1527-13, and contains all of the limitations inherent in these methodologies. No other warranties, expressed or implied, are made as to the professional services provided under the terms of our contract and included in this report.

The conclusions of this report are based in part, on the information provided by others. The possibility remains that unexpected environmental conditions may be encountered at the site in locations not specifically investigated. Should such an event occur, CPR must be notified in order that we may determine if modifications to our conclusions are necessary.

The services performed and outlined in this report were based, in part, upon visual observations of the site and attendant structures. Our opinion cannot be extended to portions of the site that were unavailable for direct observation, reasonably beyond the control of CPR.

The objective of this report was to assess environmental conditions at the site, within the context of our contract and existing environmental regulations within the applicable jurisdiction. Evaluating compliance of past or future owners with applicable local, provincial and federal government laws and regulations was not included in our contract for services.

Our observations relating to the condition of environmental media at the site are described in this report. It should be noted that compounds or materials other than those described could be present in the site environment.

Phase I ESAs, by their very nature, are limited. CPR has endeavored to meet what it believes is the applicable standard of care and, in so doing, is obliged to advise Sam Koo Pacific, LLC & Sam Koo Hawaii, LLC of Phase I ESA limitations. This ESA did not include any investigation with respect to site geotechnical concerns, and did not include any sampling or laboratory testing for mold or bioaerosols, radon, methane, asbestos-containing building materials, or lead-based paint. No subsurface environmental investigation or sampling was performed. Our investigation was limited to the procedures described in the Phase I ESA Standard Practice ASTM E1527-13 and AAI.

CPR has made one exception to the Phase I ESA procedures specified by ASTM E1527-13. Because the State of Hawaii does not compile a list of hazardous waste sites identified for investigation or remediation (NPL or CERCLIS equivalents), we are unable to include such a list in our records review. The database search firm reviewed the HDOH HEER *Sites of Interest Database* instead (see section 5.1.12).

2.5.1 Data Gaps

The following data gaps were identified during the investigation:

- No data gaps were identified during the investigation.

2.6 SPECIAL TERMS AND CONDITIONS

Sam Koo Pacific, LLC & Sam Koo Hawaii, LLC contracted CPR to perform this Phase I ESA. The ESA was conducted and this report was prepared for the sole use of Sam Koo Pacific, LLC & Sam Koo Hawaii, LLC. This report shall not be relied upon by or transferred to any other party without express written authorization from CPR.

2.7 USER RELIANCE

The conclusions presented in this report are professional opinions based solely upon visual observations of the site and vicinity, and our interpretation of the available historical and regulatory information and documents reviewed. They are intended exclusively for the purpose outlined herein and apply only to the site location and Sam Koo Pacific, LLC & Sam Koo Hawaii, LLC. The scope of services performed in execution of this investigation may not be appropriate to satisfy the needs of other users, and any use or re-use of this document or the findings, conclusions, or recommendations presented herein is at the sole risk of said user.

Opinions and recommendations presented herein apply to site conditions existing at the time of our investigations and those reasonably foreseeable; they cannot necessarily apply to site changes of which this office is not aware and has not had the opportunity to evaluate.

3.0 SITE DESCRIPTION

3.1 LOCATION AND LEGAL DESCRIPTION

The subject property is located in Honolulu, Oahu, Hawaii (Figure 1 - Site Location Map in Appendix A). The subject property is depicted on Figure 2 - Tax Map in Appendix B and on Figure 3 – Site Plan in Appendix C. The TMK: (1) 2-3-041:009 & (1) 2-3-041:006 parcels are located at 1631 & 1637 Kapiolani Boulevard, Honolulu and contains an area of 1.2913 Acres.

Site photographs are provided in Appendix D. Historical research documentation is provided in Appendix E.

3.2 CURRENT USES OF THE PROPERTY

Three buildings are located at TMK: (1) 2-3-041:009 & (1) 2-3-041:006 parcel of land. The buildings are occupied by three restaurants, a hair dresser, an auto dealership, and offices.

3.3 STRUCTURES, ROADS, AND OTHER IMPROVEMENTS ON THE SITE

Three buildings and parking for personal, customers, and dealership vehicles are located at the TMK: (1) 2-3-041:009 & (1) 2-3-041:006 parcels (Appendix C, Figure 3).

Utilities provided to the subject sites include water, sanitary sewer, electricity, and telephone.

3.4 CURRENT USES OF ADJOINING PROPERTIES

The current uses of the adjoining properties are (Figures 3, Appendix C):

North	Kapiolani Boulevard. Restaurants, shops, and offices are located across the boulevard.
East	Parking stalls and Buildings. The buildings area occupied by shops, restaurants and clubs.

South	Kona Street. Ala Moana Hotel Complex is located across Kona Street.
West	Multi-story office building and condos.

4.0 USER PROVIDED INFORMATION

4.1 TITLE RECORDS

The client did not provide recorded land title records and lien records. The property ownership information was obtained from the City and County of Honolulu's Real Property Assessment and Tax Billing Information web site. Chain of Title information was not provided. The property ownership is discussed in Section 4.5 below.

4.2 ENVIRONMENTAL LIENS OR ACTIVITY AND USE LIMITATIONS

CPR is not aware of any environmental cleanup liens against the property that are filed or recorded under federal, tribal, state or local law.

CPR is not aware of any Activity and Use Limitations, such as engineering controls, land use restrictions or institutional controls that are in place at the site and/or have been filed or recorded in a registry.

4.3 SPECIALIZED KNOWLEDGE OR EXPERIENCE

CPR does not have any specialized knowledge or experience related to the property or nearby properties.

4.4 COMMONLY KNOWN OR REASONABLY ASCERTAINABLE INFORMATION

The recent past uses of the property were obtained from interviews with the property owner. The historical use of the property was obtained from publicly available records.

The property owner does not know of any specific chemicals that are present or once were present at the property.

4.5 OWNER, PROPERTY MANAGER, AND OCCUPANT INFORMATION

Based on knowledge obtained from the City and County of Honolulu's Real Property Assessment and Tax Billing Information web site, the property is owned by Sam Koo Pacific LLC.

TMK: (1) 2-3-041:009 & (1) 2-3-041:006 parcels of land are occupied by three restaurants, a hair dresser, an auto dealership, and offices.

4.6 REASON FOR PERFORMING THIS PHASE I ASSESSMENT

The Phase I ESA was prepared by CPR at the request of Sam Koo Pacific, LLC & Sam Koo Hawaii, LLC. This Phase I ESA was requested for the following reasons:

- Due diligence for financing the site development.

4.7 OTHER USER PROVIDED INFORMATION

Sam Koo Pacific, LLC provided the 1990 Geotechnical Engineering Exploration Report, 2002 Phase I Reports for the Parcel (1) 2-3-041: 009, and the 2006 Phase I Reports for the Parcel (1) 2-3-041: 006 (see Section 5.4.4).

5.0 RECORDS REVIEW

5.1 STANDARD ENVIRONMENTAL RECORD SOURCES

5.1.1 Overview

CPR used a regulatory database search service, Environmental Data Resources, Incorporated (EDR), to review standard federal and state government databases of known or potential sources of hazardous materials or waste. The site assessment report provided to CPR by EDR is attached as Appendix F. ASTM E1527-13 (ASTM, 2013) specifies a minimum search distance for specific environmental record sources. The following record sources were searched for incidents or sites within the listed search distances of the proposed project site.

Standard Environmental Record Sources	Search Distance (miles)
Federal NPL (National Priorities List)	1.0
Federal Proposed NPL (Proposed National Priorities List)	1.0
Federal Delisted NPL Site List	0.5
Federal NPL LIENS (Superfund Liens)	Target Property
Federal CERCLIS (Comprehensive Environmental Response, Compensation and Liability Information System)	0.5
Federal CERCLIS NFRAP (CERCLIS sites where no further remedial action is planned under CERCLA)	0.5
Federal LIENS 2 (CERCLA Lien Information)	Target Property
Federal CORRACTS (Corrective Action Report)	1.0
Federal RCRA-TSDF (Resource Conservation and Recovery Act – Transportation, Storage and Disposal)	0.5
Federal RCRA-LQG (RCRA – Large Quantity Generators)	0.25
Federal RCRA-SQG (RCRA – Small Quantity Generators)	0.25
Federal US ENG CONTROLS (Engineering Controls Sites List)	0.5

Federal US INST CONTROL (Sites with Institutional Controls)	0.5
Federal ERNS (Emergency Response Notification System)	Target Property
Federal HMIRS (Hazardous Materials Information Reporting System)	Target Property
Federal DOT OPS (Incident and Accident Data)	Target Property
Federal US CDL (Clandestine Drug Labs)	Target Property
Federal US BROWNFIELDS (A Listing of Brownfields Sites)	0.5
Federal DOD (Department of Defense Sites)	1.0
Federal FUDS (Formerly Used Defense Sites)	1.0
Federal LUCIS (Land Use Control Information System)	0.5
Federal CONSENT (Superfund (CERCLA) Consent Decrees)	1.0
Federal ROD (Records Of Decision)	1.0
Federal UMTRA (Uranium Mill Tailings Sites)	0.5
Federal DEBRIS REGION 9 (Torres Martinez Reservation Illegal Dump Site Locations)	0.5
Federal ODI (Open Dump Inventory)	0.5
Federal MINES (Mines Master Index File)	0.25
Federal TRIS (Toxic Chemical Release Inventory System)	Target Property
Federal TSCA (Toxic Substances Control Act)	Target Property
Federal FTTS (FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)	Target Property
Federal HIST FTTS (FIFRA/TSCA Tracking System Administrative Case Listing)	Target Property
Federal SSTS (Section 7 Tracking Systems)	Target Property
Federal ICIS (Integrated Compliance Information System)	Target Property
Federal PADS (PCB Activity Database System)	Target Property
Federal MLTS (Material Licensing Tracking System)	Target Property
Federal RADINFO (Radiation Information Database)	Target Property
Federal RAATS (RCRA Administrative Action Tracking System)	Target Property
PWS (Public Water System Data)	Target Property

State DRYCLEANERS (Permitted Drycleaner Facility Listing)	0.25
State SCRD DRYCLEANERS (State Coalition for Remediation of Drycleaners Listing)	Target Property
State BROWNFIELDS (Brownfields Sites)	0.5
State AIRS (List of Permitted Facilities)	Target Property
State HWS (Hazardous waste sites, NPL or CERCLA equivalents) *	1.0
State LUST (Leaking underground storage tank) list	0.5
State registered UST list	0.25
State and tribal institutional control / engineering control registries (ENG CONTROLS, INST CONTROL)	0.5
Facility Index System/Facility Registry System (FINDS)	Target Property
Release Notifications (SPILS)	Target Property
State and tribal landfill and/or solid waste disposal site lists (SWF/LF)	0.5
State and tribal voluntary cleanup sites(VCP)	0.5

* Since there is no State database of NPL or CERCLA equivalents, this database was not included in EDR's report. EDR reviewed the State of Hawaii Department of Health (DOH) Office of Hazard Evaluation and Emergency Response (HEER) "Sites of Interest" database instead.

The Subject Property was not listed in any of the databases searched by EDR.

Surrounding sites were identified in the following databases.

5.1.2 U.S. EPA National Priorities List

The NPL is a list of properties with the highest priority for cleanup under the EPA Hazard Ranking System (40 CFR Part 300). The list is compiled by the EPA pursuant to CERCLA 42 USC §9605 (a)(8)(B).

EDR found no listed or proposed NPL facilities in the area vicinity of the site.

5.1.3 U.S. EPA Delisted National Priorities List

The delisted NPL is a list of properties that have undergone ranking for the NPL and initially scored high enough to be on the NPL. These sites subsequently have either been cleaned up to applicable standards or have been reevaluated with additional information to be removed or "delisted" from the NPL.

EDR found no delisted NPL facilities in the area vicinity of the site.

5.1.4 U.S. EPA CERCLIS List

This list is compiled by EPA and contains sites that EPA has investigated or is currently investigating for potential hazardous substance contamination for possible inclusion on the NPL.

EDR found no listed or proposed CERCLIS facilities within one-half mile of the subject property.

5.1.5 Federal CERCLIS NFRAP site list

CERCLIS-NFRAP: CERCLIS No Further Remedial Action Planned. Archived sites are sites that have been removed and archived from the inventory of CERCLIS sites. Archived status indicates that, to the best of EPA's knowledge, assessment at a site has been completed and that EPA has determined no further steps will be taken to list this site on the National Priorities List (NPL), unless information indicates this decision was not appropriate or other considerations require a recommendation for listing at a later time. This decision does not necessarily mean that there is no hazard associated with a given site; it only means that, based upon available information, the location is not judged to be a potential NPL site.

A review of the CERC-NFRAP list, as provided by EDR, and dated 10/25/2013 has revealed that there is 1 CERC-NFRAP site within approximately 0.5 miles of the target property.

First Development Inc. 1777 Kapiolani Blvd E 0.173 mi. Priority Level: NFRAP-Site does not qualify for the NPL based on existing information.

No adverse effect on the subject property is anticipated due to the CERC-NFRAP site distance to the subject property.

5.1.6 U.S. EPA CORRACTS Lists

The CORRACTS list is compiled by the EPA and contains those regulated facilities that have notified EPA as facilities regulated by RCRA. The RCRA list is compiled by the EPA and contains those regulated facilities that have notified EPA as hazardous waste generators, transporters or treatment, storage or disposal facilities under RCRA.

EDR found no CORRACTS site within one mile of the subject property.

5.1.7 Federal RCRA non-CORRACTS TSD facilities list

RCRA-TSDF: RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Transporters are individuals or entities that move hazardous waste from the generator offsite to a facility that can recycle, treat, store, or dispose of the waste. TSDFs treat, store, or dispose of the waste.

EDR found no RCRA-TSDF Facilities within one-half mile of the subject property.

5.1.8 U.S. EPA RCRA-LQG, RCRA-SQG, and RCRA-CESQG Lists

The RCRA database is compiled by the EPA and contains those regulated facilities that have notified the EPA as being hazardous waste generators, transporters, or treatment, storage or disposal facilities under RCRA. Large quantity generators (LQGs) generate over 1,000 kilograms (kg) of hazardous waste, or over 1 kg of acutely hazardous waste per month. Small quantity generators (SQGs) generate between 100 kg and 1,000 kg of hazardous waste per month. Conditionally Exempt

Small Quantity generators (CESQGs) generate less than 100 kg of hazardous waste, or less than 1 kg of acutely hazardous waste per month.

A review of the RCRA-SQG list, as provided by EDR, and dated 03/11/2014 has revealed that there are 4 RCRA-SQG sites within approximately 0.25 miles of the target property.

Ala Moana Hotel. 410 Atkinson Dr SSW 0.080 mi. Violation Status: No violations found.

Holiday Action Gas. 801 Kaheka St N 0.130 mi. Violation Status: No violations found.

Walgreens Store No. 12072. 1470 Kapiolani Blvd. NW 0.205 mi. Violation Status: No violations found.

State of Hawaii DLNR Dobor. 1651 Ala Moana Blvd SSW 0.238 mi. Violation Status: No violations found.

The RCRA-SQG sites will not affect the environmental condition of the subject property if they are operated and maintained in accordance with the Federal and State of Hawaii rules and regulations.

A review of the RCRA-CESQG list, as provided by EDR, and dated 03/11/2014 has revealed that there are 7 RCRA-CESQG sites within approximately 0.25 miles of the target property.

Pan Am Bldg. 1600 Kapiolani Blvd NW 0.036 mi. Violation Status: No violations found.

AOAO Yacht Harbor Towers. 1600_1650 Ala Moana Blvd SSW 0.145 mi. Violation Status: No violations found.

Rogers Repair Inc. 1687 Kalakaua Ave ENE 0.149 mi. Violation Status: No violations found.

Kalakua Transmission Inc. 1665 Kalakua Ave NE 0.162 mi. Violation Status: No violations found.

First Development Inc. 1777 Kapiolani Blvd E 0.173 mi. Violation Status: No violations found.

Hawaii Convention Center. 1801 Kalakaua Avenue E 0.204 mi. Violation Status: No violations found.

Ala Moana Unocal. 1651 Ala Moana Blvd SSW 0.238 mi. Violation Status: No violations found.

The RCRA-CESQG sites will not affect the environmental condition of the subject property if they are operated and maintained in accordance with the Federal and State of Hawaii rules and regulations.

5.1.9 U.S. ENG CONTROLS List

U.S. ENG CONTROLS: Engineering Controls Sites List. A listing of sites with engineering controls in place. Engineering controls include various forms of caps, building foundations, liners, and treatment methods to create pathway elimination for regulated substances to enter environmental media or effect human health.

EDR found no listed or proposed ENG CONTROLS facilities within one-half mile of the subject property.

5.1.10 U.S. INST CONTROL List

US INST CONTROL: Sites with Institutional Controls. Institutional controls include administrative measures, such as groundwater use restrictions, construction restrictions, property use restrictions, and post remediation care requirements intended to prevent exposure to contaminants remaining on site. Deed restrictions are generally required as part of the institutional controls.

EDR found no listed or proposed INST CONTROL facilities within one-half mile of the subject property.

5.1.11 U.S. EPA ERNS List

This list is compiled by the EPA and contains reported CERCLA hazardous substance releases or spills in quantities greater than the reportable quantity, as maintained at the National Response Center.

EDR examined this list, and found no reported incidents to have occurred on the subject site.

5.1.12 State of Hawaii DOH Hazardous Waste Sites (SHWS)

The State Hazardous Waste Sites records are the states' equivalent to CERCLIS. These sites may or may not already be listed on the federal CERCLIS list. Priority sites planned for cleanup using state funds (state equivalent of Superfund) are identified along with sites where cleanup will be paid for by potentially responsible parties. The data come from the State of Hawaii, Department of Health.

A review of the HI SHWS list, as provided by EDR, and dated 01/04/2014 has revealed that there are 48 HI SHWS sites within approximately 1 mile of the target property.

New Office Lounge. 1551 Kapiolani Blvd NW 0.086 mi. Hazard Priority: Medium. Facility Status: Site Cleanup Completed (NFA).

HECO Substation: Makaloa Substation. 1544 Makaloa St NW 0.144 mi. Hazard Priority: Low.

Roger's Repair Inc. 1687 Kalakaua Ave ENE 0.149 mi. Hazard Priority: NFA.

Former Kalakaua Transmission Inc. 1665 Kalakaua Ave NE 0.159 mi. Hazard Priority: NFA.

Yacht Harbor Towers. 1600 Ala Moana Blvd SSW 0.164 mi. Hazard Priority: NFA.

Aloha Motors 1777 Kapiolani Blvd. 1777 Kapiolani Blvd E 0.173 mi. Hazard Priority: NFA.

1609 Ala Wai Diesel Release. 1609 Ala Wai Blvd SSE 0.204 mi. Hazard Priority: NFA.

Hawaii Convention Center. 1801 Kalakaua Ave E 0.204 mi. Hazard Priority: NFA.

Walgreens Keeamoku. 1460 Kapiolani Boulevar NW 0.216 mi. Hazard Priority: Not reported.

Like Like Plaza Petroleum Contamination. 745 Keeaumoku St NNW 0.315 mi. Hazard Priority: NFA.

Cutter Chevrolet. 1391 Kapiolani Blvd WNW 0.328 mi. Hazard Priority: NFA.

Hobron Hotel. 1744 Kaioo Dr SSE 0.354 mi. Hazard Priority: NFA.

Motor Supply. 726 Sheridan St NW 0.372 mi. Hazard Priority: NFA.

Hakuyosha Hawaii, Inc. 730 Sheridan St NW 0.372 mi. Hazard Priority: High.

Sears Ala Moana. 1450 Ala Moana Blvd W 0.396 mi. Hazard Priority: NFA.

Aloha/King Self Storage. 1414 Kalakaua Ave NNE 0.470 mi. Hazard Priority: NFA.

The Pavillion. 1925 Kalakaua Ave SE 0.473 mi. Hazard Priority: NFA.

Cenpac Properties - Office Building. 615 Piikoi St WNW 0.496 mi. Hazard Priority: Medium.

Continental Auto Services. 1918 Algaroba St ENE 0.520 mi. Hazard Priority: NFA.

Meadow Gold Dairies (Ice Cream Plant). 1418 Young ST N 0.520 mi. Hazard Priority: NFA.

7-11 Kalakaua. 1323 Kalakaua Ave NNE 0.531 mi. Hazard Priority: NFA.

Durant Properties. 1235 Kona St WNW 0.564 mi. Hazard Priority: NFA.

Evershine X. 1230 Kapiolani Blvd WNW 0.574 mi. Hazard Priority: NFA.

Chevron 2002 Kalakaua. 2002 Kalakaua Ave SE 0.578 mi. Hazard Priority: NFA.

Grace Otsuka Apartment Complex. 1233 Young St NNW 0.639 mi. Hazard Priority: NFA.

Wallys Garden Center. 1935 S Beretania St NE 0.649 mi. Hazard Priority: Medium.

1012 Piikoi Street, Anin-Piikoi. 1012 Piikoi St NNW 0.649 mi. Hazard Priority: NFA.

McCully Union Service. 2105 S King St ENE 0.663 mi. Hazard Priority: NFA.

Kapiolani Women's & Children's Medical Center. 1319 Punahou St NNE 0.668 mi. Hazard Priority: NFA.

McDonald's Restaurant Soil & Groundwater Contamination. 2121 S King St ENE 0.670 mi. Hazard Priority: Low.

Koolani Tower Project. 1189 Waimanu St WNW 0.672 mi. Hazard Priority: NFA.

Cartwright Neighborhood Park. Keeaumoku St & Matlock Ave N 0.696 mi. Hazard Priority: NFA.

Schuman Carriage Motors, Ltd. 1234 S Beretania St NNW 0.717 mi. Hazard Priority: NFA.

Royal Gardens Hotel Diesel. 440 Olohana St SE 0.723 mi. Hazard Priority: NFA.

King Kalakaua Plaza. 2080 Kalakaua Ave SE 0.724 mi. Hazard Priority: NFA.

Reserve Housing Tower Soil Contamination. 1141 Waimanu St WNW 0.726 mi. Hazard Priority: NFA.

Self Storage 1. 438 Kamakee St WNW 0.787 mi. Hazard Priority: NFA.

Ala Wai Cove Condominium Apartments. 509 University Ave ESE 0.820 mi. Hazard Priority: Low.

Jas W Glover Ltd. 1046 Waimamu St WNW 0.839 mi. Hazard Priority: NFA.

1310 Pensacola Street. 1310 Pensacola St NNW 0.872 mi. Hazard Priority: NFA.

Pacifica Condominium. 1009 Kapiolani Blvd WNW 0.872 mi. Hazard Priority: NFA.

Waikiki Bazaar. 2174 Kalakaua Ave SE 0.896 mi. Hazard Priority: NFA.

Hale Pua Nui UST Removal. 228 Beach Walk SSE 0.901 mi. Hazard Priority: Low.

Waikiki Beach Walk Resort. 205 Beach Walk Ave SSE 0.925 mi. Hazard Priority: NFA.

Iolani School Petroleum Odor. 563 Kamoku St ESE 0.945 mi. Hazard Priority: NFA.

Hawaii Opera Theater Sets & Props Warehouse. 962 Kawaiahao St WNW 0.986 mi. Hazard Priority: NFA.

Symphony Park. 850 Kapiolani Blvd WNW 0.995 mi. Hazard Priority: NFA.

Punahou School - Barwick Playground. 1601 Punahou St NNE 0.999 mi. Hazard Priority: NFA.

No adverse effect on the subject property is anticipated due to the SHWS site status (NFA) and/or distance to the subject property.

5.1.13 State of Hawaii Landfill/Solid Waste Disposal Sites (SWF/LF)

EDR examined DOH Solid and Hazardous Waste Branch's list of permitted landfills in the State of Hawaii for landfills or disposal sites located within one-half (0.5) mile of the subject site. None of the permitted landfills on the Island of Oahu are within one-half (0.5) mile of the subject site.

5.1.14 State of Hawaii DOH Leaking UST List (LUST)

LUST: The Leaking Underground Storage Tank Incident Reports contain an inventory of reported leaking underground storage tank incidents. The data come

from the Department of Health's Active Leaking Underground Storage Tank Log Listing.

A review of the HI LUST list, as provided by EDR, and dated 06/30/2014 has revealed that there are 29 HI LUST sites within approximately 0.5 miles of the target property.

C&C Pawaa Fire Station. 1610 Makaloa St NNE 0.061 mi.
Facility Status: Site Cleanup Completed (NFA)

New Office Lounge. 1551 Kapiolani Blvd NW 0.086 mi.
Facility Status: Site Cleanup Completed (NFA)

Firestone Store. 801 Kaheka St N 0.130 mi.
Facility Status: Site Cleanup Completed (NFA)

Gas 'N GLO Inc. 1670 Makaloa St NE 0.139 mi.
Facility Status: Site Cleanup Completed (NFA)

Aloha Motors. Kapiolani Blvd X Kalakaua Ave ESE 0.193 mi.
Facility Status: Site Cleanup Completed (NFA)

The Watermark Waikiki. 1551 Ala Wai Blvd S 0.201 mi.
Facility Status: Confirmed Release

Funai's Union Service L-5583. 1810 Kapiolani Blvd E 0.220 mi.
Facility Status: Site Cleanup Completed (NFA)

Ling Brothers, Ltd. 1819-E Lipeepee St SSE 0.223 mi.
Facility Status: Site Cleanup Completed (NFA)

Aloha Marine. 1651 Ala Moana Blvd SSW 0.238 mi.
Facility Status: Site Cleanup Completed (NFA)

Superblock Properties. South Block (Bldg S20) NW 0.302 mi.
Facility Status: Site Cleanup Completed (NFA)

Superblock Properties. North Block (Bldg N8) / Keeaumoku St NW 0.309 mi.

Facility Status: Site Cleanup Completed (NFA)

Cutter Chevrolet. 1391 Kapiolani Blvd WNW 0.328 mi.
Facility Status: Site Cleanup Completed (NFA)

Superblock Properties. South Block (Bldg S25) NW 0.337 mi.
Facility Status: Site Cleanup Completed (NFA)

Sears Roebuck & Company 1158. 1450 Ala Moana Blvd #1000 WSW 0.342 mi.
Facility Status: Site Cleanup Completed (NFA)

Superblock Properties. South Block (Bldg S13) NW 0.364 mi.
Facility Status: Site Cleanup Completed (NFA)

Ilikai Hotel. 1777 Ala Moana Blvd S 0.366 mi.
Facility Status: Site Cleanup Completed (NFA)

Superblock Properties. North Block (Bldg N15) NW 0.373 mi.
Facility Status: Site Cleanup Completed (NFA)

Superblock Properties. South Block (Bldg S1) / Sheridan St NW 0.374 mi.
Facility Status: Site Cleanup Completed (NFA)

Wens Life Co., Inc. 808 Sheridan St NNW 0.393 mi.
Facility Status: Site Cleanup Completed (NFA)

Discovery Bay. 1778 Ala Moana Blvd S 0.395 mi.
Facility Status: Site Cleanup Completed (NFA)

Tesoro 2go 61018. 1549 S King St NNE 0.407 mi.
Facility Status: LUST Cleanup Initiated

Gas Plus. 1524 S King St NNE 0.420 mi.
Facility Status: Site Cleanup Completed (NFA)

Mid Pac Petroleum 253943 (Prev: Lionel's Unocal). 1505 S. King St. N 0.422 mi.
Facility Status: Site Cleanup Completed (NFA)

Punahou Repair Shop. 1558 S King St NNE 0.423 mi.
Facility Status: Site Cleanup Completed (NFA)

Ala Moana Unocal. 1322 Kapiolani Blvd WNW 0.431 mi.
Facility Status: Site Cleanup Completed (NFA)

Yajima Oil of USA Inc. 1375 S King St N 0.484 mi.
Facility Status: Site Cleanup Completed (NFA)

Aloha Ala Moana. 451 Piikoi St WNW 0.486 mi.
Facility Status: Site Cleanup Completed (NFA)

Nauru Phosphate Royalties Trust. 404 Piikoi St/1330 Ala Moana Blvd WNW 0.495 mi.
Facility Status: Site Cleanup Completed (NFA)

Cenpac Properties - Office Building. 615 Piikoi St WNW 0.496 mi.
Facility Status: Site Cleanup Completed (NFA)

No adverse effect on the subject property is expected from the LUST sites due to the site status (NFA) and/or distance to the subject property.

5.1.15 State of Hawaii DOH UST Section Database Listing

The Underground Storage Tank database contains information regarding registered USTs. USTs are regulated under Subtitle I of the Resource Conservation and Recovery Act (RCRA). The data comes from the Department of Health's Listing of Underground Storage Tanks.

A review of the HI UST list, as provided by EDR, and dated 06/30/2014 has revealed that there are 8 HI UST sites within approximately 0.25 miles of the target property.

New Office Lounge. 1551 Kapiolani Blvd NW 0.086 mi.

Firestone Store. 801 Kaheka St N 0.130 mi.

Gas 'N GLO Inc. 1670 Makaloa St NE 0.139 mi.

Kalakaua Transmission Inc. 1665 Kalakaua Ave NE 0.159 mi.

Aloha Motors. Kapiolani Blvd X Kalakaua Ave ESE 0.193 mi.

Funai's Union Service L-5583. 1810 Kapiolani Blvd E 0.220 mi.

Aloha Marine. 1651 Ala Moana Blvd SSW 0.238 mi.

Moana Park Wastewater Pump Station. 1501 Ala Moana Blvd WSW 0.245 mi.

The UST sites will not affect the environmental condition of the subject property if they are operated and maintained in accordance with the Federal and State of Hawaii rules and regulations.

5.1.16 State and Tribal Institutional Control / Engineering Control Registries

ENG CONTROLS: A listing of sites with engineering controls in place.
INST CONTROL: Voluntary Remediation Program and Brownfields sites with institutional controls in place.

A review of the HI ENG CONTROLS list, as provided by EDR, and dated 01/04/2014 has revealed that there are 3 HI ENG CONTROLS sites within approximately 0.5 miles of the target property.

Former Kalakaua Transmission Inc. 1665 Kalakaua Ave NE 0.159 mi. Hazard Priority: NFA. Engineering Control: Engineering Control Required

Yacht Harbor Towers. 1600 Ala Moana Blvd SSW 0.164 mi. Hazard Priority: NFA. Engineering Control: Engineering Control Required

Aloha/King Self Storage. 1414 Kalakaua Ave NNE 0.470 mi. Hazard Priority: NFA. Engineering Control: Engineering Control Required

No adverse effect on the subject property is expected from the ENG CONTROL sites due to the site status (NFA) and distance to the subject property.

A review of the HI INST CONTROL list, as provided by EDR, and dated 01/04/2014 has revealed that there are 6 HI INST CONTROL sites within approximately 0.5 miles of the target property.

HECO Substation: Makaloa Substation. 1544 Makaloa St NW 0.144 mi. Hazard Priority: Low. Institutional Control Required

Former Kalakaua Transmission Inc. 1665 Kalakaua Ave NE 0.159 mi. Hazard Priority: NFA. Institutional Control Required

Yacht Harbor Towers. 1600 Ala Moana Blvd SSW 0.164 mi. Hazard Priority: NFA. Institutional Control Required

Motor Supply. 726 Sheridan St NW 0.372 mi. Hazard Priority: NFA. Institutional Control Required

Hakuyosha Hawaii, Inc. 730 Sheridan St NW 0.372 mi. Hazard Priority: High. Institutional Control: Government - Hawaii Dept. of Health Letter Issued

Aloha/King Self Storage. 1414 Kalakaua Ave NNE 0.470 mi. Hazard Priority: NFA. Institutional Control Required

No adverse effect on the subject property is expected from the INST CONTROL sites due to the site status (NFA) and distance to the subject property.

5.1.17 State of Hawaii DOH Brownfield Sites

This list is compiled by the State DOH Solid and Hazardous Waste Branch UST Section. The ASTM designated search area for Brownfield sites is 0.5 miles of the subject site.

EDR searched and found no Brownfield sites within one-half (0.5) miles of the subject sites.

5.1.18 Other Regulatory Databases

A number of other regulatory databases, not specified by ASTM guidance, are included in the attached EDR report.

EDR reported listed sites in the vicinity of the subject property in the following databases:

VCP: Voluntary Response Program Sites. Sites participating in the Voluntary Response Program. The purpose of the VRP is to streamline the cleanup process in a way that will encourage prospective developers, lenders, and purchasers to voluntarily cleanup properties.

A review of the HI VCP list, as provided by EDR, and dated 01/04/2014 has revealed that there is 1 HI VCP site within approximately 0.5 miles of the target property.

Aloha/King Self Storage. 1414 Kalakaua Ave NNE 0.470 mi. Hazard Priority: NFA

No adverse effect on the subject property is expected from the VCP site due to the site status (NFA) and distance to the subject property.

RCRA-NonGen: RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Non-Generators do not presently generate hazardous waste.

A review of the RCRA NonGen / NLR list, as provided by EDR, and dated 03/11/2014 has revealed that there are 4 RCRA NonGen / NLR sites within approximately 0.25 miles of the target property.

I L W U Local 142. 451 Atkinson Dr S 0.048 mi. Violation Status: No violations found

B & S Automotive Technicians. 1789 Kapiolani Blvd E 0.188 mi. Violation Status: No violations found

Fuji Photo Film USA Inc. 1801 Kalakaua Ave E 0.204 mi. Violation Status: No violations found

Unocal 76 SS L 5583. 1818 Kapiolani Blvd E 0.231 mi. Violation Status: No violations found

The RCRA NonGen / NLR sites will not affect the environmental condition of the subject property if they are operated and maintained in accordance with the Federal and State of Hawaii rules and regulations.

EDR US Hist Auto Stat: EDR has searched selected national collections of business directories and has collected listings of potential gas station/filling station/service station sites that were available to EDR researchers.

A review of the EDR US Hist Auto Stat list, as provided by EDR, has revealed that there are 8 EDR US Hist Auto Stat sites within approximately 0.25 miles of the target property.

801 Kaheka St N 0.130 mi.
1735 Kalakaua Ave ENE 0.157 mi.
1712 Kalakaua Ave ENE 0.158 mi.
1665 Kalakaua Ave NE 0.159 mi.
1500 Kapiolani Blvd NW 0.168 mi.
1750 Kalakaua Ave E 0.169 mi.
641 Keeaumoku St NW 0.245 mi.
1830 Kapiolani Blvd E 0.246 mi.

No adverse effect on the subject property is expected from the EDR US Hist Auto Stat sites due to the site distances to the subject property.

EDR US Hist Cleaners: EDR has searched selected national collections of business directories and has collected listings of potential dry cleaner sites that were available to EDR researchers.

A review of the EDR US Hist Cleaners list, as provided by EDR, has revealed that there are 4 EDR US Hist Cleaners sites within approximately 0.25 miles of the target property.

801 Kaheka St N 0.130 mi.
1868 Kahakai Dr SSE 0.132 mi.
1750 Kalakaua Ave E 0.169 mi.
1518 Makaloa St NW 0.197 mi.

No adverse effect on the subject property is expected from the EDR US Hist Cleaners sites due to the site distances to the subject property.

5.2 ADDITIONAL ENVIRONMENTAL RECORDS SOURCES

CPR searched and found no additional records sources for the subject site.

5.3 PHYSICAL SETTING SOURCES

CPR reviewed published geologic and hydrogeologic reports, maps, and the site assessment report provided by EDR (Appendix F) to obtain information regarding surface and subsurface conditions in the general area of the site.

5.3.1 Topography

The elevation of the subject sites is approximately 3 feet above mean sea level (Appendix F). The center of the site is located at approximately 21° 17' 27.9" north latitude and 157° 50' 21.06" west longitude. The site is flat.

5.3.2 Geology and Soil

The island of Oahu is formed by the remnants of two coalesced shield volcanoes, the Koolau Volcano to the east and the Waianae Volcano to the west. A shield volcano is formed by eruptions of very fluid lava originating on the ocean floor that builds a dome-shaped structure resembling a shield. Submarine volcanic deposits include

pillow lavas, hyaloclastite, and flow-foot breccia. Building of the Waianae and Koolau Volcanoes occurred during the Pliocene and Pleistocene epochs.

The subject property is located on the southeast side of the Oahu Island of Hawaii, in Honolulu (Appendix A). The site soils consist of silty clay. The soil hydrologic group is Class C – slow infiltration rates (Appendix F).

The detailed site soil description is given in Section 5.4.4 "Prior Environmental Investigations" in *Geotechnical Engineering Exploration. Proposed Torson Ala Moana Tower, 1651 Kapiolani Boulevard, Honolulu, Oahu, Hawaii, T.M.K.: 2-3-41 Parcel 6.* C.W. Associates Inc., DBA Geolabs-Hawall, January 15, 1990.

5.3.3 Groundwater

The groundwater in the area is part of the Nuuanu Aquifer System of the Honolulu Aquifer Sector as classified by Mink and Lau (1990). The groundwater is basal, freshwater in contact with seawater, unconfined, and is hosted in horizontally extensive lavas. The groundwater is classified as potentially used, drinking, frersh (<250 mg/L chloride), irreplaceable, and highly vulnerable to contamination. The hydrogeologic gradient is expected to be toward the Pacific Ocean. This assumption is based on the area topographic profile.

The site is located below (downgradient of) the Underground Injection Control (UIC) line as shown on the UIC map of Oahu, HDOH. This typically indicates that the underlying aquifer is not considered a drinking water source, limited types of injection wells are allowed, and injection wells need a UIC Permit or Permit Exemption.

There is no well at the subject property.

Groundwater level was encountered in the drilled site borings at depths of 4.0 to 7.9 feet below the existing ground.

5.4 PAST USES OF THE PROPERTY

Information regarding past uses of the subject site was obtained from our review of Sanborn Fire Insurance Company maps (1949, 1951, 1955, 1973, 1975, 1980, 1985, 1991, and 1993), U.S. Geological Survey (USGS) topographic maps (USGS, 1928, 1953, 1954, 1959, 1969, 1970, 1983, and 1998), and Historic Aerial Photographs (1952, 1959, 1963, 1968, 1978, 1993, and 2000) (Appendix E).

5.4.1 Sanborn Maps

The 1949 Sanborn Map shows two-level storage facility at the north part of the Parcel 006. The structure located at the west side of the Parcel 009 is marked as "clo. clean'g".

The 1951 Sanborn Map appeared similar to the 1949 Sanborn Map.

The 1955 Sanborn Map shows the new 2-level structure constructed in 1953 at the northeast area of the Parcel 009. The structure at the Parcel 006 has a 1-level addition to its southeast part. The additional structure is marked as "Restaurant". The central part of the existing before 1955 structure also is marked as "Restaurant" now.

The 1973 Sanborn Map shows new building at the east part of the Parcel 009. The building is marked as "office". The one-level structure shown on the 1955 map as "restaurant" now is marked as "office". The cleaning facility shown on the previous maps now is marked as "restaurant".

The 1975, 1980, and 1985 Sanborn Maps appeared similar to the 1973 Sanborn Map.

The 1991 Sanborn Map shows no structures at the Parcel 006. The Parcel is marked as "parking".

The 1993 Sanborn Map appeared similar to the 1991 Sanborn Map.

No readily apparent evidence of recognized environmental conditions at the subject property was noted on the Sanborn Maps reviewed, except that a clothes cleaning facility appeared in the western portion of the subject property in the maps from

1949 to 1955. It is noted that the Sanborn Maps typically indicate "dry cleaning" as separate from "clothes cleaning". The 1949 Sanborn Map does not show the presence of a fuel storage tank on site. The source of hot water for the laundry is not known. The presence of a laundry without indications of dry cleaning or fuel storage does not constitute a recognized environmental condition.

5.4.2 USGS Maps

The subject site USGS maps are provided in Appendix E. The 1928-1998 USGS maps shows the site area as the built-up area.

No readily apparent evidence of recognized environmental conditions at the subject property was noted on the topographic maps reviewed.

5.4.3 Historic Aerial Photographs

CPR used the University of Hawaii at Manoa Library service to review historic aerial photographs. The subject site aerial photographs are provided in Appendix E.

1952 Photo: The site appears to contain two structures. The big one is located at the north side of the Parcel 006. There are a few cars parked outside of the structures, but the nature of the operation cannot be determined. The Parcel 009 looks unpaved.

1959 Photo: The site contains three structures. One structure is located at the north part of the Parcel 006 and two others are located at the Parcel 009. There are cars parked outside of the structures, but the nature of the operation cannot be determined. The Parcel 009 is paved.

1963 Photo: Details of the project site were obscured by poor photographic resolution.

1968 Photo: The 1968 aerial photograph shows no change from the 1959 photograph except two new structures were added to Parcel 009.

1978 Photo: Details of the project site were obscured by poor photographic resolution.

1993 Photo: The building at the north area of the Parcel 006 is not shown.

2000 Photo: The subject property has not changed since 1993.

No readily apparent evidence of recognized environmental conditions at the subject property was noted on the historic aerial photograph reviewed.

5.4.4 Prior Environmental Investigations

CPR reviewed the following documents provided by Sam Koo Pacific, LLC for the subject property:

1. *Geotechnical Engineering Exploration. Proposed Torson Ala Moana Tower, 1651 Kapiolani Boulevard, Honolulu, Oahu, Hawaii, T.M.K.: 2-3-41 Parcel 6.* C.W. Associates Inc., DBA Geolabs-Hawall, January 15, 1990.

   Five (5) additional borings, 8-101 to 8-105, were drilled to depths ranging from 46 to 192 feet below the existing ground surface after demolition of the previously existing buildings. In general, the additional borings encountered soil conditions similar to those encountered in the previous borings, which can be generalized as follows: a 4- 6-foot-thick crust of medium stiff clayey silt overlying lagoonal and alluvial deposits varying from loose to very loose silty sand with coral gravel to medium dense moderately cemented coral detritus to medium stiff clayey silt. However, the relatively competent coral ledge material at depths of 25 to 45 feet in the easterly half of the site, as noted in previous report of November 16, 1990, was discovered by the recent additional borings to be not as really consistent as previously assumed. Instead, a relatively competent coral ledge of only about ten (10) feet thick was encountered in the recent borings at about 25 to 35 feet below the existing ground surface. Moreover, the white coral and tan cemented coral sand and silt encountered at depths of about 130 to 155 feet in the previous borings were not encountered in the recently drilled additional deep boring B-105. Medium dense coral detritus and lagoonal deposits consisting of uncemented to moderately cemented coral gravel, silt and sand were encountered from depths of about 130 to 192 feet in

boring B-105. Groundwater level was encountered in the drilled borings at depths of 4.0 to 5.5 feet below the existing ground surface in the recent borings as compared to 4.8 to 7.9 feet in the previous borings.

2. *Kapiolani Commercial Property Parcel (1)-2-3-41: 009, Honolulu, Hawaii.* R. M. Towill Corporation, February, 2002.

   The R. M. Towill Corporation (RMTC) performed a Phase I Environmental Site Assessment for a single commercial property located on Kapiolani Boulevard in the Ala Moana area of east Honolulu on the Island of Oahu identified by the Tax Map Key No. (1)-2-3-041:009. This assessment has revealed no significant environmental conditions on the subject property from past or current uses.

   A site reconnaissance at the property performed on February 7, 2001, did not reveal any significant environmental problems with the property. All premises were found to be in good, clean condition with no recognizable environmental problems.

   An asbestos inspection was also performed on February 7, 2001 to identify any friable asbestos containing building materials. No samples of floor tiles, mastics, roofing materials or other not friable materials were collected as a part of this inspection. A total of seven building materials were sampled and no asbestos was in any of the samples.

   The R. M. Towill Corporation noted that the general area around the property has received fill material from a number of sources over the years, including trash, construction debris, sugar processing by products, dredged materials, and fill dirt. A subsurface investigation performed on an adjacent property did not reveal any hazardous materials. If excavation work is planned for the subject property, additional subsurface investigations may be recommended or the excavation may be monitored by a qualified professional to allow for the identification of suspect hazardous materials.

3. *Phase I Environmental Site Assessment. 1637 Kapiolani Boulevard, Honolulu, Oahu, Hawaii, TMK: (1) 2-3-41: Parcel 6.* Element Environmental LLC (E2), October 30, 2006.

This assessment has revealed no significant evidence of recognized environmental conditions in connection with the property. E2 identified a possible release of an unknown substance at the subject property. The aerial photograph from 1974 shows an area of possible soil staining on site. No records of a release of a hazardous waste or substance were found with the Department of Health's databases. Lease records from the City and County of Honolulu, indicate that one of the tenants in the building was a diner. It is possible that the stain was related to a grease trap. It is also possible that the apparent staining could be ponding water or other soil disturbance.

5.5 PAST USES OF THE ADJOINING PROPERTIES

Information regarding past uses of the adjoining properties was obtained from our review of Sanborn Fire Insurance Company maps (1949, 1951, 1955, 1973, 1975, 1980, 1985, 1991, and 1993), U.S. Geological Survey (USGS) topographic maps (USGS, 1928, 1953, 1954, 1959, 1969, 1970, 1983, and 1998), and Historic Aerial Photographs (1952, 1959, 1963, 1968, 1978, 1993, and 2000) (Appendix E).

5.5.1 Sanborn Maps

The 1949 Sanborn Map shows the north and south adjoining areas located across the Kapiolani Boulevard and Kona Street as vacant. The west adjoining area is marked as "Used Auto Sale" with one small office structure on it. Several paint storage structures are shown on the east adjoining area.

The 1951 Sanborn Map shows the adjoining areas with no remarkable changes since 1949.

The 1955 Sanborn Map shows a restaurant and auto repairing facility including a gas station marked as "gas & oil" on the south adjoining property located across Kona street.

The 1973 Sanborn Map shows a 17-story building and 2-story parking on the west adjoining area. The American Saving & Loan Building and the Honolulu Toho Theater building are shown across Kapiolani Boulevard on the north adjoining area. The auto repairing facility is shown across Kapiolani Boulevard on the northeast

adjoining area. There is no auto repairing facility with a gas station on the south adjoining area. The south adjoining area across Kona Street is occupied by Ala Moana Hotel.

The 1980 and 1985 Sanborn Maps show the adjoining areas with no remarkable changes since 1973.

The 1991 Sanborn Map shows that the auto repairing facility shown at the north-west adjoining area on 1973-1985 maps has been substituted by the "Health Club".

The 1993 Sanborn Map shows that the health club had been replaced by offices.

No readily apparent evidence of recognized environmental conditions at the adjoining properties was noted on the maps reviewed except the facility marked as "gas & oil" shown across Kona Street at the south adjoining area on the 1955 map.

5.5.2 USGS Maps

The subject site USGS maps are provided in Appendix E. The 1928-1998 USGS maps shows the adjoining areas as the built-up areas.

No readily apparent evidence of recognized environmental conditions at the adjoining properties was noted on the topographic maps reviewed.

5.5.3 Historic Aerial Photographs

1952 Photo: This photograph shows the north adjoining area located across the Kapiolani Boulevard as vacant. The other adjoining areas are developed with commercial uses.

1959, 1963, 1968, 1978, 1993, and 2000 Photos: This photographs show the adjoining areas as areas with a significant amount of commercial structures. Details of the area around the project site were obscured by poor photographic resolution.

No readily apparent evidence of recognized environmental conditions at the adjoining properties was noted on the historic aerial photograph reviewed.

5.5.4 Prior Environmental Investigations

No documentation of prior environmental investigations for the surrounding area was available for review.

6.0 SITE RECONNAISSANCE

6.1 METHODOLOGY AND LIMITING CONDITIONS

The subject property was inspected by CPR personnel on September 10, 2014. The exterior of adjoining properties was visually evaluated for the presence of recognized environmental conditions (RECs).

6.2 GENERAL SITE SETTING

6.2.1 Current Use(s) of the Property

The buildings at TMK: (1) 2-3-041:009 & (1) 2-3-041:006 parcels of land are occupied by restaurants, a hair dresser, an auto dealership, and offices. The rest of the subject property is used for parking.

6.2.2 Past Use(s) of the Property

The building that is "Yakiniku Korea House" restaurant now was used as a clothes cleaner. There was a storage building at the north part of the property that was demolished between 1985 and 1991.

6.2.3 Current Use(s) of Adjoining Properties

The current uses of the adjoining properties are (Figure 3, Appendix C):

North	Kapiolani Boulevard. Restaurants, shops, and offices are located across the boulevard.
East	Parking stalls and Buildings. The buildings area occupied by shops,

	restaurants and clubs.
South	Kona Street. Ala Moana Hotel Complex is located across Kona Street.
West	Multi-story office building and condos.

No recognized environmental conditions (RECs) were identified on the adjoining properties.

6.2.4 Past Use(s) of Adjoining Properties

No recognized environmental conditions (RECs) from past uses were identified on the adjoining properties during the visual evaluation.

6.2.5 Current or Past Uses in the Surrounding Area

The general area in the vicinity of the property is used for commercial and residential purposes.

6.2.6 Geologic, Hydrologic, and Topographic Conditions

The topography of the property and the surrounding areas is relatively flat.

6.2.7 General Description of Structures and Roads

General description of structures was obtained from the City and County of Honolulu's Real Property Assessment and Tax Billing Information web site. The following building is located on the subject property:

Parcel	Building No.	Construction Date (Age)	Number of Stories	Use	Construction
(1) 2-3-041:006	-	-	-	-	-
(1) 2-3-041:009	1	1952	1	Warehouse	Steel

	2	1954	2	Offices	Masonry
	3	1956	3	Offices	Masonry

Parking facilities are located on the property. There are no roads on the parcels.

6.2.8 Potable Water Supply

Potable water on the property is supplied by the municipal water distribution system from the Honolulu Board of Water Supply.

6.2.9 Sewage Disposal System

Sanitary sewage is discharged into municipal sanitary sewer system. A grease interceptor is located at the property (Photo 5, Appendix D) next to "Yakiniku Korea House" restaurant. The grease interceptor will not affect the environmental condition of the subject property if it is operated and maintained in accordance with the Federal and State of Hawaii rules and regulations.

6.3 EXTERIOR OBSERVATIONS

During the site reconnaissance conducted on September 10, 2014, CPR personnel visually inspected the subject site and limited portions of adjacent properties. The following are observations noted during the site inspection.

6.3.1 Hazardous Substances, Wastes and Materials

No hazardous substances, wastes, or materials were observed on the subject property.

6.3.2 Storage Tanks

No tanks were observed.

6.3.3 Odors

No strong, pungent or noxious odors were observed.

6.3.4 Pools of Liquid

No standing surface water was observed

6.3.5 Drums

None

6.3.6 Containers of Hazardous Materials and Petroleum Products

None

6.3.7 Unidentified Substance Containers

None

6.3.8 Indications of PCBs

There are four (4) pole-mounted transformers at two poles along Kona Street. No stains representing oil leaks were observed under the poles. It was not determined whether any of these transformers contain polychlorinated biphenyls (PCBs).

6.3.9 Pits, Ponds, or Lagoons

No pits, ponds, or lagoons were observed.

6.3.10 Stained Soil or Pavement

None

6.3.11 Stressed Vegetation

No areas of stressed vegetation were observed.

6.3.12 Solid Waste

None

6.3.13 Waste Water

None

6.3.14 Wells

No wells were observed on the property.

6.3.15 Septic Systems

No septic systems or cesspools were observed on the property.

6.3.16 Migration of Off-Site Contamination

No migration of off-site contamination was observed

6.3.17 Air Emissions

No onsite sources of air emissions were noted.

6.3.18 Dry-Cleaning Operations

The building currently used as "Yakiniku Korea House" restaurant was historically used as a clothes cleaning facility (Section 5.4.1, above). This site assessment did not locate information that would indicate the building may be used for dry-cleaning or laundry operations.

6.4 INTERIOR OBSERVATIONS

6.4.1 Heating/Cooling

The buildings on the property are cooled by central air conditioning units.

6.4.2 Stains or Corrosion

There were no stains or corrosion on the floors, walls, or ceilings in the buildings.

6.4.3 Drains and Sumps

No drains and sumps were observed other than the grease interceptor next to "Yakiniku Korea House" restaurant.

6.5 NON-ASTM ISSUES

6.5.1 Radon Concentrations in Buildings

Two studies were conducted by the State of Hawaii DOH, in coordination with the EPA, to investigate radon concentrations in private residences (1989-1990) and in public elementary schools (1993-1996). The residential study included over 500 homes located throughout the state and found the average radon concentration to be 0.5 picoCuries per liter (pCi/L) (Takata, 1998). The school study included 97 schools on Hawaii, Maui, Molokai, Oahu, and Kauai and found the average concentration to be 0.1 pCi/L (Takata, 1998). The HDOH concluded that no further research into the

potential health effects of radon exposure was required because the study results were well below the EPA action level of 4 pCi/L (Takata, 1998).

The EDR report lists that 209 sites were tested in the Honolulu County with all testing below the 4 pCi/L action level for living areas (Appendix F). Therefore, potential human health risks due to elevated radon concentrations are not anticipated to be an issue at the subject site.

6.5.2 Asbestos-Containing Materials

Physical sampling and analysis of suspect ACM was not conducted during the assessment as it is not a scope item for a Phase I ESA under ASTM E1527-13.

Because the buildings on the subject property were built prior to 1980, ACM may be present. Prior to any activities (i.e., repair, renovation, demolition) which may disturb ACM, the building owner or leased space tenant may be required to comply with applicable United States Environmental Protection Agency (USEPA) National Emissions Standards for Hazardous Air Pollutants (NESHAPS), Occupational Safety and Health Administration (OSHA), and state and local regulations. If suspect ACM will be disturbed, these and similar materials should be sampled and analyzed for possible asbestos content.

6.5.3 Lead-Based Paint

Physical sampling and analysis of suspect Lead-based paint was not conducted during the assessment as it is not a scope item for a Phase I ESA under ASTM E1527-13.

Lead-based paint was commonly used for corrosion protection in the 1960s, and in prime, intermediate, and finish coats well into the 1970s. Regulations specifically addressing lead-based paint include Housing and Urban Development (HUD) (1995) guidelines and the Consumer Product Safety Act (1977).

These regulations define lead-based paint as containing 0.5% lead by weight (5,000 ppm) for housing products. There are specific testing methods for sampling and analyzing lead in paint.

Because the buildings on the subject property were built prior to 1978, lead-based paint could be an issue at the subject property. Prior to any activities (i.e., repair, renovation, demolition) which may disturb painted building surfaces, sampling should be conducted to determine the presence or absence of lead in the painted surfaces.

7.0 INTERVIEWS

The purpose of interviews is to obtain information indicating recognized environmental conditions in connection with the property. Copies of the interview documentation can be found in Appendix G.

7.1 OWNER INTERVIEW

CPR interviewed Mr. Timothy Yi of Sam Koo Hawaii, LLC regarding his knowledge of the site history and development plans for the property. According to Mr. Yi, the subject properties have been owned by Sam Koo for 7 years. Mr. Yi has been involved with the properties for 7 years. Mr. Yi does not have knowledge of the site use prior to acquisition of the property by Sam Koo. Mr. Yi does not have knowledge of the environmental history of the subject property. Mr. Yi indicated that contaminated soil was not encountered during the recent installation of the grease trap at the restaurant on the 1631 Kapiolani Parcel.

In regard to the proposed site development, the building foundation details for the subject property have not been determined.

8.0 FINDINGS

The findings of this Phase I ESA are that the following recognized environmental conditions (RECs) were likely present on the subject property:

- The 1949 Sanborn Map shows the structure located at the west side of the Parcel 009 as "clo. clean'g" that probably means "clothes cleaning". It is

noted that the Sanborn Maps typically indicate "dry cleaning" as separate from "clothes cleaning". The 1949 Sanborn Map does not show the presence of a fuel storage tank on site. The source of hot water for the laundry is not known. The presence of a laundry without indications of dry cleaning or fuel storage does not constitute a recognized environmental condition.

- The R. M. Towill Corporation noted that the general area around the property has received fill material from a number of sources over the years, including trash, construction debris, and sugar processing by products, dredged materials, and fill dirt. A subsurface investigation performed on an adjacent property did not reveal any hazardous materials. If excavation work is planned for the subject property, additional subsurface investigations may be recommended or the excavation may be monitored by a qualified professional to allow for the identification of suspect hazardous materials (*Kapiolani Commercial Property Parcel (1)-2-3-41: 009, Honolulu, Hawaii.* R. M. Towill Corporation, February, 2002).

The following environmental conditions, which are not considered to be *recognized environmental conditions*, as defined by ASTM, were revealed during this assessment:

- Because the buildings on the subject property were built prior to 1980, suspect asbestos-containing materials (ACM) may be an issue at the subject property. An asbestos inspection was performed on February 7, 2001 by the R. M. Towill Corporation to identify any friable asbestos containing building materials. A total of seven building materials were sampled and no asbestos was in any of the samples. However, no samples of floor tiles, mastics, roofing materials or other not friable materials were collected as a part of this inspection.

- Because the buildings on the subject property were built prior to 1978, lead-based paint (LBP) could be an issue at the subject property.

The findings of this Phase I ESA are that the following Recognized Environmental Conditions (RECs) are present on the adjoining properties:

- *Ala Moana Hotel.* 410 Atkinson Dr. SSW 0.080 mi. - Small quantity generator (SQG). SQG generates between 100 kg and 1,000 kg of hazardous waste per month. Violation Status: No violations found.

- *Pan Am Bldg.* 1600 Kapiolani Blvd. NW 0.036 mi. - Conditionally Exempt Small Quantity generator (CESQG). CESQG generates less than 100 kg of hazardous waste, or less than 1 kg of acutely hazardous waste per month. Violation Status: No violations found.

  The SQG and CESQG sites will not affect the environmental condition of the subject property if they are operated and maintained in accordance with the Federal and State of Hawaii rules and regulations.

- The 1955 Sanborn Map shows an auto repairing facility including a gas station marked as "gas & oil" on the south adjoining property located across Kona street. This property is now occupied by the Ala Moana Hotel. Substantial excavation was conducted during the construction of this building. No adverse effect on the subject property is expected from the former "gas & oil" sites due to the site distance to the subject property and downgradient location.

The findings of this Phase I ESA are that the Recognized Environmental Conditions (RECs) are present on the surrounding properties. However, no adverse effects on the subject property are expected from these properties due to the distance to the subject property.

9.0 OPINION

CPR has conducted a Phase I ESA of the subject properties. The noted item of primary concern is the reported filling of the area as described above in Section 5.4.4. However, the geotechnical investigation did not report encountering refuse in the onsite soil (Section 5.4.4, above).

The historical use of the property for clothes cleaning as shown on the 1949 Sanborn Map (Section 5.4.1, above) is not a significant concern. The potential use of the site for dry cleaning was not indicated on the map. Also, the presence of fuel storage tanks was not shown. Both dry cleaning and fuel storage are typically shown on

Sanborn Maps. While this does not fully rule out the presence of concerns related to dry cleaning or fuel storage it does significantly decrease the likelihood of their presenting a concern to the site development.

Several offsite occurrences of potentially hazardous materials are note, however, these are not anticipated to adversely affect the subject property.

Based on the findings of this Phase I ESA, no additional environmental actions are warranted for the subject property at the date of this report.

9.1 VALUATION REDUCTION FOR ENVIRONMENTAL ISSUES

Based on the evaluation of the recognized environmental condition presented in this report, no substantial reduction in valuation for environmental issues is warranted. This evaluation has considered the information obtained from the Purchaser and Seller, and the compiled information assembled for the Subject Property and study area during the performance of this Phase I ESA.

10.0 CONCLUSIONS

CPR has performed a Phase I Environmental Site Assessment (ESA) of TMK: (1) 2-3-041:009 & (1) 2-3-041:006, 1631 & 1637 Kapiolani Boulevard, Honolulu, Oahu, Hawaii.

CPR has performed this Phase I Environmental Site Assessment in accordance with the scope and limitations of ASTM Practice E1527-13 (ASTM E1527-13) and All Appropriate Inquiry (AAI). Any exceptions to, or deletions from, this practice are described in Section 2.5 of this report.

The findings of this Phase I ESA are that the following recognized environmental conditions (RECs) were likely present on the subject property:

- The 1949 Sanborn Map shows the structure located at the west side of the Parcel 009 as "clo. clean'g" that probably means "clothes cleaning". It is noted that the Sanborn Maps typically indicate "dry cleaning" as separate from "clothes cleaning". The 1949 Sanborn Map does not show the presence

of a fuel storage tank on site. The source of hot water for the laundry is not known. The presence of a laundry without indications of dry cleaning or fuel storage does not constitute a recognized environmental condition.

- The R. M. Towill Corporation noted that the general area around the property has received fill material from a number of sources over the years, including trash, construction debris, and sugar processing by products, dredged materials, and fill dirt. A subsurface investigation performed on an adjacent property did not reveal any hazardous materials. If excavation work is planned for the subject property, additional subsurface investigations may be recommended or the excavation may be monitored by a qualified professional to allow for the identification of suspect hazardous materials (*Kapiolani Commercial Property Parcel (1)-2-3-41: 009, Honolulu, Hawaii.* R. M. Towill Corporation, February, 2002).

The following environmental conditions, which are not considered to be *recognized environmental conditions*, as defined by ASTM, were revealed during this assessment:

- Because the buildings on the subject property were built prior to 1980, suspect asbestos-containing materials (ACM) may be an issue at the subject property. An asbestos inspection was performed on February 7, 2001 by the R. M. Towill Corporation to identify any friable asbestos containing building materials. A total of seven building materials were sampled and no asbestos was in any of the samples. However, no samples of floor tiles, mastics, roofing materials or other not friable materials were collected as a part of this inspection.

- Because the buildings on the subject property were built prior to 1978, lead-based paint (LBP) could be an issue at the subject property.

The findings of this Phase I ESA are that the following Recognized Environmental Conditions (RECs) are present on the adjoining properties:

- *Ala Moana Hotel.* 410 Atkinson Dr. SSW 0.080 mi. - Small quantity generator (SQG). SQG generates between 100 kg and 1,000 kg of hazardous waste per month. Violation Status: No violations found.

- *Pan Am Bldg.* 1600 Kapiolani Blvd. NW 0.036 mi. - Conditionally Exempt Small Quantity generator (CESQG). CESQG generates less than 100 kg of hazardous waste, or less than 1 kg of acutely hazardous waste per month. Violation Status: No violations found.

  The SQG and CESQG sites will not affect the environmental condition of the subject property if they are operated and maintained in accordance with the Federal and State of Hawaii rules and regulations.

- The 1955 Sanborn Map shows an auto repairing facility including a gas station marked as "gas & oil" on the south adjoining property located across Kona street. This property is now occupied by the Ala Moana Hotel. Substantial excavation was conducted during the construction of this building. No adverse effect on the subject property is expected from the former "gas & oil" sites due to the site distance to the subject property and downgradient location.

The findings of this Phase I ESA are that the Recognized Environmental Conditions (RECs) are present on the surrounding properties. However, no adverse effects on the subject property are expected from these properties due to the distance to the subject property.

Based on the findings of this Phase I ESA, no additional environmental actions are warranted for the subject property at the date of this report.

11.0 DEVIATIONS

CPR has made one exception to the Phase I ESA procedures specified by ASTM E1527-13. Because the State of Hawaii does not compile a list of hazardous waste sites identified for investigation or remediation (NPL or CERCLIS equivalents), we are unable to include such a list in our records review. We reviewed the DOH HEER *Sites of Interest Database* instead (see Section 5.1.12).

12.0 ADDITIONAL SERVICES

No additional services beyond the standard practice were performed as part of this project.

13.0 REFERENCES

ASTM, 2013. Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process (ASTM Designation E1527-13). American Society for Testing and Materials (ASTM), Washington, 2013.

Macdonald et al., 1983. G.A. Macdonald, A.T. Abbott, F.L. Peterson. Volcanoes in the Sea. The Geology of Hawaii. Second Edition, 1983. University of Hawaii Press, Honolulu.

Mink J.F. and L.S. Lau, 1990. Aquifer Identification and Classification for Oahu: Groundwater Protection Strategy for Hawaii. Water Resources Research Center, University of Hawaii at Manoa.

Takata, 1998. Telecommunication with Mr. Russell Takata, Radon Section Supervisor for the Department of Health Radiation Section, June 4, 1998.

14.0 QUALIFICATIONS

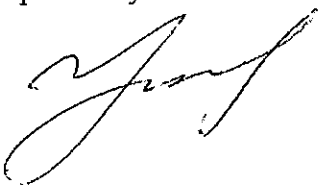
We declare that, to the best of our professional knowledge and belief, we meet the definition of Environmental Professional as defined in §312.10 of 40 CFR Part 312. We have the specific qualifications based on education, training, and experience to assess a property of the nature, history, and setting of the subject property. We have developed and performed the all appropriate inquiries in conformance with the standards and practices set forth in 40 CFR Part 312.

A listing of the qualifications of the environmental professionals involved with this report is supplied in Appendix H.

15.0 SIGNATURES

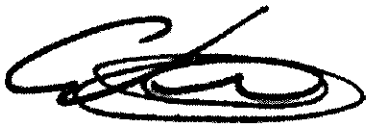
We appreciate the opportunity to work with you on this project. If you have any questions concerning the findings and conclusions contained in this report, please call Mr. Ned Murphy at (808) 216-6555.

Prepared by:



Alexander Grafchikov
Environmental Specialist

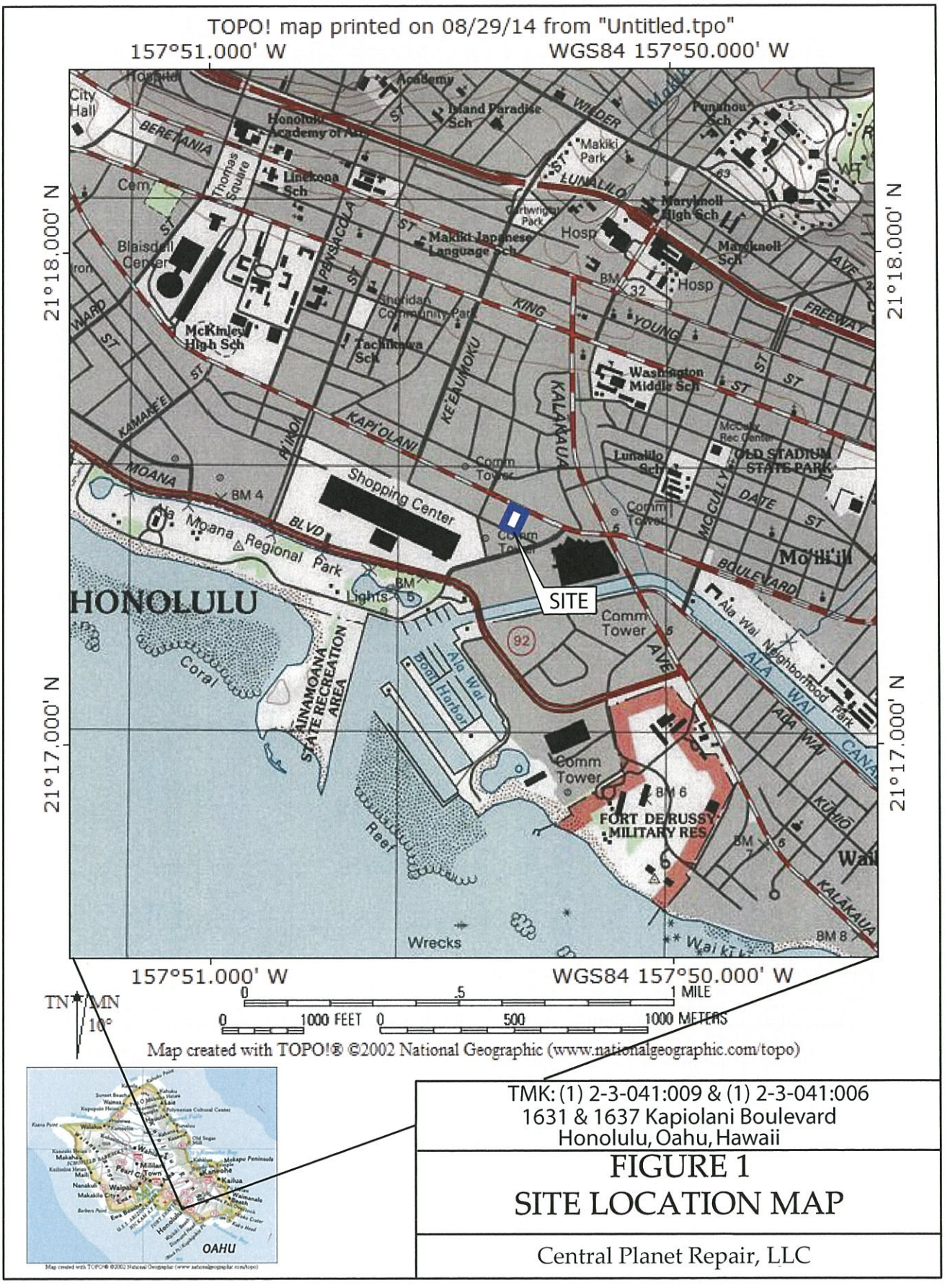
Reviewed by:



Ned Murphy
Consulting Geochemist

APPENDIX A

Figure 1 - Site Location Map



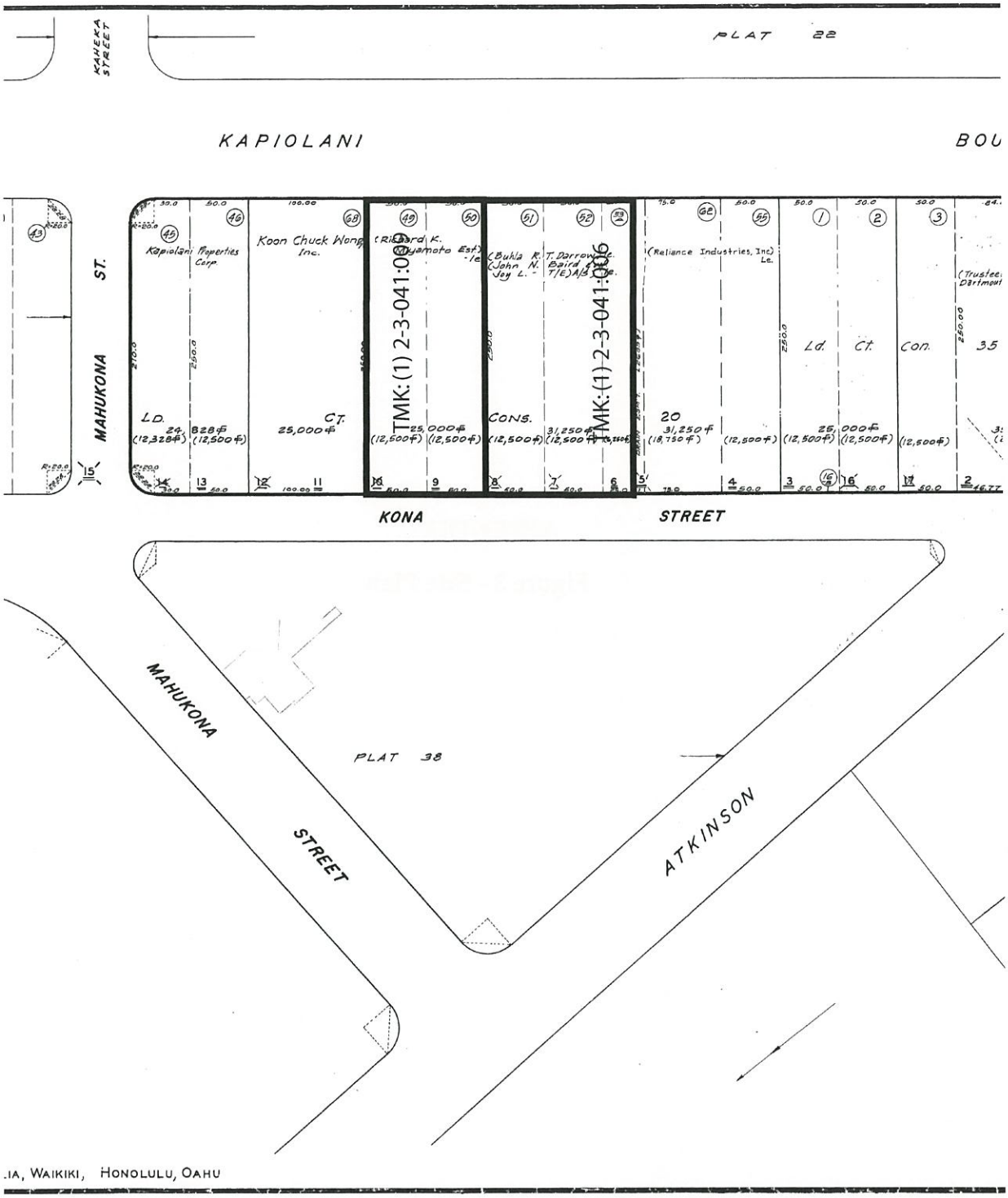
TMK: (1) 2-3-041:009 & (1) 2-3-041:006
1631 & 1637 Kapiolani Boulevard
Honolulu, Oahu, Hawaii

FIGURE 1
SITE LOCATION MAP

Central Planet Repair, LLC

APPENDIX B

Figure 2 - Tax Map



.IA, WAIKIKI, HONOLULU, OAHU

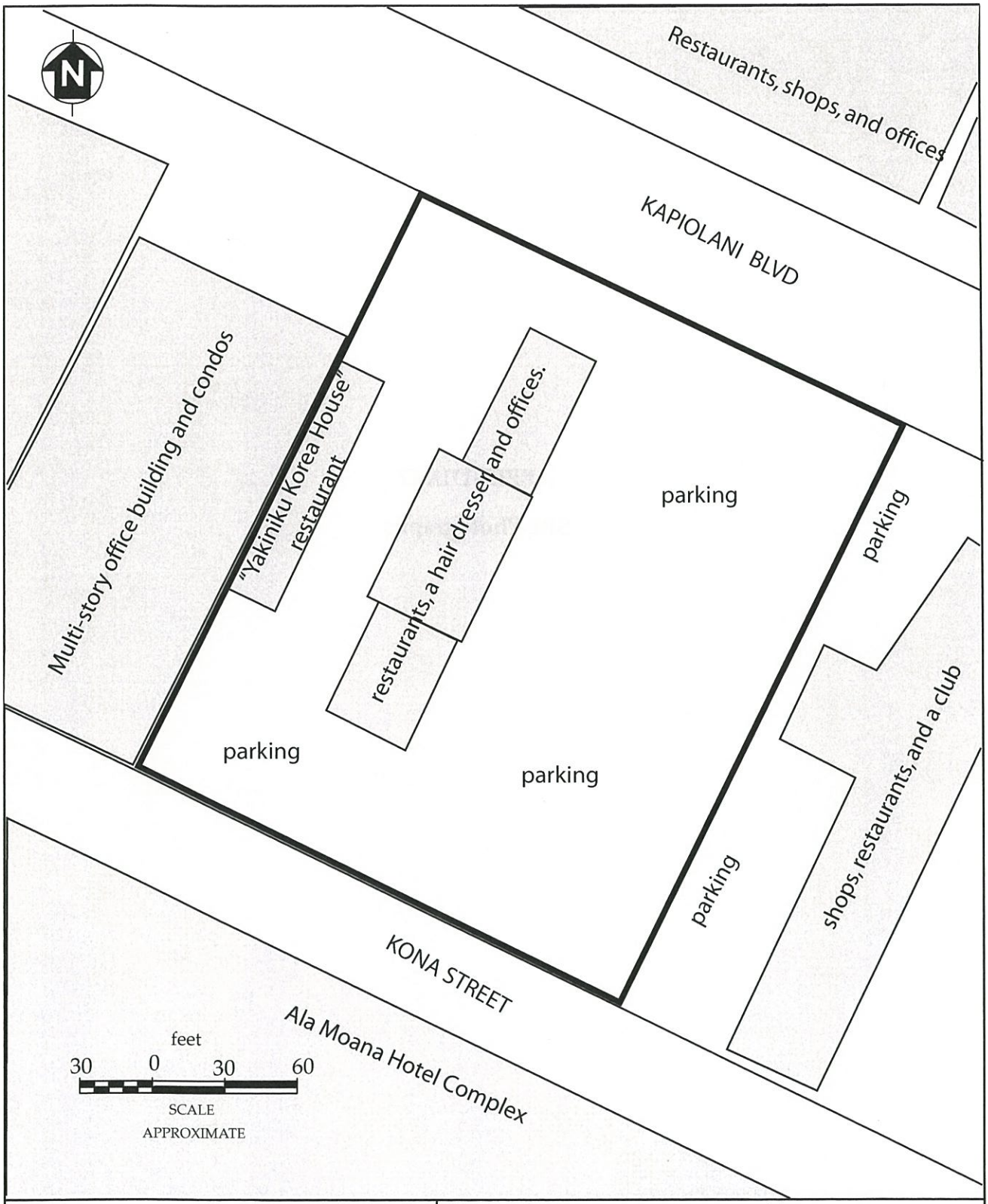
TMK: (1) 2-3-041:009 & (1) 2-3-041:006
1631 & 1637 Kapiolani Boulevard
Honolulu, Oahu, Hawaii

FIGURE 2
TAX MAP

Central Planet Repair, LLC

APPENDIX C

Figure 3 - Site Plan



LEGEND:

Site Boundaries

Buildings and Structures

TMK: (1) 2-3-041:009 & (1) 2-3-041:006
1631 & 1637 Kapiolani Boulevard
Honolulu, Oahu, Hawaii

FIGURE 3
SITE PLAN

Central Planet Repair, LLC

APPENDIX D

Site Photographs

Photo 1. View of the Southwest area of the Subject Property from Kapiolani Boulevard.

Photo 2. View of the Commercial and Office Building at the Central part of the Subject Property Looking South.

Photo 3. View of the Dealership Parking at the Southwest Area of the Subject Property from Kona Street.

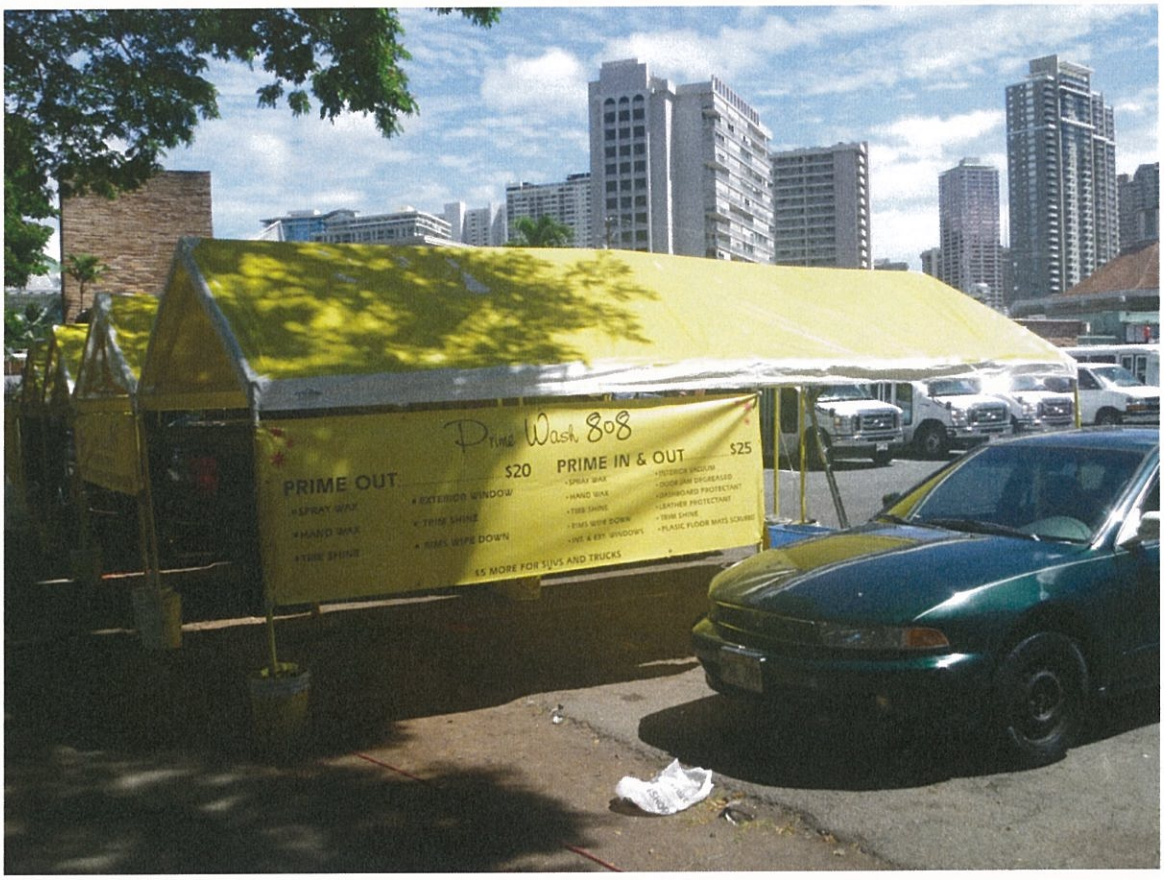


Photo 4. View of the Parking at the East Area of the Subject Property from Kapiolani Boulevard.

Photo 5. Interceptor Located Next to "Yakiniku Korea House" Restaurant.

Photo 6. Looking East Across Kapiolani Boulevard to Adjoining Properties.

Photo 7. Looking South across Kona Street to Ala Moana Hotel.

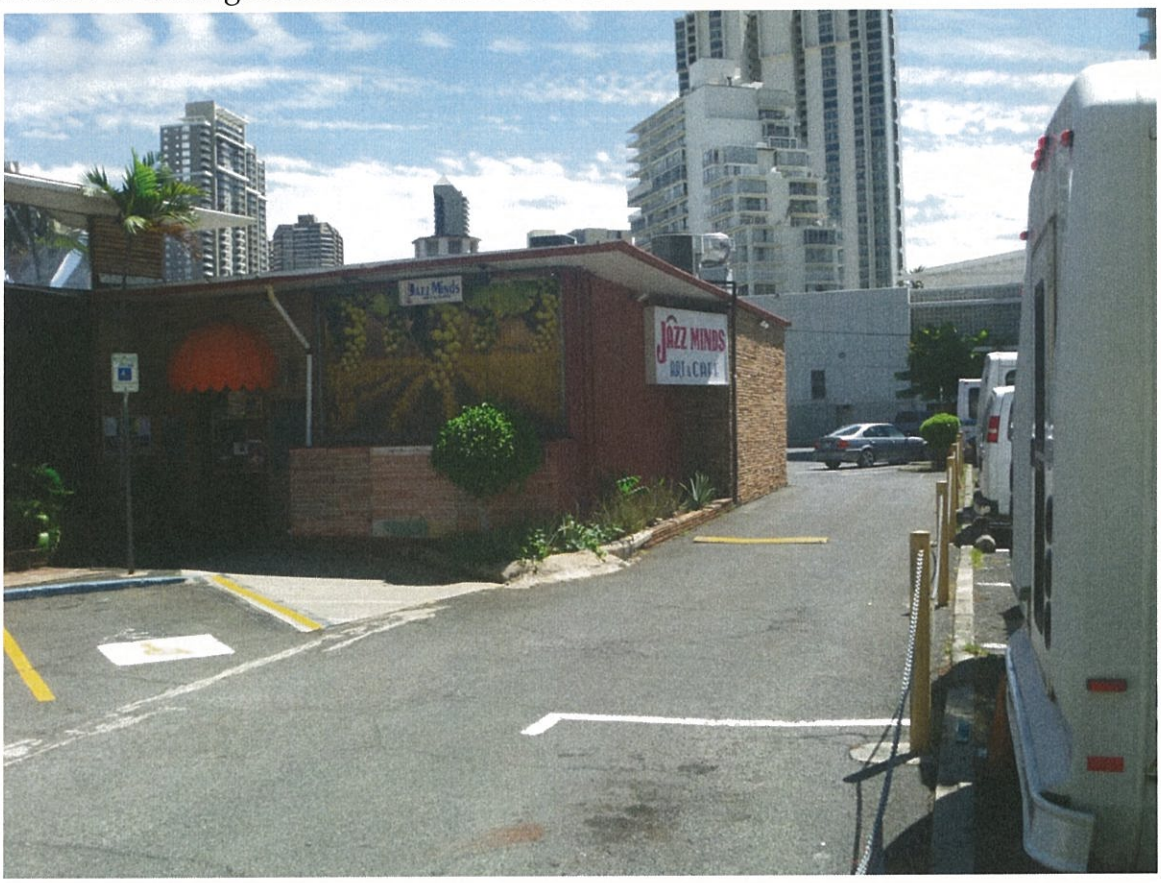


Photo 8. Looking South to the East Adjoining Properties.

APPENDIX E

Historical Research Documentation (Sanborn® Map Report, Historical USGS Maps, and Historic Aerial Photographs)

Sam Koo Pacific, LLC
1631 and 1637 Kapiolani Boulevard
Honolulu, HI 96814

Inquiry Number: 4046277.3
August 25, 2014

Certified Sanborn® Map Report

6 Armstrong Road, 4th Fl
Shelton, Connecticut 06484
Toll Free: 800.352.0050
www.edrnet.com

Certified Sanborn® Map Report

8/25/14

Site Name:
Sam Koo Pacific, LLC
1631 and 1637 Kapiolani
Honolulu, HI 96814

Client Name:
Central Planet Repair
236 Kuahiwi Avenue
Wahiawa, HI 96786

EDR Inquiry # 4046277.3

Contact: Ned Murphy

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Certified Sanborn Results:

Site Name: Sam Koo Pacific, LLC
Address: 1631 and 1637 Kapiolani Boulevard
City, State, Zip: Honolulu, HI 96814
Cross Street:
P.O. # CPR 74-2
Project: Sam Koo Pacific 1631 & 1637 Ka
Certification # 1B31-4A39-A6DE

Sanborn® Library search results
Certification # 1B31-4A39-A6DE

Maps Provided:

1993	1955
1991	1951
1985	1949
1980	
1975	
1973	

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Sanborn Sheet Thumbnails

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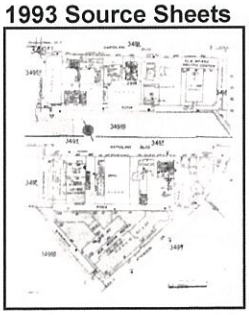
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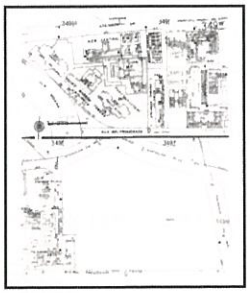
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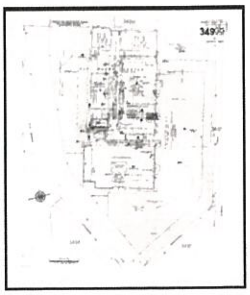
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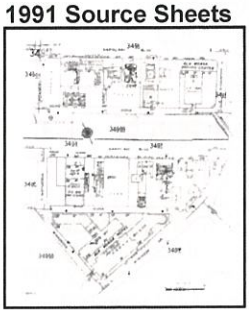
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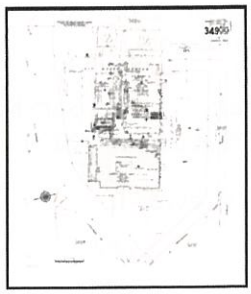
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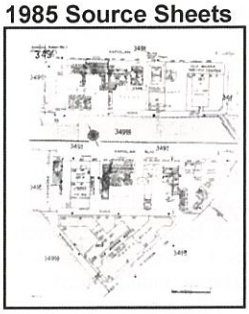
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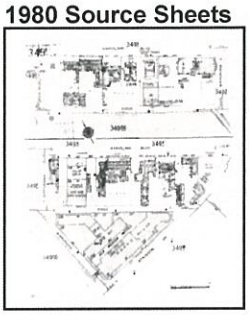
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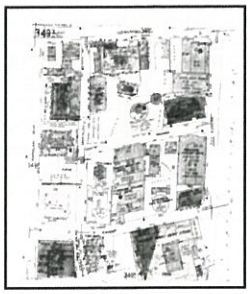
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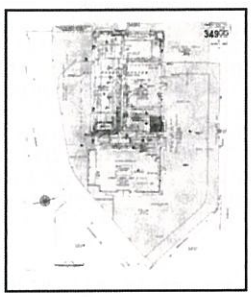
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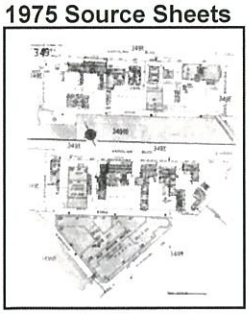

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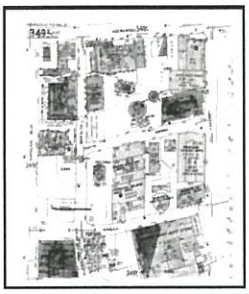

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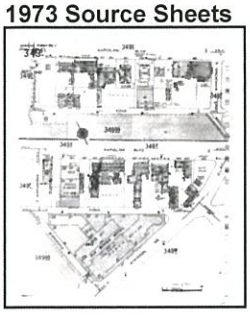

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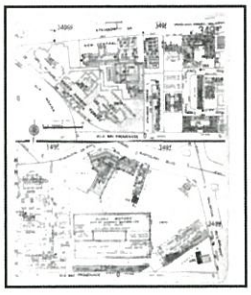

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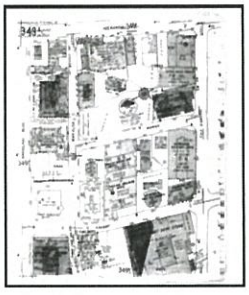

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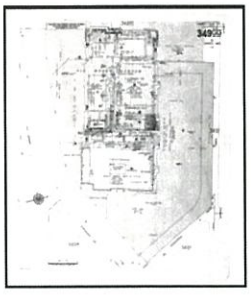

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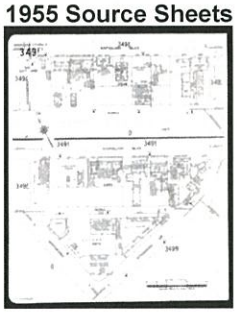

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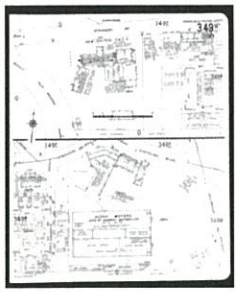

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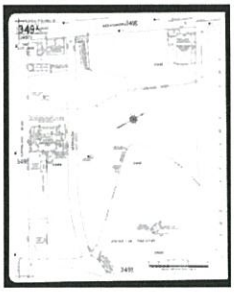

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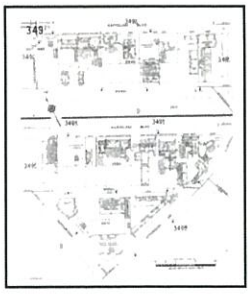

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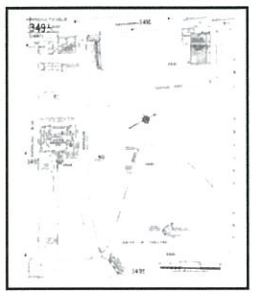

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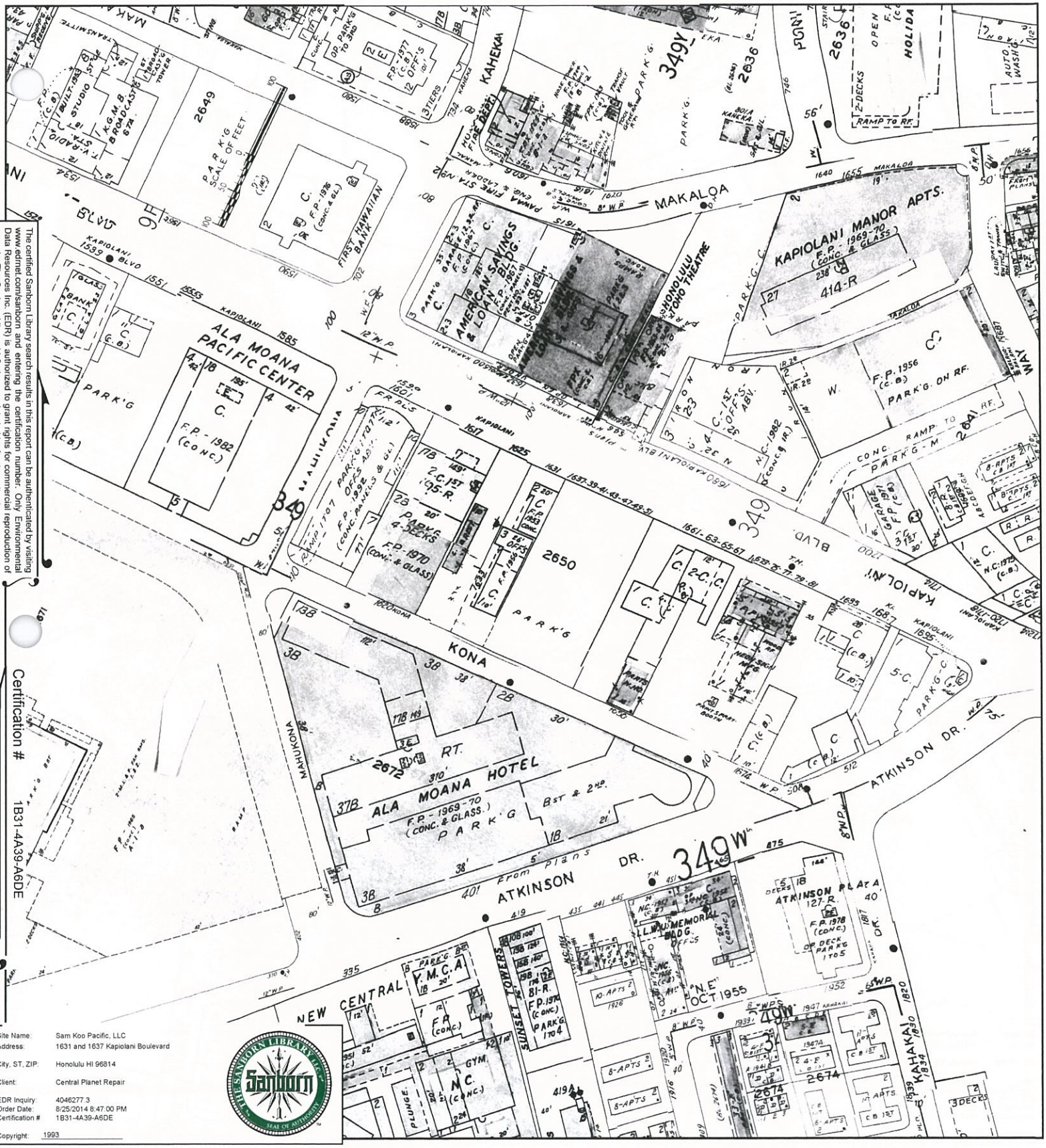

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Certification # 1B31-4A39-A6DE

Site Name:	Sam Koo Pacific, LLC
Address:	1631 and 1637 Kapiolani Boulevard
City, ST, ZIP:	Honolulu HI 96814
Client:	Central Planet Repair
EDR Inquiry:	4046277.3
Order Date:	8/25/2014 8:47:00 PM
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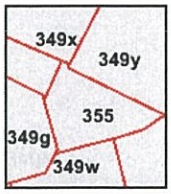
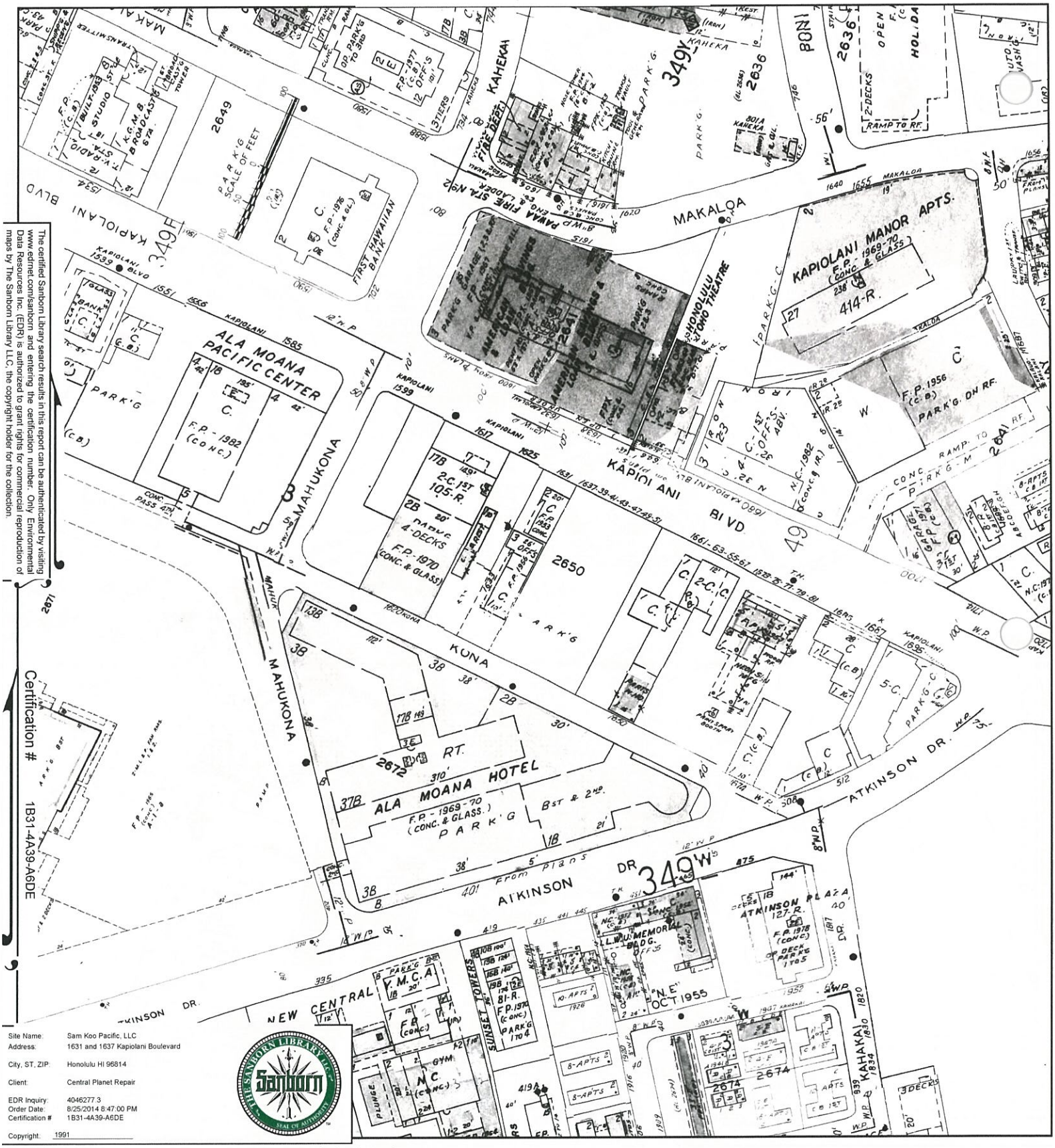


Volume 3, Sheet 355
Volume 3, Sheet 349w
Volume 3, Sheet 349x
Volume 3, Sheet 349y
Volume 3, Sheet 349g

0 Feet 150 300 600

N

1991 Certified Sanborn Map



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City, ST, ZIP:	Honolulu HI 96814
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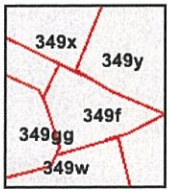

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Volume 3, Sheet 349w
Volume 3, Sheet 349x
Volume 3, Sheet 349y
Volume 3, Sheet 349gg

0 Feet 150 300

N

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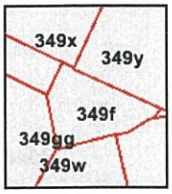

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Volume 3, Sheet 349x
Volume 3, Sheet 349y
Volume 3, Sheet 349gg

0 Feet 150 300 600

N

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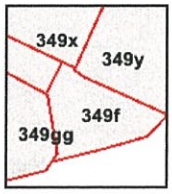

Volume 3, Sheet 349f
Volume 3, Sheet 349x
Volume 3, Sheet 349y
Volume 3, Sheet 349gg

0 Feet 150 300

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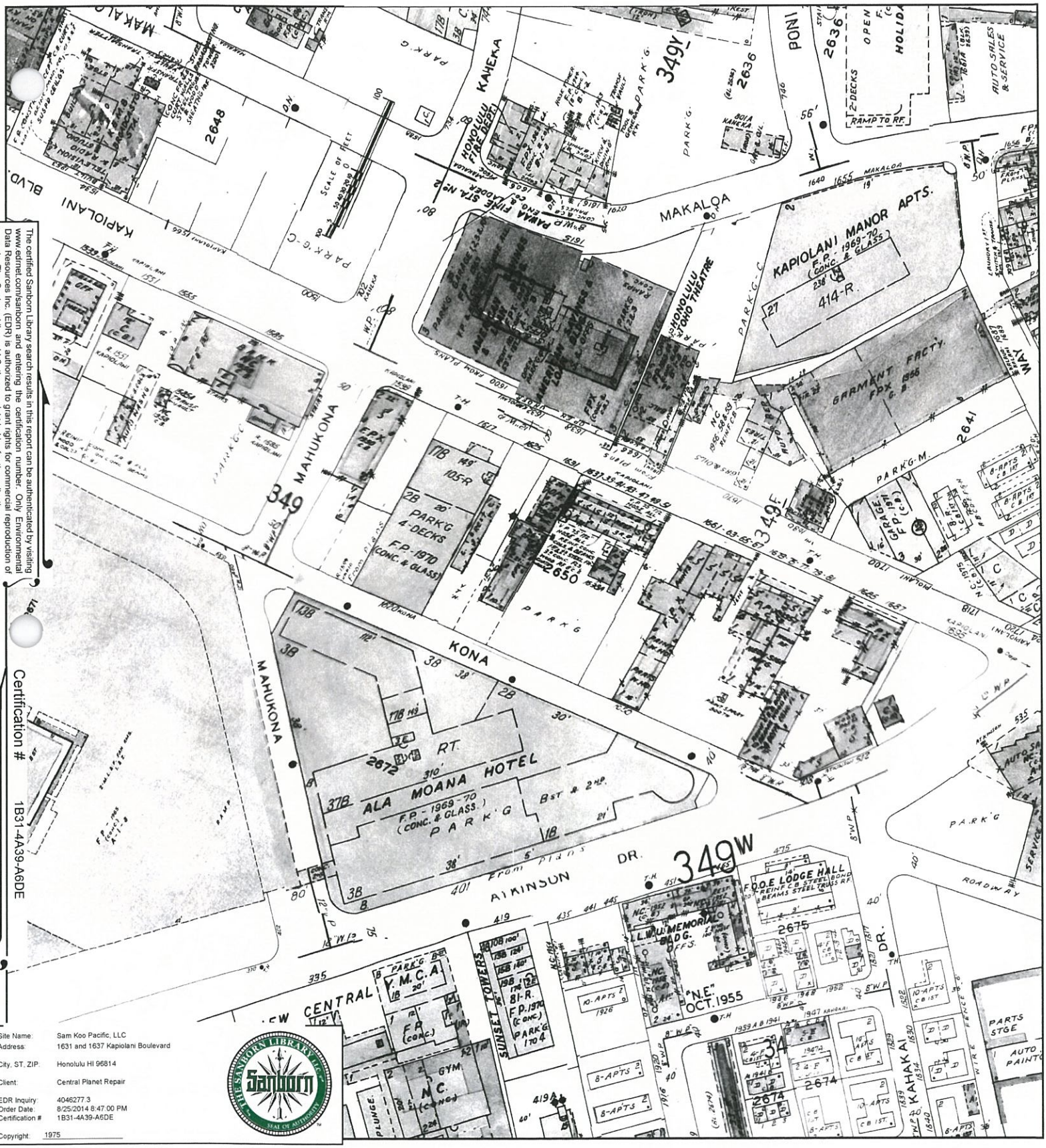
1975 Certified Sanborn Map



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Certification #	1B31-4A39-A6DE
Copyright:	1975

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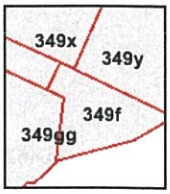

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Volume 3, Sheet 349gg

0 Feet 150 300 600

N

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Certification #	1B31-4A39-A6DE
Copyright:	1973

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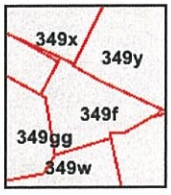
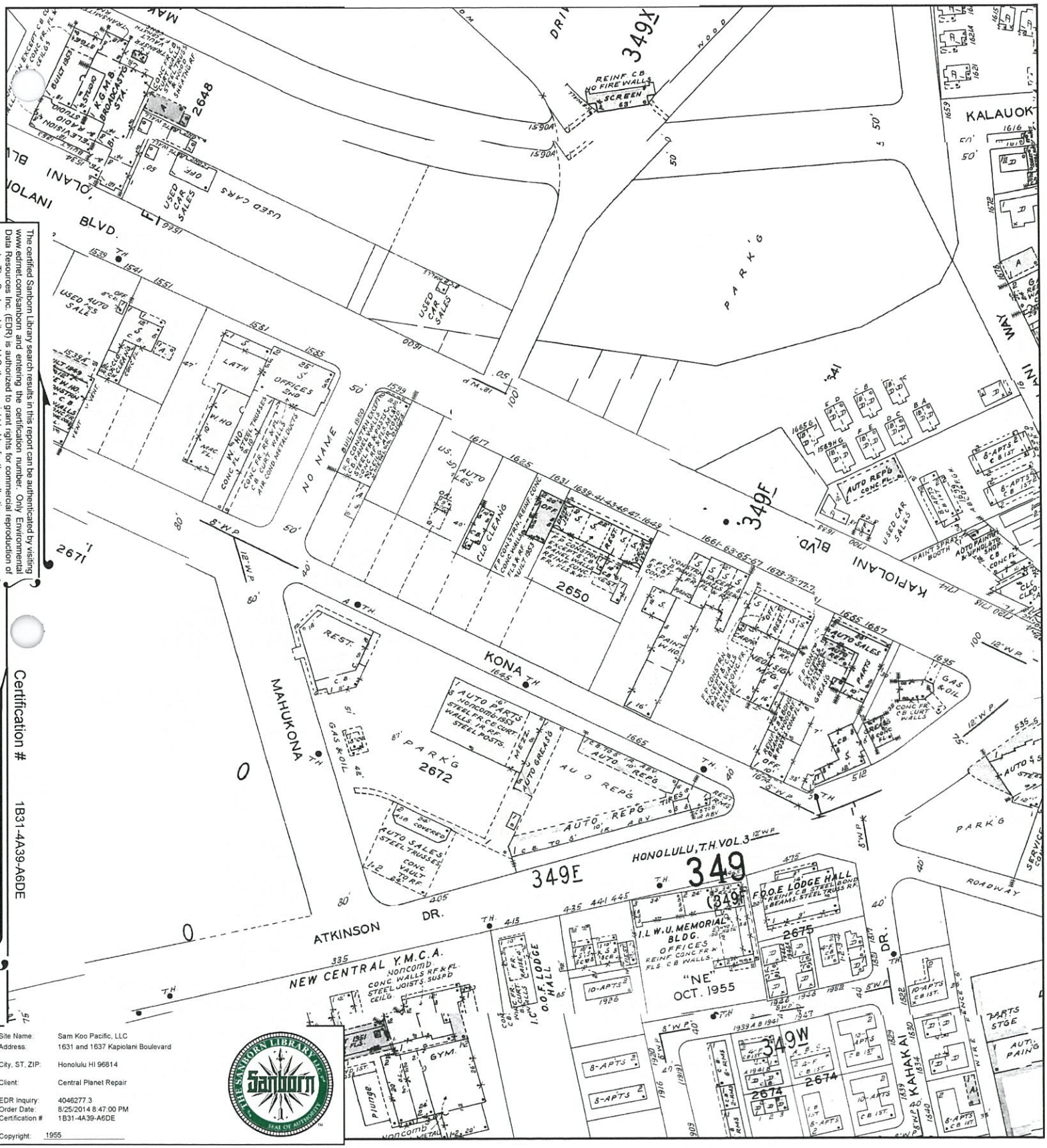


Volume 3, Sheet 349f
Volume 3, Sheet 349w
Volume 3, Sheet 349x
Volume 3, Sheet 349y
Volume 3, Sheet 349gg

0 Feet 150 300

N

1955 Certified Sanborn Map



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Copyright:	1955

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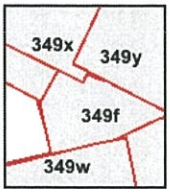
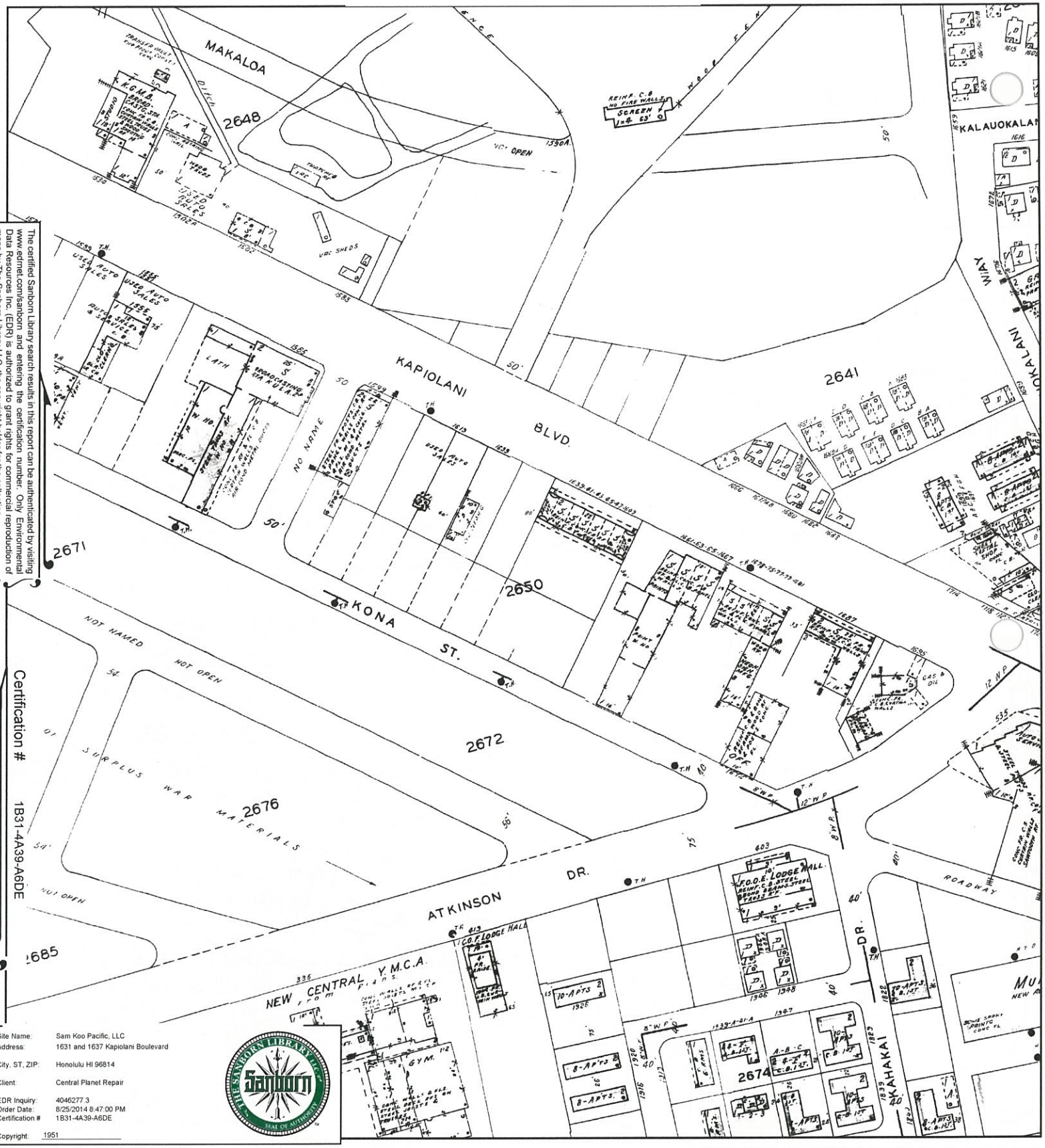


Volume 3, Sheet 349f
Volume 3, Sheet 349w
Volume 3, Sheet 349x
Volume 3, Sheet 349y
Volume 3, Sheet 349f
Volume 3, Sheet 349w
Volume 3, Sheet 349x
Volume 3, Sheet 349y

0 Feet 150 300 600

N

1951 Certified Sanborn Map



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Certification #	1B31-4A39-A6DE
Copyright:	1951

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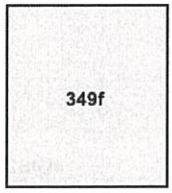

Volume 3, Sheet 349f

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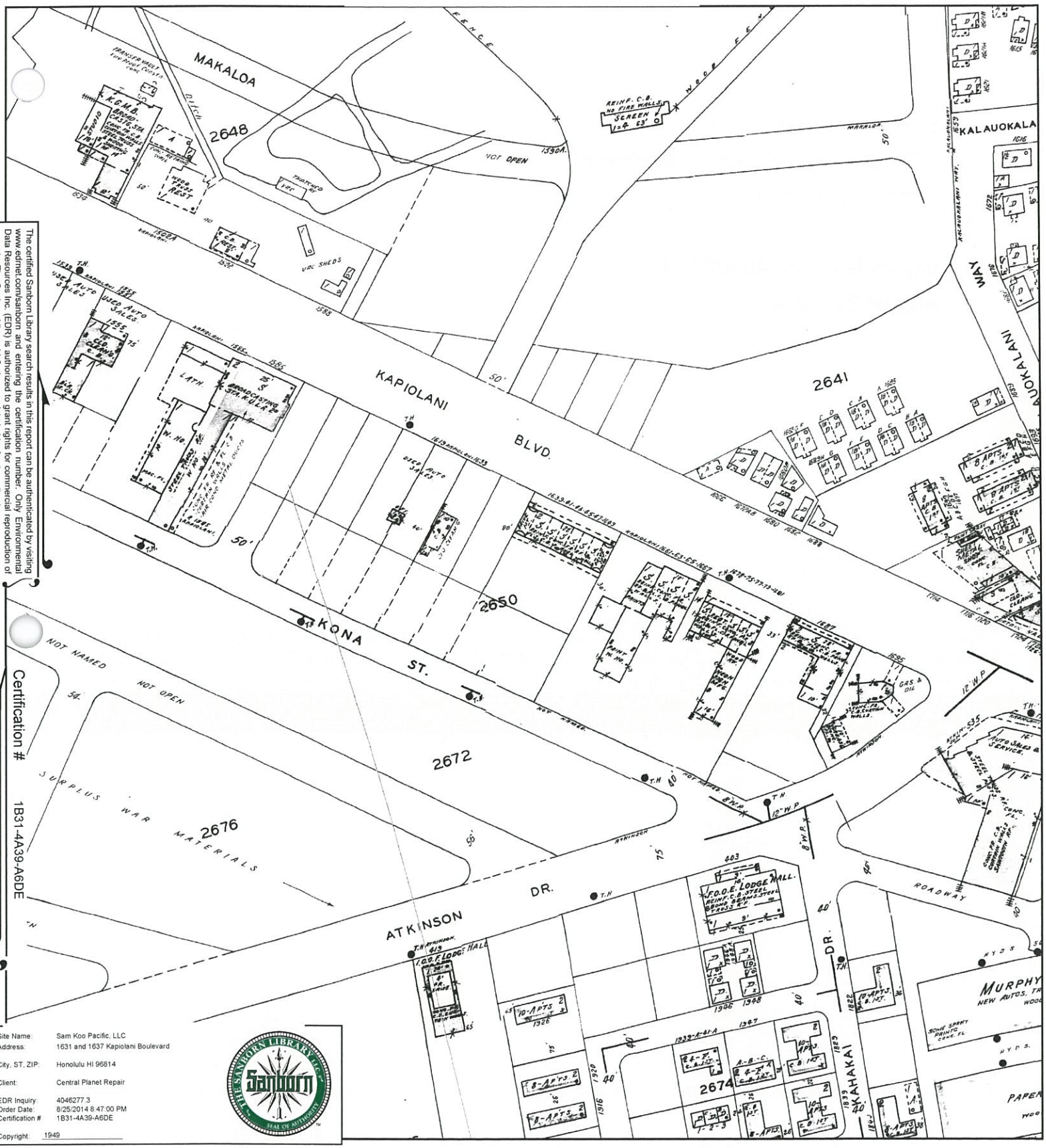
1949 Certified Sanborn Map



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Certification #	1B31-4A39-A6DE
Copyright:	1949

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Volume 3, Sheet 349f

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N

Sam Koo Pacific, LLC
1631 and 1637 Kapiolani Boulevard
Honolulu, HI 96814

Inquiry Number: 4046277.4
August 25, 2014

EDR Historical Topographic Map Report

6 Armstrong Road, 4th Fl
Shelton, Connecticut 06484
Toll Free: 800.352.0050
www.edrnet.com

EDR Historical Topographic Map Report

Environmental Data Resources, Inc.s (EDR) Historical Topographic Map Report is designed to assist professionals in evaluating potential liability on a target property resulting from past activities. EDRs Historical Topographic Map Report includes a search of a collection of public and private color historical topographic maps, dating back to the early 1900s.

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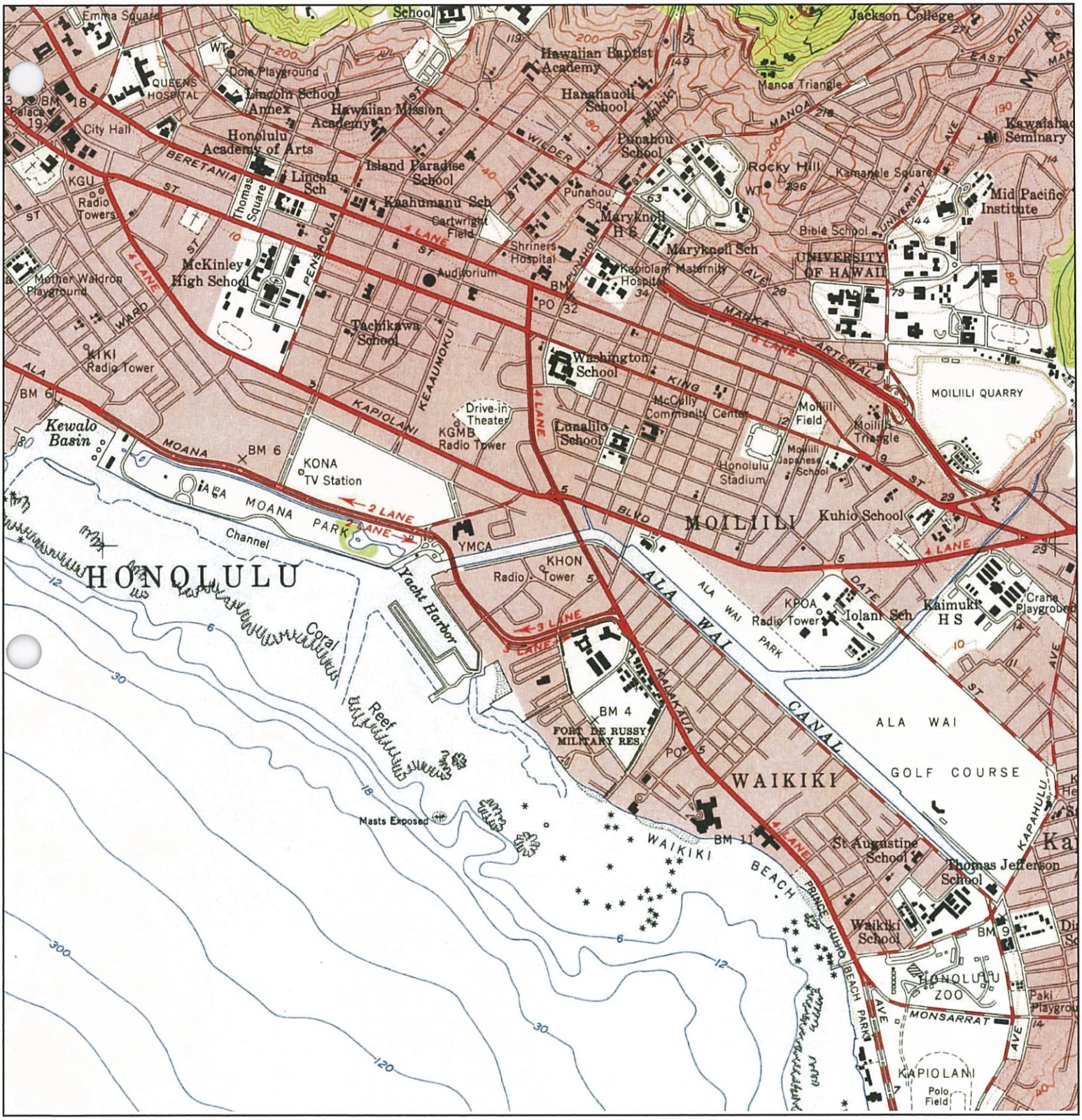
Historical Topographic Map

N	TARGET QUAD NAME: HONOLULU MAP YEAR: 1928 SERIES: 7.5 SCALE: 1:20000	SITE NAME: Sam Koo Pacific, LLC ADDRESS: 1631 and 1637 Kapiolani Boulevard Honolulu, HI 96814 LAT/LONG: 21.2911 / -157.8392	CLIENT: Central Planet Repair CONTACT: Ned Murphy INQUIRY#: 4046277.4 RESEARCH DATE: 08/25/2014

Historical Topographic Map



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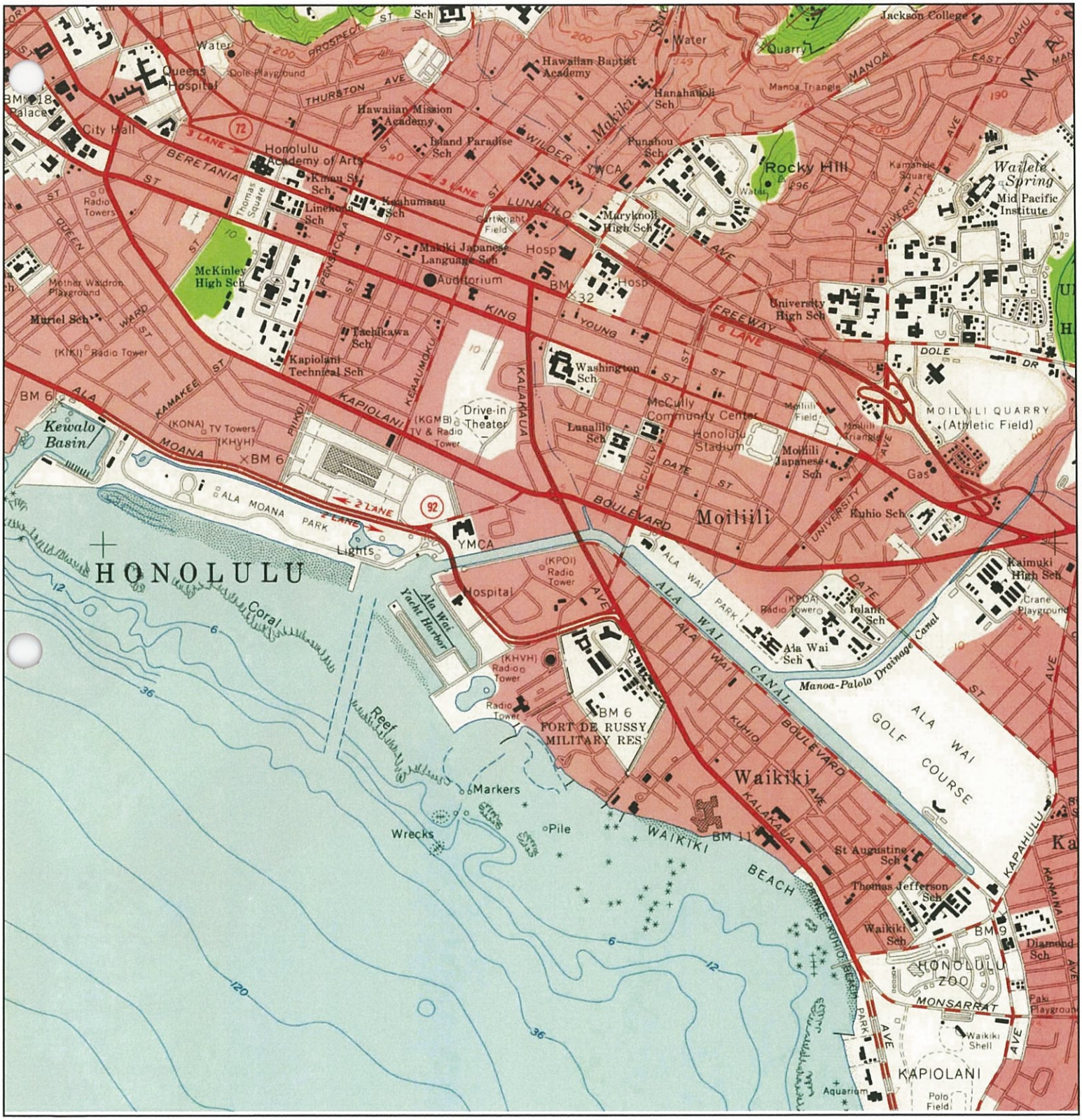
Historical Topographic Map

N	TARGET QUAD NAME: HONOLULU VICINITY SOUTH MAP YEAR: 1954 SERIES: 7.5 SCALE: 1:24000	SITE NAME: Sam Koo Pacific, LLC ADDRESS: 1631 and 1637 Kapiolani Boulevard Honolulu, HI 96814 LAT/LONG: 21.2911 / -157.8392	CLIENT: Central Planet Repair CONTACT: Ned Murphy INQUIRY#: 4046277.4 RESEARCH DATE: 08/25/2014

Historical Topographic Map



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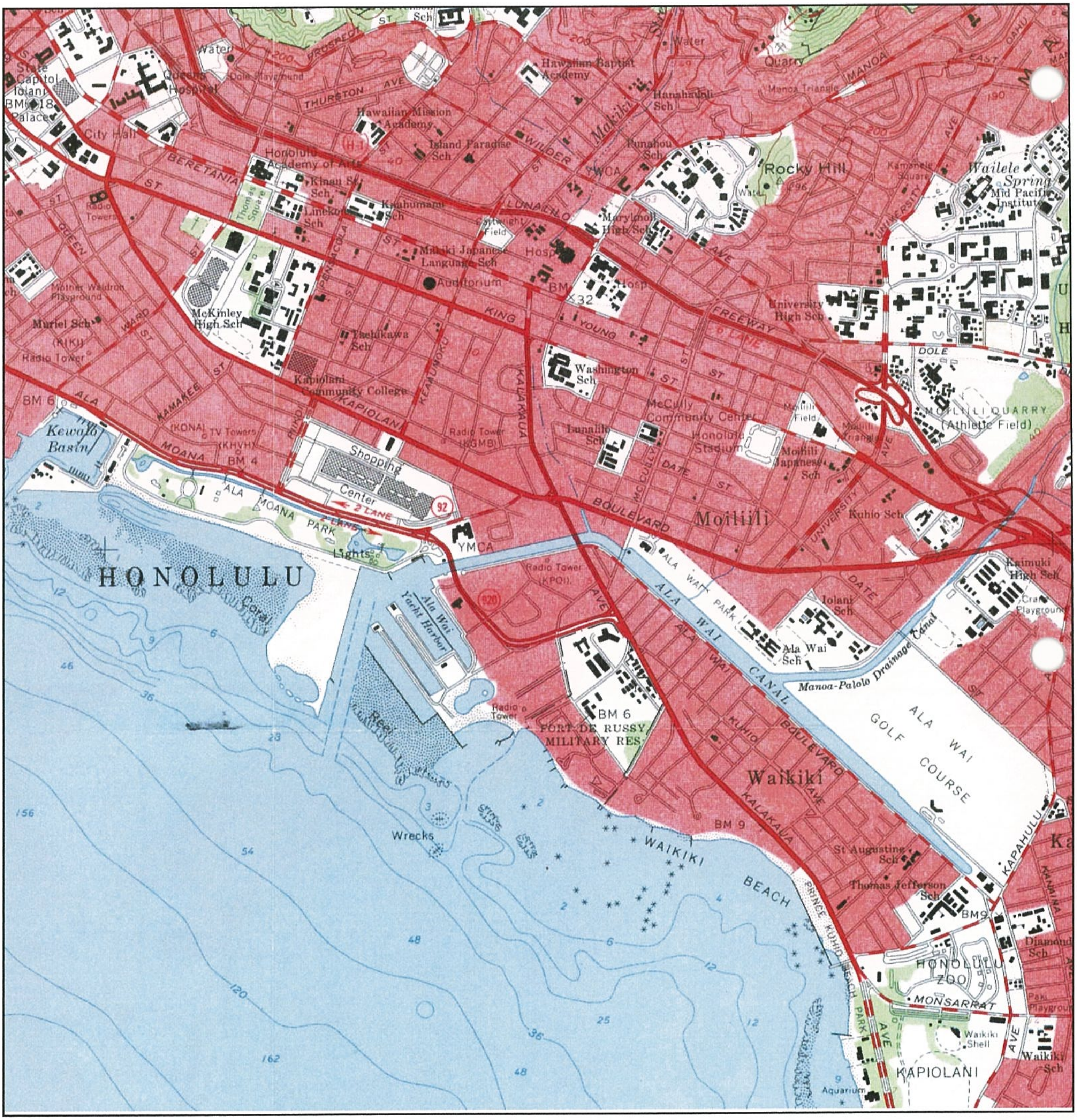
Historical Topographic Map

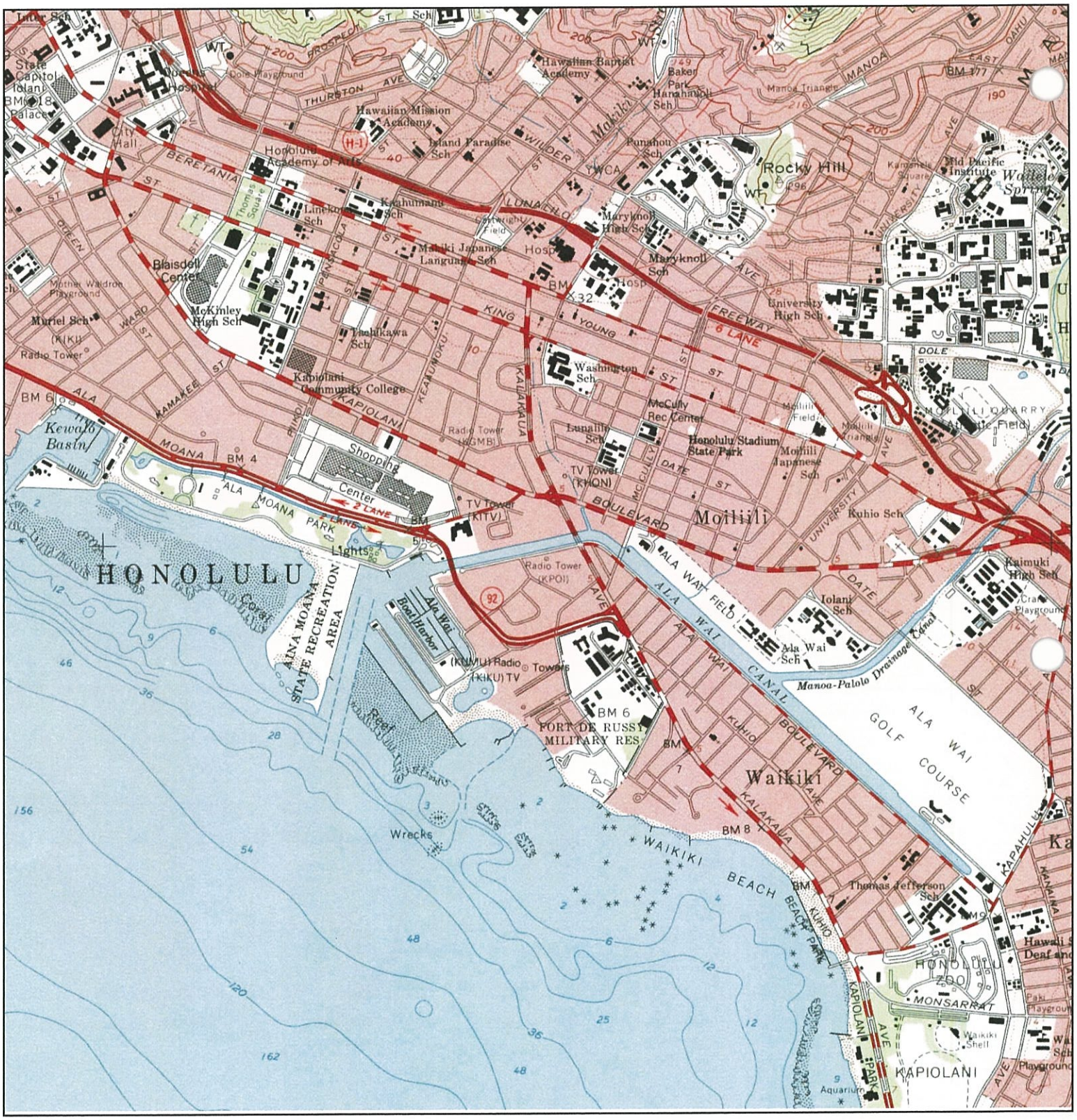


N ↑	TARGET QUAD NAME: HONOLULU MAP YEAR: 1969 SERIES: 7.5 SCALE: 1:24000	SITE NAME: Sam Koo Pacific, LLC ADDRESS: 1631 and 1637 Kapiolani Boulevard Honolulu, HI 96814 LAT/LONG: 21.2911 / -157.8392	CLIENT: Central Planet Repair CONTACT: Ned Murphy INQUIRY#: 4046277.4 RESEARCH DATE: 08/25/2014

Historical Topographic Map

N	TARGET QUAD NAME: OAHU MAP YEAR: 1970 REVISED FROM :1954 SERIES: 15 SCALE: 1:62500	SITE NAME: Sam Koo Pacific, LLC ADDRESS: 1631 and 1637 Kapiolani Boulevard Honolulu, HI 96814 LAT/LONG: 21.2911 / -157.8392	CLIENT: Central Planet Repair CONTACT: Ned Murphy INQUIRY#: 4046277.4 RESEARCH DATE: 08/25/2014

Historical Topographic Map



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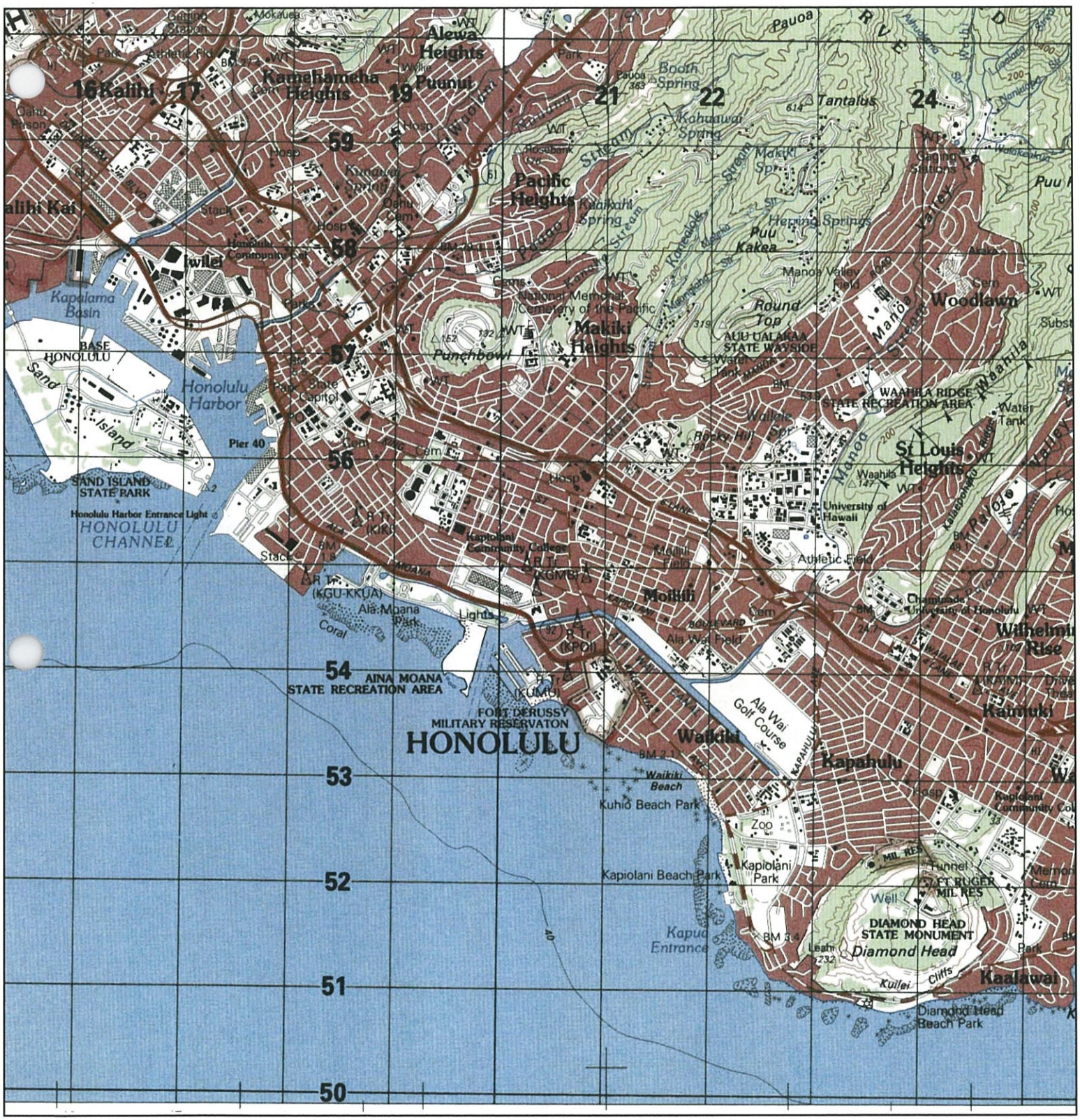
Historical Topographic Map



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Historical Topographic Map

N	TARGET QUAD NAME: HONOLULU MAP YEAR: 1998 SERIES: 7.5 SCALE: 1:24000	SITE NAME: Sam Koo Pacific, LLC ADDRESS: 1631 and 1637 Kapiolani Boulevard Honolulu, HI 96814 LAT/LONG: 21.2911 / -157.8392	CLIENT: Central Planet Repair CONTACT: Ned Murphy INQUIRY#: 4046277.4 RESEARCH DATE: 08/25/2014

1952

1959

1963

1968

1978

1993

2000

APPENDIX F

Environmental Data Resources, Inc. EDR Radius Map with GeoCheck®

Sam Koo Pacific, LLC
1631 and 1637 Kapiolani Boulevard
Honolulu, HI 96814

Inquiry Number: 4046277.2s
August 25, 2014

The EDR Radius Map™ Report with GeoCheck®

EDR® Environmental Data Resources Inc

6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

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EXECUTIVE SUMMARY

A search of available environmental records was conducted by Environmental Data Resources, Inc (EDR). The report was designed to assist parties seeking to meet the search requirements of EPA's Standards and Practices for All Appropriate Inquiries (40 CFR Part 312), the ASTM Standard Practice for Environmental Site Assessments (E 1527-13) or custom requirements developed for the evaluation of environmental risk associated with a parcel of real estate.

TARGET PROPERTY INFORMATION

ADDRESS

1631 AND 1637 KAPIOLANI BOULEVARD
HONOLULU, HI 96814

COORDINATES

Latitude (North):	21.2911000 - 21° 17' 27.96"
Longitude (West):	157.8392000 - 157° 50' 21.12"
Universal Tranverse Mercator:	Zone 4
UTM X (Meters):	620413.1
UTM Y (Meters):	2354669.2
Elevation:	3 ft. above sea level

USGS TOPOGRAPHIC MAP ASSOCIATED WITH TARGET PROPERTY

Target Property Map:	21157-C7 HONOLULU, HI
Most Recent Revision:	Not reported

TARGET PROPERTY SEARCH RESULTS

The target property was not listed in any of the databases searched by EDR.

DATABASES WITH NO MAPPED SITES

No mapped sites were found in EDR's search of available ("reasonably ascertainable ") government records either on the target property or within the search radius around the target property for the following databases:

STANDARD ENVIRONMENTAL RECORDS

Federal NPL site list

NPL ..... National Priority List
Proposed NPL ..... Proposed National Priority List Sites
NPL LIENS ..... Federal Superfund Liens

Federal Delisted NPL site list

Delisted NPL ..... National Priority List Deletions

EXECUTIVE SUMMARY

Federal CERCLIS list

CERCLIS..... Comprehensive Environmental Response, Compensation, and Liability Information System
FEDERAL FACILITY..... Federal Facility Site Information listing

Federal RCRA CORRACTS facilities list

CORRACTS..... Corrective Action Report

Federal RCRA non-CORRACTS TSD facilities list

RCRA-TSDF..... RCRA - Treatment, Storage and Disposal

Federal RCRA generators list

RCRA-LQG..... RCRA - Large Quantity Generators

Federal institutional controls / engineering controls registries

US ENG CONTROLS..... Engineering Controls Sites List
US INST CONTROL..... Sites with Institutional Controls
LUCIS..... Land Use Control Information System

Federal ERNS list

ERNS..... Emergency Response Notification System

State and tribal landfill and/or solid waste disposal site lists

HI SWF/LF..... Permitted Landfills in the State of Hawaii

State and tribal leaking storage tank lists

INDIAN LUST..... Leaking Underground Storage Tanks on Indian Land

State and tribal registered storage tank lists

INDIAN UST..... Underground Storage Tanks on Indian Land
FEMA UST..... Underground Storage Tank Listing

State and tribal voluntary cleanup sites

INDIAN VCP..... Voluntary Cleanup Priority Listing

State and tribal Brownfields sites

HI BROWNFIELDS..... Brownfields Sites

ADDITIONAL ENVIRONMENTAL RECORDS

Local Brownfield lists

US BROWNFIELDS..... A Listing of Brownfields Sites

EXECUTIVE SUMMARY

Local Lists of Landfill / Solid Waste Disposal Sites

DEBRIS REGION 9 ..... Torres Martinez Reservation Illegal Dump Site Locations
ODI ..... Open Dump Inventory
INDIAN ODI ..... Report on the Status of Open Dumps on Indian Lands

Local Lists of Hazardous waste / Contaminated Sites

US CDL ..... Clandestine Drug Labs
HI CDL ..... Clandestine Drug Lab Listing
US HIST CDL ..... National Clandestine Laboratory Register

Local Land Records

LIENS 2 ..... CERCLA Lien Information

Records of Emergency Release Reports

HMIRS ..... Hazardous Materials Information Reporting System
HI SPILLS 90 ..... SPILLS 90 data from FirstSearch

Other Ascertainable Records

DOT OPS ..... Incident and Accident Data
DOD ..... Department of Defense Sites
FUDS ..... Formerly Used Defense Sites
CONSENT ..... Superfund (CERCLA) Consent Decrees
ROD ..... Records Of Decision
UMTRA ..... Uranium Mill Tailings Sites
US MINES ..... Mines Master Index File
TRIS ..... Toxic Chemical Release Inventory System
TSCA ..... Toxic Substances Control Act
FTTS ..... FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
HIST FTTS ..... FIFRA/TSCA Tracking System Administrative Case Listing
SSTS ..... Section 7 Tracking Systems
ICIS ..... Integrated Compliance Information System
PADS ..... PCB Activity Database System
MLTS ..... Material Licensing Tracking System
RADINFO ..... Radiation Information Database
RAATS ..... RCRA Administrative Action Tracking System
RMP ..... Risk Management Plans
HI UIC ..... Underground Injection Wells Listing
HI DRYCLEANERS ..... Permitted Drycleaner Facility Listing
INDIAN RESERV ..... Indian Reservations
SCRD DRYCLEANERS ..... State Coalition for Remediation of Drycleaners Listing
EPA WATCH LIST ..... EPA WATCH LIST
COAL ASH DOE ..... Steam-Electric Plant Operation Data
US FIN ASSUR ..... Financial Assurance Information
COAL ASH EPA ..... Coal Combustion Residues Surface Impoundments List
PCB TRANSFORMER ..... PCB Transformer Registration Database
US AIRS ..... Aerometric Information Retrieval System Facility Subsystem
PRP ..... Potentially Responsible Parties
2020 COR ACTION ..... 2020 Corrective Action Program List

LEAD SMELTERS..... Lead Smelter Sites

EDR HIGH RISK HISTORICAL RECORDS

EDR Exclusive Records

EDR MGP..... EDR Proprietary Manufactured Gas Plants

EDR RECOVERED GOVERNMENT ARCHIVES

Exclusive Recovered Govt. Archives

HI RGA LF..... Recovered Government Archive Solid Waste Facilities List
HI RGA LUST..... Recovered Government Archive Leaking Underground Storage Tank
HI RGA HWS..... Recovered Government Archive State Hazardous Waste Facilities List

SURROUNDING SITES: SEARCH RESULTS

Surrounding sites were identified in the following databases.

Elevations have been determined from the USGS Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified. Sites with an elevation equal to or higher than the target property have been differentiated below from sites with an elevation lower than the target property.
Page numbers and map identification numbers refer to the EDR Radius Map report where detailed data on individual sites can be reviewed.

Sites listed in ***bold italics*** are in multiple databases.

Unmappable (orphan) sites are not considered in the foregoing analysis.

STANDARD ENVIRONMENTAL RECORDS

Federal CERCLIS NFRAP site List

CERC-NFRAP: Archived sites are sites that have been removed and archived from the inventory of CERCLIS sites. Archived status indicates that, to the best of EPA's knowledge, assessment at a site has been completed and that EPA has determined no further steps will be taken to list this site on the National Priorities List (NPL), unless information indicates this decision was not appropriate or other considerations require a recommendation for listing at a later time. This decision does not necessarily mean that there is no hazard associated with a given site; it only means that, based upon available information, the location is not judged to be a potential NPL site.

A review of the CERC-NFRAP list, as provided by EDR, and dated 10/25/2013 has revealed that there is 1 CERC-NFRAP site within approximately 0.5 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
FIRST DEVELOPMENT INC	*1777 KAPIOLANI BLVD*	*E 1/8 - 1/4 (0.173 mi.)*	*I27*	*32*

EXECUTIVE SUMMARY

Federal RCRA generators list

RCRA-SQG: RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Small quantity generators (SQGs) generate between 100 kg and 1,000 kg of hazardous waste per month.

A review of the RCRA-SQG list, as provided by EDR, and dated 03/11/2014 has revealed that there are 4 RCRA-SQG sites within approximately 0.25 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
ALAMOANA HOTEL	***410 ATKINSON DR***	***SSW 0 - 1/8 (0.080 mi.)***	***B4***	***9***
HOLIDAY ACTION GAS	801 KAHEKA ST	N 1/8 - 1/4 (0.130 mi.)	C7	13
WALGREENS STORE NO. 12072	1470 KAPIOLANI BLVD.	NW 1/8 - 1/4 (0.205 mi.)	H36	43
STATE OF HAWAII DLNR DOBOR	1651 ALA MOANA BLVD	SSW 1/8 - 1/4 (0.238 mi.)	K42	53

RCRA-CESQG: RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Conditionally exempt small quantity generators (CESQGs) generate less than 100 kg of hazardous waste, or less than 1 kg of acutely hazardous waste per month.

A review of the RCRA-CESQG list, as provided by EDR, and dated 03/11/2014 has revealed that there are 7 RCRA-CESQG sites within approximately 0.25 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
PAN AM BLDG	***1600 KAPIOLANI BLVD***	***NW 0 - 1/8 (0.036 mi.)***	***A1***	***7***
AOAO YACHT HARBOR TOWERS	1600_1650 ALA MOANA BLV	SSW 1/8 - 1/4 (0.145 mi.)	F13	20
ROGERS REPAIR INC	***1687 KALAKAUA AVE***	***ENE 1/8 - 1/4 (0.149 mi.)***	***D15***	***22***
KALAKUA TRANSMISSION INC	***1665 KALAKUA AVE***	***NE 1/8 - 1/4 (0.162 mi.)***	***D21***	***26***
FIRST DEVELOPMENT INC	***1777 KAPIOLANI BLVD***	***E 1/8 - 1/4 (0.173 mi.)***	***I27***	***32***
HAWAII CONVENTION CENTER	1801 KALAKAUA AVENUE	E 1/8 - 1/4 (0.204 mi.)	I35	41
ALA MOANA UNOCAL	***1651 ALA MOANA BLVD***	***SSW 1/8 - 1/4 (0.238 mi.)***	***K41***	***48***

State- and tribal - equivalent CERCLIS

HI SHWS: The State Hazardous Waste Sites records are the states' equivalent to CERCLIS. These sites may or may not already be listed on the federal CERCLIS list. Priority sites planned for cleanup using state funds (state equivalent of Superfund) are identified along with sites where cleanup will be paid for by potentially responsible parties. The data come from the Department of Health.

A review of the HI SHWS list, as provided by EDR, and dated 01/04/2014 has revealed that there are 48 HI SHWS sites within approximately 1 mile of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
NEW OFFICE LOUNGE	***1551 KAPIOLANI BLVD***	***NW 0 - 1/8 (0.086 mi.)***	***A5***	***11***
HECO SUBSTATION: MAKALOA SUBST	***1544 MAKALOA ST***	***NW 1/8 - 1/4 (0.144 mi.)***	***E12***	***18***
ROGER'S REPAIR INC	1687 KALAKAUA AVE	ENE 1/8 - 1/4 (0.149 mi.)	D14	21
FORMER KALAKAUA TRANSMISSION I	***1665 KALAKAUA AVE***	***NE 1/8 - 1/4 (0.159 mi.)***	***D19***	***25***
YACHT HARBOR TOWERS	***1600 ALA MOANA BLVD***	***SSW 1/8 - 1/4 (0.164 mi.)***	***F22***	***28***

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
ALOHA MOTORS 1777 KAPIOLANI BL	*1777 KAPIOLANI BLVD*	*E 1/8 - 1/4 (0.173 mi.)*	*I26*	*30*
1609 ALA WAI DIESEL RELEASE	*1609 ALA WAI BLVD*	*SSE 1/8 - 1/4 (0.204 mi.)*	*J32*	*36*
HAWAII CONVENTION CENTER	*1801 KALAKAUA AVE*	*E 1/8 - 1/4 (0.204 mi.)*	*I33*	*38*
WALGREENS KEEAMOKU	1460 KAPIOLANI BOULEVAR	NW 1/8 - 1/4 (0.216 mi.)	H37	45
LIKE LIKE PLAZA PETROLEUM CONT	745 KEEAUMOKU ST	NNW 1/4 - 1/2 (0.315 mi.)	49	58
CUTTER CHEVROLET	*1391 KAPIOLANI BLVD*	*WNW 1/4 - 1/2 (0.328 mi.)*	*50*	*59*
HOBRON HOTEL	1744 KAIOO DR	SSE 1/4 - 1/2 (0.354 mi.)	N53	62
MOTOR SUPPLY	*726 SHERIDAN ST*	*NW 1/4 - 1/2 (0.372 mi.)*	*O56*	*65*
HAKUYOSHA HAWAII, INC	*730 SHERIDAN ST*	*NW 1/4 - 1/2 (0.372 mi.)*	*O57*	*66*
SEARS ALA MOANA	1450 ALA MOANA BLVD	W 1/4 - 1/2 (0.396 mi.)	M62	70
ALOHA/KING SELF STORAGE	*1414 KALAKAUA AVE*	*NNE 1/4 - 1/2 (0.470 mi.)*	*Q68*	*81*
THE PAVILLION	*1925 KALAKAUA AVE*	*SE 1/4 - 1/2 (0.473 mi.)*	*69*	*82*
CENPAC PROPERTIES - OFFICE BUI	*615 PIIKOI ST*	*WNW 1/4 - 1/2 (0.496 mi.)*	*73*	*86*
CONTINENTAL AUTO SERVICES	*1918 ALGAROBA ST*	*ENE 1/2 - 1 (0.520 mi.)*	*74*	*88*
MEADOW GOLD DAIRIES (ICE CREAM	*1418 YOUNG ST*	*N 1/2 - 1 (0.520 mi.)*	*75*	*89*
7-11 KALAKAUA	*1323 KALAKAUA AVE*	*NNE 1/2 - 1 (0.531 mi.)*	*76*	*91*
DURANT PROPERTIES	*1235 KONA ST*	*WNW 1/2 - 1 (0.564 mi.)*	*77*	*93*
EVERSHINE X	*1230 KAPIOLANI BLVD*	*WNW 1/2 - 1 (0.574 mi.)*	*78*	*94*
CHEVRON 2002 KALAKAUA	*2002 KALAKAUA AVE*	*SE 1/2 - 1 (0.578 mi.)*	*79*	*95*
GRACE OTSUKA APARTMENT COMPLEX	*1233 YOUNG ST*	*NNW 1/2 - 1 (0.639 mi.)*	*80*	*96*
WALLYS GARDEN CENTER	*1935 S BERETANIA ST*	*NE 1/2 - 1 (0.649 mi.)*	*81*	*97*
1012 PIIKOI STREET, ANIN-PIIKO	*1012 PIIKOI ST*	*NNW 1/2 - 1 (0.649 mi.)*	*82*	*98*
MCCULLY UNION SERVICE	*2105 S KING ST*	*ENE 1/2 - 1 (0.663 mi.)*	*S83*	*100*
KAPIOLANI WOMEN'S & CHILDREN'S	*1319 PUNAHOU ST*	*NNE 1/2 - 1 (0.668 mi.)*	*84*	*106*
MCDONALD'S RESTAURANT SOIL & G	*2121 S KING ST*	*ENE 1/2 - 1 (0.670 mi.)*	*S85*	*108*
KOOLANI TOWER PROJECT	*1189 WAIMANU ST*	*WNW 1/2 - 1 (0.672 mi.)*	*T86*	*109*
CARTWRIGHT NEIGHBORHOOD PARK	KEEAUMOKU ST & MATLOCK	N 1/2 - 1 (0.696 mi.)	87	111
SCHUMAN CARRIAGE MOTORS, LTD.	*1234 S BERETANIA ST*	*NNW 1/2 - 1 (0.717 mi.)*	*88*	*111*
ROYAL GARDENS HOTEL DIESEL	*440 OLOHANA ST*	*SE 1/2 - 1 (0.723 mi.)*	*89*	*115*
KING KALAKAUA PLAZA	*2080 KALAKAUA AVE*	*SE 1/2 - 1 (0.724 mi.)*	*90*	*116*
RESERVE HOUSING TOWER SOIL CON	*1141 WAIMANU ST*	*WNW 1/2 - 1 (0.726 mi.)*	*T91*	*118*
SELF STORAGE 1	*438 KAMAKEE ST*	*WNW 1/2 - 1 (0.787 mi.)*	*92*	*119*
ALA WAI COVE CONDOMINIUM APART	*509 UNIVERSITY AVE*	*ESE 1/2 - 1 (0.820 mi.)*	*93*	*121*
JAS W GLOVER LTD	*1046 WAIMAMU ST*	*WNW 1/2 - 1 (0.839 mi.)*	*94*	*122*
1310 PENSACOLA STREET	1310 PENSACOLA ST	NNW 1/2 - 1 (0.872 mi.)	95	124
PACIFICA CONDOMINIUM	*1009 KAPIOLANI BLVD*	*WNW 1/2 - 1 (0.872 mi.)*	*96*	*125*
WAIKIKI BAZAAR	*2174 KALAKAUA AVE*	*SE 1/2 - 1 (0.896 mi.)*	*97*	*126*
HALE PUA NUI UST REMOVAL	*228 BEACH WALK*	*SSE 1/2 - 1 (0.901 mi.)*	*U98*	*127*
WAIKIKI BEACH WALK RESORT	*205 BEACH WALK AVE*	*SSE 1/2 - 1 (0.925 mi.)*	*U99*	*128*
IOLANI SCHOOL PETROLEUM ODOR	*563 KAMOKU ST*	*ESE 1/2 - 1 (0.945 mi.)*	*100*	*129*
HAWAII OPERA THEATER SETS & PR	*962 KAWAIAHAO ST*	*WNW 1/2 - 1 (0.986 mi.)*	*101*	*131*
SYMPHONY PARK	850 KAPIOLANI BLVD	WNW 1/2 - 1 (0.995 mi.)	102	132
PUNAHOU SCHOOL - BARWICK PLAYG	*1601 PUNAHOU ST*	*NNE 1/2 - 1 (0.999 mi.)*	*103*	*133*

State and tribal leaking storage tank lists

HI LUST: The Leaking Underground Storage Tank Incident Reports contain an inventory of reported leaking underground storage tank incidents. The data come from the Department of Health's Active Leaking Underground Storage Tank Log Listing.

A review of the HI LUST list, as provided by EDR, and dated 06/30/2014 has revealed that there are 29

EXECUTIVE SUMMARY

HI LUST sites within approximately 0.5 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
C&CH PAWAA FIRE STATION Facility Status: Site Cleanup Completed (NFA)	1610 MAKALOA ST	NNE 0 - 1/8 (0.061 mi.)	3	9
NEW OFFICE LOUNGE Facility Status: Site Cleanup Completed (NFA)	*1551 KAPIOLANI BLVD*	*NW 0 - 1/8 (0.086 mi.)*	*A5*	*11*
FIRESTONE STORE Facility Status: Site Cleanup Completed with EHE/EHMP Facility Status: Site Cleanup Completed (NFA)	*801 KAHEKA ST*	*N 1/8 - 1/4 (0.130 mi.)*	*C8*	*14*
GAS 'N GLO INC Facility Status: Site Cleanup Completed (NFA)	*1670 MAKALOA ST*	*NE 1/8 - 1/4 (0.139 mi.)*	*D11*	*17*
ALOHA MOTORS Facility Status: Site Cleanup Completed (NFA)	*KAPIOLANI BLVD X KALAKA*	*ESE 1/8 - 1/4 (0.193 mi.)*	*I29*	*35*
THE WATERMARK WAIKIKI Facility Status: Confirmed Release	1551 ALA WAI BLVD	S 1/8 - 1/4 (0.201 mi.)	31	36
FUNAI'S UNION SERVICE L-5583 Facility Status: Site Cleanup Completed (NFA)	*1810 KAPIOLANI BLVD*	*E 1/8 - 1/4 (0.220 mi.)*	*I38*	*45*
LING BROTHERS, LTD. Facility Status: Site Cleanup Completed (NFA)	1819-E LIPEEPEE ST	SSE 1/8 - 1/4 (0.223 mi.)	J39	47
ALOHA MARINE Facility Status: Site Cleanup Completed (NFA)	*1651 ALA MOANA BLVD*	*SSW 1/8 - 1/4 (0.238 mi.)*	*K43*	*54*
SUPERBLOCK PROPERTIES Facility Status: Site Cleanup Completed (NFA)	*SOUTH BLOCK (BLDG S20)*	*NW 1/4 - 1/2 (0.302 mi.)*	*L47*	*57*
SUPERBLOCK PROPERTIES Facility Status: Site Cleanup Completed (NFA)	*NORTH BLOCK (BLDG N8) /*	*NW 1/4 - 1/2 (0.309 mi.)*	*L48*	*57*
CUTTER CHEVROLET Facility Status: Site Cleanup Completed (NFA)	*1391 KAPIOLANI BLVD*	*WNW 1/4 - 1/2 (0.328 mi.)*	*50*	*59*
SUPERBLOCK PROPERTIES Facility Status: Site Cleanup Completed (NFA)	*SOUTH BLOCK (BLDG S25)*	*NW 1/4 - 1/2 (0.337 mi.)*	*L51*	*60*
SEARS ROEBUCK & COMPANY 1158 Facility Status: Site Cleanup Completed (NFA)	*1450 ALA MOANA BLVD #10*	*WSW 1/4 - 1/2 (0.342 mi.)*	*M52*	*61*
SUPERBLOCK PROPERTIES Facility Status: Site Cleanup Completed (NFA)	*SOUTH BLOCK (BLDG S13)*	*NW 1/4 - 1/2 (0.364 mi.)*	*O54*	*63*
ILIKAI HOTEL Facility Status: Site Cleanup Completed (NFA)	*1777 ALA MOANA BLVD*	*S 1/4 - 1/2 (0.366 mi.)*	*55*	*64*
SUPERBLOCK PROPERTIES Facility Status: Site Cleanup Completed (NFA)	*NORTH BLOCK (BLDG N15)*	*NW 1/4 - 1/2 (0.373 mi.)*	*58*	*68*
SUPERBLOCK PROPERTIES Facility Status: Site Cleanup Completed (NFA)	*SOUTH BLOCK (BLDG S1) /*	*NW 1/4 - 1/2 (0.374 mi.)*	*O59*	*68*
WENS LIFE CO., INC Facility Status: Site Cleanup Completed (NFA)	*808 SHERIDAN ST*	*NNW 1/4 - 1/2 (0.393 mi.)*	*60*	*69*
DISCOVERY BAY Facility Status: Site Cleanup Completed (NFA)	*1778 ALA MOANA BLVD*	*S 1/4 - 1/2 (0.395 mi.)*	*N61*	*70*
TESORO 2GO 61018 Facility Status: LUST Cleanup Initiated	*1549 S KING ST*	*NNE 1/4 - 1/2 (0.407 mi.)*	*P63*	*71*
GAS PLUS Facility Status: Site Cleanup Completed (NFA)	*1524 S KING ST*	*NNE 1/4 - 1/2 (0.420 mi.)*	*Q64*	*76*
MID PAC PETROLEUM 253943 (PREV Facility Status: Site Cleanup Completed (NFA)	*1505 S. KING ST.*	*N 1/4 - 1/2 (0.422 mi.)*	*Q65*	*77*

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
PUNAHOU REPAIR SHOP	*1558 S KING ST*	*NNE 1/4 - 1/2 (0.423 mi.)*	*P66*	*79*
Facility Status: Site Cleanup Completed (NFA)				
ALA MOANA UNOCAL	*1322 KAPIOLANI BLVD*	*WNW 1/4 - 1/2 (0.431 mi.)*	*67*	*80*
Facility Status: Site Cleanup Completed (NFA)				
YAJIMA OIL OF USA INC	*1375 S KING ST*	*N 1/4 - 1/2 (0.484 mi.)*	*70*	*83*
Facility Status: Site Cleanup Completed (NFA)				
ALOHA ALA MOANA	*451 PIIKOI ST*	*WNW 1/4 - 1/2 (0.486 mi.)*	*R71*	*85*
Facility Status: Site Cleanup Completed (NFA)				
NAURU PHOSPHATE ROYALTIES TRUS	404 PIIKOI ST/1330 ALA	WNW 1/4 - 1/2 (0.495 mi.)	R72	86
Facility Status: Site Cleanup Completed (NFA)				
CENPAC PROPERTIES - OFFICE BUI	*615 PIIKOI ST*	*WNW 1/4 - 1/2 (0.496 mi.)*	*73*	*86*
Facility Status: Site Cleanup Completed (NFA)				

State and tribal registered storage tank lists

HI UST: The Underground Storage Tank database contains registered USTs. USTs are regulated under Subtitle I of the Resource Conservation and Recovery Act (RCRA). The data come from the Department of Health's Listing of Underground Storage Tanks.

A review of the HI UST list, as provided by EDR, and dated 06/30/2014 has revealed that there are 8 HI UST sites within approximately 0.25 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
NEW OFFICE LOUNGE	*1551 KAPIOLANI BLVD*	*NW 0 - 1/8 (0.086 mi.)*	*A5*	*11*
FIRESTONE STORE	*801 KAHEKA ST*	*N 1/8 - 1/4 (0.130 mi.)*	*C8*	*14*
GAS 'N GLO INC	*1670 MAKALOA ST*	*NE 1/8 - 1/4 (0.139 mi.)*	*D11*	*17*
KALAKAUA TRANSMISSION INC.	1665 KALAKAUA AVE	NE 1/8 - 1/4 (0.159 mi.)	D18	24
ALOHA MOTORS	*KAPIOLANI BLVD X KALAKA*	*ESE 1/8 - 1/4 (0.193 mi.)*	*I29*	*35*
FUNAI'S UNION SERVICE L-5583	*1810 KAPIOLANI BLVD*	*E 1/8 - 1/4 (0.220 mi.)*	*I38*	*45*
ALOHA MARINE	*1651 ALA MOANA BLVD*	*SSW 1/8 - 1/4 (0.238 mi.)*	*K43*	*54*
MOANA PARK WASTEWATER PUMP STA	*1501 ALA MOANA BLVD*	*WSW 1/8 - 1/4 (0.245 mi.)*	*45*	*56*

State and tribal institutional control / engineering control registries

HI ENG CONTROLS: A listing of sites with engineering controls in place.

A review of the HI ENG CONTROLS list, as provided by EDR, and dated 01/04/2014 has revealed that there are 3 HI ENG CONTROLS sites within approximately 0.5 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
FORMER KALAKAUA TRANSMISSION I	*1665 KALAKAUA AVE*	*NE 1/8 - 1/4 (0.159 mi.)*	*D19*	*25*
YACHT HARBOR TOWERS	*1600 ALA MOANA BLVD*	*SSW 1/8 - 1/4 (0.164 mi.)*	*F22*	*28*
ALOHA/KING SELF STORAGE	*1414 KALAKAUA AVE*	*NNE 1/4 - 1/2 (0.470 mi.)*	*Q68*	*81*

Voluntary Remediation Program and Brownfields sites with institutional controls in place.

A review of the HI INST CONTROL list, as provided by EDR, and dated 01/04/2014 has revealed that there are 6 HI INST CONTROL sites within approximately 0.5 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
HECO SUBSTATION: MAKALOA SUBST	*1544 MAKALOA ST*	*NW 1/8 - 1/4 (0.144 mi.)*	*E12*	*18*
FORMER KALAKAUA TRANSMISSION I	*1665 KALAKAUA AVE*	*NE 1/8 - 1/4 (0.159 mi.)*	*D19*	*25*
YACHT HARBOR TOWERS	*1600 ALA MOANA BLVD*	*SSW 1/8 - 1/4 (0.164 mi.)*	*F22*	*28*
MOTOR SUPPLY	*726 SHERIDAN ST*	*NW 1/4 - 1/2 (0.372 mi.)*	*O56*	*65*
HAKUYOSHA HAWAII, INC	*730 SHERIDAN ST*	*NW 1/4 - 1/2 (0.372 mi.)*	*O57*	*66*
ALOHA/KING SELF STORAGE	*1414 KALAKAUA AVE*	*NNE 1/4 - 1/2 (0.470 mi.)*	*Q68*	*81*

State and tribal voluntary cleanup sites

HI VCP: Voluntary Response Program Sites.

A review of the HI VCP list, as provided by EDR, and dated 01/04/2014 has revealed that there is 1 HI VCP site within approximately 0.5 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
ALOHA/KING SELF STORAGE	*1414 KALAKAUA AVE*	*NNE 1/4 - 1/2 (0.470 mi.)*	*Q68*	*81*

ADDITIONAL ENVIRONMENTAL RECORDS

Other Ascertainable Records

RCRA NonGen / NLR: RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Non-Generators do not presently generate hazardous waste.

A review of the RCRA NonGen / NLR list, as provided by EDR, and dated 03/11/2014 has revealed that there are 4 RCRA NonGen / NLR sites within approximately 0.25 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
I L W U LOCAL 142	451 ATKINSON DR	S 0 - 1/8 (0.048 mi.)	B2	8
B & S AUTOMOTIVE TECHNICIANS	*1789 KAPIOLANI*	*E 1/8 - 1/4 (0.188 mi.)*	*I28*	*34*
FUJI PHOTO FILM U S A INC	*1801 KALAKAUA AVE*	*E 1/8 - 1/4 (0.204 mi.)*	*I34*	*40*
UNOCAL 76 SS L 5583	*1818 KAPIOLANI BLVD*	*E 1/8 - 1/4 (0.231 mi.)*	*I40*	*47*

EDR HIGH RISK HISTORICAL RECORDS

EDR Exclusive Records

EXECUTIVE SUMMARY

EDR US Hist Auto Stat: EDR has searched selected national collections of business directories and has collected listings of potential gas station/filling station/service station sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include gas station/filling station/service station establishments. The categories reviewed included, but were not limited to gas, gas station, gasoline station, filling station, auto, automobile repair, auto service station, service station, etc. This database falls within a category of information EDR classifies as "High Risk Historical Records", or HRHR. EDR's HRHR effort presents unique and sometimes proprietary data about past sites and operations that typically create environmental concerns, but may not show up in current government records searches.

A review of the EDR US Hist Auto Stat list, as provided by EDR, has revealed that there are 8 EDR US Hist Auto Stat sites within approximately 0.25 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
Not reported	801 KAHEKA ST	N 1/8 - 1/4 (0.130 mi.)	C6	12
Not reported	1735 KALAKAUA AVE	ENE 1/8 - 1/4 (0.157 mi.)	G16	24
Not reported	1712 KALAKAUA AVE	ENE 1/8 - 1/4 (0.158 mi.)	G17	24
Not reported	1665 KALAKAUA AVE	NE 1/8 - 1/4 (0.159 mi.)	D20	26
Not reported	1500 KAPIOLANI BLVD	NW 1/8 - 1/4 (0.168 mi.)	H23	29
Not reported	1750 KALAKAUA AVE	E 1/8 - 1/4 (0.169 mi.)	G25	30
Not reported	641 KEEAUMOKU ST	NW 1/8 - 1/4 (0.245 mi.)	44	56
Not reported	1830 KAPIOLANI BLVD	E 1/8 - 1/4 (0.246 mi.)	46	56

EDR US Hist Cleaners: EDR has searched selected national collections of business directories and has collected listings of potential dry cleaner sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include dry cleaning establishments. The categories reviewed included, but were not limited to dry cleaners, cleaners, laundry, laundromat, cleaning/laundry, wash & dry etc. This database falls within a category of information EDR classifies as "High Risk Historical Records", or HRHR. EDR's HRHR effort presents unique and sometimes proprietary data about past sites and operations that typically create environmental concerns, but may not show up in current government records searches.

A review of the EDR US Hist Cleaners list, as provided by EDR, has revealed that there are 4 EDR US Hist Cleaners sites within approximately 0.25 miles of the target property.

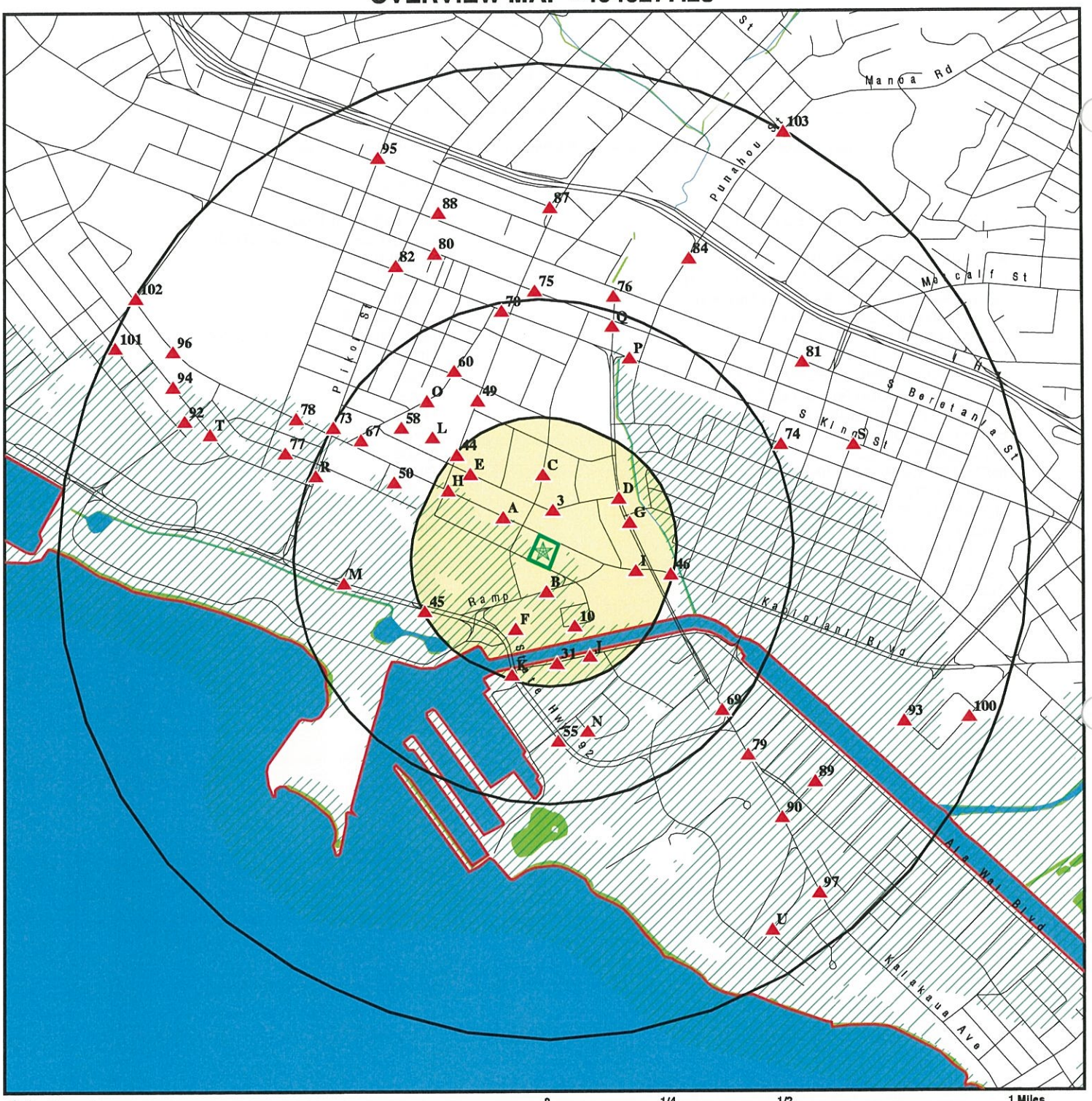
Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
Not reported	801 KAHEKA ST	N 1/8 - 1/4 (0.130 mi.)	C9	17
Not reported	1868 KAHAKAI DR	SSE 1/8 - 1/4 (0.132 mi.)	10	17
Not reported	1750 KALAKAUA AVE	E 1/8 - 1/4 (0.169 mi.)	G24	29
Not reported	1518 MAKALOA ST	NW 1/8 - 1/4 (0.197 mi.)	E30	36

EXECUTIVE SUMMARY

Due to poor or inadequate address information, the following sites were not mapped. Count: 20 records.

Site Name	Database(s)
CITIZENS ENERGY SERVICES PIER 38	HI SHWS, HI SPILLS, HI ENG CONTROLS, HI INST CONTROL
KAKAAKO MAKAI GATEWAY	HI SHWS
FORMER KAPALAMA MILITARY RESERVATI	HI SHWS
HAWAIIAN BITUMULS PAVING & PRECAST	HI SHWS
HAWAII BITUMULS & PAVING CO.	CERC-NFRAP
KEWALO BASIN HARBOR	RCRA NonGen / NLR, CA HAZNET
MRC ROOFING, LLC	FINDS
PACIFIC COMMERICIAL SERVICES, LLC	FINDS
PENDELTON FLOUR MILLS, LLC DBA HAW	FINDS
PACIFIC AVIATION MUSEUM PEARL HARB	FINDS
SUN PACIFIC SERVICES	FINDS
HORIZON LINES, LLC	FINDS
INSTITUTE OF PACIFIC ISLANDS	FINDS
PACIFIC HEIGHTS WSI, PART 1	FINDS
HORIZON LINES LLC	FINDS
PACIFIC SHIPYARDS INTERNATIONAL	FINDS
HONOLULU MARINE, LLC	FINDS
HORIZON LINES, LLC	FINDS
ALLIED PACIFIC COMPANY OF HAWAII	FINDS
NOAA PACIFIC REGIONAL CENTER FORD	FINDS

OVERVIEW MAP - 4046277.2s



- Target Property
- Sites at elevations higher than or equal to the target property
- Sites at elevations lower than the target property
- Manufactured Gas Plants
- National Priority List Sites
- Dept. Defense Sites
- Indian Reservations BIA
- County Boundary
- Oil & Gas pipelines from USGS
- 100-year flood zone
- 500-year flood zone
- National Wetland Inventory

This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME: Sam Koo Pacific, LLC	CLIENT: Central Planet Repair
ADDRESS: 1631 and 1637 Kapiolani Boulevard Honolulu HI 96814	CONTACT: Ned Murphy
LAT/LONG: 21.2911 / 157.8392	INQUIRY #: 4046277.2s DATE: August 25, 2014 1:47 pm

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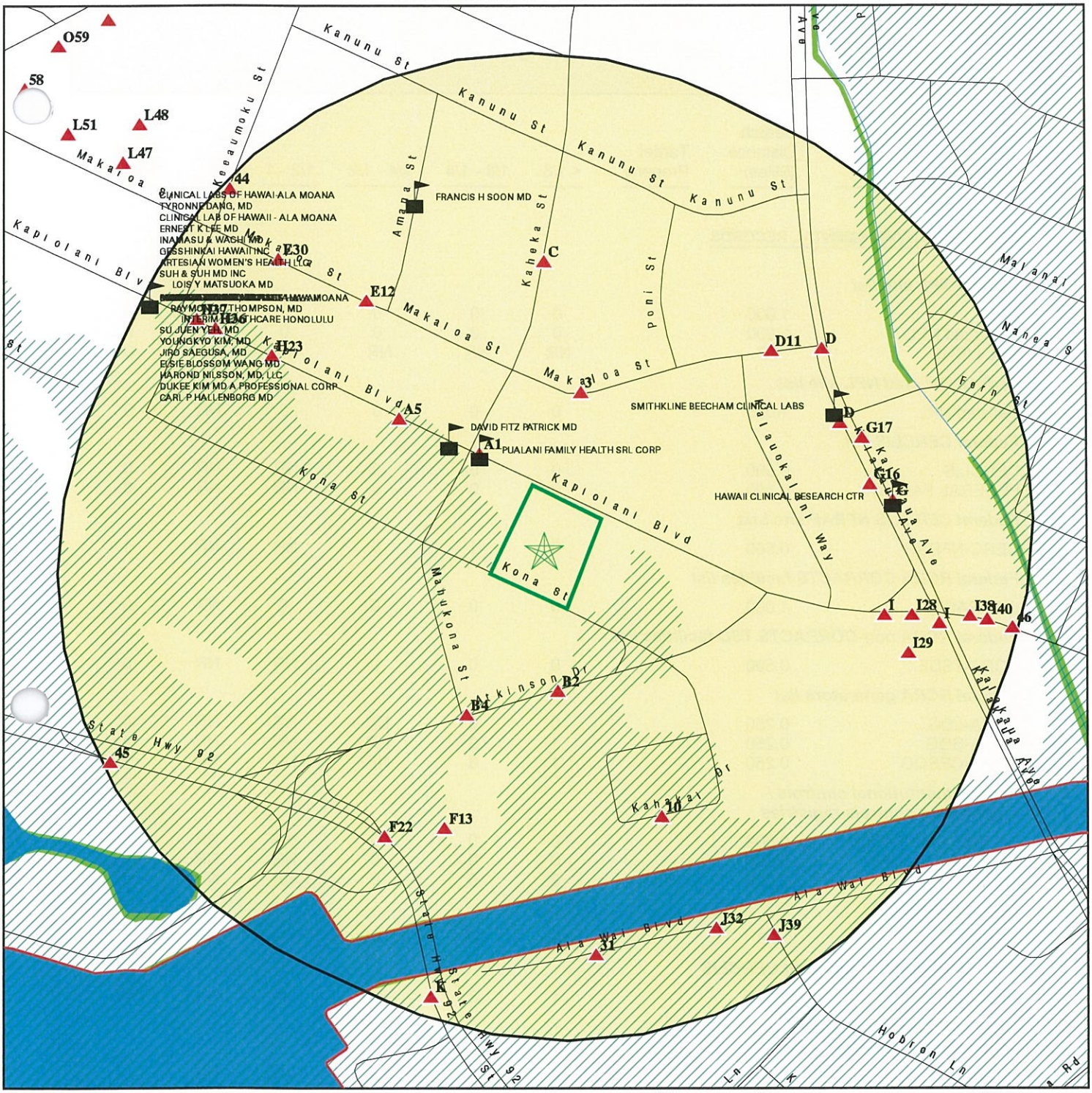
DETAIL MAP - 4046277.2s



- Target Property
- Sites at elevations higher than or equal to the target property
- Sites at elevations lower than the target property
- Manufactured Gas Plants
- Sensitive Receptors
- National Priority List Sites
- Dept. Defense Sites
- Indian Reservations BIA
- County Boundary
- Oil & Gas pipelines from USGS
- 100-year flood zone
- 500-year flood zone
- National Wetland Inventory

This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME:	Sam Koo Pacific, LLC	CLIENT:	Central Planet Repair
ADDRESS:	1631 and 1637 Kapiolani Boulevard Honolulu HI 96814	CONTACT:	Ned Murphy
		INQUIRY #:	4046277.2s
LAT/LONG:	21.2911 / 157.8392	DATE:	August 25, 2014 1:47 pm

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MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
STANDARD ENVIRONMENTAL RECORDS								
Federal NPL site list								
NPL	1.000		0	0	0	0	NR	0
Proposed NPL	1.000		0	0	0	0	NR	0
NPL LIENS	TP		NR	NR	NR	NR	NR	0
Federal Delisted NPL site list								
Delisted NPL	1.000		0	0	0	0	NR	0
Federal CERCLIS list								
CERCLIS	0.500		0	0	0	NR	NR	0
FEDERAL FACILITY	0.500		0	0	0	NR	NR	0
Federal CERCLIS NFRAP site List								
CERC-NFRAP	0.500		0	1	0	NR	NR	1
Federal RCRA CORRACTS facilities list								
CORRACTS	1.000		0	0	0	0	NR	0
Federal RCRA non-CORRACTS TSD facilities list								
RCRA-TSDF	0.500		0	0	0	NR	NR	0
Federal RCRA generators list								
RCRA-LQG	0.250		0	0	NR	NR	NR	0
RCRA-SQG	0.250		1	3	NR	NR	NR	4
RCRA-CESQG	0.250		1	6	NR	NR	NR	7
Federal institutional controls / engineering controls registries								
US ENG CONTROLS	0.500		0	0	0	NR	NR	0
US INST CONTROL	0.500		0	0	0	NR	NR	0
LUCIS	0.500		0	0	0	NR	NR	0
Federal ERNS list								
ERNS	TP		NR	NR	NR	NR	NR	0
State- and tribal - equivalent CERCLIS								
HI SHWS	1.000		1	8	9	30	NR	48
State and tribal landfill and/or solid waste disposal site lists								
HI SWF/LF	0.500		0	0	0	NR	NR	0
State and tribal leaking storage tank lists								
HI LUST	0.500		2	7	20	NR	NR	29
INDIAN LUST	0.500		0	0	0	NR	NR	0
State and tribal registered storage tank lists								
HI UST	0.250		1	7	NR	NR	NR	8

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
INDIAN UST	0.250		0	0	NR	NR	NR	0
FEMA UST	0.250		0	0	NR	NR	NR	0
State and tribal institutional control / engineering control registries								
HI ENG CONTROLS	0.500		0	2	1	NR	NR	3
HI INST CONTROL	0.500		0	3	3	NR	NR	6
State and tribal voluntary cleanup sites								
HI VCP	0.500		0	0	1	NR	NR	1
INDIAN VCP	0.500		0	0	0	NR	NR	0
State and tribal Brownfields sites								
HI BROWNFIELDS	0.500		0	0	0	NR	NR	0
ADDITIONAL ENVIRONMENTAL RECORDS								
Local Brownfield lists								
US BROWNFIELDS	0.500		0	0	0	NR	NR	0
Local Lists of Landfill / Solid Waste Disposal Sites								
DEBRIS REGION 9	0.500		0	0	0	NR	NR	0
ODI	0.500		0	0	0	NR	NR	0
INDIAN ODI	0.500		0	0	0	NR	NR	0
Local Lists of Hazardous waste / Contaminated Sites								
US CDL	TP		NR	NR	NR	NR	NR	0
HI CDL	TP		NR	NR	NR	NR	NR	0
US HIST CDL	TP		NR	NR	NR	NR	NR	0
Local Land Records								
LIENS 2	TP		NR	NR	NR	NR	NR	0
Records of Emergency Release Reports								
HMIRS	TP		NR	NR	NR	NR	NR	0
HI SPILLS	TP		NR	NR	NR	NR	NR	0
HI SPILLS 90	TP		NR	NR	NR	NR	NR	0
Other Ascertainable Records								
RCRA NonGen / NLR	0.250		1	3	NR	NR	NR	4
DOT OPS	TP		NR	NR	NR	NR	NR	0
DOD	1.000		0	0	0	0	NR	0
FUDS	1.000		0	0	0	0	NR	0
CONSENT	1.000		0	0	0	0	NR	0
ROD	1.000		0	0	0	0	NR	0
UMTRA	0.500		0	0	0	NR	NR	0
US MINES	0.250		0	0	NR	NR	NR	0
TRIS	TP		NR	NR	NR	NR	NR	0

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
TSCA	TP		NR	NR	NR	NR	NR	0
FTTS	TP		NR	NR	NR	NR	NR	0
HIST FTTS	TP		NR	NR	NR	NR	NR	0
SSTS	TP		NR	NR	NR	NR	NR	0
ICIS	TP		NR	NR	NR	NR	NR	0
PADS	TP		NR	NR	NR	NR	NR	0
MLTS	TP		NR	NR	NR	NR	NR	0
RADINFO	TP		NR	NR	NR	NR	NR	0
FINDS	TP		NR	NR	NR	NR	NR	0
RAATS	TP		NR	NR	NR	NR	NR	0
RMP	TP		NR	NR	NR	NR	NR	0
HI UIC	TP		NR	NR	NR	NR	NR	0
HI DRYCLEANERS	0.250		0	0	NR	NR	NR	0
CA HAZNET	TP		NR	NR	NR	NR	NR	0
HI AIRS	TP		NR	NR	NR	NR	NR	0
INDIAN RESERV	1.000		0	0	0	0	NR	0
SCRD DRYCLEANERS	0.500		0	0	0	NR	NR	0
HI Financial Assurance	TP		NR	NR	NR	NR	NR	0
EPA WATCH LIST	TP		NR	NR	NR	NR	NR	0
COAL ASH DOE	TP		NR	NR	NR	NR	NR	0
US FIN ASSUR	TP		NR	NR	NR	NR	NR	0
COAL ASH EPA	0.500		0	0	0	NR	NR	0
PCB TRANSFORMER	TP		NR	NR	NR	NR	NR	0
US AIRS	TP		NR	NR	NR	NR	NR	0
PRP	TP		NR	NR	NR	NR	NR	0
2020 COR ACTION	0.250		0	0	NR	NR	NR	0
LEAD SMELTERS	TP		NR	NR	NR	NR	NR	0
EDR HIGH RISK HISTORICAL RECORDS								
EDR Exclusive Records								
EDR MGP	1.000		0	0	0	0	NR	0
EDR US Hist Auto Stat	0.250		0	8	NR	NR	NR	8
EDR US Hist Cleaners	0.250		0	4	NR	NR	NR	4
EDR RECOVERED GOVERNMENT ARCHIVES								
Exclusive Recovered Govt. Archives								
HI RGA LF	TP		NR	NR	NR	NR	NR	0
HI RGA LUST	TP		NR	NR	NR	NR	NR	0
HI RGA HWS	TP		NR	NR	NR	NR	NR	0

NOTES:

TP = Target Property

NR = Not Requested at this Search Distance

Sites may be listed in more than one database

A1
NW
< 1/8
0.036 mi.
190 ft.

PAN AM BLDG
1600 KAPIOLANI BLVD
HONOLULU, HI 96814

RCRA-CESQG **1004688981**
FINDS **HIR000052431**

Site 1 of 2 in cluster A

Relative:
Higher

Actual:
3 ft.

RCRA-CESQG:

Date form received by agency:	05/20/1999
Facility name:	PAN AM BLDG
Facility address:	1600 KAPIOLANI BLVD HONOLULU, HI 96814
EPA ID:	HIR000052431
Contact:	TIMOTHY RYCHLEC
Contact address:	1600 KAPIOLANI BLVD HONOLULU, HI 96814
Contact country:	US
Contact telephone:	(808) 944-8100
Contact email:	Not reported
EPA Region:	09
Classification:	Conditionally Exempt Small Quantity Generator
Description:	Handler: generates 100 kg or less of hazardous waste per calendar month, and accumulates 1000 kg or less of hazardous waste at any time; or generates 1 kg or less of acutely hazardous waste per calendar month, and accumulates at any time: 1 kg or less of acutely hazardous waste; or 100 kg or less of any residue or contaminated soil, waste or other debris resulting from the cleanup of a spill, into or on any land or water, of acutely hazardous waste; or generates 100 kg or less of any residue or contaminated soil, waste or other debris resulting from the cleanup of a spill, into or on any land or water, of acutely hazardous waste during any calendar month, and accumulates at any time: 1 kg or less of acutely hazardous waste; or 100 kg or less of any residue or contaminated soil, waste or other debris resulting from the cleanup of a spill, into or on any land or water, of acutely hazardous waste

Owner/Operator Summary:

Owner/operator name:	STATE TEACHERS RETIREMNT SYS
Owner/operator address:	1600 KAPIOLANI BLVD HONOLULU, HI 96814
Owner/operator country:	Not reported
Owner/operator telephone:	(808) 944-8100
Legal status:	Private
Owner/Operator Type:	Owner
Owner/Op start date:	Not reported
Owner/Op end date:	Not reported

Handler Activities Summary:

U.S. importer of hazardous waste:	No
Mixed waste (haz. and radioactive):	No
Recycler of hazardous waste:	No
Transporter of hazardous waste:	No
Treater, storer or disposer of HW:	No
Underground injection activity:	No
On-site burner exemption:	No
Furnace exemption:	No
Used oil fuel burner:	No
Used oil processor:	No
User oil refiner:	No

PAN AM BLDG (Continued) **1004688981**

Used oil fuel marketer to burner: No
Used oil Specification marketer: No
Used oil transfer facility: No
Used oil transporter: No

Violation Status: No violations found

FINDS:

Registry ID: 110005730389

Environmental Interest/Information System
NCDB (National Compliance Data Base) supports implementation of the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) and the Toxic Substances Control Act (TSCA). The system tracks inspections in regions and states with cooperative agreements, enforcement actions, and settlements.

RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

STATE MASTER

B2 **I L W U LOCAL 142** **RCRA NonGen / NLR** **1012178202**
South **451 ATKINSON DR** **HIP000122101**
< 1/8 **HONOLULU, HI 96814**
0.048 mi.
252 ft. **Site 1 of 2 in cluster B**

Relative:
Higher

Actual:
3 ft.

RCRA NonGen / NLR:
Date form received by agency: 08/18/2009
Facility name: I L W U LOCAL 142
Facility address: 451 ATKINSON DR
HONOLULU, HI 968144796
EPA ID: HIP000122101
Contact: JAMES BAUCKHAM
Contact address: 451 ATKINSON DR
HONOLULU, HI 968144796
Contact country: US
Contact telephone: (808) 947-7233
Contact email: Not reported
EPA Region: 09
Classification: Non-Generator
Description: Handler: Non-Generators do not presently generate hazardous waste

Owner/Operator Summary:
Owner/operator name: I L W U MEMORIAL ASSOCIATION
Owner/operator address: 451 ATKINSON DR
HONOLULU, HI 96814
Owner/operator country: Not reported
Owner/operator telephone: (808) 949-4161
Legal status: Private
Owner/Operator Type: Owner

I L W U LOCAL 142 (Continued) **1012178202**

Owner/Op start date: Not reported
Owner/Op end date: Not reported

Handler Activities Summary:
U.S. importer of hazardous waste: No
Mixed waste (haz. and radioactive): No
Recycler of hazardous waste: No
Transporter of hazardous waste: No
Treater, storer or disposer of HW: No
Underground injection activity: No
On-site burner exemption: No
Furnace exemption: No
Used oil fuel burner: No
Used oil processor: No
User oil refiner: No
Used oil fuel marketer to burner: No
Used oil Specification marketer: No
Used oil transfer facility: No
Used oil transporter: No

Historical Generators:
Date form received by agency: 06/14/2002
Site name: I L W U LOCAL 142
Classification: Small Quantity Generator

Violation Status: No violations found

3
NNE
< 1/8
0.061 mi.
322 ft.

C&CH PAWAA FIRE STATION **HI LUST** **1006843337**
1610 MAKALOA ST **N/A**
HONOLULU, HI 96814

Relative:
Higher

Actual:
3 ft.

LUST:
Facility ID: 9-100087
Facility Status: Site Cleanup Completed (NFA)
Facility Status Date: 01/06/1999
Release ID: 940137
Project Officer: Eric Sadoyama

B4
SSW
< 1/8
0.080 mi.
422 ft.

ALAMOANA HOTEL **RCRA-SQG** **1001116172**
410 ATKINSON DR **FINDS** **HIR000000992**
HONOLULU, HI 96814

Site 2 of 2 in cluster B

Relative:
Higher

Actual:
3 ft.

RCRA-SQG:
Date form received by agency: 08/19/1996
Facility name: ALAMOANA HOTEL
Facility address: 410 ATKINSON DR
HONOLULU, HI 968144722
EPA ID: HIR000000992
Mailing address: ATKINSON DR
HONOLULU, HI 968144722
Contact: TODD SHERMAN
Contact address: 410 ATKINSON DR

ALAMOANA HOTEL (Continued) **1001116172**

HONOLULU, HI 968144722
Contact country: US
Contact telephone: (808) 955-4811
Contact email: Not reported
EPA Region: 09
Classification: Small Small Quantity Generator
Description: Handler: generates more than 100 and less than 1000 kg of hazardous waste during any calendar month and accumulates less than 6000 kg of hazardous waste at any time; or generates 100 kg or less of hazardous waste during any calendar month, and accumulates more than 1000 kg of hazardous waste at any time

Owner/Operator Summary:
Owner/operator name: AZABU USA CORP
Owner/operator address: 410 ATKINSON DR
HONOLULU, HI 96814
Owner/operator country: Not reported
Owner/operator telephone: (808) 955-4811
Legal status: Private
Owner/Operator Type: Owner
Owner/Op start date: Not reported
Owner/Op end date: Not reported

Handler Activities Summary:
U.S. importer of hazardous waste: No
Mixed waste (haz. and radioactive): No
Recycler of hazardous waste: No
Transporter of hazardous waste: No
Treater, storer or disposer of HW: No
Underground injection activity: No
On-site burner exemption: No
Furnace exemption: No
Used oil fuel burner: No
Used oil processor: No
User oil refiner: No
Used oil fuel marketer to burner: No
Used oil Specification marketer: No
Used oil transfer facility: No
Used oil transporter: No

Violation Status: No violations found

FINDS:

Registry ID: 110046200366

Environmental Interest/Information System
STATE MASTER

Registry ID: 110005729694

Environmental Interest/Information System
NCDB (National Compliance Data Base) supports implementation of the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) and the Toxic Substances Control Act (TSCA). The system tracks inspections in regions and states with cooperative agreements, enforcement actions, and settlements.

ALAMOANA HOTEL (Continued) **1001116172**

RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

STATE MASTER

A5 **NW** **< 1/8** **0.086 mi.** **456 ft.** **Site 2 of 2 in cluster A**

NEW OFFICE LOUNGE
1551 KAPIOLANI BLVD
HONOLULU, HI 96814

HI SHWS **1006843573**
HI LUST **N/A**
HI UST

Relative: Higher

Actual: 3 ft.

SHWS:

Organization:	Not reported
Supplemental Location:	Not reported
Island:	Oahu
Environmental Interest:	New Office Lounge
HID Number:	Not reported
Facility Registry Identifier:	110013783469
Lead Agency:	SHWB
Program:	State
Project Manager:	Mark Sutterfield
Hazard Priority:	Medium
Potential Hazards And Controls:	No Hazard
Organization:	Not reported
Island:	Oahu
Supplemental Location Text:	Not reported
SDAR Environmental Interest Name:	New Office Lounge
HID Number:	Not reported
Facility Registry Identifier:	110013783469
Lead Agency:	SHWB
Progran Name:	State
Potential Hazard And Controls:	No Hazard
Priority:	Medium
Assessment:	Response Not Necessary
Response:	Not reported
Nature of Contamination:	Not reported
Nature of Residual Contamination:	Not reported
Use Restrictions:	No Hazard Present for Unrestricted Residential Use
Engineering Control:	Not reported
Description of Restrictions:	Not reported
Institutional Control:	Not reported
Within Designated Areawide Contamination:	Not reported
Site Closure Type:	No Action Letter
Document Date:	10/26/2004
Document Number:	Not reported
Document Subject:	Not reported
Project Manager:	Mark Sutterfield
Contact Information:	(808) 586-4249 919 Ala Moana Blvd, Honolulu, HI 96814

LUST:

Facility ID:	9-103517
Facility Status:	Site Cleanup Completed (NFA)

NEW OFFICE LOUNGE (Continued) **1006843573**

Facility Status Date: 03/10/2008
Release ID: 060012
Project Officer: Shunsheng Fu

Facility ID: 9-103517
Facility Status: Site Cleanup Completed (NFA)
Facility Status Date: 03/10/2008
Release ID: 060033
Project Officer: Shunsheng Fu

UST:
Facility ID: 9-103517
Owner: CEC HAWAII INC
Owner Address: 1517 kapiolani blvD, SUITE 201
Ownder City,St,Zip: Honolulu, 96814 96814

Tank ID: r-1
Date Installed: Not reported
Tank Status: Permanently out of Use
Date Closed: 01/15/2006
Tank Capacity: 1100
Substance: Gasoline

Tank ID: r-2
Date Installed: Not reported
Tank Status: Permanently out of Use
Date Closed: 01/15/2006
Tank Capacity: 1100
Substance: Gasoline

Tank ID: r-3
Date Installed: Not reported
Tank Status: Permanently out of Use
Date Closed: 01/15/2006
Tank Capacity: 420
Substance: Gasoline

C6 **EDR US Hist Auto Stat** **1015638698**
North **801 KAHEKA ST** **N/A**
1/8-1/4 **HONOLULU, HI 96814**
0.130 mi.
686 ft. **Site 1 of 4 in cluster C**

Relative:
Higher

Actual:
3 ft.

EDR Historical Auto Stations:
Name: HOLIDAY ACTION GAS INCORPORATED STATIONS
Year: 1999
Address: 801 KAHEKA ST

Name: HOLIDAY ACTION GAS INC
Year: 2001
Address: 801 KAHEKA ST

C7
North
1/8-1/4
0.130 mi.
686 ft.

HOLIDAY ACTION GAS
801 KAHEKA ST
HONOLULU, HI 96814

RCRA-SQG **1000223098**
HID981577265

Site 2 of 4 in cluster C

Relative:
Higher

Actual:
3 ft.

RCRA-SQG:

Date form received by agency:	11/16/1995
Facility name:	HOLIDAY ACTION GAS
Facility address:	801 KAHEKA ST HONOLULU, HI 96814
EPA ID:	HID981577265
Mailing address:	KAPIOLANI HONOLULU, HI 96814
Contact:	CHE HWAN CHANG
Contact address:	1517 KAPIOLANI HONOLULU, HI 96814
Contact country:	US
Contact telephone:	(808) 973-6688
Contact email:	Not reported
EPA Region:	09
Classification:	Small Small Quantity Generator
Description:	Handler: generates more than 100 and less than 1000 kg of hazardous waste during any calendar month and accumulates less than 6000 kg of hazardous waste at any time; or generates 100 kg or less of hazardous waste during any calendar month, and accumulates more than 1000 kg of hazardous waste at any time

Owner/Operator Summary:

Owner/operator name:	DAIEI USA INC
Owner/operator address:	801 KAHEKA ST HONOLULU, HI 96814
Owner/operator country:	Not reported
Owner/operator telephone:	(808) 973-6688
Legal status:	Private
Owner/Operator Type:	Owner
Owner/Op start date:	Not reported
Owner/Op end date:	Not reported
Owner/operator name:	NOT REQUIRED
Owner/operator address:	NOT REQUIRED NOT REQUIRED, ME 99999
Owner/operator country:	Not reported
Owner/operator telephone:	(415) 555-1212
Legal status:	Private
Owner/Operator Type:	Operator
Owner/Op start date:	Not reported
Owner/Op end date:	Not reported

Handler Activities Summary:

U.S. importer of hazardous waste:	No
Mixed waste (haz. and radioactive):	No
Recycler of hazardous waste:	No
Transporter of hazardous waste:	No
Treater, storer or disposer of HW:	No
Underground injection activity:	No
On-site burner exemption:	No
Furnace exemption:	No

HOLIDAY ACTION GAS (Continued) **1000223098**

Used oil fuel burner: No
Used oil processor: No
User oil refiner: No
Used oil fuel marketer to burner: No
Used oil Specification marketer: No
Used oil transfer facility: No
Used oil transporter: No

Violation Status: No violations found

C8 **FIRESTONE STORE** **HI LUST U001235963**
North **801 KAHEKA ST** **HI UST N/A**
1/8-1/4 **HONOLULU, HI 96814** **HI Financial Assurance**
0.130 mi.
686 ft. **Site 3 of 4 in cluster C**

Relative:
Higher

Actual:
3 ft.

LUST:
Facility ID: 9-102591
Facility Status: Site Cleanup Completed with EHE/EHMP
Facility Status Date: 09/28/2010
Release ID: 970086
Project Officer: Shaobin Li

Facility ID: 9-102591
Facility Status: Site Cleanup Completed with EHE/EHMP
Facility Status Date: 09/28/2010
Release ID: 980048
Project Officer: Shaobin Li

Facility ID: 9-102403
Facility Status: Site Cleanup Completed (NFA)
Facility Status Date: 10/21/1996
Release ID: 920148
Project Officer: Janet Sherrer

UST:
Facility ID: 9-102591
Owner: HOLIDAY ACTION GAS INC.
Owner Address: 801 KAHEKA ST
Owner City,St,Zip: Honolulu, 96814 96814

Tank ID: R-1
Date Installed: 01/01/1984
Tank Status: Permanently Out of Use
Date Closed: 02/01/1999
Tank Capacity: 10000
Substance: Gasoline

Tank ID: R-1
Date Installed: Not reported
Tank Status: Permanently Out of Use
Date Closed: 03/23/1992
Tank Capacity: 550
Substance: Used Oil

Tank ID: R-2

FIRESTONE STORE (Continued) **U001235963**

Date Installed: 01/01/1984
Tank Status: **Permanently Out of Use**
Date Closed: 02/01/1999
Tank Capacity: 10000
Substance: Gasoline

Tank ID: R-3
Date Installed: 01/01/1978
Tank Status: **Permanently Out of Use**
Date Closed: 02/01/1999
Tank Capacity: 4000
Substance: Diesel

Tank ID: R-4
Date Installed: 01/01/1978
Tank Status: **Permanently Out of Use**
Date Closed: 02/01/1999
Tank Capacity: 4000
Substance: Gasoline

Tank ID: R-5
Date Installed: 01/01/1978
Tank Status: **Permanently Out of Use**
Date Closed: 02/01/1999
Tank Capacity: 4000
Substance: Gasoline

Tank ID: R-6
Date Installed: Not reported
Tank Status: **Permanently Out of Use**
Date Closed: 02/01/1999
Tank Capacity: 4000
Substance: Gasoline

Tank ID: R-7
Date Installed: Not reported
Tank Status: **Permanently Out of Use**
Date Closed: 02/01/1999
Tank Capacity: 4000
Substance: Gasoline

Tank ID: R-8
Date Installed: Not reported
Tank Status: **Permanently Out of Use**
Date Closed: 02/01/1999
Tank Capacity: 4000
Substance: Gasoline

HI Financial Assurance:
Alt Facility ID: 9-102403
Tank Id: R-1

FIRESTONE STORE (Continued) **U001235963**

Tank Status: Permanently Out of Use
FRTYPE: Other
Expiration Date: Not reported

Alt Facility ID: 9-102403
Tank Id: R-1
Tank Status: Permanently Out of Use
FRTYPE: Self Insured
Expiration Date: Not reported

Alt Facility ID: 9-102591
Tank Id: R-1
Tank Status: Permanently Out of Use
FRTYPE: Insurance
Expiration Date: Not reported

Alt Facility ID: 9-102591
Tank Id: R-8
Tank Status: Permanently Out of Use
FRTYPE: Insurance
Expiration Date: Not reported

Alt Facility ID: 9-102591
Tank Id: R-7
Tank Status: Permanently Out of Use
FRTYPE: Insurance
Expiration Date: Not reported

Alt Facility ID: 9-102591
Tank Id: R-6
Tank Status: Permanently Out of Use
FRTYPE: Insurance
Expiration Date: Not reported

Alt Facility ID: 9-102591
Tank Id: R-5
Tank Status: Permanently Out of Use
FRTYPE: Insurance
Expiration Date: Not reported

Alt Facility ID: 9-102591
Tank Id: R-4
Tank Status: Permanently Out of Use
FRTYPE: Insurance
Expiration Date: Not reported

Alt Facility ID: 9-102591
Tank Id: R-2
Tank Status: Permanently Out of Use
FRTYPE: Insurance
Expiration Date: Not reported

Alt Facility ID: 9-102591
Tank Id: R-3
Tank Status: Permanently Out of Use
FRTYPE: Insurance
Expiration Date: Not reported

C9
North
1/8-1/4
0.130 mi.
686 ft.

801 KAHEKA ST
HONOLULU, HI 96814

EDR US Hist Cleaners **1015096937**
N/A

Site 4 of 4 in cluster C

Relative:
Higher

Actual:
3 ft.

EDR Historical Cleaners:
Name: HOLIDAY MART LAUNDROMAT
Year: 1999
Address: 801 KAHEKA ST

10
SSE
1/8-1/4
0.132 mi.
696 ft.

1868 KAHAKAI DR
HONOLULU, HI 96814

EDR US Hist Cleaners **1015008556**
N/A

Relative:
Higher

Actual:
3 ft.

EDR Historical Cleaners:
Name: SOUTH BAY CARPET & UPHOLSTERY CLEANING
Year: 1999
Address: 1868 KAHAKAI DR

D11
NE
1/8-1/4
0.139 mi.
734 ft.

GAS 'N GLO INC
1670 MAKALOA ST
HONOLULU, HI 96814

HI LUST **U001235256**
HI UST **N/A**

Site 1 of 7 in cluster D

Relative:
Higher

Actual:
3 ft.

LUST:
Facility ID: 9-100834
Facility Status: Site Cleanup Completed (NFA)
Facility Status Date: 07/22/1998
Release ID: 980097
Project Officer: Lene Ichinotsubo

UST:
Facility ID: 9-100834
Owner: GAS 'N GLO INC
Owner Address: Not reported
Ownder City,St,Zip: Honolulu, 96814 96814

Tank ID: R-1
Date Installed: 04/03/1983
Tank Status: Permanently Out of Use
Date Closed: 05/20/1998
Tank Capacity: 10000
Substance: Gasoline

Tank ID: R-2
Date Installed: 04/03/1983
Tank Status: Permanently Out of Use
Date Closed: 05/20/1998
Tank Capacity: 10000
Substance: Gasoline

Tank ID: R-3

GAS 'N GLO INC (Continued) **U001235256**

Date Installed: 04/03/1983
Tank Status: **Permanently Out of Use**
Date Closed: 05/20/1998
Tank Capacity: 10000
Substance: Gasoline

Tank ID: R-4
Date Installed: 04/03/1983
Tank Status: **Permanently Out of Use**
Date Closed: 05/20/1998
Tank Capacity: 5000
Substance: Gasoline

Tank ID: R-5
Date Installed: 04/03/1983
Tank Status: **Permanently Out of Use**
Date Closed: 05/20/1998
Tank Capacity: 5000
Substance: Diesel

E12 **HECO SUBSTATION: MAKALOA SUBSTATION** **HI SHWS** **S106817457**
NW **1544 MAKALOA ST** **HI SPILLS** **N/A**
1/8-1/4 **HONOLULU, HI 96814** **HI INST CONTROL**
0.144 mi.
760 ft. **Site 1 of 2 in cluster E**

Relative:
Higher

Actual:
3 ft.

SHWS:

Organization:	Not reported
Supplemental Location:	Not reported
Island:	Oahu
Environmental Interest:	HECO Makaloa Substation
HID Number:	Not reported
Facility Registry Identifier:	110013790237
Lead Agency:	HEER
Program:	State
Project Manager:	Laura Young
Hazard Priority:	Low
Potential Hazards And Controls:	Hazard Managed With Controls
Organization:	Not reported
Island:	Oahu
Supplemental Location Text:	Not reported
SDAR Environmental Interest Name:	HECO Makaloa Substation
HID Number:	Not reported
Facility Registry Identifier:	110013790237
Lead Agency:	HEER
Progran Name:	State
Potential Hazard And Controls:	Hazard Managed With Controls
Priority:	Low
Assessment:	Response Necessary
Response:	Response Complete
Nature of Contamination:	Found: COCs below DOH EALs, except arsenic in soil (20.7 mg/kg in one sample)
Nature of Residual Contamination:	Soil below the pad should be investigated if the pad is ever removed or damaged. Contaminants of concern include TPH as diesel and/or transformer oil, and possible PCB.
Use Restrictions:	Controls Required to Manage Contamination

HECO SUBSTATION: MAKALOA SUBSTATION (Continued) **S106817457**

Engineering Control:	Not reported
Description of Restrictions:	Not reported
Institutional Control:	Government - Hawaii Dept. of Health Letter Issued
Within Designated Areawide Contamination:	Not reported
Site Closure Type:	No Further Action Letter - Restricted Use
Document Date:	03/06/2007
Document Number:	2007-109-LY
Document Subject:	No Further Action Determination
Project Manager:	Laura Young
Contact Information:	(808) 586-4249 919 Ala Moana Blvd, Honolulu, HI 96814

HI SPILLS:

Island:	Oahu
Supplemental Loc. Text:	Not reported
Case Number:	20020815-1119
HID Number:	Not reported
Facility Registry Id:	110013790237
Lead and Program:	HEER EP&R
ER:	Site Visit
Units:	HECO Transformer 21707
Substances:	Shell Diala Oil
Less Or Greater Than:	>
Numerical Quantity:	25
Units:	Gallons
Activity Type:	Response
Activity Lead:	Terry Corpus
Assignment End Date:	Not reported
Result:	SOSC NFA
File Under:	Hawaiian Electric Co., Inc. (HECO)

Island:	Oahu
Supplemental Loc. Text:	Not reported
Case Number:	20110620-1451
HID Number:	Not reported
Facility Registry Id:	110013790237
Lead and Program:	HEER EP&R
ER:	None
Units:	HECO substation transformer #18639 release
Substances:	Transformer Oil
Less Or Greater Than:	>
Numerical Quantity:	5
Units:	Gallons
Activity Type:	Response
Activity Lead:	Curtis Martin
Assignment End Date:	Not reported
Result:	Not reported
File Under:	Hawaiian Electric Co., Inc. (HECO)

INST CONTROL:

Potential hazards and controls:	Hazard Managed With Controls
Supplemental Location:	Not reported
Zip Suffix:	Not reported
Island:	Oahu
Institutional Control:	Government - Hawaii Dept. of Health Letter Issued

F13
SSW
1/8-1/4
0.145 mi.
765 ft.

AOAO YACHT HARBOR TOWERS
1600_1650 ALA MOANA BLVD
HONOLULU, HI 96815

RCRA-CESQG **1004688961**
HIR000037002

Site 1 of 2 in cluster F

Relative:
Higher

Actual:
3 ft.

RCRA-CESQG:

Date form received by agency:	03/09/1998
Facility name:	AOAO YACHT HARBOR TOWERS
Facility address:	1600_1650 ALA MOANA BLVD HONOLULU, HI 96815
EPA ID:	HIR000037002
Mailing address:	1600 1650 ALA MOANA BLVD HONOLULU, HI 96815
Contact:	SCOTT LUONGO
Contact address:	1600 1650 ALA MOANA BLVD HONOLULU, HI 96815
Contact country:	US
Contact telephone:	(808) 942-5712
Contact email:	Not reported
EPA Region:	09
Classification:	Conditionally Exempt Small Quantity Generator
Description:	Handler: generates 100 kg or less of hazardous waste per calendar month, and accumulates 1000 kg or less of hazardous waste at any time; or generates 1 kg or less of acutely hazardous waste per calendar month, and accumulates at any time: 1 kg or less of acutely hazardous waste; or 100 kg or less of any residue or contaminated soil, waste or other debris resulting from the cleanup of a spill, into or on any land or water, of acutely hazardous waste; or generates 100 kg or less of any residue or contaminated soil, waste or other debris resulting from the cleanup of a spill, into or on any land or water, of acutely hazardous waste during any calendar month, and accumulates at any time: 1 kg or less of acutely hazardous waste; or 100 kg or less of any residue or contaminated soil, waste or other debris resulting from the cleanup of a spill, into or on any land or water, of acutely hazardous waste

Owner/Operator Summary:

Owner/operator name:	AOAO YACHT HARBOR TOWERS
Owner/operator address:	1600 1650 ALA MOANA BLVD HONOLULU, HI 96815
Owner/operator country:	Not reported
Owner/operator telephone:	(808) 947-1855
Legal status:	Private
Owner/Operator Type:	Owner
Owner/Op start date:	Not reported
Owner/Op end date:	Not reported

Handler Activities Summary:

U.S. importer of hazardous waste:	No
Mixed waste (haz. and radioactive):	No
Recycler of hazardous waste:	No
Transporter of hazardous waste:	No
Treater, storer or disposer of HW:	No
Underground injection activity:	No
On-site burner exemption:	No
Furnace exemption:	No
Used oil fuel burner:	No

AOAO YACHT HARBOR TOWERS (Continued) **1004688961**

Used oil processor: No
User oil refiner: No
Used oil fuel marketer to burner: No
Used oil Specification marketer: No
Used oil transfer facility: No
Used oil transporter: No

Hazardous Waste Summary:
Waste code: D001
Waste name: IGNITABLE HAZARDOUS WASTES ARE THOSE WASTES WHICH HAVE A FLASHPOINT OF LESS THAN 140 DEGREES FAHRENHEIT AS DETERMINED BY A PENSKY-MARTENS CLOSED CUP FLASH POINT TESTER. ANOTHER METHOD OF DETERMINING THE FLASH POINT OF A WASTE IS TO REVIEW THE MATERIAL SAFETY DATA SHEET, WHICH CAN BE OBTAINED FROM THE MANUFACTURER OR DISTRIBUTOR OF THE MATERIAL. LACQUER THINNER IS AN EXAMPLE OF A COMMONLY USED SOLVENT WHICH WOULD BE CONSIDERED AS IGNITABLE HAZARDOUS WASTE.

Waste code: F001
Waste name: THE FOLLOWING SPENT HALOGENATED SOLVENTS USED IN DEGREASING: TETRACHLOROETHYLENE, TRICHLOROETHYLENE, METHYLENE CHLORIDE, 1,1,1-TRICHLOROETHANE, CARBON TETRACHLORIDE, AND CHLORINATED FLUOROCARBONS; ALL SPENT SOLVENT MIXTURES/BLENDS USED IN DEGREASING CONTAINING, BEFORE USE, A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THE ABOVE HALOGENATED SOLVENTS OR THOSE SOLVENTS LISTED IN F002, F004, AND F005, AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.

Waste code: F003
Waste name: THE FOLLOWING SPENT NON-HALOGENATED SOLVENTS: XYLENE, ACETONE, ETHYL ACETATE, ETHYL BENZENE, ETHYL ETHER, METHYL ISOBUTYL KETONE, N-BUTYL ALCOHOL, CYCLOHEXANONE, AND METHANOL; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, ONLY THE ABOVE SPENT NON-HALOGENATED SOLVENTS; AND ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, ONE OR MORE OF THE ABOVE NON-HALOGENATED SOLVENTS, AND, A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THOSE SOLVENTS LISTED IN F001, F002, F004, AND F005, AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.

Violation Status: No violations found

D14 **ROGER'S REPAIR INC** **HI SHWS S106820247**
ENE **1687 KALAKAUA AVE** **N/A**
1/8-1/4 **HONOLULU, HI 96826**
0.149 mi.
788 ft. **Site 2 of 7 in cluster D**

Relative:
Higher

Actual:
3 ft.

SHWS:
Organization: Not reported
Supplemental Location: Not reported
Island: Oahu
Environmental Interest: Roger's Repair Inc
HID Number: Not reported
Facility Registry Identifier: 110005723903
Lead Agency: Not reported
Program: State
Project Manager: Laura Young
Hazard Priority: NFA

ROGER'S REPAIR INC (Continued) **S106820247**

Potential Hazards And Controls:	Hazard Undetermined
Organization:	Not reported
Island:	Oahu
Supplemental Location Text:	Not reported
SDAR Environmental Interest Name:	Roger's Repair Inc
HID Number:	Not reported
Facility Registry Identifier:	110005723903
Lead Agency:	Not reported
Progran Name:	State
Potential Hazard And Controls:	Hazard Undetermined
Priority:	NFA
Assessment:	Assessment Ongoing
Response:	Not reported
Nature of Contamination:	Not reported
Nature of Residual Contamination:	Not reported
Use Restrictions:	Undetermined
Engineering Control:	Not reported
Description of Restrictions:	Not reported
Institutional Control:	Not reported
Within Designated Areawide Contamination:	Not reported
Site Closure Type:	No Further Action - Type Undetermined
Document Date:	06/04/1999
Document Number:	Not reported
Document Subject:	Not reported
Project Manager:	Laura Young
Contact Information:	(808) 586-4249 919 Ala Moana Blvd, Honolulu, HI 96814

D15 **ROGERS REPAIR INC** **RCRA-CESQG 1000742297**
ENE **1687 KALAKAUA AVE** **FINDS HID981615222**
1/8-1/4 **HONOLULU, HI 96826**
0.149 mi.
788 ft. **Site 3 of 7 in cluster D**

Relative:
Higher

Actual:
3 ft.

RCRA-CESQG:

Date form received by agency:	07/19/1993
Facility name:	ROGERS REPAIR INC
Facility address:	1687 KALAKAUA AVE HONOLULU, HI 96826
EPA ID:	HID981615222
Contact:	ROGER NISHIMURA
Contact address:	1687 KALAKAUA AVE HONOLULU, HI 96826
Contact country:	US
Contact telephone:	(808) 949-4137
Contact email:	Not reported
EPA Region:	09
Land type:	Other land type
Classification:	Conditionally Exempt Small Quantity Generator
Description:	Handler: generates 100 kg or less of hazardous waste per calendar month, and accumulates 1000 kg or less of hazardous waste at any time; or generates 1 kg or less of acutely hazardous waste per calendar month, and accumulates at any time: 1 kg or less of acutely hazardous waste; or 100 kg or less of any residue or contaminated soil, waste or other debris resulting from the cleanup of a spill, into or on any land or water, of acutely hazardous waste; or generates 100 kg or less of any residue or contaminated soil, waste or other debris resulting from the cleanup of a spill, into or on any land or water, of acutely hazardous waste during any calendar month, and accumulates at any

ROGERS REPAIR INC (Continued) **1000742297**

time: 1 kg or less of acutely hazardous waste; or 100 kg or less of any residue or contaminated soil, waste or other debris resulting from the cleanup of a spill, into or on any land or water, of acutely hazardous waste

Owner/Operator Summary:

Owner/operator name:	ROGER NISHIMURA
Owner/operator address:	NOT REQUIRED
	NOT REQUIRED, ME 99999
Owner/operator country:	Not reported
Owner/operator telephone:	(415) 555-1212
Legal status:	Private
Owner/Operator Type:	Owner
Owner/Op start date:	Not reported
Owner/Op end date:	Not reported
Owner/operator name:	NOT REQUIRED
Owner/operator address:	NOT REQUIRED
	NOT REQUIRED, ME 99999
Owner/operator country:	Not reported
Owner/operator telephone:	(415) 555-1212
Legal status:	Private
Owner/Operator Type:	Operator
Owner/Op start date:	Not reported
Owner/Op end date:	Not reported

Handler Activities Summary:

U.S. importer of hazardous waste:	No
Mixed waste (haz. and radioactive):	No
Recycler of hazardous waste:	No
Transporter of hazardous waste:	No
Treater, storer or disposer of HW:	No
Underground injection activity:	No
On-site burner exemption:	No
Furnace exemption:	No
Used oil fuel burner:	No
Used oil processor:	No
User oil refiner:	No
Used oil fuel marketer to burner:	No
Used oil Specification marketer:	No
Used oil transfer facility:	No
Used oil transporter:	No

Violation Status: No violations found

Evaluation Action Summary:

Evaluation date:	01/13/1997
Evaluation:	COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation:	Not reported
Date achieved compliance:	Not reported
Evaluation lead agency:	State

FINDS:

Registry ID: 110005723903

ROGERS REPAIR INC (Continued) **1000742297**

Environmental Interest/Information System
RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

STATE MASTER

G16 **EDR US Hist Auto Stat** **1015271300**
ENE **1735 KALAKAUA AVE** **N/A**
1/8-1/4 **HONOLULU, HI 96826**
0.157 mi.
828 ft. **Site 1 of 4 in cluster G**

Relative:
Higher

Actual:
3 ft.

EDR Historical Auto Stations:
Name: GAS STATION TRADING POST
Year: 2001
Address: 1735 KALAKAUA AVE

G17 **EDR US Hist Auto Stat** **1015268165**
ENE **1712 KALAKAUA AVE** **N/A**
1/8-1/4 **HONOLULU, HI 96826**
0.158 mi.
836 ft. **Site 2 of 4 in cluster G**

Relative:
Higher

Actual:
3 ft.

EDR Historical Auto Stations:
Name: ON SITE AUTO REPAIR SVC
Year: 2010
Address: 1712 KALAKAUA AVE

D18 **KALAKAUA TRANSMISSION INC.** **HI UST** **1000147228**
NE **1665 KALAKAUA AVE** **N/A**
1/8-1/4 **HONOLULU, HI 96826**
0.159 mi.
840 ft. **Site 4 of 7 in cluster D**

Relative:
Higher

Actual:
3 ft.

UST:
Facility ID: 9-100763
Owner: IMAI BROTHERS ENTERPRISES
Owner Address: 2433 PUUNUI ST
Ownder City,St,Zip: Honolulu, 96826 96826

Tank ID: R-001
Date Installed: 07/26/1951
Tank Status: **Permanently Out of Use**
Date Closed: 12/01/1989
Tank Capacity: 500
Substance: Used Oil

Tank ID: R-002
Date Installed: 07/26/1951

KALAKAUA TRANSMISSION INC. (Continued) **1000147228**

Tank Status: **Permanently Out of Use**
Date Closed: 12/01/1989
Tank Capacity: 500
Substance: Used Oil

D19 **FORMER KALAKAUA TRANSMISSION INC** **HI SHWS** **S106817112**
NE **1665 KALAKAUA AVE** **HI ENG CONTROLS** **N/A**
1/8-1/4 **HONOLULU, HI 96826** **HI INST CONTROL**
0.159 mi.
840 ft. **Site 5 of 7 in cluster D**

Relative:
Higher

Actual:
3 ft.

SHWS:

Organization:	Not reported
Supplemental Location:	Not reported
Island:	Oahu
Environmental Interest:	Former Kalakaua Transmission Inc
HID Number:	Not reported
Facility Registry Identifier:	Not reported
Lead Agency:	Not reported
Program:	State
Project Manager:	Diane England
Hazard Priority:	NFA
Potential Hazards And Controls:	Hazard Managed With Controls
Organization:	Not reported
Island:	Oahu
Supplemental Location Text:	Not reported
SDAR Environmental Interest Name:	Former Kalakaua Transmission Inc
HID Number:	Not reported
Facility Registry Identifier:	Not reported
Lead Agency:	Not reported
Progran Name:	State
Potential Hazard And Controls:	Hazard Managed With Controls
Priority:	NFA
Assessment:	Assessment Ongoing
Response:	Not reported
Nature of Contamination:	Found: Petroleum and soil in groundwater.
Nature of Residual Contamination:	Not reported
Use Restrictions:	Controls Required to Manage Contamination
Engineering Control:	Engineering Control Required
Description of Restrictions:	(Concrete Cap) Building foundation must remain in place. If the foundation is disturbed/removed, additional soil and groundwater characterization must be conducted and appropriate remedial measures employed.
Institutional Control:	Government - Hawaii Dept. of Health Letter Issued
Within Designated Areawide Contamination:	Not reported
Site Closure Type:	No Further Action Letter - Restricted Use
Document Date:	03/28/2006
Document Number:	2006-1850-DE
Document Subject:	No Further Action Determination for Oil-Range Hydrocarbons in Soil and Groundwater
Project Manager:	Diane England
Contact Information:	(808) 586-4249 919 Ala Moana Blvd, Honolulu, HI 96814

ENG CONTROLS:

Supplemental Location Text:	Not reported
Zip Suffix:	Not reported
Island:	Oahu

FORMER KALAKAUA TRANSMISSION INC (Continued) **S106817112**

Potential Hazards And Controls: Hazard Managed With Controls
Engineering Control: Engineering Control Required

INST CONTROL:
Potential hazards and controls: Hazard Managed With Controls
Supplemental Location: Not reported
Zip Suffix: Not reported
Island: Oahu
Institutional Control: Government - Hawaii Dept. of Health Letter Issued

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D20 **EDR US Hist Auto Stat** **1015261837**
NE **1665 KALAKAUA AVE** **N/A**
1/8-1/4 **HONOLULU, HI 96826**
0.159 mi.
840 ft. **Site 6 of 7 in cluster D**

Relative: Higher

Actual: 3 ft.

EDR Historical Auto Stations:
Name: KALAKAUA TRANSMISSION INC
Year: 2001
Address: 1665 KALAKAUA AVE

Name: KALAKAUA TRANSMISSION INC
Year: 2002
Address: 1665 KALAKAUA AVE

D21 **KALAKAUA TRANSMISSION INC** **RCRA-CESQG** **1004688784**
NE **1665 KALAKAUA AVE** **FINDS** **HID981637564**
1/8-1/4 **HONOLULU, HI 96826**
0.162 mi.
855 ft. **Site 7 of 7 in cluster D**

Relative: Higher

Actual: 3 ft.

RCRA-CESQG:
Date form received by agency: 07/21/1993
Facility name: KALAKUA TRANSMISSION INC
Facility address: 1665 KALAKUA AVE
HONOLULU, HI 96826
EPA ID: HID981637564
Mailing address: KALAKUA AVE
HONOLULU, HI 96826
Contact: URAGO ISAO
Contact address: 1665 KALAKUA AVE
HONOLULU, HI 96826
Contact country: US
Contact telephone: (808) 941-9188
Contact email: Not reported
EPA Region: 09
Classification: Conditionally Exempt Small Quantity Generator
Description: Handler: generates 100 kg or less of hazardous waste per calendar month, and accumulates 1000 kg or less of hazardous waste at any time; or generates 1 kg or less of acutely hazardous waste per calendar month, and accumulates at any time: 1 kg or less of acutely hazardous waste; or 100 kg or less of any residue or contaminated soil, waste or other debris resulting from the cleanup of a spill, into or on any land or water, of acutely hazardous waste; or generates 100 kg or less of any residue or contaminated soil, waste or other debris resulting from the cleanup of a spill, into or on any land or water, of acutely

KALAKUA TRANSMISSION INC (Continued) **1004688784**

hazardous waste during any calendar month, and accumulates at any time: 1 kg or less of acutely hazardous waste; or 100 kg or less of any residue or contaminated soil, waste or other debris resulting from the cleanup of a spill, into or on any land or water, of acutely hazardous waste

Owner/Operator Summary:

Owner/operator name:	IMAI BROS ENTERPRISE
Owner/operator address:	NOT REQUIRED
	NOT REQUIRED, ME 99999
Owner/operator country:	Not reported
Owner/operator telephone:	(415) 555-1212
Legal status:	Private
Owner/Operator Type:	Owner
Owner/Op start date:	Not reported
Owner/Op end date:	Not reported

Owner/operator name:	NOT REQUIRED
Owner/operator address:	NOT REQUIRED
	NOT REQUIRED, ME 99999
Owner/operator country:	Not reported
Owner/operator telephone:	(415) 555-1212
Legal status:	Private
Owner/Operator Type:	Operator
Owner/Op start date:	Not reported
Owner/Op end date:	Not reported

Handler Activities Summary:

U.S. importer of hazardous waste:	No
Mixed waste (haz. and radioactive):	No
Recycler of hazardous waste:	No
Transporter of hazardous waste:	No
Treater, storer or disposer of HW:	No
Underground injection activity:	No
On-site burner exemption:	No
Furnace exemption:	No
Used oil fuel burner:	No
Used oil processor:	No
User oil refiner:	No
Used oil fuel marketer to burner:	No
Used oil Specification marketer:	No
Used oil transfer facility:	No
Used oil transporter:	No

Violation Status: No violations found

FINDS:

Registry ID: 110005724190

Environmental Interest/Information System

RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

F22 **YACHT HARBOR TOWERS** **HI SHWS S106821166**
SSW **1600 ALA MOANA BLVD** **HI SPILLS N/A**
1/8-1/4 **HONOLULU, HI 96815** **HI ENG CONTROLS**
0.164 mi. **HI INST CONTROL**
864 ft. **Site 2 of 2 in cluster F**

Relative:
Higher

Actual:
3 ft.

SHWS:

Organization:	Not reported
Supplemental Location:	Yacht Harbor Towers
Island:	Oahu
Environmental Interest:	Yacht Harbor Towers Generator
HID Number:	Not reported
Facility Registry Identifier:	110013774629
Lead Agency:	HEER
Program:	State
Project Manager:	Anna Fernandez
Hazard Priority:	NFA
Potential Hazards And Controls:	Hazard Managed With Controls
Organization:	Not reported
Island:	Oahu
Supplemental Location Text:	Yacht Harbor Towers
SDAR Environmental Interest Name:	Yacht Harbor Towers Generator
HID Number:	Not reported
Facility Registry Identifier:	110013774629
Lead Agency:	HEER
Progran Name:	State
Potential Hazard And Controls:	Hazard Managed With Controls
Priority:	NFA
Assessment:	Response Necessary
Response:	Response Complete
Nature of Contamination:	Found: TPH-d
Nature of Residual Contamination:	Soil exceeding Tier 1 levels near the generator.
Use Restrictions:	Controls Required to Manage Contamination
Engineering Control:	Engineering Control Required
Description of Restrictions:	The No Further Action with Institutional Controls determination is in effect only as long as the generator and associated concrete pad remain in place. When they are removed, appropriate response action will be required.
Institutional Control:	Government - Hawaii Dept. of Health Letter Issued
Within Designated Areawide Contamination:	Not reported
Site Closure Type:	No Further Action Letter - Restricted Use
Document Date:	01/08/2009
Document Number:	2009-009-SPM
Document Subject:	No Further Action (NFA) with Institutional Controls Determination, for the Yacht Harbor Towers Gener
Project Manager:	Anna Fernandez
Contact Information:	(808) 586-4249 919 Ala Moana Blvd, Honolulu, HI 96814

HI SPILLS:

Island:	Oahu
Supplemental Loc. Text:	Yacht Harbor Towers
Case Number:	19990301-1550
HID Number:	Not reported
Facility Registry Id:	110013774629
Lead and Program:	HEER EP&R
ER:	Referred
Units:	Yacht Harbor Tower Generator
Substances:	Unknown
Less Or Greater Than:	Not reported

YACHT HARBOR TOWERS (Continued) **S106821166**

Numerical Quantity: 60
Units: Gallons
Activity Type: Response
Activity Lead: Mike Cripps
Assignment End Date: Not reported
Result: Refer to ISST
File Under: Yacht Harbor Towers

ENG CONTROLS:
Supplemental Location Text: Yacht Harbor Towers
Zip Suffix: Not reported
Island: Oahu
Potential Hazards And Controls: Hazard Managed With Controls
Engineering Control: Engineering Control Required

INST CONTROL:
Potential hazards and controls: Hazard Managed With Controls
Supplemental Location: Yacht Harbor Towers
Zip Suffix: Not reported
Island: Oahu
Institutional Control: Government - Hawaii Dept. of Health Letter Issued

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H23 **EDR US Hist Auto Stat** **1015237305**
NW **1500 KAPIOLANI BLVD** **N/A**
1/8-1/4 **HONOLULU, HI 96814**
0.168 mi.
888 ft. **Site 1 of 3 in cluster H**

Relative:
Higher

Actual:
3 ft.

EDR Historical Auto Stations:
Name: AAMCO TRANSMISSIONS
Year: 2007
Address: 1500 KAPIOLANI BLVD

G24 **EDR US Hist Cleaners** **1015005226**
East **1750 KALAKAUA AVE** **N/A**
1/8-1/4 **HONOLULU, HI 96826**
0.169 mi.
893 ft. **Site 3 of 4 in cluster G**

Relative:
Higher

Actual:
3 ft.

EDR Historical Cleaners:
Name: STEFANS CARPET CLEANING
Year: 2002
Address: 1750 KALAKAUA AVE

Name: STEFANS CARPET CLEANING
Year: 2003
Address: 1750 KALAKAUA AVE

Name: STEFANS CARPET CLEANING
Year: 2004
Address: 1750 KALAKAUA AVE

Name: STEFANS CARPET CLEANING
Year: 2005
Address: 1750 KALAKAUA AVE

(Continued) **1015005226**

Name: STEFANS CARPET CLEANING
Year: 2006
Address: 1750 KALAKAUA AVE

G25 **EDR US Hist Auto Stat** **1015273014**
East **1750 KALAKAUA AVE** **N/A**
1/8-1/4 **HONOLULU, HI 96826**
0.169 mi.
893 ft. **Site 4 of 4 in cluster G**

Relative:
Higher

Actual:
3 ft.

EDR Historical Auto Stations:
Name: ALOHA MOBILE AUTO GLASS
Year: 2012
Address: 1750 KALAKAUA AVE

I26 **ALOHA MOTORS 1777 KAPIOLANI BLVD** **HI SHWS** **1006820308**
East **1777 KAPIOLANI BLVD** **HI SPILLS** **N/A**
1/8-1/4 **HONOLULU, HI 96813**
0.173 mi.
912 ft. **Site 1 of 9 in cluster I**

Relative:
Higher

Actual:
3 ft.

SHWS:

Organization:	Not reported
Supplemental Location:	Not reported
Island:	Oahu
Environmental Interest:	Aloha Motors
HID Number:	HID984466060
Facility Registry Identifier:	110013782479
Lead Agency:	Not reported
Program:	State
Project Manager:	Unassigned
Hazard Priority:	NFA
Potential Hazards And Controls:	Hazard Undetermined
Organization:	Not reported
Island:	Oahu
Supplemental Location Text:	Not reported
SDAR Environmental Interest Name:	Aloha Motors
HID Number:	HID984466060
Facility Registry Identifier:	110013782479
Lead Agency:	Not reported
Progran Name:	State
Potential Hazard And Controls:	Hazard Undetermined
Priority:	NFA
Assessment:	Assessment Ongoing
Response:	Not reported
Nature of Contamination:	Found: Petroleum products
Nature of Residual Contamination:	Not reported
Use Restrictions:	Undetermined
Engineering Control:	Not reported
Description of Restrictions:	Not reported
Institutional Control:	Not reported
Within Designated Areawide Contamination:	Not reported
Site Closure Type:	ISST NFA - No Letter
Document Date:	01/19/1995
Document Number:	Not reported
Document Subject:	Not reported

ALOHA MOTORS 1777 KAPIOLANI BLVD (Continued) **1006820308**

Project Manager: Unassigned
Contact Information: (808) 586-4249 919 Ala Moana Blvd, Honolulu, HI 96814

HI SPILLS:
Island: Oahu
Supplemental Loc. Text: Not reported
Case Number: 19920128
HID Number: HID984466060
Facility Registry Id: 110013782479
Lead and Program: HEER EP&R
ER: Not reported
Units: Aloha Motors - Kapiolani & Kalakaua Avenues
Substances: Petroleum HyrocarbonsSpent solvents & thinners
Less Or Greater Than: Not reported
Numerical Quantity: Not reported
Units: Not reported
Activity Type: Response
Activity Lead: Not reported
Assignment End Date: Not reported
Result: SOSC NFA
File Under: Aloha Motors

Island: Oahu
Supplemental Loc. Text: Not reported
Case Number: 19900411-1
HID Number: HID984466060
Facility Registry Id: 110013782479
Lead and Program: HEER EP&R
ER: Not reported
Units: Aloha Motors, First Development Inc.
Substances: Not reported
Less Or Greater Than: Not reported
Numerical Quantity: Not reported
Units: Not reported
Activity Type: Response
Activity Lead: Sheila Mackenzie
Assignment End Date: Not reported
Result: SOSC NFA
File Under: Aloha Motors

Island: Oahu
Supplemental Loc. Text: Not reported
Case Number: 19900821-5
HID Number: HID984466060
Facility Registry Id: 110013782479
Lead and Program: HEER EP&R
ER: Not reported
Units: ALOHA MOTORS, KALAKAUA AVE.
Substances: Unknown
Less Or Greater Than: Not reported
Numerical Quantity: 15
Units: Gallons
Activity Type: Response
Activity Lead: Not reported
Assignment End Date: Not reported
Result: SOSC NFA
File Under: Aloha Motors

I27 East 1/8-1/4 0.173 mi. 912 ft. **FIRST DEVELOPMENT INC**
1777 KAPIOLANI BLVD
HONOLULU, HI 96814

CERC-NFRAP 1003879446
RCRA-CESQG HID984466060
FINDS

Site 2 of 9 in cluster I

Relative: Higher

Actual: 3 ft.

CERC-NFRAP:
Site ID: 0903612
Federal Facility: Not a Federal Facility
NPL Status: Not on the NPL
Non NPL Status: NFRAP-Site does not qualify for the NPL based on existing information

CERCLIS-NFRAP Site Contact Details:
Contact Sequence ID: 13037524.00000
Person ID: 9000059.00000

CERCLIS-NFRAP Assessment History:
Action: PRELIMINARY ASSESSMENT
Date Started: / /
Date Completed: 04/22/91
Priority Level: Higher priority for further assessment

Action: ARCHIVE SITE
Date Started: / /
Date Completed: 03/23/92
Priority Level: Not reported

Action: SITE INSPECTION
Date Started: / /
Date Completed: 03/23/92
Priority Level: NFRAP-Site does not qualify for the NPL based on existing information

Action: DISCOVERY
Date Started: / /
Date Completed: 09/24/90
Priority Level: Not reported

RCRA-CESQG:
Date form received by agency: 08/13/1992
Facility name: FIRST DEVELOPMENT INC
Facility address: 1777 KAPIOLANI BLVD
HONOLULU, HI 96814
EPA ID: HID984466060
Mailing address: FORT ST HAWAII TWR
STE 1501
HONOLULU, HI 96813
Contact: HITOSHI UCHINO
Contact address: 745 FORT ST HAWAII TWR STE 1501
HONOLULU, HI 96813
Contact country: US
Contact telephone: (808) 545-1953
Contact email: Not reported
EPA Region: 09
Classification: Conditionally Exempt Small Quantity Generator
Description: Handler: generates 100 kg or less of hazardous waste per calendar month, and accumulates 1000 kg or less of hazardous waste at any time; or generates 1 kg or less of acutely hazardous waste per calendar month, and accumulates at any time: 1 kg or less of acutely hazardous

FIRST DEVELOPMENT INC (Continued) **1003879446**

waste; or 100 kg or less of any residue or contaminated soil, waste or other debris resulting from the cleanup of a spill, into or on any land or water, of acutely hazardous waste; or generates 100 kg or less of any residue or contaminated soil, waste or other debris resulting from the cleanup of a spill, into or on any land or water, of acutely hazardous waste during any calendar month, and accumulates at any time: 1 kg or less of acutely hazardous waste; or 100 kg or less of any residue or contaminated soil, waste or other debris resulting from the cleanup of a spill, into or on any land or water, of acutely hazardous waste

Owner/Operator Summary:

Owner/operator name:	FIRST DEVELOPMENT INC
Owner/operator address:	745 FORT ST HAWAII TWR 1501 HONOLULU, HI 96813
Owner/operator country:	Not reported
Owner/operator telephone:	(808) 545-1953
Legal status:	Private
Owner/Operator Type:	Owner
Owner/Op start date:	Not reported
Owner/Op end date:	Not reported

Handler Activities Summary:

U.S. importer of hazardous waste:	No
Mixed waste (haz. and radioactive):	No
Recycler of hazardous waste:	No
Transporter of hazardous waste:	No
Treater, storer or disposer of HW:	No
Underground injection activity:	No
On-site burner exemption:	No
Furnace exemption:	No
Used oil fuel burner:	No
Used oil processor:	No
User oil refiner:	No
Used oil fuel marketer to burner:	No
Used oil Specification marketer:	No
Used oil transfer facility:	No
Used oil transporter:	No

Violation Status: No violations found

FINDS:

Registry ID: 110005727204

Environmental Interest/Information System

RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

STATE MASTER

I28 **B & S AUTOMOTIVE TECHNICIANS** **RCRA NonGen / NLR** **1000130413**
East **1789 KAPIOLANI** **FINDS** **HID981573959**
1/8-1/4 **HONOLULU, HI 96814**
0.188 mi.
992 ft. **Site 3 of 9 in cluster I**

Relative:
Higher

Actual:
3 ft.

RCRA NonGen / NLR:

Date form received by agency:	12/10/1993
Facility name:	B & S AUTOMOTIVE TECHNICIANS
Facility address:	1789 KAPIOLANI HONOLULU, HI 96814
EPA ID:	HID981573959
Mailing address:	KAPIOLANI HONOLULU, HI 96814
Contact:	ENVIRONMENTAL MANAGER
Contact address:	1789 KAPIOLANI HONOLULU, HI 96814
Contact country:	US
Contact telephone:	(808) 946-0677
Contact email:	Not reported
EPA Region:	09
Classification:	Non-Generator
Description:	Handler: Non-Generators do not presently generate hazardous waste

Owner/Operator Summary:

Owner/operator name:	UEHARA BLAKE
Owner/operator address:	NOT REQUIRED NOT REQUIRED, ME 99999
Owner/operator country:	Not reported
Owner/operator telephone:	(415) 555-1212
Legal status:	Private
Owner/Operator Type:	Owner
Owner/Op start date:	Not reported
Owner/Op end date:	Not reported

Owner/operator name:	NOT REQUIRED
Owner/operator address:	NOT REQUIRED NOT REQUIRED, ME 99999
Owner/operator country:	Not reported
Owner/operator telephone:	(415) 555-1212
Legal status:	Private
Owner/Operator Type:	Operator
Owner/Op start date:	Not reported
Owner/Op end date:	Not reported

Handler Activities Summary:

U.S. importer of hazardous waste:	No
Mixed waste (haz. and radioactive):	No
Recycler of hazardous waste:	No
Transporter of hazardous waste:	No
Treater, storer or disposer of HW:	No
Underground injection activity:	No
On-site burner exemption:	No
Furnace exemption:	No
Used oil fuel burner:	No
Used oil processor:	No
User oil refiner:	No
Used oil fuel marketer to burner:	No

B & S AUTOMOTIVE TECHNICIANS (Continued) **1000130413**

Used oil Specification marketer: No
Used oil transfer facility: No
Used oil transporter: No

Violation Status: No violations found

FINDS:

Registry ID: 110005723770

Environmental Interest/Information System
RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

I29 **ALOHA MOTORS** **HI LUST U001235755**
ESE **KAPIOLANI BLVD X KALAKAUA AVE** **HI UST N/A**
1/8-1/4 **HONOLULU, HI 96815**
0.193 mi.
1020 ft. **Site 4 of 9 in cluster I**

Relative:
Higher

Actual:
3 ft.

LUST:
Facility ID: 9-102160
Facility Status: Site Cleanup Completed (NFA)
Facility Status Date: 04/12/1993
Release ID: 890025
Project Officer: Raymond Seid

UST:
Facility ID: 9-102160
Owner: STATE DBEDT - CONVENTION CENTER AUTHORITY
Owner Address: 1833 KALAKAUA AVE, SUITE 800
Ownder City,St,Zip: Honolulu, 96815 96815

Tank ID: 1
Date Installed: Not reported
Tank Status: **Permanently Out of Use**
Date Closed: Not reported
Tank Capacity: Not reported
Substance: Not Listed

Tank ID: R-2
Date Installed: Not reported
Tank Status: **Permanently Out of Use**
Date Closed: 08/21/1995
Tank Capacity: 550
Substance: Not Listed

Tank ID: R-3
Date Installed: Not reported
Tank Status: **Permanently Out of Use**
Date Closed: 08/24/1995

ALOHA MOTORS (Continued) **U001235755**

Tank Capacity: 260
Substance: Not Listed

Tank ID: R-4
Date Installed: Not reported
Tank Status: Permanently Out of Use
Date Closed: 10/18/1995
Tank Capacity: 550
Substance: Not Listed

Tank ID: R-5
Date Installed: Not reported
Tank Status: Permanently Out of Use
Date Closed: 10/29/1996
Tank Capacity: 250
Substance: Not Listed

E30
NW
1/8-1/4
0.197 mi.
1039 ft.

Relative: Higher

Actual: 3 ft.

1518 MAKALOA ST
HONOLULU, HI 96814

EDR US Hist Cleaners **1014997169**
N/A

Site 2 of 2 in cluster E

EDR Historical Cleaners:
Name: FANTASTIQUE DRY CLEANING
Year: 2002
Address: 1518 MAKALOA ST

31
South
1/8-1/4
0.201 mi.
1060 ft.

Relative: Higher

Actual: 3 ft.

THE WATERMARK WAIKIKI
1551 ALA WAI BLVD
HONOLULU, HI 96815

HI LUST **S109467327**
N/A

LUST:
Facility ID: 9-103868
Facility Status: Confirmed Release
Facility Status Date: 11/04/2008
Release ID: 090003
Project Officer: Josh Nagashima

J32
SSE
1/8-1/4
0.204 mi.
1075 ft.

Relative: Higher

Actual: 3 ft.

1609 ALA WAI DIESEL RELEASE
1609 ALA WAI BLVD
HONOLULU, HI

HI SHWS **S108008656**
HI SPILLS **N/A**

Site 1 of 2 in cluster J

SHWS:
Organization: Not reported
Supplemental Location: Not reported
Island: Oahu
Environmental Interest: 1609 Ala Wai Diesel Release
HID Number: Not reported

1609 ALA WAI DIESEL RELEASE (Continued) **S108008656**

Facility Registry Identifier:	Not reported
Lead Agency:	HEER
Program:	State
Project Manager:	Laura Young
Hazard Priority:	NFA
Potential Hazards And Controls:	No Hazard
Organization:	Not reported
Island:	Oahu
Supplemental Location Text:	Not reported
SDAR Environmental Interest Name:	1609 Ala Wai Diesel Release
HID Number:	Not reported
Facility Registry Identifier:	Not reported
Lead Agency:	HEER
Progran Name:	State
Potential Hazard And Controls:	No Hazard
Priority:	NFA
Assessment:	Response Necessary
Response:	Response Complete
Nature of Contamination:	Not reported
Nature of Residual Contamination:	Diesel contaminated soil
Use Restrictions:	No Hazard Present For Unrestricted Residential Use
Engineering Control:	Not reported
Description of Restrictions:	Not reported
Institutional Control:	Not reported
Within Designated Areawide Contamination:	Not reported
Site Closure Type:	No Further Action Letter - Unrestricted Residential Use
Document Date:	10/07/2005
Document Number:	2005-511-LY
Document Subject:	1609 Ala Wai Diesel Release No Further Action Letter
Project Manager:	Laura Young
Contact Information:	(808) 586-4249 919 Ala Moana Blvd, Honolulu, HI 96814

HI SPILLS:

Island:	Oahu
Supplemental Loc. Text:	Not reported
Case Number:	20050523-1552
HID Number:	Not reported
Facility Registry Id:	Not reported
Lead and Program:	HEER EP&R
ER:	Site Visit
Units:	1609 Ala Wai Diesel Release
Substances:	Diesel Fuel
Less Or Greater Than:	Not reported
Numerical Quantity:	Not reported
Units:	Sheen
Activity Type:	Response
Activity Lead:	Liz Galvez
Assignment End Date:	2005-06-09 00:00:00
Result:	Refer to SDAR
File Under:	Ala Wai Watermark Development , LLC

I33 **HAWAII CONVENTION CENTER** **HI SHWS 1006820847**
East **1801 KALAKAUA AVE** **HI SPILLS N/A**
1/8-1/4 **HONOLULU, HI 96814**
0.204 mi.
1079 ft. **Site 5 of 9 in cluster I**

Relative:
Higher

Actual:
3 ft.

SHWS:

Organization:	Not reported
Supplemental Location:	Kalakaua Ave & Kapiolani Blvd
Island:	Oahu
Environmental Interest:	Hawaii Convention Center
HID Number:	Not reported
Facility Registry Identifier:	110013788641
Lead Agency:	SHWB
Program:	State
Project Manager:	Not reported
Hazard Priority:	NFA
Potential Hazards And Controls:	Hazard Undetermined
Organization:	Not reported
Island:	Oahu
Supplemental Location Text:	Kalakaua Ave & Kapiolani Blvd
SDAR Environmental Interest Name:	Hawaii Convention Center
HID Number:	Not reported
Facility Registry Identifier:	110013788641
Lead Agency:	SHWB
Progran Name:	State
Potential Hazard And Controls:	Hazard Undetermined
Priority:	NFA
Assessment:	Response Necessary
Response:	Response Complete
Nature of Contamination:	Not reported
Nature of Residual Contamination:	Not reported
Use Restrictions:	Undetermined
Engineering Control:	Not reported
Description of Restrictions:	Not reported
Institutional Control:	Not reported
Within Designated Areawide Contamination:	Not reported
Site Closure Type:	No Further Action - Type Undetermined
Document Date:	09/03/1997
Document Number:	Not reported
Document Subject:	Letter Report Removal and Disposal of Transite Pipes, Hawaii Convention Center, Honolulu HI
Project Manager:	Not reported
Contact Information:	(808) 586-4249 919 Ala Moana Blvd, Honolulu, HI 96814

HI SPILLS:

Island:	Oahu
Supplemental Loc. Text:	Kalakaua Ave & Kapiolani Blvd
Case Number:	19980426-1349
HID Number:	Not reported
Facility Registry Id:	110013788641
Lead and Program:	HEER EP&R
ER:	Not reported
Units:	Hawaii Convention Center Brick Sealer Odor
Substances:	Not reported
Less Or Greater Than:	Not reported
Numerical Quantity:	Not reported
Units:	Not reported
Activity Type:	Response

HAWAII CONVENTION CENTER (Continued) **1006820847**

Activity Lead:	Liz Galvez
Assignment End Date:	Not reported
Result:	Not reported
File Under:	State of Hawaii, Department of Business, Economic Development & Tourism, Convention Center Authority
Island:	Oahu
Supplemental Loc. Text:	Kalakaua Ave & Kapiolani Blvd
Case Number:	19960207-1016
HID Number:	Not reported
Facility Registry Id:	110013788641
Lead and Program:	HEER EP&R
ER:	No
Units:	Convention Center
Substances:	Oil
Less Or Greater Than:	Not reported
Numerical Quantity:	Not reported
Units:	Not reported
Activity Type:	Response
Activity Lead:	Terry Corpus
Assignment End Date:	Not reported
Result:	SOSC NFA
File Under:	State of Hawaii, Department of Business, Economic Development & Tourism, Convention Center Authority
Island:	Oahu
Supplemental Loc. Text:	Kalakaua Ave & Kapiolani Blvd
Case Number:	19960314-0000
HID Number:	Not reported
Facility Registry Id:	110013788641
Lead and Program:	HEER EP&R
ER:	Not reported
Units:	Hawaii Convention Center
Substances:	Lubricating Oil.
Less Or Greater Than:	Not reported
Numerical Quantity:	1
Units:	Gallons
Activity Type:	Response
Activity Lead:	Not reported
Assignment End Date:	Not reported
Result:	SOSC NFA
File Under:	State of Hawaii, Department of Business, Economic Development & Tourism, Convention Center Authority
Island:	Oahu
Supplemental Loc. Text:	Kalakaua Ave & Kapiolani Blvd
Case Number:	19970301-1010
HID Number:	Not reported
Facility Registry Id:	110013788641
Lead and Program:	HEER EP&R
ER:	No
Units:	Convention Center White Liquid Emptying Into Ala Wai
Substances:	UNKN white liquid
Less Or Greater Than:	Not reported
Numerical Quantity:	Not reported
Units:	Not reported
Activity Type:	Response

HAWAII CONVENTION CENTER (Continued) **1006820847**

Activity Lead: Terry Corpus
Assignment End Date: Not reported
Result: SOSC NFA
File Under: State of Hawaii, Department of Business, Economic Development & Tourism, Convention Center Authority

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I34 **FUJI PHOTO FILM U S A INC** **RCRA NonGen / NLR** **1012178122**
East **1801 KALAKAUA AVE** **FINDS** **HIP000040451**
1/8-1/4 **HONOLULU, HI 96815**
0.204 mi.
1079 ft. **Site 6 of 9 in cluster I**

Relative:
Higher

Actual:
3 ft.

RCRA NonGen / NLR:
Date form received by agency: 06/24/2009
Facility name: FUJI PHOTO FILM U S A INC
Facility address: 1801 KALAKAUA AVE
HAWAII CONVENTION CENTER
HONOLULU, HI 96815
EPA ID: HIP000040451
Mailing address: 555 TAXTER RD
ELMSFORD, NY 10523
Contact: ANDREA MANNO
Contact address: 555 TAXTER RD
ELMSFORD, NY 10523
Contact country: US
Contact telephone: (914) 789-8793
Contact email: Not reported
EPA Region: 09
Classification: Non-Generator
Description: Handler: Non-Generators do not presently generate hazardous waste

Owner/Operator Summary:
Owner/operator name: FUJI PHOTO FILM U S A INC
Owner/operator address: 555 TAXTER RD
ELMSFORD, NY 10523
Owner/operator country: Not reported
Owner/operator telephone: (914) 789-8100
Legal status: Private
Owner/Operator Type: Owner
Owner/Op start date: Not reported
Owner/Op end date: Not reported

Handler Activities Summary:
U.S. importer of hazardous waste: No
Mixed waste (haz. and radioactive): No
Recycler of hazardous waste: No
Transporter of hazardous waste: No
Treater, storer or disposer of HW: No
Underground injection activity: No
On-site burner exemption: No
Furnace exemption: No
Used oil fuel burner: No
Used oil processor: No
User oil refiner: No
Used oil fuel marketer to burner: No
Used oil Specification marketer: No
Used oil transfer facility: No

FUJI PHOTO FILM U S A INC (Continued) **1012178122**

Used oil transporter: No

Historical Generators:
Date form received by agency: 06/05/1998
Site name: FUJI PHOTO FILM U S A INC
Classification: Small Quantity Generator

Violation Status: No violations found

FINDS:

Registry ID: 110005724172

Environmental Interest/Information System
RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

STATE MASTER

HAZARDOUS WASTE BIENNIAL REPORTER

I35 East 1/8-1/4 0.204 mi. 1079 ft. **HAWAII CONVENTION CENTER** **RCRA-CESQG** **1000277482**
1801 KALAKAUA AVENUE **HID981633647**
HONOLULU, HI 96815

Site 7 of 9 in cluster I

Relative: Higher

Actual: 3 ft.

RCRA-CESQG:
Date form received by agency: 03/25/2010
Facility name: HAWAII CONVENTION CENTER
Facility address: 1801 KALAKAUA AVENUE
HONOLULU, HI 96815
EPA ID: HID981633647
Mailing address: KALAKAUA AVENUE
HONOLULU, HI 96815
Contact: JOE DAVIS
Contact address: KALAKAUA AVENUE
HONOLULU, HI 96815
Contact country: Not reported
Contact telephone: (808) 943-3000
Contact email: JDAVIS@HCCSMG.COM
EPA Region: 09
Classification: Conditionally Exempt Small Quantity Generator
Description: Handler: generates 100 kg or less of hazardous waste per calendar month, and accumulates 1000 kg or less of hazardous waste at any time; or generates 1 kg or less of acutely hazardous waste per calendar month, and accumulates at any time: 1 kg or less of acutely hazardous waste; or 100 kg or less of any residue or contaminated soil, waste or other debris resulting from the cleanup of a spill, into or on any land or water, of acutely hazardous waste; or generates 100 kg or less of any residue or contaminated soil, waste or other debris resulting from the cleanup of a spill, into or on any land or water, of acutely hazardous waste during any calendar month, and accumulates at any

HAWAII CONVENTION CENTER (Continued) **1000277482**

time: 1 kg or less of acutely hazardous waste; or 100 kg or less of any residue or contaminated soil, waste or other debris resulting from the cleanup of a spill, into or on any land or water, of acutely hazardous waste

Owner/Operator Summary:

Owner/operator name:	STATE OF HAWAII
Owner/operator address:	KALAKAUA AVENUE HONOLULU, HI 96815
Owner/operator country:	US
Owner/operator telephone:	(808) 943-3000
Legal status:	State
Owner/Operator Type:	Owner
Owner/Op start date:	01/01/1997
Owner/Op end date:	Not reported
Owner/operator name:	SMG
Owner/operator address:	KALAKAUA AVENUE HONOLULU, HI 96815
Owner/operator country:	Not reported
Owner/operator telephone:	(808) 943-3000
Legal status:	Private
Owner/Operator Type:	Operator
Owner/Op start date:	01/01/1997
Owner/Op end date:	Not reported

Handler Activities Summary:

U.S. importer of hazardous waste:	No
Mixed waste (haz. and radioactive):	No
Recycler of hazardous waste:	No
Transporter of hazardous waste:	No
Treater, storer or disposer of HW:	No
Underground injection activity:	No
On-site burner exemption:	No
Furnace exemption:	No
Used oil fuel burner:	No
Used oil processor:	No
User oil refiner:	No
Used oil fuel marketer to burner:	No
Used oil Specification marketer:	No
Used oil transfer facility:	No
Used oil transporter:	No

Historical Generators:

Date form received by agency:	10/15/2009
Site name:	HAWAII CONVENTION CENTER
Classification:	Large Quantity Generator
Date form received by agency:	01/21/1987
Site name:	DOLLAR RENT A CAR
Classification:	Not a generator, verified

Hazardous Waste Summary:

Waste code:	D001
Waste name:	IGNITABLE HAZARDOUS WASTES ARE THOSE WASTES WHICH HAVE A FLASHPOINT OF

HAWAII CONVENTION CENTER (Continued) **1000277482**

LESS THAN 140 DEGREES FAHRENHEIT AS DETERMINED BY A PENSKY-MARTENS CLOSED CUP FLASH POINT TESTER. ANOTHER METHOD OF DETERMINING THE FLASH POINT OF A WASTE IS TO REVIEW THE MATERIAL SAFETY DATA SHEET, WHICH CAN BE OBTAINED FROM THE MANUFACTURER OR DISTRIBUTOR OF THE MATERIAL. LACQUER THINNER IS AN EXAMPLE OF A COMMONLY USED SOLVENT WHICH WOULD BE CONSIDERED AS IGNITABLE HAZARDOUS WASTE.

Waste code: D002
Waste name: A WASTE WHICH HAS A PH OF LESS THAN 2 OR GREATER THAN 12.5 IS CONSIDERED TO BE A CORROSIVE HAZARDOUS WASTE. SODIUM HYDROXIDE, A CAUSTIC SOLUTION WITH A HIGH PH, IS OFTEN USED BY INDUSTRIES TO CLEAN OR DEGREASE PARTS. HYDROCHLORIC ACID, A SOLUTION WITH A LOW PH, IS USED BY MANY INDUSTRIES TO CLEAN METAL PARTS PRIOR TO PAINTING. WHEN THESE CAUSTIC OR ACID SOLUTIONS BECOME CONTAMINATED AND MUST BE DISPOSED, THE WASTE WOULD BE A CORROSIVE HAZARDOUS WASTE.

Waste code: F003
Waste name: THE FOLLOWING SPENT NON-HALOGENATED SOLVENTS: XYLENE, ACETONE, ETHYL ACETATE, ETHYL BENZENE, ETHYL ETHER, METHYL ISOBUTYL KETONE, N-BUTYL ALCOHOL, CYCLOHEXANONE, AND METHANOL; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, ONLY THE ABOVE SPENT NON-HALOGENATED SOLVENTS; AND ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, ONE OR MORE OF THE ABOVE NON-HALOGENATED SOLVENTS, AND, A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THOSE SOLVENTS LISTED IN F001, F002, F004, AND F005, AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.

Waste code: F005
Waste name: THE FOLLOWING SPENT NON-HALOGENATED SOLVENTS: TOLUENE, METHYL ETHYL KETONE, CARBON DISULFIDE, ISOBUTANOL, PYRIDINE, BENZENE, 2-ETHOXYETHANOL, AND 2-NITROPROPANE; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THE ABOVE NON-HALOGENATED SOLVENTS OR THOSE SOLVENTS LISTED IN F001, F002, OR F004; AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.

Violation Status: No violations found

H36 **WALGREENS STORE NO. 12072** **RCRA-SQG** **1016453153**
NW **1470 KAPIOLANI BLVD.** **HIP000141887**
1/8-1/4 **HONOLULU, HI 96814**
0.205 mi.
1080 ft. **Site 2 of 3 in cluster H**

Relative:
Higher

Actual:
3 ft.

RCRA-SQG:
Date form received by agency: 02/18/2014
Facility name: WALGREENS STORE NO. 12072
Facility address: 1470 KAPIOLANI BLVD.
HONOLULU, HI 96814
EPA ID: HIP000141887
Mailing address: KAPIOLANI BLVD.
HONOLULU, HI 96814
Contact: JEFFREY M GRONCKI
Contact address: WILMOT ROAD MS 1630
DEERFIELD, IL 60015
Contact country: US
Contact telephone: (847) 315-3571
Contact email: JEFF.GRONCKI@WALGREENS.COM

WALGREENS STORE NO. 12072 (Continued) **1016453153**

EPA Region: 09
Classification: Small Small Quantity Generator
Description: Handler: generates more than 100 and less than 1000 kg of hazardous waste during any calendar month and accumulates less than 6000 kg of hazardous waste at any time; or generates 100 kg or less of hazardous waste during any calendar month, and accumulates more than 1000 kg of hazardous waste at any time

Owner/Operator Summary:
Owner/operator name: WALGREEN CO.
Owner/operator address: WILMOT ROAD MS 1420
DEERFIELD, IL 60015
Owner/operator country: US
Owner/operator telephone: Not reported
Legal status: Private
Owner/Operator Type: Operator
Owner/Op start date: 01/01/2007
Owner/Op end date: Not reported

Owner/operator name: WALGREEN CO.
Owner/operator address: WILMOT ROAD MS 1420
DEERFIELD, IL 60015
Owner/operator country: US
Owner/operator telephone: Not reported
Legal status: Private
Owner/Operator Type: Owner
Owner/Op start date: 01/01/2007
Owner/Op end date: Not reported

Handler Activities Summary:
U.S. importer of hazardous waste: No
Mixed waste (haz. and radioactive): No
Recycler of hazardous waste: No
Transporter of hazardous waste: No
Treater, storer or disposer of HW: No
Underground injection activity: No
On-site burner exemption: No
Furnace exemption: No
Used oil fuel burner: No
Used oil processor: No
User oil refiner: No
Used oil fuel marketer to burner: No
Used oil Specification marketer: No
Used oil transfer facility: No
Used oil transporter: No

Hazardous Waste Summary:
Waste code: D008
Waste name: LEAD

Violation Status: No violations found

H37 **WALGREENS KEEAMOKU** **HI SHWS** **S115488729**
NW **1460 KAPIOLANI BOULEVARD** **N/A**
1/8-1/4 **HONOLULU, HI 96814**
0.216 mi.
1143 ft. **Site 3 of 3 in cluster H**

Relative:
Higher

Actual:
3 ft.

SHWS:

Organization:	Not reported
Supplemental Location:	Not reported
Island:	Oahu
Environmental Interest:	Walgreens Keeamoku
HID Number:	Not reported
Facility Registry Identifier:	Not reported
Lead Agency:	HEER
Program:	Fast Track
Project Manager:	Jordan Nakayama
Hazard Priority:	Not reported
Potential Hazards And Controls:	Hazard Undetermined
Organization:	Not reported
Island:	Oahu
Supplemental Location Text:	Not reported
SDAR Environmental Interest Name:	Walgreens Keeamoku
HID Number:	Not reported
Facility Registry Identifier:	Not reported
Lead Agency:	HEER
Progran Name:	Fast Track
Potential Hazard And Controls:	Hazard Undetermined
Priority:	Not reported
Assessment:	Assessment Ongoing
Response:	Not reported
Nature of Contamination:	Not reported
Nature of Residual Contamination:	Not reported
Use Restrictions:	Undetermined
Engineering Control:	Not reported
Description of Restrictions:	Not reported
Institutional Control:	Not reported
Within Designated Areawide Contamination:	Not reported
Site Closure Type:	Not reported
Document Date:	Not reported
Document Number:	Not reported
Document Subject:	Not reported
Project Manager:	Jordan Nakayama
Contact Information:	(808) 586-4249 919 Ala Moana Blvd, Honolulu, HI 96814

I38 **FUNAI'S UNION SERVICE L-5583** **HI LUST** **U001235021**
East **1810 KAPIOLANI BLVD** **HI UST** **N/A**
1/8-1/4 **HONOLULU, HI 96813** **HI Financial Assurance**
0.220 mi.
1164 ft. **Site 8 of 9 in cluster I**

Relative:
Higher

Actual:
3 ft.

LUST:

Facility ID:	9-100047
Facility Status:	Site Cleanup Completed (NFA)
Facility Status Date:	02/08/2002
Release ID:	910048
Project Officer:	Shunsheng Fu

UST:

Facility ID:	9-100047

FUNAI'S UNION SERVICE L-5583 (Continued) **U001235021**

Owner: UNOCAL CORPORATION
Owner Address: 3915 Mission Avenue #7416
Ownder City,St,Zip: Honolulu, 96813 96813

Tank ID: R-1
Date Installed: 03/26/1966
Tank Status: Permanently Out of Use
Date Closed: 06/10/1991
Tank Capacity: 8000
Substance: Gasoline

Tank ID: R-2
Date Installed: 03/26/1966
Tank Status: Permanently Out of Use
Date Closed: 06/10/1991
Tank Capacity: 6000
Substance: Gasoline

Tank ID: R-3
Date Installed: 03/26/1966
Tank Status: Permanently Out of Use
Date Closed: 06/10/1991
Tank Capacity: 250
Substance: Used Oil

HI Financial Assurance:
Alt Facility ID: 9-100047
Tank Id: R-3
Tank Status: Permanently Out of Use
FRTYPE: Risk Retention Group
Expiration Date: Not reported

Alt Facility ID: 9-100047
Tank Id: R-3
Tank Status: Permanently Out of Use
FRTYPE: Not Listed
Expiration Date: Not reported

Alt Facility ID: 9-100047
Tank Id: R-2
Tank Status: Permanently Out of Use
FRTYPE: Risk Retention Group
Expiration Date: Not reported

Alt Facility ID: 9-100047
Tank Id: R-1
Tank Status: Permanently Out of Use
FRTYPE: Not Listed
Expiration Date: Not reported

Alt Facility ID: 9-100047
Tank Id: R-1
Tank Status: Permanently Out of Use
FRTYPE: Risk Retention Group
Expiration Date: Not reported

FUNAI'S UNION SERVICE L-5583 (Continued) **U001235021**

Alt Facility ID:	9-100047
Tank Id:	R-2
Tank Status:	Permanently Out of Use
FRTYPE:	Not Listed
Expiration Date:	Not reported

J39 **LING BROTHERS, LTD.** **HI LUST** **S108009335**
SSE **1819-E LIPEEPEE ST** **N/A**
1/8-1/4 **HONOLULU, HI 96815**
0.223 mi.
1178 ft. **Site 2 of 2 in cluster J**

Relative:
Higher

Actual:
3 ft.

LUST:

Facility ID:	9-100819
Facility Status:	Site Cleanup Completed (NFA)
Facility Status Date:	10/16/2007
Release ID:	060020
Project Officer:	Richard Takaba

I40 **UNOCAL 76 SS L 5583** **RCRA NonGen / NLR** **1000823237**
East **1818 KAPIOLANI BLVD** **FINDS** **HID984468769**
1/8-1/4 **HONOLULU, HI 96826**
0.231 mi.
1218 ft. **Site 9 of 9 in cluster I**

Relative:
Higher

Actual:
3 ft.

RCRA NonGen / NLR:

Date form received by agency:	08/27/1993
Facility name:	UNOCAL 76 SS L 5583
Facility address:	1818 KAPIOLANI BLVD HONOLULU, HI 96826
EPA ID:	HID984468769
Mailing address:	PO BOX 659 HONOLULU, HI 96809
Contact:	A FRITZ
Contact address:	PO BOX 659 HONOLULU, HI 96809
Contact country:	US
Contact telephone:	(808) 522-7657
Contact email:	Not reported
EPA Region:	09
Classification:	Non-Generator
Description:	Handler: Non-Generators do not presently generate hazardous waste

Owner/Operator Summary:

Owner/operator name:	UNOCAL 76
Owner/operator address:	911 WILSHIRE BLVD STE 1010 LOS ANGELES, CA 90017
Owner/operator country:	Not reported
Owner/operator telephone:	(213) 977-7600
Legal status:	Private
Owner/Operator Type:	Owner
Owner/Op start date:	Not reported
Owner/Op end date:	Not reported

Handler Activities Summary:

UNOCAL 76 SS L 5583 (Continued) **1000823237**

U.S. importer of hazardous waste:	No
Mixed waste (haz. and radioactive):	No
Recycler of hazardous waste:	No
Transporter of hazardous waste:	No
Treater, storer or disposer of HW:	No
Underground injection activity:	No
On-site burner exemption:	No
Furnace exemption:	No
Used oil fuel burner:	No
Used oil processor:	No
User oil refiner:	No
Used oil fuel marketer to burner:	No
Used oil Specification marketer:	No
Used oil transfer facility:	No
Used oil transporter:	No

Violation Status: No violations found

FINDS:

Registry ID: 110005728169

Environmental Interest/Information System
RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

K41 **ALA MOANA UNOCAL** **RCRA-CESQG** **1004464898**
SSW **1651 ALA MOANA BLVD** **FINDS** **HID981969983**
1/8-1/4 **HONOLULU, HI 96815** **HI SPILLS**
0.238 mi. **CA HAZNET**
1256 ft. **Site 1 of 3 in cluster K**

Relative:
Higher

Actual:
3 ft.

RCRA-CESQG:

Date form received by agency:	07/22/1993
Facility name:	ALA WAI MARINE LTD
Facility address:	1651 ALA MOANA BLVD HONOLULU, HI 96815
EPA ID:	HID981969983
Mailing address:	ALA MOANA BLVD HONOLULU, HI 96815
Contact:	STEVE LEWIS
Contact address:	1651 ALA MOANA BLVD HONOLULU, HI 96815
Contact country:	US
Contact telephone:	(808) 946-4213
Contact email:	Not reported
EPA Region:	09
Land type:	Facility is not located on Indian land. Additional information is not known.
Classification:	Conditionally Exempt Small Quantity Generator
Description:	Handler: generates 100 kg or less of hazardous waste per calendar month, and accumulates 1000 kg or less of hazardous waste at any time; or generates 1 kg or less of acutely hazardous waste per calendar month, and accumulates at any time: 1 kg or less of acutely hazardous

ALA MOANA UNOCAL (Continued) **1004464898**

waste; or 100 kg or less of any residue or contaminated soil, waste or other debris resulting from the cleanup of a spill, into or on any land or water, of acutely hazardous waste; or generates 100 kg or less of any residue or contaminated soil, waste or other debris resulting from the cleanup of a spill, into or on any land or water, of acutely hazardous waste during any calendar month, and accumulates at any time: 1 kg or less of acutely hazardous waste; or 100 kg or less of any residue or contaminated soil, waste or other debris resulting from the cleanup of a spill, into or on any land or water, of acutely hazardous waste

Owner/Operator Summary:

Owner/operator name:	ARAPOFF PETER
Owner/operator address:	NOT REQUIRED
	NOT REQUIRED, ME 99999
Owner/operator country:	Not reported
Owner/operator telephone:	(415) 555-1212
Legal status:	Private
Owner/Operator Type:	Owner
Owner/Op start date:	Not reported
Owner/Op end date:	Not reported

Owner/operator name:	NOT REQUIRED
Owner/operator address:	NOT REQUIRED
	NOT REQUIRED, ME 99999
Owner/operator country:	Not reported
Owner/operator telephone:	(415) 555-1212
Legal status:	Private
Owner/Operator Type:	Operator
Owner/Op start date:	Not reported
Owner/Op end date:	Not reported

Handler Activities Summary:

U.S. importer of hazardous waste:	No
Mixed waste (haz. and radioactive):	No
Recycler of hazardous waste:	No
Transporter of hazardous waste:	No
Treater, storer or disposer of HW:	No
Underground injection activity:	No
On-site burner exemption:	No
Furnace exemption:	No
Used oil fuel burner:	No
Used oil processor:	No
User oil refiner:	No
Used oil fuel marketer to burner:	No
Used oil Specification marketer:	No
Used oil transfer facility:	No
Used oil transporter:	No

Violation Status: No violations found

Evaluation Action Summary:

Evaluation date:	10/23/2003
Evaluation:	FOCUSED COMPLIANCE INSPECTION
Area of violation:	Not reported
Date achieved compliance:	Not reported

ALA MOANA UNOCAL (Continued) **1004464898**

Evaluation lead agency: State

FINDS:

Registry ID: 110022917593

Environmental Interest/Information System

RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

US National Pollutant Discharge Elimination System (NPDES) module of the Compliance Information System (ICIS) tracks surface water permits issued under the Clean Water Act. Under NPDES, all facilities that discharge pollutants from any point source into waters of the United States are required to obtain a permit. The permit will likely contain limits on what can be discharged, impose monitoring and reporting requirements, and include other provisions to ensure that the discharge does not adversely affect water quality.

STATE MASTER

LEAKING UNDERGROUND STORAGE TANK - ARRA

PCS (Permit Compliance System) is a computerized management information system that contains data on National Pollutant Discharge Elimination System (NPDES) permit holding facilities. PCS tracks the permit, compliance, and enforcement status of NPDES facilities.

HI SPILLS:

Island:	Oahu
Supplemental Loc. Text:	Ala Wai Yacht Harbor Slot 61/62
Case Number:	20010517-1241
HID Number:	Not reported
Facility Registry Id:	Not reported
Lead and Program:	HEER EP&R
ER:	No
Units:	Ala Wai Boat Harbor Slot 61 & 62
Substances:	Ethylene Glycol
Less Or Greater Than:	Not reported
Numerical Quantity:	1
Units:	Gallons
Activity Type:	Response
Activity Lead:	Liz Galvez
Assignment End Date:	Not reported
Result:	SOSC NFA
File Under:	Not reported

Island:	Oahu
Supplemental Loc. Text:	Ala Wai Yacht Harbor
Case Number:	19970712-0651
HID Number:	Not reported
Facility Registry Id:	Not reported

ALA MOANA UNOCAL (Continued) **1004464898**

Lead and Program:	HEER EP&R
ER:	No
Units:	Ala Wai Boat Harbor, oil sheen sighting
Substances:	Oil
Less Or Greater Than:	Not reported
Numerical Quantity:	Not reported
Units:	Not reported
Activity Type:	Response
Activity Lead:	Mike Cripps
Assignment End Date:	Not reported
Result:	SOSC NFA
File Under:	Not reported
Island:	Oahu
Supplemental Loc. Text:	Ala Wai Yacht Harbor
Case Number:	19980811-0758
HID Number:	Not reported
Facility Registry Id:	Not reported
Lead and Program:	HEER EP&R
ER:	Not reported
Units:	Ala Wai Boat Harbor, oil sheen
Substances:	unk oil
Less Or Greater Than:	Not reported
Numerical Quantity:	Not reported
Units:	Not reported
Activity Type:	Response
Activity Lead:	Not reported
Assignment End Date:	Not reported
Result:	Not reported
File Under:	Not reported
Island:	Oahu
Supplemental Loc. Text:	Ala Wai Yacht Harbor 400 Row Dock B/C
Case Number:	20021011-0736
HID Number:	Not reported
Facility Registry Id:	110013783218
Lead and Program:	HEER EP&R
ER:	No
Units:	Sheen 400 row, B-C dock
Substances:	Not reported
Less Or Greater Than:	Not reported
Numerical Quantity:	Not reported
Units:	Not reported
Activity Type:	Response
Activity Lead:	Ed Gomes
Assignment End Date:	Not reported
Result:	SOSC NFA
File Under:	Not reported
Island:	Oahu
Supplemental Loc. Text:	Not reported
Case Number:	20110927-0733
HID Number:	Not reported
Facility Registry Id:	Not reported
Lead and Program:	HEER EP&R
ER:	None
Units:	Unknown Sheen at Alawai Boat Harbor

ALA MOANA UNOCAL (Continued) **1004464898**

Substances:	Oil
Less Or Greater Than:	Not reported
Numerical Quantity:	0
Units:	Not reported
Activity Type:	Response
Activity Lead:	Liz Galvez
Assignment End Date:	Not reported
Result:	Not reported
File Under:	Not reported

Click this hyperlink while viewing on your computer to access
3 additional HI SPILLS: record(s) in the EDR Site Report.

HAZNET:

Year:	2002
Gepaid:	HID981969983
Contact:	STEVE LEWIS
Telephone:	8089464213
Mailing Name:	Not reported
Mailing Address:	1651 ALA MOANA BLVD
Mailing City,St,Zip:	HONOLULU, HI 968150000
Gen County:	Not reported
TSD EPA ID:	CAD028409019
TSD County:	Not reported
Waste Category:	Waste oil and mixed oil
Disposal Method:	Transfer Station
Tons:	0.45
Facility County:	99

Year:	2002
Gepaid:	HID981969983
Contact:	STEVE LEWIS
Telephone:	8089464213
Mailing Name:	Not reported
Mailing Address:	1651 ALA MOANA BLVD
Mailing City,St,Zip:	HONOLULU, HI 968150000
Gen County:	Not reported
TSD EPA ID:	CAD028409019
TSD County:	Not reported
Waste Category:	Off-specification, aged or surplus organics
Disposal Method:	Transfer Station
Tons:	0.15
Facility County:	99

Year:	2001
Gepaid:	HID981969983
Contact:	STEVE LEWIS
Telephone:	8089464213
Mailing Name:	Not reported
Mailing Address:	1651 ALA MOANA BLVD
Mailing City,St,Zip:	HONOLULU, HI 968150000
Gen County:	Not reported
TSD EPA ID:	CAD028409019
TSD County:	Not reported
Waste Category:	Waste oil and mixed oil
Disposal Method:	Transfer Station
Tons:	0.22

ALA MOANA UNOCAL (Continued) **1004464898**

Facility County: 99

Year: 2001
Gepaid: HID981969983
Contact: STEVE LEWIS
Telephone: 8089464213
Mailing Name: Not reported
Mailing Address: 1651 ALA MOANA BLVD
Mailing City,St,Zip: HONOLULU, HI 968150000
Gen County: Not reported
TSD EPA ID: AZD983473539
TSD County: Not reported
Waste Category: Not reported
Disposal Method: Recycler
Tons: 0.04
Facility County: 99

Year: 2001
Gepaid: HID981969983
Contact: STEVE LEWIS
Telephone: 8089464213
Mailing Name: Not reported
Mailing Address: 1651 ALA MOANA BLVD
Mailing City,St,Zip: HONOLULU, HI 968150000
Gen County: Not reported
TSD EPA ID: CAD028409019
TSD County: Not reported
Waste Category: Waste oil and mixed oil
Disposal Method: Treatment, Tank
Tons: 0.85
Facility County: 99

Click this hyperlink while viewing on your computer to access
1 additional CA_HAZNET: record(s) in the EDR Site Report.

K42 **STATE OF HAWAII DLNR DOBOR** **RCRA-SQG** **1001481551**
SSW **1651 ALA MOANA BLVD** **HIR000050146**
1/8-1/4 **HONOLULU, HI 96815**
0.238 mi.
1256 ft. **Site 2 of 3 in cluster K**

Relative:
Higher

Actual:
3 ft.

RCRA-SQG:
Date form received by agency: 03/15/1999
Facility name: STATE OF HAWAII DLNR DOBOR
Facility address: 1651 ALA MOANA BLVD
ALA WAI SMALL BOAT HARBOR
HONOLULU, HI 96815
EPA ID: HIR000050146
Mailing address: 333 QUEEN ST STE 300
HONOLULU, HI 96813
Contact: ROBERT RUSHFORTH
Contact address: 333 QUEEN ST STE 300
HONOLULU, HI 96813
Contact country: US
Contact telephone: (808) 973-9727
Contact email: Not reported
EPA Region: 09
Classification: Small Small Quantity Generator

STATE OF HAWAII DLNR DOBOR (Continued) **1001481551**

Description: Handler: generates more than 100 and less than 1000 kg of hazardous waste during any calendar month and accumulates less than 6000 kg of hazardous waste at any time; or generates 100 kg or less of hazardous waste during any calendar month, and accumulates more than 1000 kg of hazardous waste at any time

Owner/Operator Summary:
- Owner/operator name: STATE OF HAWAII DLNR DOBOR
- Owner/operator address: 333 QUEEN ST STE 300 HONOLULU, HI 96813
- Owner/operator country: Not reported
- Owner/operator telephone: (808) 587-1973
- Legal status: State
- Owner/Operator Type: Owner
- Owner/Op start date: Not reported
- Owner/Op end date: Not reported

Handler Activities Summary:
- U.S. importer of hazardous waste: No
- Mixed waste (haz. and radioactive): No
- Recycler of hazardous waste: No
- Transporter of hazardous waste: No
- Treater, storer or disposer of HW: No
- Underground injection activity: No
- On-site burner exemption: No
- Furnace exemption: No
- Used oil fuel burner: No
- Used oil processor: No
- User oil refiner: No
- Used oil fuel marketer to burner: No
- Used oil Specification marketer: No
- Used oil transfer facility: No
- Used oil transporter: No

Hazardous Waste Summary:
- Waste code: D001
- Waste name: IGNITABLE HAZARDOUS WASTES ARE THOSE WASTES WHICH HAVE A FLASHPOINT OF LESS THAN 140 DEGREES FAHRENHEIT AS DETERMINED BY A PENSKY-MARTENS CLOSED CUP FLASH POINT TESTER. ANOTHER METHOD OF DETERMINING THE FLASH POINT OF A WASTE IS TO REVIEW THE MATERIAL SAFETY DATA SHEET, WHICH CAN BE OBTAINED FROM THE MANUFACTURER OR DISTRIBUTOR OF THE MATERIAL. LACQUER THINNER IS AN EXAMPLE OF A COMMONLY USED SOLVENT WHICH WOULD BE CONSIDERED AS IGNITABLE HAZARDOUS WASTE.

Violation Status: No violations found

K43 **ALOHA MARINE** **HI LUST U001235075**
SSW **1651 ALA MOANA BLVD** **HI UST N/A**
1/8-1/4 **HONOLULU, HI 96815**
0.238 mi.
1256 ft. **Site 3 of 3 in cluster K**

Relative:
Higher

Actual:
3 ft.

LUST:
- Facility ID: 9-100167
- Facility Status: Site Cleanup Completed (NFA)
- Facility Status Date: 03/21/2012
- Release ID: 110012

ALOHA MARINE (Continued) **U001235075**

Project Officer: To Heer

UST:
Facility ID: 9-100167
Owner: TEXACO REFINING & MARKETING INC.
Owner Address: ENVIRONMENTAL SERVICES800 SW FIRST AVE., SUITE 180
Owner City,St,Zip: Honolulu, 96815 96815

Tank ID: R-1
Date Installed: 07/07/1965
Tank Status: Permanently Out of Use
Date Closed: Not reported
Tank Capacity: 1000
Substance: Used Oil

Tank ID: R-2
Date Installed: 07/07/1965
Tank Status: Permanently Out of Use
Date Closed: Not reported
Tank Capacity: 4000
Substance: Diesel

Tank ID: R-3
Date Installed: 07/07/1965
Tank Status: Permanently Out of Use
Date Closed: Not reported
Tank Capacity: 4000
Substance: Diesel

Tank ID: R-4
Date Installed: 07/07/1965
Tank Status: Permanently Out of Use
Date Closed: Not reported
Tank Capacity: 4000
Substance: Gasoline

Tank ID: R-5
Date Installed: 07/07/1965
Tank Status: Permanently Out of Use
Date Closed: Not reported
Tank Capacity: 4000
Substance: Gasoline

Tank ID: R-6
Date Installed: 07/07/1965
Tank Status: Permanently Out of Use
Date Closed: 06/01/1985
Tank Capacity: 4000
Substance: Not Listed

Tank ID: R-7

ALOHA MARINE (Continued) **U001235075**

Date Installed: 07/07/1965
Tank Status: **Permanently Out of Use**
Date Closed: Not reported
Tank Capacity: 4000
Substance: Not Listed

44
NW
1/8-1/4
0.245 mi.
1294 ft.

641 KEEAUMOKU ST
HONOLULU, HI 96814

EDR US Hist Auto Stat **1015587841**
N/A

Relative:
Higher

Actual:
3 ft.

EDR Historical Auto Stations:
Name: AAMCO TRANSMISSIONS
Year: 2007
Address: 641 KEEAUMOKU ST

45
WSW
1/8-1/4
0.245 mi.
1295 ft.

MOANA PARK WASTEWATER PUMP STATION
1501 ALA MOANA BLVD
HONOLULU, HI 96814

HI UST **U003762121**
HI Financial Assurance **N/A**

Relative:
Higher

Actual:
3 ft.

UST:
Facility ID: 9-103665
Owner: C&C HNL - DEPT OF ENVIRONMENTAL SERVICES
Owner Address: 1000 ULU'OHIA STREET, SUITE 308
Ownder City,St,Zip: Honolulu, 96814 96814

Tank ID: M-1
Date Installed: 12/01/1994
Tank Status: **Currently In Use**
Date Closed: Not reported
Tank Capacity: 600
Substance: Diesel

HI Financial Assurance:
Alt Facility ID: 9-103665
Tank Id: M-1
Tank Status: Currently In Use
FRTYPE: Other
Expiration Date: 06/30/2014

46
East
1/8-1/4
0.246 mi.
1298 ft.

1830 KAPIOLANI BLVD
HONOLULU, HI 96826

EDR US Hist Auto Stat **1015282816**
N/A

Relative:
Higher

Actual:
3 ft.

EDR Historical Auto Stations:
Name: OAHU AUTO SERVICE INCORPORATED
Year: 1999
Address: 1830 KAPIOLANI BLVD

L47 **SUPERBLOCK PROPERTIES** **HI LUST** **U001235973**
NW **SOUTH BLOCK (BLDG S20) / MAKALOA ST** **HI UST** **N/A**
1/4-1/2 **HONOLULU, HI 96814**
0.302 mi.
1592 ft. **Site 1 of 3 in cluster L**

Relative:
Higher

Actual:
3 ft.

LUST:
Facility ID: 9-102602
Facility Status: Site Cleanup Completed (NFA)
Facility Status Date: 12/06/1993
Release ID: 920143
Project Officer: Stanton Enomoto

UST:
Facility ID: 9-102602
Owner: KEEAUMOKU PARTNERS
Owner Address: 820 MILILANI ST, SUITE 820
Owner City,St,Zip: Honolulu, 96814 96814

Tank ID: R-ST12
Date Installed: Not reported
Tank Status: **Permanently Out of Use**
Date Closed: 10/22/1991
Tank Capacity: 1000
Substance: Used Oil

L48 **SUPERBLOCK PROPERTIES** **HI LUST** **U003221767**
NW **NORTH BLOCK (BLDG N8) / KEEAUMOKU ST** **HI UST** **N/A**
1/4-1/2 **HONOLULU, HI 96814**
0.309 mi.
1630 ft. **Site 2 of 3 in cluster L**

Relative:
Higher

Actual:
3 ft.

LUST:
Facility ID: 9-102594
Facility Status: Site Cleanup Completed (NFA)
Facility Status Date: 12/20/1993
Release ID: 920139
Project Officer: Stanton Enomoto

UST:
Facility ID: 9-102594
Owner: KEEAUMOKU PARTNERS
Owner Address: 820 MILILANI ST, SUITE 820
Owner City,St,Zip: Honolulu, 96814 96814

Tank ID: R-NT3
Date Installed: Not reported
Tank Status: **Permanently Out of Use**
Date Closed: 07/23/1991
Tank Capacity: 250
Substance: Used Oil

Tank ID: R-NT4
Date Installed: Not reported
Tank Status: **Permanently Out of Use**
Date Closed: 07/23/1991
Tank Capacity: 8000
Substance: Gasoline

SUPERBLOCK PROPERTIES (Continued) **U003221767**

Tank ID:	R-NT5
Date Installed:	Not reported
Tank Status:	**Permanently Out of Use**
Date Closed:	07/23/1991
Tank Capacity:	8000
Substance:	Gasoline

---

49 **LIKE LIKE PLAZA PETROLEUM CONTAMINATION** **HI SHWS** **1006819347**
NNW **745 KEEAUMOKU ST** **N/A**
1/4-1/2 **HONOLULU, HI 96814**
0.315 mi.
1664 ft.

Relative:
Higher

Actual:
7 ft.

SHWS:

Organization:	Not reported
Supplemental Location:	Not reported
Island:	Oahu
Environmental Interest:	Like Like Plaza Petroleum Contamination
HID Number:	Not reported
Facility Registry Identifier:	110013771383
Lead Agency:	HEER
Program:	State
Project Manager:	Anna Fernandez
Hazard Priority:	NFA
Potential Hazards And Controls:	No Hazard
Organization:	Not reported
Island:	Oahu
Supplemental Location Text:	Not reported
SDAR Environmental Interest Name:	Like Like Plaza Petroleum Contamination
HID Number:	Not reported
Facility Registry Identifier:	110013771383
Lead Agency:	HEER
Progran Name:	State
Potential Hazard And Controls:	No Hazard
Priority:	NFA
Assessment:	Response Necessary
Response:	Response Complete
Nature of Contamination:	Found: petroleum-impacted soils
Nature of Residual Contamination:	Petroleum impacted soil
Use Restrictions:	No Hazard Present For Unrestricted Residential Use
Engineering Control:	Not reported
Description of Restrictions:	Not reported
Institutional Control:	Not reported
Within Designated Areawide Contamination:	Not reported
Site Closure Type:	No Further Action Letter - Unrestricted Residential Use
Document Date:	05/04/2006
Document Number:	2006-266-AF
Document Subject:	NFA determination
Project Manager:	Anna Fernandez
Contact Information:	(808) 586-4249 919 Ala Moana Blvd, Honolulu, HI 96814

50
WNW
1/4-1/2
0.328 mi.
1732 ft.

CUTTER CHEVROLET
1391 KAPIOLANI BLVD
HONOLULU, HI 96814

HI SHWS **U001235085**
HI LUST **N/A**
HI UST
HI Financial Assurance

Relative:
Higher

Actual:
3 ft.

SHWS:

Organization:	Not reported
Supplemental Location:	2nd Driveway from Kona Iki St
Island:	Oahu
Environmental Interest:	Cutter Chevrolet Hydraulic Lift
HID Number:	Not reported
Facility Registry Identifier:	110005725028
Lead Agency:	HEER
Program:	State
Project Manager:	Steve Mow
Hazard Priority:	NFA
Potential Hazards And Controls:	No Hazard
Organization:	Not reported
Island:	Oahu
Supplemental Location Text:	2nd Driveway from Kona Iki St
SDAR Environmental Interest Name:	Cutter Chevrolet Hydraulic Lift
HID Number:	Not reported
Facility Registry Identifier:	110005725028
Lead Agency:	HEER
Progran Name:	State
Potential Hazard And Controls:	No Hazard
Priority:	NFA
Assessment:	Response Necessary
Response:	Response Complete
Nature of Contamination:	Not reported
Nature of Residual Contamination:	Not reported
Use Restrictions:	No Hazard Present For Unrestricted Residential Use
Engineering Control:	Not reported
Description of Restrictions:	Not reported
Institutional Control:	Not reported
Within Designated Areawide Contamination:	Not reported
Site Closure Type:	No Further Action Letter - Unrestricted Residential Use
Document Date:	09/09/2005
Document Number:	2005-454-SPM
Document Subject:	No Further Action Required at Cutter Chevrolet at 1391 Kapiolani Blvd
Project Manager:	Steve Mow
Contact Information:	(808) 586-4249 919 Ala Moana Blvd, Honolulu, HI 96814

LUST:

Facility ID:	9-100185
Facility Status:	Site Cleanup Completed (NFA)
Facility Status Date:	10/26/1999
Release ID:	950131
Project Officer:	Renato Maniulit

UST:

Facility ID:	9-100185
Owner:	MOTOR SUPPLY LTD
Owner Address:	726 SHERIDAN ST
Owndor City,St,Zip:	Honolulu, 96814 96814
Tank ID:	R-1

CUTTER CHEVROLET (Continued) **U001235085**

Date Installed: 05/03/1971
Tank Status: **Permanently Out of Use**
Date Closed: 09/02/1995
Tank Capacity: 500
Substance: Used Oil

HI Financial Assurance:
Alt Facility ID: 9-100185
Tank Id: R-1
Tank Status: Permanently Out of Use
FRTYPE: Not Listed
Expiration Date: Not reported

Alt Facility ID: 9-100185
Tank Id: R-1
Tank Status: Permanently Out of Use
FRTYPE: Self Insured
Expiration Date: Not reported

L51 **SUPERBLOCK PROPERTIES** **HI LUST U001235974**
NW **SOUTH BLOCK (BLDG S25) / MAKALOA ST** **HI UST N/A**
1/4-1/2 **HONOLULU, HI 96814**
0.337 mi.
1779 ft. **Site 3 of 3 in cluster L**

Relative:
Higher

Actual:
3 ft.

LUST:
Facility ID: 9-102603
Facility Status: Site Cleanup Completed (NFA)
Facility Status Date: 12/06/1993
Release ID: 920144
Project Officer: Stanton Enomoto

UST:
Facility ID: 9-102603
Owner: KEEAUMOKU PARTNERS
Owner Address: 820 MILILANI ST, SUITE 820
Ownder City,St,Zip: Honolulu, 96814 96814

Tank ID: R-6
Date Installed: Not reported
Tank Status: **Permanently Out of Use**
Date Closed: 01/15/2003
Tank Capacity: 250
Substance: Not Listed

Tank ID: R-ST16
Date Installed: Not reported
Tank Status: **Permanently Out of Use**
Date Closed: 11/21/1991
Tank Capacity: 5000
Substance: Gasoline

Tank ID: R-ST17
Date Installed: Not reported
Tank Status: **Permanently Out of Use**

SUPERBLOCK PROPERTIES (Continued) **U001235974**

Date Closed: 11/21/1991
Tank Capacity: 5000
Substance: Gasoline

M52 **SEARS ROEBUCK & COMPANY 1158** **HI LUST** **U001235603**
WSW **1450 ALA MOANA BLVD #1000** **HI UST** **N/A**
1/4-1/2 **HONOLULU, HI 96814** **HI SPILLS**
0.342 mi.
1804 ft. **Site 1 of 2 in cluster M**

Relative:
Higher

Actual:
3 ft.

LUST:
Facility ID: 9-101837
Facility Status: Site Cleanup Completed (NFA)
Facility Status Date: 10/06/1998
Release ID: 930057
Project Officer: Eric Sadoyama

UST:
Facility ID: 9-101837
Owner: D/E HAWAII c/o EQUITABLE LIFE
Owner Address: SOCIETY OF THE U.S. / 787 SEVENTH AVENUE
Ownder City,St,Zip: Honolulu, 96814 96814

Tank ID: R-1
Date Installed: 05/07/1959
Tank Status: **Permanently Out of Use**
Date Closed: 02/01/1994
Tank Capacity: 2000
Substance: Used Oil

Tank ID: R-2
Date Installed: 05/07/1959
Tank Status: **Permanently Out of Use**
Date Closed: 02/01/1994
Tank Capacity: 2000
Substance: Other

Tank ID: R-3
Date Installed: 05/07/1959
Tank Status: **Permanently Out of Use**
Date Closed: 02/01/1994
Tank Capacity: 4000
Substance: Other

Tank ID: R-4
Date Installed: 05/07/1959
Tank Status: **Permanently Out of Use**
Date Closed: 02/01/1994
Tank Capacity: 4000
Substance: Other

Tank ID: R-5
Date Installed: 05/07/1959

SEARS ROEBUCK & COMPANY 1158 (Continued) **U001235603**

Tank Status:	**Permanently Out of Use**
Date Closed:	02/01/1994
Tank Capacity:	4000
Substance:	Other

Tank ID:	R-6
Date Installed:	05/07/1959
Tank Status:	**Permanently Out of Use**
Date Closed:	02/01/1994
Tank Capacity:	4000
Substance:	Other

Tank ID:	R-7
Date Installed:	05/07/1959
Tank Status:	**Permanently Out of Use**
Date Closed:	02/01/1994
Tank Capacity:	3000
Substance:	Other

HI SPILLS:

Island:	Oahu
Supplemental Loc. Text:	Not reported
Case Number:	20001102-1124
HID Number:	Not reported
Facility Registry Id:	Not reported
Lead and Program:	HEER EP&R
ER:	Not reported
Units:	Ala Moana Center, cleaning chemicals
Substances:	Not reported
Less Or Greater Than:	Not reported
Numerical Quantity:	Not reported
Units:	Not reported
Activity Type:	Response
Activity Lead:	Liz Galvez
Assignment End Date:	Not reported
Result:	Not reported
File Under:	Not reported

N53 **HOBRON HOTEL** **HI SHWS** **S106817744**
SSE **1744 KAIOO DR** **N/A**
1/4-1/2 **HONOLULU, HI 96815**
0.354 mi.
1867 ft. **Site 1 of 2 in cluster N**

Relative:
Higher

Actual:
3 ft.

SHWS:

Organization:	Not reported
Supplemental Location:	Not reported
Island:	Oahu
Environmental Interest:	Hobron Hotel
HID Number:	Not reported
Facility Registry Identifier:	Not reported
Lead Agency:	HEER
Program:	State
Project Manager:	Clarence Callahan
Hazard Priority:	NFA

HOBRON HOTEL (Continued) **S106817744**

Potential Hazards And Controls:	No Hazard
Organization:	Not reported
Island:	Oahu
Supplemental Location Text:	Not reported
SDAR Environmental Interest Name:	Hobron Hotel
HID Number:	Not reported
Facility Registry Identifier:	Not reported
Lead Agency:	HEER
Progran Name:	State
Potential Hazard And Controls:	No Hazard
Priority:	NFA
Assessment:	Response Necessary
Response:	Response Complete
Nature of Contamination:	Found: diesel fuel from leaking UST
Nature of Residual Contamination:	Petroleum from UST
Use Restrictions:	No Hazard Present For Unrestricted Residential Use
Engineering Control:	Not reported
Description of Restrictions:	Not reported
Institutional Control:	Not reported
Within Designated Areawide Contamination:	Not reported
Site Closure Type:	No Further Action Letter - Unrestricted Residential Use
Document Date:	01/15/2004
Document Number:	2004-015-CAC
Document Subject:	NFA Additional Site Assessment, Former Hobron Hotel, 1744 Kaioo Dr, Honolulu HI [TMK No. (1)2-6-012:
Project Manager:	Clarence Callahan
Contact Information:	(808) 586-4249 919 Ala Moana Blvd, Honolulu, HI 96814

O54 **SUPERBLOCK PROPERTIES** **HI LUST U001235971**
NW **SOUTH BLOCK (BLDG S13) / MAKALOA ST** **HI UST N/A**
1/4-1/2 **HONOLULU, HI 96814**
0.364 mi.
1924 ft. **Site 1 of 4 in cluster O**

Relative:
Higher

Actual:
5 ft.

LUST:

Facility ID:	9-102600
Facility Status:	Site Cleanup Completed (NFA)
Facility Status Date:	06/28/1993
Release ID:	920142
Project Officer:	Stanton Enomoto

UST:

Facility ID:	9-102600
Owner:	KEEAUMOKU PARTNERS
Owner Address:	820 MILILANI ST, SUITE 820
Ownder City,St,Zip:	Honolulu, 96814 96814
Tank ID:	R-ST10
Date Installed:	Not reported
Tank Status:	**Permanently Out of Use**
Date Closed:	11/02/1991
Tank Capacity:	500
Substance:	Diesel

55
South
1/4-1/2
0.366 mi.
1933 ft.

ILIKAI HOTEL
1777 ALA MOANA BLVD
HONOLULU, HI 96815

HI LUST **1000267863**
HI UST **N/A**
HI SPILLS

Relative:
Higher

Actual:
3 ft.

LUST:

Facility ID:	9-102181
Facility Status:	Site Cleanup Completed (NFA)
Facility Status Date:	09/26/1994
Release ID:	900084
Project Officer:	Eric Sadoyama

UST:

Facility ID:	9-102181
Owner:	ILIKAI HOTEL
Owner Address:	1777 ALA MOANA BLVD
Owner City,St,Zip:	Honolulu, 96815 96815
Tank ID:	R-1
Date Installed:	Not reported
Tank Status:	**Permanently Out of Use**
Date Closed:	05/15/1990
Tank Capacity:	10000
Substance:	Diesel

HI SPILLS:

Island:	Oahu
Supplemental Loc. Text:	Ilikai Hotel & Suites
Case Number:	20100212-0900
HID Number:	Not reported
Facility Registry Id:	Not reported
Lead and Program:	HEER EP&R
ER:	None
Units:	Mysterious substance causing various health problems
Substances:	Unknown
Less Or Greater Than:	Not reported
Numerical Quantity:	0
Units:	Not reported
Activity Type:	Response
Activity Lead:	TC
Assignment End Date:	Not reported
Result:	Not reported
File Under:	Not reported
Island:	Oahu
Supplemental Loc. Text:	Not reported
Case Number:	20020927-1325
HID Number:	Not reported
Facility Registry Id:	Not reported
Lead and Program:	HEER EP&R
ER:	Site Visit
Units:	White substance in film canister under bed
Substances:	Unknown
Less Or Greater Than:	Not reported
Numerical Quantity:	Not reported
Units:	Not reported
Activity Type:	Response

ILIKAI HOTEL (Continued) **1000267863**

Activity Lead:	Terry Corpus
Assignment End Date:	Not reported
Result:	SOSC NFA
File Under:	Not reported
Island:	Oahu
Supplemental Loc. Text:	Not reported
Case Number:	19890314
HID Number:	Not reported
Facility Registry Id:	Not reported
Lead and Program:	HEER EP&R
ER:	Not reported
Units:	Ilikai Hotel, Ewa Entrance
Substances:	Oil
Less Or Greater Than:	Not reported
Numerical Quantity:	Not reported
Units:	Not reported
Activity Type:	Response
Activity Lead:	Not reported
Assignment End Date:	Not reported
Result:	SOSC NFA
File Under:	Not reported

O56 **MOTOR SUPPLY** **HI SHWS S108008592**
NW **726 SHERIDAN ST** **HI INST CONTROL N/A**
1/4-1/2 **HONOLULU, HI 96814**
0.372 mi.
1965 ft. **Site 2 of 4 in cluster O**

Relative:
Higher

Actual:
6 ft.

SHWS:

Organization:	Not reported
Supplemental Location:	Not reported
Island:	Oahu
Environmental Interest:	Motor Supply
HID Number:	Not reported
Facility Registry Identifier:	Not reported
Lead Agency:	HEER
Program:	State
Project Manager:	Steve Mow
Hazard Priority:	NFA
Potential Hazards And Controls:	Hazard Managed With Controls
Organization:	Not reported
Island:	Oahu
Supplemental Location Text:	Not reported
SDAR Environmental Interest Name:	Motor Supply
HID Number:	Not reported
Facility Registry Identifier:	Not reported
Lead Agency:	HEER
Progran Name:	State
Potential Hazard And Controls:	Hazard Managed With Controls
Priority:	NFA
Assessment:	Response Necessary
Response:	Response Complete
Nature of Contamination:	Found: Tetrachloroethylene.
Nature of Residual Contamination:	Not reported
Use Restrictions:	Controls Required to Manage Contamination
Engineering Control:	Not reported
Description of Restrictions:	Prohibit Any Activity That May Disturb the Integrity of the Capping or

MOTOR SUPPLY (Continued) **S108008592**

	Monitoring Systems
Institutional Control:	Government - Hawaii Dept. of Health Letter Issued
Within Designated Areawide Contamination:	Not reported
Site Closure Type:	No Further Action Letter - Restricted Use
Document Date:	03/30/2011
Document Number:	2011-184-SPM
Document Subject:	No Further Action with Institutional Controls Determination for Clean Living - Hakuyosha Internation
Project Manager:	Steve Mow
Contact Information:	(808) 586-4249 919 Ala Moana Blvd, Honolulu, HI 96814

INST CONTROL:

Potential hazards and controls:	Hazard Managed With Controls
Supplemental Location:	Not reported
Zip Suffix:	Not reported
Island:	Oahu
Institutional Control:	Government - Hawaii Dept. of Health Letter Issued

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O57 **HAKUYOSHA HAWAII, INC** **HI SHWS** **S106817254**
NW **730 SHERIDAN ST** **HI SPILLS** **N/A**
1/4-1/2 **HONOLULU, HI 96814** **HI INST CONTROL**
0.372 mi. **HI AIRS**
1965 ft. **Site 3 of 4 in cluster O**

Relative:
Higher

Actual:
6 ft.

SHWS:

Organization:	Not reported
Supplemental Location:	Not reported
Island:	Oahu
Environmental Interest:	Hakuyosha Hawaii, Inc.
HID Number:	Not reported
Facility Registry Identifier:	110005284414
Lead Agency:	HEER
Program:	State
Project Manager:	Steve Mow
Hazard Priority:	High
Potential Hazards And Controls:	Hazard Managed With Controls
Organization:	Not reported
Island:	Oahu
Supplemental Location Text:	Not reported
SDAR Environmental Interest Name:	Hakuyosha Hawaii, Inc.
HID Number:	Not reported
Facility Registry Identifier:	110005284414
Lead Agency:	HEER
Progran Name:	State
Potential Hazard And Controls:	Hazard Managed With Controls
Priority:	High
Assessment:	Response Necessary
Response:	Response Complete
Nature of Contamination:	Found: tetrachloroethylene
Nature of Residual Contamination:	Not reported
Use Restrictions:	Controls Required to Manage Contamination
Engineering Control:	Not reported
Description of Restrictions:	Prohibit Any Activity That May Disturb the Integrity of the Capping or Monitoring System
Institutional Control:	Government - Hawaii Dept. of Health Letter Issued
Within Designated Areawide Contamination:	Not reported
Site Closure Type:	No Further Action Letter - Restricted Use

HAKUYOSHA HAWAII, INC (Continued) **S106817254**

Document Date: 03/30/2011
Document Number: 2011-184-SPM
Document Subject: No Further Action with Institutional Controls Determination for Clean Living - Hakuyosha Internation
Project Manager: Steve Mow
Contact Information: (808) 586-4249 919 Ala Moana Blvd, Honolulu, HI 96814

HI SPILLS:
Island: Oahu
Supplemental Loc. Text: Not reported
Case Number: 19950303
HID Number: Not reported
Facility Registry Id: 110005284414
Lead and Program: HEER EP&R
ER: No
Units: Hakuyosha Hawaii Inc.
Substances: Diesel Fuel
Less Or Greater Than: Not reported
Numerical Quantity: Not reported
Units: Not reported
Activity Type: Response
Activity Lead: Bryce Hataoka
Assignment End Date: Not reported
Result: Refer to ISST
File Under: Hakuyosha Hawaii Inc.

INST CONTROL:
Potential hazards and controls: Hazard Managed With Controls
Supplemental Location: Not reported
Zip Suffix: Not reported
Island: Oahu
Institutional Control: Government - Hawaii Dept. of Health Letter Issued

AIRS:
Facility ID: 0564-01-C
Island: Oahu
Mailing Address: 730 Sheridan Street
Locale: Not reported
Mailing City,St,Zip: Honolulu, HI 96814
Contact Name: Carl Patton
Contact Title: Manager
Description: Petroleum Solvent Dry Cleaning EquipmentThis permit encompasses the following equipment and associated appurtenances:a.Hoyt Petro-Miser Petroleum Solvent Recovery DryerModel PET-50 Serial no. 50-519-GE Maximum capacity: 50 poundsb.Hoyt Petro-Miser Petroleum Solvent Recovery DryerModel PET-50 Serial no. 50-707-GE Maximum capacity: 50 poundsc.Hoyt Petro-Miser Petroleum Solvent Recovery DryerModel PET-50RSerial no. 50R-1074GEMaximum capacity: 50 poundsd.J & T Petroleum Solvent WasherModel 40Serial no. 1024Maximum capacity: 40 poundse.J & T Petroleum Solvent WasherModel 40Serial no. 1023Maximum capacity: 40 pounds

Facility ID: 0462-01-N
Island: Oahu
Mailing Address: 730 Sheridan Street
Locale: Not reported

HAKUYOSHA HAWAII, INC (Continued) **S106817254**

Mailing City,St,Zip: Honolulu, HI 96814
Contact Name: Carl Patton
Contact Title: Manager
Description: 100 hp Steam BoilerThis noncovered source permit, encompasses the following equipment and associated appurtenances:100 hp Steam Boiler, Cleaver-Brooks, model no. CB-200-100-150, serial no. unknown, manufactured date unknown.

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58 **SUPERBLOCK PROPERTIES** **HI LUST U003221768**
NW **NORTH BLOCK (BLDG N15) / SHERIDAN ST** **HI UST N/A**
1/4-1/2 **HONOLULU, HI 96814**
0.373 mi.
1967 ft.

Relative:
Higher

Actual:
3 ft.

LUST:
Facility ID: 9-102595
Facility Status: Site Cleanup Completed (NFA)
Facility Status Date: 06/28/1993
Release ID: 920140
Project Officer: Stanton Enomoto

UST:
Facility ID: 9-102595
Owner: KEEAUMOKU PARTNERS
Owner Address: 820 MILILANI ST, SUITE 820
Ownder City,St,Zip: Honolulu, 96814 96814

Tank ID: R-NT10
Date Installed: Not reported
Tank Status: Permanently Out of Use
Date Closed: 01/07/1992
Tank Capacity: 500
Substance: Used Oil

O59 **SUPERBLOCK PROPERTIES** **HI LUST U003221769**
NW **SOUTH BLOCK (BLDG S1) / SHERIDAN ST** **HI UST N/A**
1/4-1/2 **HONOLULU, HI 96814**
0.374 mi.
1974 ft. **Site 4 of 4 in cluster O**

Relative:
Higher

Actual:
3 ft.

LUST:
Facility ID: 9-102596
Facility Status: Site Cleanup Completed (NFA)
Facility Status Date: 11/29/1993
Release ID: 920141
Project Officer: Jose Ruiz

Facility ID: 9-102596
Facility Status: Site Cleanup Completed (NFA)
Facility Status Date: 01/05/2004
Release ID: 030033
Project Officer: Jose Ruiz

UST:
Facility ID: 9-102596

SUPERBLOCK PROPERTIES (Continued) **U003221769**

Owner: KEEAUMOKU PARTNERS
Owner Address: 820 MILILANI ST, SUITE 820
Ownder City,St,Zip: Honolulu, 96814 96814

Tank ID: 2
Date Installed: Not reported
Tank Status: **Permanently Out of Use**
Date Closed: 04/28/2003
Tank Capacity: 1000
Substance: Not Listed

Tank ID: R-ST1
Date Installed: Not reported
Tank Status: **Permanently Out of Use**
Date Closed: 10/04/1991
Tank Capacity: 1000
Substance: Gasoline

60
NNW
1/4-1/2
0.393 mi.
2077 ft.

Relative:
Higher

Actual:
9 ft.

WENS LIFE CO., INC
808 SHERIDAN ST
HONOLULU, HI 96814

HI LUST **U001235446**
HI UST **N/A**

LUST:
Facility ID: 9-101330
Facility Status: Site Cleanup Completed (NFA)
Facility Status Date: 06/25/2003
Release ID: 030035
Project Officer: Richard Takaba

UST:
Facility ID: 9-101330
Owner: WENS LIFE CO., INC
Owner Address: 441 WALINA ST. #101
Ownder City,St,Zip: Honolulu, 96814 96814

Tank ID: R-1
Date Installed: 04/22/1979
Tank Status: **Permanently Out of Use**
Date Closed: 01/13/1998
Tank Capacity: 4000
Substance: Gasoline

Tank ID: R-2
Date Installed: 04/22/1979
Tank Status: **Permanently Out of Use**
Date Closed: 01/13/1998
Tank Capacity: 2000
Substance: Gasoline

Tank ID: R-3
Date Installed: 04/22/1979
Tank Status: **Permanently Out of Use**

WENS LIFE CO., INC (Continued) **U001235446**

Date Closed: 01/13/1998
Tank Capacity: 500
Substance: Other

Tank ID: R-4
Date Installed: 04/22/1979
Tank Status: Permanently Out of Use
Date Closed: 01/13/1998
Tank Capacity: 500
Substance: Other

N61 **DISCOVERY BAY** **HI LUST U001235625**
South **1778 ALA MOANA BLVD** **HI UST N/A**
1/4-1/2 **HONOLULU, HI 96815**
0.395 mi.
2086 ft. **Site 2 of 2 in cluster N**

Relative:
Higher

Actual:
3 ft.

LUST:
Facility ID: 9-101921
Facility Status: Site Cleanup Completed (NFA)
Facility Status Date: 08/31/1995
Release ID: 900018
Project Officer: Not Assigned

UST:
Facility ID: 9-101921
Owner: DISCOVERY BAY
Owner Address: 1778 ALA MOANA BLVD
Owner City,St,Zip: Honolulu, 96815 96815

Tank ID: R-1
Date Installed: 02/05/1977
Tank Status: Permanently Out of Use
Date Closed: 01/04/1990
Tank Capacity: 2000
Substance: Diesel

M62 **SEARS ALA MOANA** **HI SHWS S115488724**
West **1450 ALA MOANA BLVD** **N/A**
1/4-1/2 **HONOLULU, HI 96814**
0.396 mi.
2089 ft. **Site 2 of 2 in cluster M**

Relative:
Higher

Actual:
3 ft.

SHWS:
Organization: Not reported
Supplemental Location: Ala Moana Center
Island: Oahu
Environmental Interest: Sears Ala Moana
HID Number: Not reported
Facility Registry Identifier: Not reported
Lead Agency: HEER
Program: State
Project Manager: Cal Miyahara
Hazard Priority: NFA
Potential Hazards And Controls: No Hazard

SEARS ALA MOANA (Continued) **S115488724**

Organization:	Not reported
Island:	Oahu
Supplemental Location Text:	Ala Moana Center
SDAR Environmental Interest Name:	Sears Ala Moana
HID Number:	Not reported
Facility Registry Identifier:	Not reported
Lead Agency:	HEER
Progran Name:	State
Potential Hazard And Controls:	No Hazard
Priority:	NFA
Assessment:	Assessment Ongoing
Response:	Response Complete
Nature of Contamination:	Not reported
Nature of Residual Contamination:	Not reported
Use Restrictions:	No Hazard Present For Unrestricted Residential Use
Engineering Control:	Not reported
Description of Restrictions:	Not reported
Institutional Control:	Not reported
Within Designated Areawide Contamination:	Not reported
Site Closure Type:	No Further Action Letter - Unrestricted Residential Use
Document Date:	12/30/2013
Document Number:	Not reported
Document Subject:	Final Site Investigation and Response Action Report Sears Car Care Facility, 1450 Ala Moana Boulevar
Project Manager:	Cal Miyahara
Contact Information:	(808) 586-4249 919 Ala Moana Blvd, Honolulu, HI 96814

P63 **TESORO 2GO 61018** **HI LUST U003402801**
NNE **1549 S KING ST** **HI UST N/A**
1/4-1/2 **HONOLULU, HI 96826** **HI Financial Assurance**
0.407 mi.
2147 ft. **Site 1 of 2 in cluster P**

Relative:
Higher

Actual:
15 ft.

LUST:

Facility ID:	9-100059
Facility Status:	LUST Cleanup Initiated
Facility Status Date:	08/22/2010
Release ID:	100006
Project Officer:	Shunsheng Fu

UST:

Facility ID:	9-100059
Owner:	HIE Retail, LLC
Owner Address:	800 Gessner Road, Suite 875
Ownder City,St,Zip:	Honolulu, 96826 96826
Tank ID:	1 - 87
Date Installed:	03/07/2014
Tank Status:	**Currently In Use**
Date Closed:	Not reported
Tank Capacity:	10000
Substance:	Gasohol
Tank ID:	1 - 87
Date Installed:	03/07/2014
Tank Status:	**Currently In Use**

TESORO 2GO 61018 (Continued) **U003402801**

Date Closed: Not reported
Tank Capacity: 10000
Substance: Gasohol

Tank ID: 2 - 87
Date Installed: 03/07/2014
Tank Status: Currently In Use
Date Closed: Not reported
Tank Capacity: 10000
Substance: Gasohol

Tank ID: 2 - 87
Date Installed: 03/07/2014
Tank Status: Currently In Use
Date Closed: Not reported
Tank Capacity: 10000
Substance: Gasohol

Tank ID: 3-92
Date Installed: 03/07/2014
Tank Status: Currently In Use
Date Closed: Not reported
Tank Capacity: 10000
Substance: Gasohol

Tank ID: 3-92
Date Installed: 03/07/2014
Tank Status: Currently In Use
Date Closed: Not reported
Tank Capacity: 10000
Substance: Gasohol

Tank ID: r-3
Date Installed: 01/25/1987
Tank Status: Permanently out of Use
Date Closed: 01/19/2014
Tank Capacity: 10000
Substance: Gasoline

Tank ID: r-3
Date Installed: 01/25/1987
Tank Status: Permanently out of Use
Date Closed: 01/19/2014
Tank Capacity: 10000
Substance: Gasoline

Tank ID: r-87
Date Installed: 01/25/1987
Tank Status: Permanently out of Use
Date Closed: 01/29/2014

TESORO 2GO 61018 (Continued) **U003402801**

Tank Capacity: 10000
Substance: Gasoline

Tank ID: r-87
Date Installed: 01/25/1987
Tank Status: Permanently out of Use
Date Closed: 01/29/2014
Tank Capacity: 10000
Substance: Gasoline

Tank ID: r-92
Date Installed: 01/25/1987
Tank Status: Permanently out of Use
Date Closed: 01/29/2014
Tank Capacity: 10000
Substance: Gasoline

Tank ID: r-92
Date Installed: 01/25/1987
Tank Status: Permanently out of Use
Date Closed: 01/29/2014
Tank Capacity: 10000
Substance: Gasoline

HI Financial Assurance:
Alt Facility ID: 9-100059
Tank Id: r-3
Tank Status: Permanently out of Use
FRTYPE: Other
Expiration Date: Not reported

Alt Facility ID: 9-100059
Tank Id: 3-92
Tank Status: Currently In Use
FRTYPE: Other
Expiration Date: Not reported

Alt Facility ID: 9-100059
Tank Id: r-3
Tank Status: Permanently out of Use
FRTYPE: Trust Fund
Expiration Date: Not reported

Alt Facility ID: 9-100059
Tank Id: 2 - 87
Tank Status: Currently In Use
FRTYPE: Trust Fund
Expiration Date: Not reported

Alt Facility ID: 9-100059
Tank Id: r-92
Tank Status: Permanently out of Use
FRTYPE: Trust Fund
Expiration Date: Not reported

TESORO 2GO 61018 (Continued) **U003402801**

Alt Facility ID: 9-100059
Tank Id: r-87
Tank Status: Permanently out of Use
FRTYPE: Other
Expiration Date: Not reported

Alt Facility ID: 9-100059
Tank Id: 1 - 87
Tank Status: Currently In Use
FRTYPE: Trust Fund
Expiration Date: Not reported

Alt Facility ID: 9-100059
Tank Id: r-87
Tank Status: Permanently out of Use
FRTYPE: Trust Fund
Expiration Date: Not reported

Alt Facility ID: 9-100059
Tank Id: 1 - 87
Tank Status: Currently In Use
FRTYPE: Other
Expiration Date: Not reported

Alt Facility ID: 9-100059
Tank Id: r-92
Tank Status: Permanently out of Use
FRTYPE: Other
Expiration Date: Not reported

Alt Facility ID: 9-100059
Tank Id: 3-92
Tank Status: Currently In Use
FRTYPE: Trust Fund
Expiration Date: Not reported

Alt Facility ID: 9-100059
Tank Id: 2 - 87
Tank Status: Currently In Use
FRTYPE: Other
Expiration Date: Not reported

Alt Facility ID: 9-100059
Tank Id: r-92
Tank Status: Permanently out of Use
FRTYPE: Self Insured
Expiration Date: 03/31/2010

Alt Facility ID: 9-100059
Tank Id: r-3
Tank Status: Permanently out of Use
FRTYPE: Self Insured
Expiration Date: 03/31/2010

Alt Facility ID: 9-100059
Tank Id: r-87
Tank Status: Permanently out of Use

TESORO 2GO 61018 (Continued) **U003402801**

FRTYPE: Self Insured
Expiration Date: 03/31/2010

Alt Facility ID: 9-100059
Tank Id: 2 - 87
Tank Status: Currently In Use
FRTYPE: Self Insured
Expiration Date: 03/31/2010

Alt Facility ID: 9-100059
Tank Id: 1 - 87
Tank Status: Currently In Use
FRTYPE: Self Insured
Expiration Date: 03/31/2010

Alt Facility ID: 9-100059
Tank Id: 3-92
Tank Status: Currently In Use
FRTYPE: Self Insured
Expiration Date: 03/31/2010

Alt Facility ID: 9-100059
Tank Id: 3-92
Tank Status: Currently In Use
FRTYPE: Guarantee
Expiration Date: 03/31/2012

Alt Facility ID: 9-100059
Tank Id: r-87
Tank Status: Permanently out of Use
FRTYPE: Guarantee
Expiration Date: 03/31/2012

Alt Facility ID: 9-100059
Tank Id: r-3
Tank Status: Permanently out of Use
FRTYPE: Guarantee
Expiration Date: 03/31/2012

Alt Facility ID: 9-100059
Tank Id: r-92
Tank Status: Permanently out of Use
FRTYPE: Guarantee
Expiration Date: 03/31/2012

Alt Facility ID: 9-100059
Tank Id: 1 - 87
Tank Status: Currently In Use
FRTYPE: Guarantee
Expiration Date: 03/31/2012

Alt Facility ID: 9-100059
Tank Id: 2 - 87
Tank Status: Currently In Use
FRTYPE: Guarantee
Expiration Date: 03/31/2012

TESORO 2GO 61018 (Continued) **U003402801**

Alt Facility ID:	9-100059
Tank Id:	3-92
Tank Status:	Currently In Use
FRTYPE:	Insurance
Expiration Date:	09/25/2014
Alt Facility ID:	9-100059
Tank Id:	r-87
Tank Status:	Permanently out of Use
FRTYPE:	Insurance
Expiration Date:	09/25/2014
Alt Facility ID:	9-100059
Tank Id:	r-3
Tank Status:	Permanently out of Use
FRTYPE:	Insurance
Expiration Date:	09/25/2014
Alt Facility ID:	9-100059
Tank Id:	2 - 87
Tank Status:	Currently In Use
FRTYPE:	Insurance
Expiration Date:	09/25/2014
Alt Facility ID:	9-100059
Tank Id:	r-92
Tank Status:	Permanently out of Use
FRTYPE:	Insurance
Expiration Date:	09/25/2014
Alt Facility ID:	9-100059
Tank Id:	1 - 87
Tank Status:	Currently In Use
FRTYPE:	Insurance
Expiration Date:	09/25/2014

Q64 **GAS PLUS** **HI LUST** **U001235103**
NNE **1524 S KING ST** **HI UST** **N/A**
1/4-1/2 **HONOLULU, HI 96826**
0.420 mi.
2220 ft. **Site 1 of 3 in cluster Q**

Relative:
Higher

Actual:
17 ft.

LUST:

Facility ID:	9-100224
Facility Status:	Site Cleanup Completed (NFA)
Facility Status Date:	06/01/2011
Release ID:	960030
Project Officer:	To VRP

UST:

Facility ID:	9-100224
Owner:	FIRST DISCOUNT AUTO LEASING CORP
Owner Address:	1580 MAKALOA ST., SUITE 880
Owndер City,St,Zip:	Honolulu, 96826 96826
Tank ID:	R-001
Date Installed:	05/16/1985

GAS PLUS (Continued) **U001235103**

Tank Status:	**Permanently Out of Use**
Date Closed:	07/20/1995
Tank Capacity:	10000
Substance:	Gasoline

Tank ID:	R-002
Date Installed:	05/16/1985
Tank Status:	**Permanently Out of Use**
Date Closed:	07/21/1995
Tank Capacity:	12000
Substance:	Gasoline

Tank ID:	R-003
Date Installed:	05/16/1985
Tank Status:	**Permanently Out of Use**
Date Closed:	07/21/1995
Tank Capacity:	12000
Substance:	Gasoline

Q65 **MID PAC PETROLEUM 253943 (PREV: LIONEL'S UNOCAL)** **HI LUST** **U001235016**
North **1505 S. KING ST.** **HI UST** **N/A**
1/4-1/2 **HONOLULU, HI 96826** **HI Financial Assurance**
0.422 mi.
2228 ft. **Site 2 of 3 in cluster Q**

Relative:
Higher

Actual:
17 ft.

LUST:

Facility ID:	9-100041
Facility Status:	Site Cleanup Completed (NFA)
Facility Status Date:	12/09/1998
Release ID:	960074
Project Officer:	Shunsheng Fu

Facility ID:	9-100041
Facility Status:	Site Cleanup Completed (NFA)
Facility Status Date:	05/20/1996
Release ID:	930032
Project Officer:	Shunsheng Fu

Facility ID:	9-100041
Facility Status:	Site Cleanup Completed (NFA)
Facility Status Date:	10/01/2007
Release ID:	070020
Project Officer:	Shunsheng Fu

UST:

Facility ID:	9-100041
Owner:	Mid Pac Petroleum LLC
Owner Address:	677 Ala Moana Blvd Suite 625
Ownder City,St,Zip:	Honolulu, 96826 96826

Tank ID:	R-3943-1
Date Installed:	08/12/1956
Tank Status:	**Permanently Out of Use**
Date Closed:	07/01/1996
Tank Capacity:	5000

MID PAC PETROLEUM 253943 (PREV: LIONEL'S UNOCAL) (Continued) **U001235016**

Substance: Gasoline

Tank ID: R-3943-2
Date Installed: 08/12/1956
Tank Status: Permanently Out of Use
Date Closed: 07/01/1996
Tank Capacity: 7500
Substance: Gasoline

Tank ID: R-3943-4
Date Installed: 08/12/1956
Tank Status: Permanently Out of Use
Date Closed: 07/01/1996
Tank Capacity: 550
Substance: Used Oil

Tank ID: r-87
Date Installed: 01/01/1990
Tank Status: Permanently out of Use
Date Closed: 03/29/2007
Tank Capacity: 12000
Substance: Gasoline

Tank ID: r-92
Date Installed: 01/01/1990
Tank Status: Permanently out of Use
Date Closed: 03/29/2007
Tank Capacity: 12000
Substance: Gasoline

HI Financial Assurance:
Alt Facility ID: 9-100041
Tank Id: R-3943-4
Tank Status: Permanently Out of Use
FRTYPE: Insurance
Expiration Date: Not reported

Alt Facility ID: 9-100041
Tank Id: r-92
Tank Status: Permanently out of Use
FRTYPE: Other
Expiration Date: Not reported

Alt Facility ID: 9-100041
Tank Id: r-92
Tank Status: Permanently out of Use
FRTYPE: Insurance
Expiration Date: Not reported

Alt Facility ID: 9-100041
Tank Id: r-87
Tank Status: Permanently out of Use
FRTYPE: Other

MID PAC PETROLEUM 253943 (PREV: LIONEL'S UNOCAL) (Continued) **U001235016**

Expiration Date: Not reported

Alt Facility ID: 9-100041
Tank Id: R-3943-4
Tank Status: Permanently Out of Use
FRTYPE: Other
Expiration Date: Not reported

Alt Facility ID: 9-100041
Tank Id: R-3943-2
Tank Status: Permanently Out of Use
FRTYPE: Other
Expiration Date: Not reported

Alt Facility ID: 9-100041
Tank Id: R-3943-2
Tank Status: Permanently Out of Use
FRTYPE: Insurance
Expiration Date: Not reported

Alt Facility ID: 9-100041
Tank Id: R-3943-1
Tank Status: Permanently Out of Use
FRTYPE: Other
Expiration Date: Not reported

Alt Facility ID: 9-100041
Tank Id: R-3943-1
Tank Status: Permanently Out of Use
FRTYPE: Insurance
Expiration Date: Not reported

Alt Facility ID: 9-100041
Tank Id: r-87
Tank Status: Permanently out of Use
FRTYPE: Insurance
Expiration Date: Not reported

P66 **PUNAHOU REPAIR SHOP** **HI LUST 1000146579**
NNE **1558 S KING ST** **HI UST N/A**
1/4-1/2 **HONOLULU, HI 96826**
0.423 mi.
2231 ft. **Site 2 of 2 in cluster P**

Relative:
Higher

Actual:
17 ft.

LUST:
Facility ID: 9-101387
Facility Status: Site Cleanup Completed (NFA)
Facility Status Date: 09/26/1997
Release ID: 920184
Project Officer: David Hodges

UST:
Facility ID: 9-101387
Owner: PUNAHOU REPAIR SHOP
Owner Address: 1558 S KING ST
Ownder City,St,Zip: Honolulu, 96826 96826

PUNAHOU REPAIR SHOP (Continued) **1000146579**

Tank ID: R-1
Date Installed: 03/15/1951
Tank Status: Permanently Out of Use
Date Closed: 06/11/1992
Tank Capacity: 2000
Substance: Used Oil

Tank ID: R-2
Date Installed: Not reported
Tank Status: Permanently Out of Use
Date Closed: 06/11/1992
Tank Capacity: 3000
Substance: Gasoline

Tank ID: R-3
Date Installed: Not reported
Tank Status: Permanently Out of Use
Date Closed: 06/11/1992
Tank Capacity: 150
Substance: Used Oil

67
WNW
1/4-1/2
0.431 mi.
2276 ft.

Relative:
Higher

Actual:
3 ft.

ALA MOANA UNOCAL **HI LUST U001235012**
1322 KAPIOLANI BLVD **HI UST N/A**
HONOLULU, HI 96814

LUST:
Facility ID: 9-100037
Facility Status: Site Cleanup Completed (NFA)
Facility Status Date: 10/30/1998
Release ID: 900119
Project Officer: Eric Sadoyama

UST:
Facility ID: 9-100037
Owner: Tosco Marketing Company
Owner Address: P. O. Box 25376
Ownder City,St,Zip: Honolulu, 96814 96814

Tank ID: R-2877-1
Date Installed: 03/27/1967
Tank Status: Permanently Out of Use
Date Closed: 04/01/1990
Tank Capacity: 8000
Substance: Gasoline

Tank ID: R-2877-2
Date Installed: 03/27/1967
Tank Status: Permanently Out of Use
Date Closed: 04/01/1992
Tank Capacity: 8000
Substance: Gasoline

ALA MOANA UNOCAL (Continued) **U001235012**

Tank ID: R-2877-4
Date Installed: 03/27/1967
Tank Status: Permanently Out of Use
Date Closed: 04/01/1990
Tank Capacity: 285
Substance: Used Oil

Tank ID: R-2877-5
Date Installed: 05/31/1990
Tank Status: Permanently Out of Use
Date Closed: 10/06/1992
Tank Capacity: 12000
Substance: Gasoline

Tank ID: R-2877-6
Date Installed: 05/31/1990
Tank Status: Permanently Out of Use
Date Closed: 10/06/1992
Tank Capacity: 12000
Substance: Gasoline

Tank ID: R-2877-7
Date Installed: 05/31/1990
Tank Status: Permanently Out of Use
Date Closed: 10/06/1992
Tank Capacity: 520
Substance: Used Oil

Q68 **ALOHA/KING SELF STORAGE** **HI SHWS** **S106816203**
NNE **1414 KALAKAUA AVE** **HI ENG CONTROLS** **N/A**
1/4-1/2 **HONOLULU, HI** **HI INST CONTROL**
0.470 mi. **HI VCP**
2484 ft. **Site 3 of 3 in cluster Q**

Relative: Higher

Actual: 22 ft.

SHWS:
Organization: Not reported
Supplemental Location: 1524 S King St corner (property on both addresses)
Island: Oahu
Environmental Interest: 1414 Kalakaua Avenue-Aloha/King LLC
HID Number: Not reported
Facility Registry Identifier: Not reported
Lead Agency: HEER
Program: Voluntary Response Program
Project Manager: Cal Miyahara
Hazard Priority: NFA
Potential Hazards And Controls: Hazard Managed With Controls
Organization: Not reported
Island: Oahu
Supplemental Location Text: 1524 S King St corner (property on both addresses)
SDAR Environmental Interest Name: 1414 Kalakaua Avenue-Aloha/King LLC
HID Number: Not reported
Facility Registry Identifier: Not reported
Lead Agency: HEER
Progran Name: Voluntary Response Program
Potential Hazard And Controls: Hazard Managed With Controls

ALOHA/KING SELF STORAGE (Continued) **S106816203**

Priority:	NFA
Assessment:	Response Necessary
Response:	Response Complete
Nature of Contamination:	Found: TPH-GRO, Benzene, Ethylbenzene, and Xylene remain in the soil at concentrations above residential EALs. Poses Direct Exposure, Gross Contamination, and Soil Vapor hazards.
Nature of Residual Contamination:	Not reported
Use Restrictions:	Controls Required to Manage Contamination
Engineering Control:	Engineering Control Required
Description of Restrictions:	Prohibit Any Activity That May Disturb the Integrity of the Capping System
Institutional Control:	Government - Hawaii Dept. of Health Letter Issued
Within Designated Areawide Contamination:	Not reported
Site Closure Type:	Letter of Completion - Restricted Use
Document Date:	07/27/2011
Document Number:	2011-438-CMM
Document Subject:	Memo to ASO - Refund for VRP site (Aloha/King)
Project Manager:	Cal Miyahara
Contact Information:	(808) 586-4249 919 Ala Moana Blvd, Honolulu, HI 96814

ENG CONTROLS:

Supplemental Location Text:	1524 S King St corner (property on both addresses)
Zip Suffix:	Not reported
Island:	Oahu
Potential Hazards And Controls:	Hazard Managed With Controls
Engineering Control:	Engineering Control Required

INST CONTROL:

Potential hazards and controls:	Hazard Managed With Controls
Supplemental Location:	1524 S King St corner (property on both addresses)
Zip Suffix:	Not reported
Island:	Oahu
Institutional Control:	Government - Hawaii Dept. of Health Letter Issued

VCP:

Program:	Voluntary Response Program
Zip Suffix:	Not reported
Supplemental Location:	1524 S King St corner (property on both addresses)
Island:	Oahu

69
SE
1/4-1/2
0.473 mi.
2500 ft.

Relative:
Higher

Actual:
3 ft.

THE PAVILLION **HI SHWS S106820617**
1925 KALAKAUA AVE **HI SPILLS N/A**
HONOLULU, HI 96815

SHWS:

Organization:	Not reported
Supplemental Location:	Not reported
Island:	Oahu
Environmental Interest:	The Pavillion
HID Number:	Not reported
Facility Registry Identifier:	110013773693
Lead Agency:	SHWB
Program:	State
Project Manager:	Steve Mow

THE PAVILLION (Continued) **S106820617**

Hazard Priority:	NFA
Potential Hazards And Controls:	Hazard Undetermined
Organization:	Not reported
Island:	Oahu
Supplemental Location Text:	Not reported
SDAR Environmental Interest Name:	The Pavillion
HID Number:	Not reported
Facility Registry Identifier:	110013773693
Lead Agency:	SHWB
Progran Name:	State
Potential Hazard And Controls:	Hazard Undetermined
Priority:	NFA
Assessment:	Response Not Necessary
Response:	Not reported
Nature of Contamination:	Not reported
Nature of Residual Contamination:	Not reported
Use Restrictions:	Undetermined
Engineering Control:	Not reported
Description of Restrictions:	Not reported
Institutional Control:	Not reported
Within Designated Areawide Contamination:	Not reported
Site Closure Type:	No Further Action - Type Undetermined
Document Date:	03/02/1998
Document Number:	Not reported
Document Subject:	Results of Soil Sampling and Analysis for AOAO the Pavillion
Project Manager:	Steve Mow
Contact Information:	(808) 586-4249 919 Ala Moana Blvd, Honolulu, HI 96814

HI SPILLS:

Island:	Oahu
Supplemental Loc. Text:	Not reported
Case Number:	19980120-1455
HID Number:	Not reported
Facility Registry Id:	110013773693
Lead and Program:	HEER EP&R
ER:	No
Units:	The Pavilion at Waikiki Contaminated Soil
Substances:	Gasoline
Less Or Greater Than:	Not reported
Numerical Quantity:	Not reported
Units:	Not reported
Activity Type:	Response
Activity Lead:	Terry Corpus
Assignment End Date:	Not reported
Result:	Referred
File Under:	The Pavilion

70
North
1/4-1/2
0.484 mi.
2553 ft.

YAJIMA OIL OF USA INC **HI LUST U001235254**
1375 S KING ST **HI UST N/A**
HONOLULU, HI 96814 **HI Financial Assurance**

Relative:
Higher

Actual:
15 ft.

LUST:

Facility ID:	9-100832
Facility Status:	Site Cleanup Completed (NFA)
Facility Status Date:	04/25/2003

YAJIMA OIL OF USA INC (Continued) **U001235254**

Release ID: 030031
Project Officer: Shunsheng Fu

Facility ID: 9-100832
Facility Status: Site Cleanup Completed (NFA)
Facility Status Date: 06/30/2005
Release ID: 930001
Project Officer: Shunsheng Fu

UST:
Facility ID: 9-100832
Owner: YAJIMA OIL OF USA, INC.
Owner Address: 1375 SOUTH KING ST
Ownder City,St,Zip: Honolulu, 96814 96814

Tank ID: 87
Date Installed: 10/01/1985
Tank Status: Currently in Use
Date Closed: Not reported
Tank Capacity: 8000
Substance: Gasoline

Tank ID: 87
Date Installed: 10/01/1985
Tank Status: Currently in Use
Date Closed: Not reported
Tank Capacity: 8000
Substance: Gasoline

Tank ID: 92
Date Installed: 10/01/1985
Tank Status: Currently in Use
Date Closed: Not reported
Tank Capacity: 8000
Substance: Gasoline

Tank ID: R-1
Date Installed: 01/01/1953
Tank Status: Permanently Out of Use
Date Closed: 04/29/1993
Tank Capacity: 350
Substance: Used Oil

HI Financial Assurance:
Alt Facility ID: 9-100832
Tank Id: 87
Tank Status: Currently in Use
FRTYPE: Insurance
Expiration Date: 04/01/2013

Alt Facility ID: 9-100832
Tank Id: R-1
Tank Status: Permanently Out of Use

YAJIMA OIL OF USA INC (Continued) **U001235254**

FRTYPE: Insurance
Expiration Date: 04/01/2013

Alt Facility ID: 9-100832
Tank Id: 92
Tank Status: Currently in Use
FRTYPE: Insurance
Expiration Date: 04/01/2013

R71 **ALOHA ALA MOANA** **HI LUST** **U001235401**
WNW **451 PIIKOI ST** **HI UST** **N/A**
1/4-1/2 **HONOLULU, HI 96814**
0.486 mi.
2568 ft. **Site 1 of 2 in cluster R**

Relative: Higher

Actual: 3 ft.

LUST:
Facility ID: 9-101180
Facility Status: Site Cleanup Completed (NFA)
Facility Status Date: 03/11/1996
Release ID: 890004
Project Officer: Roger Brewer

UST:
Facility ID: 9-101180
Owner: ALOHA PETROLEUM, LTD.
Owner Address: 1132 BISHOP STREET, SUITE 1700
Owndер City,St,Zip: Honolulu, 96814 96814

Tank ID: R-01
Date Installed: 04/04/1968
Tank Status: Permanently Out of Use
Date Closed: Not reported
Tank Capacity: 3000
Substance: Gasoline

Tank ID: R-02
Date Installed: 04/04/1968
Tank Status: Permanently Out of Use
Date Closed: Not reported
Tank Capacity: 5000
Substance: Gasoline

Tank ID: R-03
Date Installed: 04/04/1968
Tank Status: Permanently Out of Use
Date Closed: Not reported
Tank Capacity: 4000
Substance: Gasoline

Tank ID: R-04
Date Installed: 04/04/1968
Tank Status: Permanently Out of Use
Date Closed: 08/30/1988
Tank Capacity: 550

ALOHA ALA MOANA (Continued) **U001235401**

Substance: Used Oil

Tank ID: R-05
Date Installed: 04/04/1968
Tank Status: Permanently Out of Use
Date Closed: 08/30/1988
Tank Capacity: 285
Substance: Diesel

R72 **NAURU PHOSPHATE ROYALTIES TRUST** **HI LUST** **U001235758**
WNW **404 PIIKOI ST/1330 ALA MOANA BLVD** **N/A**
1/4-1/2 **HONOLULU, HI 96813**
0.495 mi.
2611 ft. **Site 2 of 2 in cluster R**

Relative:
Higher

Actual:
3 ft.

LUST:
Facility ID: 9-102168
Facility Status: Site Cleanup Completed (NFA)
Facility Status Date: 09/07/1999
Release ID: 900009
Project Officer: Eric Sadoyama

---

73 **CENPAC PROPERTIES - OFFICE BUILDING** **HI SHWS** **U003402842**
WNW **615 PIIKOI ST** **HI LUST** **N/A**
1/4-1/2 **HONOLULU, HI 96814** **HI UST**
0.496 mi. **HI SPILLS**
2619 ft. **HI Financial Assurance**

Relative:
Higher

Actual:
3 ft.

SHWS:
Organization: Not reported
Supplemental Location: Iwilei, Honolulu Harbor
Island: Oahu
Environmental Interest: Honolulu Harbor Iwilei District Operating Parties
HID Number: Not reported
Facility Registry Identifier: 110013785868
Lead Agency: HEER
Program: State
Project Manager: Mike Cripps
Hazard Priority: Medium
Potential Hazards And Controls: Hazard Undetermined
Organization: Not reported
Island: Oahu
Supplemental Location Text: Iwilei, Honolulu Harbor
SDAR Environmental Interest Name: Honolulu Harbor Iwilei District Operating Parties
HID Number: Not reported
Facility Registry Identifier: 110013785868
Lead Agency: HEER
Progran Name: State
Potential Hazard And Controls: Hazard Undetermined
Priority: Medium
Assessment: Assessment Ongoing
Response: Not reported
Nature of Contamination: Not reported
Nature of Residual Contamination: Not reported
Use Restrictions: Undetermined

CENPAC PROPERTIES - OFFICE BUILDING (Continued) **U003402842**

Engineering Control:	Not reported
Description of Restrictions:	Not reported
Institutional Control:	Not reported
Within Designated Areawide Contamination:	Honolulu Harbor Iwilei Unit
Site Closure Type:	Not reported
Document Date:	Not reported
Document Number:	Not reported
Document Subject:	Not reported
Project Manager:	Mike Cripps
Contact Information:	(808) 586-4249 919 Ala Moana Blvd, Honolulu, HI 96814

LUST:

Facility ID:	9-103438
Facility Status:	Site Cleanup Completed (NFA)
Facility Status Date:	07/07/1999
Release ID:	990205
Project Officer:	David Hodges

UST:

Facility ID:	9-103438
Owner:	CENPAC PROPERTIES
Owner Address:	1150 S KING ST SUITE 1101
Ownder City,St,Zip:	Honolulu, 96814 96814
Tank ID:	R-M-1
Date Installed:	Not reported
Tank Status:	**Permanently Out of Use**
Date Closed:	10/20/1998
Tank Capacity:	150
Substance:	Diesel

HI SPILLS:

Island:	Oahu
Supplemental Loc. Text:	Honolulu Harbor
Case Number:	20101216-1230
HID Number:	Not reported
Facility Registry Id:	110013785868
Lead and Program:	HEER EP&R
ER:	None
Units:	Potential to release OU1C
Substances:	Petroleum
Less Or Greater Than:	Not reported
Numerical Quantity:	0
Units:	Not reported
Activity Type:	Response
Activity Lead:	Liz Galvez
Assignment End Date:	Not reported
Result:	Pending
File Under:	Iwilei District Participating Parties, LLC

HI Financial Assurance:

Alt Facility ID:	9-103438
Tank Id:	R-M-1
Tank Status:	Permanently Out of Use
FRTYPE:	Insurance

CENPAC PROPERTIES - OFFICE BUILDING (Continued) **U003402842**

Expiration Date:	Not reported
Alt Facility ID:	9-103438
Tank Id:	R-M-1
Tank Status:	Permanently Out of Use
FRTYPE:	Surety Bond
Expiration Date:	Not reported

---

74 **CONTINENTAL AUTO SERVICES** **HI SHWS S104534121**
ENE **1918 ALGAROBA ST** **HI SPILLS N/A**
1/2-1 **HONOLULU, HI 96826**
0.520 mi.
2743 ft.

Relative:
Higher

Actual:
7 ft.

SHWS:

Organization:	Not reported
Supplemental Location:	Not reported
Island:	Oahu
Environmental Interest:	Continental Auto Services
HID Number:	Not reported
Facility Registry Identifier:	110005723850
Lead Agency:	Not reported
Program:	State
Project Manager:	Charley Langer
Hazard Priority:	NFA
Potential Hazards And Controls:	Hazard Undetermined
Organization:	Not reported
Island:	Oahu
Supplemental Location Text:	Not reported
SDAR Environmental Interest Name:	Continental Auto Services
HID Number:	Not reported
Facility Registry Identifier:	110005723850
Lead Agency:	Not reported
Progran Name:	State
Potential Hazard And Controls:	Hazard Undetermined
Priority:	NFA
Assessment:	Assessment Ongoing
Response:	Not reported
Nature of Contamination:	Not reported
Nature of Residual Contamination:	Not reported
Use Restrictions:	Undetermined
Engineering Control:	Not reported
Description of Restrictions:	Not reported
Institutional Control:	Not reported
Within Designated Areawide Contamination:	Not reported
Site Closure Type:	No Further Action - Type Undetermined
Document Date:	10/08/1999
Document Number:	Not reported
Document Subject:	Not reported
Project Manager:	Charley Langer
Contact Information:	(808) 586-4249 919 Ala Moana Blvd, Honolulu, HI 96814

HI SPILLS:

Island:	Oahu
Supplemental Loc. Text:	Not reported
Case Number:	19990119-1030
HID Number:	Not reported

CONTINENTAL AUTO SERVICES (Continued) **S104534121**

Facility Registry Id:	110005723850
Lead and Program:	HEER EP&R
ER:	No
Units:	Continental Auto Service
Substances:	Hydraulic Fluid
Less Or Greater Than:	Not reported
Numerical Quantity:	Not reported
Units:	Not reported
Activity Type:	Response
Activity Lead:	Liz Galvez
Assignment End Date:	Not reported
Result:	Refer to ISST
File Under:	Continental Auto Services

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75 North 1/2-1 0.520 mi. 2743 ft. **MEADOW GOLD DAIRIES (ICE CREAM PLANT)** **HI SHWS S104657475**
1418 YOUNG ST **HI SPILLS N/A**
HONOLULU, HI 96814

Relative: Higher

Actual: 20 ft.

SHWS:

Organization:	Not reported
Supplemental Location:	Not reported
Island:	Oahu
Environmental Interest:	Meadow Gold Ice Cream Plant Fuel Oil Spill
HID Number:	Not reported
Facility Registry Identifier:	110013767726
Lead Agency:	HEER
Program:	State
Project Manager:	Cal Miyahara
Hazard Priority:	NFA
Potential Hazards And Controls:	No Hazard
Organization:	Not reported
Island:	Oahu
Supplemental Location Text:	Not reported
SDAR Environmental Interest Name:	Meadow Gold Ice Cream Plant Fuel Oil Spill
HID Number:	Not reported
Facility Registry Identifier:	110013767726
Lead Agency:	HEER
Progran Name:	State
Potential Hazard And Controls:	No Hazard
Priority:	NFA
Assessment:	Response Necessary
Response:	Response Complete
Nature of Contamination:	Found: Low levels of TPH diesel and oil in soil and groundwater - no EAL exceedances.
Nature of Residual Contamination:	Residual TPH at GW smear zone located approximately 20 feet bgs.
Use Restrictions:	No Hazard Present for Unrestricted Residential Use
Engineering Control:	Not reported
Description of Restrictions:	Not reported
Institutional Control:	Not reported
Within Designated Areawide Contamination:	Not reported
Site Closure Type:	No Further Action Letter - Unrestricted Residential Use
Document Date:	09/30/2008
Document Number:	2008-664-CMM
Document Subject:	Removal Action Report Former Meadow Gold Dairy 1418 Young St, Honolulu HI
Project Manager:	Cal Miyahara

MEADOW GOLD DAIRIES (ICE CREAM PLANT) (Continued) **S104657475**

Contact Information: (808) 586-4249 919 Ala Moana Blvd, Honolulu, HI 96814

HI SPILLS:

Island:	Oahu
Supplemental Loc. Text:	Not reported
Case Number:	19900904
HID Number:	Not reported
Facility Registry Id:	110013767726
Lead and Program:	HEER EP&R
ER:	Not reported
Units:	MEADOW GOLD DAIRY, YOUNG ST. 1418
Substances:	Ammonia
Less Or Greater Than:	Not reported
Numerical Quantity:	1200
Units:	Pounds
Activity Type:	Response
Activity Lead:	Not reported
Assignment End Date:	Not reported
Result:	SOSC NFA
File Under:	Meadow Gold Dairies, Division of Southern Foods Group, LP

Island:	Oahu
Supplemental Loc. Text:	Not reported
Case Number:	19900904-1
HID Number:	Not reported
Facility Registry Id:	110013767726
Lead and Program:	HEER EP&R
ER:	Not reported
Units:	YOUNG ST. 1418
Substances:	Ammonia
Less Or Greater Than:	Not reported
Numerical Quantity:	200
Units:	Pounds
Activity Type:	Response
Activity Lead:	Not reported
Assignment End Date:	Not reported
Result:	SOSC NFA
File Under:	Meadow Gold Dairies, Division of Southern Foods Group, LP

Island:	Oahu
Supplemental Loc. Text:	Not reported
Case Number:	19901224
HID Number:	Not reported
Facility Registry Id:	110013767726
Lead and Program:	HEER EP&R
ER:	Not reported
Units:	Meadow Gold Ammonia Leak from Chiller
Substances:	Ammonia
Less Or Greater Than:	Not reported
Numerical Quantity:	250
Units:	Pounds
Activity Type:	Response
Activity Lead:	Not reported
Assignment End Date:	Not reported
Result:	SOSC NFA
File Under:	Meadow Gold Dairies, Division of Southern Foods Group, LP

MEADOW GOLD DAIRIES (ICE CREAM PLANT) (Continued) **S104657475**

Island:	Oahu
Supplemental Loc. Text:	Not reported
Case Number:	20071212-1530
HID Number:	Not reported
Facility Registry Id:	110013767726
Lead and Program:	HEER EP&R
ER:	No
Units:	Meadow Gold oil release from a 1000-gallon tank
Substances:	Oil
Less Or Greater Than:	Not reported
Numerical Quantity:	Not reported
Units:	Unknown
Activity Type:	Response
Activity Lead:	Liz Galvez
Assignment End Date:	2007-12-13 00:00:00
Result:	Refer to SDAR
File Under:	Meadow Gold Dairies, Division of Southern Foods Group, LP

Island:	Oahu
Supplemental Loc. Text:	Not reported
Case Number:	19960603-1628
HID Number:	Not reported
Facility Registry Id:	110013767726
Lead and Program:	HEER EP&R
ER:	No
Units:	Meadow Gold - Hawaii
Substances:	Ammonia
Less Or Greater Than:	Not reported
Numerical Quantity:	600
Units:	Pounds
Activity Type:	Response
Activity Lead:	Terry Corpus
Assignment End Date:	Not reported
Result:	SOSC NFA
File Under:	Meadow Gold Dairies, Division of Southern Foods Group, LP

Click this hyperlink while viewing on your computer to access
4 additional HI SPILLS: record(s) in the EDR Site Report.

76
NNE
1/2-1
0.531 mi.
2806 ft.

7-11 KALAKAUA
1323 KALAKAUA AVE
HONOLULU, HI 96826

HI SHWS **U001235396**
HI UST **N/A**
HI Financial Assurance

Relative:
Higher

Actual:
29 ft.

SHWS:

Organization:	Not reported
Supplemental Location:	Kalakaua Ave & Young St
Island:	Oahu
Environmental Interest:	Aloha 7-Eleven Kalakaua
HID Number:	Not reported
Facility Registry Identifier:	110013782184
Lead Agency:	HEER
Program:	State
Project Manager:	Mark Sutterfield
Hazard Priority:	NFA
Potential Hazards And Controls:	No Hazard
Organization:	Not reported

7-11 KALAKAUA (Continued) **U001235396**

Island:	Oahu
Supplemental Location Text:	Kalakaua Ave & Young St
SDAR Environmental Interest Name:	Aloha 7-Eleven Kalakaua
HID Number:	Not reported
Facility Registry Identifier:	110013782184
Lead Agency:	HEER
Progran Name:	State
Potential Hazard And Controls:	No Hazard
Priority:	NFA
Assessment:	Assessment Ongoing
Response:	Response Complete
Nature of Contamination:	Not reported
Nature of Residual Contamination:	Not reported
Use Restrictions:	No Hazard Present For Unrestricted Residential Use
Engineering Control:	Not reported
Description of Restrictions:	Not reported
Institutional Control:	Not reported
Within Designated Areawide Contamination:	Not reported
Site Closure Type:	No Further Action Letter - Unrestricted Residential Use
Document Date:	05/20/2004
Document Number:	Not reported
Document Subject:	Not reported
Project Manager:	Mark Sutterfield
Contact Information:	(808) 586-4249 919 Ala Moana Blvd, Honolulu, HI 96814

UST:

Facility ID:	9-101172
Owner:	Mid Pac Petroleum LLC
Owner Address:	1100 Alakea Street, 8th floor
Ownder City,St,Zip:	Honolulu, 96826 96826

Tank ID:	1a
Date Installed:	06/19/2009
Tank Status:	**Currently in Use**
Date Closed:	Not reported
Tank Capacity:	7000
Substance:	Gasoline

Tank ID:	1b
Date Installed:	06/19/2009
Tank Status:	**Currently In Use**
Date Closed:	Not reported
Tank Capacity:	5000
Substance:	Gasoline

Tank ID:	r-87
Date Installed:	04/04/1985
Tank Status:	**Permanently out of Use**
Date Closed:	06/12/2009
Tank Capacity:	8000
Substance:	Gasoline

Tank ID:	r-89
Date Installed:	04/04/1985

7-11 KALAKAUA (Continued) **U001235396**

Tank Status:	**Permanently out of Use**
Date Closed:	06/12/2009
Tank Capacity:	8000
Substance:	Gasoline

Tank ID:	r-92
Date Installed:	04/04/1985
Tank Status:	**Permanently out of Use**
Date Closed:	06/12/2009
Tank Capacity:	8000
Substance:	Gasoline

HI Financial Assurance:

Alt Facility ID:	9-101172
Tank Id:	1a
Tank Status:	Currently in Use
FRTYPE:	Insurance
Expiration Date:	03/31/2013

Alt Facility ID:	9-101172
Tank Id:	1b
Tank Status:	Currently In Use
FRTYPE:	Insurance
Expiration Date:	03/31/2013

Alt Facility ID:	9-101172
Tank Id:	r-87
Tank Status:	Permanently out of Use
FRTYPE:	Insurance
Expiration Date:	03/31/2013

Alt Facility ID:	9-101172
Tank Id:	r-89
Tank Status:	Permanently out of Use
FRTYPE:	Insurance
Expiration Date:	03/31/2013

Alt Facility ID:	9-101172
Tank Id:	r-92
Tank Status:	Permanently out of Use
FRTYPE:	Insurance
Expiration Date:	03/31/2013

77
WNW
1/2-1
0.564 mi.
2976 ft.

DURANT PROPERTIES
1235 KONA ST
HONOLULU, HI

HI SHWS **S109096045**
HI INST CONTROL **N/A**

Relative:
Higher

Actual:
3 ft.

SHWS:

Organization:	Not reported
Supplemental Location:	1226 Waimanu St
Island:	Oahu
Environmental Interest:	Durant Properties
HID Number:	Not reported
Facility Registry Identifier:	Not reported

DURANT PROPERTIES (Continued) **S109096045**

Lead Agency:	HEER
Program:	State
Project Manager:	Cal Miyahara
Hazard Priority:	NFA
Potential Hazards And Controls:	Hazard Managed With Controls
Organization:	Not reported
Island:	Oahu
Supplemental Location Text:	1226 Waimanu St
SDAR Environmental Interest Name:	Durant Properties
HID Number:	Not reported
Facility Registry Identifier:	Not reported
Lead Agency:	HEER
Progran Name:	State
Potential Hazard And Controls:	Hazard Managed With Controls
Priority:	NFA
Assessment:	Response Necessary
Response:	Response Complete
Nature of Contamination:	Found: Nickel above Tier 1 EAL in GW and Cadmium above Tier 1 EAL in soil.
Nature of Residual Contamination:	Not reported
Use Restrictions:	Controls Required to Manage Contamination
Engineering Control:	Not reported
Description of Restrictions:	Not reported
Institutional Control:	Government - Hawaii Dept. of Health Letter Issued
Within Designated Areawide Contamination:	Not reported
Site Closure Type:	No Further Action Letter - Restricted Use
Document Date:	06/17/2011
Document Number:	2011-323-CMM
Document Subject:	Environmental Hazard Evaluation & Environmental Hazard Management Plan, 1235 Kona St, February 2011
Project Manager:	Cal Miyahara
Contact Information:	(808) 586-4249 919 Ala Moana Blvd, Honolulu, HI 96814

INST CONTROL:

Potential hazards and controls:	Hazard Managed With Controls
Supplemental Location:	1226 Waimanu St
Zip Suffix:	Not reported
Island:	Oahu
Institutional Control:	Government - Hawaii Dept. of Health Letter Issued

---

78
WNW
1/2-1
0.574 mi.
3031 ft.

Relative:
Higher

Actual:
3 ft.

EVERSHINE X **HI SHWS S105262688**
1230 KAPIOLANI BLVD **HI VCP N/A**
HONOLULU, HI 96814

SHWS:

Organization:	Not reported
Supplemental Location:	Not reported
Island:	Oahu
Environmental Interest:	Evershine X
HID Number:	Not reported
Facility Registry Identifier:	110013780934
Lead Agency:	HEER
Program:	Voluntary Response Program
Project Manager:	Mark Sutterfield
Hazard Priority:	NFA

EVERSHINE X (Continued) **S105262688**

Potential Hazards And Controls:	No Hazard
Organization:	Not reported
Island:	Oahu
Supplemental Location Text:	Not reported
SDAR Environmental Interest Name:	Evershine X
HID Number:	Not reported
Facility Registry Identifier:	110013780934
Lead Agency:	HEER
Progran Name:	Voluntary Response Program
Potential Hazard And Controls:	No Hazard
Priority:	NFA
Assessment:	Response Necessary
Response:	Response Complete
Nature of Contamination:	Found: Petroleum products
Nature of Residual Contamination:	Petroleum contaminated soil
Use Restrictions:	No Hazard Present For Unrestricted Residential Use
Engineering Control:	Not reported
Description of Restrictions:	Not reported
Institutional Control:	Not reported
Within Designated Areawide Contamination:	Not reported
Site Closure Type:	Letter of Completion - Unrestricted Residential Use
Document Date:	08/18/2004
Document Number:	2004-338-MS
Document Subject:	LOC for Evershine X no conditions
Project Manager:	Mark Sutterfield
Contact Information:	(808) 586-4249 919 Ala Moana Blvd, Honolulu, HI 96814

VCP:

Program:	Voluntary Response Program
Zip Suffix:	Not reported
Supplemental Location:	Not reported
Island:	Oahu

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79 **CHEVRON 2002 KALAKAUA** **HI SHWS U001235436**
SE **2002 KALAKAUA AVE** **HI LUST N/A**
1/2-1 **HONOLULU, HI 96815**
0.578 mi.
3054 ft.

Relative:
Higher

Actual:
3 ft.

SHWS:

Organization:	Not reported
Supplemental Location:	Not reported
Island:	Oahu
Environmental Interest:	Chevron 2002 Kalakaua
HID Number:	Not reported
Facility Registry Identifier:	110013779045
Lead Agency:	Not reported
Program:	State
Project Manager:	Amy Playdon
Hazard Priority:	NFA
Potential Hazards And Controls:	No Hazard
Organization:	Not reported
Island:	Oahu
Supplemental Location Text:	Not reported
SDAR Environmental Interest Name:	Chevron 2002 Kalakaua
HID Number:	Not reported
Facility Registry Identifier:	110013779045

CHEVRON 2002 KALAKAUA (Continued) **U001235436**

Lead Agency:	Not reported
Progran Name:	State
Potential Hazard And Controls:	No Hazard
Priority:	NFA
Assessment:	Response Not Necessary
Response:	Not reported
Nature of Contamination:	Found: TPH as diesel and gasoline, BTEX, PAHs, HVOCs, PCBs, metals
Nature of Residual Contamination:	Most TPH levels below HDOH EALs
Use Restrictions:	No Hazard Present For Unrestricted Residential Use
Engineering Control:	Not reported
Description of Restrictions:	Not reported
Institutional Control:	Not reported
Within Designated Areawide Contamination:	Not reported
Site Closure Type:	Historic NFA - Incomplete Documentation
Document Date:	10/01/1997
Document Number:	Not reported
Document Subject:	Not reported
Project Manager:	Amy Playdon
Contact Information:	(808) 586-4249 919 Ala Moana Blvd, Honolulu, HI 96814

LUST:

Facility ID:	9-101266
Facility Status:	Site Cleanup Completed (NFA)
Facility Status Date:	06/10/1997
Release ID:	920073
Project Officer:	Steven Okoji

80
NNW
1/2-1
0.639 mi.
3374 ft.

GRACE OTSUKA APARTMENT COMPLEX
1233 YOUNG ST
HONOLULU, HI 96814

HI SHWS **S110061466**
HI ENG CONTROLS **N/A**
HI INST CONTROL

Relative:
Higher

Actual:
17 ft.

SHWS:

Organization:	Not reported
Supplemental Location:	Not reported
Island:	Oahu
Environmental Interest:	Grace Otsuka Apartment Complex
HID Number:	Not reported
Facility Registry Identifier:	Not reported
Lead Agency:	HEER
Program:	State
Project Manager:	Kelton Otsuka
Hazard Priority:	NFA
Potential Hazards And Controls:	Hazard Managed With Controls
Organization:	Not reported
Island:	Oahu
Supplemental Location Text:	Not reported
SDAR Environmental Interest Name:	Grace Otsuka Apartment Complex
HID Number:	Not reported
Facility Registry Identifier:	Not reported
Lead Agency:	HEER
Progran Name:	State
Potential Hazard And Controls:	Hazard Managed With Controls
Priority:	NFA
Assessment:	Response Necessary
Response:	Response Complete

GRACE OTSUKA APARTMENT COMPLEX (Continued) **S110061466**

Nature of Contamination:	Not reported
Nature of Residual Contamination:	Soil contaminated with diesel.
Use Restrictions:	Controls Required to Manage Contamination
Engineering Control:	Engineering Control Required
Description of Restrictions:	Not reported
Institutional Control:	Government - Hawaii Dept. of Health Letter Issued
Within Designated Areawide Contamination:	Not reported
Site Closure Type:	No Further Action Letter - Restricted Use
Document Date:	07/21/2008
Document Number:	2008-482-KO
Document Subject:	Underground Storage Tank Closure and Release Response Report, April 2008, Grace Otsuka Apartment Com
Project Manager:	Kelton Otsuka
Contact Information:	(808) 586-4249 919 Ala Moana Blvd, Honolulu, HI 96814

ENG CONTROLS:

Supplemental Location Text:	Not reported
Zip Suffix:	Not reported
Island:	Oahu
Potential Hazards And Controls:	Hazard Managed With Controls
Engineering Control:	Engineering Control Required

INST CONTROL:

Potential hazards and controls:	Hazard Managed With Controls
Supplemental Location:	Not reported
Zip Suffix:	Not reported
Island:	Oahu
Institutional Control:	Government - Hawaii Dept. of Health Letter Issued

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81 **WALLYS GARDEN CENTER** **HI SHWS S111678012**
NE **1935 S BERETANIA ST** **HI SPILLS N/A**
1/2-1 **HONOLULU, HI**
0.649 mi.
3425 ft.

Relative: Higher

Actual: 20 ft.

SHWS:

Organization:	Not reported
Supplemental Location:	Not reported
Island:	Oahu
Environmental Interest:	Wallys Garden Center
HID Number:	Not reported
Facility Registry Identifier:	Not reported
Lead Agency:	HEER
Program:	State
Project Manager:	Cal Miyahara
Hazard Priority:	Medium
Potential Hazards And Controls:	Hazard Present
Organization:	Not reported
Island:	Oahu
Supplemental Location Text:	Not reported
SDAR Environmental Interest Name:	Wallys Garden Center
HID Number:	Not reported
Facility Registry Identifier:	Not reported
Lead Agency:	HEER
Progran Name:	State
Potential Hazard And Controls:	Hazard Present
Priority:	Medium

WALLYS GARDEN CENTER (Continued) **S111678012**

Assessment:	Assessment Ongoing
Response:	Not reported
Nature of Contamination:	Found: TPH diesel (326 mg/kg) and oil (2390 mg/kg) in the parking lot at 4.5 ft bgs.
Nature of Residual Contamination:	Not reported
Use Restrictions:	Controls Required to Manage Contamination
Engineering Control:	Not reported
Description of Restrictions:	Not reported
Institutional Control:	Not reported
Within Designated Areawide Contamination:	Not reported
Site Closure Type:	Not reported
Document Date:	Not reported
Document Number:	Not reported
Document Subject:	Not reported
Project Manager:	Cal Miyahara
Contact Information:	(808) 586-4249 919 Ala Moana Blvd, Honolulu, HI 96814

HI SPILLS:

Island:	Oahu
Supplemental Loc. Text:	Not reported
Case Number:	20100518-1410
HID Number:	Not reported
Facility Registry Id:	Not reported
Lead and Program:	HEER EP&R
ER:	None
Units:	1935 South Beretania Street
Substances:	Oil
Less Or Greater Than:	Not reported
Numerical Quantity:	0
Units:	Unknown
Activity Type:	Response
Activity Lead:	Liz Galvez
Assignment End Date:	2010-06-21 00:00:00
Result:	Refer to SDAR
File Under:	Asanoma Trust

82
NNW
1/2-1
0.649 mi.
3426 ft.

Relative:
Higher

Actual:
13 ft.

1012 PIIKOI STREET, ANIN-PIIKOI BUILDING **HI SHWS S106815117**
1012 PIIKOI ST **HI SPILLS N/A**
HONOLULU, HI 96814

SHWS:

Organization:	Not reported
Supplemental Location:	Anin-Piikoi Building
Island:	Oahu
Environmental Interest:	Anin-Piikoi Building Site
HID Number:	Not reported
Facility Registry Identifier:	Not reported
Lead Agency:	Not reported
Program:	State
Project Manager:	Richard Palmer
Hazard Priority:	NFA
Potential Hazards And Controls:	No Hazard
Organization:	Not reported
Island:	Oahu
Supplemental Location Text:	Anin-Piikoi Building

1012 PIIKOI STREET, ANIN-PIIKOI BUILDING (Continued) **S106815117**

SDAR Environmental Interest Name:	Anin-Piikoi Building Site
HID Number:	Not reported
Facility Registry Identifier:	Not reported
Lead Agency:	Not reported
Progran Name:	State
Potential Hazard And Controls:	No Hazard
Priority:	NFA
Assessment:	Response Necessary
Response:	Response Complete
Nature of Contamination:	Not reported
Nature of Residual Contamination:	Not reported
Use Restrictions:	No Hazard Present for Unrestricted Residential Use
Engineering Control:	Not reported
Description of Restrictions:	Not reported
Institutional Control:	Not reported
Within Designated Areawide Contamination:	Not reported
Site Closure Type:	No Further Action Letter - Unrestricted Residential Use
Document Date:	03/16/2004
Document Number:	2004-103-MS
Document Subject:	NFA Anin-Piikoi
Project Manager:	Richard Palmer
Contact Information:	(808) 586-4249 919 Ala Moana Blvd, Honolulu, HI 96814

HI SPILLS:

Island:	Oahu
Supplemental Loc. Text:	Anin-Piikoi Building
Case Number:	20020523-1051
HID Number:	Not reported
Facility Registry Id:	Not reported
Lead and Program:	HEER EP&R
ER:	Not reported
Units:	Anin-Piikoi Building Chemical Spill
Substances:	Chlordane
Less Or Greater Than:	Not reported
Numerical Quantity:	Not reported
Units:	Not reported
Activity Type:	Response
Activity Lead:	Terry Corpus
Assignment End Date:	2003-10-07 00:00:00
Result:	Refer to ISST
File Under:	SCI Noel

Island:	Oahu
Supplemental Loc. Text:	Anin-Piikoi Building
Case Number:	20020523-1051
HID Number:	Not reported
Facility Registry Id:	Not reported
Lead and Program:	HEER EP&R
ER:	Not reported
Units:	Anin-Piikoi Building Chemical Spill
Substances:	dieldrin
Less Or Greater Than:	Not reported
Numerical Quantity:	Not reported
Units:	Not reported
Activity Type:	Response
Activity Lead:	Terry Corpus
Assignment End Date:	2003-10-07 00:00:00

1012 PIIKOI STREET, ANIN-PIIKOI BUILDING (Continued) **S106815117**

Result:	Refer to ISST
File Under:	SCI Noel
Island:	Oahu
Supplemental Loc. Text:	Anin-Piikoi Building
Case Number:	20020523-1051
HID Number:	Not reported
Facility Registry Id:	Not reported
Lead and Program:	HEER EP&R
ER:	Not reported
Units:	Anin-Piikoi Building Chemical Spill
Substances:	fluoranthene
Less Or Greater Than:	Not reported
Numerical Quantity:	Not reported
Units:	Not reported
Activity Type:	Response
Activity Lead:	Terry Corpus
Assignment End Date:	2003-10-07 00:00:00
Result:	Refer to ISST
File Under:	SCI Noel

S83 **MCCULLY UNION SERVICE** **HI SHWS** **U001235168**
ENE **2105 S KING ST** **HI LUST** **N/A**
1/2-1 **HONOLULU, HI 96826** **HI UST**
0.663 mi. **HI ENG CONTROLS**
3500 ft. **Site 1 of 2 in cluster S** **HI INST CONTROL**
HI Financial Assurance

Relative:
Higher

Actual:
10 ft.

SHWS:

Organization:	Not reported
Supplemental Location:	Not reported
Island:	Oahu
Environmental Interest:	Former ARCO AM/PM #82111
HID Number:	Not reported
Facility Registry Identifier:	110010627660
Lead Agency:	HEER
Program:	State
Project Manager:	Eric Sadoyama
Hazard Priority:	NFA
Potential Hazards And Controls:	Hazard Managed With Controls
Organization:	Not reported
Island:	Oahu
Supplemental Location Text:	Not reported
SDAR Environmental Interest Name:	Former ARCO AM/PM #82111
HID Number:	Not reported
Facility Registry Identifier:	110010627660
Lead Agency:	HEER
Progran Name:	State
Potential Hazard And Controls:	Hazard Managed With Controls
Priority:	NFA
Assessment:	Response Necessary
Response:	Response Complete
Nature of Contamination:	Found: Petroleum in soil.
Nature of Residual Contamination:	Benzo(a)pyrene in soil.
Use Restrictions:	Controls Required to Manage Contamination
Engineering Control:	Engineering Control Required
Description of Restrictions:	Not reported
Institutional Control:	Government - Hawaii Dept. of Health Letter Issued

MCCULLY UNION SERVICE (Continued) **U001235168**

Within Designated Areawide Contamination:	Not reported
Site Closure Type:	No Further Action Letter - Restricted Use
Document Date:	08/24/2009
Document Number:	2009-538-ES
Document Subject:	Review of Hydraulic Hoist and Clarifier Removal Report, dated November 2002 by Walker Consultants, a
Project Manager:	Eric Sadoyama
Contact Information:	(808) 586-4249 919 Ala Moana Blvd, Honolulu, HI 96814

LUST:

Facility ID:	9-100341
Facility Status:	Monitored Natural Attenuation
Facility Status Date:	10/05/2006
Release ID:	020038
Project Officer:	Shunsheng Fu

Facility ID:	9-100341
Facility Status:	Active Remediation
Facility Status Date:	04/21/2004
Release ID:	940104
Project Officer:	Shunsheng Fu

UST:

Facility ID:	9-100341
Owner:	Mid Pac Petroleum LLC
Owner Address:	1100 Alakea Street, 8th floor
Ownder City,St,Zip:	Honolulu, 96826 96826

Tank ID:	2A
Date Installed:	04/21/2003
Tank Status:	**Currently In Use**
Date Closed:	Not reported
Tank Capacity:	10000
Substance:	Gasoline

Tank ID:	2B 92
Date Installed:	04/21/2003
Tank Status:	**Currently In Use**
Date Closed:	Not reported
Tank Capacity:	5000
Substance:	Gasoline

Tank ID:	87
Date Installed:	04/21/2003
Tank Status:	**Currently In Use**
Date Closed:	Not reported
Tank Capacity:	15000
Substance:	Gasoline

Tank ID:	R-2
Date Installed:	02/07/1983
Tank Status:	**Permanently Out of Use**
Date Closed:	07/19/2002

MCCULLY UNION SERVICE (Continued) **U001235168**

Tank Capacity: 10000
Substance: Gasoline

Tank ID: R-3
Date Installed: 02/07/1983
Tank Status: **Permanently Out of Use**
Date Closed: 07/19/2002
Tank Capacity: 10000
Substance: Gasoline

Tank ID: R-4
Date Installed: 02/07/1983
Tank Status: **Permanently Out of Use**
Date Closed: 07/19/2002
Tank Capacity: 10000
Substance: Gasoline

Tank ID: R-5
Date Installed: 02/07/1983
Tank Status: **Permanently Out of Use**
Date Closed: 07/19/2002
Tank Capacity: 10000
Substance: Gasoline

Tank ID: R-A1
Date Installed: 01/01/1968
Tank Status: **Permanently Out of Use**
Date Closed: 01/01/1983
Tank Capacity: Not reported
Substance: Gasoline

Tank ID: R-A2
Date Installed: 01/01/1968
Tank Status: **Permanently Out of Use**
Date Closed: 01/01/1983
Tank Capacity: Not reported
Substance: Gasoline

Tank ID: R-A3
Date Installed: 01/01/1968
Tank Status: **Permanently Out of Use**
Date Closed: 01/01/1983
Tank Capacity: Not reported
Substance: Gasoline

Tank ID: R-A4
Date Installed: 01/01/1968
Tank Status: **Permanently Out of Use**
Date Closed: 01/01/1983
Tank Capacity: Not reported

MCCULLY UNION SERVICE (Continued) **U001235168**

Substance: Diesel

Tank ID: R-A5
Date Installed: 01/01/1968
Tank Status: Permanently Out of Use
Date Closed: 01/01/1983
Tank Capacity: Not reported
Substance: Used Oil

Tank ID: R-I-1
Date Installed: 02/07/1983
Tank Status: Permanently Out of Use
Date Closed: 07/16/2002
Tank Capacity: 550
Substance: Used Oil

ENG CONTROLS:
Supplemental Location Text: Not reported
Zip Suffix: Not reported
Island: Oahu
Potential Hazards And Controls: Hazard Managed With Controls
Engineering Control: Engineering Control Required

INST CONTROL:
Potential hazards and controls: Hazard Managed With Controls
Supplemental Location: Not reported
Zip Suffix: Not reported
Island: Oahu
Institutional Control: Government - Hawaii Dept. of Health Letter Issued

HI Financial Assurance:
Alt Facility ID: 9-100341
Tank Id: R-2
Tank Status: Permanently Out of Use
FRTYPE: Other
Expiration Date: Not reported

Alt Facility ID: 9-100341
Tank Id: R-I-1
Tank Status: Permanently Out of Use
FRTYPE: Other
Expiration Date: Not reported

Alt Facility ID: 9-100341
Tank Id: R-5
Tank Status: Permanently Out of Use
FRTYPE: Other
Expiration Date: Not reported

Alt Facility ID: 9-100341
Tank Id: R-A1
Tank Status: Permanently Out of Use
FRTYPE: Other
Expiration Date: Not reported

MCCULLY UNION SERVICE (Continued) **U001235168**

Alt Facility ID: 9-100341
Tank Id: R-A3
Tank Status: Permanently Out of Use
FRTYPE: Other
Expiration Date: Not reported

Alt Facility ID: 9-100341
Tank Id: R-4
Tank Status: Permanently Out of Use
FRTYPE: Other
Expiration Date: Not reported

Alt Facility ID: 9-100341
Tank Id: R-3
Tank Status: Permanently Out of Use
FRTYPE: Other
Expiration Date: Not reported

Alt Facility ID: 9-100341
Tank Id: R-A4
Tank Status: Permanently Out of Use
FRTYPE: Other
Expiration Date: Not reported

Alt Facility ID: 9-100341
Tank Id: 87
Tank Status: Currently In Use
FRTYPE: Other
Expiration Date: Not reported

Alt Facility ID: 9-100341
Tank Id: R-A5
Tank Status: Permanently Out of Use
FRTYPE: Other
Expiration Date: Not reported

Alt Facility ID: 9-100341
Tank Id: 2B 92
Tank Status: Currently In Use
FRTYPE: Other
Expiration Date: Not reported

Alt Facility ID: 9-100341
Tank Id: 2A
Tank Status: Currently In Use
FRTYPE: Other
Expiration Date: Not reported

Alt Facility ID: 9-100341
Tank Id: R-A2
Tank Status: Permanently Out of Use
FRTYPE: Other
Expiration Date: Not reported

Alt Facility ID: 9-100341
Tank Id: R-A5
Tank Status: Permanently Out of Use

MCCULLY UNION SERVICE (Continued) **U001235168**

FRTYPE: Insurance
Expiration Date: 03/31/2014

Alt Facility ID: 9-100341
Tank Id: R-A4
Tank Status: Permanently Out of Use
FRTYPE: Insurance
Expiration Date: 03/31/2014

Alt Facility ID: 9-100341
Tank Id: R-A3
Tank Status: Permanently Out of Use
FRTYPE: Insurance
Expiration Date: 03/31/2014

Alt Facility ID: 9-100341
Tank Id: R-I-1
Tank Status: Permanently Out of Use
FRTYPE: Insurance
Expiration Date: 03/31/2014

Alt Facility ID: 9-100341
Tank Id: R-A1
Tank Status: Permanently Out of Use
FRTYPE: Insurance
Expiration Date: 03/31/2014

Alt Facility ID: 9-100341
Tank Id: R-5
Tank Status: Permanently Out of Use
FRTYPE: Insurance
Expiration Date: 03/31/2014

Alt Facility ID: 9-100341
Tank Id: R-4
Tank Status: Permanently Out of Use
FRTYPE: Insurance
Expiration Date: 03/31/2014

Alt Facility ID: 9-100341
Tank Id: R-2
Tank Status: Permanently Out of Use
FRTYPE: Insurance
Expiration Date: 03/31/2014

Alt Facility ID: 9-100341
Tank Id: R-3
Tank Status: Permanently Out of Use
FRTYPE: Insurance
Expiration Date: 03/31/2014

Alt Facility ID: 9-100341
Tank Id: 87
Tank Status: Currently In Use
FRTYPE: Insurance
Expiration Date: 03/31/2014

MCCULLY UNION SERVICE (Continued) **U001235168**

Alt Facility ID:	9-100341
Tank Id:	2B 92
Tank Status:	Currently In Use
FRTYPE:	Insurance
Expiration Date:	03/31/2014
Alt Facility ID:	9-100341
Tank Id:	2A
Tank Status:	Currently In Use
FRTYPE:	Insurance
Expiration Date:	03/31/2014
Alt Facility ID:	9-100341
Tank Id:	R-A2
Tank Status:	Permanently Out of Use
FRTYPE:	Insurance
Expiration Date:	03/31/2014

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84 **KAPIOLANI WOMEN'S & CHILDREN'S MEDICAL CENTER** **HI SHWS** **U001235208**
NNE **1319 PUNAHOU ST** **HI UST** **N/A**
1/2-1 **HONOLULU, HI 96826** **HI AIRS**
0.668 mi. **HI Financial Assurance**
3528 ft.

Relative:
Higher

Actual:
43 ft.

SHWS:

Organization:	Not reported
Supplemental Location:	Not reported
Island:	Oahu
Environmental Interest:	Kapiolani Medical Center for Women and Children
HID Number:	Not reported
Facility Registry Identifier:	110005730067
Lead Agency:	Not reported
Program:	State
Project Manager:	Unassigned
Hazard Priority:	NFA
Potential Hazards And Controls:	No Hazard
Organization:	Not reported
Island:	Oahu
Supplemental Location Text:	Not reported
SDAR Environmental Interest Name:	Kapiolani Medical Center for Women and Children
HID Number:	Not reported
Facility Registry Identifier:	110005730067
Lead Agency:	Not reported
Progran Name:	State
Potential Hazard And Controls:	No Hazard
Priority:	NFA
Assessment:	Response Not Necessary
Response:	Not reported
Nature of Contamination:	Found: TPH as diesel below DOH EALs following removal of storage tanks
Nature of Residual Contamination:	No contamination remaining
Use Restrictions:	No Hazard Present For Unrestricted Residential Use
Engineering Control:	Not reported
Description of Restrictions:	Not reported
Institutional Control:	Not reported
Within Designated Areawide Contamination:	Not reported
Site Closure Type:	No Further Action Letter - Unrestricted Residential Use
Document Date:	07/17/1997
Document Number:	1997-249-RK

KAPIOLANI WOMEN'S & CHILDREN'S MEDICAL CENTER (Continued) **U001235208**

Document Subject: Hazardous Waste Release Response Determination for Kapiolani Medical Center for Women and Children,
Project Manager: Unassigned
Contact Information: (808) 586-4249 919 Ala Moana Blvd, Honolulu, HI 96814

UST:
Facility ID: 9-100740
Owner: KAPIOLANI WOMEN'S & CHILDREN'S MEDICAL CENTER
Owner Address: 1319 PUNAHOU ST
Ownder City,St,Zip: Honolulu, 96826 96826

Tank ID: 1
Date Installed: 10/01/1995
Tank Status: **Currently in Use**
Date Closed: Not reported
Tank Capacity: 15000
Substance: Diesel

Tank ID: R-001
Date Installed: 03/22/1971
Tank Status: **Permanently Out of Use**
Date Closed: 04/16/1996
Tank Capacity: 1000
Substance: Diesel

AIRS:
Facility ID: 0588-01-N
Island: Oahu
Mailing Address: 1319 Punahou Street
Locale: Not reported
Mailing City,St,Zip: Honolulu, HI 96826
Contact Name: Francisco "Kiko" Riego De Dios
Contact Title: Facilities Management Director
Description: 125 HP Boiler and 50 HP Exempt Boiler1.Boiler No.1 - 50 HP Cleaver-Brooks boiler #1 (model no. CB 200-50, serial no. L102531, 2.09 MMBtu/hr, fired primarily on synthetic natural gas (SNG) and fuel oil no.2 as a back-up). This boiler is exempt pursuant to Directors discretion as specified in Attachment II, Special Conditions No. B.1.d.2.Boiler No.2 - 125 HP Cleaver-Brooks boiler (model no. CB 200-125-150ST, serial no. L88692, 5.23 MMBtu/hr, fired primarily on SNG and fuel oil no. 2 as back-up).

HI Financial Assurance:
Alt Facility ID: 9-100740
Tank Id: R-001
Tank Status: Permanently Out of Use
FRTYPE: Other
Expiration Date: Not reported

Alt Facility ID: 9-100740
Tank Id: 1
Tank Status: Currently in Use
FRTYPE: Other
Expiration Date: Not reported

KAPIOLANI WOMEN'S & CHILDREN'S MEDICAL CENTER (Continued) **U001235208**

Alt Facility ID:	9-100740
Tank Id:	1
Tank Status:	Currently in Use
FRTYPE:	Insurance
Expiration Date:	08/01/2014

Alt Facility ID:	9-100740
Tank Id:	R-001
Tank Status:	Permanently Out of Use
FRTYPE:	Insurance
Expiration Date:	08/01/2014

S85 **MCDONALD'S RESTAURANT SOIL & GROUNDWATER CONTAMINATION** **HI SHWS** **S105264711**
ENE **2121 S KING ST** **HI SPILLS** **N/A**
1/2-1 **HONOLULU, HI 96826**
0.670 mi.
3538 ft. **Site 2 of 2 in cluster S**

Relative:
Higher

Actual:
10 ft.

SHWS:

Organization:	Not reported
Supplemental Location:	Not reported
Island:	Oahu
Environmental Interest:	McDonald's Restaurant Soil & Groundwater Contamination
HID Number:	Not reported
Facility Registry Identifier:	110013767129
Lead Agency:	SHWB
Program:	State
Project Manager:	Richard Palmer
Hazard Priority:	Low
Potential Hazards And Controls:	Hazard Present
Organization:	Not reported
Island:	Oahu
Supplemental Location Text:	Not reported
SDAR Environmental Interest Name:	McDonald's Restaurant Soil & Groundwater Contamination
HID Number:	Not reported
Facility Registry Identifier:	110013767129
Lead Agency:	SHWB
Progran Name:	State
Potential Hazard And Controls:	Hazard Present
Priority:	Low
Assessment:	Assessment Ongoing
Response:	Not reported
Nature of Contamination:	Not reported
Nature of Residual Contamination:	Not reported
Use Restrictions:	Controls Required to Manage Contamination
Engineering Control:	Not reported
Description of Restrictions:	Not reported
Institutional Control:	Not reported
Within Designated Areawide Contamination:	Not reported
Site Closure Type:	Not reported
Document Date:	Not reported
Document Number:	Not reported
Document Subject:	Not reported
Project Manager:	Richard Palmer
Contact Information:	(808) 586-4249 919 Ala Moana Blvd, Honolulu, HI 96814

HI SPILLS:

MCDONALD'S RESTAURANT SOIL & GROUNDWATER CONTAMINATION (Continued) **S105264711**

Island:	Oahu
Supplemental Loc. Text:	Not reported
Case Number:	19941013
HID Number:	Not reported
Facility Registry Id:	110013767129
Lead and Program:	HEER EP&R
ER:	Not reported
Units:	McDonalds
Substances:	Gasoline
Less Or Greater Than:	Not reported
Numerical Quantity:	Not reported
Units:	Not reported
Activity Type:	Response
Activity Lead:	Not reported
Assignment End Date:	Not reported
Result:	SOSC NFA
File Under:	McDonald's Restaurants

Island:	Oahu
Supplemental Loc. Text:	Not reported
Case Number:	19990429-1156
HID Number:	Not reported
Facility Registry Id:	110013767129
Lead and Program:	HEER EP&R
ER:	No
Units:	McDonald's Restaurant Soil & Groundwater Contamination
Substances:	Petroleum
Less Or Greater Than:	Not reported
Numerical Quantity:	Not reported
Units:	Not reported
Activity Type:	Response
Activity Lead:	Liz Galvez
Assignment End Date:	Not reported
Result:	Refer to ISST
File Under:	McDonald's Restaurants

T86 **KOOLANI TOWER PROJECT** **HI SHWS** **S106818609**
WNW **1189 WAIMANU ST** **HI SPILLS** **N/A**
1/2-1 **HONOLULU, HI 96814** **HI ENG CONTROLS**
0.672 mi. **HI INST CONTROL**
3550 ft. **Site 1 of 2 in cluster T**

Relative:
Higher

Actual:
3 ft.

SHWS:

Organization:	Not reported
Supplemental Location:	Not reported
Island:	Oahu
Environmental Interest:	Koolani Tower Project
HID Number:	Not reported
Facility Registry Identifier:	Not reported
Lead Agency:	HEER
Program:	State
Project Manager:	Mark Sutterfield
Hazard Priority:	NFA
Potential Hazards And Controls:	Hazard Managed With Controls
Organization:	Not reported
Island:	Oahu
Supplemental Location Text:	Not reported
SDAR Environmental Interest Name:	Koolani Tower Project

KOOLANI TOWER PROJECT (Continued) **S106818609**

HID Number:	Not reported
Facility Registry Identifier:	Not reported
Lead Agency:	HEER
Progran Name:	State
Potential Hazard And Controls:	Hazard Managed With Controls
Priority:	NFA
Assessment:	Response Necessary
Response:	Response Complete
Nature of Contamination:	Found: Lead
Nature of Residual Contamination:	Thin layer of lead covered by new condominium building
Use Restrictions:	Controls Required to Manage Contamination
Engineering Control:	Engineering Control Required
Description of Restrictions:	Prohibit Any Activity That May Disturb the Integrity of the Capping System. Thin layer of lead covered by new condominium building.
Institutional Control:	Government - Hawaii Dept. of Health Letter Issued
Within Designated Areawide Contamination:	Not reported
Site Closure Type:	No Further Action Letter - Restricted Use
Document Date:	02/02/2006
Document Number:	2006-059-MS
Document Subject:	NFA for footprint of building and parking lot in Area 2
Project Manager:	Mark Sutterfield
Contact Information:	(808) 586-4249 919 Ala Moana Blvd, Honolulu, HI 96814

HI SPILLS:

Island:	Oahu
Supplemental Loc. Text:	Not reported
Case Number:	20040615-1651
HID Number:	Not reported
Facility Registry Id:	Not reported
Lead and Program:	HEER EP&R
ER:	Not reported
Units:	Koolani Tower Project
Substances:	Diesel Fuel
Less Or Greater Than:	Not reported
Numerical Quantity:	Not reported
Units:	Unknown
Activity Type:	Response
Activity Lead:	Liz Galvez
Assignment End Date:	Not reported
Result:	Refer to ISST
File Under:	Cresent Heights

ENG CONTROLS:

Supplemental Location Text:	Not reported
Zip Suffix:	Not reported
Island:	Oahu
Potential Hazards And Controls:	Hazard Managed With Controls
Engineering Control:	Engineering Control Required

INST CONTROL:

Potential hazards and controls:	Hazard Managed With Controls
Supplemental Location:	Not reported
Zip Suffix:	Not reported
Island:	Oahu
Institutional Control:	Government - Hawaii Dept. of Health Letter Issued

87
North
1/2-1
0.696 mi.
3676 ft.

CARTWRIGHT NEIGHBORHOOD PARK
KEEAUMOKU ST & MATLOCK AVE
HONOLULU, HI 96814

HI SHWS **1006820122**
N/A

Relative:
Higher

Actual:
30 ft.

SHWS:

Organization:	Not reported
Supplemental Location:	Not reported
Island:	Oahu
Environmental Interest:	Cartwright Neighborhood Park
HID Number:	Not reported
Facility Registry Identifier:	110013780257
Lead Agency:	HEER
Program:	State
Project Manager:	Steve Mow
Hazard Priority:	NFA
Potential Hazards And Controls:	No Hazard
Organization:	Not reported
Island:	Oahu
Supplemental Location Text:	Not reported
SDAR Environmental Interest Name:	Cartwright Neighborhood Park
HID Number:	Not reported
Facility Registry Identifier:	110013780257
Lead Agency:	HEER
Progran Name:	State
Potential Hazard And Controls:	No Hazard
Priority:	NFA
Assessment:	Response Necessary
Response:	Response Complete
Nature of Contamination:	Found: Transformer oil (no PCBs) found on site.
Nature of Residual Contamination:	Not reported
Use Restrictions:	No Hazard Present for Unrestricted Residential Use
Engineering Control:	Not reported
Description of Restrictions:	Not reported
Institutional Control:	Not reported
Within Designated Areawide Contamination:	Not reported
Site Closure Type:	No Further Action Letter - Unrestricted Residential Use
Document Date:	05/12/2005
Document Number:	2005-257-SPM
Document Subject:	No Further Action Required at Cartwright Neighborhood Park
Project Manager:	Steve Mow
Contact Information:	(808) 586-4249 919 Ala Moana Blvd, Honolulu, HI 96814

88
NNW
1/2-1
0.717 mi.
3787 ft.

SCHUMAN CARRIAGE MOTORS, LTD.
1234 S BERETANIA ST
HONOLULU, HI 96814

HI SHWS **U003221663**
HI LUST **N/A**
HI UST
HI SPILLS
HI INST CONTROL
HI Financial Assurance

Relative:
Higher

Actual:
20 ft.

SHWS:

Organization:	Not reported
Supplemental Location:	Not reported
Island:	Oahu
Environmental Interest:	Safeway 1234 South Beretania Street Hydraulic Fluid
HID Number:	Not reported
Facility Registry Identifier:	110013778698
Lead Agency:	HEER
Program:	State

SCHUMAN CARRIAGE MOTORS, LTD. (Continued) **U003221663**

Project Manager:	Kelton Otsuka
Hazard Priority:	NFA
Potential Hazards And Controls:	Hazard Managed With Controls
Organization:	Not reported
Island:	Oahu
Supplemental Location Text:	Not reported
SDAR Environmental Interest Name:	Safeway 1234 South Beretania Street Hydraulic Fluid
HID Number:	Not reported
Facility Registry Identifier:	110013778698
Lead Agency:	HEER
Progran Name:	State
Potential Hazard And Controls:	Hazard Managed With Controls
Priority:	NFA
Assessment:	Response Necessary
Response:	Response Complete
Nature of Contamination:	Found: Hydraulic Fluid
Nature of Residual Contamination:	TPH-O from hydraulic lifts. NFA with IC. Contamination left at depths below 7' bgs.
Use Restrictions:	Controls Required to Manage Contamination
Engineering Control:	No Engineering Control Required
Description of Restrictions:	Not reported
Institutional Control:	Government - Hawaii Dept. of Health Letter Issued
Within Designated Areawide Contamination:	Not reported
Site Closure Type:	No Further Action Letter - Restricted Use
Document Date:	08/26/2011
Document Number:	2011-493-KO
Document Subject:	No Further Action Determination with Institutional Controls for the Safeway #2944 (former Schuman Ca
Project Manager:	Kelton Otsuka
Contact Information:	(808) 586-4249 919 Ala Moana Blvd, Honolulu, HI 96814

LUST:

Facility ID:	9-101276
Facility Status:	Site Cleanup Completed (NFA)
Facility Status Date:	11/03/2005
Release ID:	060001
Project Officer:	Richard Takaba

Facility ID:	9-101276
Facility Status:	Site Cleanup Completed (NFA)
Facility Status Date:	04/19/2000
Release ID:	900058
Project Officer:	Richard Takaba

UST:

Facility ID:	9-101276
Owner:	SCHUMAN CARRIAGE MOTORS, LTD.
Owner Address:	1234 S BERETANIA STP.O. BOX 2420
Ownder City,St,Zip:	Honolulu, 96814 96814

Tank ID:	R-1
Date Installed:	05/05/1961
Tank Status:	**Permanently Out of Use**
Date Closed:	11/09/1999
Tank Capacity:	3000
Substance:	Gasoline

SCHUMAN CARRIAGE MOTORS, LTD. (Continued) **U003221663**

Tank ID: R-2
Date Installed: 05/05/1961
Tank Status: Permanently Out of Use
Date Closed: 11/08/1999
Tank Capacity: 550
Substance: Other

Tank ID: R-3
Date Installed: 05/05/1961
Tank Status: Permanently Out of Use
Date Closed: 11/08/1999
Tank Capacity: 550
Substance: Other

Tank ID: R-4
Date Installed: 05/05/1961
Tank Status: Permanently Out of Use
Date Closed: 12/01/1990
Tank Capacity: 500
Substance: Used Oil

Tank ID: R-6
Date Installed: 05/05/1961
Tank Status: Permanently Out of Use
Date Closed: 12/01/1990
Tank Capacity: 550
Substance: Other

Tank ID: r-5
Date Installed: 03/01/1990
Tank Status: Permanently Out of Use
Date Closed: 01/26/2005
Tank Capacity: 1000
Substance: Used Oil

HI SPILLS:
Island: Oahu
Supplemental Loc. Text: Not reported
Case Number: 19991210-1047
HID Number: Not reported
Facility Registry Id: 110013778698
Lead and Program: HEER EP&R
ER: Referred
Units: Schuman Carriage
Substances: Hydraulic Fluid
Less Or Greater Than: Not reported
Numerical Quantity: Not reported
Units: Not reported
Activity Type: Response
Activity Lead: Liz Galvez
Assignment End Date: Not reported
Result: Refer to ISST
File Under: Safeway, Inc.

SCHUMAN CARRIAGE MOTORS, LTD. (Continued) **U003221663**

INST CONTROL:
Potential hazards and controls: Hazard Managed With Controls
Supplemental Location: Not reported
Zip Suffix: Not reported
Island: Oahu
Institutional Control: Government - Hawaii Dept. of Health Letter Issued

HI Financial Assurance:
Alt Facility ID: 9-101276
Tank Id: R-4
Tank Status: Permanently Out of Use
FRTYPE: Other
Expiration Date: Not reported

Alt Facility ID: 9-101276
Tank Id: R-6
Tank Status: Permanently Out of Use
FRTYPE: Other
Expiration Date: Not reported

Alt Facility ID: 9-101276
Tank Id: R-6
Tank Status: Permanently Out of Use
FRTYPE: Insurance
Expiration Date: Not reported

Alt Facility ID: 9-101276
Tank Id: r-5
Tank Status: Permanently Out of Use
FRTYPE: Other
Expiration Date: Not reported

Alt Facility ID: 9-101276
Tank Id: R-4
Tank Status: Permanently Out of Use
FRTYPE: Insurance
Expiration Date: Not reported

Alt Facility ID: 9-101276
Tank Id: r-5
Tank Status: Permanently Out of Use
FRTYPE: Insurance
Expiration Date: Not reported

Alt Facility ID: 9-101276
Tank Id: R-3
Tank Status: Permanently Out of Use
FRTYPE: Insurance
Expiration Date: Not reported

Alt Facility ID: 9-101276
Tank Id: R-2
Tank Status: Permanently Out of Use
FRTYPE: Other
Expiration Date: Not reported

SCHUMAN CARRIAGE MOTORS, LTD. (Continued) **U003221663**

Alt Facility ID:	9-101276
Tank Id:	R-2
Tank Status:	Permanently Out of Use
FRTYPE:	Insurance
Expiration Date:	Not reported
Alt Facility ID:	9-101276
Tank Id:	R-1
Tank Status:	Permanently Out of Use
FRTYPE:	Other
Expiration Date:	Not reported
Alt Facility ID:	9-101276
Tank Id:	R-1
Tank Status:	Permanently Out of Use
FRTYPE:	Insurance
Expiration Date:	Not reported
Alt Facility ID:	9-101276
Tank Id:	R-3
Tank Status:	Permanently Out of Use
FRTYPE:	Other
Expiration Date:	Not reported

89
SE
1/2-1
0.723 mi.
3819 ft.

ROYAL GARDENS HOTEL DIESEL **HI SHWS S110061800**
440 OLOHANA ST **HI SPILLS N/A**
HONOLULU, HI

Relative:
Higher

Actual:
3 ft.

SHWS:

Organization:	Not reported
Supplemental Location:	Dumpster alleyway right side of bldg from street.
Island:	Oahu
Environmental Interest:	Royal Gardens Hotel Diesel
HID Number:	Not reported
Facility Registry Identifier:	Not reported
Lead Agency:	HEER
Program:	State
Project Manager:	Roger Brewer
Hazard Priority:	NFA
Potential Hazards And Controls:	No Hazard
Organization:	Not reported
Island:	Oahu
Supplemental Location Text:	Dumpster alleyway right side of bldg from street.
SDAR Environmental Interest Name:	Royal Gardens Hotel Diesel
HID Number:	Not reported
Facility Registry Identifier:	Not reported
Lead Agency:	HEER
Progran Name:	State
Potential Hazard And Controls:	No Hazard
Priority:	NFA
Assessment:	Response Not Necessary
Response:	Not reported
Nature of Contamination:	Not reported
Nature of Residual Contamination:	Diesel in soil at less than EALs.
Use Restrictions:	No Hazard Present for Unrestricted Residential Use
Engineering Control:	Not reported

ROYAL GARDENS HOTEL DIESEL (Continued) **S110061800**

Description of Restrictions:	Not reported
Institutional Control:	Not reported
Within Designated Areawide Contamination:	Not reported
Site Closure Type:	No Action Letter
Document Date:	12/27/2007
Document Number:	2007-862-RB
Document Subject:	NFA for minor soil removal under drums (not a formal case).
Project Manager:	Roger Brewer
Contact Information:	(808) 586-4249 919 Ala Moana Blvd, Honolulu, HI 96814

HI SPILLS:

Island:	Oahu
Supplemental Loc. Text:	Dumpster alleyway right side of bldg from street.
Case Number:	20071029-0953
HID Number:	Not reported
Facility Registry Id:	Not reported
Lead and Program:	HEER EP&R
ER:	Off Scene
Units:	Royal Gardens Hotel Diesel
Substances:	Diesel Fuel
Less Or Greater Than:	Not reported
Numerical Quantity:	Not reported
Units:	Unknown
Activity Type:	Response
Activity Lead:	Mike Cripps
Assignment End Date:	2008-01-07 00:00:00
Result:	SOSC NFA
File Under:	Royal Gardens Hotel

90
SE
1/2-1
0.724 mi.
3821 ft.

KING KALAKAUA PLAZA
2080 KALAKAUA AVE
HONOLULU, HI 96815

HI SHWS **U003154872**
HI LUST **N/A**
HI UST
HI SPILLS
HI INST CONTROL

Relative:
Higher

Actual:
3 ft.

SHWS:

Organization:	Not reported
Supplemental Location:	Block bounded by Kalakaua/Olohana/Kuhio/Kalanimoku
Island:	Oahu
Environmental Interest:	King Kalakaua Plaza Development
HID Number:	Not reported
Facility Registry Identifier:	110013769886
Lead Agency:	HEER
Program:	State
Project Manager:	Greg Olmsted
Hazard Priority:	NFA
Potential Hazards And Controls:	No Hazard
Organization:	Not reported
Island:	Oahu
Supplemental Location Text:	Block bounded by Kalakaua/Olohana/Kuhio/Kalanimoku
SDAR Environmental Interest Name:	King Kalakaua Plaza Development
HID Number:	Not reported
Facility Registry Identifier:	110013769886
Lead Agency:	HEER
Progran Name:	State
Potential Hazard And Controls:	No Hazard
Priority:	NFA

KING KALAKAUA PLAZA (Continued) **U003154872**

Assessment:	Response Necessary
Response:	Response Complete
Nature of Contamination:	Not reported
Nature of Residual Contamination:	Confirmation samples showed maximum concentrations of contaminants including TPH at 14 mg/kg; BTX at 0.15 mg/kg. PAHs were not detected. No contamination above HDOH EALs
Use Restrictions:	No Hazard Present For Unrestricted Residential Use
Engineering Control:	Not reported
Description of Restrictions:	Not reported
Institutional Control:	Government - Hawaii Dept. of Health Letter Issued
Within Designated Areawide Contamination:	Not reported
Site Closure Type:	No Further Action Letter - Unrestricted Residential Use
Document Date:	09/28/1998
Document Number:	1998-311-GO
Document Subject:	NFA for Waikiki Gateway Park Site (2080 Kalakaua Ave)
Project Manager:	Greg Olmsted
Contact Information:	(808) 586-4249 919 Ala Moana Blvd, Honolulu, HI 96814

LUST:

Facility ID:	9-103235
Facility Status:	Site Cleanup Completed (NFA)
Facility Status Date:	03/17/2000
Release ID:	960085
Project Officer:	Renato Maniulit

UST:

Facility ID:	9-103235
Owner:	K. YOUNG KALAKAUA PARTNERS INC.
Owner Address:	841 BISHOP ST, SUITE 2250
Ownder City,St,Zip:	Honolulu, 96815 96815
Tank ID:	R-1
Date Installed:	Not reported
Tank Status:	**Permanently Out of Use**
Date Closed:	07/24/1996
Tank Capacity:	300
Substance:	Diesel

HI SPILLS:

Island:	Oahu
Supplemental Loc. Text:	Block bounded by Kalakaua/Olohana/Kuhio/Kalanimoku
Case Number:	20011017-1508
HID Number:	Not reported
Facility Registry Id:	110013769886
Lead and Program:	HEER EP&R
ER:	Not reported
Units:	Fed Ex boxes with white powdery substance
Substances:	Not reported
Less Or Greater Than:	Not reported
Numerical Quantity:	Not reported
Units:	Not reported
Activity Type:	Response
Activity Lead:	Terry Corpus
Assignment End Date:	Not reported
Result:	SOSC NFA
File Under:	K. Young-Kalakaua Partners

KING KALAKAUA PLAZA (Continued) **U003154872**

Island:	Oahu
Supplemental Loc. Text:	Block bounded by Kalakaua/Olohana/Kuhio/Kalanimoku
Case Number:	19951114-0900
HID Number:	Not reported
Facility Registry Id:	110013769886
Lead and Program:	HEER EP&R
ER:	No
Units:	Nike Town Building (2080 Kalakaua Ave)
Substances:	Gasoline
Less Or Greater Than:	Not reported
Numerical Quantity:	Not reported
Units:	Not reported
Activity Type:	Response
Activity Lead:	Chris Takeno
Assignment End Date:	Not reported
Result:	Refer to ISST
File Under:	K. Young-Kalakaua Partners

INST CONTROL:

Potential hazards and controls:	No Hazard
Supplemental Location:	Block bounded by Kalakaua/Olohana/Kuhio/Kalanimoku
Zip Suffix:	Not reported
Island:	Oahu
Institutional Control:	Government - Hawaii Dept. of Health Letter Issued

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T91 **RESERVE HOUSING TOWER SOIL CONTAMINATION** **HI SHWS 1006819959**
WNW **1141 WAIMANU ST** **HI SPILLS N/A**
1/2-1 **HONOLULU, HI 96813**
0.726 mi.
3834 ft. **Site 2 of 2 in cluster T**

Relative: Higher

Actual: 3 ft.

SHWS:

Organization:	Not reported
Supplemental Location:	Not reported
Island:	Oahu
Environmental Interest:	Reserve Housing Tower Soil Contamination
HID Number:	Not reported
Facility Registry Identifier:	110013778322
Lead Agency:	Not reported
Program:	State
Project Manager:	Unassigned
Hazard Priority:	NFA
Potential Hazards And Controls:	Hazard Undetermined
Organization:	Not reported
Island:	Oahu
Supplemental Location Text:	Not reported
SDAR Environmental Interest Name:	Reserve Housing Tower Soil Contamination
HID Number:	Not reported
Facility Registry Identifier:	110013778322
Lead Agency:	Not reported
Progran Name:	State
Potential Hazard And Controls:	Hazard Undetermined
Priority:	NFA
Assessment:	Assessment Ongoing
Response:	Not reported
Nature of Contamination:	Found: oil
Nature of Residual Contamination:	contaminants below HDOH EALs, and under a parking garage.

RESERVE HOUSING TOWER SOIL CONTAMINATION (Continued) **1006819959**

Use Restrictions:	Undetermined
Engineering Control:	Not reported
Description of Restrictions:	Not reported
Institutional Control:	Not reported
Within Designated Areawide Contamination:	Not reported
Site Closure Type:	No Further Action - Type Undetermined
Document Date:	10/25/1995
Document Number:	Not reported
Document Subject:	Not reported
Project Manager:	Unassigned
Contact Information:	(808) 586-4249 919 Ala Moana Blvd, Honolulu, HI 96814

HI SPILLS:

Island:	Oahu
Supplemental Loc. Text:	Not reported
Case Number:	19951025-2
HID Number:	Not reported
Facility Registry Id:	110013778322
Lead and Program:	HEER EP&R
ER:	No
Units:	Reserve Housing Tower
Substances:	oil/stained soil
Less Or Greater Than:	Not reported
Numerical Quantity:	Not reported
Units:	Not reported
Activity Type:	Response
Activity Lead:	Bill Perry
Assignment End Date:	Not reported
Result:	Refer to ISST
File Under:	Reserve Housing Tower

92
WNW
1/2-1
0.787 mi.
4156 ft.

SELF STORAGE 1 **HI SHWS** **1006819998**
438 KAMAKEE ST **HI SPILLS** **N/A**
HONOLULU, HI 96814

Relative:
Higher

Actual:
3 ft.

SHWS:

Organization:	Not reported
Supplemental Location:	Not reported
Island:	Oahu
Environmental Interest:	Honolulu Laundry
HID Number:	Not reported
Facility Registry Identifier:	110013778769
Lead Agency:	HEER
Program:	State
Project Manager:	Mark Sutterfield
Hazard Priority:	NFA
Potential Hazards And Controls:	No Hazard
Organization:	Not reported
Island:	Oahu
Supplemental Location Text:	Not reported
SDAR Environmental Interest Name:	Honolulu Laundry
HID Number:	Not reported
Facility Registry Identifier:	110013778769
Lead Agency:	HEER
Progran Name:	State

SELF STORAGE 1 (Continued) **1006819998**

Potential Hazard And Controls:	No Hazard
Priority:	NFA
Assessment:	Response Necessary
Response:	Response Complete
Nature of Contamination:	Not reported
Nature of Residual Contamination:	Petroleum contaminated soil. 2 tanks closed in place; suggested they be removed when site is redeveloped.
Use Restrictions:	No Hazard Present For Unrestricted Residential Use
Engineering Control:	Not reported
Description of Restrictions:	Not reported
Institutional Control:	Not reported
Within Designated Areawide Contamination:	Not reported
Site Closure Type:	No Further Action Letter - Unrestricted Residential Use
Document Date:	08/26/2004
Document Number:	2004-350-MS
Document Subject:	NFA letter for Self Storage 1at 438 Kamakee St
Project Manager:	Mark Sutterfield
Contact Information:	(808) 586-4249 919 Ala Moana Blvd, Honolulu, HI 96814

HI SPILLS:

Island:	Oahu
Supplemental Loc. Text:	Not reported
Case Number:	19981028-1300
HID Number:	Not reported
Facility Registry Id:	110013778769
Lead and Program:	HEER EP&R
ER:	Yes
Units:	Self Storage 1 (previously Volkswagon repair shop, Laundry Facility) 5 sand filled UST's onsite
Substances:	Oil/Hydraulic Fluid/Solvents
Less Or Greater Than:	Not reported
Numerical Quantity:	Not reported
Units:	Not reported
Activity Type:	Cost Recovery
Activity Lead:	Tricia Nagatani
Assignment End Date:	2002-11-30 00:00:00
Result:	New PM
File Under:	Self Storage 1

Island:	Oahu
Supplemental Loc. Text:	Not reported
Case Number:	19981028-1300
HID Number:	Not reported
Facility Registry Id:	110013778769
Lead and Program:	HEER EP&R
ER:	Yes
Units:	Self Storage 1 (previously Volkswagon repair shop, Laundry Facility) 5 sand filled UST's onsite
Substances:	Oil/Hydraulic Fluid/Solvents
Less Or Greater Than:	Not reported
Numerical Quantity:	Not reported
Units:	Not reported
Activity Type:	Response
Activity Lead:	Bill Perry
Assignment End Date:	Not reported
Result:	Refer to ISST
File Under:	Self Storage 1

93
ESE
1/2-1
0.820 mi.
4332 ft.

ALA WAI COVE CONDOMINIUM APARTMENTS
509 UNIVERSITY AVE
HONOLULU, HI 96815

HI SHWS **1006820430**
HI SPILLS **N/A**

Relative:
Higher

Actual:
3 ft.

SHWS:

Organization:	Not reported
Supplemental Location:	Not reported
Island:	Oahu
Environmental Interest:	Ala Wai Cove Condominium Apartments
HID Number:	Not reported
Facility Registry Identifier:	110013783888
Lead Agency:	HEER
Program:	State
Project Manager:	John Peard
Hazard Priority:	Low
Potential Hazards And Controls:	Hazard Undetermined
Organization:	Not reported
Island:	Oahu
Supplemental Location Text:	Not reported
SDAR Environmental Interest Name:	Ala Wai Cove Condominium Apartments
HID Number:	Not reported
Facility Registry Identifier:	110013783888
Lead Agency:	HEER
Progran Name:	State
Potential Hazard And Controls:	Hazard Undetermined
Priority:	Low
Assessment:	Assessment Ongoing
Response:	Not reported
Nature of Contamination:	Found: Petroleum in soil.
Nature of Residual Contamination:	Not reported
Use Restrictions:	Undetermined
Engineering Control:	Not reported
Description of Restrictions:	Not reported
Institutional Control:	Not reported
Within Designated Areawide Contamination:	Not reported
Site Closure Type:	Closed - Documentation Inadequate to Evaluate Risk
Document Date:	07/14/1992
Document Number:	Not reported
Document Subject:	Site Assessment for the Removal of An Underground Storage Tank At the Ala Wai Cove Condominium Apart
Project Manager:	John Peard
Contact Information:	(808) 933-9921 Environmental Health Bldg, 1582 Kamehameha Ave, Hilo, HI 96720

HI SPILLS:

Island:	Oahu
Supplemental Loc. Text:	Not reported
Case Number:	19920714
HID Number:	Not reported
Facility Registry Id:	110013783888
Lead and Program:	HEER EP&R
ER:	Not reported
Units:	Ala Wai Cove Condominium Apartments
Substances:	Not reported
Less Or Greater Than:	Not reported
Numerical Quantity:	Not reported
Units:	Not reported

ALA WAI COVE CONDOMINIUM APARTMENTS (Continued) **1006820430**

Activity Type:	Response
Activity Lead:	Not reported
Assignment End Date:	Not reported
Result:	SOSC NFA
File Under:	Ala Wai Cove Condominium Apartments

94
WNW
1/2-1
0.839 mi.
4432 ft.

JAS W GLOVER LTD
1046 WAIMAMU ST
HONOLULU, HI 96814

RCRA NonGen / NLR **1000135795**
FINDS **HID981637861**
HI SHWS
HI LUST
HI UST

Relative:
Higher

Actual:
3 ft.

RCRA NonGen / NLR:

Date form received by agency:	01/09/1987
Facility name:	JAS W GLOVER LTD
Facility address:	1046 WAIMAMU ST HONOLULU, HI 96814
EPA ID:	HID981637861
Mailing address:	PO BOX 579 HONOLULU, HI 96809
Contact:	ENVIRONMENTAL MANAGER
Contact address:	1046 WAIMAMU ST HONOLULU, HI 96814
Contact country:	US
Contact telephone:	(808) 533-1777
Contact email:	Not reported
EPA Region:	09
Land type:	Other land type
Classification:	Non-Generator
Description:	Handler: Non-Generators do not presently generate hazardous waste

Owner/Operator Summary:

Owner/operator name:	JAS W GLOVER
Owner/operator address:	NOT REQUIRED NOT REQUIRED, ME 99999
Owner/operator country:	Not reported
Owner/operator telephone:	(415) 555-1212
Legal status:	Private
Owner/Operator Type:	Owner
Owner/Op start date:	Not reported
Owner/Op end date:	Not reported
Owner/operator name:	NOT REQUIRED
Owner/operator address:	NOT REQUIRED NOT REQUIRED, ME 99999
Owner/operator country:	Not reported
Owner/operator telephone:	(415) 555-1212
Legal status:	Private
Owner/Operator Type:	Operator
Owner/Op start date:	Not reported
Owner/Op end date:	Not reported

Handler Activities Summary:

U.S. importer of hazardous waste:	No
Mixed waste (haz. and radioactive):	No
Recycler of hazardous waste:	No
Transporter of hazardous waste:	No

JAS W GLOVER LTD (Continued) **1000135795**

Treater, storer or disposer of HW:	No
Underground injection activity:	No
On-site burner exemption:	No
Furnace exemption:	No
Used oil fuel burner:	No
Used oil processor:	No
User oil refiner:	No
Used oil fuel marketer to burner:	No
Used oil Specification marketer:	No
Used oil transfer facility:	No
Used oil transporter:	No

Violation Status: No violations found

Evaluation Action Summary:

Evaluation date:	12/21/1995
Evaluation:	COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation:	Not reported
Date achieved compliance:	Not reported
Evaluation lead agency:	State

FINDS:

Registry ID: 110005724252

Environmental Interest/Information System

RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

SHWS:

Organization:	Not reported
Supplemental Location:	Not reported
Island:	Oahu
Environmental Interest:	Glover Building
HID Number:	Not reported
Facility Registry Identifier:	110005724252
Lead Agency:	HEER
Program:	State
Project Manager:	Melody Calisay
Hazard Priority:	NFA
Potential Hazards And Controls:	Hazard Undetermined
Organization:	Not reported
Island:	Oahu
Supplemental Location Text:	Not reported
SDAR Environmental Interest Name:	Glover Building
HID Number:	Not reported
Facility Registry Identifier:	110005724252
Lead Agency:	HEER
Progran Name:	State
Potential Hazard And Controls:	Hazard Undetermined
Priority:	NFA
Assessment:	Response Necessary

JAS W GLOVER LTD (Continued) **1000135795**

Response:	Response Complete
Nature of Contamination:	Found: Hydraulic fluid
Nature of Residual Contamination:	unknown
Use Restrictions:	Undetermined
Engineering Control:	Not reported
Description of Restrictions:	Not reported
Institutional Control:	Not reported
Within Designated Areawide Contamination:	Not reported
Site Closure Type:	ISST NFA - No Letter
Document Date:	06/10/2004
Document Number:	Not reported
Document Subject:	Not reported
Project Manager:	Melody Calisay
Contact Information:	(808) 586-4249 919 Ala Moana Blvd, Honolulu, HI 96814

LUST:

Facility ID:	9-100835
Facility Status:	Site Cleanup Completed (NFA)
Facility Status Date:	05/26/2004
Release ID:	020019
Project Officer:	Richard Takaba

UST:

Facility ID:	9-100835
Owner:	JAS W. GLOVER, LTD
Owner Address:	725 KAPIOLANI BLVD, SUITE 306
Ownder City,St,Zip:	Honolulu, 96814 96814
Tank ID:	R-1
Date Installed:	03/07/1937
Tank Status:	**Permanently Out of Use**
Date Closed:	11/12/1990
Tank Capacity:	600
Substance:	Gasoline

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95 NNW 1/2-1 0.872 mi. 4603 ft.

1310 PENSACOLA STREET
1310 PENSACOLA ST
HONOLULU, HI

HI SHWS **S111704658**
N/A

Relative: Higher

Actual: 27 ft.

SHWS:

Organization:	Not reported
Supplemental Location:	Not reported
Island:	Oahu
Environmental Interest:	1310 Pensacola Street
HID Number:	Not reported
Facility Registry Identifier:	Not reported
Lead Agency:	HEER
Program:	State
Project Manager:	Paul Chong
Hazard Priority:	NFA
Potential Hazards And Controls:	No Hazard
Organization:	Not reported
Island:	Oahu
Supplemental Location Text:	Not reported
SDAR Environmental Interest Name:	1310 Pensacola Street

1310 PENSACOLA STREET (Continued) **S111704658**

HID Number:	Not reported
Facility Registry Identifier:	Not reported
Lead Agency:	HEER
Progran Name:	State
Potential Hazard And Controls:	No Hazard
Priority:	NFA
Assessment:	Response Necessary
Response:	Response Complete
Nature of Contamination:	Not reported
Nature of Residual Contamination:	Not reported
Use Restrictions:	No Hazard Present For Unrestricted Residential Use
Engineering Control:	Not reported
Description of Restrictions:	Not reported
Institutional Control:	Not reported
Within Designated Areawide Contamination:	Not reported
Site Closure Type:	No Further Action Letter - Unrestricted Residential Use
Document Date:	07/26/2011
Document Number:	2011-433-PC
Document Subject:	No Further Action Determination for the Underground Storage Tank Closure and Release Report dated Ma
Project Manager:	Paul Chong
Contact Information:	(808) 586-4249 919 Ala Moana Blvd, Honolulu, HI 96814

96
WNW
1/2-1
0.872 mi.
4603 ft.

PACIFICA CONDOMINIUM
1009 KAPIOLANI BLVD
HONOLULU, HI 96814

HI SHWS **S110765470**
HI LUST **N/A**

Relative:
Higher

Actual:
3 ft.

SHWS:

Organization:	Not reported
Supplemental Location:	Not reported
Island:	Oahu
Environmental Interest:	Pacifica Condominiums
HID Number:	Not reported
Facility Registry Identifier:	Not reported
Lead Agency:	HEER
Program:	State
Project Manager:	Paul Chong
Hazard Priority:	NFA
Potential Hazards And Controls:	No Hazard
Organization:	Not reported
Island:	Oahu
Supplemental Location Text:	Not reported
SDAR Environmental Interest Name:	Pacifica Condominiums
HID Number:	Not reported
Facility Registry Identifier:	Not reported
Lead Agency:	HEER
Progran Name:	State
Potential Hazard And Controls:	No Hazard
Priority:	NFA
Assessment:	Response Necessary
Response:	Response Complete
Nature of Contamination:	Found: Low levels of contaminated soil left in place. Area capped with multistory building
Nature of Residual Contamination:	Not reported
Use Restrictions:	No Hazard Present For Unrestricted Residential Use
Engineering Control:	Not reported

PACIFICA CONDOMINIUM (Continued) **S110765470**

Description of Restrictions:	Not reported
Institutional Control:	Not reported
Within Designated Areawide Contamination:	Not reported
Site Closure Type:	No Further Action Letter - Unrestricted Residential Use
Document Date:	07/19/2011
Document Number:	2011-399-PC
Document Subject:	Subsurface Soil Assessment Report, Honolulu HI dated October 28, 2010
Project Manager:	Paul Chong
Contact Information:	(808) 586-4249 919 Ala Moana Blvd, Honolulu, HI 96814

LUST:

Facility ID:	9-103909
Facility Status:	Site Cleanup Completed (NFA)
Facility Status Date:	11/07/2011
Release ID:	110013
Project Officer:	Shunsheng Fu

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97 **WAIKIKI BAZAAR** **HI SHWS 1006819697**
SE **2174 KALAKAUA AVE** **HI SPILLS N/A**
1/2-1 **HONOLULU, HI 96816**
0.896 mi.
4730 ft.

Relative:
Higher

Actual:
3 ft.

SHWS:

Organization:	Not reported
Supplemental Location:	2174/2190 Kalakaua Ave
Island:	Oahu
Environmental Interest:	Waikiki Bazaar
HID Number:	Not reported
Facility Registry Identifier:	110013775478
Lead Agency:	HEER
Program:	State
Project Manager:	Diane England
Hazard Priority:	NFA
Potential Hazards And Controls:	No Hazard
Organization:	Not reported
Island:	Oahu
Supplemental Location Text:	2174/2190 Kalakaua Ave
SDAR Environmental Interest Name:	Waikiki Bazaar
HID Number:	Not reported
Facility Registry Identifier:	110013775478
Lead Agency:	HEER
Progran Name:	State
Potential Hazard And Controls:	No Hazard
Priority:	NFA
Assessment:	Response Necessary
Response:	Response Complete
Nature of Contamination:	Found: Petroleum in soil
Nature of Residual Contamination:	No (petroleum in soil) contamination left on site is above EALs.
Use Restrictions:	No Hazard Present For Unrestricted Residential Use
Engineering Control:	Not reported
Description of Restrictions:	Not reported
Institutional Control:	Not reported
Within Designated Areawide Contamination:	Not reported
Site Closure Type:	No Further Action Letter - Unrestricted Residential Use
Document Date:	11/09/2005
Document Number:	2005-573-DE

WAIKIKI BAZAAR (Continued) **1006819697**

Document Subject:	No Further Action Determination for Release No. 19950222-2
Project Manager:	Diane England
Contact Information:	(808) 586-4249 919 Ala Moana Blvd, Honolulu, HI 96814

HI SPILLS:

Island:	Oahu
Supplemental Loc. Text:	2174/2190 Kalakaua Ave
Case Number:	19950222-2
HID Number:	Not reported
Facility Registry Id:	110013775478
Lead and Program:	HEER EP&R
ER:	Not reported
Units:	Waikiki Bazaar
Substances:	petroleum
Less Or Greater Than:	Not reported
Numerical Quantity:	Not reported
Units:	Not reported
Activity Type:	Response
Activity Lead:	Terry Corpus
Assignment End Date:	Not reported
Result:	Refer to ISST
File Under:	Yoneoka and Associates

U98 **HALE PUA NUI UST REMOVAL** **HI SHWS S108859671**
SSE **228 BEACH WALK** **HI SPILLS N/A**
1/2-1 **HONOLULU, HI 96815**
0.901 mi.
4759 ft. **Site 1 of 2 in cluster U**

Relative:
Higher

Actual:
3 ft.

SHWS:

Organization:	Not reported
Supplemental Location:	Former Hale Pua Nui Hotel
Island:	Oahu
Environmental Interest:	Hale Pua Nui UST Removal
HID Number:	Not reported
Facility Registry Identifier:	Not reported
Lead Agency:	HEER
Program:	State
Project Manager:	Paul Chong
Hazard Priority:	Low
Potential Hazards And Controls:	Hazard Undetermined
Organization:	Not reported
Island:	Oahu
Supplemental Location Text:	Former Hale Pua Nui Hotel
SDAR Environmental Interest Name:	Hale Pua Nui UST Removal
HID Number:	Not reported
Facility Registry Identifier:	Not reported
Lead Agency:	HEER
Progran Name:	State
Potential Hazard And Controls:	Hazard Undetermined
Priority:	Low
Assessment:	Response Necessary
Response:	Response Ongoing
Nature of Contamination:	Found: Diesel Fuel.
Nature of Residual Contamination:	Not reported
Use Restrictions:	Undetermined
Engineering Control:	Not reported

HALE PUA NUI UST REMOVAL (Continued) **S108859671**

Description of Restrictions:	Not reported
Institutional Control:	Not reported
Within Designated Areawide Contamination:	Not reported
Site Closure Type:	Not reported
Document Date:	Not reported
Document Number:	Not reported
Document Subject:	Not reported
Project Manager:	Paul Chong
Contact Information:	(808) 586-4249 919 Ala Moana Blvd, Honolulu, HI 96814

HI SPILLS:

Island:	Oahu
Supplemental Loc. Text:	Former Hale Pua Nui Hotel
Case Number:	20061020-1430
HID Number:	Not reported
Facility Registry Id:	Not reported
Lead and Program:	HEER EP&R
ER:	Not reported
Units:	UST Release Former Hale Pua Nui Hotel
Substances:	Unknown
Less Or Greater Than:	Not reported
Numerical Quantity:	Not reported
Units:	Not reported
Activity Type:	Response
Activity Lead:	Not reported
Assignment End Date:	Not reported
Result:	Not reported
File Under:	Brett Hill Management Group

U99 **WAIKIKI BEACH WALK RESORT** **HI SHWS** **S108859866**
SSE **205 BEACH WALK AVE** **HI SPILLS** **N/A**
1/2-1 **HONOLULU, HI** **HI INST CONTROL**
0.925 mi.
4882 ft. **Site 2 of 2 in cluster U**

Relative:
Higher

Actual:
3 ft.

SHWS:

Organization:	Not reported
Supplemental Location:	Waikiki
Island:	Oahu
Environmental Interest:	205 Beach Walk
HID Number:	Not reported
Facility Registry Identifier:	Not reported
Lead Agency:	HEER
Program:	State
Project Manager:	Diane England
Hazard Priority:	NFA
Potential Hazards And Controls:	Hazard Managed With Controls
Organization:	Not reported
Island:	Oahu
Supplemental Location Text:	Waikiki
SDAR Environmental Interest Name:	205 Beach Walk
HID Number:	Not reported
Facility Registry Identifier:	Not reported
Lead Agency:	HEER
Progran Name:	State
Potential Hazard And Controls:	Hazard Managed With Controls
Priority:	NFA

WAIKIKI BEACH WALK RESORT (Continued) **S108859866**

Assessment:	Response Necessary
Response:	Response Complete
Nature of Contamination:	Found: Petroleum in groundwater and soil
Nature of Residual Contamination:	TPH D and Bis(2-theylhexy1)phthalate
Use Restrictions:	Controls Required to Manage Contamination
Engineering Control:	Not reported
Description of Restrictions:	Not reported
Institutional Control:	Government - Hawaii Dept. of Health Letter Issued
Within Designated Areawide Contamination:	Not reported
Site Closure Type:	No Further Action Letter - Restricted Use
Document Date:	10/16/2006
Document Number:	2006-641-DE
Document Subject:	No Further Action Determination for Release ID 200511161220
Project Manager:	Diane England
Contact Information:	(808) 586-4249 919 Ala Moana Blvd, Honolulu, HI 96814

HI SPILLS:

Island:	Oahu
Supplemental Loc. Text:	Waikiki
Case Number:	20051116-1220
HID Number:	Not reported
Facility Registry Id:	Not reported
Lead and Program:	HEER EP&R
ER:	No
Units:	Fuel Oil (Diesel) Release
Substances:	Diesel Fuel
Less Or Greater Than:	Not reported
Numerical Quantity:	Not reported
Units:	Not reported
Activity Type:	Response
Activity Lead:	Mike Cripps
Assignment End Date:	2005-11-17 00:00:00
Result:	SOSC NFA
File Under:	Waikiki Beach Walk Resort

INST CONTROL:

Potential hazards and controls:	Hazard Managed With Controls
Supplemental Location:	Waikiki
Zip Suffix:	Not reported
Island:	Oahu
Institutional Control:	Government - Hawaii Dept. of Health Letter Issued

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100 ESE 1/2-1 0.945 mi. 4989 ft.

IOLANI SCHOOL PETROLEUM ODOR
563 KAMOKU ST
HONOLULU, HI 96826

HI SHWS S106817948
HI SPILLS N/A

Relative: Higher

Actual: 3 ft.

SHWS:

Organization:	Not reported
Supplemental Location:	Not reported
Island:	Oahu
Environmental Interest:	Iolani School Petroleum
HID Number:	Not reported
Facility Registry Identifier:	110005723208
Lead Agency:	HEER
Program:	State

IOLANI SCHOOL PETROLEUM ODOR (Continued) **S106817948**

Project Manager:	Liz Galvez
Hazard Priority:	NFA
Potential Hazards And Controls:	No Hazard
Organization:	Not reported
Island:	Oahu
Supplemental Location Text:	Not reported
SDAR Environmental Interest Name:	Iolani School Petroleum
HID Number:	Not reported
Facility Registry Identifier:	110005723208
Lead Agency:	HEER
Progran Name:	State
Potential Hazard And Controls:	No Hazard
Priority:	NFA
Assessment:	Response Necessary
Response:	Response Complete
Nature of Contamination:	Not reported
Nature of Residual Contamination:	Not reported
Use Restrictions:	No Hazard Present For Unrestricted Residential Use
Engineering Control:	Not reported
Description of Restrictions:	Not reported
Institutional Control:	Not reported
Within Designated Areawide Contamination:	Not reported
Site Closure Type:	No Further Action Letter - Unrestricted Residential Use
Document Date:	02/13/2001
Document Number:	Not reported
Document Subject:	Limited Phase II Environmental Site Assessment Report
Project Manager:	Liz Galvez
Contact Information:	(808) 586-4249 919 Ala Moana Blvd, Honolulu, HI 96814

HI SPILLS:

Island:	Oahu
Supplemental Loc. Text:	Not reported
Case Number:	20000814-1440
HID Number:	Not reported
Facility Registry Id:	110005723208
Lead and Program:	HEER EP&R
ER:	Site Visit
Units:	Iolani School Petroleum odor
Substances:	Not reported
Less Or Greater Than:	Not reported
Numerical Quantity:	Not reported
Units:	Not reported
Activity Type:	Response
Activity Lead:	Liz Galvez
Assignment End Date:	Not reported
Result:	SOSC NFA
File Under:	Iolani School

101
WNW
1/2-1
0.986 mi.
5204 ft.

HAWAII OPERA THEATER SETS & PROPS WAREHOUSE
962 KAWAIAHAO ST
HONOLULU, HI

HI SHWS **S115488700**
HI SPILLS **N/A**
HI ENG CONTROLS
HI INST CONTROL

Relative:
Higher

Actual:
3 ft.

SHWS:

Organization:	Not reported
Supplemental Location:	Not reported
Island:	Oahu
Environmental Interest:	Hawaii Opera Theater Sets & Props Warehouse
HID Number:	Not reported
Facility Registry Identifier:	Not reported
Lead Agency:	Not reported
Program:	State
Project Manager:	Steve Mow
Hazard Priority:	NFA
Potential Hazards And Controls:	Hazard Managed With Controls
Organization:	Not reported
Island:	Oahu
Supplemental Location Text:	Not reported
SDAR Environmental Interest Name:	Hawaii Opera Theater Sets & Props Warehouse
HID Number:	Not reported
Facility Registry Identifier:	Not reported
Lead Agency:	Not reported
Progran Name:	State
Potential Hazard And Controls:	Hazard Managed With Controls
Priority:	NFA
Assessment:	Response Necessary
Response:	Response Ongoing
Nature of Contamination:	Found: Capped petroleum and lead contamination.
Nature of Residual Contamination:	Not reported
Use Restrictions:	Controls Required to Manage Contamination
Engineering Control:	Engineering Control Required
Description of Restrictions:	Not reported
Institutional Control:	Government - Hawaii Dept. of Health Letter Issued
Within Designated Areawide Contamination:	Not reported
Site Closure Type:	No Further Action Letter - Restricted Use
Document Date:	04/26/2012
Document Number:	2012-261-SPM
Document Subject:	No Further Action Determination with Institutional Controls for Hawaii Opera Theater Sets & Props Wa
Project Manager:	Steve Mow
Contact Information:	(808) 586-4249 919 Ala Moana Blvd, Honolulu, HI 96814

HI SPILLS:

Island:	Oahu
Supplemental Loc. Text:	Not reported
Case Number:	20120201-1355
HID Number:	Not reported
Facility Registry Id:	Not reported
Lead and Program:	HEER EP&R
ER:	None
Units:	Hawaii Opera Theatre Prop Warehouse
Substances:	Benzopyrene
Less Or Greater Than:	Not reported
Numerical Quantity:	0
Units:	Not reported
Activity Type:	Response

HAWAII OPERA THEATER SETS & PROPS WAREHOUSE (Continued) **S115488700**

Activity Lead:	Curtis Martin
Assignment End Date:	Not reported
Result:	Not reported
File Under:	Hawaii Opera Theater Sets & Props Warehouse
Island:	Oahu
Supplemental Loc. Text:	Not reported
Case Number:	20120201-1355
HID Number:	Not reported
Facility Registry Id:	Not reported
Lead and Program:	HEER EP&R
ER:	None
Units:	Hawaii Opera Theatre Prop Warehouse
Substances:	TPH
Less Or Greater Than:	Not reported
Numerical Quantity:	0
Units:	Not reported
Activity Type:	Response
Activity Lead:	Curtis Martin
Assignment End Date:	Not reported
Result:	Not reported
File Under:	Hawaii Opera Theater Sets & Props Warehouse

ENG CONTROLS:

Supplemental Location Text:	Not reported
Zip Suffix:	Not reported
Island:	Oahu
Potential Hazards And Controls:	Hazard Managed With Controls
Engineering Control:	Engineering Control Required

INST CONTROL:

Potential hazards and controls:	Hazard Managed With Controls
Supplemental Location:	Not reported
Zip Suffix:	Not reported
Island:	Oahu
Institutional Control:	Government - Hawaii Dept. of Health Letter Issued

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102 WNW 1/2-1 0.995 mi. 5255 ft.

SYMPHONY PARK
850 KAPIOLANI BLVD
HONOLULU, HI 96807

HI SHWS **S107022567**
N/A

Relative: Higher

Actual: 3 ft.

SHWS:

Organization:	Not reported
Supplemental Location:	Intersection with Ward Avenue
Island:	Oahu
Environmental Interest:	Symphony Park
HID Number:	HID984467654
Facility Registry Identifier:	110013778206
Lead Agency:	HEER
Program:	State
Project Manager:	Liz Galvez
Hazard Priority:	NFA
Potential Hazards And Controls:	Hazard Undetermined
Organization:	Not reported
Island:	Oahu

SYMPHONY PARK (Continued) **S107022567**

Supplemental Location Text:	Intersection with Ward Avenue
SDAR Environmental Interest Name:	Symphony Park
HID Number:	HID984467654
Facility Registry Identifier:	110013778206
Lead Agency:	HEER
Progran Name:	State
Potential Hazard And Controls:	Hazard Undetermined
Priority:	NFA
Assessment:	Assessment Ongoing
Response:	Not reported
Nature of Contamination:	Not reported
Nature of Residual Contamination:	Not reported
Use Restrictions:	Undetermined
Engineering Control:	Not reported
Description of Restrictions:	Not reported
Institutional Control:	Not reported
Within Designated Areawide Contamination:	Not reported
Site Closure Type:	No Further Action - Type Undetermined
Document Date:	08/31/1995
Document Number:	Not reported
Document Subject:	Not reported
Project Manager:	Liz Galvez
Contact Information:	(808) 586-4249 919 Ala Moana Blvd, Honolulu, HI 96814

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103 **PUNAHOU SCHOOL - BARWICK PLAYGROUND** **HI SHWS U003541737**
NNE **1601 PUNAHOU ST** **HI LUST N/A**
1/2-1 **HONOLULU, HI 96822** **HI UST**
0.999 mi. **HI Financial Assurance**
5276 ft.

Relative:
Higher

Actual:
76 ft.

SHWS:

Organization:	Not reported
Supplemental Location:	Punahou School Firing Range
Island:	Oahu
Environmental Interest:	Punahou School Firing Range
HID Number:	Not reported
Facility Registry Identifier:	Not reported
Lead Agency:	HEER
Program:	State
Project Manager:	Kelton Otsuka
Hazard Priority:	NFA
Potential Hazards And Controls:	No Hazard
Organization:	Not reported
Island:	Oahu
Supplemental Location Text:	Punahou School Firing Range
SDAR Environmental Interest Name:	Punahou School Firing Range
HID Number:	Not reported
Facility Registry Identifier:	Not reported
Lead Agency:	HEER
Progran Name:	State
Potential Hazard And Controls:	No Hazard
Priority:	NFA
Assessment:	Response Necessary
Response:	Response Complete
Nature of Contamination:	Found: Lead in soil.
Nature of Residual Contamination:	Confirmation samples were below HDOH EALs for unrestricted use.
Use Restrictions:	No Hazard Present For Unrestricted Residential Use
Engineering Control:	Not reported

PUNAHOU SCHOOL - BARWICK PLAYGROUND (Continued) **U003541737**

Description of Restrictions:	Not reported
Institutional Control:	Not reported
Within Designated Areawide Contamination:	Not reported
Site Closure Type:	No Further Action Letter - Unrestricted Residential Use
Document Date:	04/06/2010
Document Number:	2010-228-KO
Document Subject:	No Further Action Determination at the Punahou School Firing Range Site
Project Manager:	Kelton Otsuka
Contact Information:	(808) 586-4249 919 Ala Moana Blvd, Honolulu, HI 96814

LUST:

Facility ID:	9-100297
Facility Status:	Site Cleanup Completed (NFA)
Facility Status Date:	02/08/2007
Release ID:	900015
Project Officer:	Shaobin Li

UST:

Facility ID:	9-101653
Owner:	PUNAHOU SCHOOL
Owner Address:	1601 Punahou Street
Ownder City,St,Zip:	Honolulu, 96822 96822

Tank ID:	87
Date Installed:	12/01/1985
Tank Status:	**Currently in Use**
Date Closed:	Not reported
Tank Capacity:	1000
Substance:	Gasoline

Tank ID:	R-1
Date Installed:	03/13/1956
Tank Status:	**Permanently Out of Use**
Date Closed:	12/11/1989
Tank Capacity:	500
Substance:	Gasoline

Tank ID:	R-1
Date Installed:	Not reported
Tank Status:	**Permanently Out of Use**
Date Closed:	12/06/1990
Tank Capacity:	Not reported
Substance:	Not Listed

Tank ID:	R-2
Date Installed:	Not reported
Tank Status:	**Permanently Out of Use**
Date Closed:	12/06/1990
Tank Capacity:	Not reported
Substance:	Not Listed

PUNAHOU SCHOOL - BARWICK PLAYGROUND (Continued) **U003541737**

Tank ID: diesel
Date Installed: 12/01/1985
Tank Status: Currently in Use
Date Closed: Not reported
Tank Capacity: 2000
Substance: Diesel

HI Financial Assurance:
Alt Facility ID: 9-101653
Tank Id: 87
Tank Status: Currently in Use
FRTYPE: Other
Expiration Date: 10/15/2004

Alt Facility ID: 9-101653
Tank Id: diesel
Tank Status: Currently in Use
FRTYPE: Other
Expiration Date: 10/15/2004

Alt Facility ID: 9-101653
Tank Id: 87
Tank Status: Currently in Use
FRTYPE: Insurance
Expiration Date: 10/15/2014

Alt Facility ID: 9-101653
Tank Id: diesel
Tank Status: Currently in Use
FRTYPE: Insurance
Expiration Date: 10/15/2014

Count: 20 records.

ORPHAN SUMMARY

City	EDR ID	Site Name	Site Address	Zip	Database(s)
HONOLULU	1000860447	KEWALO BASIN HARBOR	ALA MOANA BLVD	96814	RCRA NonGen / NLR, CA HAZNET
HONOLULU	1015940123	MRC ROOFING, LLC	P.O BOX 17947		FINDS
HONOLULU	1012087683	PACIFIC COMMERICIAL SERVICES, LLC	PO BOX 235117		FINDS
HONOLULU	1012087673	PENDELTON FLOUR MILLS, LLC DBA HAW	PO BOX 1238		FINDS
HONOLULU	1014696910	PACIFIC AVIATION MUSEUM PEARL HARB	S-84 CONTROL TOWER, FORD ISLAN		FINDS
HONOLULU	1006820751	KAKAAKO MAKAI GATEWAY	COOKE ST & ILALO ST	96814	HI SHWS
HONOLULU	1010349165	SUN PACIFIC SERVICES	309 KOKO ISLAND CIRCLE		FINDS
HONOLULU	1008170446	HORIZON LINES, LLC	1811 LELEIONA STREEET		FINDS
HONOLULU	1008011988	INSTITUTE OF PACIFIC ISLANDS	LOT # 1A KAHAKU RD		FINDS
HONOLULU	S111704706	FORMER KAPALAMA MILITARY RESERVATI	N NIMITZ HWY		HI SHWS
HONOLULU	S108008765	CITIZENS ENERGY SERVICES PIER 38	NIMITZ HWY		HI SHWS, HI SPILLS, HI ENG CONTROLS, HI INST CONTROL
HONOLULU	1012140206	PACIFIC HEIGHTS WSI, PART 1	PACIFIC HEIGHTS RD: HAILI RD T		FINDS
HONOLULU	1016301377	HORIZON LINES LLC	PIER 51 A		FINDS
HONOLULU	1016051998	PACIFIC SHIPYARDS INTERNATIONAL	PIER 41 NIMITZ HIGHWAY		FINDS
HONOLULU	1012302702	HONOLULU MARINE, LLC	PIER 27		FINDS
HONOLULU	1008002972	HORIZON LINES, LLC	PIER 51A SAND ISLAND ACCESS RD		FINDS
HONOLULU	1015951188	ALLIED PACIFIC COMPANY OF HAWAII	232 SAND ISLAND PARKWAY RD		FINDS
HONOLULU	1015915592	NOAA PACIFIC REGIONAL CENTER FORD	1845 WASP BOULEVARD		FINDS
MOKULEIA	S106817395	HAWAIIAN BITUMULS PAVING & PRECAST	FARRINGTON HWY	96826	HI SHWS
MOKULEIA	1003879503	HAWAII BITUMULS & PAVING CO.	TMK: 6-6-1: 2, 33 & 36/FARRING	96826	CERC-NFRAP

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

To maintain currency of the following federal and state databases, EDR contacts the appropriate governmental agency on a monthly or quarterly basis, as required.

Number of Days to Update: Provides confirmation that EDR is reporting records that have been updated within 90 days from the date the government agency made the information available to the public.

STANDARD ENVIRONMENTAL RECORDS

Federal NPL site list

NPL: National Priority List
National Priorities List (Superfund). The NPL is a subset of CERCLIS and identifies over 1,200 sites for priority cleanup under the Superfund Program. NPL sites may encompass relatively large areas. As such, EDR provides polygon coverage for over 1,000 NPL site boundaries produced by EPA's Environmental Photographic Interpretation Center (EPIC) and regional EPA offices.

Date of Government Version: 10/25/2013
Date Data Arrived at EDR: 11/11/2013
Date Made Active in Reports: 01/28/2014
Number of Days to Update: 78

Source: EPA
Telephone: N/A
Last EDR Contact: 07/08/2014
Next Scheduled EDR Contact: 10/20/2014
Data Release Frequency: Quarterly

NPL Site Boundaries

Sources:

EPA's Environmental Photographic Interpretation Center (EPIC)
Telephone: 202-564-7333

EPA Region 1
Telephone 617-918-1143

EPA Region 6
Telephone: 214-655-6659

EPA Region 3
Telephone 215-814-5418

EPA Region 7
Telephone: 913-551-7247

EPA Region 4
Telephone 404-562-8033

EPA Region 8
Telephone: 303-312-6774

EPA Region 5
Telephone 312-886-6686

EPA Region 9
Telephone: 415-947-4246

EPA Region 10
Telephone 206-553-8665

Proposed NPL: Proposed National Priority List Sites
A site that has been proposed for listing on the National Priorities List through the issuance of a proposed rule in the Federal Register. EPA then accepts public comments on the site, responds to the comments, and places on the NPL those sites that continue to meet the requirements for listing.

Date of Government Version: 10/25/2013
Date Data Arrived at EDR: 11/11/2013
Date Made Active in Reports: 01/28/2014
Number of Days to Update: 78

Source: EPA
Telephone: N/A
Last EDR Contact: 07/08/2014
Next Scheduled EDR Contact: 10/20/2014
Data Release Frequency: Quarterly

NPL LIENS: Federal Superfund Liens
Federal Superfund Liens. Under the authority granted the USEPA by CERCLA of 1980, the USEPA has the authority to file liens against real property in order to recover remedial action expenditures or when the property owner received notification of potential liability. USEPA compiles a listing of filed notices of Superfund Liens.

Date of Government Version: 10/15/1991
Date Data Arrived at EDR: 02/02/1994
Date Made Active in Reports: 03/30/1994
Number of Days to Update: 56

Source: EPA
Telephone: 202-564-4267
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: No Update Planned

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Federal Delisted NPL site list

DELISTED NPL: National Priority List Deletions

The National Oil and Hazardous Substances Pollution Contingency Plan (NCP) establishes the criteria that the EPA uses to delete sites from the NPL. In accordance with 40 CFR 300.425.(e), sites may be deleted from the NPL where no further response is appropriate.

Date of Government Version: 10/25/2013
Date Data Arrived at EDR: 11/11/2013
Date Made Active in Reports: 01/28/2014
Number of Days to Update: 78

Source: EPA
Telephone: N/A
Last EDR Contact: 07/08/2014
Next Scheduled EDR Contact: 10/20/2014
Data Release Frequency: Quarterly

Federal CERCLIS list

CERCLIS: Comprehensive Environmental Response, Compensation, and Liability Information System

CERCLIS contains data on potentially hazardous waste sites that have been reported to the USEPA by states, municipalities, private companies and private persons, pursuant to Section 103 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). CERCLIS contains sites which are either proposed to or on the National Priorities List (NPL) and sites which are in the screening and assessment phase for possible inclusion on the NPL.

Date of Government Version: 10/25/2013
Date Data Arrived at EDR: 11/11/2013
Date Made Active in Reports: 02/13/2014
Number of Days to Update: 94

Source: EPA
Telephone: 703-412-9810
Last EDR Contact: 05/29/2014
Next Scheduled EDR Contact: 09/08/2014
Data Release Frequency: Quarterly

FEDERAL FACILITY: Federal Facility Site Information listing

A listing of National Priority List (NPL) and Base Realignment and Closure (BRAC) sites found in the Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS) Database where EPA Federal Facilities Restoration and Reuse Office is involved in cleanup activities.

Date of Government Version: 04/01/2014
Date Data Arrived at EDR: 07/08/2014
Date Made Active in Reports: 08/22/2014
Number of Days to Update: 45

Source: Environmental Protection Agency
Telephone: 703-603-8704
Last EDR Contact: 07/08/2014
Next Scheduled EDR Contact: 10/20/2014
Data Release Frequency: Varies

Federal CERCLIS NFRAP site List

CERCLIS-NFRAP: CERCLIS No Further Remedial Action Planned

Archived sites are sites that have been removed and archived from the inventory of CERCLIS sites. Archived status indicates that, to the best of EPA's knowledge, assessment at a site has been completed and that EPA has determined no further steps will be taken to list this site on the National Priorities List (NPL), unless information indicates this decision was not appropriate or other considerations require a recommendation for listing at a later time. This decision does not necessarily mean that there is no hazard associated with a given site; it only means that, based upon available information, the location is not judged to be a potential NPL site.

Date of Government Version: 10/25/2013
Date Data Arrived at EDR: 11/11/2013
Date Made Active in Reports: 02/13/2014
Number of Days to Update: 94

Source: EPA
Telephone: 703-412-9810
Last EDR Contact: 05/29/2014
Next Scheduled EDR Contact: 09/08/2014
Data Release Frequency: Quarterly

Federal RCRA CORRACTS facilities list

CORRACTS: Corrective Action Report

CORRACTS identifies hazardous waste handlers with RCRA corrective action activity.

Date of Government Version: 03/11/2014
Date Data Arrived at EDR: 03/13/2014
Date Made Active in Reports: 04/09/2014
Number of Days to Update: 27

Source: EPA
Telephone: 800-424-9346
Last EDR Contact: 07/02/2014
Next Scheduled EDR Contact: 10/13/2014
Data Release Frequency: Quarterly

Federal RCRA non-CORRACTS TSD facilities list

RCRA-TSDF: RCRA - Treatment, Storage and Disposal

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Transporters are individuals or entities that move hazardous waste from the generator offsite to a facility that can recycle, treat, store, or dispose of the waste. TSDFs treat, store, or dispose of the waste.

Date of Government Version: 03/11/2014
Date Data Arrived at EDR: 03/13/2014
Date Made Active in Reports: 04/09/2014
Number of Days to Update: 27

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 07/02/2014
Next Scheduled EDR Contact: 10/13/2014
Data Release Frequency: Quarterly

Federal RCRA generators list

RCRA-LQG: RCRA - Large Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Large quantity generators (LQGs) generate over 1,000 kilograms (kg) of hazardous waste, or over 1 kg of acutely hazardous waste per month.

Date of Government Version: 03/11/2014
Date Data Arrived at EDR: 03/13/2014
Date Made Active in Reports: 04/09/2014
Number of Days to Update: 27

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 07/02/2014
Next Scheduled EDR Contact: 10/13/2014
Data Release Frequency: Quarterly

RCRA-SQG: RCRA - Small Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Small quantity generators (SQGs) generate between 100 kg and 1,000 kg of hazardous waste per month.

Date of Government Version: 03/11/2014
Date Data Arrived at EDR: 03/13/2014
Date Made Active in Reports: 04/09/2014
Number of Days to Update: 27

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 07/02/2014
Next Scheduled EDR Contact: 10/13/2014
Data Release Frequency: Quarterly

RCRA-CESQG: RCRA - Conditionally Exempt Small Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Conditionally exempt small quantity generators (CESQGs) generate less than 100 kg of hazardous waste, or less than 1 kg of acutely hazardous waste per month.

Date of Government Version: 03/11/2014
Date Data Arrived at EDR: 03/13/2014
Date Made Active in Reports: 04/09/2014
Number of Days to Update: 27

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 07/02/2014
Next Scheduled EDR Contact: 10/13/2014
Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Federal institutional controls / engineering controls registries

US ENG CONTROLS: Engineering Controls Sites List

A listing of sites with engineering controls in place. Engineering controls include various forms of caps, building foundations, liners, and treatment methods to create pathway elimination for regulated substances to enter environmental media or effect human health.

Date of Government Version: 03/19/2014
Date Data Arrived at EDR: 03/21/2014
Date Made Active in Reports: 07/15/2014
Number of Days to Update: 116

Source: Environmental Protection Agency
Telephone: 703-603-0695
Last EDR Contact: 06/05/2014
Next Scheduled EDR Contact: 09/22/2014
Data Release Frequency: Varies

US INST CONTROL: Sites with Institutional Controls

A listing of sites with institutional controls in place. Institutional controls include administrative measures, such as groundwater use restrictions, construction restrictions, property use restrictions, and post remediation care requirements intended to prevent exposure to contaminants remaining on site. Deed restrictions are generally required as part of the institutional controls.

Date of Government Version: 03/19/2014
Date Data Arrived at EDR: 03/21/2014
Date Made Active in Reports: 07/15/2014
Number of Days to Update: 116

Source: Environmental Protection Agency
Telephone: 703-603-0695
Last EDR Contact: 06/05/2014
Next Scheduled EDR Contact: 09/22/2014
Data Release Frequency: Varies

LUCIS: Land Use Control Information System

LUCIS contains records of land use control information pertaining to the former Navy Base Realignment and Closure properties.

Date of Government Version: 05/28/2014
Date Data Arrived at EDR: 05/30/2014
Date Made Active in Reports: 06/17/2014
Number of Days to Update: 18

Source: Department of the Navy
Telephone: 843-820-7326
Last EDR Contact: 08/14/2014
Next Scheduled EDR Contact: 12/01/2014
Data Release Frequency: Varies

Federal ERNS list

ERNS: Emergency Response Notification System

Emergency Response Notification System. ERNS records and stores information on reported releases of oil and hazardous substances.

Date of Government Version: 09/30/2013
Date Data Arrived at EDR: 10/01/2013
Date Made Active in Reports: 12/06/2013
Number of Days to Update: 66

Source: National Response Center, United States Coast Guard
Telephone: 202-267-2180
Last EDR Contact: 07/03/2014
Next Scheduled EDR Contact: 07/14/2014
Data Release Frequency: Annually

State- and tribal - equivalent CERCLIS

SHWS: Sites List

Facilities, sites or areas in which the Office of Hazard Evaluation and Emergency Response has an interest, has investigated or may investigate under HRS 128D (includes CERCLIS sites).

Date of Government Version: 01/04/2014
Date Data Arrived at EDR: 02/26/2014
Date Made Active in Reports: 03/07/2014
Number of Days to Update: 9

Source: Department of Health
Telephone: 808-586-4249
Last EDR Contact: 05/30/2014
Next Scheduled EDR Contact: 09/08/2014
Data Release Frequency: Semi-Annually

State and tribal landfill and/or solid waste disposal site lists

SWF/LF: Permitted Landfills in the State of Hawaii

Solid Waste Facilities/Landfill Sites. SWF/LF type records typically contain an inventory of solid waste disposal facilities or landfills in a particular state. Depending on the state, these may be active or inactive facilities or open dumps that failed to meet RCRA Subtitle D Section 4004 criteria for solid waste landfills or disposal sites.

Date of Government Version: 09/17/2012
Date Data Arrived at EDR: 04/03/2013
Date Made Active in Reports: 05/10/2013
Number of Days to Update: 37

Source: Department of Health
Telephone: 808-586-4245
Last EDR Contact: 07/03/2014
Next Scheduled EDR Contact: 10/13/2014
Data Release Frequency: Varies

State and tribal leaking storage tank lists

LUST: Leaking Underground Storage Tank Database

Leaking Underground Storage Tank Incident Reports. LUST records contain an inventory of reported leaking underground storage tank incidents. Not all states maintain these records, and the information stored varies by state.

Date of Government Version: 06/30/2014
Date Data Arrived at EDR: 07/01/2014
Date Made Active in Reports: 07/02/2014
Number of Days to Update: 1

Source: Department of Health
Telephone: 808-586-4228
Last EDR Contact: 06/13/2014
Next Scheduled EDR Contact: 09/15/2014
Data Release Frequency: Semi-Annually

INDIAN LUST R1: Leaking Underground Storage Tanks on Indian Land

A listing of leaking underground storage tank locations on Indian Land.

Date of Government Version: 02/01/2013
Date Data Arrived at EDR: 05/01/2013
Date Made Active in Reports: 11/01/2013
Number of Days to Update: 184

Source: EPA Region 1
Telephone: 617-918-1313
Last EDR Contact: 08/01/2014
Next Scheduled EDR Contact: 11/10/2014
Data Release Frequency: Varies

INDIAN LUST R5: Leaking Underground Storage Tanks on Indian Land

Leaking underground storage tanks located on Indian Land in Michigan, Minnesota and Wisconsin.

Date of Government Version: 08/04/2014
Date Data Arrived at EDR: 08/05/2014
Date Made Active in Reports: 08/22/2014
Number of Days to Update: 17

Source: EPA, Region 5
Telephone: 312-886-7439
Last EDR Contact: 04/28/2014
Next Scheduled EDR Contact: 11/10/2014
Data Release Frequency: Varies

INDIAN LUST R10: Leaking Underground Storage Tanks on Indian Land

LUSTs on Indian land in Alaska, Idaho, Oregon and Washington.

Date of Government Version: 05/20/2014
Date Data Arrived at EDR: 06/10/2014
Date Made Active in Reports: 08/22/2014
Number of Days to Update: 73

Source: EPA Region 10
Telephone: 206-553-2857
Last EDR Contact: 04/28/2014
Next Scheduled EDR Contact: 11/10/2014
Data Release Frequency: Quarterly

INDIAN LUST R9: Leaking Underground Storage Tanks on Indian Land

LUSTs on Indian land in Arizona, California, New Mexico and Nevada

Date of Government Version: 03/01/2013
Date Data Arrived at EDR: 03/01/2013
Date Made Active in Reports: 04/12/2013
Number of Days to Update: 42

Source: Environmental Protection Agency
Telephone: 415-972-3372
Last EDR Contact: 07/22/2014
Next Scheduled EDR Contact: 11/10/2014
Data Release Frequency: Quarterly

INDIAN LUST R8: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Colorado, Montana, North Dakota, South Dakota, Utah and Wyoming.

Date of Government Version: 08/13/2014
Date Data Arrived at EDR: 08/15/2014
Date Made Active in Reports: 08/22/2014
Number of Days to Update: 7

Source: EPA Region 8
Telephone: 303-312-6271
Last EDR Contact: 07/22/2014
Next Scheduled EDR Contact: 11/10/2014
Data Release Frequency: Quarterly

INDIAN LUST R7: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Iowa, Kansas, and Nebraska

Date of Government Version: 04/28/2014
Date Data Arrived at EDR: 05/01/2014
Date Made Active in Reports: 06/17/2014
Number of Days to Update: 47

Source: EPA Region 7
Telephone: 913-551-7003
Last EDR Contact: 04/28/2014
Next Scheduled EDR Contact: 11/10/2014
Data Release Frequency: Varies

INDIAN LUST R6: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in New Mexico and Oklahoma.

Date of Government Version: 05/14/2014
Date Data Arrived at EDR: 05/15/2014
Date Made Active in Reports: 07/15/2014
Number of Days to Update: 61

Source: EPA Region 6
Telephone: 214-665-6597
Last EDR Contact: 07/22/2014
Next Scheduled EDR Contact: 11/20/2014
Data Release Frequency: Varies

INDIAN LUST R4: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Florida, Mississippi and North Carolina.

Date of Government Version: 07/30/2014
Date Data Arrived at EDR: 08/12/2014
Date Made Active in Reports: 08/22/2014
Number of Days to Update: 10

Source: EPA Region 4
Telephone: 404-562-8677
Last EDR Contact: 04/22/2014
Next Scheduled EDR Contact: 08/11/2014
Data Release Frequency: Semi-Annually

State and tribal registered storage tank lists

UST: Underground Storage Tank Database
Registered Underground Storage Tanks. UST's are regulated under Subtitle I of the Resource Conservation and Recovery Act (RCRA) and must be registered with the state department responsible for administering the UST program. Available information varies by state program.

Date of Government Version: 06/30/2014
Date Data Arrived at EDR: 07/01/2014
Date Made Active in Reports: 07/02/2014
Number of Days to Update: 1

Source: Department of Health
Telephone: 808-586-4228
Last EDR Contact: 06/13/2014
Next Scheduled EDR Contact: 09/15/2014
Data Release Frequency: Semi-Annually

INDIAN UST R4: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 4 (Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, Tennessee and Tribal Nations)

Date of Government Version: 07/30/2014
Date Data Arrived at EDR: 08/12/2014
Date Made Active in Reports: 08/22/2014
Number of Days to Update: 10

Source: EPA Region 4
Telephone: 404-562-9424
Last EDR Contact: 04/22/2014
Next Scheduled EDR Contact: 08/11/2014
Data Release Frequency: Semi-Annually

INDIAN UST R10: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 10 (Alaska, Idaho, Oregon, Washington, and Tribal Nations).

Date of Government Version: 05/20/2014
Date Data Arrived at EDR: 06/10/2014
Date Made Active in Reports: 08/15/2014
Number of Days to Update: 66

Source: EPA Region 10
Telephone: 206-553-2857
Last EDR Contact: 07/22/2014
Next Scheduled EDR Contact: 11/10/2014
Data Release Frequency: Quarterly

INDIAN UST R1: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 1 (Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont and ten Tribal Nations).

Date of Government Version: 02/01/2013
Date Data Arrived at EDR: 05/01/2013
Date Made Active in Reports: 01/27/2014
Number of Days to Update: 271

Source: EPA, Region 1
Telephone: 617-918-1313
Last EDR Contact: 08/01/2014
Next Scheduled EDR Contact: 11/10/2014
Data Release Frequency: Varies

INDIAN UST R9: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 9 (Arizona, California, Hawaii, Nevada, the Pacific Islands, and Tribal Nations).

Date of Government Version: 08/14/2014
Date Data Arrived at EDR: 08/15/2014
Date Made Active in Reports: 08/22/2014
Number of Days to Update: 7

Source: EPA Region 9
Telephone: 415-972-3368
Last EDR Contact: 07/22/2014
Next Scheduled EDR Contact: 11/10/2014
Data Release Frequency: Quarterly

INDIAN UST R5: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 5 (Michigan, Minnesota and Wisconsin and Tribal Nations).

Date of Government Version: 08/04/2014
Date Data Arrived at EDR: 08/05/2014
Date Made Active in Reports: 08/22/2014
Number of Days to Update: 17

Source: EPA Region 5
Telephone: 312-886-6136
Last EDR Contact: 04/28/2014
Next Scheduled EDR Contact: 11/10/2014
Data Release Frequency: Varies

INDIAN UST R6: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 6 (Louisiana, Arkansas, Oklahoma, New Mexico, Texas and 65 Tribes).

Date of Government Version: 07/25/2014
Date Data Arrived at EDR: 07/28/2014
Date Made Active in Reports: 08/22/2014
Number of Days to Update: 25

Source: EPA Region 6
Telephone: 214-665-7591
Last EDR Contact: 07/22/2014
Next Scheduled EDR Contact: 11/10/2014
Data Release Frequency: Semi-Annually

INDIAN UST R7: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 7 (Iowa, Kansas, Missouri, Nebraska, and 9 Tribal Nations).

Date of Government Version: 05/28/2014
Date Data Arrived at EDR: 05/01/2014
Date Made Active in Reports: 06/17/2014
Number of Days to Update: 47

Source: EPA Region 7
Telephone: 913-551-7003
Last EDR Contact: 04/28/2014
Next Scheduled EDR Contact: 11/10/2014
Data Release Frequency: Varies

INDIAN UST R8: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 8 (Colorado, Montana, North Dakota, South Dakota, Utah, Wyoming and 27 Tribal Nations).

Date of Government Version: 08/13/2014
Date Data Arrived at EDR: 08/15/2014
Date Made Active in Reports: 08/22/2014
Number of Days to Update: 7

Source: EPA Region 8
Telephone: 303-312-6137
Last EDR Contact: 07/22/2014
Next Scheduled EDR Contact: 11/10/2014
Data Release Frequency: Quarterly

FEMA UST: Underground Storage Tank Listing
A listing of all FEMA owned underground storage tanks.

Date of Government Version: 01/01/2010
Date Data Arrived at EDR: 02/16/2010
Date Made Active in Reports: 04/12/2010
Number of Days to Update: 55

Source: FEMA
Telephone: 202-646-5797
Last EDR Contact: 07/08/2014
Next Scheduled EDR Contact: 10/27/2014
Data Release Frequency: Varies

State and tribal institutional control / engineering control registries

ENG CONTROLS: Engineering Control Sites
A listing of sites with engineering controls in place.

Date of Government Version: 01/04/2014
Date Data Arrived at EDR: 02/26/2014
Date Made Active in Reports: 03/07/2014
Number of Days to Update: 9

Source: Department of Health
Telephone: 404-586-4249
Last EDR Contact: 05/30/2014
Next Scheduled EDR Contact: 09/08/2014
Data Release Frequency: Varies

INST CONTROL: Sites with Institutional Controls
Voluntary Remediation Program and Brownfields sites with institutional controls in place.

Date of Government Version: 01/04/2014
Date Data Arrived at EDR: 02/26/2014
Date Made Active in Reports: 03/07/2014
Number of Days to Update: 9

Source: Department of Health
Telephone: 808-586-4249
Last EDR Contact: 05/30/2014
Next Scheduled EDR Contact: 09/08/2014
Data Release Frequency: Varies

State and tribal voluntary cleanup sites

VCP: Voluntary Response Program Sites
Sites participating in the Voluntary Response Program. The purpose of the VRP is to streamline the cleanup process in a way that will encourage prospective developers, lenders, and purchasers to voluntarily cleanup properties.

Date of Government Version: 01/04/2014
Date Data Arrived at EDR: 02/26/2014
Date Made Active in Reports: 03/07/2014
Number of Days to Update: 9

Source: Department of Health
Telephone: 808-586-4249
Last EDR Contact: 05/30/2014
Next Scheduled EDR Contact: 09/08/2014
Data Release Frequency: Varies

INDIAN VCP R1: Voluntary Cleanup Priority Listing
A listing of voluntary cleanup priority sites located on Indian Land located in Region 1.

Date of Government Version: 05/30/2014
Date Data Arrived at EDR: 07/01/2014
Date Made Active in Reports: 08/15/2014
Number of Days to Update: 45

Source: EPA, Region 1
Telephone: 617-918-1102
Last EDR Contact: 07/01/2014
Next Scheduled EDR Contact: 10/13/2014
Data Release Frequency: Varies

INDIAN VCP R7: Voluntary Cleanup Priority Lisitng
A listing of voluntary cleanup priority sites located on Indian Land located in Region 7.

Date of Government Version: 03/20/2008
Date Data Arrived at EDR: 04/22/2008
Date Made Active in Reports: 05/19/2008
Number of Days to Update: 27

Source: EPA, Region 7
Telephone: 913-551-7365
Last EDR Contact: 04/20/2009
Next Scheduled EDR Contact: 07/20/2009
Data Release Frequency: Varies

State and tribal Brownfields sites

BROWNFIELDS: Brownfields Sites
With certain legal exclusions and additions, the term 'brownfield site' means real property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant.

Date of Government Version: 01/04/2014
Date Data Arrived at EDR: 02/26/2014
Date Made Active in Reports: 03/07/2014
Number of Days to Update: 9

Source: Department of Health
Telephone: 808-586-4249
Last EDR Contact: 05/30/2014
Next Scheduled EDR Contact: 09/08/2014
Data Release Frequency: Varies

ADDITIONAL ENVIRONMENTAL RECORDS

Local Brownfield lists

US BROWNFIELDS: A Listing of Brownfields Sites
Brownfields are real property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant. Cleaning up and reinvesting in these properties takes development pressures off of undeveloped, open land, and both improves and protects the environment. Assessment, Cleanup and Redevelopment Exchange System (ACRES) stores information reported by EPA Brownfields grant recipients on brownfields properties assessed or cleaned up with grant funding as well as information on Targeted Brownfields Assessments performed by EPA Regions. A listing of ACRES Brownfield sites is obtained from Cleanups in My Community. Cleanups in My Community provides information on Brownfields properties for which information is reported back to EPA, as well as areas served by Brownfields grant programs.

Date of Government Version: 07/01/2014
Date Data Arrived at EDR: 07/03/2014
Date Made Active in Reports: 07/28/2014
Number of Days to Update: 25

Source: Environmental Protection Agency
Telephone: 202-566-2777
Last EDR Contact: 07/03/2014
Next Scheduled EDR Contact: 10/06/2014
Data Release Frequency: Semi-Annually

Local Lists of Landfill / Solid Waste Disposal Sites

ODI: Open Dump Inventory
An open dump is defined as a disposal facility that does not comply with one or more of the Part 257 or Part 258 Subtitle D Criteria.

Date of Government Version: 06/30/1985
Date Data Arrived at EDR: 08/09/2004
Date Made Active in Reports: 09/17/2004
Number of Days to Update: 39

Source: Environmental Protection Agency
Telephone: 800-424-9346
Last EDR Contact: 06/09/2004
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

DEBRIS REGION 9: Torres Martinez Reservation Illegal Dump Site Locations
A listing of illegal dump sites location on the Torres Martinez Indian Reservation located in eastern Riverside County and northern Imperial County, California.

Date of Government Version: 01/12/2009
Date Data Arrived at EDR: 05/07/2009
Date Made Active in Reports: 09/21/2009
Number of Days to Update: 137

Source: EPA, Region 9
Telephone: 415-947-4219
Last EDR Contact: 07/25/2014
Next Scheduled EDR Contact: 11/10/2014
Data Release Frequency: No Update Planned

INDIAN ODI: Report on the Status of Open Dumps on Indian Lands
Location of open dumps on Indian land.

Date of Government Version: 12/31/1998
Date Data Arrived at EDR: 12/03/2007
Date Made Active in Reports: 01/24/2008
Number of Days to Update: 52

Source: Environmental Protection Agency
Telephone: 703-308-8245
Last EDR Contact: 08/01/2014
Next Scheduled EDR Contact: 11/17/2014
Data Release Frequency: Varies

Local Lists of Hazardous waste / Contaminated Sites

US CDL: Clandestine Drug Labs
A listing of clandestine drug lab locations. The U.S. Department of Justice ("the Department") provides this web site as a public service. It contains addresses of some locations where law enforcement agencies reported they found chemicals or other items that indicated the presence of either clandestine drug laboratories or dumpsites. In most cases, the source of the entries is not the Department, and the Department has not verified the entry and does not guarantee its accuracy. Members of the public must verify the accuracy of all entries by, for example, contacting local law enforcement and local health departments.

Date of Government Version: 05/28/2014
Date Data Arrived at EDR: 06/20/2014
Date Made Active in Reports: 07/15/2014
Number of Days to Update: 25

Source: Drug Enforcement Administration
Telephone: 202-307-1000
Last EDR Contact: 06/04/2014
Next Scheduled EDR Contact: 09/15/2014
Data Release Frequency: Quarterly

CDL: Clandestine Drug Lab Listing
A listing of clandestine drug lab site locations.

Date of Government Version: 08/04/2010
Date Data Arrived at EDR: 09/10/2010
Date Made Active in Reports: 10/22/2010
Number of Days to Update: 42

Source: Department of Health
Telephone: 808-586-4249
Last EDR Contact: 07/30/2014
Next Scheduled EDR Contact: 09/15/2014
Data Release Frequency: Varies

US HIST CDL: National Clandestine Laboratory Register
A listing of clandestine drug lab locations. The U.S. Department of Justice ("the Department") provides this web site as a public service. It contains addresses of some locations where law enforcement agencies reported they found chemicals or other items that indicated the presence of either clandestine drug laboratories or dumpsites. In most cases, the source of the entries is not the Department, and the Department has not verified the entry and does not guarantee its accuracy. Members of the public must verify the accuracy of all entries by, for example, contacting local law enforcement and local health departments.

Date of Government Version: 05/28/2014
Date Data Arrived at EDR: 06/20/2014
Date Made Active in Reports: 07/15/2014
Number of Days to Update: 25

Source: Drug Enforcement Administration
Telephone: 202-307-1000
Last EDR Contact: 06/04/2014
Next Scheduled EDR Contact: 09/15/2014
Data Release Frequency: No Update Planned

Local Land Records

LIENS 2: CERCLA Lien Information
A Federal CERCLA ('Superfund') lien can exist by operation of law at any site or property at which EPA has spent Superfund monies. These monies are spent to investigate and address releases and threatened releases of contamination. CERCLIS provides information as to the identity of these sites and properties.

Date of Government Version: 02/18/2014
Date Data Arrived at EDR: 03/18/2014
Date Made Active in Reports: 04/24/2014
Number of Days to Update: 37

Source: Environmental Protection Agency
Telephone: 202-564-6023
Last EDR Contact: 07/22/2014
Next Scheduled EDR Contact: 11/10/2014
Data Release Frequency: Varies

Records of Emergency Release Reports

HMIRS: Hazardous Materials Information Reporting System
Hazardous Materials Incident Report System. HMIRS contains hazardous material spill incidents reported to DOT.

Date of Government Version: 03/31/2014
Date Data Arrived at EDR: 04/01/2014
Date Made Active in Reports: 07/15/2014
Number of Days to Update: 105

Source: U.S. Department of Transportation
Telephone: 202-366-4555
Last EDR Contact: 07/01/2014
Next Scheduled EDR Contact: 10/13/2014
Data Release Frequency: Annually

SPILLS: Release Notifications
Releases of hazardous substances to the environment reported to the Office of Hazard Evaluation and Emergency Response since 1988.

Date of Government Version: 01/04/2014
Date Data Arrived at EDR: 02/26/2014
Date Made Active in Reports: 03/10/2014
Number of Days to Update: 12

Source: Department of Health
Telephone: 808-586-4249
Last EDR Contact: 05/30/2014
Next Scheduled EDR Contact: 09/08/2014
Data Release Frequency: Varies

SPILLS 90: SPILLS90 data from FirstSearch
Spills 90 includes those spill and release records available exclusively from FirstSearch databases. Typically, they may include chemical, oil and/or hazardous substance spills recorded after 1990. Duplicate records that are already included in EDR incident and release records are not included in Spills 90.

Date of Government Version: 03/10/2012
Date Data Arrived at EDR: 01/03/2013
Date Made Active in Reports: 02/11/2013
Number of Days to Update: 39

Source: FirstSearch
Telephone: N/A
Last EDR Contact: 01/03/2013
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

Other Ascertainable Records

RCRA NonGen / NLR: RCRA - Non Generators
RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Non-Generators do not presently generate hazardous waste.

Date of Government Version: 03/11/2014
Date Data Arrived at EDR: 03/13/2014
Date Made Active in Reports: 04/09/2014
Number of Days to Update: 27

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 07/02/2014
Next Scheduled EDR Contact: 10/13/2014
Data Release Frequency: Varies

DOT OPS: Incident and Accident Data
Department of Transporation, Office of Pipeline Safety Incident and Accident data.

Date of Government Version: 07/31/2012
Date Data Arrived at EDR: 08/07/2012
Date Made Active in Reports: 09/18/2012
Number of Days to Update: 42

Source: Department of Transporation, Office of Pipeline Safety
Telephone: 202-366-4595
Last EDR Contact: 08/06/2014
Next Scheduled EDR Contact: 11/17/2014
Data Release Frequency: Varies

DOD: Department of Defense Sites
This data set consists of federally owned or administered lands, administered by the Department of Defense, that have any area equal to or greater than 640 acres of the United States, Puerto Rico, and the U.S. Virgin Islands.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 11/10/2006
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 62

Source: USGS
Telephone: 888-275-8747
Last EDR Contact: 07/18/2014
Next Scheduled EDR Contact: 10/27/2014
Data Release Frequency: Semi-Annually

FUDS: Formerly Used Defense Sites

The listing includes locations of Formerly Used Defense Sites properties where the US Army Corps of Engineers is actively working or will take necessary cleanup actions.

Date of Government Version: 12/31/2012
Date Data Arrived at EDR: 02/28/2014
Date Made Active in Reports: 04/24/2014
Number of Days to Update: 55

Source: U.S. Army Corps of Engineers
Telephone: 202-528-4285
Last EDR Contact: 06/04/2014
Next Scheduled EDR Contact: 09/22/2014
Data Release Frequency: Varies

CONSENT: Superfund (CERCLA) Consent Decrees

Major legal settlements that establish responsibility and standards for cleanup at NPL (Superfund) sites. Released periodically by United States District Courts after settlement by parties to litigation matters.

Date of Government Version: 12/31/2013
Date Data Arrived at EDR: 01/24/2014
Date Made Active in Reports: 02/24/2014
Number of Days to Update: 31

Source: Department of Justice, Consent Decree Library
Telephone: Varies
Last EDR Contact: 06/30/2014
Next Scheduled EDR Contact: 10/13/2014
Data Release Frequency: Varies

ROD: Records Of Decision

Record of Decision. ROD documents mandate a permanent remedy at an NPL (Superfund) site containing technical and health information to aid in the cleanup.

Date of Government Version: 11/25/2013
Date Data Arrived at EDR: 12/12/2013
Date Made Active in Reports: 02/24/2014
Number of Days to Update: 74

Source: EPA
Telephone: 703-416-0223
Last EDR Contact: 06/10/2014
Next Scheduled EDR Contact: 09/22/2014
Data Release Frequency: Annually

UMTRA: Uranium Mill Tailings Sites

Uranium ore was mined by private companies for federal government use in national defense programs. When the mills shut down, large piles of the sand-like material (mill tailings) remain after uranium has been extracted from the ore. Levels of human exposure to radioactive materials from the piles are low; however, in some cases tailings were used as construction materials before the potential health hazards of the tailings were recognized.

Date of Government Version: 09/14/2010
Date Data Arrived at EDR: 10/07/2011
Date Made Active in Reports: 03/01/2012
Number of Days to Update: 146

Source: Department of Energy
Telephone: 505-845-0011
Last EDR Contact: 08/20/2014
Next Scheduled EDR Contact: 12/08/2014
Data Release Frequency: Varies

US MINES: Mines Master Index File

Contains all mine identification numbers issued for mines active or opened since 1971. The data also includes violation information.

Date of Government Version: 01/30/2014
Date Data Arrived at EDR: 03/05/2014
Date Made Active in Reports: 07/15/2014
Number of Days to Update: 132

Source: Department of Labor, Mine Safety and Health Administration
Telephone: 303-231-5959
Last EDR Contact: 06/06/2014
Next Scheduled EDR Contact: 09/15/2014
Data Release Frequency: Semi-Annually

TRIS: Toxic Chemical Release Inventory System

Toxic Release Inventory System. TRIS identifies facilities which release toxic chemicals to the air, water and land in reportable quantities under SARA Title III Section 313.

Date of Government Version: 12/31/2011
Date Data Arrived at EDR: 07/31/2013
Date Made Active in Reports: 09/13/2013
Number of Days to Update: 44

Source: EPA
Telephone: 202-566-0250
Last EDR Contact: 05/30/2014
Next Scheduled EDR Contact: 09/08/2014
Data Release Frequency: Annually

TSCA: Toxic Substances Control Act

Toxic Substances Control Act. TSCA identifies manufacturers and importers of chemical substances included on the TSCA Chemical Substance Inventory list. It includes data on the production volume of these substances by plant site.

Date of Government Version: 12/31/2006
Date Data Arrived at EDR: 09/29/2010
Date Made Active in Reports: 12/02/2010
Number of Days to Update: 64

Source: EPA
Telephone: 202-260-5521
Last EDR Contact: 06/25/2014
Next Scheduled EDR Contact: 10/06/2014
Data Release Frequency: Every 4 Years

FTTS: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)

FTTS tracks administrative cases and pesticide enforcement actions and compliance activities related to FIFRA, TSCA and EPCRA (Emergency Planning and Community Right-to-Know Act). To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 04/09/2009
Date Data Arrived at EDR: 04/16/2009
Date Made Active in Reports: 05/11/2009
Number of Days to Update: 25

Source: EPA/Office of Prevention, Pesticides and Toxic Substances
Telephone: 202-566-1667
Last EDR Contact: 08/19/2014
Next Scheduled EDR Contact: 12/08/2014
Data Release Frequency: Quarterly

FTTS INSP: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)

A listing of FIFRA/TSCA Tracking System (FTTS) inspections and enforcements.

Date of Government Version: 04/09/2009
Date Data Arrived at EDR: 04/16/2009
Date Made Active in Reports: 05/11/2009
Number of Days to Update: 25

Source: EPA
Telephone: 202-566-1667
Last EDR Contact: 08/19/2014
Next Scheduled EDR Contact: 12/08/2014
Data Release Frequency: Quarterly

HIST FTTS: FIFRA/TSCA Tracking System Administrative Case Listing

A complete administrative case listing from the FIFRA/TSCA Tracking System (FTTS) for all ten EPA regions. The information was obtained from the National Compliance Database (NCDB). NCDB supports the implementation of FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) and TSCA (Toxic Substances Control Act). Some EPA regions are now closing out records. Because of that, and the fact that some EPA regions are not providing EPA Headquarters with updated records, it was decided to create a HIST FTTS database. It included records that may not be included in the newer FTTS database updates. This database is no longer updated.

Date of Government Version: 10/19/2006
Date Data Arrived at EDR: 03/01/2007
Date Made Active in Reports: 04/10/2007
Number of Days to Update: 40

Source: Environmental Protection Agency
Telephone: 202-564-2501
Last EDR Contact: 12/17/2007
Next Scheduled EDR Contact: 03/17/2008
Data Release Frequency: No Update Planned

HIST FTTS INSP: FIFRA/TSCA Tracking System Inspection & Enforcement Case Listing

A complete inspection and enforcement case listing from the FIFRA/TSCA Tracking System (FTTS) for all ten EPA regions. The information was obtained from the National Compliance Database (NCDB). NCDB supports the implementation of FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) and TSCA (Toxic Substances Control Act). Some EPA regions are now closing out records. Because of that, and the fact that some EPA regions are not providing EPA Headquarters with updated records, it was decided to create a HIST FTTS database. It included records that may not be included in the newer FTTS database updates. This database is no longer updated.

Date of Government Version: 10/19/2006
Date Data Arrived at EDR: 03/01/2007
Date Made Active in Reports: 04/10/2007
Number of Days to Update: 40

Source: Environmental Protection Agency
Telephone: 202-564-2501
Last EDR Contact: 12/17/2008
Next Scheduled EDR Contact: 03/17/2008
Data Release Frequency: No Update Planned

SSTS: Section 7 Tracking Systems

Section 7 of the Federal Insecticide, Fungicide and Rodenticide Act, as amended (92 Stat. 829) requires all registered pesticide-producing establishments to submit a report to the Environmental Protection Agency by March 1st each year. Each establishment must report the types and amounts of pesticides, active ingredients and devices being produced, and those having been produced and sold or distributed in the past year.

Date of Government Version: 12/31/2009
Date Data Arrived at EDR: 12/10/2010
Date Made Active in Reports: 02/25/2011
Number of Days to Update: 77

Source: EPA
Telephone: 202-564-4203
Last EDR Contact: 07/22/2014
Next Scheduled EDR Contact: 11/10/2014
Data Release Frequency: Annually

ICIS: Integrated Compliance Information System

The Integrated Compliance Information System (ICIS) supports the information needs of the national enforcement and compliance program as well as the unique needs of the National Pollutant Discharge Elimination System (NPDES) program.

Date of Government Version: 05/06/2014
Date Data Arrived at EDR: 05/16/2014
Date Made Active in Reports: 06/17/2014
Number of Days to Update: 32

Source: Environmental Protection Agency
Telephone: 202-564-5088
Last EDR Contact: 10/09/2014
Next Scheduled EDR Contact: 10/27/2014
Data Release Frequency: Quarterly

PADS: PCB Activity Database System

PCB Activity Database. PADS Identifies generators, transporters, commercial storers and/or brokers and disposers of PCB's who are required to notify the EPA of such activities.

Date of Government Version: 06/01/2013
Date Data Arrived at EDR: 07/17/2013
Date Made Active in Reports: 11/01/2013
Number of Days to Update: 107

Source: EPA
Telephone: 202-566-0500
Last EDR Contact: 07/18/2014
Next Scheduled EDR Contact: 10/27/2014
Data Release Frequency: Annually

MLTS: Material Licensing Tracking System

MLTS is maintained by the Nuclear Regulatory Commission and contains a list of approximately 8,100 sites which possess or use radioactive materials and which are subject to NRC licensing requirements. To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 07/22/2013
Date Data Arrived at EDR: 08/02/2013
Date Made Active in Reports: 11/01/2013
Number of Days to Update: 91

Source: Nuclear Regulatory Commission
Telephone: 301-415-7169
Last EDR Contact: 06/05/2014
Next Scheduled EDR Contact: 09/22/2014
Data Release Frequency: Quarterly

RADINFO: Radiation Information Database

The Radiation Information Database (RADINFO) contains information about facilities that are regulated by U.S. Environmental Protection Agency (EPA) regulations for radiation and radioactivity.

Date of Government Version: 07/07/2014
Date Data Arrived at EDR: 07/10/2014
Date Made Active in Reports: 07/28/2014
Number of Days to Update: 18

Source: Environmental Protection Agency
Telephone: 202-343-9775
Last EDR Contact: 07/10/2014
Next Scheduled EDR Contact: 10/20/2014
Data Release Frequency: Quarterly

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

FINDS: Facility Index System/Facility Registry System

Facility Index System. FINDS contains both facility information and 'pointers' to other sources that contain more detail. EDR includes the following FINDS databases in this report: PCS (Permit Compliance System), AIRS (Aerometric Information Retrieval System), DOCKET (Enforcement Docket used to manage and track information on civil judicial enforcement cases for all environmental statutes), FURS (Federal Underground Injection Control), C-DOCKET (Criminal Docket System used to track criminal enforcement actions for all environmental statutes), FFIS (Federal Facilities Information System), STATE (State Environmental Laws and Statutes), and PADS (PCB Activity Data System).

Date of Government Version: 11/18/2013
Date Data Arrived at EDR: 02/27/2014
Date Made Active in Reports: 03/12/2014
Number of Days to Update: 13

Source: EPA
Telephone: (415) 947-8000
Last EDR Contact: 06/13/2014
Next Scheduled EDR Contact: 09/22/2014
Data Release Frequency: Quarterly

RAATS: RCRA Administrative Action Tracking System

RCRA Administration Action Tracking System. RAATS contains records based on enforcement actions issued under RCRA pertaining to major violators and includes administrative and civil actions brought by the EPA. For administration actions after September 30, 1995, data entry in the RAATS database was discontinued. EPA will retain a copy of the database for historical records. It was necessary to terminate RAATS because a decrease in agency resources made it impossible to continue to update the information contained in the database.

Date of Government Version: 04/17/1995
Date Data Arrived at EDR: 07/03/1995
Date Made Active in Reports: 08/07/1995
Number of Days to Update: 35

Source: EPA
Telephone: 202-564-4104
Last EDR Contact: 06/02/2008
Next Scheduled EDR Contact: 09/01/2008
Data Release Frequency: No Update Planned

RMP: Risk Management Plans

When Congress passed the Clean Air Act Amendments of 1990, it required EPA to publish regulations and guidance for chemical accident prevention at facilities using extremely hazardous substances. The Risk Management Program Rule (RMP Rule) was written to implement Section 112(r) of these amendments. The rule, which built upon existing industry codes and standards, requires companies of all sizes that use certain flammable and toxic substances to develop a Risk Management Program, which includes a(n): Hazard assessment that details the potential effects of an accidental release, an accident history of the last five years, and an evaluation of worst-case and alternative accidental releases; Prevention program that includes safety precautions and maintenance, monitoring, and employee training measures; and Emergency response program that spells out emergency health care, employee training measures and procedures for informing the public and response agencies (e.g the fire department) should an accident occur.

Date of Government Version: 04/01/2014
Date Data Arrived at EDR: 05/23/2014
Date Made Active in Reports: 07/28/2014
Number of Days to Update: 66

Source: Environmental Protection Agency
Telephone: 202-564-8600
Last EDR Contact: 07/22/2014
Next Scheduled EDR Contact: 11/10/2014
Data Release Frequency: Varies

BRS: Biennial Reporting System

The Biennial Reporting System is a national system administered by the EPA that collects data on the generation and management of hazardous waste. BRS captures detailed data from two groups: Large Quantity Generators (LQG) and Treatment, Storage, and Disposal Facilities.

Date of Government Version: 12/31/2011
Date Data Arrived at EDR: 02/26/2013
Date Made Active in Reports: 04/19/2013
Number of Days to Update: 52

Source: EPA/NTIS
Telephone: 800-424-9346
Last EDR Contact: 05/30/2014
Next Scheduled EDR Contact: 09/08/2014
Data Release Frequency: Biennially

UIC: Underground Injection Wells Listing

A listing of underground injection well locations.

Date of Government Version: 02/07/2013
Date Data Arrived at EDR: 02/12/2013
Date Made Active in Reports: 04/09/2013
Number of Days to Update: 56

Source: Department of Health
Telephone: 808-586-4258
Last EDR Contact: 06/02/2014
Next Scheduled EDR Contact: 09/15/2014
Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

DRYCLEANERS: Permitted Drycleaner Facility Listing
A listing of permitted drycleaner facilities in the state.

Date of Government Version: 04/01/2014
Date Data Arrived at EDR: 05/09/2014
Date Made Active in Reports: 06/03/2014
Number of Days to Update: 25

Source: Department of Health
Telephone: 808-586-4200
Last EDR Contact: 07/02/2014
Next Scheduled EDR Contact: 10/20/2014
Data Release Frequency: Varies

AIRS: List of Permitted Facilities
A listing of permitted facilities in the state.

Date of Government Version: 07/08/2014
Date Data Arrived at EDR: 07/10/2014
Date Made Active in Reports: 08/08/2014
Number of Days to Update: 29

Source: Department of Health
Telephone: 808-586-4200
Last EDR Contact: 07/02/2014
Next Scheduled EDR Contact: 10/20/2014
Data Release Frequency: Varies

INDIAN RESERV: Indian Reservations
This map layer portrays Indian administered lands of the United States that have any area equal to or greater than 640 acres.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 12/08/2006
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 34

Source: USGS
Telephone: 202-208-3710
Last EDR Contact: 07/18/2014
Next Scheduled EDR Contact: 10/27/2014
Data Release Frequency: Semi-Annually

SCRD DRYCLEANERS: State Coalition for Remediation of Drycleaners Listing
The State Coalition for Remediation of Drycleaners was established in 1998, with support from the U.S. EPA Office of Superfund Remediation and Technology Innovation. It is comprised of representatives of states with established drycleaner remediation programs. Currently the member states are Alabama, Connecticut, Florida, Illinois, Kansas, Minnesota, Missouri, North Carolina, Oregon, South Carolina, Tennessee, Texas, and Wisconsin.

Date of Government Version: 03/07/2011
Date Data Arrived at EDR: 03/09/2011
Date Made Active in Reports: 05/02/2011
Number of Days to Update: 54

Source: Environmental Protection Agency
Telephone: 615-532-8599
Last EDR Contact: 07/25/2014
Next Scheduled EDR Contact: 11/03/2014
Data Release Frequency: Varies

Financial Assurance: Financial Assurance Information Listing
A listing of financial assurance information for underground storage tank facilities. Financial assurance is intended to ensure that resources are available to pay for the cost of closure, post-closure care, and corrective measures if the owner or operator of a regulated facility is unable or unwilling to pay.

Date of Government Version: 06/30/2014
Date Data Arrived at EDR: 07/01/2014
Date Made Active in Reports: 07/02/2014
Number of Days to Update: 1

Source: Department of Health
Telephone: 808-586-4226
Last EDR Contact: 06/13/2014
Next Scheduled EDR Contact: 09/29/2014
Data Release Frequency: Varies

US FIN ASSUR: Financial Assurance Information
All owners and operators of facilities that treat, store, or dispose of hazardous waste are required to provide proof that they will have sufficient funds to pay for the clean up, closure, and post-closure care of their facilities.

Date of Government Version: 06/19/2014
Date Data Arrived at EDR: 06/20/2014
Date Made Active in Reports: 07/28/2014
Number of Days to Update: 38

Source: Environmental Protection Agency
Telephone: 202-566-1917
Last EDR Contact: 08/14/2014
Next Scheduled EDR Contact: 12/01/2014
Data Release Frequency: Quarterly

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

COAL ASH EPA: Coal Combustion Residues Surface Impoundments List
A listing of coal combustion residues surface impoundments with high hazard potential ratings.

Date of Government Version: 03/14/2014
Date Data Arrived at EDR: 06/11/2014
Date Made Active in Reports: 07/28/2014
Number of Days to Update: 47

Source: Environmental Protection Agency
Telephone: N/A
Last EDR Contact: 06/11/2014
Next Scheduled EDR Contact: 09/22/2014
Data Release Frequency: Varies

PCB TRANSFORMER: PCB Transformer Registration Database
The database of PCB transformer registrations that includes all PCB registration submittals.

Date of Government Version: 02/01/2011
Date Data Arrived at EDR: 10/19/2011
Date Made Active in Reports: 01/10/2012
Number of Days to Update: 83

Source: Environmental Protection Agency
Telephone: 202-566-0517
Last EDR Contact: 08/01/2014
Next Scheduled EDR Contact: 11/10/2014
Data Release Frequency: Varies

EPA WATCH LIST: EPA WATCH LIST
EPA maintains a "Watch List" to facilitate dialogue between EPA, state and local environmental agencies on enforcement matters relating to facilities with alleged violations identified as either significant or high priority. Being on the Watch List does not mean that the facility has actually violated the law only that an investigation by EPA or a state or local environmental agency has led those organizations to allege that an unproven violation has in fact occurred. Being on the Watch List does not represent a higher level of concern regarding the alleged violations that were detected, but instead indicates cases requiring additional dialogue between EPA, state and local agencies - primarily because of the length of time the alleged violation has gone unaddressed or unresolved.

Date of Government Version: 08/30/2013
Date Data Arrived at EDR: 03/21/2014
Date Made Active in Reports: 06/17/2014
Number of Days to Update: 88

Source: Environmental Protection Agency
Telephone: 617-520-3000
Last EDR Contact: 08/15/2014
Next Scheduled EDR Contact: 11/24/2014
Data Release Frequency: Quarterly

LEAD SMELTER 1: Lead Smelter Sites
A listing of former lead smelter site locations.

Date of Government Version: 06/04/2014
Date Data Arrived at EDR: 06/12/2014
Date Made Active in Reports: 07/28/2014
Number of Days to Update: 46

Source: Environmental Protection Agency
Telephone: 703-603-8787
Last EDR Contact: 07/01/2014
Next Scheduled EDR Contact: 10/20/2014
Data Release Frequency: Varies

LEAD SMELTER 2: Lead Smelter Sites
A list of several hundred sites in the U.S. where secondary lead smelting was done from 1931and 1964. These sites may pose a threat to public health through ingestion or inhalation of contaminated soil or dust

Date of Government Version: 04/05/2001
Date Data Arrived at EDR: 10/27/2010
Date Made Active in Reports: 12/02/2010
Number of Days to Update: 36

Source: American Journal of Public Health
Telephone: 703-305-6451
Last EDR Contact: 12/02/2009
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

PRP: Potentially Responsible Parties
A listing of verified Potentially Responsible Parties

Date of Government Version: 04/15/2013
Date Data Arrived at EDR: 07/03/2013
Date Made Active in Reports: 09/13/2013
Number of Days to Update: 72

Source: EPA
Telephone: 202-564-6023
Last EDR Contact: 07/01/2014
Next Scheduled EDR Contact: 10/13/2014
Data Release Frequency: Quarterly

2020 COR ACTION: 2020 Corrective Action Program List

The EPA has set ambitious goals for the RCRA Corrective Action program by creating the 2020 Corrective Action Universe. This RCRA cleanup baseline includes facilities expected to need corrective action. The 2020 universe contains a wide variety of sites. Some properties are heavily contaminated while others were contaminated but have since been cleaned up. Still others have not been fully investigated yet, and may require little or no remediation. Inclusion in the 2020 Universe does not necessarily imply failure on the part of a facility to meet its RCRA obligations.

Date of Government Version: 11/11/2011
Date Data Arrived at EDR: 05/18/2012
Date Made Active in Reports: 05/25/2012
Number of Days to Update: 7

Source: Environmental Protection Agency
Telephone: 703-308-4044
Last EDR Contact: 08/15/2014
Next Scheduled EDR Contact: 11/24/2014
Data Release Frequency: Varies

FEDLAND: Federal and Indian Lands

Federally and Indian administrated lands of the United States. Lands included are administrated by: Army Corps of Engineers, Bureau of Reclamation, National Wild and Scenic River, National Wildlife Refuge, Public Domain Land, Wilderness, Wilderness Study Area, Wildlife Management Area, Bureau of Indian Affairs, Bureau of Land Management, Department of Justice, Forest Service, Fish and Wildlife Service, National Park Service.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 02/06/2006
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 339

Source: U.S. Geological Survey
Telephone: 888-275-8747
Last EDR Contact: 07/18/2014
Next Scheduled EDR Contact: 10/27/2014
Data Release Frequency: N/A

COAL ASH DOE: Sleam-Electric Plan Operation Data

A listing of power plants that store ash in surface ponds.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 08/07/2009
Date Made Active in Reports: 10/22/2009
Number of Days to Update: 76

Source: Department of Energy
Telephone: 202-586-8719
Last EDR Contact: 07/18/2014
Next Scheduled EDR Contact: 10/27/2014
Data Release Frequency: Varies

US AIRS (AFS): Aerometric Information Retrieval System Facility Subsystem (AFS)

The database is a sub-system of Aerometric Information Retrieval System (AIRS). AFS contains compliance data on air pollution point sources regulated by the U.S. EPA and/or state and local air regulatory agencies. This information comes from source reports by various stationary sources of air pollution, such as electric power plants, steel mills, factories, and universities, and provides information about the air pollutants they produce. Action, air program, air program pollutant, and general level plant data. It is used to track emissions and compliance data from industrial plants.

Date of Government Version: 10/23/2013
Date Data Arrived at EDR: 11/06/2013
Date Made Active in Reports: 12/06/2013
Number of Days to Update: 30

Source: EPA
Telephone: 202-564-2496
Last EDR Contact: 06/25/2014
Next Scheduled EDR Contact: 10/13/2014
Data Release Frequency: Annually

US AIRS MINOR: Air Facility System Data

A listing of minor source facilities.

Date of Government Version: 10/23/2013
Date Data Arrived at EDR: 11/06/2013
Date Made Active in Reports: 12/06/2013
Number of Days to Update: 30

Source: EPA
Telephone: 202-564-2496
Last EDR Contact: 06/25/2014
Next Scheduled EDR Contact: 10/13/2014
Data Release Frequency: Annually

EDR HIGH RISK HISTORICAL RECORDS

EDR Exclusive Records

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

EDR MGP: EDR Proprietary Manufactured Gas Plants

The EDR Proprietary Manufactured Gas Plant Database includes records of coal gas plants (manufactured gas plants) compiled by EDR's researchers. Manufactured gas sites were used in the United States from the 1800's to 1950's to produce a gas that could be distributed and used as fuel. These plants used whale oil, rosin, coal, or a mixture of coal, oil, and water that also produced a significant amount of waste. Many of the byproducts of the gas production, such as coal tar (oily waste containing volatile and non-volatile chemicals), sludges, oils and other compounds are potentially hazardous to human health and the environment. The byproduct from this process was frequently disposed of directly at the plant site and can remain or spread slowly, serving as a continuous source of soil and groundwater contamination.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

EDR US Hist Auto Stat: EDR Exclusive Historic Gas Stations

EDR has searched selected national collections of business directories and has collected listings of potential gas station/filling station/service station sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include gas station/filling station/service station establishments. The categories reviewed included, but were not limited to gas, gas station, gasoline station, filling station, auto, automobile repair, auto service station, service station, etc. This database falls within a category of information EDR classifies as "High Risk Historical Records", or HRHR. EDR's HRHR effort presents unique and sometimes proprietary data about past sites and operations that typically create environmental concerns, but may not show up in current government records searches.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

EDR US Hist Cleaners: EDR Exclusive Historic Dry Cleaners

EDR has searched selected national collections of business directories and has collected listings of potential dry cleaner sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include dry cleaning establishments. The categories reviewed included, but were not limited to dry cleaners, cleaners, laundry, laundromat, cleaning/laundry, wash & dry etc. This database falls within a category of information EDR classifies as "High Risk Historical Records", or HRHR. EDR's HRHR effort presents unique and sometimes proprietary data about past sites and operations that typically create environmental concerns, but may not show up in current government records searches.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

EDR RECOVERED GOVERNMENT ARCHIVES

Exclusive Recovered Govt. Archives

RGA LUST: Recovered Government Archive Leaking Underground Storage Tank

The EDR Recovered Government Archive Leaking Underground Storage Tank database provides a list of LUST incidents derived from historical databases and includes many records that no longer appear in current government lists. Compiled from Records formerly available from the Department of Health in Hawaii.

Date of Government Version: N/A
Date Data Arrived at EDR: 07/01/2013
Date Made Active in Reports: 01/03/2014
Number of Days to Update: 186

Source: Department of Health
Telephone: N/A
Last EDR Contact: 06/01/2012
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

RGA LF: Recovered Government Archive Solid Waste Facilities List
The EDR Recovered Government Archive Landfill database provides a list of landfills derived from historical databases and includes many records that no longer appear in current government lists. Compiled from Records formerly available from the Department of Health in Hawaii.

Date of Government Version: N/A
Date Data Arrived at EDR: 07/01/2013
Date Made Active in Reports: 01/17/2014
Number of Days to Update: 200

Source: Department of Health
Telephone: N/A
Last EDR Contact: 06/01/2012
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

RGA HWS: Recovered Government Archive State Hazardous Waste Facilities List
The EDR Recovered Government Archive State Hazardous Waste database provides a list of SHWS incidents derived from historical databases and includes many records that no longer appear in current government lists. Compiled from Records formerly available from the Department of Health in Hawaii.

Date of Government Version: N/A
Date Data Arrived at EDR: 07/01/2013
Date Made Active in Reports: 01/08/2014
Number of Days to Update: 191

Source: Department of Health
Telephone: N/A
Last EDR Contact: 06/01/2012
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

OTHER DATABASE(S)

Depending on the geographic area covered by this report, the data provided in these specialty databases may or may not be complete. For example, the existence of wetlands information data in a specific report does not mean that all wetlands in the area covered by the report are included. Moreover, the absence of any reported wetlands information does not necessarily mean that wetlands do not exist in the area covered by the report.

Oil/Gas Pipelines: This data was obtained by EDR from the USGS in 1994. It is referred to by USGS as GeoData Digital Line Graphs from 1:100,000-Scale Maps. It was extracted from the transportation category including some oil, but primarily gas pipelines.

Sensitive Receptors: There are individuals deemed sensitive receptors due to their fragile immune systems and special sensitivity to environmental discharges. These sensitive receptors typically include the elderly, the sick, and children. While the location of all sensitive receptors cannot be determined, EDR indicates those buildings and facilities - schools, daycares, hospitals, medical centers, and nursing homes - where individuals who are sensitive receptors are likely to be located.

AHA Hospitals:
Source: American Hospital Association, Inc.
Telephone: 312-280-5991
The database includes a listing of hospitals based on the American Hospital Association's annual survey of hospitals.

Medical Centers: Provider of Services Listing
Source: Centers for Medicare & Medicaid Services
Telephone: 410-786-3000
A listing of hospitals with Medicare provider number, produced by Centers of Medicare & Medicaid Services, a federal agency within the U.S. Department of Health and Human Services.

Nursing Homes
Source: National Institutes of Health
Telephone: 301-594-6248
Information on Medicare and Medicaid certified nursing homes in the United States.

Public Schools
Source: National Center for Education Statistics
Telephone: 202-502-7300
The National Center for Education Statistics' primary database on elementary and secondary public education in the United States. It is a comprehensive, annual, national statistical database of all public elementary and secondary schools and school districts, which contains data that are comparable across all states.

Private Schools
Source: National Center for Education Statistics
Telephone: 202-502-7300
The National Center for Education Statistics' primary database on private school locations in the United States.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Flood Zone Data: This data, available in select counties across the country, was obtained by EDR in 2003 & 2011 from the Federal Emergency Management Agency (FEMA). Data depicts 100-year and 500-year flood zones as defined by FEMA.

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002, 2005 and 2010 from the U.S. Fish and Wildlife Service.

Scanned Digital USGS 7.5' Topographic Map (DRG)
Source: United States Geologic Survey
A digital raster graphic (DRG) is a scanned image of a U.S. Geological Survey topographic map. The map images are made by scanning published paper maps on high-resolution scanners. The raster image is georeferenced and fit to the Universal Transverse Mercator (UTM) projection.

STREET AND ADDRESS INFORMATION

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GEOCHECK®- PHYSICAL SETTING SOURCE ADDENDUM

TARGET PROPERTY ADDRESS

SAM KOO PACIFIC, LLC
1631 AND 1637 KAPIOLANI BOULEVARD
HONOLULU, HI 96814

TARGET PROPERTY COORDINATES

Latitude (North):	21.2911 - 21° 17' 27.96"
Longitude (West):	157.8392 - 157° 50' 21.12"
Universal Tranverse Mercator:	Zone 4
UTM X (Meters):	620413.1
UTM Y (Meters):	2354669.2
Elevation:	3 ft. above sea level

USGS TOPOGRAPHIC MAP

Target Property Map:	21157-C7 HONOLULU, HI
Most Recent Revision:	Not reported

EDR's GeoCheck Physical Setting Source Addendum is provided to assist the environmental professional in forming an opinion about the impact of potential contaminant migration.

Assessment of the impact of contaminant migration generally has two principal investigative components:

1. Groundwater flow direction, and
2. Groundwater flow velocity.

Groundwater flow direction may be impacted by surface topography, hydrology, hydrogeology, characteristics of the soil, and nearby wells. Groundwater flow velocity is generally impacted by the nature of the geologic strata.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

GROUNDWATER FLOW DIRECTION INFORMATION

Groundwater flow direction for a particular site is best determined by a qualified environmental professional using site-specific well data. If such data is not reasonably ascertainable, it may be necessary to rely on other sources of information, such as surface topographic information, hydrologic information, hydrogeologic data collected on nearby properties, and regional groundwater flow information (from deep aquifers).

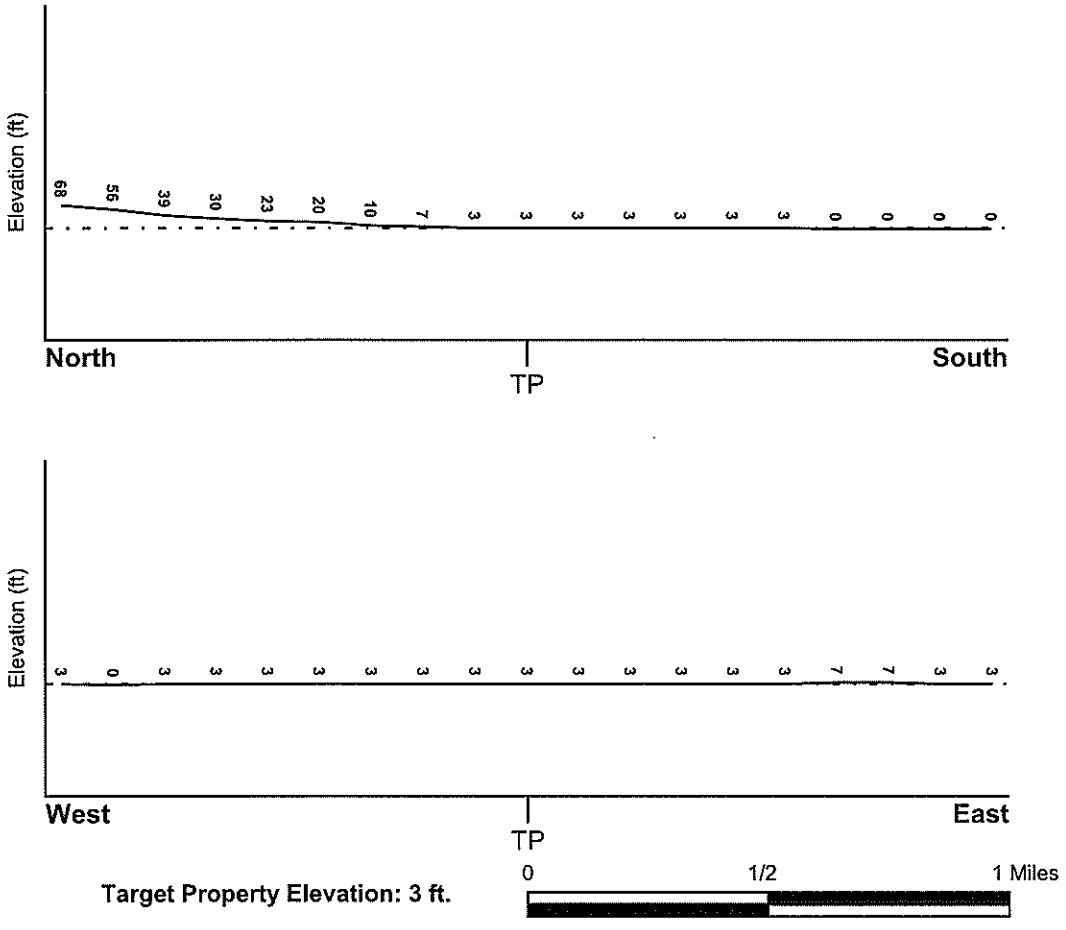
TOPOGRAPHIC INFORMATION

Surface topography may be indicative of the direction of surficial groundwater flow. This information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

TARGET PROPERTY TOPOGRAPHY

General Topographic Gradient: General South

SURROUNDING TOPOGRAPHY: ELEVATION PROFILES



Source: Topography has been determined from the USGS 7.5' Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

HYDROLOGIC INFORMATION

Surface water can act as a hydrologic barrier to groundwater flow. Such hydrologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

Refer to the Physical Setting Source Map following this summary for hydrologic information (major waterways and bodies of water).

FEMA FLOOD ZONE

Target Property County	FEMA Flood Electronic Data
HONOLULU, HI	YES - refer to the Overview Map and Detail Map

Flood Plain Panel at Target Property: 15003C - FEMA DFIRM Flood data

Additional Panels in search area: Not Reported

NATIONAL WETLAND INVENTORY

NWI Quad at Target Property	NWI Electronic Data Coverage
HONOLULU	YES - refer to the Overview Map and Detail Map

HYDROGEOLOGIC INFORMATION

Hydrogeologic information obtained by installation of wells on a specific site can often be an indicator of groundwater flow direction in the immediate area. Such hydrogeologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

AQUIFLOW®

Search Radius: 1.000 Mile.

EDR has developed the AQUIFLOW Information System to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted by environmental professionals to regulatory authorities at select sites and has extracted the date of the report, groundwater flow direction as determined hydrogeologically, and the depth to water table.

MAP ID	LOCATION FROM TP	GENERAL DIRECTION GROUNDWATER FLOW
Not Reported		

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

GROUNDWATER FLOW VELOCITY INFORMATION

Groundwater flow velocity information for a particular site is best determined by a qualified environmental professional using site specific geologic and soil strata data. If such data are not reasonably ascertainable, it may be necessary to rely on other sources of information, including geologic age identification, rock stratigraphic unit and soil characteristics data collected on nearby properties and regional soil information. In general, contaminant plumes move more quickly through sandy-gravelly types of soils than silty-clayey types of soils.

GEOLOGIC INFORMATION IN GENERAL AREA OF TARGET PROPERTY

Geologic information can be used by the environmental professional in forming an opinion about the relative speed at which contaminant migration may be occurring.

ROCK STRATIGRAPHIC UNIT

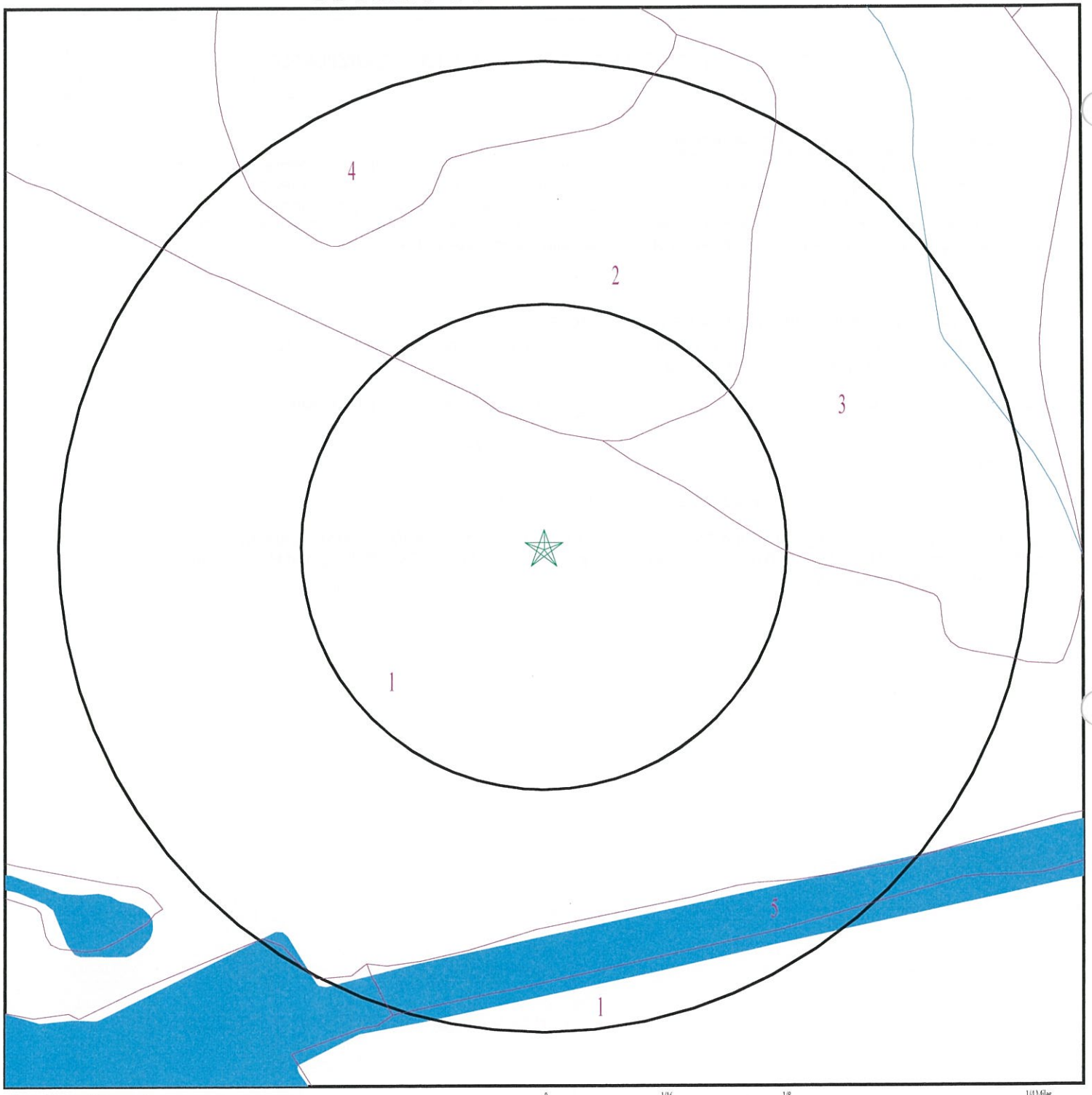
Era:	-
System:	-
Series:	-
Code:	N/A *(decoded above as Era, System & Series)*

GEOLOGIC AGE IDENTIFICATION

Category: -

Geologic Age and Rock Stratigraphic Unit Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - a digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

SSURGO SOIL MAP - 4046277.2s



★ Target Property
SSURGO Soil
Water

0 1/16 1/8 1/4 Miles

N

SITE NAME:	Sam Koo Pacific, LLC	CLIENT:	Central Planet Repair
ADDRESS:	1631 and 1637 Kapiolani Boulevard Honolulu HI 96814	CONTACT:	Ned Murphy
		INQUIRY #:	4046277.2s
LAT/LONG:	21.2911 / 157.8392	DATE:	August 25, 2014 1:48 pm

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GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

DOMINANT SOIL COMPOSITION IN GENERAL AREA OF TARGET PROPERTY

The U.S. Department of Agriculture's (USDA) Soil Conservation Service (SCS) leads the National Cooperative Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. The following information is based on Soil Conservation Service SSURGO data.

Soil Map ID: 1

Soil Component Name: Fill land, mixed

Soil Surface Texture: gravelly sandy loam

Hydrologic Group: Class C - Slow infiltration rates. Soils with layers impeding downward movement of water, or soils with moderately fine or fine textures.

Soil Drainage Class: Well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: High

Depth to Bedrock Min: > 152 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	5 inches	gravelly sandy loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 14 Min: 1.41	Max: 7.3 Min: 6.1
2	5 inches	59 inches	fine sandy loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 14 Min: 1.41	Max: 7.3 Min: 6.1
3	59 inches	70 inches	bedrock	Not reported	Not reported	Max: 0.42 Min: 0.02	Max: Min:

Soil Map ID: 2

Soil Component Name: Ewa

Soil Surface Texture: silty clay loam

Hydrologic Group: Class B - Moderate infiltration rates. Deep and moderately deep, moderately well and well drained soils with moderately coarse textures.

Soil Drainage Class: Well drained

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Moderate

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	7 inches	silty clay loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 14 Min: 4.23	Max: 7.3 Min: 6.6
2	7 inches	29 inches	silty clay loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 14 Min: 4.23	Max: 7.3 Min: 6.6
3	29 inches	38 inches	bedrock	Not reported	Not reported	Max: 42 Min: 1	Max: Min:

Soil Map ID: 3

Soil Component Name: Kawaihapai

Soil Surface Texture: clay loam

Hydrologic Group: Class B - Moderate infiltration rates. Deep and moderately deep, moderately well and well drained soils with moderately coarse textures.

Soil Drainage Class: Well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Moderate

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	22 inches	clay loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay	Max: 42.34 Min: 4.23	Max: 7.3 Min: 6.6
2	22 inches	31 inches	sandy loam	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 141.14 Min: 14.11	Max: 7.3 Min: 6.6
3	31 inches	53 inches	sandy loam	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 141.14 Min: 14.11	Max: 7.3 Min: 6.6

Soil Map ID: 4

Soil Component Name: Pearl Harbor

Soil Surface Texture: clay

Hydrologic Group: Class D - Very slow infiltration rates. Soils are clayey, have a high water table, or are shallow to an impervious layer.

Soil Drainage Class: Poorly drained

Hydric Status: Partially hydric

Corrosion Potential - Uncoated Steel: High

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 30 inches

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	11 inches	clay	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit 50% or more), Fat Clay.	Max: 4.23 Min: 0.42	Max: 7.3 Min: 6.6
2	11 inches	31 inches	clay	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit 50% or more), Fat Clay.	Max: 1.41 Min: 0.01	Max: 8.4 Min: 6.6
3	31 inches	48 inches	muck	A-8	Highly organic soils, Peat.	Max: 0.42 Min: 0.01	Max: 7.8 Min: 7.4

Soil Map ID: 5

Soil Component Name: Water > 40 acres

Soil Surface Texture: clay

Hydrologic Group: Class D - Very slow infiltration rates. Soils are clayey, have a high water table, or are shallow to an impervious layer.

Soil Drainage Class:
Hydric Status: Unknown

Corrosion Potential - Uncoated Steel: Not Reported

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

No Layer Information available.

LOCAL / REGIONAL WATER AGENCY RECORDS

EDR Local/Regional Water Agency records provide water well information to assist the environmental professional in assessing sources that may impact ground water flow direction, and in forming an opinion about the impact of contaminant migration on nearby drinking water wells.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

WELL SEARCH DISTANCE INFORMATION

DATABASE	SEARCH DISTANCE (miles)
Federal USGS	1.000
Federal FRDS PWS	Nearest PWS within 1 mile
State Database	1.000

FEDERAL USGS WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
B5	USGS40000269556	1/4 - 1/2 Mile NNE
C8	USGS40000269561	1/4 - 1/2 Mile NNW
D9	USGS40000269567	1/4 - 1/2 Mile NNE
D10	USGS40000269568	1/4 - 1/2 Mile North
D11	USGS40000269571	1/4 - 1/2 Mile North
E14	USGS40000269572	1/4 - 1/2 Mile North
F16	USGS40000269569	1/4 - 1/2 Mile NNW
G19	USGS40000269559	1/4 - 1/2 Mile NE
H23	USGS40000269497	1/2 - 1 Mile SSE
H24	USGS40000269498	1/2 - 1 Mile SSE
G25	USGS40000269562	1/2 - 1 Mile NE
I28	USGS40000269580	1/2 - 1 Mile NNE
J29	USGS40000269578	1/2 - 1 Mile NNE
L35	USGS40000269555	1/2 - 1 Mile ENE
M37	USGS40000269584	1/2 - 1 Mile NNW
N41	USGS40000269592	1/2 - 1 Mile North
O43	USGS40000269570	1/2 - 1 Mile NE
P44	USGS40000269494	1/2 - 1 Mile SSE
N50	USGS40000269603	1/2 - 1 Mile North
51	USGS40000269490	1/2 - 1 Mile South
Q53	USGS40000269575	1/2 - 1 Mile NE
R55	USGS40000269591	1/2 - 1 Mile NNE
Q57	USGS40000269583	1/2 - 1 Mile NE
Q59	USGS40000269574	1/2 - 1 Mile NE
T60	USGS40000269585	1/2 - 1 Mile NW
U63	USGS40000269566	1/2 - 1 Mile NE
Q65	USGS40000269573	1/2 - 1 Mile NE
V67	USGS40000269607	1/2 - 1 Mile NNE
W69	USGS40000269614	1/2 - 1 Mile NNE
U71	USGS40000269565	1/2 - 1 Mile ENE
S73	USGS40000269590	1/2 - 1 Mile NE
U76	USGS40000269564	1/2 - 1 Mile ENE
X79	USGS40000269632	1/2 - 1 Mile North
Y81	USGS40000269589	1/2 - 1 Mile NE
Y83	USGS40000269587	1/2 - 1 Mile NE
Z84	USGS40000269615	1/2 - 1 Mile NNW
AA87	USGS40000269642	1/2 - 1 Mile North
AB89	USGS40000269619	1/2 - 1 Mile NW
AC90	USGS40000269611	1/2 - 1 Mile NE
AB93	USGS40000269620	1/2 - 1 Mile NW
AD96	USGS40000269602	1/2 - 1 Mile NE

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

FEDERAL USGS WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
AE98	USGS40000269604	1/2 - 1 Mile NW
AE99	USGS40000269605	1/2 - 1 Mile NW
AD100	USGS40000269593	1/2 - 1 Mile NE
AF103	USGS40000269616	1/2 - 1 Mile NW
AG105	USGS40000269530	1/2 - 1 Mile East
AH107	USGS40000269543	1/2 - 1 Mile East
AH108	USGS40000269544	1/2 - 1 Mile East

FEDERAL FRDS PUBLIC WATER SUPPLY SYSTEM INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
AD95	HI0000324	1/2 - 1 Mile NE

Note: PWS System location is not always the same as well location.

STATE DATABASE WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
A1	HI8000000002088	1/8 - 1/4 Mile SW
A2	HI8000000002089	1/8 - 1/4 Mile SW
A3	HI8000000002090	1/8 - 1/4 Mile WSW
4	HI8000000002091	1/8 - 1/4 Mile WSW
B6	HI8000000002117	1/4 - 1/2 Mile NNE
C7	HI8000000002120	1/4 - 1/2 Mile NNW
D12	HI8000000002130	1/4 - 1/2 Mile NNE
D13	HI8000000002134	1/4 - 1/2 Mile North
E15	HI8000000002136	1/4 - 1/2 Mile North
F17	HI8000000002133	1/4 - 1/2 Mile NNW
D18	HI8000000002137	1/4 - 1/2 Mile NNE
G20	HI8000000002123	1/4 - 1/2 Mile NE
H21	HI8000000002053	1/2 - 1 Mile SSE
H22	HI8000000002054	1/2 - 1 Mile SSE
G26	HI8000000002125	1/2 - 1 Mile NE
27	HI8000000002049	1/2 - 1 Mile South
30	HI8000000002099	1/2 - 1 Mile West
I31	HI8000000002146	1/2 - 1 Mile NNE
K32	HI8000000002045	1/2 - 1 Mile South
K33	HI8000000002046	1/2 - 1 Mile South
J34	HI8000000002145	1/2 - 1 Mile NNE
L36	HI8000000002115	1/2 - 1 Mile ENE
M38	HI8000000002148	1/2 - 1 Mile NNW
K39	HI8000000002042	1/2 - 1 Mile South
K40	HI8000000002043	1/2 - 1 Mile South
H42	HI8000000002047	1/2 - 1 Mile SSE
K45	HI8000000002040	1/2 - 1 Mile South
O46	HI8000000002138	1/2 - 1 Mile NE
K47	HI8000000002035	1/2 - 1 Mile South
K48	HI8000000002036	1/2 - 1 Mile South

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

STATE DATABASE WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
P49	HI8000000002037	1/2 - 1 Mile SSE
N52	HI8000000002170	1/2 - 1 Mile North
Q54	HI8000000002139	1/2 - 1 Mile NE
R56	HI8000000002156	1/2 - 1 Mile NNE
S58	HI8000000002149	1/2 - 1 Mile NE
Q61	HI8000000002140	1/2 - 1 Mile NE
T62	HI8000000002147	1/2 - 1 Mile NW
T64	HI8000000002153	1/2 - 1 Mile NW
U66	HI8000000002131	1/2 - 1 Mile NE
Q68	HI8000000002141	1/2 - 1 Mile NE
V70	HI8000000002181	1/2 - 1 Mile NNE
W72	HI8000000002187	1/2 - 1 Mile NNE
U74	HI8000000002128	1/2 - 1 Mile ENE
S75	HI8000000002157	1/2 - 1 Mile NE
T77	HI8000000002155	1/2 - 1 Mile NW
U78	HI8000000002129	1/2 - 1 Mile ENE
X80	HI8000000002209	1/2 - 1 Mile North
Y82	HI8000000002158	1/2 - 1 Mile NE
Y85	HI8000000002154	1/2 - 1 Mile NE
Z86	HI8000000002188	1/2 - 1 Mile NNW
AA88	HI8000000002222	1/2 - 1 Mile North
AB91	HI8000000002192	1/2 - 1 Mile NW
AC92	HI8000000002183	1/2 - 1 Mile NE
AB94	HI8000000002191	1/2 - 1 Mile NW
AD97	HI8000000002174	1/2 - 1 Mile NE
AE101	HI8000000002169	1/2 - 1 Mile NW
AD102	HI8000000002165	1/2 - 1 Mile NE
AF104	HI8000000002186	1/2 - 1 Mile NW
AG106	HI8000000002092	1/2 - 1 Mile East
AH109	HI8000000002105	1/2 - 1 Mile East
AH110	HI8000000002106	1/2 - 1 Mile East

PHYSICAL SETTING SOURCE MAP - 4046277.2s

- County Boundary
- Major Roads
- Contour Lines
- Airports
- Earthquake epicenter, Richter 5 or greater
- Water Wells
- Public Water Supply Wells
- Cluster of Multiple Icons

- Groundwater Flow Direction
- (GI) Indeterminate Groundwater Flow at Location
- (GV) Groundwater Flow Varies at Location

SITE NAME:	Sam Koo Pacific, LLC	CLIENT:	Central Planet Repair
ADDRESS:	1631 and 1637 Kapiolani Boulevard Honolulu HI 96814	CONTACT:	Ned Murphy
		INQUIRY #:	4046277.2s
LAT/LONG:	21.2911 / 157.8392	DATE:	August 25, 2014 1:48 pm

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GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance
Elevation

Database | EDR ID Number

A1
SW
1/8 - 1/4 Mile
Higher

HI WELLS **HI8000000002088**

Objectid:	607	Wid:	3-1750-012
Island:	Oahu	Well name:	Yacht Harbor 1
Old name:	Not Reported		
Yr drilled:	1972		
Driller:	Not Reported		
Quad map:	13		
Long83dd:	-157.840833		
Lat83dd:	21.289167		
Gps:	0	Utm:	-1
Owner user:	Yacht Harbor Towers	Old number:	Not Reported
Well type:	Not Reported	Casing dia:	Not Reported
Ground el:	Not Reported		
Well depth:	0		
Solid case:	Not Reported	Perf case:	Not Reported
Use:	IND - Geothermal, Thermoelectric Cooling	Casing:	Power De Not Reported
Init head:	Not Reported	Init head2:	Not Reported
Init head3:	Not Reported		
Init cl:	18750		
Test date:	Not Reported	Test gpm:	Not Reported
Test ddown:	Not Reported	Test chlor:	Not Reported
Test temp:	Not Reported	Test unit:	Not Reported
Pump gpm:	1800		
Draft mgy:	Not Reported	Head feet:	Not Reported
Max chlor:	Not Reported	Min chlor:	Not Reported
Geology:	Not Reported		
Pump yr:	0		
Draft yr:	Not Reported	Bot hole:	Not Reported
Bot solid:	Not Reported	Bot perf:	Not Reported
Spec capac:	Not Reported		
Pump mgd:	2.592		
Draft mgd:	Not Reported	Pump elev:	Not Reported
Pump depth:	Not Reported	Tmk:	(1) 2-3-036:039
Aqui code:	30102		
Latest hd:	Not Reported	Wcr:	30-DEC-99
Pir:	Not Reported	Surveyor:	Not Reported
T:	Not Reported	Site id:	HI8000000002088

A2
SW
1/8 - 1/4 Mile
Higher

HI WELLS **HI8000000002089**

Objectid:	608	Wid:	3-1750-013
Island:	Oahu	Well name:	Yacht Harbor 2
Old name:	Not Reported		
Yr drilled:	1972		
Driller:	Not Reported		
Quad map:	13		
Long83dd:	-157.840833		
Lat83dd:	21.289167		
Gps:	0	Utm:	-1
Owner user:	Yacht Harbor Towers	Old number:	Not Reported

Well type:	Not Reported	Casing dia:	Not Reported
Ground el:	Not Reported		
Well depth:	0		
Solid case:	Not Reported	Perf case:	Not Reported
Use:	IND - Geothermal, Thermoelectric Cooling	Use year:	Not Reported
Init head:	Not Reported	Init head2:	Not Reported
Init head3:	Not Reported		
Init cl:	18750		
Test date:	Not Reported	Test gpm:	Not Reported
Test ddown:	Not Reported	Test chlor:	Not Reported
Test temp:	Not Reported	Test unit:	Not Reported
Pump gpm:	1800		
Draft mgy:	Not Reported	Head feet:	Not Reported
Max chlor:	Not Reported	Min chlor:	Not Reported
Geology:	Not Reported		
Pump yr:	0		
Draft yr:	Not Reported	Bot hole:	Not Reported
Bot solid:	Not Reported	Bot perf:	Not Reported
Spec capac:	Not Reported		
Pump mgd:	2.592		
Draft mgd:	Not Reported	Pump elev:	Not Reported
Pump depth:	Not Reported	Tmk:	(1) 2-3-036:039
Aqui code:	30102		
Latest hd:	Not Reported	Wcr:	30-DEC-99
Pir:	Not Reported	Surveyor:	Not Reported
T:	Not Reported	Site id:	HI8000000002089

A3
WSW
1/8 - 1/4 Mile
Higher

HI WELLS **HI8000000002090**

Objectid:	605	Wid:	3-1750-010
Island:	Oahu	Well name:	Ala Moana
Old name:	Not Reported		
Yr drilled:	1967		
Driller:	NAT WHITON		
Quad map:	13		
Long83dd:	-157.841944444		
Lat83dd:	21.2894444444		
Gps:	0	Utm:	-1
Owner user:	Ala Moana Ctr	Old number:	63-2A
Well type:	Not Reported	Casing dia:	18
Ground el:	4		
Well depth:	88		
Solid case:	42	Perf case:	Not Reported
Use:	Other	Use year:	Not Reported
Init head:	2.8	Init head2:	Not Reported
Init head3:	Not Reported		
Init cl:	13954		
Test date:	Not Reported	Test gpm:	600
Test ddown:	0.8	Test chlor:	Not Reported
Test temp:	Not Reported	Test unit:	Not Reported
Pump gpm:	0		
Draft mgy:	Not Reported	Head feet:	Not Reported
Max chlor:	Not Reported	Min chlor:	Not Reported
Geology:	Not Reported		
Pump yr:	0		
Draft yr:	Not Reported	Bot hole:	-84
Bot solid:	-38	Bot perf:	Not Reported
Spec capac:	750		
Pump mgd:	0		

Draft mgd:	Not Reported	Pump elev:	Not Reported
Pump depth:	Not Reported	Tmk:	(1) 2-3-038:001
Aqui code:	30102		
Latest hd:	Not Reported	Wcr:	01-JAN-67
Pir:	Not Reported	Surveyor:	Not Reported
T:	Not Reported	Site id:	HI8000000002090

4
WSW
1/8 - 1/4 Mile
Higher

HI WELLS **HI8000000002091**

Objectid:	606	Wid:	3-1750-011
Island:	Oahu	Well name:	Ala Moana
Old name:	Not Reported		
Yr drilled:	1967		
Driller:	NAT WHITON		
Quad map:	13		
Long83dd:	-157.842222222		
Lat83dd:	21.2897222222		
Gps:	0	Utm:	-1
Owner user:	Ala Moana Ctr	Old number:	63-2B
Well type:	Not Reported	Casing dia:	18
Ground el:	5		
Well depth:	55		
Solid case:	37	Perf case:	Not Reported
Use:	Other	Use year:	Not Reported
Init head:	2.9	Init head2:	Not Reported
Init head3:	Not Reported		
Init cl:	13451		
Test date:	Not Reported	Test gpm:	550
Test ddown:	0.5	Test chlor:	17680
Test temp:	Not Reported	Test unit:	Not Reported
Pump gpm:	0		
Draft mgy:	Not Reported	Head feet:	Not Reported
Max chlor:	Not Reported	Min chlor:	Not Reported
Geology:	Not Reported		
Pump yr:	0		
Draft yr:	Not Reported	Bot hole:	-50
Bot solid:	-32	Bot perf:	Not Reported
Spec capac:	1100		
Pump mgd:	0		
Draft mgd:	Not Reported	Pump elev:	Not Reported
Pump depth:	Not Reported	Tmk:	(1) 2-3-038:001
Aqui code:	30102		
Latest hd:	Not Reported	Wcr:	01-JAN-67
Pir:	Not Reported	Surveyor:	Not Reported
T:	Not Reported	Site id:	HI8000000002091

B5
NNE
1/4 - 1/2 Mile
Higher

FED USGS **USGS40000269556**

Org. Identifier:	USGS-HI		
Formal name:	USGS Hawaii Water Science Center		
Monloc Identifier:	USGS-211754157502301		
Monloc name:	3-1750-01 W61 MCCULY		
Monloc type:	Well		
Monloc desc:	Not Reported		
Huc code:	20060000	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	21.2951692
Longitude:	-157.8369797	Sourcemap scale:	24000
Horiz Acc measure:	5	Horiz Acc measure units:	seconds
Horiz Collection method:	Interpolated from map		
Horiz coord refsys:	NAD83	Vert measure val:	14.00
Vert measure units:	feet	Vertacc measure val:	5
Vert accmeasure units:	feet		
Vertcollection method:	Interpolated from topographic map		
Vert coord refsys:	HILOCAL	Countrycode:	US
Aquifername:	Not Reported		
Formation type:	Not Reported		
Aquifer type:	Not Reported		
Construction date:	18810101	Welldepth:	475
Welldepth units:	ft	Wellholedepth:	Not Reported
Wellholedepth units:	Not Reported		

Ground-water levels, Number of Measurements: 0

B6
NNE
1/4 - 1/2 Mile
Higher

HI WELLS **HI8000000002117**

Objectid:	596	Wid:	3-1750-001
Island:	Oahu	Well name:	McCully
Old name:	Not Reported		
Yr drilled:	1881		
Driller:	Not Reported		
Quad map:	13		
Long83dd:	-157.836944444		
Lat83dd:	21.2952777778		
Gps:	0	Utm:	-1
Owner user:	C&C Honolulu	Old number:	61-
Well type:	Not Reported	Casing dia:	8
Ground el:	14		
Well depth:	475		
Solid case:	Not Reported	Perf case:	Not Reported
Use:	ABN - Sealed	Use year:	Not Reported
Init head:	29.9	Init head2:	Not Reported
Init head3:	Not Reported		
Init cl:	42		
Test date:	Not Reported	Test gpm:	Not Reported
Test ddown:	Not Reported	Test chlor:	Not Reported
Test temp:	Not Reported	Test unit:	Not Reported
Pump gpm:	0		
Draft mgy:	Not Reported	Head feet:	Not Reported
Max chlor:	Not Reported	Min chlor:	Not Reported
Geology:	Not Reported		
Pump yr:	0		
Draft yr:	Not Reported	Bot hole:	-461
Bot solid:	Not Reported	Bot perf:	Not Reported
Spec capac:	Not Reported		
Pump mgd:	0		

Draft mgd:	Not Reported	Pump elev:	Not Reported
Pump depth:	Not Reported	Tmk:	Not Reported
Aqui code:	30102		
Latest hd:	Not Reported	Wcr:	30-DEC-99
Pir:	Not Reported	Surveyor:	Not Reported
T:	Not Reported	Site id:	HI8000000002117

C7
NNW
1/4 - 1/2 Mile
Higher

HI WELLS **HI8000000002120**

Objectid:	604	Wid:	3-1750-009
Island:	Oahu	Well name:	Ala Moana
Old name:	Not Reported		
Yr drilled:	1964		
Driller:	NAT WHITON		
Quad map:	13		
Long83dd:	-157.840472		
Lat83dd:	21.295806		
Gps:	0	Utm:	-1
Owner user:	Pagoda Hotel	Old number:	63-1
Well type:	Not Reported	Casing dia:	16
Ground el:	7		
Well depth:	53		
Solid case:	21	Perf case:	Not Reported
Use:	IRR - Landscape/Water Features	Use year:	Not Reported
Init head:	Not Reported	Init head2:	Not Reported
Init head3:	Not Reported		
Init cl:	0		
Test date:	Not Reported	Test gpm:	550
Test ddown:	2.9	Test chlor:	Not Reported
Test temp:	Not Reported	Test unit:	Not Reported
Pump gpm:	0		
Draft mgy:	Not Reported	Head feet:	Not Reported
Max chlor:	Not Reported	Min chlor:	Not Reported
Geology:	Not Reported		
Pump yr:	0		
Draft yr:	Not Reported	Bot hole:	-46
Bot solid:	-14	Bot perf:	Not Reported
Spec capac:	190		
Pump mgd:	0		
Draft mgd:	Not Reported	Pump elev:	Not Reported
Pump depth:	Not Reported	Tmk:	(1) 2-3-017:016
Aqui code:	30102		
Latest hd:	Not Reported	Wcr:	01-MAR-64
Pir:	Not Reported	Surveyor:	Not Reported
T:	Not Reported	Site id:	HI8000000002120

C8
NNW
1/4 - 1/2 Mile
Higher

FED USGS **USGS40000269561**

Org. Identifier:	USGS-HI		
Formal name:	USGS Hawaii Water Science Center		
Monloc Identifier:	USGS-211757157503601		
Monloc name:	3-1750-09 W63-1 KAPI		
Monloc type:	Well		
Monloc desc:	Not Reported		
Huc code:	20060000	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	21.2960026
Longitude:	-157.8405908	Sourcemap scale:	24000
Horiz Acc measure:	1	Horiz Acc measure units:	seconds
Horiz Collection method:	Interpolated from map		
Horiz coord refsys:	NAD83	Vert measure val:	7.00
Vert measure units:	feet	Vertacc measure val:	2
Vert accmeasure units:	feet		
Vertcollection method:	Interpolated from topographic map		
Vert coord refsys:	HILOCAL	Countrycode:	US
Aquifername:	Not Reported		
Formation type:	Not Reported		
Aquifer type:	Not Reported		
Construction date:	19640101	Welldepth:	53
Welldepth units:	ft	Wellholedepth:	Not Reported
Wellholedepth units:	Not Reported		

Ground-water levels, Number of Measurements: 0

D9
NNE
1/4 - 1/2 Mile
Higher

FED USGS **USGS40000269567**

Org. Identifier:	USGS-HI		
Formal name:	USGS Hawaii Water Science Center		
Monloc Identifier:	USGS-211801157502401		
Monloc name:	3-1850-26 W59 MAKIKI		
Monloc type:	Well		
Monloc desc:	Not Reported		
Huc code:	20060000	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	21.2971135
Longitude:	-157.8372574	Sourcemap scale:	24000
Horiz Acc measure:	5	Horiz Acc measure units:	seconds
Horiz Collection method:	Interpolated from map		
Horiz coord refsys:	NAD83	Vert measure val:	15.00
Vert measure units:	feet	Vertacc measure val:	2
Vert accmeasure units:	feet		
Vertcollection method:	Interpolated from topographic map		
Vert coord refsys:	HILOCAL	Countrycode:	US
Aquifername:	Not Reported		
Formation type:	Not Reported		
Aquifer type:	Not Reported		
Construction date:	19100101	Welldepth:	450
Welldepth units:	ft	Wellholedepth:	Not Reported
Wellholedepth units:	Not Reported		

Ground-water levels, Number of Measurements: 0

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance
Elevation

	Database	EDR ID Number
D10 **North** **1/4 - 1/2 Mile** **Higher**	**FED USGS**	**USGS40000269568**

Org. Identifier:	USGS-HI		
Formal name:	USGS Hawaii Water Science Center		
Monloc Identifier:	USGS-211802157502801		
Monloc name:	3-1850-22 W62 MAKIKI		
Monloc type:	Well		
Monloc desc:	Not Reported		
Huc code:	20060000	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	21.2973913
Longitude:	-157.8383685	Sourcemap scale:	24000
Horiz Acc measure:	5	Horiz Acc measure units:	seconds
Horiz Collection method:	Interpolated from map		
Horiz coord refsys:	NAD83	Vert measure val:	16.00
Vert measure units:	feet	Vertacc measure val:	2
Vert accmeasure units:	feet		
Vertcollection method:	Interpolated from topographic map		
Vert coord refsys:	HILOCAL	Countrycode:	US
Aquifername:	Not Reported		
Formation type:	Not Reported		
Aquifer type:	Not Reported		
Construction date:	18940101	Welldepth:	521
Welldepth units:	ft	Wellholedepth:	Not Reported
Wellholedepth units:	Not Reported		

Ground-water levels, Number of Measurements: 0

	Database	EDR ID Number
D11 **North** **1/4 - 1/2 Mile** **Higher**	**FED USGS**	**USGS40000269571**

Org. Identifier:	USGS-HI		
Formal name:	USGS Hawaii Water Science Center		
Monloc Identifier:	USGS-211803157502801		
Monloc name:	3-1850-21 W58 MAKIKI		
Monloc type:	Well		
Monloc desc:	Not Reported		
Huc code:	20060000	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	21.2973913
Longitude:	-157.8383685	Sourcemap scale:	24000
Horiz Acc measure:	5	Horiz Acc measure units:	seconds
Horiz Collection method:	Interpolated from map		
Horiz coord refsys:	NAD83	Vert measure val:	20.00
Vert measure units:	feet	Vertacc measure val:	5
Vert accmeasure units:	feet		
Vertcollection method:	Interpolated from topographic map		
Vert coord refsys:	HILOCAL	Countrycode:	US
Aquifername:	Not Reported		
Formation type:	Not Reported		

Aquifer type:	Not Reported		
Construction date:	18940101	Welldepth:	409
Welldepth units:	ft	Wellholedepth:	Not Reported
Wellholedepth units:	Not Reported		

Ground-water levels, Number of Measurements: 0

D12
NNE
1/4 - 1/2 Mile
Higher

HI WELLS **HI8000000002130**

Objectid:	724	Wid:	3-1850-026
Island:	Oahu	Well name:	Makiki
Old name:	Not Reported		
Yr drilled:	1910		
Driller:	MCCANDLESS		
Quad map:	13		
Long83dd:	-157.837222222		
Lat83dd:	21.2972222222		
Gps:	0	Utm:	-1
Owner user:	Ii Estate	Old number:	59-
Well type:	Not Reported	Casing dia:	10
Ground el:	15		
Well depth:	450		
Solid case:	356	Perf case:	Not Reported
Use:	ABN - Sealed	Use year:	Not Reported
Init head:	27.7	Init head2:	Not Reported
Init head3:	Not Reported		
Init cl:	57		
Test date:	Not Reported	Test gpm:	Not Reported
Test ddown:	Not Reported	Test chlor:	Not Reported
Test temp:	Not Reported	Test unit:	Not Reported
Pump gpm:	0		
Draft mgy:	Not Reported	Head feet:	Not Reported
Max chlor:	Not Reported	Min chlor:	Not Reported
Geology:	TKB		
Pump yr:	0		
Draft yr:	Not Reported	Bot hole:	-435
Bot solid:	-341	Bot perf:	Not Reported
Spec capac:	Not Reported		
Pump mgd:	0		
Draft mgd:	Not Reported	Pump elev:	Not Reported
Pump depth:	Not Reported	Tmk:	Not Reported
Aqui code:	30102		
Latest hd:	Not Reported	Wcr:	01-JAN-10
Pir:	Not Reported	Surveyor:	Not Reported
T:	Not Reported	Site id:	HI8000000002130

D13
North
1/4 - 1/2 Mile
Higher

HI WELLS **HI8000000002134**

Objectid:	720	Wid:	3-1850-022
Island:	Oahu	Well name:	Makiki
Old name:	Not Reported		
Yr drilled:	1894		
Driller:	AHANA		
Quad map:	13		
Long83dd:	-157.838333333		
Lat83dd:	21.2975		
Gps:	0	Utm:	-1
Owner user:	KS/Bishop Estate	Old number:	62-
Well type:	Not Reported	Casing dia:	8
Ground el:	16		
Well depth:	521		
Solid case:	419	Perf case:	Not Reported
Use:	ABN - Sealed	Use year:	Not Reported
Init head:	27.6	Init head2:	Not Reported
Init head3:	Not Reported		
Init cl:	61		
Test date:	Not Reported	Test gpm:	Not Reported
Test ddown:	Not Reported	Test chlor:	Not Reported
Test temp:	Not Reported	Test unit:	Not Reported
Pump gpm:	0		
Draft mgy:	Not Reported	Head feet:	Not Reported
Max chlor:	Not Reported	Min chlor:	Not Reported
Geology:	Not Reported		
Pump yr:	0		
Draft yr:	Not Reported	Bot hole:	-505
Bot solid:	-403	Bot perf:	Not Reported
Spec capac:	Not Reported		
Pump mgd:	0		
Draft mgd:	Not Reported	Pump elev:	Not Reported
Pump depth:	Not Reported	Tmk:	Not Reported
Aqui code:	30102		
Latest hd:	Not Reported	Wcr:	30-DEC-99
Pir:	Not Reported	Surveyor:	Not Reported
T:	Not Reported	Site id:	HI8000000002134

E14
North
1/4 - 1/2 Mile
Higher

FED USGS **USGS40000269572**

Org. Identifier:	USGS-HI		
Formal name:	USGS Hawaii Water Science Center		
Monloc Identifier:	USGS-211803157503201		
Monloc name:	3-1850-20 W63 MAKIKI		
Monloc type:	Well		
Monloc desc:	Not Reported		
Huc code:	20060000	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	21.2976691
Longitude:	-157.8394796	Sourcemap scale:	24000
Horiz Acc measure:	5	Horiz Acc measure units:	seconds
Horiz Collection method:	Interpolated from map		
Horiz coord refsys:	NAD83	Vert measure val:	16.00
Vert measure units:	feet	Vertacc measure val:	2
Vert accmeasure units:	feet		
Vertcollection method:	Interpolated from topographic map		
Vert coord refsys:	HILOCAL	Countrycode:	US
Aquifername:	Not Reported		
Formation type:	Not Reported		

Aquifer type:	Not Reported		
Construction date:	18910101	Welldepth:	437
Welldepth units:	ft	Wellholedepth:	Not Reported
Wellholedepth units:	Not Reported		

Ground-water levels, Number of Measurements: 0

E15
North
1/4 - 1/2 Mile
Higher

HI WELLS **HI8000000002136**

Objectid:	718	Wid:	3-1850-020
Island:	Oahu	Well name:	Makiki
Old name:	Not Reported		
Yr drilled:	1891		
Driller:	MCCANDLESS		
Quad map:	13		
Long83dd:	-157.839444444		
Lat83dd:	21.2977777778		
Gps:	0	Utm:	-1
Owner user:	Plews&Wichman	Old number:	63-
Well type:	Not Reported	Casing dia:	8
Ground el:	16		
Well depth:	437		
Solid case:	377	Perf case:	Not Reported
Use:	ABN - Sealed	Use year:	Not Reported
Init head:	31	Init head2:	Not Reported
Init head3:	Not Reported		
Init cl:	56		
Test date:	Not Reported	Test gpm:	Not Reported
Test ddown:	Not Reported	Test chlor:	Not Reported
Test temp:	Not Reported	Test unit:	Not Reported
Pump gpm:	0		
Draft mgy:	Not Reported	Head feet:	Not Reported
Max chlor:	Not Reported	Min chlor:	Not Reported
Geology:	Not Reported		
Pump yr:	0		
Draft yr:	Not Reported	Bot hole:	-421
Bot solid:	-361	Bot perf:	Not Reported
Spec capac:	Not Reported		
Pump mgd:	0		
Draft mgd:	Not Reported	Pump elev:	Not Reported
Pump depth:	Not Reported	Tmk:	Not Reported
Aqui code:	30102		
Latest hd:	Not Reported	Wcr:	30-DEC-99
Pir:	Not Reported	Surveyor:	Not Reported
T:	Not Reported	Site id:	HI8000000002136

F16
NNW
1/4 - 1/2 Mile
Higher

FED USGS **USGS40000269569**

Org. Identifier:	USGS-HI		
Formal name:	USGS Hawaii Water Science Center		
Monloc Identifier:	USGS-211802157504201		
Monloc name:	3-1850-27 W75 MAKIKI		
Monloc type:	Well		
Monloc desc:	Not Reported		
Huc code:	20060000	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	21.2973914
Longitude:	-157.8422574	Sourcemap scale:	24000
Horiz Acc measure:	5	Horiz Acc measure units:	seconds
Horiz Collection method:	Interpolated from map		
Horiz coord refsys:	NAD83	Vert measure val:	8.00
Vert measure units:	feet	Vertacc measure val:	2
Vert accmeasure units:	feet		
Vertcollection method:	Interpolated from topographic map		
Vert coord refsys:	HILOCAL	Countrycode:	US
Aquifername:	Not Reported		
Formation type:	Not Reported		
Aquifer type:	Not Reported		
Construction date:	19140101	Welldepth:	552
Welldepth units:	ft	Wellholedepth:	Not Reported
Wellholedepth units:	Not Reported		

Ground-water levels, Number of Measurements: 0

F17
NNW
1/4 - 1/2 Mile
Higher

HI WELLS **HI8000000002133**

Objectid:	725	Wid:	3-1850-027
Island:	Oahu	Well name:	Makiki
Old name:	Not Reported		
Yr drilled:	1914		
Driller:	Not Reported		
Quad map:	13		
Long83dd:	-157.842222222		
Lat83dd:	21.2975		
Gps:	0	Utm:	-1
Owner user:	Meadow Gold	Old number:	75-
Well type:	Not Reported	Casing dia:	10
Ground el:	8		
Well depth:	552		
Solid case:	486	Perf case:	Not Reported
Use:	ABN - Sealed	Use year:	Not Reported
Init head:	27	Init head2:	Not Reported
Init head3:	Not Reported		
Init cl:	75		
Test date:	Not Reported	Test gpm:	Not Reported
Test ddown:	Not Reported	Test chlor:	Not Reported
Test temp:	Not Reported	Test unit:	Not Reported
Pump gpm:	0		
Draft mgy:	Not Reported	Head feet:	Not Reported
Max chlor:	Not Reported	Min chlor:	Not Reported
Geology:	Not Reported		
Pump yr:	0		
Draft yr:	Not Reported	Bot hole:	-544
Bot solid:	-478	Bot perf:	Not Reported
Spec capac:	Not Reported		
Pump mgd:	0		

Draft mgd:	Not Reported	Pump elev:	Not Reported
Pump depth:	Not Reported	Tmk:	Not Reported
Aqui code:	30102		
Latest hd:	Not Reported	Wcr:	01-JAN-14
Pir:	Not Reported	Surveyor:	Not Reported
T:	Not Reported	Site id:	HI8000000002133

D18
NNE
1/4 - 1/2 Mile
Higher

HI WELLS **HI8000000002137**

Objectid:	719	Wid:	3-1850-021
Island:	Oahu	Well name:	Makiki
Old name:	Not Reported		
Yr drilled:	1894		
Driller:	MCCANDLESS		
Quad map:	13		
Long83dd:	-157.836944444		
Lat83dd:	21.2977777778		
Gps:	0	Utm:	-1
Owner user:	Honolulu BWS	Old number:	58-
Well type:	Not Reported	Casing dia:	8
Ground el:	20		
Well depth:	409		
Solid case:	312	Perf case:	Not Reported
Use:	ABN - Sealed	Use year:	Not Reported
Init head:	29.8	Init head2:	Not Reported
Init head3:	Not Reported		
Init cl:	62		
Test date:	Not Reported	Test gpm:	Not Reported
Test ddown:	Not Reported	Test chlor:	Not Reported
Test temp:	Not Reported	Test unit:	Not Reported
Pump gpm:	0		
Draft mgy:	Not Reported	Head feet:	Not Reported
Max chlor:	Not Reported	Min chlor:	Not Reported
Geology:	Not Reported		
Pump yr:	0		
Draft yr:	Not Reported	Bot hole:	-389
Bot solid:	-292	Bot perf:	Not Reported
Spec capac:	Not Reported		
Pump mgd:	0		
Draft mgd:	Not Reported	Pump elev:	Not Reported
Pump depth:	Not Reported	Tmk:	Not Reported
Aqui code:	30102		
Latest hd:	Not Reported	Wcr:	30-DEC-99
Pir:	Not Reported	Surveyor:	Not Reported
T:	Not Reported	Site id:	HI8000000002137

G19
NE
1/4 - 1/2 Mile
Higher

FED USGS **USGS40000269559**

Org. Identifier:	USGS-HI		
Formal name:	USGS Hawaii Water Science Center		
Monloc Identifier:	USGS-211756157501001		
Monloc name:	3-1750-03 W46 MCCULY		
Monloc type:	Well		
Monloc desc:	Not Reported		
Huc code:	20060000	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	21.2957246
Longitude:	-157.8333685	Sourcemap scale:	24000
Horiz Acc measure:	5	Horiz Acc measure units:	seconds
Horiz Collection method:	Interpolated from map		
Horiz coord refsys:	NAD83	Vert measure val:	10.00
Vert measure units:	feet	Vertacc measure val:	2
Vert accmeasure units:	feet		
Vertcollection method:	Interpolated from topographic map		
Vert coord refsys:	HILOCAL	Countrycode:	US
Aquifername:	Not Reported		
Formation type:	Not Reported		
Aquifer type:	Not Reported		
Construction date:	18900101	Welldepth:	374
Welldepth units:	ft	Wellholedepth:	Not Reported
Wellholedepth units:	Not Reported		

Ground-water levels, Number of Measurements: 0

G20
NE
1/4 - 1/2 Mile
Higher

HI WELLS **HI8000000002123**

Objectid:	598	Wid:	3-1750-003
Island:	Oahu	Well name:	McCully
Old name:	Not Reported		
Yr drilled:	1890		
Driller:	Not Reported		
Quad map:	13		
Long83dd:	-157.833333333		
Lat83dd:	21.2958333333		
Gps:	0	Utm:	-1
Owner user:	Not Reported	Old number:	Not Reported
Well type:	Not Reported	Casing dia:	8
Ground el:	10		
Well depth:	374		
Solid case:	340	Perf case:	Not Reported
Use:	ABN - Sealed	Use year:	Not Reported
Init head:	28.2	Init head2:	Not Reported
Init head3:	Not Reported		
Init cl:	0		
Test date:	Not Reported	Test gpm:	Not Reported
Test ddown:	Not Reported	Test chlor:	Not Reported
Test temp:	Not Reported	Test unit:	Not Reported
Pump gpm:	0		
Draft mgy:	Not Reported	Head feet:	Not Reported
Max chlor:	Not Reported	Min chlor:	Not Reported
Geology:	Not Reported		
Pump yr:	0		
Draft yr:	Not Reported	Bot hole:	-364
Bot solid:	-330	Bot perf:	Not Reported
Spec capac:	Not Reported		
Pump mgd:	0		

Draft mgd:	Not Reported	Pump elev:	Not Reported
Pump depth:	Not Reported	Tmk:	Not Reported
Aqui code:	30102		
Latest hd:	Not Reported	Wcr:	30-DEC-99
Pir:	Not Reported	Surveyor:	Not Reported
T:	Not Reported	Site id:	HI8000000002123

H21
SSE
1/2 - 1 Mile
Higher

HI WELLS **HI8000000002053**

Objectid:	602	Wid:	3-1750-007
Island:	Oahu	Well name:	Waikiki
Old name:	Not Reported		
Yr drilled:	1955		
Driller:	SAMSON-SMOCK		
Quad map:	13		
Long83dd:	-157.836666667		
Lat83dd:	21.2838888889		
Gps:	0	Utm:	-1
Owner user:	Hilton Hotel	Old number:	30-1
Well type:	Not Reported	Casing dia:	8
Ground el:	Not Reported		
Well depth:	120		
Solid case:	98	Perf case:	Not Reported
Use:	UNU - Unused	Use year:	Not Reported
Init head:	Not Reported	Init head2:	Not Reported
Init head3:	Not Reported		
Init cl:	0		
Test date:	Not Reported	Test gpm:	Not Reported
Test ddown:	Not Reported	Test chlor:	Not Reported
Test temp:	Not Reported	Test unit:	Not Reported
Pump gpm:	0		
Draft mgy:	Not Reported	Head feet:	Not Reported
Max chlor:	Not Reported	Min chlor:	Not Reported
Geology:	Not Reported		
Pump yr:	0		
Draft yr:	Not Reported	Bot hole:	Not Reported
Bot solid:	Not Reported	Bot perf:	Not Reported
Spec capac:	Not Reported		
Pump mgd:	0		
Draft mgd:	Not Reported	Pump elev:	Not Reported
Pump depth:	Not Reported	Tmk:	(1) 2-6-009:009
Aqui code:	30101		
Latest hd:	Not Reported	Wcr:	01-JAN-55
Pir:	Not Reported	Surveyor:	Not Reported
T:	Not Reported	Site id:	HI8000000002053

H22
SSE
1/2 - 1 Mile
Higher

HI WELLS **HI8000000002054**

Objectid:	603	Wid:	3-1750-008
Island:	Oahu	Well name:	Waikiki
Old name:	Not Reported		
Yr drilled:	1955		
Driller:	Not Reported		
Quad map:	13		
Long83dd:	-157.836666667		
Lat83dd:	21.2838888889		
Gps:	0	Utm:	-1
Owner user:	Not Reported	Old number:	Not Reported
Well type:	Not Reported	Casing dia:	8
Ground el:	Not Reported		
Well depth:	90		
Solid case:	42	Perf case:	Not Reported
Use:	UNU - Unused	Use year:	Not Reported
Init head:	Not Reported	Init head2:	Not Reported
Init head3:	Not Reported		
Init cl:	0		
Test date:	Not Reported	Test gpm:	Not Reported
Test ddown:	Not Reported	Test chlor:	Not Reported
Test temp:	Not Reported	Test unit:	Not Reported
Pump gpm:	0		
Draft mgy:	Not Reported	Head feet:	Not Reported
Max chlor:	Not Reported	Min chlor:	Not Reported
Geology:	Not Reported		
Pump yr:	0		
Draft yr:	Not Reported	Bot hole:	Not Reported
Bot solid:	Not Reported	Bot perf:	Not Reported
Spec capac:	Not Reported		
Pump mgd:	0		
Draft mgd:	Not Reported	Pump elev:	Not Reported
Pump depth:	Not Reported	Tmk:	Not Reported
Aqui code:	30102		
Latest hd:	Not Reported	Wcr:	30-DEC-99
Pir:	Not Reported	Surveyor:	Not Reported
T:	Not Reported	Site id:	HI8000000002054

H23
SSE
1/2 - 1 Mile
Higher

FED USGS **USGS40000269497**

Org. Identifier:	USGS-HI		
Formal name:	USGS Hawaii Water Science Center		
Monloc Identifier:	USGS-211713157502201		
Monloc name:	3-1750-07 W30-1 DERU		
Monloc type:	Well		
Monloc desc:	Not Reported		
Huc code:	20060000	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	21.283781
Longitude:	-157.8367022	Sourcemap scale:	24000
Horiz Acc measure:	1	Horiz Acc measure units:	seconds
Horiz Collection method:	Interpolated from map		
Horiz coord refsys:	NAD83	Vert measure val:	3.00
Vert measure units:	feet	Vertacc measure val:	2
Vert accmeasure units:	feet		
Vertcollection method:	Interpolated from topographic map		
Vert coord refsys:	HILOCAL	Countrycode:	US
Aquifername:	Not Reported		
Formation type:	Not Reported		

Aquifer type:	Not Reported		
Construction date:	19551107	Welldepth:	120
Welldepth units:	ft	Wellholedepth:	Not Reported
Wellholedepth units:	Not Reported		

Ground-water levels, Number of Measurements: 0

H24
SSE
1/2 - 1 Mile
Higher

FED USGS **USGS40000269498**

Org. Identifier:	USGS-HI		
Formal name:	USGS Hawaii Water Science Center		
Monloc Identifier:	USGS-211713157502202		
Monloc name:	3-1750-08 W30-2 DERU		
Monloc type:	Well		
Monloc desc:	Not Reported		
Huc code:	20060000	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	21.283781
Longitude:	-157.8367022	Sourcemap scale:	24000
Horiz Acc measure:	1	Horiz Acc measure units:	seconds
Horiz Collection method:	Interpolated from map		
Horiz coord refsys:	NAD83	Vert measure val:	3.00
Vert measure units:	feet	Vertacc measure val:	2
Vert accmeasure units:	feet		
Vertcollection method:	Interpolated from topographic map		
Vert coord refsys:	HILOCAL	Countrycode:	US
Aquifername:	Not Reported		
Formation type:	Not Reported		
Aquifer type:	Not Reported		
Construction date:	19551107	Welldepth:	90
Welldepth units:	ft	Wellholedepth:	Not Reported
Wellholedepth units:	Not Reported		

Ground-water levels, Number of Measurements: 0

G25
NE
1/2 - 1 Mile
Higher

FED USGS **USGS40000269562**

Org. Identifier:	USGS-HI		
Formal name:	USGS Hawaii Water Science Center		
Monloc Identifier:	USGS-211758157500901		
Monloc name:	3-1750-05 W50 MCCULY		
Monloc type:	Well		
Monloc desc:	Not Reported		
Huc code:	20060000	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	21.2962801
Longitude:	-157.8330907	Sourcemap scale:	24000
Horiz Acc measure:	5	Horiz Acc measure units:	seconds
Horiz Collection method:	Interpolated from map		
Horiz coord refsys:	NAD83	Vert measure val:	15.00
Vert measure units:	feet	Vertacc measure val:	1
Vert accmeasure units:	feet		
Vertcollection method:	Interpolated from topographic map		
Vert coord refsys:	HILOCAL	Countrycode:	US
Aquifername:	Not Reported		
Formation type:	Not Reported		

Aquifer type:	Not Reported		
Construction date:	19530801	Welldepth:	154
Welldepth units:	ft	Wellholedepth:	Not Reported
Wellholedepth units:	Not Reported		

Ground-water levels, Number of Measurements: 1

Date	Feet below Surface	Feet to Sealevel
1953-08-01	12.00	

G26
NE
1/2 - 1 Mile
Higher

HI WELLS **HI8000000002125**

Objectid:	600	Wid:	3-1750-005
Island:	Oahu	Well name:	McCully
Old name:	Not Reported		
Yr drilled:	1953		
Driller:	Not Reported		
Quad map:	13		
Long83dd:	-157.833055556		
Lat83dd:	21.2963888889		
Gps:	0	Utm:	-1
Owner user:	Not Reported	Old number:	Not Reported
Well type:	Not Reported	Casing dia:	8
Ground el:	Not Reported		
Well depth:	154		
Solid case:	70	Perf case:	Not Reported
Use:	UNU - Unused	Use year:	Not Reported
Init head:	Not Reported	Init head2:	Not Reported
Init head3:	Not Reported		
Init cl:	0		
Test date:	Not Reported	Test gpm:	50
Test ddown:	8	Test chlor:	Not Reported
Test temp:	Not Reported	Test unit:	Not Reported
Pump gpm:	0		
Draft mgy:	Not Reported	Head feet:	Not Reported
Max chlor:	Not Reported	Min chlor:	Not Reported
Geology:	Not Reported		
Pump yr:	0		
Draft yr:	Not Reported	Bot hole:	Not Reported
Bot solid:	Not Reported	Bot perf:	Not Reported
Spec capac:	Not Reported		
Pump mgd:	0		
Draft mgd:	Not Reported	Pump elev:	Not Reported
Pump depth:	Not Reported	Tmk:	Not Reported
Aqui code:	30102		
Latest hd:	Not Reported	Wcr:	30-DEC-99
Pir:	Not Reported	Surveyor:	Not Reported
T:	Not Reported	Site id:	HI8000000002125

27
South
1/2 - 1 Mile
Higher

HI WELLS **HI8000000002049**

Objectid:	609	Wid:	3-1750-014
Island:	Oahu	Well name:	Hilton Lagoon
Old name:	Not Reported		
Yr drilled:	2003		
Driller:	BEYLIK DRLG		
Quad map:	13		
Long83dd:	-157.838333333		
Lat83dd:	21.2830555556		
Gps:	0	Utm:	-1
Owner user:	Hilton Hotels Corp.	Old number:	Not Reported
Well type:	PER	Casing dia:	14
Ground el:	Not Reported		
Well depth:	400		
Solid case:	29	Perf case:	Not Reported
Use:	UNU - Unused	Use year:	Not Reported
Init head:	Not Reported	Init head2:	Not Reported
Init head3:	Not Reported		
Init cl:	18000		
Test date:	Not Reported	Test gpm:	Not Reported
Test ddown:	Not Reported	Test chlor:	Not Reported
Test temp:	Not Reported	Test unit:	Not Reported
Pump gpm:	0		
Draft mgy:	Not Reported	Head feet:	Not Reported
Max chlor:	Not Reported	Min chlor:	Not Reported
Geology:	PLS		
Pump yr:	0		
Draft yr:	Not Reported	Bot hole:	Not Reported
Bot solid:	Not Reported	Bot perf:	Not Reported
Spec capac:	Not Reported		
Pump mgd:	0		
Draft mgd:	Not Reported	Pump elev:	Not Reported
Pump depth:	Not Reported	Tmk:	(1) 2-6-009:010
Aqui code:	30101		
Latest hd:	Not Reported	Wcr:	30-DEC-99
Pir:	Not Reported	Surveyor:	Not Reported
T:	Not Reported	Site id:	HI8000000002049

I28
NNE
1/2 - 1 Mile
Higher

FED USGS **USGS40000269580**

Org. Identifier:	USGS-HI		
Formal name:	USGS Hawaii Water Science Center		
Monloc Identifier:	USGS-211807157502001		
Monloc name:	3-1850-05 W57 MAKIKI		
Monloc type:	Well		
Monloc desc:	Not Reported		
Huc code:	20060000	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	21.2987801
Longitude:	-157.8361462	Sourcemap scale:	24000
Horiz Acc measure:	5	Horiz Acc measure units:	seconds
Horiz Collection method:	Interpolated from map		
Horiz coord refsys:	NAD83	Vert measure val:	28.00
Vert measure units:	feet	Vertacc measure val:	5
Vert accmeasure units:	feet		
Vertcollection method:	Interpolated from topographic map		
Vert coord refsys:	HILOCAL	Countrycode:	US
Aquifername:	Not Reported		
Formation type:	Not Reported		

Aquifer type:	Not Reported		
Construction date:	18820101	Welldepth:	310
Welldepth units:	ft	Wellholedepth:	Not Reported
Wellholedepth units:	Not Reported		

Ground-water levels, Number of Measurements: 0

J29
NNE
1/2 - 1 Mile
Higher

FED USGS **USGS40000269578**

Org. Identifier:	USGS-HI		
Formal name:	USGS Hawaii Water Science Center		
Monloc Identifier:	USGS-211805157501501		
Monloc name:	3-1850-18 W56 MAKIKI		
Monloc type:	Well		
Monloc desc:	Not Reported		
Huc code:	20060000	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	21.2982245
Longitude:	-157.8347573	Sourcemap scale:	24000
Horiz Acc measure:	5	Horiz Acc measure units:	seconds
Horiz Collection method:	Interpolated from map		
Horiz coord refsys:	NAD83	Vert measure val:	29.00
Vert measure units:	feet	Vertacc measure val:	5
Vert accmeasure units:	feet		
Vertcollection method:	Interpolated from topographic map		
Vert coord refsys:	HILOCAL	Countrycode:	US
Aquifername:	Not Reported		
Formation type:	Not Reported		
Aquifer type:	Not Reported		
Construction date:	18900101	Welldepth:	383
Welldepth units:	ft	Wellholedepth:	Not Reported
Wellholedepth units:	Not Reported		

Ground-water levels, Number of Measurements: 0

30
West
1/2 - 1 Mile
Higher

HI WELLS **HI8000000002099**

Objectid:	620	Wid:	3-1751-004
Island:	Oahu	Well name:	Ala Moana
Old name:	Not Reported		
Yr drilled:	1967		
Driller:	NAT WHITON		
Quad map:	13		
Long83dd:	-157.848055556		
Lat83dd:	21.2913888889		
Gps:	0	Utm:	-1
Owner user:	1350 Ala Moana	Old number:	76-1
Well type:	Not Reported	Casing dia:	Not Reported
Ground el:	5		
Well depth:	0		
Solid case:	Not Reported	Perf case:	Not Reported
Use:	Other	Use year:	Not Reported
Init head:	Not Reported	Init head2:	Not Reported
Init head3:	Not Reported		
Init cl:	0		
Test date:	Not Reported	Test gpm:	Not Reported
Test ddown:	Not Reported	Test chlor:	Not Reported

Test temp:	Not Reported	Test unit:	Not Reported
Pump gpm:	0		
Draft mgy:	Not Reported	Head feet:	Not Reported
Max chlor:	Not Reported	Min chlor:	Not Reported
Geology:	RF		
Pump yr:	0		
Draft yr:	Not Reported	Bot hole:	Not Reported
Bot solid:	Not Reported	Bot perf:	Not Reported
Spec capac:	Not Reported		
Pump mgd:	0		
Draft mgd:	Not Reported	Pump elev:	Not Reported
Pump depth:	Not Reported	Tmk:	(1) 2-3-006:001
Aqui code:	30102		
Latest hd:	Not Reported	Wcr:	01-JAN-67
Pir:	Not Reported	Surveyor:	Not Reported
T:	Not Reported	Site id:	HI8000000002099

I31
NNE
1/2 - 1 Mile
Higher

HI WELLS **HI8000000002146**

Objectid:	703	Wid:	3-1850-005
Island:	Oahu	Well name:	Makiki
Old name:	Not Reported		
Yr drilled:	1882		
Driller:	FESSLER		
Quad map:	13		
Long83dd:	-157.836111111		
Lat83dd:	21.2988888889		
Gps:	0	Utm:	-1
Owner user:	Rawlins M F	Old number:	57-
Well type:	Not Reported	Casing dia:	5
Ground el:	28		
Well depth:	310		
Solid case:	237	Perf case:	Not Reported
Use:	ABN - Sealed	Use year:	Not Reported
Init head:	29.7	Init head2:	Not Reported
Init head3:	Not Reported		
Init cl:	61		
Test date:	Not Reported	Test gpm:	Not Reported
Test ddown:	Not Reported	Test chlor:	Not Reported
Test temp:	Not Reported	Test unit:	Not Reported
Pump gpm:	0		
Draft mgy:	Not Reported	Head feet:	Not Reported
Max chlor:	Not Reported	Min chlor:	Not Reported
Geology:	Not Reported		
Pump yr:	0		
Draft yr:	Not Reported	Bot hole:	-282
Bot solid:	-209	Bot perf:	Not Reported
Spec capac:	Not Reported		
Pump mgd:	0		
Draft mgd:	Not Reported	Pump elev:	Not Reported
Pump depth:	Not Reported	Tmk:	(1) 3-9-010:001
Aqui code:	30102		
Latest hd:	Not Reported	Wcr:	30-DEC-99
Pir:	Not Reported	Surveyor:	Not Reported
T:	Not Reported	Site id:	HI8000000002146

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance
Elevation

	Database	EDR ID Number
K32 **South** **1/2 - 1 Mile** **Higher**	**HI WELLS**	**HI8000000002045**

Objectid:	610	Wid:	3-1750-015
Island:	Oahu	Well name:	HHV 1
Old name:	Not Reported		
Yr drilled:	2005		
Driller:	Not Reported		
Quad map:	13		
Long83dd:	-157.84		
Lat83dd:	21.2827777778		
Gps:	-1	Utm:	0
Owner user:	Not Reported	Old number:	Not Reported
Well type:	PER	Casing dia:	16
Ground el:	Not Reported		
Well depth:	205		
Solid case:	87	Perf case:	Not Reported
Use:	UNU - Unused	Use year:	Not Reported
Init head:	Not Reported	Init head2:	Not Reported
Init head3:	Not Reported		
Init cl:	0		
Test date:	Not Reported	Test gpm:	Not Reported
Test ddown:	Not Reported	Test chlor:	Not Reported
Test temp:	Not Reported	Test unit:	Not Reported
Pump gpm:	0		
Draft mgy:	Not Reported	Head feet:	Not Reported
Max chlor:	Not Reported	Min chlor:	Not Reported
Geology:	PLS		
Pump yr:	0		
Draft yr:	Not Reported	Bot hole:	Not Reported
Bot solid:	Not Reported	Bot perf:	Not Reported
Spec capac:	Not Reported		
Pump mgd:	0		
Draft mgd:	Not Reported	Pump elev:	Not Reported
Pump depth:	Not Reported	Tmk:	(1) 2-3-037:012
Aqui code:	30101		
Latest hd:	Not Reported	Wcr:	03-JUN-05
Pir:	Not Reported	Surveyor:	Not Reported
T:	Not Reported	Site id:	HI8000000002045

	Database	EDR ID Number
K33 **South** **1/2 - 1 Mile** **Higher**	**HI WELLS**	**HI8000000002046**

Objectid:	611	Wid:	3-1750-016
Island:	Oahu	Well name:	HHV 2
Old name:	Not Reported		
Yr drilled:	2005		
Driller:	Not Reported		
Quad map:	13		
Long83dd:	-157.84		
Lat83dd:	21.2827777778		
Gps:	-1	Utm:	0
Owner user:	Not Reported	Old number:	Not Reported

Well type:	PER	Casing dia:	16
Ground el:	Not Reported		
Well depth:	250		
Solid case:	83	Perf case:	Not Reported
Use:	UNU - Unused	Use year:	Not Reported
Init head:	Not Reported	Init head2:	Not Reported
Init head3:	Not Reported		
Init cl:	0		
Test date:	Not Reported	Test gpm:	Not Reported
Test ddown:	Not Reported	Test chlor:	Not Reported
Test temp:	Not Reported	Test unit:	Not Reported
Pump gpm:	0		
Draft mgy:	Not Reported	Head feet:	Not Reported
Max chlor:	Not Reported	Min chlor:	Not Reported
Geology:	PLS		
Pump yr:	0		
Draft yr:	Not Reported	Bot hole:	Not Reported
Bot solid:	Not Reported	Bot perf:	Not Reported
Spec capac:	Not Reported		
Pump mgd:	0		
Draft mgd:	Not Reported	Pump elev:	Not Reported
Pump depth:	Not Reported	Tmk:	(1) 2-3-037:012
Aqui code:	30101		
Latest hd:	Not Reported	Wcr:	03-JUN-05
Pir:	Not Reported	Surveyor:	Not Reported
T:	Not Reported	Site id:	HI8000000002046

J34
NNE
1/2 - 1 Mile
Higher

HI WELLS **HI8000000002145**

Objectid:	716	Wid:	3-1850-018
Island:	Oahu	Well name:	Makiki
Old name:	Not Reported		
Yr drilled:	1890		
Driller:	Not Reported		
Quad map:	13		
Long83dd:	-157.834722222		
Lat83dd:	21.2983333333		
Gps:	0	Utm:	-1
Owner user:	Tanner J	Old number:	56-
Well type:	Not Reported	Casing dia:	8
Ground el:	29		
Well depth:	383		
Solid case:	Not Reported	Perf case:	Not Reported
Use:	ABN - Sealed	Use year:	Not Reported
Init head:	26.4	Init head2:	Not Reported
Init head3:	Not Reported		
Init cl:	0		
Test date:	Not Reported	Test gpm:	Not Reported
Test ddown:	Not Reported	Test chlor:	Not Reported
Test temp:	Not Reported	Test unit:	Not Reported
Pump gpm:	0		
Draft mgy:	Not Reported	Head feet:	Not Reported
Max chlor:	Not Reported	Min chlor:	Not Reported
Geology:	Not Reported		
Pump yr:	0		
Draft yr:	Not Reported	Bot hole:	-354
Bot solid:	Not Reported	Bot perf:	Not Reported
Spec capac:	Not Reported		
Pump mgd:	0		

Draft mgd:	Not Reported	Pump elev:	Not Reported
Pump depth:	Not Reported	Tmk:	Not Reported
Aqui code:	30102		
Latest hd:	Not Reported	Wcr:	30-DEC-99
Pir:	Not Reported	Surveyor:	Not Reported
T:	Not Reported	Site id:	HI8000000002145

L35
ENE
1/2 - 1 Mile
Higher

FED USGS **USGS40000269555**

Org. Identifier:	USGS-HI		
Formal name:	USGS Hawaii Water Science Center		
Monloc Identifier:	USGS-211753157500201		
Monloc name:	3-1750-02 W45 MCCULY		
Monloc type:	Well		
Monloc desc:	Not Reported		
Huc code:	20060000	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	21.2948913
Longitude:	-157.8311463	Sourcemap scale:	24000
Horiz Acc measure:	1	Horiz Acc measure units:	seconds
Horiz Collection method:	Interpolated from map		
Horiz coord refsys:	NAD83	Vert measure val:	8.00
Vert measure units:	feet	Vertacc measure val:	2
Vert accmeasure units:	feet		
Vertcollection method:	Interpolated from topographic map		
Vert coord refsys:	HILOCAL	Countrycode:	US
Aquifername:	Not Reported		
Formation type:	Not Reported		
Aquifer type:	Not Reported		
Construction date:	18900101	Welldepth:	416
Welldepth units:	ft	Wellholedepth:	Not Reported
Wellholedepth units:	Not Reported		

Ground-water levels, Number of Measurements: 0

L36
ENE
1/2 - 1 Mile
Higher

HI WELLS **HI8000000002115**

Objectid:	597	Wid:	3-1750-002
Island:	Oahu	Well name:	McCully
Old name:	Not Reported		
Yr drilled:	1890		
Driller:	Not Reported		
Quad map:	13		
Long83dd:	-157.831111111		
Lat83dd:	21.295		
Gps:	0	Utm:	-1
Owner user:	Not Reported	Old number:	Not Reported

Well type:	Not Reported	Casing dia:	6
Ground el:	9		
Well depth:	416		
Solid case:	363	Perf case:	Not Reported
Use:	ABN - Sealed	Use year:	Not Reported
Init head:	29.6	Init head2:	Not Reported
Init head3:	Not Reported		
Init cl:	75		
Test date:	Not Reported	Test gpm:	Not Reported
Test ddown:	Not Reported	Test chlor:	Not Reported
Test temp:	Not Reported	Test unit:	Not Reported
Pump gpm:	0		
Draft mgy:	Not Reported	Head feet:	Not Reported
Max chlor:	Not Reported	Min chlor:	Not Reported
Geology:	Not Reported		
Pump yr:	0		
Draft yr:	Not Reported	Bot hole:	-407
Bot solid:	-354	Bot perf:	Not Reported
Spec capac:	Not Reported		
Pump mgd:	0		
Draft mgd:	Not Reported	Pump elev:	Not Reported
Pump depth:	Not Reported	Tmk:	Not Reported
Aqui code:	30102		
Latest hd:	Not Reported	Wcr:	30-DEC-99
Pir:	Not Reported	Surveyor:	Not Reported
T:	Not Reported	Site id:	HI8000000002115

M37
NNW
1/2 - 1 Mile
Higher

FED USGS **USGS40000269584**

Org. Identifier:	USGS-HI		
Formal name:	USGS Hawaii Water Science Center		
Monloc Identifier:	USGS-211808157504301		
Monloc name:	3-1850-15 W76 MAKIKI		
Monloc type:	Well		
Monloc desc:	Not Reported		
Huc code:	20060000	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	21.299058
Longitude:	-157.8425352	Sourcemap scale:	24000
Horiz Acc measure:	5	Horiz Acc measure units:	seconds
Horiz Collection method:	Interpolated from map		
Horiz coord refsys:	NAD83	Vert measure val:	17.00
Vert measure units:	feet	Vertacc measure val:	2
Vert accmeasure units:	feet		
Vertcollection method:	Interpolated from topographic map		
Vert coord refsys:	HILOCAL	Countrycode:	US
Aquifername:	Not Reported		
Formation type:	Not Reported		
Aquifer type:	Not Reported		
Construction date:	18840101	Welldepth:	656
Welldepth units:	ft	Wellholedepth:	Not Reported
Wellholedepth units:	Not Reported		

Ground-water levels, Number of Measurements: 0

Map ID Direction Distance Elevation		Database	EDR ID Number
M38 **NNW** **1/2 - 1 Mile** **Higher**		**HI WELLS**	**HI8000000002148**

Objectid:	713	Wid:	3-1850-015
Island:	Oahu	Well name:	Makiki
Old name:	Not Reported		
Yr drilled:	1884		
Driller:	MCCANDLESS		
Quad map:	13		
Long83dd:	-157.8425		
Lat83dd:	21.2991666667		
Gps:	0	Utm:	-1
Owner user:	Wilcox G N	Old number:	76-
Well type:	Not Reported	Casing dia:	6
Ground el:	17		
Well depth:	656		
Solid case:	455	Perf case:	Not Reported
Use:	ABN - Sealed	Use year:	Not Reported
Init head:	19	Init head2:	Not Reported
Init head3:	Not Reported		
Init cl:	0		
Test date:	Not Reported	Test gpm:	Not Reported
Test ddown:	Not Reported	Test chlor:	Not Reported
Test temp:	Not Reported	Test unit:	Not Reported
Pump gpm:	0		
Draft mgy:	Not Reported	Head feet:	Not Reported
Max chlor:	Not Reported	Min chlor:	Not Reported
Geology:	TKB		
Pump yr:	0		
Draft yr:	Not Reported	Bot hole:	-639
Bot solid:	-438	Bot perf:	Not Reported
Spec capac:	Not Reported		
Pump mgd:	0		
Draft mgd:	Not Reported	Pump elev:	Not Reported
Pump depth:	Not Reported	Tmk:	Not Reported
Aqui code:	30102		
Latest hd:	Not Reported	Wcr:	30-DEC-99
Pir:	Not Reported	Surveyor:	Not Reported
T:	Not Reported	Site id:	HI8000000002148

		Database	EDR ID Number
K39 **South** **1/2 - 1 Mile** **Higher**		**HI WELLS**	**HI8000000002042**

Objectid:	612	Wid:	3-1750-017
Island:	Oahu	Well name:	HHV 3
Old name:	Not Reported		
Yr drilled:	2005		
Driller:	Not Reported		
Quad map:	13		
Long83dd:	-157.840277778		
Lat83dd:	21.2825		
Gps:	-1	Utm:	0
Owner user:	Not Reported	Old number:	Not Reported

Well type:	PER	Casing dia:	16
Ground el:	Not Reported		
Well depth:	250		
Solid case:	97	Perf case:	Not Reported
Use:	UNU - Unused	Use year:	Not Reported
Init head:	Not Reported	Init head2:	Not Reported
Init head3:	Not Reported		
Init cl:	0		
Test date:	Not Reported	Test gpm:	Not Reported
Test ddown:	Not Reported	Test chlor:	Not Reported
Test temp:	Not Reported	Test unit:	Not Reported
Pump gpm:	0		
Draft mgy:	Not Reported	Head feet:	Not Reported
Max chlor:	Not Reported	Min chlor:	Not Reported
Geology:	PLS		
Pump yr:	0		
Draft yr:	Not Reported	Bot hole:	Not Reported
Bot solid:	Not Reported	Bot perf:	Not Reported
Spec capac:	Not Reported		
Pump mgd:	0		
Draft mgd:	Not Reported	Pump elev:	Not Reported
Pump depth:	Not Reported	Tmk:	(1) 2-3-037:012
Aqui code:	30101		
Latest hd:	Not Reported	Wcr:	03-JUN-05
Pir:	Not Reported	Surveyor:	Not Reported
T:	Not Reported	Site id:	HI8000000002042

K40
South
1/2 - 1 Mile
Higher

HI WELLS **HI8000000002043**

Objectid:	613	Wid:	3-1750-018
Island:	Oahu	Well name:	HHV 4
Old name:	Not Reported		
Yr drilled:	2005		
Driller:	Not Reported		
Quad map:	13		
Long83dd:	-157.840277778		
Lat83dd:	21.2825		
Gps:	-1	Utm:	0
Owner user:	Not Reported	Old number:	Not Reported
Well type:	PER	Casing dia:	16
Ground el:	Not Reported		
Well depth:	255		
Solid case:	82	Perf case:	Not Reported
Use:	UNU - Unused	Use year:	Not Reported
Init head:	Not Reported	Init head2:	Not Reported
Init head3:	Not Reported		
Init cl:	0		
Test date:	Not Reported	Test gpm:	Not Reported
Test ddown:	Not Reported	Test chlor:	Not Reported
Test temp:	Not Reported	Test unit:	Not Reported
Pump gpm:	0		
Draft mgy:	Not Reported	Head feet:	Not Reported
Max chlor:	Not Reported	Min chlor:	Not Reported
Geology:	PLS		
Pump yr:	0		
Draft yr:	Not Reported	Bot hole:	Not Reported
Bot solid:	Not Reported	Bot perf:	Not Reported
Spec capac:	Not Reported		
Pump mgd:	0		

Draft mgd:	Not Reported	Pump elev:	Not Reported
Pump depth:	Not Reported	Tmk:	(1) 2-3-037:012
Aqui code:	30101		
Latest hd:	Not Reported	Wcr:	03-JUN-05
Pir:	Not Reported	Surveyor:	Not Reported
T:	Not Reported	Site id:	HI8000000002043

N41
North
1/2 - 1 Mile
Higher

FED USGS **USGS40000269592**

Org. Identifier:	USGS-HI		
Formal name:	USGS Hawaii Water Science Center		
Monloc Identifier:	USGS-211811157503201		
Monloc name:	3-1850-28 W74-1 MAKI		
Monloc type:	Well		
Monloc desc:	Not Reported		
Huc code:	20060000	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	21.2998912
Longitude:	-157.8394796	Sourcemap scale:	24000
Horiz Acc measure:	1	Horiz Acc measure units:	seconds
Horiz Collection method:	Interpolated from map		
Horiz coord refsys:	NAD83	Vert measure val:	20.00
Vert measure units:	feet	Vertacc measure val:	5
Vert accmeasure units:	feet		
Vertcollection method:	Interpolated from topographic map		
Vert coord refsys:	HILOCAL	Countrycode:	US
Aquifername:	Not Reported		
Formation type:	Not Reported		
Aquifer type:	Not Reported		
Construction date:	19380101	Welldepth:	71
Welldepth units:	ft	Wellholedepth:	Not Reported
Wellholedepth units:	Not Reported		

Ground-water levels, Number of Measurements: 0

H42
SSE
1/2 - 1 Mile
Higher

HI WELLS **HI8000000002047**

Objectid:	601	Wid:	3-1750-006
Island:	Oahu	Well name:	Waikiki
Old name:	Not Reported		
Yr drilled:	1955		
Driller:	SAMSON-SMOCK		
Quad map:	13		
Long83dd:	-157.836111111		
Lat83dd:	21.2827777778		
Gps:	0	Utm:	-1
Owner user:	Hilton Hotel	Old number:	30-

Well type:	Not Reported	Casing dia:	8
Ground el:	Not Reported		
Well depth:	122		
Solid case:	93	Perf case:	Not Reported
Use:	UNU - Unused	Use year:	Not Reported
Init head:	Not Reported	Init head2:	Not Reported
Init head3:	Not Reported		
Init cl:	0		
Test date:	Not Reported	Test gpm:	Not Reported
Test ddown:	Not Reported	Test chlor:	Not Reported
Test temp:	Not Reported	Test unit:	Not Reported
Pump gpm:	0		
Draft mgy:	Not Reported	Head feet:	Not Reported
Max chlor:	Not Reported	Min chlor:	Not Reported
Geology:	Not Reported		
Pump yr:	0		
Draft yr:	Not Reported	Bot hole:	Not Reported
Bot solid:	Not Reported	Bot perf:	Not Reported
Spec capac:	Not Reported		
Pump mgd:	0		
Draft mgd:	Not Reported	Pump elev:	Not Reported
Pump depth:	Not Reported	Tmk:	(1) 2-6-008:034
Aqui code:	30101		
Latest hd:	Not Reported	Wcr:	01-JAN-55
Pir:	Not Reported	Surveyor:	Not Reported
T:	Not Reported	Site id:	HI8000000002047

O43
NE
1/2 - 1 Mile
Higher

FED USGS **USGS40000269570**

Org. Identifier:	USGS-HI		
Formal name:	USGS Hawaii Water Science Center		
Monloc Identifier:	USGS-211803157500801		
Monloc name:	3-1850-02 W51 MAKIKI		
Monloc type:	Well		
Monloc desc:	Not Reported		
Huc code:	20060000	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	21.2976689
Longitude:	-157.8328129	Sourcemap scale:	24000
Horiz Acc measure:	5	Horiz Acc measure units:	seconds
Horiz Collection method:	Interpolated from map		
Horiz coord refsys:	NAD83	Vert measure val:	25.00
Vert measure units:	feet	Vertacc measure val:	5
Vert accmeasure units:	feet		
Vertcollection method:	Interpolated from topographic map		
Vert coord refsys:	HILOCAL	Countrycode:	US
Aquifername:	Not Reported		
Formation type:	Not Reported		
Aquifer type:	Not Reported		
Construction date:	18800101	Welldepth:	475
Welldepth units:	ft	Wellholedepth:	Not Reported
Wellholedepth units:	Not Reported		

Ground-water levels, Number of Measurements: 0

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance
Elevation

	Database	EDR ID Number
P44 **SSE** **1/2 - 1 Mile** **Higher**	**FED USGS**	**USGS40000269494**

Org. Identifier:	USGS-HI		
Formal name:	USGS Hawaii Water Science Center		
Monloc Identifier:	USGS-211709157502001		
Monloc name:	3-1750-06 W30 DERUSY		
Monloc type:	Well		
Monloc desc:	Not Reported		
Huc code:	20060000	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	21.28267
Longitude:	-157.8361467	Sourcemap scale:	24000
Horiz Acc measure:	1	Horiz Acc measure units:	seconds
Horiz Collection method:	Interpolated from map		
Horiz coord refsys:	NAD83	Vert measure val:	5.00
Vert measure units:	feet	Vertacc measure val:	2
Vert accmeasure units:	feet		
Vertcollection method:	Interpolated from topographic map		
Vert coord refsys:	HILOCAL	Countrycode:	US
Aquifername:	Not Reported		
Formation type:	Not Reported		
Aquifer type:	Not Reported		
Construction date:	19550607	Welldepth:	122
Welldepth units:	ft	Wellholedepth:	Not Reported
Wellholedepth units:	Not Reported		

Ground-water levels, Number of Measurements: 0

	Database	EDR ID Number
K45 **South** **1/2 - 1 Mile** **Higher**	**HI WELLS**	**HI8000000002040**

Objectid:	614	Wid:	3-1750-019
Island:	Oahu	Well name:	HHV 5
Old name:	Not Reported		
Yr drilled:	2005		
Driller:	Not Reported		
Quad map:	13		
Long83dd:	-157.840277778		
Lat83dd:	21.2822222222		
Gps:	-1	Utm:	0
Owner user:	Not Reported	Old number:	Not Reported
Well type:	PER	Casing dia:	16
Ground el:	Not Reported		
Well depth:	260		
Solid case:	83	Perf case:	Not Reported
Use:	UNU - Unused	Use year:	Not Reported
Init head:	Not Reported	Init head2:	Not Reported
Init head3:	Not Reported		
Init cl:	0		
Test date:	Not Reported	Test gpm:	Not Reported
Test ddown:	Not Reported	Test chlor:	Not Reported

Test temp:	Not Reported	Test unit:	Not Reported
Pump gpm:	0		
Draft mgy:	Not Reported	Head feet:	Not Reported
Max chlor:	Not Reported	Min chlor:	Not Reported
Geology:	PLS		
Pump yr:	0		
Draft yr:	Not Reported	Bot hole:	Not Reported
Bot solid:	Not Reported	Bot perf:	Not Reported
Spec capac:	Not Reported		
Pump mgd:	0		
Draft mgd:	Not Reported	Pump elev:	Not Reported
Pump depth:	Not Reported	Tmk:	(1) 2-3-037:012
Aqui code:	30101		
Latest hd:	Not Reported	Wcr:	03-JUN-05
Pir:	Not Reported	Surveyor:	Not Reported
T:	Not Reported	Site id:	HI8000000002040

O46
NE
1/2 - 1 Mile
Higher

HI WELLS **HI8000000002138**

Objectid:	700	Wid:	3-1850-002
Island:	Oahu	Well name:	Makiki
Old name:	Not Reported		
Yr drilled:	1880		
Driller:	PIERCE		
Quad map:	13		
Long83dd:	-157.832777778		
Lat83dd:	21.2977777778		
Gps:	0	Utm:	-1
Owner user:	KS/Bishop Trust	Old number:	51-
Well type:	Not Reported	Casing dia:	5
Ground el:	25		
Well depth:	475		
Solid case:	347	Perf case:	Not Reported
Use:	ABN - Sealed	Use year:	Not Reported
Init head:	29.8	Init head2:	Not Reported
Init head3:	Not Reported		
Init cl:	51		
Test date:	Not Reported	Test gpm:	Not Reported
Test ddown:	Not Reported	Test chlor:	Not Reported
Test temp:	Not Reported	Test unit:	Not Reported
Pump gpm:	0		
Draft mgy:	Not Reported	Head feet:	Not Reported
Max chlor:	Not Reported	Min chlor:	Not Reported
Geology:	TKB		
Pump yr:	0		
Draft yr:	Not Reported	Bot hole:	-450
Bot solid:	-322	Bot perf:	Not Reported
Spec capac:	Not Reported		
Pump mgd:	0		
Draft mgd:	Not Reported	Pump elev:	Not Reported
Pump depth:	Not Reported	Tmk:	(1) 3-9-010:001
Aqui code:	30102		
Latest hd:	Not Reported	Wcr:	30-DEC-99
Pir:	Not Reported	Surveyor:	Not Reported
T:	Not Reported	Site id:	HI8000000002138

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance
Elevation

	Database	EDR ID Number
K47 **South** **1/2 - 1 Mile** **Higher**	**HI WELLS**	**HI8000000002035**

Objectid:	615	Wid:	3-1750-020
Island:	Oahu	Well name:	HHV 6
Old name:	Not Reported		
Yr drilled:	2005		
Driller:	Not Reported		
Quad map:	13		
Long83dd:	-157.840277778		
Lat83dd:	21.2819444444		
Gps:	-1	Utm:	0
Owner user:	Not Reported	Old number:	Not Reported
Well type:	PER	Casing dia:	16
Ground el:	Not Reported		
Well depth:	205		
Solid case:	87	Perf case:	Not Reported
Use:	UNU - Unused	Use year:	Not Reported
Init head:	Not Reported	Init head2:	Not Reported
Init head3:	Not Reported		
Init cl:	0		
Test date:	Not Reported	Test gpm:	Not Reported
Test ddown:	Not Reported	Test chlor:	Not Reported
Test temp:	Not Reported	Test unit:	Not Reported
Pump gpm:	0		
Draft mgy:	Not Reported	Head feet:	Not Reported
Max chlor:	Not Reported	Min chlor:	Not Reported
Geology:	PLS		
Pump yr:	0		
Draft yr:	Not Reported	Bot hole:	Not Reported
Bot solid:	Not Reported	Bot perf:	Not Reported
Spec capac:	Not Reported		
Pump mgd:	0		
Draft mgd:	Not Reported	Pump elev:	Not Reported
Pump depth:	Not Reported	Tmk:	(1) 2-3-037:012
Aqui code:	30101		
Latest hd:	Not Reported	Wcr:	03-JUN-05
Pir:	Not Reported	Surveyor:	Not Reported
T:	Not Reported	Site id:	HI8000000002035

	Database	EDR ID Number
K48 **South** **1/2 - 1 Mile** **Higher**	**HI WELLS**	**HI8000000002036**

Objectid:	616	Wid:	3-1750-021
Island:	Oahu	Well name:	HHV 7
Old name:	Not Reported		
Yr drilled:	2005		
Driller:	Not Reported		
Quad map:	13		
Long83dd:	-157.840277778		
Lat83dd:	21.2819444444		
Gps:	-1	Utm:	0
Owner user:	Not Reported	Old number:	Not Reported

Well type:	PER	Casing dia:	16
Ground el:	Not Reported		
Well depth:	250		
Solid case:	82	Perf case:	Not Reported
Use:	UNU - Unused	Use year:	Not Reported
Init head:	Not Reported	Init head2:	Not Reported
Init head3:	Not Reported		
Init cl:	0		
Test date:	Not Reported	Test gpm:	Not Reported
Test ddown:	Not Reported	Test chlor:	Not Reported
Test temp:	Not Reported	Test unit:	Not Reported
Pump gpm:	0		
Draft mgy:	Not Reported	Head feet:	Not Reported
Max chlor:	Not Reported	Min chlor:	Not Reported
Geology:	PLS		
Pump yr:	0		
Draft yr:	Not Reported	Bot hole:	Not Reported
Bot solid:	Not Reported	Bot perf:	Not Reported
Spec capac:	Not Reported		
Pump mgd:	0		
Draft mgd:	Not Reported	Pump elev:	Not Reported
Pump depth:	Not Reported	Tmk:	(1) 2-3-037:012
Aqui code:	30101		
Latest hd:	Not Reported	Wcr:	03-JUN-05
Pir:	Not Reported	Surveyor:	Not Reported
T:	Not Reported	Site id:	HI8000000002036

P49
SSE
1/2 - 1 Mile
Higher

HI WELLS **HI8000000002037**

Objectid:	599	Wid:	3-1750-004
Island:	Oahu	Well name:	Waikiki
Old name:	Not Reported		
Yr drilled:	1950		
Driller:	SAMSON-SMOCK		
Quad map:	13		
Long83dd:	-157.837222222		
Lat83dd:	21.2819444444		
Gps:	0	Utm:	-1
Owner user:	Niumalu Hotel	Old number:	30-3
Well type:	Not Reported	Casing dia:	10
Ground el:	Not Reported		
Well depth:	62		
Solid case:	61	Perf case:	Not Reported
Use:	UNU - Unused	Use year:	Not Reported
Init head:	Not Reported	Init head2:	Not Reported
Init head3:	Not Reported		
Init cl:	0		
Test date:	Not Reported	Test gpm:	230
Test ddown:	1	Test chlor:	Not Reported
Test temp:	Not Reported	Test unit:	Not Reported
Pump gpm:	0		
Draft mgy:	Not Reported	Head feet:	Not Reported
Max chlor:	Not Reported	Min chlor:	Not Reported
Geology:	Not Reported		
Pump yr:	0		
Draft yr:	Not Reported	Bot hole:	Not Reported
Bot solid:	Not Reported	Bot perf:	Not Reported
Spec capac:	230		
Pump mgd:	0		

Draft mgd:	Not Reported	Pump elev:	Not Reported
Pump depth:	Not Reported	Tmk:	(1) 2-6-008:034
Aqui code:	30101		
Latest hd:	Not Reported	Wcr:	01-JAN-50
Pir:	Not Reported	Surveyor:	Not Reported
T:	Not Reported	Site id:	HI8000000002037

N50
North
1/2 - 1 Mile
Higher

FED USGS **USGS40000269603**

Org. Identifier:	USGS-HI		
Formal name:	USGS Hawaii Water Science Center		
Monloc Identifier:	USGS-211813157503101		
Monloc name:	3-1850-16 W74 MAKIKI		
Monloc type:	Well		
Monloc desc:	Not Reported		
Huc code:	20060000	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	21.3004467
Longitude:	-157.8392018	Sourcemap scale:	24000
Horiz Acc measure:	5	Horiz Acc measure units:	seconds
Horiz Collection method:	Interpolated from map		
Horiz coord refsys:	NAD83	Vert measure val:	22.00
Vert measure units:	feet	Vertacc measure val:	5
Vert accmeasure units:	feet		
Vertcollection method:	Interpolated from topographic map		
Vert coord refsys:	HILOCAL	Countrycode:	US
Aquifername:	Not Reported		
Formation type:	Not Reported		
Aquifer type:	Not Reported		
Construction date:	18860101	Welldepth:	442
Welldepth units:	ft	Wellholedepth:	Not Reported
Wellholedepth units:	Not Reported		

Ground-water levels, Number of Measurements: 0

51
South
1/2 - 1 Mile
Higher

FED USGS **USGS40000269490**

Org. Identifier:	USGS-HI		
Formal name:	USGS Hawaii Water Science Center		
Monloc Identifier:	USGS-211706157502401		
Monloc name:	3-1750-04 W30-3		
Monloc type:	Well		
Monloc desc:	Not Reported		
Huc code:	20060000	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	21.2818367
Longitude:	-157.8372579	Sourcemap scale:	24000

Horiz Acc measure:	1	Horiz Acc measure units:	seconds
Horiz Collection method:	Interpolated from map		
Horiz coord refsys:	NAD83	Vert measure val:	3.00
Vert measure units:	feet	Vertacc measure val:	1
Vert accmeasure units:	feet		
Vertcollection method:	Interpolated from topographic map		
Vert coord refsys:	HILOCAL	Countrycode:	US
Aquifername:	Not Reported		
Formation type:	Not Reported		
Aquifer type:	Not Reported		
Construction date:	19500501	Welldepth:	62
Welldepth units:	ft	Wellholedepth:	Not Reported
Wellholedepth units:	Not Reported		

Ground-water levels, Number of Measurements: 1

Date	Feet below Surface	Feet to Sealevel
1950-05-01	3.00	

N52
North
1/2 - 1 Mile
Higher

HI WELLS **HI8000000002170**

Objectid:	714	Wid:	3-1850-016
Island:	Oahu	Well name:	Makiki
Old name:	Not Reported		
Yr drilled:	1886		
Driller:	Not Reported		
Quad map:	13		
Long83dd:	-157.839166667		
Lat83dd:	21.3005555556		
Gps:	0	Utm:	-1
Owner user:	C&C Honolulu	Old number:	74-
Well type:	Not Reported	Casing dia:	6
Ground el:	22		
Well depth:	442		
Solid case:	400	Perf case:	Not Reported
Use:	ABN - Sealed	Use year:	Not Reported
Init head:	25.8	Init head2:	Not Reported
Init head3:	Not Reported		
Init cl:	53		
Test date:	Not Reported	Test gpm:	Not Reported
Test ddown:	Not Reported	Test chlor:	Not Reported
Test temp:	Not Reported	Test unit:	Not Reported
Pump gpm:	0		
Draft mgy:	Not Reported	Head feet:	Not Reported
Max chlor:	Not Reported	Min chlor:	Not Reported
Geology:	Not Reported		
Pump yr:	0		
Draft yr:	Not Reported	Bot hole:	-420
Bot solid:	-378	Bot perf:	Not Reported
Spec capac:	Not Reported		
Pump mgd:	0		

Draft mgd:	Not Reported	Pump elev:	Not Reported
Pump depth:	Not Reported	Tmk:	Not Reported
Aqui code:	30102		
Latest hd:	Not Reported	Wcr:	30-DEC-99
Pir:	Not Reported	Surveyor:	Not Reported
T:	Not Reported	Site id:	HI8000000002170

Q53
NE
1/2 - 1 Mile
Higher

FED USGS **USGS40000269575**

Org. Identifier:	USGS-HI		
Formal name:	USGS Hawaii Water Science Center		
Monloc Identifier:	USGS-211804157500301		
Monloc name:	3-1850-10 W49 MAKIKI		
Monloc type:	Well		
Monloc desc:	Not Reported		
Huc code:	20060000	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	21.2979467
Longitude:	-157.831424	Sourcemap scale:	24000
Horiz Acc measure:	5	Horiz Acc measure units:	seconds
Horiz Collection method:	Interpolated from map		
Horiz coord refsys:	NAD83	Vert measure val:	28.00
Vert measure units:	feet	Vertacc measure val:	5
Vert accmeasure units:	feet		
Vertcollection method:	Interpolated from topographic map		
Vert coord refsys:	HILOCAL	Countrycode:	US
Aquifername:	Not Reported		
Formation type:	Not Reported		
Aquifer type:	Not Reported		
Construction date:	18830101	Welldepth:	281
Welldepth units:	ft	Wellholedepth:	Not Reported
Wellholedepth units:	Not Reported		

Ground-water levels, Number of Measurements: 0

Q54
NE
1/2 - 1 Mile
Higher

HI WELLS **HI8000000002139**

Objectid:	708	Wid:	3-1850-010
Island:	Oahu	Well name:	Makiki
Old name:	Not Reported		
Yr drilled:	1883		
Driller:	Not Reported		
Quad map:	13		
Long83dd:	-157.831388889		
Lat83dd:	21.2980555556		
Gps:	0	Utm:	-1
Owner user:	Yap Lin	Old number:	49-

Well type:	Not Reported	Casing dia:	6
Ground el:	28		
Well depth:	281		
Solid case:	234	Perf case:	Not Reported
Use:	ABN - Sealed	Use year:	Not Reported
Init head:	30.3	Init head2:	Not Reported
Init head3:	Not Reported		
Init cl:	0		
Test date:	Not Reported	Test gpm:	Not Reported
Test ddown:	Not Reported	Test chlor:	Not Reported
Test temp:	Not Reported	Test unit:	Not Reported
Pump gpm:	0		
Draft mgy:	Not Reported	Head feet:	Not Reported
Max chlor:	Not Reported	Min chlor:	Not Reported
Geology:	Not Reported		
Pump yr:	0		
Draft yr:	Not Reported	Bot hole:	-253
Bot solid:	-206	Bot perf:	Not Reported
Spec capac:	Not Reported		
Pump mgd:	0		
Draft mgd:	Not Reported	Pump elev:	Not Reported
Pump depth:	Not Reported	Tmk:	Not Reported
Aqui code:	30102		
Latest hd:	Not Reported	Wcr:	30-DEC-99
Pir:	Not Reported	Surveyor:	Not Reported
T:	Not Reported	Site id:	HI8000000002139

R55
NNE
1/2 - 1 Mile
Higher

FED USGS **USGS40000269591**

Org. Identifier:	USGS-HI		
Formal name:	USGS Hawaii Water Science Center		
Monloc Identifier:	USGS-211810157501001		
Monloc name:	3-1850-04 W55 MAKIKI		
Monloc type:	Well		
Monloc desc:	Not Reported		
Huc code:	20060000	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	21.2996133
Longitude:	-157.8333684	Sourcemap scale:	24000
Horiz Acc measure:	5	Horiz Acc measure units:	seconds
Horiz Collection method:	Interpolated from map		
Horiz coord refsys:	NAD83	Vert measure val:	36.00
Vert measure units:	feet	Vertacc measure val:	5
Vert accmeasure units:	feet		
Vertcollection method:	Interpolated from topographic map		
Vert coord refsys:	HILOCAL	Countrycode:	US
Aquifername:	Not Reported		
Formation type:	Not Reported		
Aquifer type:	Not Reported		
Construction date:	18820101	Welldepth:	300
Welldepth units:	ft	Wellholedepth:	Not Reported
Wellholedepth units:	Not Reported		

Ground-water levels, Number of Measurements: 0

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance
Elevation

	Database	EDR ID Number
R56 **NNE** **1/2 - 1 Mile** **Higher**	**HI WELLS**	**HI8000000002156**

Objectid:	702	Wid:	3-1850-004
Island:	Oahu	Well name:	Makiki
Old name:	Not Reported		
Yr drilled:	1882		
Driller:	PIERCE		
Quad map:	13		
Long83dd:	-157.833333333		
Lat83dd:	21.2997222222		
Gps:	0	Utm:	-1
Owner user:	Dillingham B	Old number:	55-
Well type:	Not Reported	Casing dia:	6
Ground el:	36		
Well depth:	300		
Solid case:	Not Reported	Perf case:	Not Reported
Use:	ABN - Sealed	Use year:	Not Reported
Init head:	30	Init head2:	Not Reported
Init head3:	Not Reported		
Init cl:	0		
Test date:	Not Reported	Test gpm:	Not Reported
Test ddown:	Not Reported	Test chlor:	Not Reported
Test temp:	Not Reported	Test unit:	Not Reported
Pump gpm:	0		
Draft mgy:	Not Reported	Head feet:	Not Reported
Max chlor:	Not Reported	Min chlor:	Not Reported
Geology:	TKB		
Pump yr:	0		
Draft yr:	Not Reported	Bot hole:	-264
Bot solid:	Not Reported	Bot perf:	Not Reported
Spec capac:	Not Reported		
Pump mgd:	0		
Draft mgd:	Not Reported	Pump elev:	Not Reported
Pump depth:	Not Reported	Tmk:	(1) 3-9-010:001
Aqui code:	30102		
Latest hd:	Not Reported	Wcr:	30-DEC-99
Pir:	Not Reported	Surveyor:	Not Reported
T:	Not Reported	Site id:	HI8000000002156

	Database	EDR ID Number
Q57 **NE** **1/2 - 1 Mile** **Higher**	**FED USGS**	**USGS40000269583**

Org. Identifier:	USGS-HI		
Formal name:	USGS Hawaii Water Science Center		
Monloc Identifier:	USGS-211808157500501		
Monloc name:	3-1850-11 W53 MAKIKI		
Monloc type:	Well		
Monloc desc:	Not Reported		
Huc code:	20060000	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	21.2990577
Longitude:	-157.8319795	Sourcemap scale:	24000

Horiz Acc measure:	5	Horiz Acc measure units:	seconds
Horiz Collection method:	Interpolated from map		
Horiz coord refsys:	NAD83	Vert measure val:	36.00
Vert measure units:	feet	Vertacc measure val:	5
Vert accmeasure units:	feet		
Vertcollection method:	Interpolated from topographic map		
Vert coord refsys:	HILOCAL	Countrycode:	US
Aquifername:	Not Reported		
Formation type:	Not Reported		
Aquifer type:	Not Reported		
Construction date:	18830101	Welldepth:	310
Welldepth units:	ft	Wellholedepth:	Not Reported
Wellholedepth units:	Not Reported		

Ground-water levels, Number of Measurements: 0

S58
NE
1/2 - 1 Mile
Higher

HI WELLS **HI8000000002149**

Objectid:	709	Wid:	3-1850-011
Island:	Oahu	Well name:	Makiki
Old name:	Not Reported		
Yr drilled:	1882		
Driller:	Not Reported		
Quad map:	13		
Long83dd:	-157.831944444		
Lat83dd:	21.2991666667		
Gps:	0	Utm:	-1
Owner user:	Dillingham W	Old number:	53-
Well type:	Not Reported	Casing dia:	6
Ground el:	36		
Well depth:	310		
Solid case:	267	Perf case:	Not Reported
Use:	ABN - Sealed	Use year:	Not Reported
Init head:	24.1	Init head2:	Not Reported
Init head3:	Not Reported		
Init cl:	0		
Test date:	Not Reported	Test gpm:	Not Reported
Test ddown:	Not Reported	Test chlor:	Not Reported
Test temp:	Not Reported	Test unit:	Not Reported
Pump gpm:	0		
Draft mgy:	Not Reported	Head feet:	Not Reported
Max chlor:	Not Reported	Min chlor:	Not Reported
Geology:	TKB		
Pump yr:	0		
Draft yr:	Not Reported	Bot hole:	-274
Bot solid:	-231	Bot perf:	Not Reported
Spec capac:	Not Reported		
Pump mgd:	0		
Draft mgd:	Not Reported	Pump elev:	Not Reported
Pump depth:	Not Reported	Tmk:	Not Reported
Aqui code:	30102		
Latest hd:	Not Reported	Wcr:	30-DEC-99
Pir:	Not Reported	Surveyor:	Not Reported
T:	Not Reported	Site id:	HI8000000002149

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance
Elevation

	Database	EDR ID Number
Q59 **NE** **1/2 - 1 Mile** **Higher**	**FED USGS**	**USGS40000269574**

Org. Identifier:	USGS-HI		
Formal name:	USGS Hawaii Water Science Center		
Monloc Identifier:	USGS-211804157500001		
Monloc name:	3-1850-12 W47 MAKIKI		
Monloc type:	Well		
Monloc desc:	Not Reported		
Huc code:	20060000	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	21.2979466
Longitude:	-157.8305906	Sourcemap scale:	24000
Horiz Acc measure:	5	Horiz Acc measure units:	seconds
Horiz Collection method:	Interpolated from map		
Horiz coord refsys:	NAD83	Vert measure val:	25.00
Vert measure units:	feet	Vertacc measure val:	5
Vert accmeasure units:	feet		
Vertcollection method:	Interpolated from topographic map		
Vert coord refsys:	HILOCAL	Countrycode:	US
Aquifername:	Not Reported		
Formation type:	Not Reported		
Aquifer type:	Not Reported		
Construction date:	18840101	Welldepth:	311
Welldepth units:	ft	Wellholedepth:	Not Reported
Wellholedepth units:	Not Reported		

Ground-water levels, Number of Measurements: 0

	Database	EDR ID Number
T60 **NW** **1/2 - 1 Mile** **Higher**	**FED USGS**	**USGS40000269585**

Org. Identifier:	USGS-HI		
Formal name:	USGS Hawaii Water Science Center		
Monloc Identifier:	USGS-211808157505801		
Monloc name:	3-1850-09 W77 MAKIKI		
Monloc type:	Well		
Monloc desc:	Not Reported		
Huc code:	20060000	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	21.2990581
Longitude:	-157.8467019	Sourcemap scale:	24000
Horiz Acc measure:	5	Horiz Acc measure units:	seconds
Horiz Collection method:	Interpolated from map		
Horiz coord refsys:	NAD83	Vert measure val:	6.00
Vert measure units:	feet	Vertacc measure val:	2
Vert accmeasure units:	feet		
Vertcollection method:	Interpolated from topographic map		
Vert coord refsys:	HILOCAL	Countrycode:	US
Aquifername:	Not Reported		
Formation type:	Not Reported		

Aquifer type:	Not Reported		
Construction date:	18820101	Welldepth:	620
Welldepth units:	ft	Wellholedepth:	Not Reported
Wellholedepth units:	Not Reported		

Ground-water levels, Number of Measurements: 0

Q61
NE
1/2 - 1 Mile
Higher

HI WELLS **HI8000000002140**

Objectid:	710	Wid:	3-1850-012
Island:	Oahu	Well name:	Makiki
Old name:	Not Reported		
Yr drilled:	1884		
Driller:	Not Reported		
Quad map:	13		
Long83dd:	-157.830555556		
Lat83dd:	21.2980555556		
Gps:	0	Utm:	-1
Owner user:	Howard M	Old number:	47-
Well type:	Not Reported	Casing dia:	6
Ground el:	25		
Well depth:	311		
Solid case:	305	Perf case:	Not Reported
Use:	ABN - Sealed	Use year:	Not Reported
Init head:	30.7	Init head2:	Not Reported
Init head3:	Not Reported		
Init cl:	60		
Test date:	Not Reported	Test gpm:	Not Reported
Test ddown:	Not Reported	Test chlor:	Not Reported
Test temp:	Not Reported	Test unit:	Not Reported
Pump gpm:	0		
Draft mgy:	Not Reported	Head feet:	Not Reported
Max chlor:	Not Reported	Min chlor:	Not Reported
Geology:	Not Reported		
Pump yr:	0		
Draft yr:	Not Reported	Bot hole:	-286
Bot solid:	-280	Bot perf:	Not Reported
Spec capac:	Not Reported		
Pump mgd:	0		
Draft mgd:	Not Reported	Pump elev:	Not Reported
Pump depth:	Not Reported	Tmk:	Not Reported
Aqui code:	30102		
Latest hd:	Not Reported	Wcr:	30-DEC-99
Pir:	Not Reported	Surveyor:	Not Reported
T:	Not Reported	Site id:	HI8000000002140

T62
NW
1/2 - 1 Mile
Higher

HI WELLS **HI8000000002147**

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Objectid:	707	Wid:	3-1850-009
Island:	Oahu	Well name:	Makiki
Old name:	Not Reported		
Yr drilled:	1882		
Driller:	COOKE-PEDDLER		
Quad map:	13		
Long83dd:	-157.846666667		
Lat83dd:	21.2991666667		
Gps:	0	Utm:	-1
Owner user:	State Of Hawaii	Old number:	77-
Well type:	Not Reported	Casing dia:	6
Ground el:	6		
Well depth:	620		
Solid case:	Not Reported	Perf case:	Not Reported
Use:	ABN - Sealed	Use year:	Not Reported
Init head:	29.6	Init head2:	Not Reported
Init head3:	Not Reported		
Init cl:	62		
Test date:	Not Reported	Test gpm:	Not Reported
Test ddown:	Not Reported	Test chlor:	Not Reported
Test temp:	Not Reported	Test unit:	Not Reported
Pump gpm:	0		
Draft mgy:	Not Reported	Head feet:	Not Reported
Max chlor:	Not Reported	Min chlor:	Not Reported
Geology:	Not Reported		
Pump yr:	0		
Draft yr:	Not Reported	Bot hole:	-614
Bot solid:	Not Reported	Bot perf:	Not Reported
Spec capac:	Not Reported		
Pump mgd:	0		
Draft mgd:	Not Reported	Pump elev:	Not Reported
Pump depth:	Not Reported	Tmk:	Not Reported
Aqui code:	30102		
Latest hd:	Not Reported	Wcr:	30-DEC-99
Pir:	Not Reported	Surveyor:	Not Reported
T:	Not Reported	Site id:	HI8000000002147

U63
NE
1/2 - 1 Mile
Higher

FED USGS **USGS40000269566**

Org. Identifier:	USGS-HI		
Formal name:	USGS Hawaii Water Science Center		
Monloc Identifier:	USGS-211801157495701		
Monloc name:	3-1849-08 W44 MAKIKI		
Monloc type:	Well		
Monloc desc:	Not Reported		
Huc code:	20060000	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	21.2971133
Longitude:	-157.8297573	Sourcemap scale:	24000
Horiz Acc measure:	5	Horiz Acc measure units:	seconds
Horiz Collection method:	Interpolated from map		
Horiz coord refsys:	NAD83	Vert measure val:	20.00
Vert measure units:	feet	Vertacc measure val:	5
Vert accmeasure units:	feet		
Vertcollection method:	Interpolated from topographic map		
Vert coord refsys:	HILOCAL	Countrycode:	US
Aquifername:	Not Reported		
Formation type:	Not Reported		

Aquifer type:	Not Reported		
Construction date:	18940101	Welldepth:	397
Welldepth units:	ft	Wellholedepth:	Not Reported
Wellholedepth units:	Not Reported		

Ground-water levels, Number of Measurements: 0

T64
NW
1/2 - 1 Mile
Higher

HI WELLS **HI8000000002153**

Objectid:	727	Wid:	3-1850-029
Island:	Oahu	Well name:	Mckinley Aqua 2
Old name:	Not Reported		
Yr drilled:	1993		
Driller:	ROSCOE MOSS		
Quad map:	13		
Long83dd:	-157.846388889		
Lat83dd:	21.2994444444		
Gps:	0	Utm:	-1
Owner user:	Mckinley H S	Old number:	Not Reported
Well type:	Not Reported	Casing dia:	8
Ground el:	10		
Well depth:	65		
Solid case:	45	Perf case:	65
Use:	AGR - Aquatic Plants and Animals	Use year:	Not Reported
Init head:	Not Reported	Init head2:	Not Reported
Init head3:	Not Reported		
Init cl:	0		
Test date:	Not Reported	Test gpm:	Not Reported
Test ddown:	Not Reported	Test chlor:	Not Reported
Test temp:	Not Reported	Test unit:	Not Reported
Pump gpm:	0		
Draft mgy:	Not Reported	Head feet:	Not Reported
Max chlor:	Not Reported	Min chlor:	Not Reported
Geology:	Not Reported		
Pump yr:	0		
Draft yr:	Not Reported	Bot hole:	-55
Bot solid:	-35	Bot perf:	-55
Spec capac:	Not Reported		
Pump mgd:	0		
Draft mgd:	Not Reported	Pump elev:	Not Reported
Pump depth:	Not Reported	Tmk:	(1) 2-3-009:001
Aqui code:	30102		
Latest hd:	Not Reported	Wcr:	17-AUG-93
Pir:	Not Reported	Surveyor:	Not Reported
T:	Not Reported	Site id:	HI8000000002153

Q65
NE
1/2 - 1 Mile
Higher

FED USGS **USGS40000269573**

Org. Identifier:	USGS-HI		
Formal name:	USGS Hawaii Water Science Center		
Monloc Identifier:	USGS-211804157495901		
Monloc name:	3-1849-02 W48 MAKIKI		
Monloc type:	Well		
Monloc desc:	Not Reported		
Huc code:	20060000	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	21.2979466
Longitude:	-157.8303129	Sourcemap scale:	24000
Horiz Acc measure:	5	Horiz Acc measure units:	seconds
Horiz Collection method:	Interpolated from map		
Horiz coord refsys:	NAD83	Vert measure val:	25.00
Vert measure units:	feet	Vertacc measure val:	5
Vert accmeasure units:	feet		
Vertcollection method:	Interpolated from topographic map		
Vert coord refsys:	HILOCAL	Countrycode:	US
Aquifername:	Not Reported		
Formation type:	Not Reported		
Aquifer type:	Not Reported		
Construction date:	18810101	Welldepth:	358
Welldepth units:	ft	Wellholedepth:	Not Reported
Wellholedepth units:	Not Reported		

Ground-water levels, Number of Measurements: 1

Date	Feet below Surface	Feet to Sealevel
1881-01-01	-42.00	

U66
NE
1/2 - 1 Mile
Higher

HI WELLS **HI8000000002131**

Objectid:	690	Wid:	3-1849-008
Island:	Oahu	Well name:	Manoa Valley
Old name:	Not Reported		
Yr drilled:	1894		
Driller:	Not Reported		
Quad map:	13		
Long83dd:	-157.829722222		
Lat83dd:	21.2972222222		
Gps:	0	Utm:	-1
Owner user:	Chinn J T	Old number:	44-
Well type:	Not Reported	Casing dia:	8
Ground el:	20		
Well depth:	397		
Solid case:	337	Perf case:	Not Reported
Use:	ABN - Sealed	Use year:	Not Reported
Init head:	30.8	Init head2:	Not Reported
Init head3:	Not Reported		
Init cl:	56		
Test date:	Not Reported	Test gpm:	Not Reported
Test ddown:	Not Reported	Test chlor:	Not Reported

Test temp:	Not Reported	Test unit:	Not Reported
Pump gpm:	0		
Draft mgy:	Not Reported	Head feet:	Not Reported
Max chlor:	Not Reported	Min chlor:	Not Reported
Geology:	Not Reported		
Pump yr:	0		
Draft yr:	Not Reported	Bot hole:	-377
Bot solid:	-317	Bot perf:	Not Reported
Spec capac:	Not Reported		
Pump mgd:	0		
Draft mgd:	Not Reported	Pump elev:	Not Reported
Pump depth:	Not Reported	Tmk:	Not Reported
Aqui code:	30102		
Latest hd:	Not Reported	Wcr:	30-DEC-99
Pir:	Not Reported	Surveyor:	Not Reported
T:	Not Reported	Site id:	HI8000000002131

V67
NNE
1/2 - 1 Mile
Higher

FED USGS **USGS40000269607**

Org. Identifier:	USGS-HI		
Formal name:	USGS Hawaii Water Science Center		
Monloc Identifier:	USGS-211815157501401		
Monloc name:	3-1850-06 W64 MAKIKI		
Monloc type:	Well		
Monloc desc:	Not Reported		
Huc code:	20060000	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	21.3010021
Longitude:	-157.8344795	Sourcemap scale:	24000
Horiz Acc measure:	5	Horiz Acc measure units:	seconds
Horiz Collection method:	Interpolated from map		
Horiz coord refsys:	NAD83	Vert measure val:	47.00
Vert measure units:	feet	Vertacc measure val:	5
Vert accmeasure units:	feet		
Vertcollection method:	Interpolated from topographic map		
Vert coord refsys:	HILOCAL	Countrycode:	US
Aquifername:	Not Reported		
Formation type:	Not Reported		
Aquifer type:	Not Reported		
Construction date:	18820101	Welldepth:	419
Welldepth units:	ft	Wellholedepth:	Not Reported
Wellholedepth units:	Not Reported		

Ground-water levels, Number of Measurements: 0

Q68
NE
1/2 - 1 Mile
Higher

HI WELLS **HI8000000002141**

Objectid:	684	Wid:	3-1849-002
Island:	Oahu	Well name:	Manoa Valley
Old name:	Not Reported		
Yr drilled:	1881		
Driller:	FESSLER		
Quad map:	13		
Long83dd:	-157.830277778		
Lat83dd:	21.2980555556		
Gps:	0	Utm:	-1
Owner user:	Howard M	Old number:	48-
Well type:	Not Reported	Casing dia:	8
Ground el:	25		
Well depth:	358		
Solid case:	306	Perf case:	Not Reported
Use:	ABN - Sealed	Use year:	Not Reported
Init head:	30	Init head2:	Not Reported
Init head3:	Not Reported		
Init cl:	51		
Test date:	Not Reported	Test gpm:	Not Reported
Test ddown:	Not Reported	Test chlor:	Not Reported
Test temp:	Not Reported	Test unit:	Not Reported
Pump gpm:	0		
Draft mgy:	Not Reported	Head feet:	Not Reported
Max chlor:	Not Reported	Min chlor:	Not Reported
Geology:	Not Reported		
Pump yr:	0		
Draft yr:	Not Reported	Bot hole:	-333
Bot solid:	-281	Bot perf:	Not Reported
Spec capac:	Not Reported		
Pump mgd:	0		
Draft mgd:	Not Reported	Pump elev:	Not Reported
Pump depth:	Not Reported	Tmk:	Not Reported
Aqui code:	30102		
Latest hd:	Not Reported	Wcr:	30-DEC-99
Pir:	Not Reported	Surveyor:	Not Reported
T:	Not Reported	Site id:	HI8000000002141

W69
NNE
1/2 - 1 Mile
Higher

FED USGS **USGS40000269614**

Org. Identifier:	USGS-HI		
Formal name:	USGS Hawaii Water Science Center		
Monloc Identifier:	USGS-211817157501901		
Monloc name:	3-1850-19 W65 MAKIKI		
Monloc type:	Well		
Monloc desc:	Not Reported		
Huc code:	20060000	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	21.3015577
Longitude:	-157.8358684	Sourcemap scale:	24000
Horiz Acc measure:	5	Horiz Acc measure units:	seconds
Horiz Collection method:	Interpolated from map		
Horiz coord refsys:	NAD83	Vert measure val:	41.00
Vert measure units:	feet	Vertacc measure val:	5
Vert accmeasure units:	feet		
Vertcollection method:	Interpolated from topographic map		
Vert coord refsys:	HILOCAL	Countrycode:	US
Aquifername:	Not Reported		
Formation type:	Not Reported		

Aquifer type:	Not Reported		
Construction date:	18900101	Welldepth:	277
Welldepth units:	ft	Wellholedepth:	Not Reported
Wellholedepth units:	Not Reported		

Ground-water levels, Number of Measurements: 0

V70
NNE
1/2 - 1 Mile
Higher

HI WELLS **HI8000000002181**

Objectid:	704	Wid:	3-1850-006
Island:	Oahu	Well name:	Makiki
Old name:	Not Reported		
Yr drilled:	1882		
Driller:	Not Reported		
Quad map:	13		
Long83dd:	-157.834444444		
Lat83dd:	21.3011111111		
Gps:	0	Utm:	-1
Owner user:	Dowsett J M	Old number:	64-
Well type:	Not Reported	Casing dia:	4
Ground el:	47		
Well depth:	419		
Solid case:	177	Perf case:	Not Reported
Use:	ABN - Sealed	Use year:	Not Reported
Init head:	27.5	Init head2:	Not Reported
Init head3:	Not Reported		
Init cl:	0		
Test date:	Not Reported	Test gpm:	Not Reported
Test ddown:	Not Reported	Test chlor:	Not Reported
Test temp:	Not Reported	Test unit:	Not Reported
Pump gpm:	0		
Draft mgy:	Not Reported	Head feet:	Not Reported
Max chlor:	Not Reported	Min chlor:	Not Reported
Geology:	Not Reported		
Pump yr:	0		
Draft yr:	Not Reported	Bot hole:	-372
Bot solid:	-130	Bot perf:	Not Reported
Spec capac:	Not Reported		
Pump mgd:	0		
Draft mgd:	Not Reported	Pump elev:	Not Reported
Pump depth:	Not Reported	Tmk:	(1) 3-9-010:001
Aqui code:	30102		
Latest hd:	Not Reported	Wcr:	30-DEC-99
Pir:	Not Reported	Surveyor:	Not Reported
T:	Not Reported	Site id:	HI8000000002181

U71
ENE
1/2 - 1 Mile
Higher

FED USGS **USGS40000269565**

Org. Identifier:	USGS-HI		
Formal name:	USGS Hawaii Water Science Center		
Monloc Identifier:	USGS-211800157495501		
Monloc name:	3-1849-07 W43 MAKIKI		
Monloc type:	Well		
Monloc desc:	Not Reported		
Huc code:	20060000	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	21.2968355
Longitude:	-157.8292018	Sourcemap scale:	24000
Horiz Acc measure:	1	Horiz Acc measure units:	seconds
Horiz Collection method:	Interpolated from map		
Horiz coord refsys:	NAD83	Vert measure val:	18.00
Vert measure units:	feet	Vertacc measure val:	5
Vert accmeasure units:	feet		
Vertcollection method:	Interpolated from topographic map		
Vert coord refsys:	HILOCAL	Countrycode:	US
Aquifername:	Not Reported		
Formation type:	Not Reported		
Aquifer type:	Not Reported		
Construction date:	18910701	Welldepth:	Not Reported
Welldepth units:	Not Reported	Wellholedepth:	Not Reported
Wellholedepth units:	Not Reported		

Ground-water levels, Number of Measurements: 0

W72
NNE
1/2 - 1 Mile
Higher

HI WELLS **HI8000000002187**

Objectid:	717	Wid:	3-1850-019
Island:	Oahu	Well name:	Makiki
Old name:	Not Reported		
Yr drilled:	1890		
Driller:	Not Reported		
Quad map:	13		
Long83dd:	-157.835833333		
Lat83dd:	21.3016666667		
Gps:	0	Utm:	-1
Owner user:	Jodo Mission	Old number:	65-
Well type:	Not Reported	Casing dia:	10
Ground el:	41		
Well depth:	277		
Solid case:	220	Perf case:	Not Reported
Use:	ABN - Sealed	Use year:	Not Reported
Init head:	30.6	Init head2:	Not Reported
Init head3:	Not Reported		
Init cl:	0		
Test date:	Not Reported	Test gpm:	Not Reported
Test ddown:	Not Reported	Test chlor:	Not Reported
Test temp:	Not Reported	Test unit:	Not Reported
Pump gpm:	0		
Draft mgy:	Not Reported	Head feet:	Not Reported
Max chlor:	Not Reported	Min chlor:	Not Reported
Geology:	Not Reported		
Pump yr:	0		
Draft yr:	Not Reported	Bot hole:	-236
Bot solid:	-179	Bot perf:	Not Reported
Spec capac:	Not Reported		
Pump mgd:	0		

Draft mgd:	Not Reported	Pump elev:	Not Reported
Pump depth:	Not Reported	Tmk:	Not Reported
Aqui code:	30102		
Latest hd:	Not Reported	Wcr:	30-DEC-99
Pir:	Not Reported	Surveyor:	Not Reported
T:	Not Reported	Site id:	HI8000000002187

S73
NE
1/2 - 1 Mile
Higher

FED USGS **USGS40000269590**

Org. Identifier:	USGS-HI		
Formal name:	USGS Hawaii Water Science Center		
Monloc Identifier:	USGS-211810157500401		
Monloc name:	3-1850-14 W54 MAKIKI		
Monloc type:	Well		
Monloc desc:	Not Reported		
Huc code:	20060000	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	21.2996132
Longitude:	-157.8317017	Sourcemap scale:	24000
Horiz Acc measure:	5	Horiz Acc measure units:	seconds
Horiz Collection method:	Interpolated from map		
Horiz coord refsys:	NAD83	Vert measure val:	40.00
Vert measure units:	feet	Vertacc measure val:	5
Vert accmeasure units:	feet		
Vertcollection method:	Interpolated from topographic map		
Vert coord refsys:	HILOCAL	Countrycode:	US
Aquifername:	Not Reported		
Formation type:	Not Reported		
Aquifer type:	Not Reported		
Construction date:	18840101	Welldepth:	271
Welldepth units:	ft	Wellholedepth:	Not Reported
Wellholedepth units:	Not Reported		

Ground-water levels, Number of Measurements: 0

U74
ENE
1/2 - 1 Mile
Higher

HI WELLS **HI8000000002128**

Objectid:	689	Wid:	3-1849-007
Island:	Oahu	Well name:	Manoa Valley
Old name:	Not Reported		
Yr drilled:	1891		
Driller:	MCCANDLESS		
Quad map:	13		
Long83dd:	-157.829166667		
Lat83dd:	21.2969444444		
Gps:	0	Utm:	-1
Owner user:	Land Proc Serv	Old number:	43-

Well type:	Not Reported	Casing dia:	8
Ground el:	18		
Well depth:	0		
Solid case:	Not Reported	Perf case:	Not Reported
Use:	UNU - Unused	Use year:	Not Reported
Init head:	30	Init head2:	Not Reported
Init head3:	Not Reported		
Init cl:	55		
Test date:	Not Reported	Test gpm:	Not Reported
Test ddown:	Not Reported	Test chlor:	Not Reported
Test temp:	Not Reported	Test unit:	Not Reported
Pump gpm:	0		
Draft mgy:	36	Head feet:	Not Reported
Max chlor:	Not Reported	Min chlor:	Not Reported
Geology:	Not Reported		
Pump yr:	0		
Draft yr:	Not Reported	Bot hole:	Not Reported
Bot solid:	Not Reported	Bot perf:	Not Reported
Spec capac:	Not Reported		
Pump mgd:	0		
Draft mgd:	Not Reported	Pump elev:	Not Reported
Pump depth:	Not Reported	Tmk:	(1) 2-8-009:078
Aqui code:	30102		
Latest hd:	Not Reported	Wcr:	30-DEC-99
Pir:	Not Reported	Surveyor:	Not Reported
T:	Not Reported	Site id:	HI8000000002128

S75
NE
1/2 - 1 Mile
Higher

HI WELLS **HI8000000002157**

Objectid:	712	Wid:	3-1850-014
Island:	Oahu	Well name:	Makiki
Old name:	Not Reported		
Yr drilled:	1884		
Driller:	Not Reported		
Quad map:	13		
Long83dd:	-157.831666667		
Lat83dd:	21.2997222222		
Gps:	0	Utm:	-1
Owner user:	King R	Old number:	54-
Well type:	Not Reported	Casing dia:	6
Ground el:	40		
Well depth:	271		
Solid case:	240	Perf case:	Not Reported
Use:	ABN - Sealed	Use year:	Not Reported
Init head:	30.8	Init head2:	Not Reported
Init head3:	Not Reported		
Init cl:	0		
Test date:	Not Reported	Test gpm:	Not Reported
Test ddown:	Not Reported	Test chlor:	Not Reported
Test temp:	Not Reported	Test unit:	Not Reported
Pump gpm:	0		
Draft mgy:	Not Reported	Head feet:	Not Reported
Max chlor:	Not Reported	Min chlor:	Not Reported
Geology:	TKB		
Pump yr:	0		
Draft yr:	Not Reported	Bot hole:	-231
Bot solid:	-200	Bot perf:	Not Reported
Spec capac:	Not Reported		
Pump mgd:	0		

Draft mgd:	Not Reported	Pump elev:	Not Reported
Pump depth:	Not Reported	Tmk:	Not Reported
Aqui code:	30102		
Latest hd:	Not Reported	Wcr:	30-DEC-99
Pir:	Not Reported	Surveyor:	Not Reported
T:	Not Reported	Site id:	HI8000000002157

U76
ENE
1/2 - 1 Mile
Higher

FED USGS **USGS40000269564**

Org. Identifier:	USGS-HI		
Formal name:	USGS Hawaii Water Science Center		
Monloc Identifier:	USGS-211800157495401		
Monloc name:	3-1849-06 W42 MAKIKI		
Monloc type:	Well		
Monloc desc:	Not Reported		
Huc code:	20060000	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	21.2968355
Longitude:	-157.828924	Sourcemap scale:	24000
Horiz Acc measure:	1	Horiz Acc measure units:	seconds
Horiz Collection method:	Interpolated from map		
Horiz coord refsys:	NAD83	Vert measure val:	17.00
Vert measure units:	feet	Vertacc measure val:	2
Vert accmeasure units:	feet		
Vertcollection method:	Interpolated from topographic map		
Vert coord refsys:	HILOCAL	Countrycode:	US
Aquifername:	Not Reported		
Formation type:	Not Reported		
Aquifer type:	Not Reported		
Construction date:	18910101	Welldepth:	160
Welldepth units:	ft	Wellholedepth:	Not Reported
Wellholedepth units:	Not Reported		

Ground-water levels, Number of Measurements: 0

T77
NW
1/2 - 1 Mile
Higher

HI WELLS **HI8000000002155**

Objectid:	726	Wid:	3-1850-028
Island:	Oahu	Well name:	Mckinley Aqua 1
Old name:	Not Reported		
Yr drilled:	1990		
Driller:	PR DRILLING		
Quad map:	13		
Long83dd:	-157.846944444		
Lat83dd:	21.2997222222		
Gps:	0	Utm:	-1
Owner user:	Mckinley H S	Old number:	Not Reported

Well type:	ROT	Casing dia:	4
Ground el:	Not Reported		
Well depth:	35		
Solid case:	10	Perf case:	20
Use:	AGR - Aquatic Plants and Animals	Use year:	Not Reported
Init head:	Not Reported	Init head2:	Not Reported
Init head3:	Not Reported		
Init cl:	0		
Test date:	7/9/1990	Test gpm:	50
Test ddown:	4.5	Test chlor:	Not Reported
Test temp:	Not Reported	Test unit:	Not Reported
Pump gpm:	0		
Draft mgy:	Not Reported	Head feet:	Not Reported
Max chlor:	Not Reported	Min chlor:	Not Reported
Geology:	Not Reported		
Pump yr:	0		
Draft yr:	Not Reported	Bot hole:	Not Reported
Bot solid:	Not Reported	Bot perf:	Not Reported
Spec capac:	11		
Pump mgd:	0		
Draft mgd:	Not Reported	Pump elev:	Not Reported
Pump depth:	Not Reported	Tmk:	(1) 2-3-009:001
Aqui code:	30102		
Latest hd:	Not Reported	Wcr:	10-JUL-90
Pir:	Not Reported	Surveyor:	Not Reported
T:	Not Reported	Site id:	HI8000000002155

U78
ENE
1/2 - 1 Mile
Higher

HI WELLS **HI8000000002129**

Objectid:	688	Wid:	3-1849-006
Island:	Oahu	Well name:	Manoa Valley
Old name:	Not Reported		
Yr drilled:	1891		
Driller:	MCCANDLESS		
Quad map:	13		
Long83dd:	-157.828888889		
Lat83dd:	21.2969444444		
Gps:	0	Utm:	-1
Owner user:	Ching S S	Old number:	42-
Well type:	Not Reported	Casing dia:	8
Ground el:	17		
Well depth:	160		
Solid case:	Not Reported	Perf case:	Not Reported
Use:	UNU - Unused	Use year:	Not Reported
Init head:	30.6	Init head2:	Not Reported
Init head3:	Not Reported		
Init cl:	54		
Test date:	Not Reported	Test gpm:	Not Reported
Test ddown:	Not Reported	Test chlor:	Not Reported
Test temp:	Not Reported	Test unit:	Not Reported
Pump gpm:	0		
Draft mgy:	36	Head feet:	Not Reported
Max chlor:	Not Reported	Min chlor:	Not Reported
Geology:	Not Reported		
Pump yr:	0		
Draft yr:	Not Reported	Bot hole:	-143
Bot solid:	Not Reported	Bot perf:	Not Reported
Spec capac:	Not Reported		
Pump mgd:	0		

Draft mgd:	Not Reported	Pump elev:	Not Reported
Pump depth:	Not Reported	Tmk:	(1) 2-8-009:080
Aqui code:	30102		
Latest hd:	Not Reported	Wcr:	30-DEC-99
Pir:	Not Reported	Surveyor:	Not Reported
T:	Not Reported	Site id:	HI8000000002129

X79
North
1/2 - 1 Mile
Higher

FED USGS **USGS40000269632**

Org. Identifier:	USGS-HI		
Formal name:	USGS Hawaii Water Science Center		
Monloc Identifier:	USGS-211821157503501		
Monloc name:	3-1850-08 W73 MAKIKI		
Monloc type:	Well		
Monloc desc:	Not Reported		
Huc code:	20060000	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	21.3026689
Longitude:	-157.8403128	Sourcemap scale:	24000
Horiz Acc measure:	5	Horiz Acc measure units:	seconds
Horiz Collection method:	Interpolated from map		
Horiz coord refsys:	NAD83	Vert measure val:	34.00
Vert measure units:	feet	Vertacc measure val:	5
Vert accmeasure units:	feet		
Vertcollection method:	Interpolated from topographic map		
Vert coord refsys:	HILOCAL	Countrycode:	US
Aquifername:	Not Reported		
Formation type:	Not Reported		
Aquifer type:	Not Reported		
Construction date:	18820101	Welldepth:	358
Welldepth units:	ft	Wellholedepth:	Not Reported
Wellholedepth units:	Not Reported		

Ground-water levels, Number of Measurements: 0

X80
North
1/2 - 1 Mile
Higher

HI WELLS **HI8000000002209**

Objectid:	706	Wid:	3-1850-008
Island:	Oahu	Well name:	Makiki
Old name:	Not Reported		
Yr drilled:	1882		
Driller:	MCCANDLESS		
Quad map:	13		
Long83dd:	-157.840277778		
Lat83dd:	21.3027777778		
Gps:	0	Utm:	-1
Owner user:	Bank Of Haw	Old number:	73-

Well type:	Not Reported	Casing dia:	7
Ground el:	34		
Well depth:	358		
Solid case:	Not Reported	Perf case:	Not Reported
Use:	ABN - Sealed	Use year:	Not Reported
Init head:	11.8	Init head2:	Not Reported
Init head3:	Not Reported		
Init cl:	0		
Test date:	Not Reported	Test gpm:	Not Reported
Test ddown:	Not Reported	Test chlor:	Not Reported
Test temp:	Not Reported	Test unit:	Not Reported
Pump gpm:	0		
Draft mgy:	Not Reported	Head feet:	Not Reported
Max chlor:	Not Reported	Min chlor:	Not Reported
Geology:	TKB		
Pump yr:	0		
Draft yr:	Not Reported	Bot hole:	-324
Bot solid:	Not Reported	Bot perf:	Not Reported
Spec capac:	Not Reported		
Pump mgd:	0		
Draft mgd:	Not Reported	Pump elev:	Not Reported
Pump depth:	Not Reported	Tmk:	Not Reported
Aqui code:	30102		
Latest hd:	Not Reported	Wcr:	30-DEC-99
Pir:	Not Reported	Surveyor:	Not Reported
T:	Not Reported	Site id:	HI8000000002209

Y81
NE
1/2 - 1 Mile
Higher

FED USGS **USGS40000269589**

Org. Identifier:	USGS-HI		
Formal name:	USGS Hawaii Water Science Center		
Monloc Identifier:	USGS-211810157500001		
Monloc name:	3-1850-13 W52 MAKIKI		
Monloc type:	Well		
Monloc desc:	Not Reported		
Huc code:	20060000	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	21.2996132
Longitude:	-157.8305906	Sourcemap scale:	24000
Horiz Acc measure:	5	Horiz Acc measure units:	seconds
Horiz Collection method:	Interpolated from map		
Horiz coord refsys:	NAD83	Vert measure val:	37.00
Vert measure units:	feet	Vertacc measure val:	5
Vert accmeasure units:	feet		
Vertcollection method:	Interpolated from topographic map		
Vert coord refsys:	HILOCAL	Countrycode:	US
Aquifername:	Not Reported		
Formation type:	Not Reported		
Aquifer type:	Not Reported		
Construction date:	18840101	Welldepth:	357
Welldepth units:	ft	Wellholedepth:	Not Reported
Wellholedepth units:	Not Reported		

Ground-water levels, Number of Measurements: 0

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance
Elevation

	Database	EDR ID Number
Y82 **NE** **1/2 - 1 Mile** **Higher**	**HI WELLS**	**HI8000000002158**

Objectid:	711	Wid:	3-1850-013
Island:	Oahu	Well name:	Makiki
Old name:	Not Reported		
Yr drilled:	1884		
Driller:	Not Reported		
Quad map:	13		
Long83dd:	-157.830555556		
Lat83dd:	21.2997222222		
Gps:	0	Utm:	-1
Owner user:	Villada J M	Old number:	52-
Well type:	Not Reported	Casing dia:	6
Ground el:	37		
Well depth:	357		
Solid case:	254	Perf case:	Not Reported
Use:	ABN - Sealed	Use year:	Not Reported
Init head:	42.9	Init head2:	Not Reported
Init head3:	Not Reported		
Init cl:	54		
Test date:	Not Reported	Test gpm:	Not Reported
Test ddown:	Not Reported	Test chlor:	Not Reported
Test temp:	Not Reported	Test unit:	Not Reported
Pump gpm:	0		
Draft mgy:	Not Reported	Head feet:	Not Reported
Max chlor:	Not Reported	Min chlor:	Not Reported
Geology:	Not Reported		
Pump yr:	0		
Draft yr:	Not Reported	Bot hole:	-320
Bot solid:	-217	Bot perf:	Not Reported
Spec capac:	Not Reported		
Pump mgd:	0		
Draft mgd:	Not Reported	Pump elev:	Not Reported
Pump depth:	Not Reported	Tmk:	Not Reported
Aqui code:	30102		
Latest hd:	Not Reported	Wcr:	30-DEC-99
Pir:	Not Reported	Surveyor:	Not Reported
T:	Not Reported	Site id:	HI8000000002158

	Database	EDR ID Number
Y83 **NE** **1/2 - 1 Mile** **Higher**	**FED USGS**	**USGS40000269587**

Org. Identifier:	USGS-HI		
Formal name:	USGS Hawaii Water Science Center		
Monloc Identifier:	USGS-211809157495801		
Monloc name:	3-1849-04 W41 MAKIKI		
Monloc type:	Well		
Monloc desc:	Not Reported		
Huc code:	20060000	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	21.2993354
Longitude:	-157.830035	Sourcemap scale:	24000

Horiz Acc measure:	5	Horiz Acc measure units:	seconds
Horiz Collection method:	Interpolated from map		
Horiz coord refsys:	NAD83	Vert measure val:	30.00
Vert measure units:	feet	Vertacc measure val:	5
Vert accmeasure units:	feet		
Vertcollection method:	Interpolated from topographic map		
Vert coord refsys:	HILOCAL	Countrycode:	US
Aquifername:	Not Reported		
Formation type:	Not Reported		
Aquifer type:	Not Reported		
Construction date:	18850101	Welldepth:	260
Welldepth units:	ft	Wellholedepth:	Not Reported
Wellholedepth units:	Not Reported		

Ground-water levels, Number of Measurements: 1

Date	Feet below Surface	Feet to Sealevel
1885-06-01	-42.00	

Z84
NNW
1/2 - 1 Mile
Higher

FED USGS **USGS40000269615**

Org. Identifier:	USGS-HI		
Formal name:	USGS Hawaii Water Science Center		
Monloc Identifier:	USGS-211817157505301		
Monloc name:	3-1850-17 W78 MAKIKI		
Monloc type:	Well		
Monloc desc:	Not Reported		
Huc code:	20060000	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	21.3015579
Longitude:	-157.8453129	Sourcemap scale:	24000
Horiz Acc measure:	5	Horiz Acc measure units:	seconds
Horiz Collection method:	Interpolated from map		
Horiz coord refsys:	NAD83	Vert measure val:	16.00
Vert measure units:	feet	Vertacc measure val:	2
Vert accmeasure units:	feet		
Vertcollection method:	Interpolated from topographic map		
Vert coord refsys:	HILOCAL	Countrycode:	US
Aquifername:	Not Reported		
Formation type:	Not Reported		
Aquifer type:	Not Reported		
Construction date:	18870101	Welldepth:	510
Welldepth units:	ft	Wellholedepth:	Not Reported
Wellholedepth units:	Not Reported		

Ground-water levels, Number of Measurements: 0

Y85
NE
1/2 - 1 Mile
Higher

HI WELLS **HI8000000002154**

Objectid:	686	Wid:	3-1849-004
Island:	Oahu	Well name:	Manoa Valley
Old name:	Not Reported		
Yr drilled:	1885		
Driller:	Not Reported		
Quad map:	13		
Long83dd:	-157.83		
Lat83dd:	21.2994444444		
Gps:	0	Utm:	-1
Owner user:	Soon T Y	Old number:	41-
Well type:	Not Reported	Casing dia:	6
Ground el:	30		
Well depth:	260		
Solid case:	181	Perf case:	Not Reported
Use:	ABN - Sealed	Use year:	Not Reported
Init head:	42	Init head2:	Not Reported
Init head3:	Not Reported		
Init cl:	52		
Test date:	Not Reported	Test gpm:	Not Reported
Test ddown:	Not Reported	Test chlor:	Not Reported
Test temp:	Not Reported	Test unit:	Not Reported
Pump gpm:	0		
Draft mgy:	Not Reported	Head feet:	Not Reported
Max chlor:	Not Reported	Min chlor:	Not Reported
Geology:	TKB		
Pump yr:	0		
Draft yr:	Not Reported	Bot hole:	-230
Bot solid:	-151	Bot perf:	Not Reported
Spec capac:	Not Reported		
Pump mgd:	0		
Draft mgd:	Not Reported	Pump elev:	Not Reported
Pump depth:	Not Reported	Tmk:	Not Reported
Aqui code:	30102		
Latest hd:	Not Reported	Wcr:	30-DEC-99
Pir:	Not Reported	Surveyor:	Not Reported
T:	Not Reported	Site id:	HI8000000002154

Z86
NNW
1/2 - 1 Mile
Higher

HI WELLS **HI8000000002188**

Objectid:	715	Wid:	3-1850-017
Island:	Oahu	Well name:	Makiki
Old name:	Not Reported		
Yr drilled:	1887		
Driller:	Not Reported		
Quad map:	13		
Long83dd:	-157.845278		
Lat83dd:	21.301667		
Gps:	0	Utm:	-1
Owner user:	HECO	Old number:	78-
Well type:	Not Reported	Casing dia:	8
Ground el:	16		
Well depth:	510		
Solid case:	Not Reported	Perf case:	Not Reported
Use:	ABN - Sealed	Use year:	Not Reported
Init head:	27.6	Init head2:	Not Reported
Init head3:	Not Reported		
Init cl:	63		
Test date:	Not Reported	Test gpm:	Not Reported
Test ddown:	Not Reported	Test chlor:	Not Reported

Test temp:	Not Reported	Test unit:	Not Reported
Pump gpm:	0		
Draft mgy:	Not Reported	Head feet:	Not Reported
Max chlor:	Not Reported	Min chlor:	Not Reported
Geology:	Not Reported		
Pump yr:	0		
Draft yr:	Not Reported	Bot hole:	-494
Bot solid:	Not Reported	Bot perf:	Not Reported
Spec capac:	Not Reported		
Pump mgd:	0		
Draft mgd:	Not Reported	Pump elev:	Not Reported
Pump depth:	Not Reported	Tmk:	Not Reported
Aqui code:	30102		
Latest hd:	Not Reported	Wcr:	30-DEC-99
Pir:	Not Reported	Surveyor:	Not Reported
T:	Not Reported	Site id:	HI8000000002188

AA87
North
1/2 - 1 Mile
Higher

FED USGS **USGS40000269642**

Org. Identifier:	USGS-HI		
Formal name:	USGS Hawaii Water Science Center		
Monloc Identifier:	USGS-211826157503501		
Monloc name:	3-1850-07 W72 MAKIKI		
Monloc type:	Well		
Monloc desc:	Not Reported		
Huc code:	20060000	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	21.3040577
Longitude:	-157.8403128	Sourcemap scale:	24000
Horiz Acc measure:	5	Horiz Acc measure units:	seconds
Horiz Collection method:	Interpolated from map		
Horiz coord refsys:	NAD83	Vert measure val:	37.00
Vert measure units:	feet	Vertacc measure val:	5
Vert accmeasure units:	feet		
Vertcollection method:	Interpolated from topographic map		
Vert coord refsys:	HILOCAL	Countrycode:	US
Aquifername:	Not Reported		
Formation type:	Not Reported		
Aquifer type:	Not Reported		
Construction date:	18820101	Welldepth:	375
Welldepth units:	ft	Wellholedepth:	Not Reported
Wellholedepth units:	Not Reported		

Ground-water levels, Number of Measurements: 0

AA88
North
1/2 - 1 Mile
Higher

HI WELLS **HI8000000002222**

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Objectid:	705	Wid:	3-1850-007
Island:	Oahu	Well name:	Makiki
Old name:	Not Reported		
Yr drilled:	1882		
Driller:	FESSLER		
Quad map:	13		
Long83dd:	-157.840277778		
Lat83dd:	21.3041666667		
Gps:	0	Utm:	-1
Owner user:	Babcock	Old number:	72-
Well type:	Not Reported	Casing dia:	7
Ground el:	37		
Well depth:	375		
Solid case:	Not Reported	Perf case:	Not Reported
Use:	ABN - Sealed	Use year:	Not Reported
Init head:	42	Init head2:	Not Reported
Init head3:	Not Reported		
Init cl:	0		
Test date:	Not Reported	Test gpm:	Not Reported
Test ddown:	Not Reported	Test chlor:	Not Reported
Test temp:	Not Reported	Test unit:	Not Reported
Pump gpm:	0		
Draft mgy:	Not Reported	Head feet:	Not Reported
Max chlor:	Not Reported	Min chlor:	Not Reported
Geology:	TKB		
Pump yr:	0		
Draft yr:	Not Reported	Bot hole:	-338
Bot solid:	Not Reported	Bot perf:	Not Reported
Spec capac:	Not Reported		
Pump mgd:	0		
Draft mgd:	Not Reported	Pump elev:	Not Reported
Pump depth:	Not Reported	Tmk:	(1) 3-9-010:001
Aqui code:	30102		
Latest hd:	Not Reported	Wcr:	30-DEC-99
Pir:	Not Reported	Surveyor:	Not Reported
T:	Not Reported	Site id:	HI8000000002222

AB89
NW
1/2 - 1 Mile
Higher

FED USGS **USGS40000269619**

Org. Identifier:	USGS-HI		
Formal name:	USGS Hawaii Water Science Center		
Monloc Identifier:	USGS-211818157510101		
Monloc name:	3-1851-06 W79 DWNTN		
Monloc type:	Well		
Monloc desc:	Not Reported		
Huc code:	20060000	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	21.3018357
Longitude:	-157.847535	Sourcemap scale:	24000
Horiz Acc measure:	5	Horiz Acc measure units:	seconds
Horiz Collection method:	Interpolated from map		
Horiz coord refsys:	NAD83	Vert measure val:	17.00
Vert measure units:	feet	Vertacc measure val:	2
Vert accmeasure units:	feet		
Vertcollection method:	Interpolated from topographic map		
Vert coord refsys:	HILOCAL	Countrycode:	US
Aquifername:	Not Reported		
Formation type:	Not Reported		

Aquifer type:	Not Reported		
Construction date:	18840101	Welldepth:	503
Welldepth units:	ft	Wellholedepth:	Not Reported
Wellholedepth units:	Not Reported		

Ground-water levels, Number of Measurements: 0

AC90
NE
1/2 - 1 Mile
Higher

FED USGS **USGS40000269611**

Org. Identifier:	USGS-HI		
Formal name:	USGS Hawaii Water Science Center		
Monloc Identifier:	USGS-211816157495801		
Monloc name:	3-1849-05 W39 MAKIKI		
Monloc type:	Well		
Monloc desc:	Not Reported		
Huc code:	20060000	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	21.3012798
Longitude:	-157.830035	Sourcemap scale:	24000
Horiz Acc measure:	5	Horiz Acc measure units:	seconds
Horiz Collection method:	Interpolated from map		
Horiz coord refsys:	NAD83	Vert measure val:	48.00
Vert measure units:	feet	Vertacc measure val:	5
Vert accmeasure units:	feet		
Vertcollection method:	Interpolated from topographic map		
Vert coord refsys:	HILOCAL	Countrycode:	US
Aquifername:	Not Reported		
Formation type:	Not Reported		
Aquifer type:	Not Reported		
Construction date:	18890101	Welldepth:	213
Welldepth units:	ft	Wellholedepth:	Not Reported
Wellholedepth units:	Not Reported		

Ground-water levels, Number of Measurements: 0

AB91
NW
1/2 - 1 Mile
Higher

HI WELLS **HI8000000002192**

Objectid:	734	Wid:	3-1851-006
Island:	Oahu	Well name:	Young St
Old name:	Not Reported		
Yr drilled:	1883		
Driller:	Not Reported		
Quad map:	13		
Long83dd:	-157.8475		
Lat83dd:	21.3019444444		
Gps:	0	Utm:	-1
Owner user:	Vida Villa	Old number:	79-
Well type:	Not Reported	Casing dia:	6
Ground el:	17		
Well depth:	503		
Solid case:	234	Perf case:	Not Reported
Use:	ABN - Sealed	Use year:	Not Reported
Init head:	19.2	Init head2:	Not Reported
Init head3:	Not Reported		
Init cl:	0		
Test date:	Not Reported	Test gpm:	Not Reported
Test ddown:	Not Reported	Test chlor:	Not Reported

Test temp:	Not Reported	Test unit:	Not Reported
Pump gpm:	0		
Draft mgy:	Not Reported	Head feet:	Not Reported
Max chlor:	Not Reported	Min chlor:	Not Reported
Geology:	TKB		
Pump yr:	0		
Draft yr:	Not Reported	Bot hole:	-486
Bot solid:	-217	Bot perf:	Not Reported
Spec capac:	Not Reported		
Pump mgd:	0		
Draft mgd:	Not Reported	Pump elev:	Not Reported
Pump depth:	Not Reported	Tmk:	Not Reported
Aqui code:	30102		
Latest hd:	Not Reported	Wcr:	30-DEC-99
Pir:	Not Reported	Surveyor:	Not Reported
T:	Not Reported	Site id:	HI8000000002192

AC92
NE
1/2 - 1 Mile
Higher

HI WELLS **HI8000000002183**

Objectid:	687	Wid:	3-1849-005
Island:	Oahu	Well name:	Manoa Valley
Old name:	Not Reported		
Yr drilled:	1889		
Driller:	Not Reported		
Quad map:	13		
Long83dd:	-157.83		
Lat83dd:	21.3013888889		
Gps:	0	Utm:	-1
Owner user:	Punahou Sch	Old number:	39-
Well type:	Not Reported	Casing dia:	6
Ground el:	48		
Well depth:	213		
Solid case:	172	Perf case:	Not Reported
Use:	ABN - Sealed	Use year:	Not Reported
Init head:	35.8	Init head2:	Not Reported
Init head3:	Not Reported		
Init cl:	55		
Test date:	Not Reported	Test gpm:	Not Reported
Test ddown:	Not Reported	Test chlor:	Not Reported
Test temp:	Not Reported	Test unit:	Not Reported
Pump gpm:	0		
Draft mgy:	Not Reported	Head feet:	Not Reported
Max chlor:	Not Reported	Min chlor:	Not Reported
Geology:	Not Reported		
Pump yr:	0		
Draft yr:	Not Reported	Bot hole:	-165
Bot solid:	-124	Bot perf:	Not Reported
Spec capac:	Not Reported		
Pump mgd:	0		
Draft mgd:	Not Reported	Pump elev:	Not Reported
Pump depth:	Not Reported	Tmk:	Not Reported
Aqui code:	30102		
Latest hd:	Not Reported	Wcr:	30-DEC-99
Pir:	Not Reported	Surveyor:	Not Reported
T:	Not Reported	Site id:	HI8000000002183

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance
Elevation

Database | EDR ID Number

AB93
NW
1/2 - 1 Mile
Higher

FED USGS **USGS40000269620**

Org. Identifier:	USGS-HI		
Formal name:	USGS Hawaii Water Science Center		
Monloc Identifier:	USGS-211818157510301		
Monloc name:	3-1851-28 W81 DWNTN		
Monloc type:	Well		
Monloc desc:	Not Reported		
Huc code:	20060000	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	21.3018358
Longitude:	-157.8480907	Sourcemap scale:	24000
Horiz Acc measure:	1	Horiz Acc measure units:	seconds
Horiz Collection method:	Interpolated from map		
Horiz coord refsys:	NAD83	Vert measure val:	18.00
Vert measure units:	feet	Vertacc measure val:	.5
Vert accmeasure units:	feet		
Vertcollection method:	Interpolated from topographic map		
Vert coord refsys:	HILOCAL	Countrycode:	US
Aquifername:	Not Reported		
Formation type:	Not Reported		
Aquifer type:	Not Reported		
Construction date:	19130101	Welldepth:	505
Welldepth units:	ft	Wellholedepth:	Not Reported
Wellholedepth units:	Not Reported		

Ground-water levels, Number of Measurements: 1

Date	Feet below Surface	Feet to Sealevel
1916-09-18	-12.26	

AB94
NW
1/2 - 1 Mile
Higher

HI WELLS **HI8000000002191**

Objectid:	756	Wid:	3-1851-028
Island:	Oahu	Well name:	Young St
Old name:	Not Reported		
Yr drilled:	1913		
Driller:	MCCANDLESS		
Quad map:	13		
Long83dd:	-157.848055556		
Lat83dd:	21.3019444444		
Gps:	0	Utm:	-1
Owner user:	Med Arts Bldg	Old number:	Not Reported
Well type:	Not Reported	Casing dia:	8
Ground el:	18		
Well depth:	505		
Solid case:	476	Perf case:	Not Reported
Use:	UNU - Unused	Use year:	Not Reported
Init head:	30.3	Init head2:	Not Reported
Init head3:	Not Reported		
Init cl:	41		
Test date:	Not Reported	Test gpm:	Not Reported
Test ddown:	Not Reported	Test chlor:	Not Reported

Test temp:	Not Reported	Test unit:	Not Reported
Pump gpm:	0		
Draft mgy:	36	Head feet:	Not Reported
Max chlor:	Not Reported	Min chlor:	Not Reported
Geology:	Not Reported		
Pump yr:	0		
Draft yr:	Not Reported	Bot hole:	-487
Bot solid:	-458	Bot perf:	Not Reported
Spec capac:	Not Reported		
Pump mgd:	0		
Draft mgd:	Not Reported	Pump elev:	Not Reported
Pump depth:	Not Reported	Tmk:	(1) 2-4-002:006
Aqui code:	30102		
Latest hd:	Not Reported	Wcr:	01-JAN-13
Pir:	Not Reported	Surveyor:	Not Reported
T:	Not Reported	Site id:	HI8000000002191

AD95
NE
1/2 - 1 Mile
Higher

FRDS PWS **HI0000324**

PWS ID: HI0000324
Date Initiated: Not Reported Date Deactivated: Not Reported
PWS Name: PUNAHOU SCHOOL
1601 PUNAHOU ST.
HONOLULU, OAHU, HI 96822

Addressee / Facility: System Owner/Responsible Party
MR. WILLIAM METZGER
PUNAHOU SCHOOL
1601 PUNAHOU STREET
HONOLULU, HI 96822

Facility Latitude: 21 18 13.0000 Facility Longitude: 157 49 52.0000
City Served: HONOLULU
Treatment Class: Treated Population: 4000

PWS currently has or had major violation(s) or enforcement: YES

VIOLATIONS INFORMATION:

Violation ID:	9400001	Source ID:	001	PWS Phone:	Not Reported
Vio. beginning Date:	04/01/94	Vio. end Date:	04/30/94	Vio. Period:	001 Months
Num required Samples:	Not Reported	Number of Samples Taken:		Not Reported	
Analysis Result:	Not Reported	Maximum Contaminant Level:		Not Reported	
Analysis Method:	Not Reported				
Violation Type:	MCL, Monthly (TCR)				
Contaminant:	COLIFORM (TCR)				
Vio. Awareness Date:	041594				

ENFORCEMENT INFORMATION:

Truedate:	03/31/2009	Pwsid:	HI0000324
Pwsname:	PUNAHOU SCHOOL		
Retpopsrvd:	4000	Pwstypecod:	NTNC
Vioid:	107	Contaminant:	COLIFORM (TCR)
Viol. Type:	MCL, Monthly (TCR)		
Complperbe:	1/1/2007 0:00:00		
Complperen:	1/31/2007 0:00:00	Enfdate:	1/26/2007 0:00:00
Enf action:	State Violation/Reminder Notice		
Violmeasur:	Not Reported		

Truedate:	03/31/2009	Pwsid:	HI0000324
Pwsname:	PUNAHOU SCHOOL		
Retpopsrvd:	4000	Pwstypecod:	NTNC
Vioid:	107	Contaminant:	COLIFORM (TCR)
Viol. Type:	MCL, Monthly (TCR)		
Complperbe:	1/1/2007 0:00:00		
Complperen:	1/31/2007 0:00:00	Enfdate:	2/6/2007 0:00:00
Enf action:	State Public Notif Received		
Violmeasur:	Not Reported		

Truedate:	03/31/2009	Pwsid:	HI0000324
Pwsname:	PUNAHOU SCHOOL		
Retpopsrvd:	4000	Pwstypecod:	NTNC
Vioid:	107	Contaminant:	COLIFORM (TCR)
Viol. Type:	MCL, Monthly (TCR)		
Complperbe:	1/1/2007 0:00:00		
Complperen:	1/31/2007 0:00:00	Enfdate:	1/26/2007 0:00:00
Enf action:	State Public Notif Requested		
Violmeasur:	Not Reported		

System Name:	PUNAHOU SCHOOL		
Violation Type:	MCL, Monthly (TCR)		
Contaminant:	COLIFORM (TCR)		
Compliance Period:	1994-04-01 - 1994-04-30		
Violation ID:	9400001		
Enforcement Date:	1994-05-18	Enf. Action:	State Violation/Reminder Notice

System Name:	PUNAHOU SCHOOL		
Violation Type:	MCL, Monthly (TCR)		
Contaminant:	COLIFORM (TCR)		
Compliance Period:	1994-04-01 - 1994-04-30		
Violation ID:	9400001		
Enforcement Date:	1994-05-18	Enf. Action:	State Public Notif Requested

System Name:	PUNAHOU SCHOOL		
Violation Type:	MCL, Monthly (TCR)		
Contaminant:	COLIFORM (TCR)		
Compliance Period:	1994-04-01 - 1994-04-30		
Violation ID:	9400001		
Enforcement Date:	1994-05-25	Enf. Action:	State Public Notif Issued

CONTACT INFORMATION:

Name:	PUNAHOU SCHOOL	Population:	4000
Contact:	SCOTT, JAMES	Phone:	808-944-5811
Address:	Punahou School		
Address 2:	1601 Punahou Street HONOLULU, HI 96822		

AD96
NE
1/2 - 1 Mile
Higher

FED USGS **USGS40000269602**

Org. Identifier:	USGS-HI		
Formal name:	USGS Hawaii Water Science Center		
Monloc Identifier:	USGS-211813157495201		
Monloc name:	3-1849-10 W37 MAKIKI		
Monloc type:	Well		
Monloc desc:	Not Reported		
Huc code:	20060000	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	21.3004465
Longitude:	-157.8283683	Sourcemap scale:	24000
Horiz Acc measure:	1	Horiz Acc measure units:	seconds
Horiz Collection method:	Interpolated from map		
Horiz coord refsys:	NAD83	Vert measure val:	44.00
Vert measure units:	feet	Vertacc measure val:	5
Vert accmeasure units:	feet		
Vertcollection method:	Interpolated from topographic map		
Vert coord refsys:	HILOCAL	Countrycode:	US
Aquifername:	Not Reported		
Formation type:	Not Reported		
Aquifer type:	Not Reported		
Construction date:	19091101	Welldepth:	302
Welldepth units:	ft	Wellholedepth:	315
Wellholedepth units:	ft		

Ground-water levels, Number of Measurements: 0

AD97
NE
1/2 - 1 Mile
Higher

HI WELLS **HI8000000002174**

Objectid:	692	Wid:	3-1849-010
Island:	Oahu	Well name:	Punahou
Old name:	Not Reported		
Yr drilled:	1909		
Driller:	MCCANDLESS		
Quad map:	13		
Long83dd:	-157.828333		
Lat83dd:	21.300556		
Gps:	0	Utm:	-1
Owner user:	Punahou High School	Old number:	37-
Well type:	Not Reported	Casing dia:	8
Ground el:	36		
Well depth:	315		
Solid case:	195	Perf case:	Not Reported
Use:	DOMN - Schools	Use year:	Not Reported
Init head:	29.1	Init head2:	Not Reported
Init head3:	Not Reported		
Init cl:	48		
Test date:	Not Reported	Test gpm:	Not Reported
Test ddown:	Not Reported	Test chlor:	Not Reported
Test temp:	Not Reported	Test unit:	Not Reported
Pump gpm:	0		
Draft mgy:	Not Reported	Head feet:	Not Reported
Max chlor:	Not Reported	Min chlor:	Not Reported
Geology:	TKB		
Pump yr:	0		
Draft yr:	Not Reported	Bot hole:	-279
Bot solid:	-159	Bot perf:	Not Reported
Spec capac:	Not Reported		
Pump mgd:	0		

Draft mgd:	Not Reported	Pump elev:	Not Reported
Pump depth:	Not Reported	Tmk:	(1) 2-8-018:001
Aqui code:	30102		
Latest hd:	Not Reported	Wcr:	01-JAN-09
Pir:	Not Reported	Surveyor:	Not Reported
T:	Not Reported	Site id:	HI8000000002174

AE98
NW
1/2 - 1 Mile
Higher

FED USGS **USGS40000269604**

Org. Identifier:	USGS-HI		
Formal name:	USGS Hawaii Water Science Center		
Monloc Identifier:	USGS-211813157511101		
Monloc name:	3-1851-63 W82-2B DWN		
Monloc type:	Well		
Monloc desc:	Not Reported		
Huc code:	20060000	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	21.300447
Longitude:	-157.8503128	Sourcemap scale:	24000
Horiz Acc measure:	1	Horiz Acc measure units:	seconds
Horiz Collection method:	Interpolated from map		
Horiz coord refsys:	NAD83	Vert measure val:	5.00
Vert measure units:	feet	Vertacc measure val:	2
Vert accmeasure units:	feet		
Vertcollection method:	Interpolated from topographic map		
Vert coord refsys:	HILOCAL	Countrycode:	US
Aquifername:	Not Reported		
Formation type:	Not Reported		
Aquifer type:	Not Reported		
Construction date:	19670701	Welldepth:	Not Reported
Welldepth units:	Not Reported	Wellholedepth:	Not Reported
Wellholedepth units:	Not Reported		

Ground-water levels, Number of Measurements: 0

AE99
NW
1/2 - 1 Mile
Higher

FED USGS **USGS40000269605**

Org. Identifier:	USGS-HI		
Formal name:	USGS Hawaii Water Science Center		
Monloc Identifier:	USGS-211813157511102		
Monloc name:	3-1851-62 W82-2A DWN		
Monloc type:	Well		
Monloc desc:	Not Reported		
Huc code:	20060000	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	21.300447
Longitude:	-157.8503128	Sourcemap scale:	24000

Horiz Acc measure:	1	Horiz Acc measure units:	seconds
Horiz Collection method:	Interpolated from map		
Horiz coord refsys:	NAD83	Vert measure val:	5.00
Vert measure units:	feet	Vertacc measure val:	2
Vert accmeasure units:	feet		
Vertcollection method:	Interpolated from topographic map		
Vert coord refsys:	HILOCAL	Countrycode:	US
Aquifername:	Not Reported		
Formation type:	Not Reported		
Aquifer type:	Not Reported		
Construction date:	19670714	Welldepth:	65
Welldepth units:	ft	Wellholedepth:	Not Reported
Wellholedepth units:	Not Reported		

Ground-water levels, Number of Measurements: 0

AD100
NE
1/2 - 1 Mile
Higher

FED USGS **USGS40000269593**

Org. Identifier:	USGS-HI		
Formal name:	USGS Hawaii Water Science Center		
Monloc Identifier:	USGS-211812157495001		
Monloc name:	3-1849-01 W38 MAKIKI		
Monloc type:	Well		
Monloc desc:	Not Reported		
Huc code:	20060000	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	21.3001687
Longitude:	-157.8278128	Sourcemap scale:	24000
Horiz Acc measure:	5	Horiz Acc measure units:	seconds
Horiz Collection method:	Interpolated from map		
Horiz coord refsys:	NAD83	Vert measure val:	37.00
Vert measure units:	feet	Vertacc measure val:	5
Vert accmeasure units:	feet		
Vertcollection method:	Interpolated from topographic map		
Vert coord refsys:	HILOCAL	Countrycode:	US
Aquifername:	Not Reported		
Formation type:	Not Reported		
Aquifer type:	Not Reported		
Construction date:	18800101	Welldepth:	295
Welldepth units:	ft	Wellholedepth:	Not Reported
Wellholedepth units:	Not Reported		

Ground-water levels, Number of Measurements: 0

AE101
NW
1/2 - 1 Mile
Higher

HI WELLS **HI8000000002169**

Objectid:	790	Wid:	3-1851-062
Island:	Oahu	Well name:	Nbc
Old name:	Not Reported		
Yr drilled:	1967		
Driller:	NAT WHITON		
Quad map:	13		
Long83dd:	-157.850277778		
Lat83dd:	21.3005555556		
Gps:	0	Utm:	-1
Owner user:	C&C Pks&Rec	Old number:	Not Reported

Well type:	Not Reported	Casing dia:	16
Ground el:	Not Reported		
Well depth:	65		
Solid case:	14	Perf case:	Not Reported
Use:	IRR - Landscape/Water Features	Use year:	Not Reported
Init head:	Not Reported	Init head2:	Not Reported
Init head3:	Not Reported		
Init cl:	376		
Test date:	Not Reported	Test gpm:	600
Test ddown:	1.9	Test chlor:	Not Reported
Test temp:	Not Reported	Test unit:	Not Reported
Pump gpm:	700		
Draft mgy:	Not Reported	Head feet:	Not Reported
Max chlor:	Not Reported	Min chlor:	Not Reported
Geology:	Not Reported		
Pump yr:	0		
Draft yr:	Not Reported	Bot hole:	Not Reported
Bot solid:	Not Reported	Bot perf:	Not Reported
Spec capac:	316		
Pump mgd:	1.008		
Draft mgd:	Not Reported	Pump elev:	Not Reported
Pump depth:	Not Reported	Tmk:	(1) 2-3-008:001
Aqui code:	30102		
Latest hd:	Not Reported	Wcr:	14-JUL-67
Pir:	Not Reported	Surveyor:	Not Reported
T:	Not Reported	Site id:	HI8000000002169

AD102
NE
1/2 - 1 Mile
Higher

HI WELLS **HI8000000002165**

Objectid:	683	Wid:	3-1849-001
Island:	Oahu	Well name:	Manoa Valley
Old name:	Not Reported		
Yr drilled:	1880		
Driller:	PIERCE		
Quad map:	13		
Long83dd:	-157.827777778		
Lat83dd:	21.3002777778		
Gps:	0	Utm:	-1
Owner user:	Marques E M	Old number:	38-
Well type:	Not Reported	Casing dia:	3
Ground el:	37		
Well depth:	295		
Solid case:	273	Perf case:	Not Reported
Use:	ABN - Sealed	Use year:	Not Reported
Init head:	43.5	Init head2:	Not Reported
Init head3:	Not Reported		
Init cl:	49		
Test date:	Not Reported	Test gpm:	Not Reported
Test ddown:	Not Reported	Test chlor:	Not Reported
Test temp:	Not Reported	Test unit:	Not Reported
Pump gpm:	0		
Draft mgy:	Not Reported	Head feet:	Not Reported
Max chlor:	Not Reported	Min chlor:	Not Reported
Geology:	TKB		
Pump yr:	0		
Draft yr:	Not Reported	Bot hole:	-258
Bot solid:	-236	Bot perf:	Not Reported
Spec capac:	Not Reported		
Pump mgd:	0		

Draft mgd:	Not Reported	Pump elev:	Not Reported
Pump depth:	Not Reported	Tmk:	Not Reported
Aqui code:	30102		
Latest hd:	Not Reported	Wcr:	30-DEC-99
Pir:	Not Reported	Surveyor:	Not Reported
T:	Not Reported	Site id:	HI8000000002165

AF103
NW
1/2 - 1 Mile
Higher

FED USGS **USGS40000269616**

Org. Identifier:	USGS-HI		
Formal name:	USGS Hawaii Water Science Center		
Monloc Identifier:	USGS-211817157510801		
Monloc name:	3-1851-01 W82 DWNTN		
Monloc type:	Well		
Monloc desc:	Not Reported		
Huc code:	20060000	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	21.301558
Longitude:	-157.8494795	Sourcemap scale:	24000
Horiz Acc measure:	5	Horiz Acc measure units:	seconds
Horiz Collection method:	Interpolated from map		
Horiz coord refsys:	NAD83	Vert measure val:	16.00
Vert measure units:	feet	Vertacc measure val:	2
Vert accmeasure units:	feet		
Vertcollection method:	Interpolated from topographic map		
Vert coord refsys:	HILOCAL	Countrycode:	US
Aquifername:	Not Reported		
Formation type:	Not Reported		
Aquifer type:	Not Reported		
Construction date:	18810101	Welldepth:	540
Welldepth units:	ft	Wellholedepth:	Not Reported
Wellholedepth units:	Not Reported		

Ground-water levels, Number of Measurements: 0

AF104
NW
1/2 - 1 Mile
Higher

HI WELLS **HI8000000002186**

Objectid:	729	Wid:	3-1851-001
Island:	Oahu	Well name:	H I C
Old name:	Not Reported		
Yr drilled:	1881		
Driller:	Not Reported		
Quad map:	13		
Long83dd:	-157.849444444		
Lat83dd:	21.3016666667		
Gps:	0	Utm:	-1
Owner user:	Ward C P	Old number:	82-

Well type:	Not Reported	Casing dia:	6
Ground el:	16		
Well depth:	540		
Solid case:	Not Reported	Perf case:	Not Reported
Use:	ABN - Sealed	Use year:	Not Reported
Init head:	30.8	Init head2:	Not Reported
Init head3:	Not Reported		
Init cl:	65		
Test date:	Not Reported	Test gpm:	Not Reported
Test ddown:	Not Reported	Test chlor:	Not Reported
Test temp:	Not Reported	Test unit:	Not Reported
Pump gpm:	0		
Draft mgy:	Not Reported	Head feet:	Not Reported
Max chlor:	Not Reported	Min chlor:	Not Reported
Geology:	TKB		
Pump yr:	0		
Draft yr:	Not Reported	Bot hole:	-524
Bot solid:	Not Reported	Bot perf:	Not Reported
Spec capac:	Not Reported		
Pump mgd:	0		
Draft mgd:	Not Reported	Pump elev:	Not Reported
Pump depth:	Not Reported	Tmk:	Not Reported
Aqui code:	30102		
Latest hd:	Not Reported	Wcr:	30-DEC-99
Pir:	Not Reported	Surveyor:	Not Reported
T:	Not Reported	Site id:	HI8000000002186

AG105
East
1/2 - 1 Mile
Higher

FED USGS **USGS40000269530**

Org. Identifier:	USGS-HI		
Formal name:	USGS Hawaii Water Science Center		
Monloc Identifier:	USGS-211734157493601		
Monloc name:	3-1749-03 W40 PALOLO		
Monloc type:	Well		
Monloc desc:	Not Reported		
Huc code:	20060000	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	21.2896136
Longitude:	-157.8239242	Sourcemap scale:	24000
Horiz Acc measure:	1	Horiz Acc measure units:	seconds
Horiz Collection method:	Interpolated from map		
Horiz coord refsys:	NAD83	Vert measure val:	10.00
Vert measure units:	feet	Vertacc measure val:	2
Vert accmeasure units:	feet		
Vertcollection method:	Interpolated from topographic map		
Vert coord refsys:	HILOCAL	Countrycode:	US
Aquifername:	Not Reported		
Formation type:	Not Reported		
Aquifer type:	Not Reported		
Construction date:	18820101	Welldepth:	730
Welldepth units:	ft	Wellholedepth:	Not Reported
Wellholedepth units:	Not Reported		

Ground-water levels, Number of Measurements: 0

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance
Elevation

	Database	EDR ID Number
AG106 **East** **1/2 - 1 Mile** **Higher**	**HI WELLS**	**HI8000000002092**

Objectid:	573	Wid:	3-1749-003
Island:	Oahu	Well name:	Kapahulu
Old name:	Not Reported		
Yr drilled:	1882		
Driller:	COOKE-PEDDLER		
Quad map:	13		
Long83dd:	-157.823888889		
Lat83dd:	21.2897222222		
Gps:	0	Utm:	-1
Owner user:	Magoon Trust	Old number:	40-
Well type:	Not Reported	Casing dia:	Not Reported
Ground el:	10		
Well depth:	730		
Solid case:	Not Reported	Perf case:	Not Reported
Use:	Other	Use year:	Not Reported
Init head:	Not Reported	Init head2:	Not Reported
Init head3:	Not Reported		
Init cl:	0		
Test date:	Not Reported	Test gpm:	Not Reported
Test ddown:	Not Reported	Test chlor:	Not Reported
Test temp:	Not Reported	Test unit:	Not Reported
Pump gpm:	0		
Draft mgy:	Not Reported	Head feet:	Not Reported
Max chlor:	Not Reported	Min chlor:	Not Reported
Geology:	Not Reported		
Pump yr:	0		
Draft yr:	Not Reported	Bot hole:	-720
Bot solid:	Not Reported	Bot perf:	Not Reported
Spec capac:	Not Reported		
Pump mgd:	0		
Draft mgd:	Not Reported	Pump elev:	Not Reported
Pump depth:	Not Reported	Tmk:	Not Reported
Aqui code:	30101		
Latest hd:	Not Reported	Wcr:	30-DEC-99
Pir:	Not Reported	Surveyor:	Not Reported
T:	Not Reported	Site id:	HI8000000002092

	Database	EDR ID Number
AH107 **East** **1/2 - 1 Mile** **Higher**	**FED USGS**	**USGS40000269543**

Org. Identifier:	USGS-HI		
Formal name:	USGS Hawaii Water Science Center		
Monloc Identifier:	USGS-211746157493601		
Monloc name:	3-1749-20 W35-1A MOI		
Monloc type:	Well		
Monloc desc:	Not Reported		
Huc code:	20060000	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	21.2929468
Longitude:	-157.823924	Sourcemap scale:	24000

Horiz Acc measure:	1	Horiz Acc measure units:	seconds
Horiz Collection method:	Interpolated from map		
Horiz coord refsys:	NAD83	Vert measure val:	15.00
Vert measure units:	feet	Vertacc measure val:	5
Vert accmeasure units:	feet		
Vertcollection method:	Interpolated from topographic map		
Vert coord refsys:	HILOCAL	Countrycode:	US
Aquifername:	Not Reported		
Formation type:	Not Reported		
Aquifer type:	Not Reported		
Construction date:	19540101	Welldepth:	28
Welldepth units:	ft	Wellholedepth:	Not Reported
Wellholedepth units:	Not Reported		

Ground-water levels, Number of Measurements: 0

AH108
East
1/2 - 1 Mile
Higher

FED USGS **USGS40000269544**

Org. Identifier:	USGS-HI		
Formal name:	USGS Hawaii Water Science Center		
Monloc Identifier:	USGS-211746157493602		
Monloc name:	3-1749.01 STAR MARKET		
Monloc type:	Well		
Monloc desc:	FILE INFO FROM STATE COMPUTER PRINTOUT		
Huc code:	20060000	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	21.2929468
Longitude:	-157.823924	Sourcemap scale:	24000
Horiz Acc measure:	1	Horiz Acc measure units:	seconds
Horiz Collection method:	Interpolated from map		
Horiz coord refsys:	NAD83	Vert measure val:	9.00
Vert measure units:	feet	Vertacc measure val:	1
Vert accmeasure units:	feet		
Vertcollection method:	Interpolated from topographic map		
Vert coord refsys:	HILOCAL	Countrycode:	US
Aquifername:	Not Reported		
Formation type:	Not Reported		
Aquifer type:	Not Reported		
Construction date:	19540910	Welldepth:	28
Welldepth units:	ft	Wellholedepth:	32
Wellholedepth units:	ft		

Ground-water levels, Number of Measurements: 1

Date	Feet below Surface	Feet to Sealevel
1954-09-10	8.30	

Note: A nearby site that taps the same aquifer had been pumped recently.

AH109
East
1/2 - 1 Mile
Higher

HI WELLS **HI8000000002105**

Objectid:	590	Wid:	3-1749-020
Island:	Oahu	Well name:	Moiliili
Old name:	Not Reported		
Yr drilled:	1954		
Driller:	NAT WHITON		
Quad map:	13		
Long83dd:	-157.823888889		
Lat83dd:	21.2930555556		
Gps:	0	Utm:	-1
Owner user:	Star Market	Old number:	35-1A
Well type:	Not Reported	Casing dia:	12
Ground el:	Not Reported		
Well depth:	28		
Solid case:	10	Perf case:	Not Reported
Use:	ABN - Sealed	Use year:	Not Reported
Init head:	Not Reported	Init head2:	Not Reported
Init head3:	Not Reported		
Init cl:	0		
Test date:	Not Reported	Test gpm:	200
Test ddown:	2.4	Test chlor:	Not Reported
Test temp:	Not Reported	Test unit:	Not Reported
Pump gpm:	18		
Draft mgy:	14	Head feet:	Not Reported
Max chlor:	Not Reported	Min chlor:	Not Reported
Geology:	Not Reported		
Pump yr:	0		
Draft yr:	Not Reported	Bot hole:	Not Reported
Bot solid:	Not Reported	Bot perf:	Not Reported
Spec capac:	83		
Pump mgd:	.025		
Draft mgd:	Not Reported	Pump elev:	Not Reported
Pump depth:	Not Reported	Tmk:	(1) 2-8-005:002
Aqui code:	30101		
Latest hd:	Not Reported	Wcr:	01-JAN-54
Pir:	1/1/1954	Surveyor:	Not Reported
T:	Not Reported	Site id:	HI8000000002105

AH110
East
1/2 - 1 Mile
Higher

HI WELLS **HI8000000002106**

Objectid:	591	Wid:	3-1749-021
Island:	Oahu	Well name:	Moiliili
Old name:	Not Reported		
Yr drilled:	1954		
Driller:	NAT WHITON		
Quad map:	13		
Long83dd:	-157.823888889		
Lat83dd:	21.2930555556		
Gps:	0	Utm:	-1
Owner user:	Star Market	Old number:	35-1B
Well type:	Not Reported	Casing dia:	12
Ground el:	Not Reported		
Well depth:	28		
Solid case:	11	Perf case:	Not Reported
Use:	ABN - Sealed	Use year:	Not Reported
Init head:	Not Reported	Init head2:	Not Reported
Init head3:	Not Reported		
Init cl:	0		
Test date:	Not Reported	Test gpm:	100
Test ddown:	1	Test chlor:	Not Reported

Test temp:	Not Reported	Test unit:	Not Reported
Pump gpm:	0		
Draft mgy:	Not Reported	Head feet:	Not Reported
Max chlor:	Not Reported	Min chlor:	Not Reported
Geology:	Not Reported		
Pump yr:	0		
Draft yr:	Not Reported	Bot hole:	Not Reported
Bot solid:	Not Reported	Bot perf:	Not Reported
Spec capac:	100		
Pump mgd:	0		
Draft mgd:	Not Reported	Pump elev:	Not Reported
Pump depth:	Not Reported	Tmk:	(1) 2-8-005:002
Aqui code:	30101		
Latest hd:	Not Reported	Wcr:	01-JAN-54
Pir:	Not Reported	Surveyor:	Not Reported
T:	Not Reported	Site id:	HI8000000002106

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS
RADON

AREA RADON INFORMATION

Federal EPA Radon Zone for HONOLULU County: 3

Note: Zone 1 indoor average level > 4 pCi/L.
: Zone 2 indoor average level >= 2 pCi/L and <= 4 pCi/L.
: Zone 3 indoor average level < 2 pCi/L.

Federal Area Radon Information for HONOLULU COUNTY, HI

Number of sites tested: 209

Area	Average Activity	% <4 pCi/L	% 4-20 pCi/L	% >20 pCi/L
Living Area - 1st Floor	0.015 pCi/L	100%	0%	0%
Living Area - 2nd Floor	0.125 pCi/L	100%	0%	0%
Basement	0.415 pCi/L	96%	4%	0%

PHYSICAL SETTING SOURCE RECORDS SEARCHED

TOPOGRAPHIC INFORMATION

USGS 7.5' Digital Elevation Model (DEM)
Source: United States Geologic Survey
EDR acquired the USGS 7.5' Digital Elevation Model in 2002 and updated it in 2006. The 7.5 minute DEM corresponds to the USGS 1:24,000- and 1:25,000-scale topographic quadrangle maps. The DEM provides elevation data with consistent elevation units and projection.

Scanned Digital USGS 7.5' Topographic Map (DRG)
Source: United States Geologic Survey
A digital raster graphic (DRG) is a scanned image of a U.S. Geological Survey topographic map. The map images are made by scanning published paper maps on high-resolution scanners. The raster image is georeferenced and fit to the Universal Transverse Mercator (UTM) projection.

HYDROLOGIC INFORMATION

Flood Zone Data: This data, available in select counties across the country, was obtained by EDR in 2003 & 2011 from the Federal Emergency Management Agency (FEMA). Data depicts 100-year and 500-year flood zones as defined by FEMA.

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002, 2005 and 2010 from the U.S. Fish and Wildlife Service.

HYDROGEOLOGIC INFORMATION

AQUIFLOW^{R} Information System
Source: EDR proprietary database of groundwater flow information
EDR has developed the AQUIFLOW Information System (AIS) to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted to regulatory authorities at select sites and has extracted the date of the report, hydrogeologically determined groundwater flow direction and depth to water table information.

GEOLOGIC INFORMATION

Geologic Age and Rock Stratigraphic Unit
Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - A digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

STATSGO: State Soil Geographic Database
Source: Department of Agriculture, Natural Resources Conservation Services
The U.S. Department of Agriculture's (USDA) Natural Resources Conservation Service (NRCS) leads the national Conservation Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. Soil maps for STATSGO are compiled by generalizing more detailed (SSURGO) soil survey maps.

SSURGO: Soil Survey Geographic Database
Source: Department of Agriculture, Natural Resources Conservation Services (NRCS)
Telephone: 800-672-5559
SSURGO is the most detailed level of mapping done by the Natural Resources Conservation Services, mapping scales generally range from 1:12,000 to 1:63,360. Field mapping methods using national standards are used to construct the soil maps in the Soil Survey Geographic (SSURGO) database. SSURGO digitizing duplicates the original soil survey maps. This level of mapping is designed for use by landowners, townships and county natural resource planning and management.

PHYSICAL SETTING SOURCE RECORDS SEARCHED

LOCAL / REGIONAL WATER AGENCY RECORDS

FEDERAL WATER WELLS

PWS: Public Water Systems
Source: EPA/Office of Drinking Water
Telephone: 202-564-3750
Public Water System data from the Federal Reporting Data System. A PWS is any water system which provides water to at least 25 people for at least 60 days annually. PWSs provide water from wells, rivers and other sources.

PWS ENF: Public Water Systems Violation and Enforcement Data
Source: EPA/Office of Drinking Water
Telephone: 202-564-3750
Violation and Enforcement data for Public Water Systems from the Safe Drinking Water Information System (SDWIS) after August 1995. Prior to August 1995, the data came from the Federal Reporting Data System (FRDS).

USGS Water Wells: USGS National Water Inventory System (NWIS)
This database contains descriptive information on sites where the USGS collects or has collected data on surface water and/or groundwater. The groundwater data includes information on wells, springs, and other sources of groundwater.

STATE RECORDS

Well Index Database
Source: Commission on Water Resource Management
Telephone: 808-587-0214
CWRM maintains a Well Index Database to track specific information pertaining to the construction and installation of production wells in Hawaii

OTHER STATE DATABASE INFORMATION

RADON

Area Radon Information
Source: USGS
Telephone: 703-356-4020
The National Radon Database has been developed by the U.S. Environmental Protection Agency (USEPA) and is a compilation of the EPA/State Residential Radon Survey and the National Residential Radon Survey. The study covers the years 1986 - 1992. Where necessary data has been supplemented by information collected at private sources such as universities and research institutions.

EPA Radon Zones
Source: EPA
Telephone: 703-356-4020
Sections 307 & 309 of IRAA directed EPA to list and identify areas of U.S. with the potential for elevated indoor radon levels.

OTHER

Airport Landing Facilities: Private and public use landing facilities
Source: Federal Aviation Administration, 800-457-6656

Epicenters: World earthquake epicenters, Richter 5 or greater
Source: Department of Commerce, National Oceanic and Atmospheric Administration

Earthquake Fault Lines: The fault lines displayed on EDR's Topographic map are digitized quaternary faultlines, prepared in 1975 by the United State Geological Survey

PHYSICAL SETTING SOURCE RECORDS SEARCHED

STREET AND ADDRESS INFORMATION

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APPENDIX G

Interview Documentation

Central Planet Repair, LLC
Comprehensive Environmental Services
www.geochemist.net
236 Kuahiwi Avenue, Wahiawa, Hawaii 96786
USA: +1 808 216-6555
Singapore: +65 8247 9061

September 23, 2014

SamKoo Pacific, LLC
SamKoo Hawaii, LLC
1631 Kapiolani Boulevard, Suite 200
Honolulu, Hawaii 96814

Attn: Mr. Timothy Yi, General Manager, via email

Subject: **Proposal**
Phase I Environmental Site Assessments
1391 Kapiolani Boulevard
TMK: (1) 2-3-039:011
1631 & 1637 Kapiolani Boulevard
TMK: (1) 2-3-041:009
TMK: (1) 2-3-041:006
Honolulu, Oahu, Hawaii
CPR P-451

Dear Mr. Yi:

Central Planet Repair LLC (CPR) is requesting that you provide information to the extent possible regarding the subject properties for the Phase I Environmental Site Assessments. We have compiled much information during the other stages of the project including the historical document review and the site inspection.

The final few questions for inquiry are:

How long has your company owned the subject properties and how long have you been involved with the properties?

1391 Kapiolani: 7 years, 7 years

1631 Kapiolani: 7 years, 7 years

Do you have knowledge about the historical use of the properties prior to your company ownership? No

Was there any evidence of soil contamination found during the installation of the grease trap at the restaurant on the 1631 Kapiolani parcel? No

For the proposed construction on the properties, is there a preliminary design for the foundation and subgrade structures? Will the buildings be similar in concept or different? 1391 Yes, Yes
1631 No

Do you know of any other information regarding the environmental history of the properties? No

Do you know if the property values at the time of purchase were discounted due to environmental issues? No

-o0o-

Your authorization of this project can be made by signing in the appropriate space provided below. This proposal is valid for 30 days. We appreciate this opportunity to be of service to you. Please contact me at 808/216-6555, if you have any questions or comments regarding your project.

Very truly yours,
Central Planet Repair, LLC

Ned Murphy
Consulting Geochemist

PROPOSAL ACCEPTED BY:

Signature _____ Firm SamKoo Pacific, LLC
SamKoo Hawaii, LLC

Name Timothy Yi Date 9/22/14

cc: Mr. Lowell Chun, Pacific Catalyst

APPENDIX H

Qualifications of the Environmental Professionals

STATEMENT OF QUALIFICATIONS

Central Planet Repair, LLC

CPR is a Hawaii-based Small Business Administration certified HUBZone small business enterprise, professional environmental services firm, offering high quality technical services to private, commercial, industrial, and government clients in Hawaii and the Pacific Rim.

Ned Murphy formed CPR in February 2002 to present a more practical and low cost approach to providing environmental consulting services to clients. The lower cost came from the ability to bypass the middle management and overhead contained in the large consulting firms by providing contact directly with the technical team and providing innovative solutions to traditional problems.

A few of the numerous industries we have worked for are petroleum, telecommunication, metal finishing, financial, recycling, construction, waste management, and automotive rental. We have been able to provide effective environmental engineering and consulting services to assist our clients in managing their environmental affairs and maintaining their compliance with regulatory agency requirements. CPR has contracted over 60 clients. Of the clients, approximately 80% have retained CPR for additional services outside of the original scope of work and approximately 50% have contracted new projects to CPR.

CPR has performed approximately 100 Phase I Due Diligence Environmental Site Assessments (ESA). These assessments included value consideration and hazard risk analysis. Additionally, CPR has performed over 80 site investigations to satisfy responses to HDOH and EPA notifications of deficiency and compliance purposes.

Documentation of CPR's five consecutive years of business existence is provided on the Certificate of Good Standing from DCCA.

CPR has not been involved in any lawsuits or complaints filed against us since our organization on January 28, 2002.

Experience and professional qualifications relevant to this project

Key personnel for this project included Mr. Ned Murphy and Dr. Alexander Grafchikov. The project was directed and managed by Mr. Murphy. Mr. Murphy also was the contractor interface.

NED MURPHY– CONSULTING GEOCHEMIST

Ned formed the company in February of 2002 and has over 26 years of environmental engineering and project management experience. He has conducted and managed a broad range of projects and is experienced in site investigations and remediation methods with an emphasis on hydrocarbon projects. He has been conducting Soil Gas investigations and remedial design including methane abatement in Hawaii since 1990.

Ned has extensive experience of the processes involved with Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), Resource Conservation and Recovery Act (RCRA), Clean Water Act (CWA), and Superfund Amendments and Reauthorization Act (SARA) compliance. He has completed multiple environmental investigations, ASTM Phase I and Phase II environmental site assessments, compliance audits, sampling and analysis, permitting, underground and aboveground storage tank (UST and AST) investigations, UST and AST removal and replacements, geotechnical and geophysical investigations, infrastructure design, utility engineering, and preparation of work plans and closure reports.

DR. ALEXANDER GRAFCHIKOV – SENIOR GEOCHEMIST

Alexander joined the company in July of 2006. Alexander has over 35 years experience in experimental and environmental geochemistry. Since joining CPR, he has been conducting the calculation of risk values and risk assessments for several sites, ASTM Phase I and Phase II environmental site assessments, computer modeling the effects of remediation designs for several sites, designing an oxygen release compound treatment system, sampling and analysis, preparation of work plans and closure reports, and developing databases of collected sampling results.

F. ARCHAEOLOGICAL INVENTORY

SCS Project 1649-1 AIS

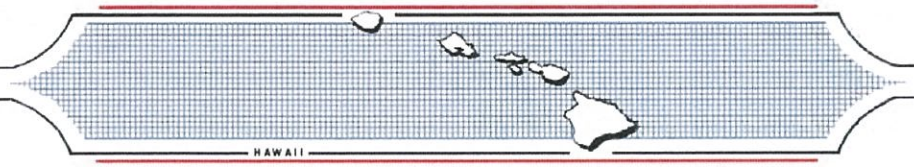
AN ARCHAEOLOGICAL INVENTORY SURVEY REPORT FOR A TWO-PARCEL PROPERTY ON APPROXIMATELY 1.29 ACRE IN WAIKĪKĪ AND KALIA AHUPUA`A, *`ILI* OF KEWALO, KONA (HONOLULU) DISTRICT, ISLAND OF O`AHU, HAWAI`I [TMK: (1) 2-3-041: 006 AND 009]

Prepared by:
Elizabeth Pestana, B.A.
and
Robert L. Spear, Ph.D.

January 2015

Prepared for:
Samkoo Pacific LLC
1631 Kapiolani Boulevard, Suite 1560
Honolulu, HI 96813

SCIENTIFIC CONSULTANT SERVICES Inc.



1347 Kapiolani Blvd., Suite 408 Honolulu, Hawai`i 96814

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ABSTRACT

Scientific Consultant Services, Inc. was contracted by landowner, Samkoo Pacific LLC to carry out an Archaeological Inventory Survey (AIS) study in advance of a proposed residential condominium development. The project area is an approximately 1.29-Acre property comprised of two adjacent land parcels located at 1631 Kapi`olani Boulevard in Waikīkī and Kalia Ahupua`a, Kona (Honolulu) District, Island of O`ahu, Hawai`i [TMK: (1) 2-3-041: 006 and 009].

The project area, currently a commercial property, includes a two-story building complex that accommodates retail and business enterprises surrounded by asphalt parking lots. Archaeological Inventory Survey in the project area primarily involved systematic subsurface testing by which fifteen stratigraphic trenches (ST-1 through ST-15) were mechanically excavated within the asphalt-covered parking lots in the project area; an equivalent of approximately 1,116.73 cubic meters of soil was excavated.

Subsurface survey resulted in the identification of one newly documented archaeological site, a Historic era deposit, designated State Site number 50-80-14-7756, that consisted primarily of broken and intact glass bottles, as well as two additional subsurface features that consisted of fills associated with abandoned utility infrastructure. In addition, sediments indicative of the natural former land surface(s) consisting of wet clayey sand and clay deposits characteristic of marsh sediments were also revealed in test trenches in the project area.

State Site 50-80-14-7756 is interpreted as a remnant deposit relating to mid to late Historic Period habitation. This site is assessed as significant under criterion 'd' for it's potential to contribute information to the Hawaiian archaeological record on Historic Era land tenure in the project area, and this general portion of Kalia Ahupua`a. No further work is recommended for the newly documented site. However, a program of Archaeological Monitoring is recommended for future ground disturbances below existing imported fill soils (approximately four feet below the current surface) due to the possibility that additional archaeological properties may exist below built portions of the project area.

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INTRODUCTION

At the request of Samkoo LLC, Scientific Consultant Services (SCS), Inc. conducted an Archaeological Inventory Survey (AIS) at 1630 Kapiolani Boulevard, Waikiki and portion of Kalia Ahupua`a, *`Ili* of Kewalo, Kona (Honolulu) District, O`ahu Island, Hawai`i [TMK: (1) 2-3-003: 73 and 96]. This archaeological survey covered an area of approximately 58,799 square feet (1.29 acres) on two adjacent parcels and resulted in the documentation of one historic cultural resource (Figures 1 and 2

The work described in this report precedes the proposed construction of a new condominium building on the subject adjoined two parcels (*i.e.,* 006 and 009) included in the study area (see Figure 2. Parcel 006 is currently an active parking lot for commercial vehicles, while Parcel 009 is the site of the Samkoo Pacific property management office building, and small business complex (Figures 3). SCS Archaeologists Elizabeth Pestana, B.A., Kepa Lyman, M.A., and Jeff Putzi, B.A., conducted the fieldwork from October 13–17, 2014, under the direction of Principal Investigator Robert L. Spear, Ph.D.

Subsurface testing involved fifteen mechanically excavated trenches, collectively totaling 51.25 linear meters of trench were excavated to an average depth of 145.27 centimeters below existing ground surface (cmbs); slightly below water-table levels, within a range of 105 to 163 cmbs. In sum, 1,116.73 cubic meters in soil volume was excavated. Findings of this Inventory Survey include one newly identified historic resource designated State Site 50-80-14-7756 that includes a deposit of burnt refuse materials, identified in Parcel 006 of the project area (see Figure 2). In addition, sediments indicative of a former land surface– buried A-horizon, and historic marshland landscape were revealed in test trenches across the project area.

Archaeological Monitoring is recommended for future subsurface disturbance that may be greater than 1.0 meter in depth in the project area overall. Fill-soils were present to the lowest stratigraphic layers, monitoring is still recommended for this parcel. Built sections of the project area, particularly in parcel 006, were not tested (excavated) for practical reasons. Therefore, monitoring will be necessary to ensure that cultural properties, if present beneath the existing structures, are identified and documented according to Hawaii Administrative Rules (HAR) §13-279-3. Following SHPD acceptance of this AISfinal report, an Archaeological Monitoring Plan should be submitted for review.

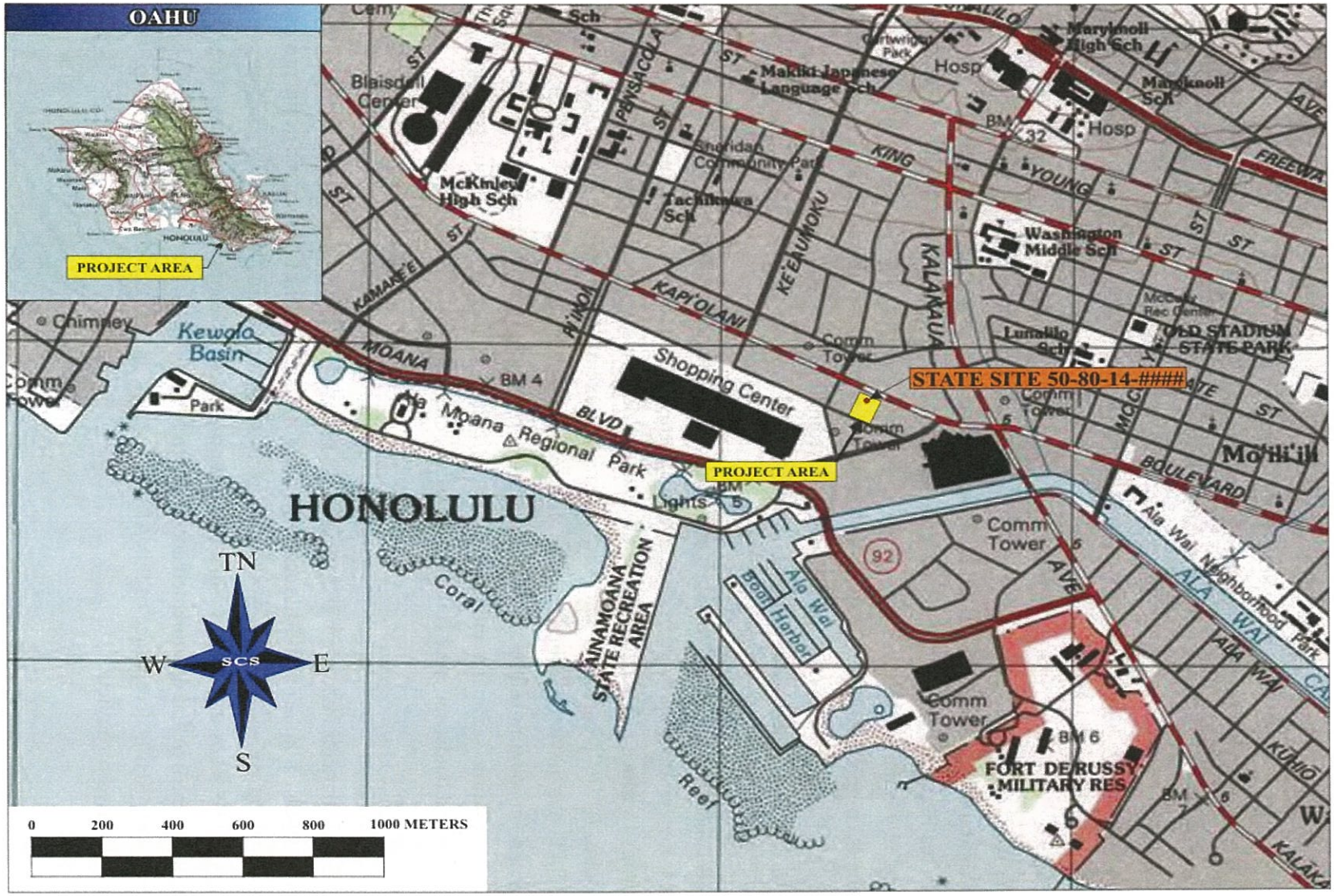

Figure 1: USGS (Honolulu Quadrangle) Map Showing Project Area Location.

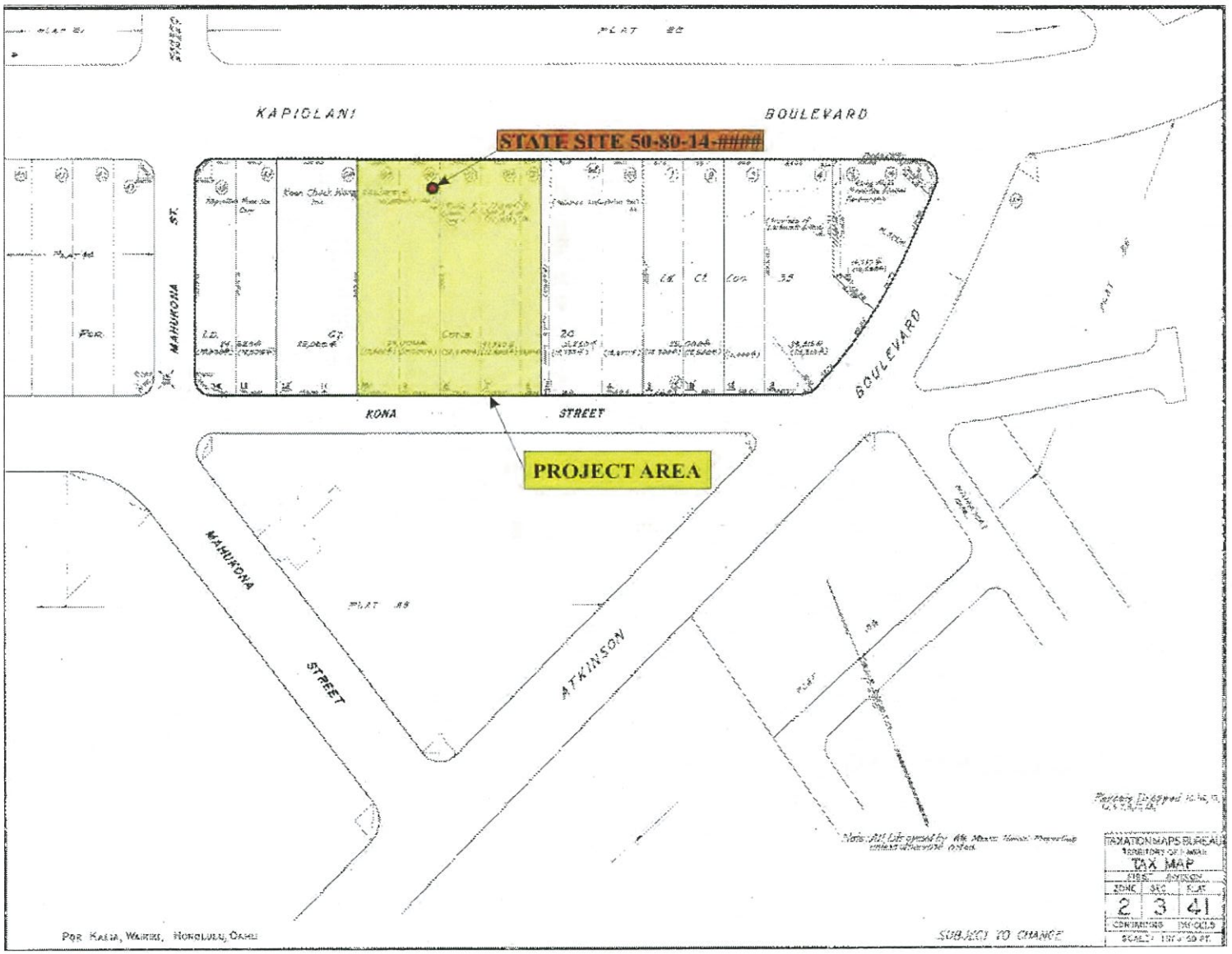

Figure 2: Tax Map Key [TMK] Showing Project Area Parcels.

Figure 3: Google Earth Image Showing the Project Area in Aerial View (Adapted from Google earth, Imagery Date 1/16/2013; Accessed October 2014).

ENVIRONMENTAL SETTING

PROJECT AREA

The project area [TMK: (1) 2-3-041: 006 and 009] is located at 1631 Kapiolani Boulevard, set between adjacent parcels on the east and west sides, on the small city block bordered by Mahukona Street at the west, Atkinson Boulevard at the east, Kona Street at the south, and Kapiolani Boulevard at the north. The location is in an extensively developed portion of the city, between Waikiki and central Honolulu/Chinatown (see Figure 1). Two adjacent project parcels comprise the approximately 1.29-acres project area (Parcel 006: .717 acres, and Parcel 009: .574 acres) (Figures 4-6). In early historic (and probably traditional) times, this area was known as Kewalo.

The physiographic nature of the region of Honolulu (Kona), in which the project area is situated, is a fairly wide-reaching, low-lying coastal plain; approximately 1/3 mile inland of Māmala Bay coastline (see Figure 1). Elevation in the project area is approximately two meters above mean annual sea level (approximately 7ft. amsl). Historically, the general area was dominated by marshy wetlands, tidal flats, fishponds, and reef. However, it has been systematically filled with introduced sediment, dump materials, coral, and/or basalt gravel over the course of the mid to late 19th century and/or early 20th century.

CLIMATE

Annual rainfall in the project area is between 500 mm (20 inches) and 760 mm (30 inches) (Armstrong 1983). Temperatures in the area fluctuate between 70 degrees to 80 degrees Fahrenheit, and average of roughly 73F during winter months January, and 81F in Summer months August (www.city-data.com/us-cities/The-West/Honolulu-Geography-and-Climate 2014). Prevailing trade winds throughout the year are generally northeasterly, varying in frequency from more than 90% during the summer months to 50% in January (Wilson Okamoto 1998:2-1, in Hazlet *et al.* 2008:7-8).

VEGETATION

The ground surface has been completely disturbed and altered prior to this Inventory Survey. The ground surface in the project area is flat, and covered by asphalt and/or buildings, more or less absent of vegetation. Flora typical of the downtown Honolulu urban landscape exists in the project area peripheries and consists of non-native ornamental plants including short grasses, hedges, and Monkey Pod trees.

Figure 4: Photographic Overview of Project Parcel 009. View to South.

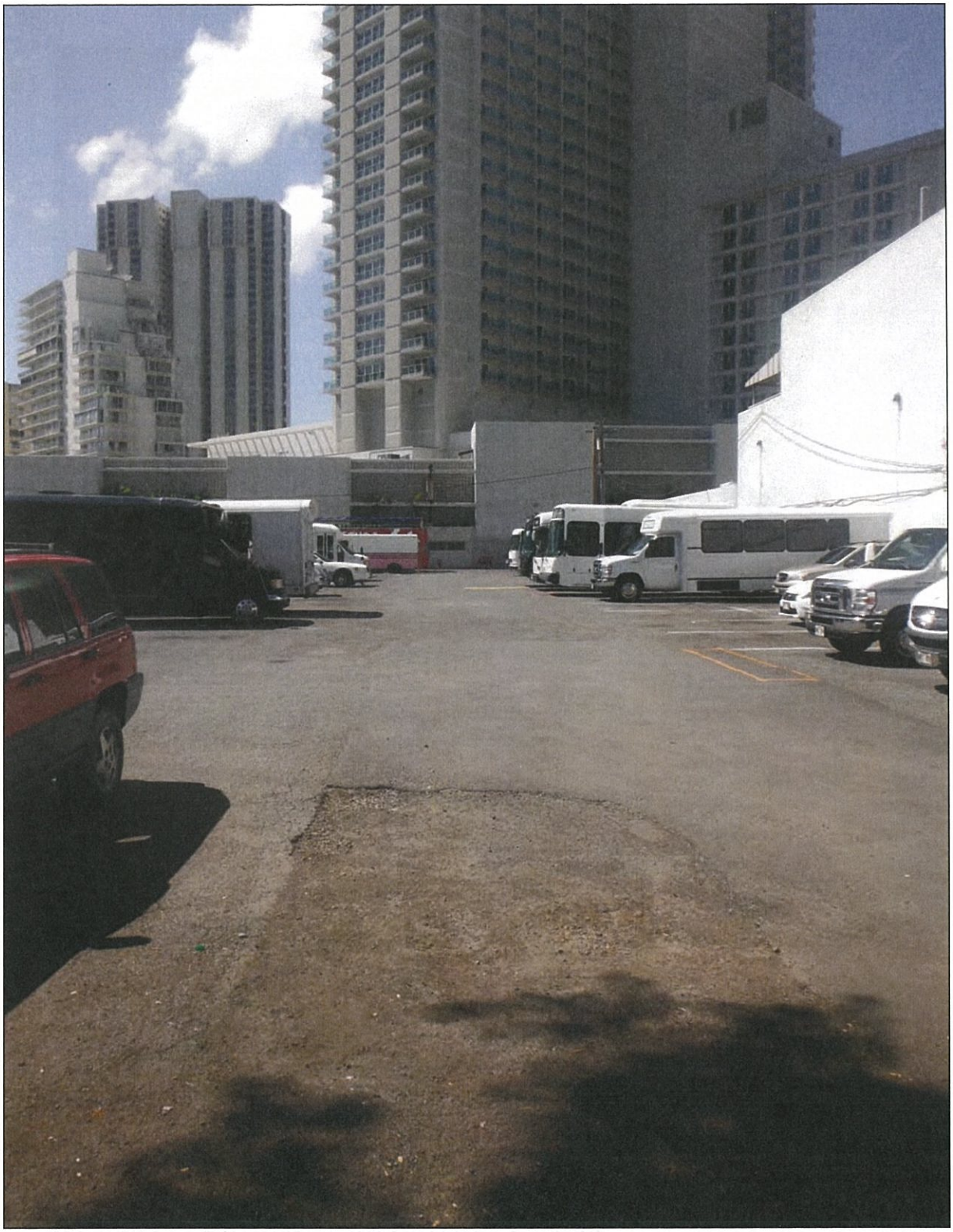

Figure 5: Photographic Overview of a West Portion of Project Parcel 006. View to South.

Figure 6: Photographic Overview of an East Portion of Project Parcel 006. View to East.

SOILS

Currently, soils within much of the Kaka`ako/Kewalo region, the project area representative of the eastern limit, are classified as "mixed fill land' (FL) consisting of "materials dredged from the ocean or hauled from nearby areas, garbage, and general material from other sources" (Foote *et al.* 1972; Map Sheet 62) (Figure 7). Despite this widespread filling and transformation of the sedimentary landscape in and around the project area, several nearby studies (*e.g.,* Winieski and Hammatt 2000) have demonstrated that small, discontinuous remnants of original, undisturbed sediment do occur in the Kaka`ako/Kewalo area.

BACKGROUND

Cultural Surveys Hawai`i, Inc. has conducted numerous studies in and around the project area, and much of this background section is based on two recent and comprehensive summaries of historical and archaeological background information (*i.e.*, Chiogioji and Hammatt 2003; O'Hare *et al.* 2004).

TRADITIONAL SETTING

According to Chiogioji and Hammatt (2003), the project area, currently known as Kaka`ako, is located in a region called *Kewalo* on early historic maps. This area is between the traditional population centers of Honolulu (traditionally known as *Kou*) and Waikiki. There are no specific references to Kewalo among the writings of early travelers; however, both Kou (Honolulu) and Waikiki were described as having extensive irrigated *lo`i* (taro fields), fishponds, and permanent habitation sites in traditional times. Waikiki, in particular, has been an extremely important population center for centuries. It served as a royal center from as early as the late 14th century up until the early historic era. Vancouver's (1798:463) first impressions of Waikiki illustrate its character at the dawn of the historic era.

> This opened our view to a spacious plain, which, in the immediate vicinity of the village, had the appearance of the open common fields in England; but, on advancing, the major part appeared to be divided into fields of irregular shape and figure, which were separated from each other by low stone walls, and were in a very high state of cultivation. These several portions of land were planted with the eddo or *taro* root, in different stages of inundation....The causeway led us near a mile from the beach, at the end of which was the water we were in quest of. It was a rivulet five or six feet wide, and about two or three feet deep, well banked up, and nearly motionless; some rills only, finding a passage through the dams that checked the sluggish stream, by which a constant supply was afforded to the *taro* plantations.

Figure 7: USDA Soil Survey Map (Adapted from Foote et al. 1972: Map 62) Showing Soil Types in the Project and Greater Kaka`ako/Kewalo.

West of the current project area, Kou (Honolulu) was also highly cultivated and settled at the time of the earliest historical descriptions. Handy and Handy (1972:479) describe it as follows.

> ...Westervelt...wrote that '"Honolulu" was probably a name given to a very rich district of farm land near what is now...the junction of Liliha and School Streets, because its chief was Honolulu, one of the high chiefs of the time of Kakuhihewa....' It is probable that the chief referred to by Westervelt took his name from the harbor and adjoining land. The original name of the land where the town grew when the harbor became a haven for foreign ships was Kou....The number of *heiau* in this area indicates that it was a place of first importance before the era of foreign contact.

In sharp contrast with Waikiki and Kou (Honolulu), Kewalo seems to have been a less attractive place to live and farm, probably because it was dominated by marshes and prone to flooding, including tidal surges. In traditional times, Kewalo was apparently an important location for fishponds and for other marsh resources (*e.g.*, birds). But, prior to its wholesale transformation into an urban area in historic times, this area would not have been a practical location for settlement.

HISTORIC SETTING

In 1820, Hiram Bingham (Bingham 1981:93) described the greater Kewalo area as "the plain of Honolulu" with "fishponds and salt making pools along the seashore." Jacobus Boelen (Boelen 1988:62), in the 1820s, described the Kewalo area as "not greatly cultivated." In the early 1840s, the Kewalo area was described by Gorman Gilman (Gilman 1903:97) as a "barren and dusty plain."

There are no Land Commission Awards (LCAs) for the current project area, but other awards for the Kewalo/Kaka`ako area, summarized in Chiogioji and Hammatt (2003), provide a glimpse of Native Hawaiian land use and settlement in this area, beginning in the middle 19th century. LCA 387, just *makai* of Kewalo, describes fishing grounds, coral flats, and salt beds. In this same area, several small Native Hawaiian LCAs consistently cite fishponds and salt ponds (*mo`o*). Also, one or two mentions are made of houselots or taro patches; the latter may have been closer to Waikiki than to Kewalo proper. In any case, these data suggest some early historic habitations in this area, although it was clearly not a recognizable village or settlement of any significance.

By the late 19th century, several streets in downtown Honolulu were extended into the Kewalo/Kaka`ako area, much of which was still described on historic maps as either rice fields or marshlands. In the early to middle 20th century, these lands were filled in as the beginnings of full-scale urbanization reached Kewalo/Kaka`ako. Several blocks *`Ewa* of the current project area, a traditional trail (Queen Street) from Kou (Honolulu) to Waikiki, was still present as late as the early 20th century. This trail apparently traversed a sand berm, raised just above the wet marshland and coral flats natural to this area. These geographic features are depicted in a 1927 aerial composite image shown in Figure 8.

Filling the low-lying Kewalo/Kaka`ako area began systematically in the 1920s and 1930s, and was completed by the late 1940s. A 1949 aerial photograph (see Figure 5 in Chiogioji and Hammatt 2003:15) shows the current project area as part of a mixed residential and commercial district.

PREVIOUS ARCHAEOLOGY

The following text summarizes a comprehensive sampling of archaeological studies relative to the project area to date. Although no previous archaeological studies have been conducted in the current project area several studies have been conducted in the near proximity. The locations of the archaeological investigations discussed below are indicated on a USGS map, and outlined in table form, as adapted from Burke and Hammatt (2014) (Figure 9 and Table 1).

CSH conducted background research and field inspections of a number of locations in the vicinity surrounding the current project area (Chiogioji and Hammatt (1992), Hammatt and Chiogioji 2004, Hammatt and Chiogioji 2006, Tulchin and Hammatt 2004, Hammatt 2006a, Barnes and Shideler, etc.; see Table 1). Their research suggests the general Kewalo area was an extensive wetland in traditional times, utilized by Native Hawaiians for fishponds and wetland agriculture. In pre-Contact times, native Hawaiians would likely have utilized these locations for fishpond farming, salt-making, and wetland agriculture. Chiogioji and Hammatt (1992) hypothesized that evidence of these activities may well be buried under more modern fill introduced to this area in recent times. The area was undeveloped until the 1940s, suggesting that earlier historic artifacts, sites, and/or features from the initial phases of urbanization in greater Honolulu would not be found. Dredging and filling of this area was conducted in the early 20th century. Traditional Native Hawaiian burials have been documented within Tulchin and Hammatt's (2009) study area (see Figure 9). Citing previous Archaeological Monitoring in the area, the authors contend that

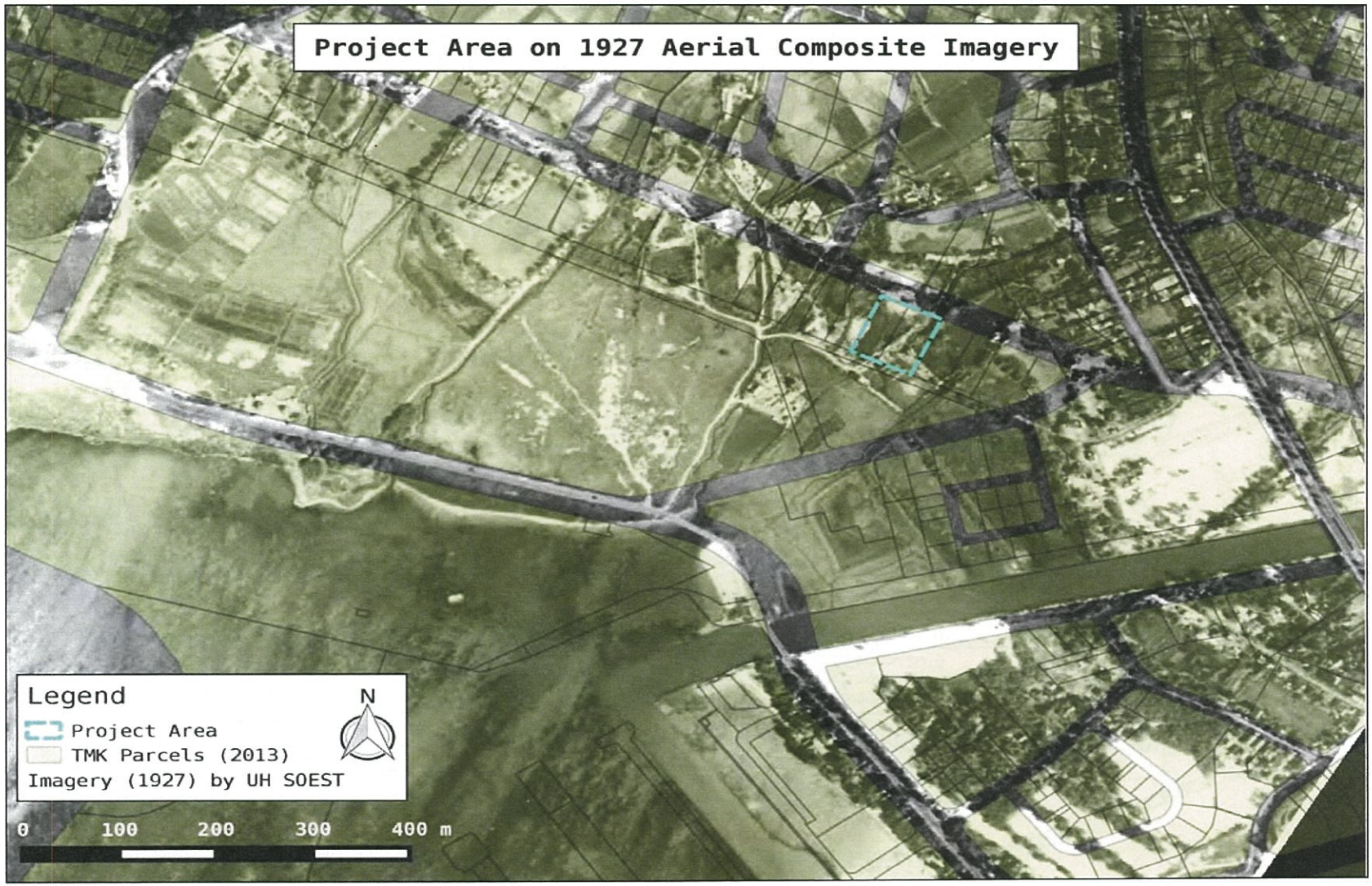

Figure 8: A 1927 Aerial Composite Image Depicting the Kewalo to Coastal Kalia Region of Honolulu Previous to Filling of the Natural Topography. (UH SOEST, Accessed December 2012).

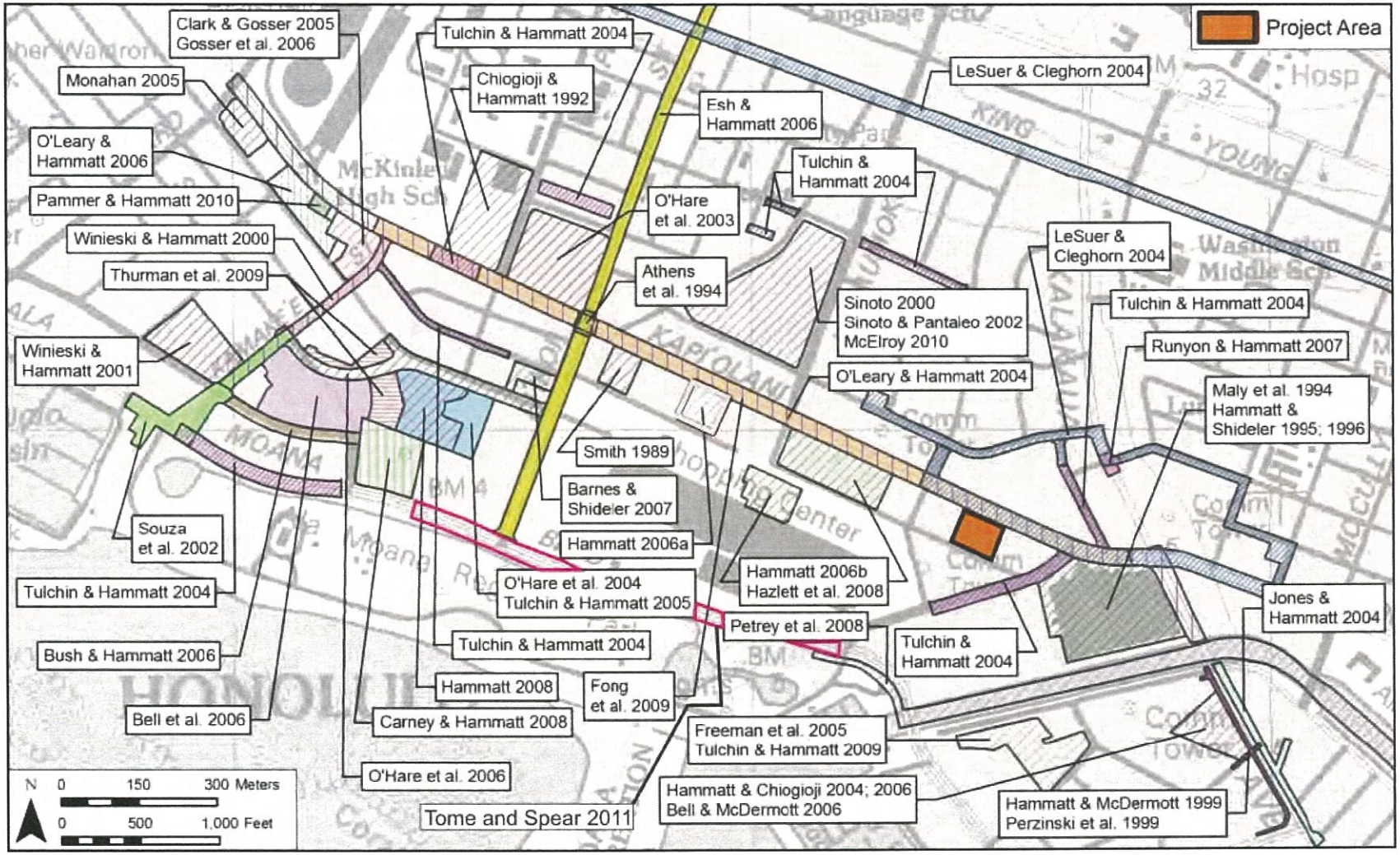

Figure 9: Previous Archaeological Studies Near the Project Area (Adapted from Burke and Hammatt 2014).

Table 1: Outline Summary of Previous Archaeological Investigations in the Current Project Area Vicinity (Adapted from Burke and Hammatt 2014).

Reference	Location	Nature of Study	Results (Sites 50-80-14-)
Smith 1989	1341 Kapi'olani Ave.	State Parks response to inadvertent discovery of human remains	SIHP # -4243 (isolated long bone) found in a disturbed context.
Chiogioji & Hammatt 1992	NW corner of Pensacola St. and Kapi'olani Blvd, TMK: 2-3-09: por. 01	Archaeological assessment (field inspection & literature review)	Notes potential for paleo-environmental data; recommends subsurface testing.
Athens et al. 1994	Pi'ikoi St. and Kapi'olani Blvd. intersection	Archaeological investigation of inadvertently discovered human remains	Identifies SIHP # -4847, an inadvertently discovered, scattered human burial dating to ca. 1450s.
Maly, Franklin, & Rosendahl 1994	Convention Center, TMK: 2-3-35; 2-3-36:018, 024, 025	Archaeological and historical assessment study (field inspection & literature review)	Notes 1 LCA and fishpond and anticipates archaeological features; recommends subsurface testing.
Hammatt & Shideler 1995	Convention Center (TMK 2-3-35:001),	Archaeological inventory survey	10 backhoe test trenches and 5 cores. No clear evidence of pre-contact occupation observed.
Hammatt & Shideler 1996	Convention Center, TMK: 2-3-35:001	Archaeological data recovery	Determined that vast majority of in-situ sediments overlying the limestone hardpan dates back no further than AD 1520 to 1690. No clear evidence of Kūwili pond sediments found.
Hammatt & McDermott 1999	Kalākaua Ave.	Burial disinterment plan and report	Details the disinterment of 2 human burials (SIHP # -5744-1 and -2).
Perzinski et al. 1999	Ala Wai Blvd., Kalākaua Ave., Ala Moana Blvd., and 'Ena Rd.	Archaeological monitoring report	Many pockets of undisturbed layers including beach sand noted; two human burials documented.
Sinoto 2000	Wal-Mart/Sam's Club, TMK: 2-3-16:9, 12, 42	Archaeological assessment (field inspection & literature review)	Noted some remains may still be present; recommended archaeological monitoring program.

Reference	Location	Nature of Study	Results (Sites 50-80-14-)
Winieski & Hammatt 2000	Kaka'ako Improvement District 4, Kamake'e St.	Archaeological monitoring report	SIHP # -5598 (two adjacent coffin burials); old A horizon noted in some trenches.
Winieski & Hammatt 2001	Victoria Ward Theater, TMK: 2-3-02:1	Archaeological monitoring report	No pre-contact materials, historic cultural materials, or human burials encountered.
Sinoto & Pantaleo 2002	Wal-Mart/Sam's Club, TMK: 2-3-16:9, 12, 42	Archaeological monitoring plan	Anticipates a low potential for subsurface remains.
Souza, Perzinski, and Hammatt 2002	Kaka'ako Improvement District 7, Kamake'e St.	Archaeological monitoring report	3 disturbed, pre-contact burials recorded (SIHP #s -6376, -6377, -6378); old A horizon found in 7 of 10 profiles.
O'Hare, Borthwick, & Hammatt 2003	Kapi'olani Blvd. and Pi'ikoi St., TMK: 1-2-3-10:28, 48, 50, 52-56	Archaeological inventory survey	Original wetland surface of Kewalo (SIHP # -6636) and a trash layer (SIHP # -6637) observed.
Hammatt & Chiogioji 2004	TMK: 2-6-13:1, 3, 4, 7, 8, 9, 11, 12	Archaeological literature review and field check	Anticipates archaeological inventory survey.
Jones & Hammatt 2004	Kalākaua Ave. from Ala Wai Blvd. to Pau St., TMK: 2-6-7, 13	Archaeological monitoring report	No significant cultural remains; remains of old McCully Rd. and pond/lo'i noted.
LeSuer & Cleghorn 2004	HECO East O'ahu Transmission Project	Archaeological assessment (field inspection & literature review)	Discusses Loko Opu fishpond near HECO Makaloa Substation.
Tulchin & Hammatt 2004	Kapi'olani Area, TMK: 2-3-04, 05, 07, 09, 10, 13, 14, 17, 18, 22, 35, 36, 38	Literature review and field check	Notes areas of sand, ponds, and multiple former burial finds in the vicinity; archaeological monitoring recommended.
O'Hare et al. 2004	Ko'olani Condominium, TMK: 2-3-04:73, 2-3-05:27; 2-3-06:14; 2-3-07:2	Archaeological inventory survey	Original wetland surface of Kewalo (SIHP # -6636), 3 historic trash pits (SIHP # -6639), and a historic fill layer (SIHP # -6641) reported.
O'Leary & Hammatt 2004	Kapi'olani Blvd. from Kalākaua Ave. to Kamake'e St., TMK: [1] 2-3-3	Archaeological monitoring report	No cultural material observed.

Reference	Location	Nature of Study	Results (Sites 50-80-14-)
Clark and Gosser 2005	Corner of Kapi'olani Blvd. and Kamake'e St., TMK: 2-3-003:075, 085, 086	Archaeological inventory survey	Remnant of un-named pond, SIHP # -6636, observed.
Freeman et al. 2005	Ala Wai Gateway, TMK: [1] 2-6-011:001, 002, 004, 032, 037, 040	Archaeological inventory survey and cultural impact evaluation	SIHP # -6700, a disturbed burial; SIHP # -6701, a historic coffin burial; SIHP # -6702, a culturally enriched, buried A horizon in geographic association with LCA 99 F.L. to Uma; SIHP # -6703, a fishpond remnant.
Monahan 2005	Ward Ave. and Kapi'olani Blvd., TMK: [1] 2-3-003:73, 96	Archaeological assessment report	9 trenches excavated; no significant cultural materials; all fill layers to BOE.
Bell & McDermott 2006	Allure Waikīkī, TMK: [1] 2-6-13:1,3,4,7,8,9, 11, 12	Archaeological inventory survey report	28 test trenches excavated, 3 historic properties identified: SIHP # -6873, isolated traditional Hawaiian burial; SIHP # -6874, subsurface cultural layer of pre- and post-contact origin; SIHP # -5875, isolated traditional Hawaiian burial.
Tulchin & Hammatt 2005	Ko'olani Condominium, TMK: 2-3-04:073, 2-3-05:027, 2-3-06:014, 2-3-07:002	Addendum to an archaeological inventory survey	8 backhoe test trenches excavated; SIHP # -6636, original wetland surface of Kewalo area; SIHP # -6641, historic garbage layer.
Bell, McDermott, & O'Leary 2006	Victoria Ward Village Shops, TMK: [1] 2-3-5:013-017, 022, 023	Archaeological inventory survey report	6 burials (SIHP # -6854) found during AIS and additional 50+ burials found during on-going monitoring; historic privy/activity area (SIHP # -6855); and fishpond sediments (Kolowalu Pond, SIHP # -6856) recorded.
Bush & Hammatt 2006	Hokua Tower, Ala Moana Blvd., TMK: [1] 2-03-04:073; 2-03-05:027; 2-03-06:014; 2-03-07:002	Archaeological monitoring report	No burials or cultural deposits observed; old A horizon found at eastern end of Auahi St.

Reference	Location	Nature of Study	Results (Sites 50-80-14-)
Esh & Hammatt 2006	Pi'ikoi St. from Ala Moana Blvd. to Matlock St., TMK: 2-3-06, 07, 10, 11, 12, 14, 15, 35, 38; 2-4-03, 04, 11, 12	Archaeological monitoring report	No cultural material observed.
Gosser, Nees, & Clark 2006	Corner of Kapi'olani Blvd. and Kamake'e St., TMK: 2-3-003:075, 085, 086	Archaeological monitoring report	No cultural material observed.
Hammatt 2006a	1391 Kapi'olani Blvd.	Archaeological literature review and field inspection	Discusses 1391 Kapi'olani Boulevard (the current project area)
Hammatt 2006b	Ala Moana Center, TMK: [1] 2-3-38:001, 2-3-40:005, 007, 009, 011, 014, 016, 018	Archaeological inventory survey	30 test trenches excavated; SIHP # -6847, a small, subsurface feature (wooden box with chopsticks, brushes, a bead, animal bones) dating to late 19th/early 20th century.
Hammatt & Chiogioji 2006	Waikīkī, TMK: 2-6-13:1, 3, 4, 7, 8, 9, 11, 12	Archaeological literature review and field inspection	Noted possible presence of human burials; anticipates archaeological inventory survey.
O'Hare, Bush, & Hammatt 2006	Kaka'ako Improvement District 10, TMK: [1] 2-3-04, 05, 06, 07	Archaeological monitoring report	Cluster of 28 historic burials (SIHP # -6658), 2 isolated disturbed burials (SIHP # -6659), and a historic trash dump (SIHP # -6660); weak A horizon; some fishpond sediments observed.
O'Leary & Hammatt 2006	Moana Vista, Kapi'olani Blvd., TMK: [1] 2-3-003:072, 088, 102	Archaeological inventory survey	24 test trenches excavated. Extensive prior subsurface disturbance noted. No historic properties observed. Small area of sand layers noted.
Barnes & Shideler 2007	1235 Kona St./ 1226 Waimanu St. Housing, TMK: [1] 2-3-007:026, 049	Field check and literature review	Notes many burials in general vicinity but concludes lower likelihood of burial finds.
Runyon & Hammatt 2007	Intersection of Kalākaua Ave. and Fern St., TMK: [1] 2-3-022, 023, 032	Archaeological monitoring report	No cultural material observed.
Carney & Hammatt 2008	Hokua Tower Project, Ala Moana Blvd., TMK: [1] 2-03-005:001, 002, 003, por. 024, 026, 027	Archaeological monitoring report	Isolated human mandible fragment and a historic trash pit (SIHP -6765) observed.

Reference	Location	Nature of Study	Results (Sites 50-80-14-)
Hammatt 2008	Ko'olani Condominium, Waimanu St., TMK: 2-3-04:73, 2-3-05:27, 2-3-06:14, 2-3-07:2	Archaeological monitoring report	2 isolated burials (SIHP #s -6910, -6912) and a cluster of 16 coffin burials (SIHP # -6911) found.
Hazlett, Carney, & Hammatt 2008	Honolulu Design Center, TMK: [1] 2-3-010:048, 050, 052, 053, 054, 055, 056	Archaeological monitoring report	No cultural material observed.
Petrey, Borthwick, & Hammatt 2008	Ala Wai to Magic Island, TMK: [1] 2-3-034, 036, 037; 2-6-017, 018; 2-7-036	Archaeological monitoring report	No cultural material observed.
Fong, Borthwick, & Hammatt 2009	Kapi'olani Blvd. from Kalākaua to Ward Aves., Kamake'e St. from Kapi'olani Blvd. to Auahi St., and Atkinson Dr. from Kapi'olani to Ala Moana Blvds., TMK: [1] 2-1-044, 049, [1] 2-3-001-005, 007, 008, 010, 015, 016, 021, 022, 032, 034-036, 038-041	Archaeological monitoring report	No cultural material observed.
Thurman et al. 2009	Queen Street Parks	Archaeological inventory survey report	Historic trash layer (liekly correlated to previously documented SIHP # -6641) and previously documented historic fishpond remnant (SIHP # -6856) observed.
Tulchin & Hammatt 2009	Ala Wai Watermark, TMK: [1] 2-6-011:001, 037	Archaeological monitoring report	SIHP # -6700, previously disturbed human burial; SIHP # -6701, undisturbed coffin burial; SIHP # -6702, subsurface cultural layer containing evidence of both pre- and post-contact land use; SIHP # -6703, subsurface fishpond sediment.
McElroy 2010	Makaloa-Sheridan Sam's Club/Wal-Mart, TMK: [1] 2-3-016:009 and 043	Archaeological monitoring report	Human remains (MNI = 64) found in 6 areas assigned SIHP #s -6516, -6661, & -6662. Both pre-contact and post-contact burials.
Pammer & Hammatt 2010	0.26-acre Moana Vista Project, Kapi'olani Blvd., TMK: [1] 2-3-003:084	Archaeological assessment	4 test trenches excavated; no cultural material observed.

portions of natural beach sand deposits and remnants of an intact buried ground surface (*i.e.*, 'A horizons') have escaped the ravages of dredging, filling, and wholesale remodeling in their project area.

In 2004 (LeSuer and Cleghorn) an archaeological literature review and field inspection conducted for the HECO East O'ahu Transmission Project discussed Loko Opu fishpond site near the HECO Makaloa substation.

Smith (1989) documented a single human femur (incomplete) recovered from a construction trench of fill deposits at 1341 Kapiolani Boulevard, a few blocks southwest of the current project area. No conclusions as to its chronological (calendric) age or race/ethnicity were possible, given its fragmentary condition. No evidence of a burial pit or other primary depositional feature was found in association with the skeletal element.

SCS conducted an Archaeological Assessment of two parcels at Ward Avenue and Kap`iolani Boulevard (Monahan 2005). Nine backhoe trenches excavated to an average depth of 103.1 cmbs revealed only layers of imported fill soils and yielded no significant cultural materials.

Freeman *et al.* (2005) conducted Archeological Inventory Survey and a cultural impact evaluation for the Ala Wai Gateway Project. The study documented four historic properties including SIHP # 50-80-14-6700, a disturbed burial; SIHP # 50-80-14-6701, a historic coffin burial; SIHP # 50-80-14-6702, a culturally affected, buried A-horizon, and SIHP # 50-80-14-6703, fishpond remnant. Following, in 2009, archaeological monitoring was conducted for the Ala Wai Watermark Project (Gateway) Project. No new cultural properties were documented; however, the four previously documented historic properties from the 2005 AIS were again observed (Tulchin and Hammatt 2009).

Winieski and Hammatt's (2001) Archaeological Monitoring Report documented an approximately four-acre parcel (TMK: 2-3-002: 001) located at the corner of Auahi and Kamakee Streets (Ward Theaters), approximately 460 meters south of the current project area described in this report. No significant cultural materials were found. No burials or human remains were found. Stratigraphic observations showed that fill material had been placed over pre-existing marshy deposits. Natural (undisturbed) pond sediments and beach sand were observed in portions of the parcel.

In an Archaeological and Historical Assessment in the area of the Honolulu Convention Center (TMKs: 2-3-035; 2-3-036:018, 024, 025) Maly *et al.* (1994) note one LCA and fishpond that would suggest archaeological deposits could be anticipated in subterranean contexts. Testing was recommended. Related Archaeological Inventory Survey, and Data Recovery (Hammatt and Shideler 1995, 1996) investigations were conducted at the current site of the Hawai`i Convention Center (TMK: 2-3-35: 001), located at the western end of Waikiki in an adjacent parcel east of the current project area described in this report. An objective of the research was to determine whether sediments associated with the historically-known Loko Kuwili fishpond could be identified. No significant cultural finds were documented.

Following an Archaeological Assessment of property in the Makaloa/Sheridan area, current site of Walmart/Sam's Club development an Archaeological Monitoring Plan prepared for the (TMK: 2-3-016:009, 012, and 042) anticipated a low potential for cultural remains to exist in deposits in the subject project area (Sinoto 2000; Sinoto and Pantaleo 2002). McElroy (2010) documented multiple sites of inadvertently discovered human skeletal remains of 64 individuals (MNI=64), that included both pre- and post-Contact burials, as a result of development in the subject property.

In 2003 the original wetland surface, and associated features, of what is known as 'Kewalo Wetlands' were documented within a 6-acres project area at Pi`ikoi Street and Kapi`olani Boulevard (TMK: 1-2-010:028, 048, 050, 052-056) during an Archaeological Inventory Survey conducted by O'Hare *et al.* The sediment deposits were determined as representative of a pre-Contact to early twentieth century wetland surface and associated features that included a sand-berm and possible coral boulder retaining wall, etc., were designated State Site Number 50-80-14-6636. In addition a historic trash dump consisting of brick, ceramic, insulators, glass bottles, etc., was also documented and designated State Site Number 50-80-14-6637.

Deposits associated with State Site -6636 have been documented in the vicinity of the current project area in later investigations. An unnamed fishpond remnant (newly identified portion of -6636) was documented during Archaeological Inventory Survey study in a parcel located at the corner of Kapi`olani Boulevard and Kamake`e Street (Clark and Gosser 2005); Archaeological Monitoring in the parcel observed no cultural materials (Gosser *et al.* 2006). In O'Hare *et al.*'s (2004) Phase I of Archaeological Inventory Survey for the Ko`olani Condominium Project additional portions of the wetlands (-6636), as well as two historic trash pits (State Sites 50-80-14-6639 and 6641) dating to the early 20th century were documented. In

2005, during Phase II of the AIS, Tulchin and Hammatt identified Sites -6636 and -6641 previously documented in O'Hare *et al.* (2004).

CSH conducted archaeological monitoring for the Anti-Crime Street Lighting Improvements Project on Kalākaua Avenue from Ala Wai Boulevard, Pau Street (Jones and Hammatt 2004).

Human remains and burials have been documented in several nearby studies, summarized below.

- Athens *et al.* (1994) reported on a single individual of probable Native Hawaiian ethnicity, interpreted as a 12 to 15 year-old female in marshy sediments, and designated State Site Number 50-80-14-4847. The site was interpreted as inconsistent with an intentional burial, based on the marshy setting. Radiocarbon dating is consistent with a calendric age between the 13th and 15th centuries A.D.

- CSH conducted Archaeological Monitoring on Ala Moana Boulevard, Kalakaua Avenue, and Ena Road that resulted in the documentation of the inadvertent discovery of two human burials and multiple pockets of in situ soil deposits, which included beach sand (Perzinski *et al.* 1999). Hammatt and McDermott (1999) conducted burial mitigation involving the disinterment of two human burials on Kalākaua Avenue, detailed in an appendix 'plan and report'. The site was designated State Site Number 50-80-14-5744.

- Winieski and Hammatt (2000) documented two historic coffin burials (State Sites 50-80-14-5598) on Kamake`e Street between the intersections of Kawaiaha`o and Waimanu Streets. These adjacent burials were found in a natural (undisturbed) beach sand deposit, which was located under an old ground surface ('A' horizon) and construction fill and pavement.

- Sinoto's (2000) Archaeological Assessment of the 10.5-acre proposed Wal-Mart/Sam's Club Development Area along Keaaumoku Street (TMK: 2-3-16: 009, 012, and 042) included background research and field inspection, but no subsurface testing. Subsequent Archaeological Monitoring resulted in the recovery of several dozen traditional Native Hawaiian burials. The results of this

on-going project have not been finalized, but they have clear implications for the current project area, which is located only 750 meters to the west.

- Souza *et al.* (2002) documented three burials in Kaka`ako (State Sites 50-80-14-6376, -6377, and -6378) as a result of the District No. 7 Improvements Project.

- Hammatt (2008) documented three separate burial sites: State Sites 50-80-14-1610, 1611, and 1612; which include a single pre-Contact burial, a cluster of 16 historic burials surmised to indicate a discrete cemetery, and an additional individual burial respectively, during Archaeological Monitoring for the Ko`olani Condominium Project.

EXPECTED FINDINGS

The project area was expected to be dominated by introduced fill layers, especially in the upper planes of subsurface stratigraphy. It is well known that this general area was extensively filled in the early to middle 20th century, and that historic structures in this area date to no earlier than the early-mid 20th century. Below these fill layers, however, the intact (natural) deposits could be either swampy marshland sediments or pond bottom deposits (*i.e.*, clays), or they could consist of coral reef. Furthermore, as demonstrated by previous archaeological studies in the vicinity (*e.g.,* Winieski and Hammatt 2000, etc.), it is also possible that remnant portions of beach sand deposits, having escaped the ravages of filling and construction, could exist below fill strata in the project area. Beach sands are typically potential sites for Native Hawaiian burials; this possibility, along with early historic-era burials, was one of the main reasons for conducting Inventory Survey on these parcels.

METHODOLOGY

Background research was undertaken through a review of documentary literature and previous archaeological research relative to the project area location and vicinity found on file at the SHPD library (Kapolei), and at the SCS library. Field work was conducted by SCS Archaeologists Elizabeth Pestana, B.A. (Field Director), Kepa Lyman, M.A. (Field Technician), and Jeff Putzi, B.A. (Field Technician) over the course of five days, from October 13 through 17, 2014), under the supervision of Principal Investigator Robert L. Spear, Ph.D. Dr. Spear predetermined the grid sample size, locations and horizontal dimensions of test excavations, and visited the site during subsurface testing work.

Subsurface testing (excavation) was carried out via mechanical excavation of fifteen stratigraphic trenches fairly evenly spaced in accessible locations throughout the overall study area; ST 1 through ST 3 in Parcel 009, and ST 4 through ST 15 in Parcel 006 (Figure 10). The trenches were placed as to sample the parcel as comprehensively as possible. Trenches ranged in length between 3.0 meters to 3.80 meters, averaging 3.47 meters. Excavation depth termination was determined by tidal activity and the consequential elevation of the water-table. The excavated soils/sediments were visually screened, trench sidewalls were inspected for archaeological traces/features, and stratigraphic characteristics were recorded. All trenches were recorded to include one profile illustration of each test trench sidewall; soil sequence descriptions were recorded using the standard USDA terms (*e.g.*, sediment size, consistency, color, inclusions). Sediments and deposits of possible archeological significance were sampled and labeled with proveniences. All aspects of the work were photographed with a digital camera. Each trench was backfilled immediately following data recordation due to the required asphalt replacement at test trench locations in the property parking lot.

LABORATORY

Laboratory work was conducted as outlined in the AMP, in accordance with HAR §13279-5 (*ibid*). Laboratory work, conducted at SCS facilities in Honolulu, consisted of digitally drafting all relevant plan view maps and stratigraphic profile illustrations compiled during field work, and archiving digital images. Materials sampled and collected from the project area for laboratory analysis were tabulated to include provenience information weights, lengths, widths, and counts. Collected materials and cultural artifacts were assessed by 'type' and 'function'. Select Artifacts significant to the findings are photographed for presentation in this report. Qualitative analysis of fauna is done minimally for taxonomy on invertebrate remains contained in sediment samples, to the extent possible, and tabulated by provenience. Likewise, charcoal samples associated with significant archaeological deposits are subject to wood taxa identification and, if amenable, submitted for radiocarbon analysis. Since wood charcoal was not identified or obtained from a significant/primary context, this data is not available.

CURATION

All materials accumulated during field-work will be stored at the SCS office in Honolulu for laboratory analysis, while the AMR is drafted. Following SHPD acceptance of the 'Final Draft' AMR, all sampled materials/artifacts collected from the project area are stored at SCS

Figure 10: Google Earth Satellite Image Depicting GPS Point Locations and Stratigraphic Trench Positions (Adapted from Google Earth Image 2014, Accessed November 2014; Note: Trenches are not to scale).

Honolulu until an appropriate curation facility is selected, in consultation with the landowner and SHPD. All documentation generated during field-work, including maps, photographs, field notes, etc., will remain on file at SCS Honolulu.

ARCHAEOLOGICAL INVENTORY SURVEY RESULTS

SUBSURFACE SURVEY

One newly documented archeological site labeled Temporary Site #1 (TS-1) during field work, and designated State Site number 50-80-14-7756, and two additional subsurface features labeled SSFE 1 and SSFE 2 were identified in the current study. State Site 50-80-14-7756 and the two additional discrete subsurface soil features were identified in two of the 15 Stratigraphic Test trenches (ST 1-15). Sediments indicative of the buried land surface and former wetland environment were also identified in basal deposits, observed in test trenches across the project area. No human remains or burials were identified during subsurface testing.

SSFE 1 and SSFE 2 were identified in ST 4 (Parcel 006), observed as two discrete linear deposits that consisted of imported fill-soil materials at depths between approximately 92 to 120 centimeters below the existing surface (cmbs) at the base of the excavation; SSFE 1 in the north end, shown in Figure 11, and SSFE 2 in the south end of the trench shown in Figure 12. These subsurface deposits are described in more detail in the corresponding stratigraphic summary in the 'PROJECT AREA STRATIGRAPHY' section of this report.

These findings and the observed general project area stratigraphy are described in detail, and discussed, in the text below.

TS-1 SITE DESRCRIPTION

State Site 50-80-14-7756
Site Type: Cultural Deposit
Feature (#): SSFE-3
Age: Historic

Condition: Fair
GPS Coordinates: E 620427 / N 2354832
Function: Refuse Disposal
Recommendation: No further work

Description: A refuse deposit was identified in ST 7 (GPS coordinates: Easting 620427 / Northing 2354832), located in Parcel 006. The deposit was discovered in the south end of the trench, consisting of a concentration of glass vessels and few other types of man-made material

Figure 11: Photograph Depicting SSFE 1, Introduced Fill Material Feature Deposit at Base of ST-4 Excavation. View to East.

Figure 12: Photograph Depicting SSFE 2, Fill Material of Old Utility Trench Feature at Base of Excavation in ST4. View South.

debris, in the floor of the trench (Figures 13 and 14). The exposed portion of State Site number 50-80-14-7756 was revealed at the interface of the base extent of the basal fill-soil layer and top of a truncated natural sediment stratum (Figure 15). It appeared that the deposit was likely contained in the imported fill introduced to the project area during historic fill events.

Artifacts associated with the deposit consisted primarily of glass bottles (spirit, tonic, condiment, etc.). Collected artifacts are catalogued in the cultural materials inventory table in Appendix A. Select artifacts are shown in photograph in Appendix B.

PROJECT AREA STRATIGRAPHY

Subsurface testing conducted in the project involved mechanical excavation of 15 trenches ranging in length between 3.2 meters to 3.8 meters by 1.0 meter wide for an average of 3.42 meters, and 51.25 linear meters. Each trench was excavated to depths at, or just below, water-table level, to an average depth of approximately145 cmbs. Testing of the project subsurface sampled a maximum percentage of the unbuilt project area overall (see Figure 10). Table 2 outlines trench dimensions of length and depth at base of excavation (BOE), and noted observations of each test trench.

STRATIGRAPHIC SUMMARY

As mentioned in the 'SOILS' section above, the project area is located within lands known as 'Fill Land' composed of mixed fills as a result of the area being extensively in-filled with materials dredged from the ocean or hauled from nearby areas, garbage, and general material from other sources [commonly] used for urban development..." in the Kaka`ako/Kewalo area in the late 19th and early 20th Century (Foote *et al.* 1972; Groza et al. 2010).

The project area subsurface is predominated by fill-soil strata, and also contained intact portions of a natural sediment stratum. Stratigraphic trenches exposed between three and five fill layers consisting of clays reflecting slightly varying hues of yellowish and reddish brown clays, and included thin layers of base course/road bedding materials below the asphalt pavement. The majority of stratigraphic trenches were excavated down to, and/or just below, water table level (depths that ranged between approximately 130 and 160 cmbs) according to tides. These depths exposed a maximum of up to 20 centimeters of the extant natural sediment strata that consists of sandy/clayey deposits below the imported fill strata.

Figure 13: Photograph Depicting TS-1 Historic Refuse Deposit, at Base of ST7 Excavation. Plan View (Trowel Points to North).

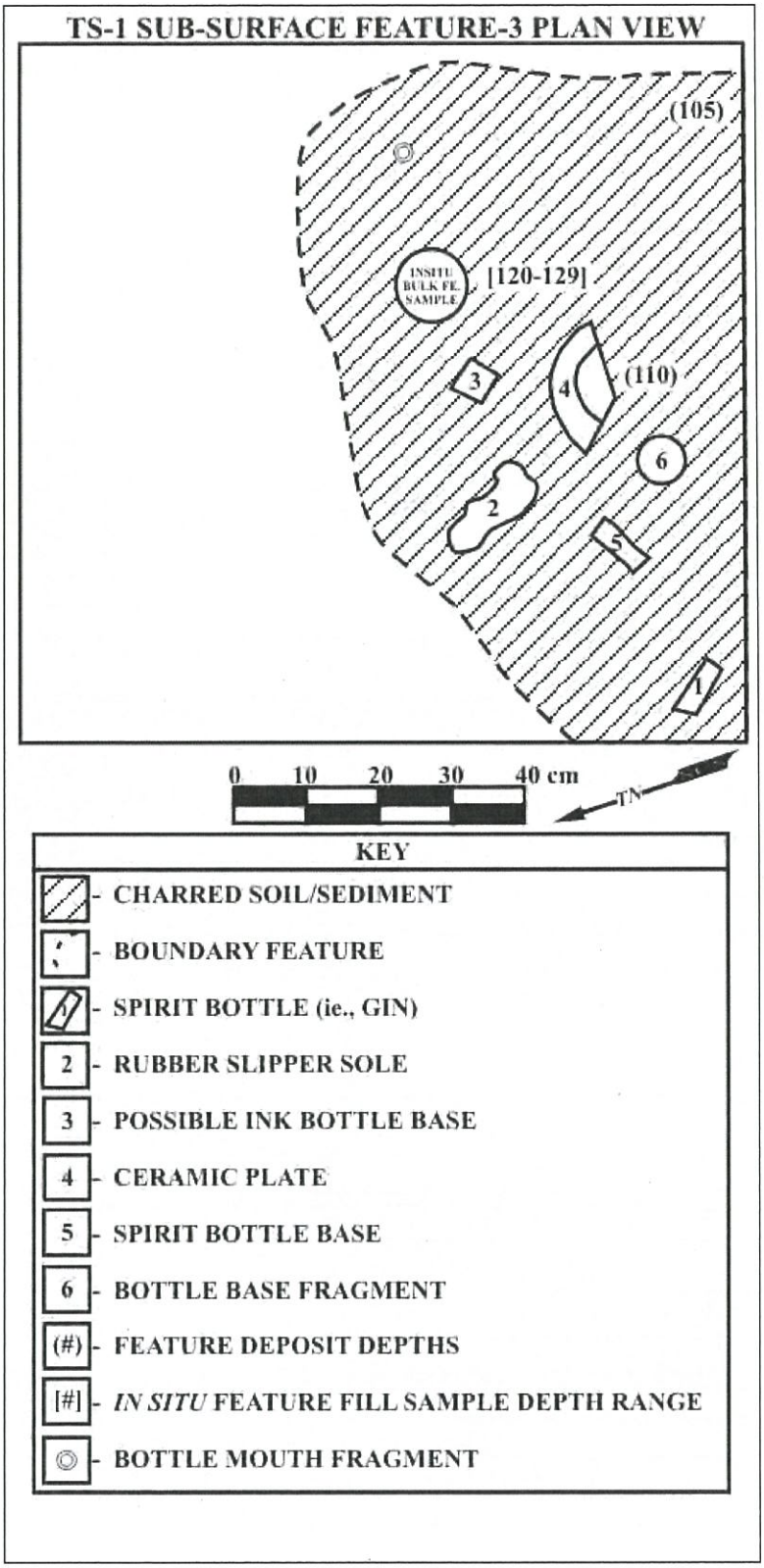

Figure 14: Plan View Drawing Illustrating TS-1, Historic Refuse Deposit at Base of ST-7.

Figure 15: Photographic View of TS-1 in Basal Fill Layer of ST 7. View to South.

Table 2: Stratigraphic Trench (ST) Test Excavations at TMK: 2-3-041: 006 and 009 Outline Summary.

ST#	Parcel	Length (m)	BOE (cmbs)	Stratigraphic Observations	Additional Comments
ST-1	009	3.80	160/165	Five fill strata (Layers Ia–IIIa); one natural clay stratum (sediment/former A-horizon, represented by Layer IV stratum), and associated sandy clay lens.	Water table encountered at 160 cmbs. No cultural features or materials were identified.
ST-2	009	3.60	135	Five fill strata (Layers Ia–IIIa) to base of excavation; water, from unknown source, noted as originating in lower extent of Layer IIIa, west wall, at approx.116 cmbs.	Lumber/milled wood observed in Layer III associated backfill; water table level at 128 cmbs. Excavation terminated due to water seepage.
ST-3	009	3.50	163	Four fill strata (Layers Ia–IIIa) to base of excavation.	Water table encountered at 158 cmbs; No cultural features or materials were identified.
ST-4	006	3.60	112/120	Five fill strata (Layers Ia–IIIb) to base of excavation; abandoned 4" sewer line in base of IIIa and intruding IIIb, and associated soil lens at IIIa–IIIb interface; two discrete deposits (SSFEs 1 and 2) consisting of imported fill materials in east side-wall and base of excavation.	SSFEs 1 and 2 contained fills differing from uniform stratigraphic layers. Excavation terminated due to possible existing subsurface infrastructure.
ST-5	006	3.0	140/145	Four fill strata (Layers Ia–IIIa) to base of excavation; Layer IIIa observed as discontinuous; top of the probable natural clay sediment (Layer IV stratum; former A-horizon) observed at base of excavation in trench floor.	Metal/pipe fragments observed in upper strata associated backfill; water table encountered at approx. at 135/138 cmbs.

ST#	Parcel	Length (m)	BOE (cmbs)	Stratigraphic Observations	Additional Comments
ST-6	006	3.20	120	Four fill strata (Layers Ia–IIIb) to base of excavation; top of probable natural clay deposit (Layer IV stratum; former A-horizon) observed at base of excavation in trench floor.	Metal/pipe fragments observed in upper strata associated backfill; water table encountered at approx. at 120 cmbs.
ST-7	006	3.50	125/130	Four fill strata (Layers Ia–IIIa) to base of excavation; top of the probable natural clay deposit (Layer IV stratum; former A-horizon) observed in trench floor and base of excavated side walls.	Locus of Site 50-80-14-7756–historic refuse deposit, in lowermost level of fill stratum; water table not encountered.
ST-8	006	3.10	150	Four fill strata (Layers Ia–IIIb) to base of excavation; top of probable natural clay deposit (Layer IV stratum; former A-horizon) observed at base of excavation in trench floor.	Water table was observed rising from base of excavation. No cultural features or materials were identified.
ST-9	006	3.80	140/144	Five fill strata (Layers Ia–IIIa) to base of excavation; top of the probable natural clay sediment (Layer IV stratum; former A-horizon) observed at base of excavation in trench floor.	Water table observed rising from base of excavation approx. at 144 cmbs. No cultural features or materials were identified.
ST-10	006	3.40	160-165	Four fill strata (Layers Ia–IIIa); one natural clay stratum (sediment/former A-horizon, represented by Layer IV stratum).	Water table encountered at 163 cmbs; observed marshy sediment matrices contained flecks of carbonized organic material. No significant cultural features or materials identified.

ST#	Parcel	Length (m)	BOE (cmbs)	Stratigraphic Observations	Additional Comments
ST-11	006	3.45	130–150	Five fill strata (Layers Ia–IIIb) to base of excavation	Water table was observed rising from base of excavation. No cultural features or materials were identified.
ST-12	006	3.75	152–156	Five fill strata (Layers Ia–IIIb) to base of excavation.	Water table encountered at 153 cmbs. No cultural features or materials were identified.
ST-13	006	3.40	148–153	Five fill strata (Layers Ia–IIIb) to base of excavation; Layer IIIa observed as discontinuous; one natural clay stratum (sediment/former A-horizon, represented by Layer IV stratum).	Water table observed rising from base of excavation approx. at 153 cmbs. No cultural features or materials were identified.
ST-14	006	3.70	139–150	Four fill strata (Layers Ia–IIIa); one natural clay stratum (sediment/former A-horizon, represented by Layer IV stratum).	Few reddish basalt cobbles observed in mid-lower strata Water table was not encountered. No cultural features or materials were identified.
ST-15	006	3.50	150	Four fill strata (Layers Ia–IIIa) to base of excavation.	Water table was not encountered. No cultural features or materials were identified.

Soil stratigraphy noted throughout the project area was fairly consistent in exhibiting three to four uniform fill layers, overlying the truncated natural deposits of the former land surface and wetland marsh environment; these soils/sediments are summarized in outline in Table 3. Fill strata recorded in the study are labeled with alphabetic designations to indicate similar characteristics (e.g. soil composition, modern/historic filling event sequences) within upper and lower layers, and to distinguish imported fills from the natural strata exposed in basal deposits within the project area. Each trench summary incorporates a concise description, stratigraphic profile illustration, and photograph corresponding to profiled wall faces. The overall representative soil sequence recorded of the project is presented in outline in Table 3 and described the following text.

STRATIGRAPHIC TRENCH SUMMARIES

STRATIGRAPHIC TRENCH 1

ST-1 was the northwest most placed test trench within project parcel 009 (see Figure 10). The trench was excavated to a maximum depth below ground surface of approximately 165 cmbs which exposed five fill strata that included alternating layers of crushed coral base coarse and mixed gravels and clay fill soils, and a natural stratum composed of alluvial clay sediment (Figures 16 and 17). Fill strata was documented at depths between approximately 5 to 155 cmbs, beneath the 5cm thick asphalt surface. Sparse fragmented asphalt, metal, and lumber were observed in lower fill deposits.

The basal natural deposit consisted of wet, plastic greenish gray sandy clay-loam indicative of the buried former land surface. This sediment is known as the naturally occurring deposit related to the previously existing marshland environment. The deposit was exposed at roughly 155–165 cmbs. A thin, dark yellowish brown clayey sand lens was observed in association with the natural stratum, in the north east corner of ST-1 (see Figures 16 and 17).

The water table was encountered at approximately 160 cmbs. No significant cultural features or materials were identified.

STRATIGRAPHIC TRENCH 2

ST-2 was placed within Parcel 009, in the center portion of the parking lot (see Figure 10). The observed strata included three fill layers that included base coarse material underlain by fills that consisted of series' of and clay fill soils shown in Figures 18 and 19. Lumber and/or milled wood was observed in backfill associated with Layer III fill matrices. The excavation was terminated due to consistent water seepage from the west wall, at the lower extent of Layer IIIa

Table 3: Project Area Overall Representative Stratigraphic Soil Sequence

Stratum	Interpretation	Soil Description
Ia	Modern fill deposits	Mixed gravels/base course bedding material for asphalt surface.
Ib	Modern fill deposits	10 YR 6/1 to 10 YR 8/2-3, brownish gray to very pale brown; fine to coarse mixed coral base, gravel, and silt.
IIa	Historic/modern fill deposits	7.5 YR 3/4, dark brown; dry clay loam with 0-10% angular cobble content, slightly plastic, semi compact, clear boundary.
IIb	Historic/modern fill deposit	5 YR 3/4, dark brown; moist, silty clay-loam; semi-compact, diffuse boundary
IIIa	Historic fill deposit	10 YR 3/3, dark brown; moist, clay-loam; loosely compact weakly consolidated; friable slightly plastic; clear, wavy boundary.
IIIb	Historic fill deposit	10 YR 4/4 dark yellowish brown; moist clay-loam; semi-compact, very firm consistency; slightly plastic; diffuse, wavy boundary.
IIIc	Historic fill deposit	10 YR 5/2 grayish brown; moist clay loam; weakly consolidated, plastic consistency; diffuse boundary;.
IV	Marshland Sediment deposits/Buried A-horizon	2.5/3 Y greenish gray, and 10 YR 5-6/1 gray/grayish brown; wet, sandy clay-loam; marsh sediment/alluvial deposits; slightly plastic of sticky consistency; contained terrestrial snail shells and decomposing organic matter; former land surface prior to fill events.

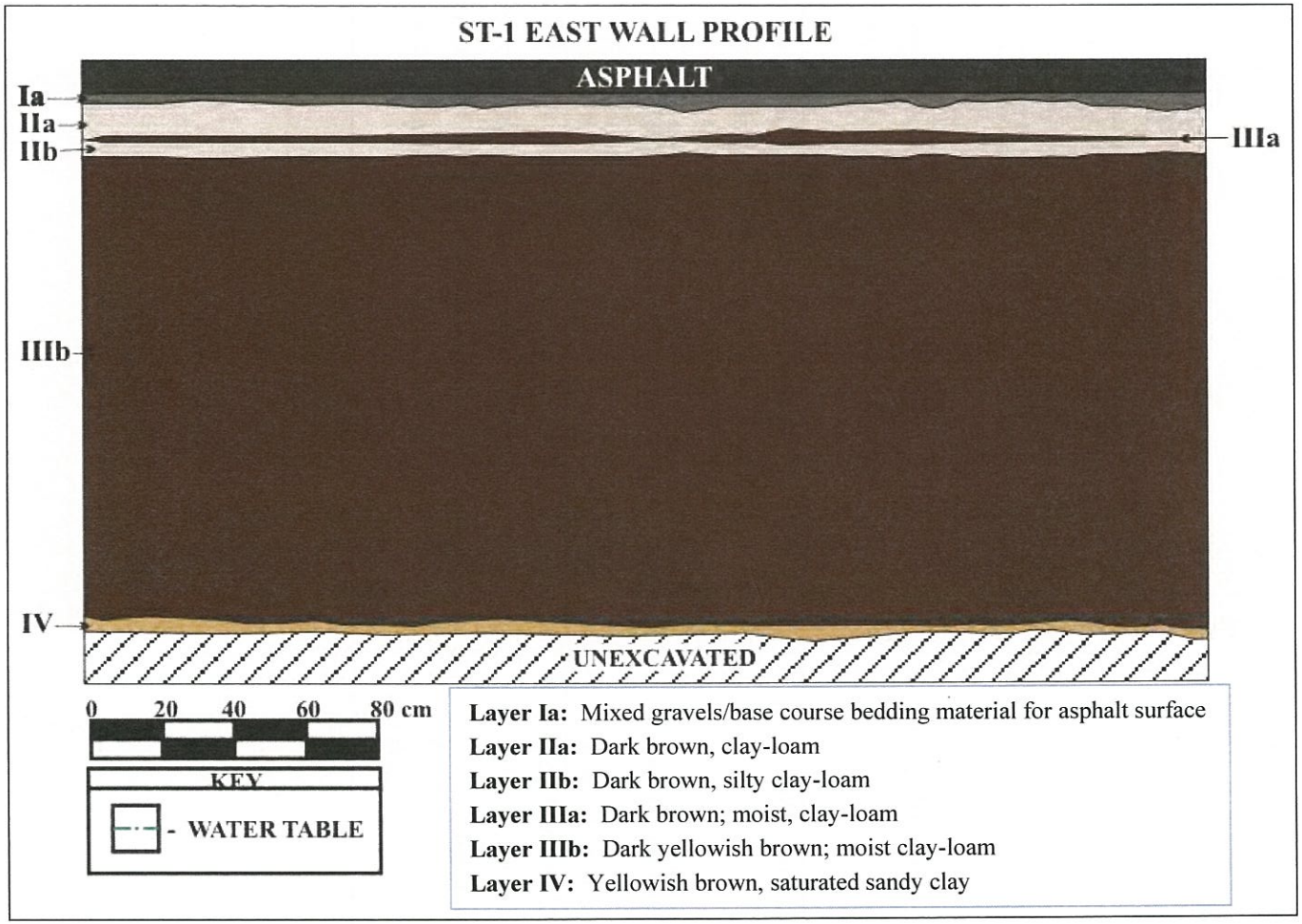

Figure 16: Stratigraphic Profile Illustration of ST-1, East Wall.

Figure 17: Photographic Overview of ST-1. View to East.

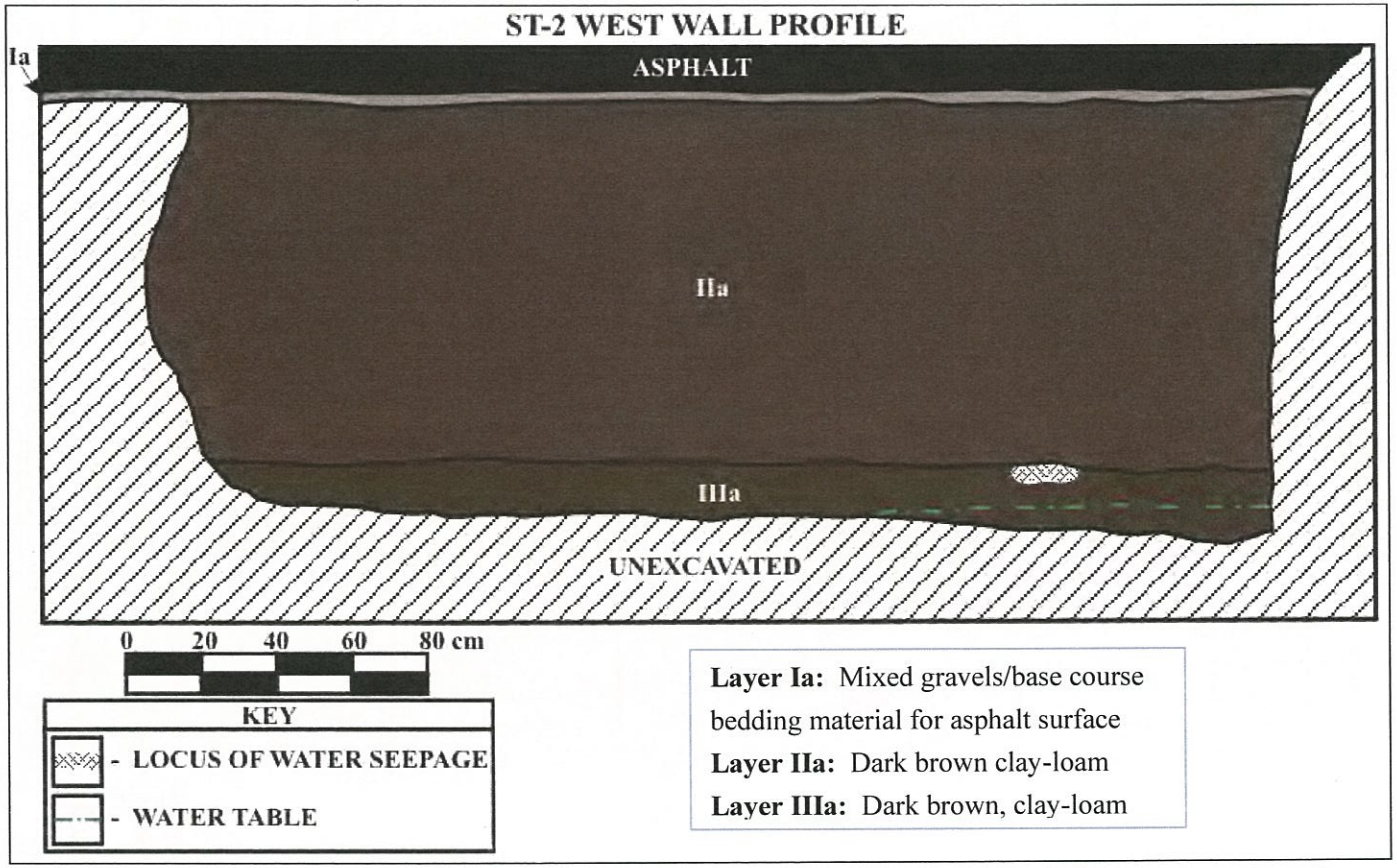

Figure 18: Stratigraphic Profile Illustration of ST-2, West Wall.

Figure 19: Photographic Overview of ST-2 Depicting West Wall, and Water Seepage at Base of Excavation.

STRATIGRAPHIC TRENCH 3

ST-3, the third of three test trenches placed within project parcel 009 was located in the southwest most corner (see Figure 10). The trench was excavated to a maximum depth of 163 cmbs. Similar to ST-2, the excavation revealed a stratigraphy composed entirely of a series of fill layers to the base of excavation (Figures 20 and 21). The water table was encountered at approximately 158 cmbs. Some metal debris and concrete fragments were observed in backfill associated with the mid to upper fill layers. No features or significant cultural materials were identified.

STRATIGRAPHIC TRENCH 4

ST-4 was placed in the northeast corner of project parcel 006 (see Figure 10). The test trench was excavated to a maximum depth of 120 cmbs, and exposed five fill strata an associated soil lens that appeared to be within the plane of an abandoned utility pipe, to base of excavation (Figure 22 and Figure 23). Additionally, two features, observed as discrete linear deposits across the base of the excavated trench, were revealed in the excavation.

SSFE 1 feature deposit was identified in the base of the east side-wall and excavated floor, at approximately 92–120 cmbs, within the north end of ST-4, shown in Figures 12 and 22. The exposed portion of the deposit measured approximately 1.30 m wide and 0.20 m thick in profile. SSFE 1 was composed of fill material consisting of crushed coral-base and coarse sand/silt, and angular basalt gravel.

SSFE 2 feature deposit was identified in the south end of the ST-4 base of excavation at approximately 100–110 cmbs (see Figure 13, and Figures 22-23). The portion of the feature deposit visible in profile measured roughly 0.80 m wide and 0.10 m thick. SSFE 2 consisted of introduced mixed sub-rounded, coarse and fine gravel fill material.

No artifacts were identified in association with either SSFE 1 or SSFE 2, and neither feature was as clearly visible in the west side-wall as in the east of ST-4. The depositions of both features in the basal fill stratum at the base of the excavation, and the respective introduced fill materials that composed both features indicated they were likely associated with old, or previously existing, infrastructure in the project area. SSFE 1 and SSFE 2 feature deposits were interpreted as utility trenches probably of historic origination.

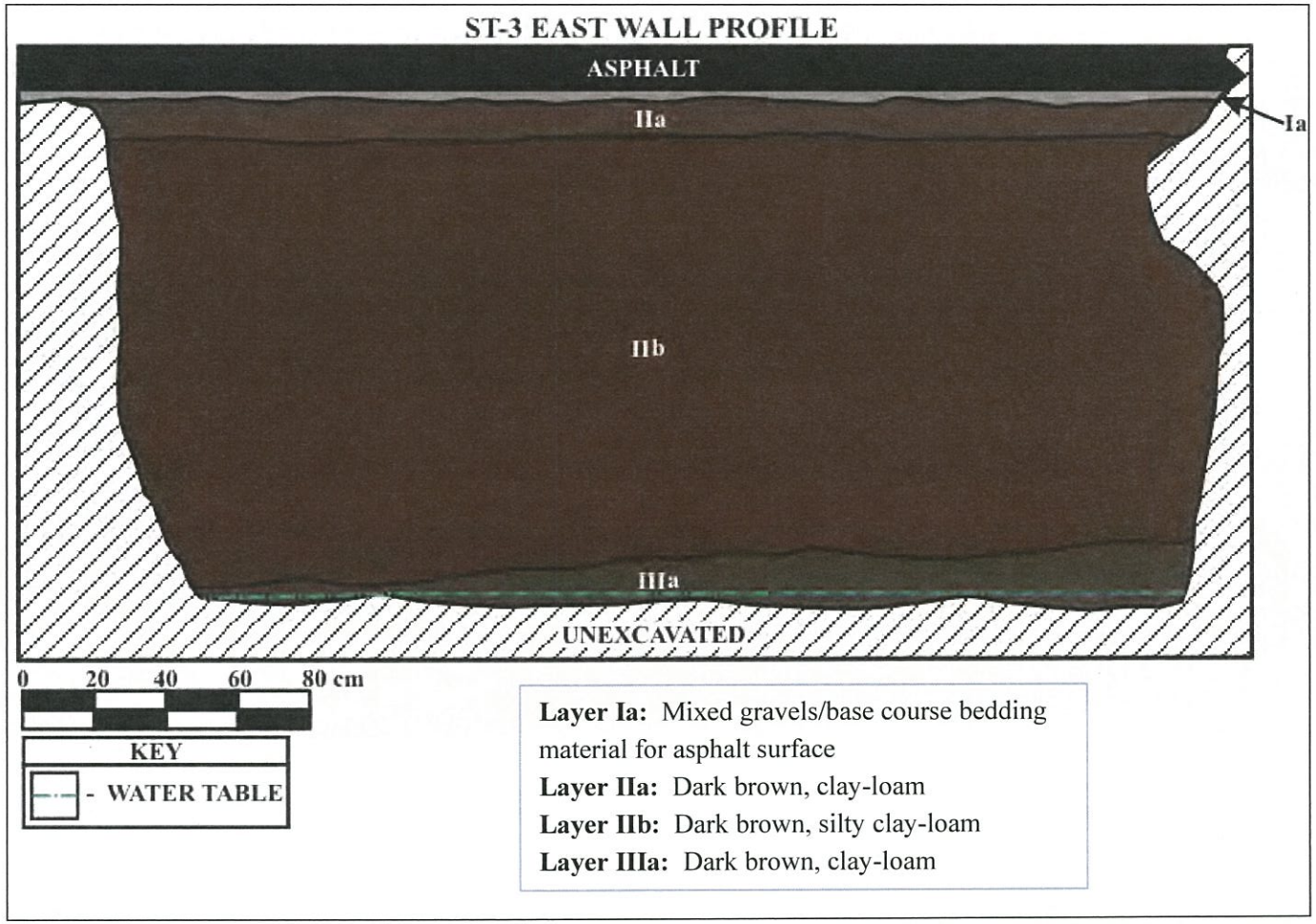

Figure 20: Stratigraphic Profile Illustration of ST-3, East Wall.

Figure 21: Photographic Overview of ST-3 Depicting East Wall, and Water Table Level.

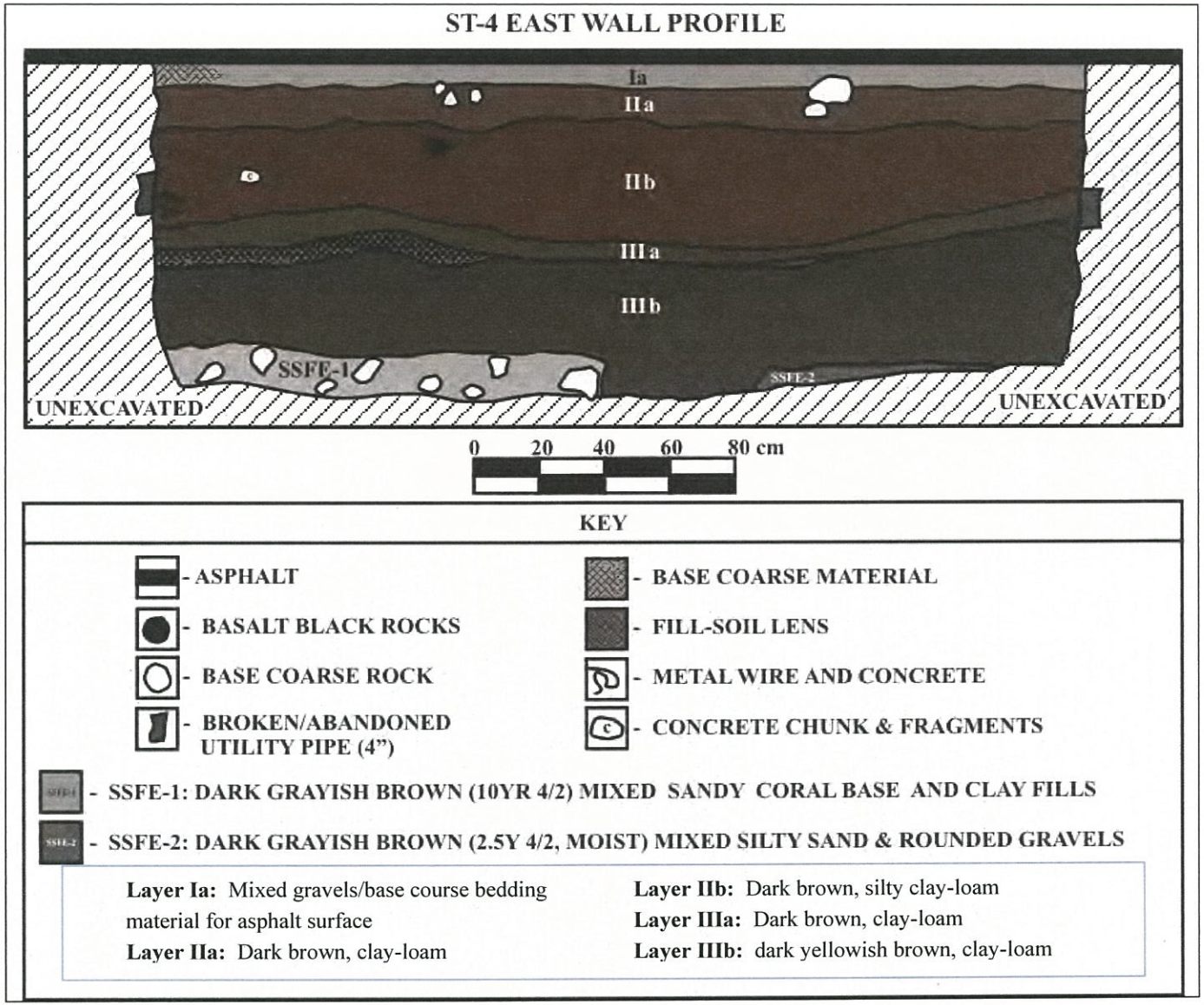

Figure 22: Stratigraphic Illustration of ST-4, East Wall.

Figure 23: Photographic Overview of ST-4, East Wall.

ST-4 test excavation was terminated at 120 cmbs due to the possibility that the introduced fills identified as SSFEs 1 and 2 could be an indication of existing utilities in that location. As such, the water table was not encountered. No significant historic cultural features or materials were identified.

STRATIGRAPHIC TRENCH 5

ST-5 was placed north of ST-4, in the east edge of project parcel 006 (see Figure 10). The test trench was excavated to a maximum of 145 cmbs, and three uniform fill soil layers and one discontinuous fill layer were exposed and documented to the base of excavation (Figures 24 and 25). Metal pipe fragments and few chunks of concrete were observed in the mid-upper strata, and the exposed stratigraphy was otherwise absent of debris. The water table was observed at approximately 135/138 cmbs. No features or significant cultural materials were identified.

STRATIGRAPHIC TRENCH 6

ST-6 was placed in west edge of project parcel 006, to north of ST-4 (see Figure 10). The test trench was excavated to a maximum depth of approximately 120 cmbs and exposed four fill soil layers to base of excavation (Figures 26 and 27). Debris including asphalt and concrete chunks, and fragmented corroded metal was observed in the backfill associated with upper-mid fill strata. The water table was encountered at the base of excavation, at termination depth. No features or significant cultural materials were identified.

STRATIGRAPHIC TRENCH 7

ST-7 was placed in the northwest corner of project parcel 006, to west of ST-6 (see Figure 10). The test trench was excavated to a maximum depth of approximately 130/135 cmbs and, in addition to exposing four fill soil layers, revealed the top of a fifth distinctly organic stratum; and documented a historic cultural deposit, State Site 50-80-14-7756 (Figures 28 and 29).

State Site 50-80-14-7756, the newly documented historic refuse feature deposit, was identified, in the excavated floor at the south end of the ST-7 test trench (see Figures 13 and 26). The exposed portion of State Site 50-80-14-7756 was revealed at the interface of the basal fill-soil layer and the the truncated natural sediment stratum (see Figure 15). The deposit was identified in association

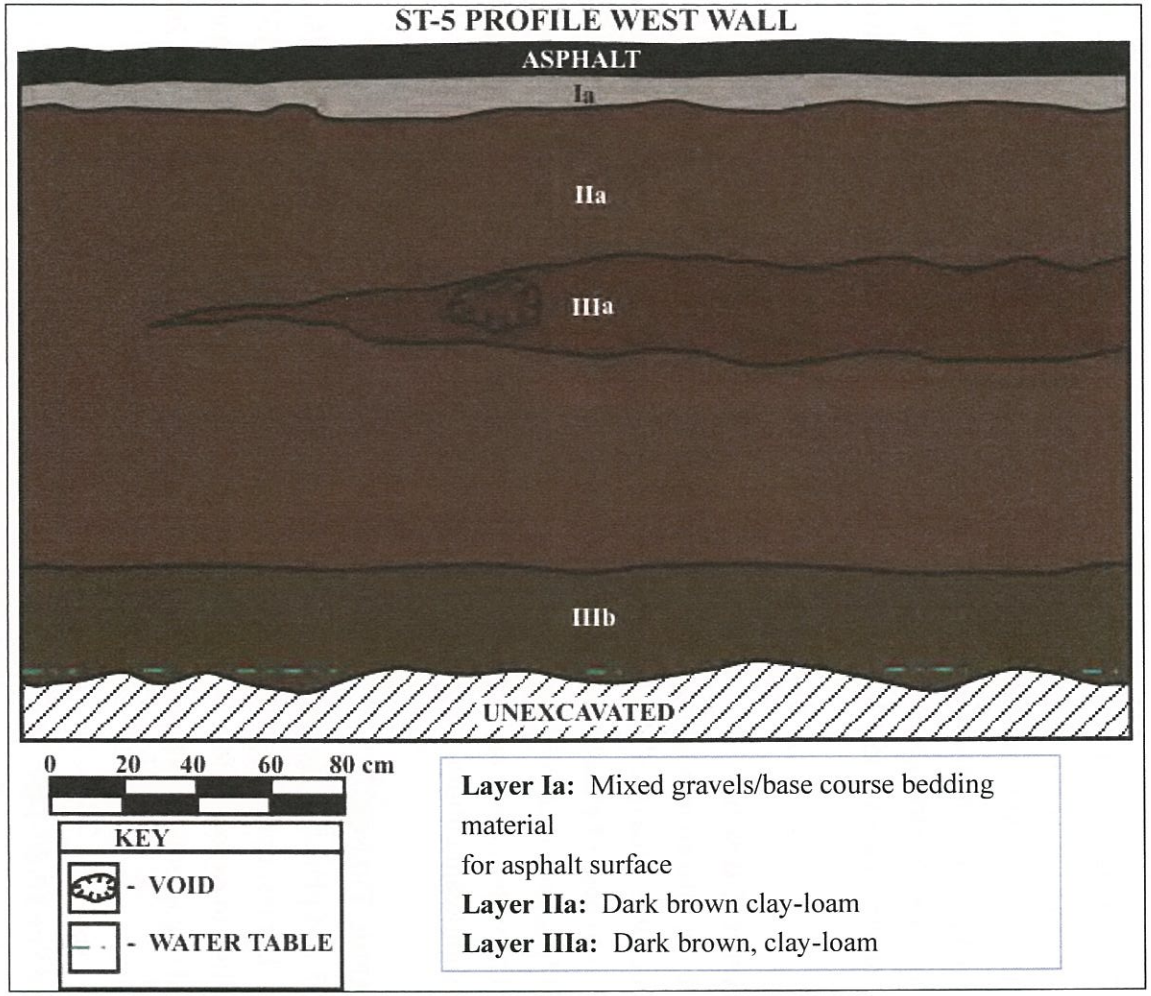

Figure 24: Stratigraphic Profile Illustration of ST-5, West Wall.

Figure 25: Photographic Overview of ST-5 Depicting West Wall Profile, and Water Table Level.

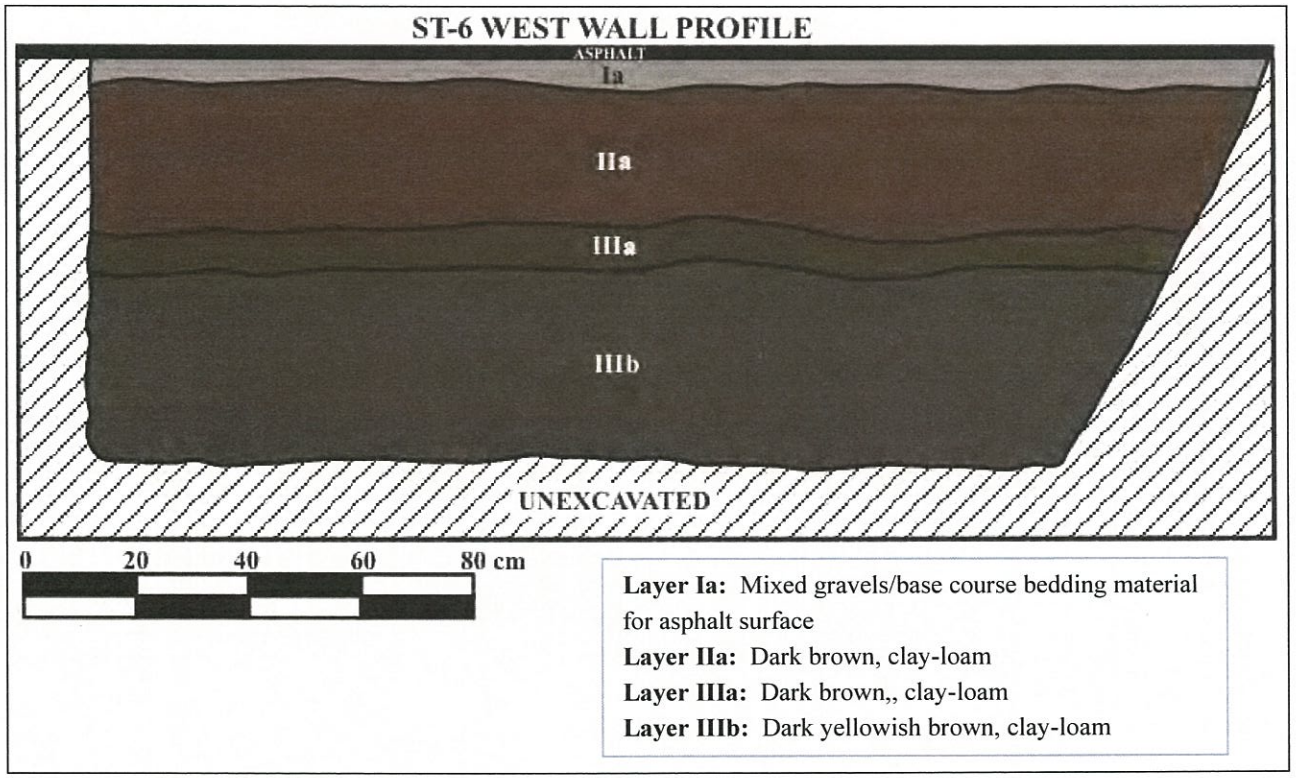

Figure 26: Stratigraphic Profile Illustration of ST-6, West Wall.

Figure 27: Photographic Overview of ST-6 Depicting Plan View of Exposed Marsh Sediment Stratum, and West Wall Profile.

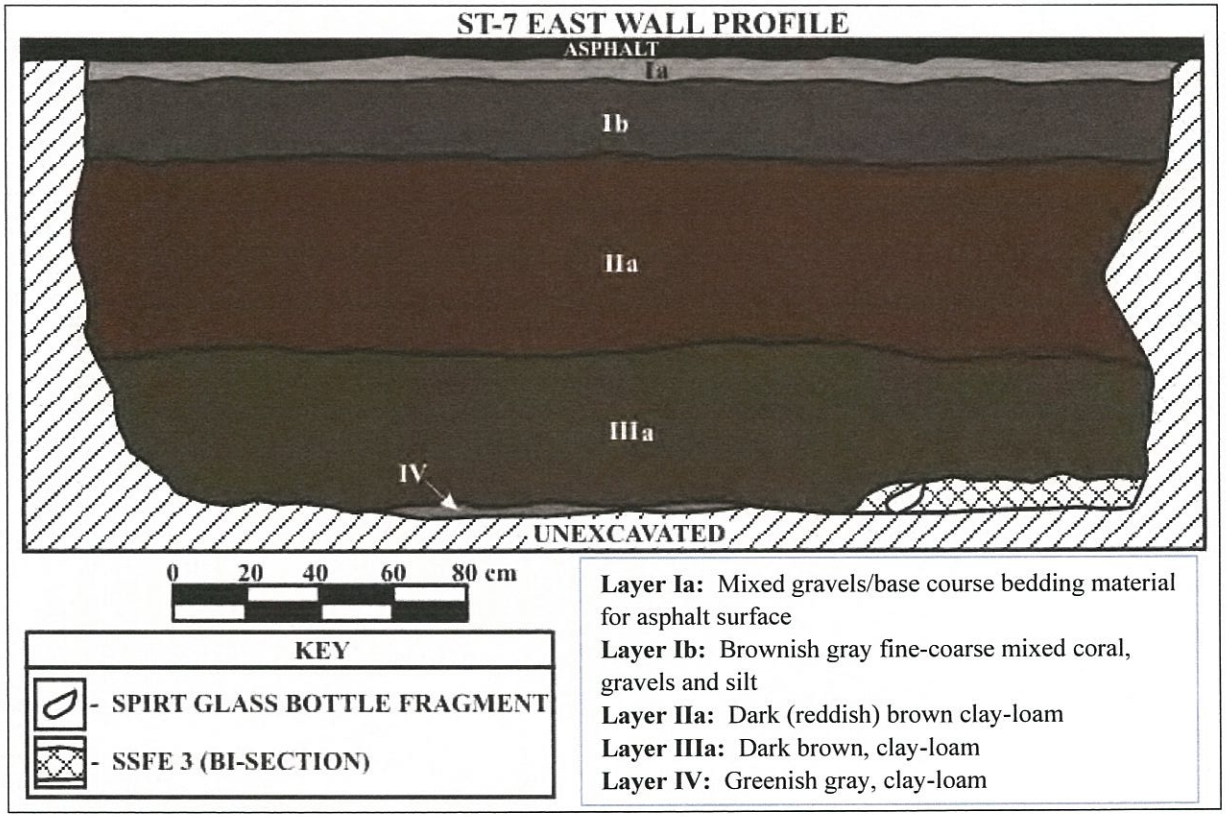

Figure 28: Stratigraphic Profile Illustration of ST-7, East Wall.

Figure 29: Photographic Overview of ST-7 Depicting Top of Marshy Clay Stratum in Base of Excavation, and East Wall Profile.

with the imported fill layer and likely introduced to the project area during a historic fill event. Associated artifacts include glass bottles (spirit, tonic, condiment, etc.), rubber shoe sole, etc., (see Appendices A and B).

The fifth stratum observed in ST-7, represented by Layer IV shown in the profile illustration in Figure 28, is of a deposit characteristic of sediments documented of a former A-horizon known as historically occurring in this locale, and the greater Waikīki/Kewalo area. The stratum at the base of excavation appeared to be truncated and covered over by the overlying clay fill stratum, and is representative of alluvial deposits associated with the prehistoric and historic marshland environment.

Little to no debris was observed in the backfill associated with mid and/or upper fill strata. Nor were any cultural/archaeological materials identified in the natural sediment deposit.

STRATIGRAPHIC TRENCH 8

ST-8 was placed in the mid portion west edge of project parcel 006, south of ST-7 (see Figure 10). This test trench was excavated to a maximum depth of approximately 150 cmbs, and exposed four fill soil strata to the base of excavation (Figures 30 and 31). No debris was observed in the excavated backfill. The water table was observed rising from the trench floor at base of excavation. No features or cultural materials were identified.

STRATIGRAPHIC TRENCH 9

ST-9 was placed in the mid portion west edge of project parcel 006, south of ST-8 (see Figure 10). The trench was excavated to a maximum depth of approximately 145 cm, and exposed up to five fill soil strata to the base of excavation (Figures 32 and 33). Little to no debris was observed in the excavated backfill. The water table was observed at approximately 141 cmbs. No features or cultural materials were identified.

STRATIGRAPHIC TRENCH 10

ST-10 was placed in the southwest corner of project parcel 006 (see Figure 10) The test trench was excavated to a maximum depth of 165 cmbs, and documented five fill soil strata, and portion of the natural clay/marshy stratum, representative of a former A-horizon at, in the basal deposit (Figures 34 and 35). The exposed portion of marshy sediment in this trench consisted of moderate decomposing organic contents; a sediment sample of the marshy matrices collected

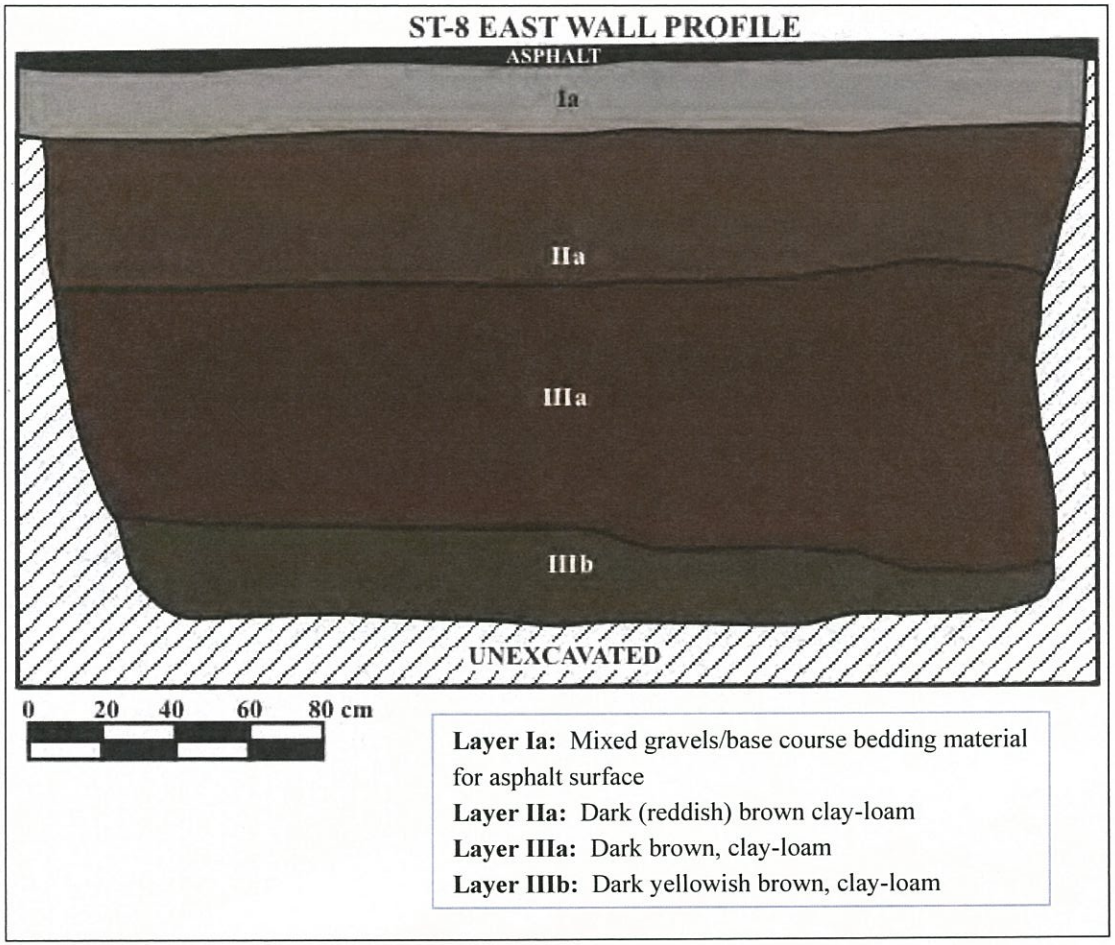

Figure 30: Stratigraphic Profile Illustration of ST-8, East Wall.

Figure 31: Photographic Overview of ST-8 Depicting East Wall Profile.

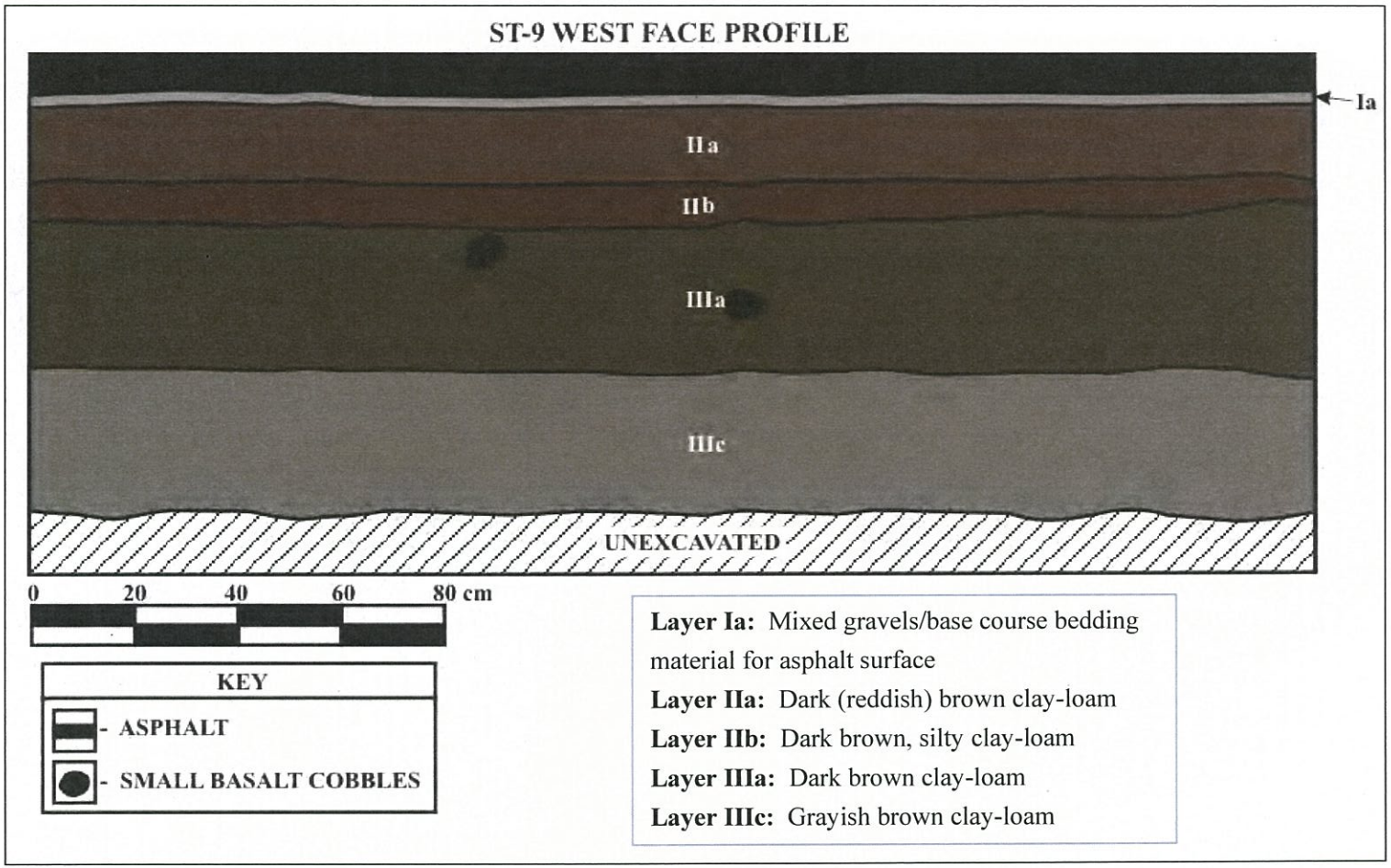

Figure 32: Stratigraphic Profile Illustration of ST-9, West Wall.

Figure 33: Photographic Overview of ST-9 Depicting West Wall.

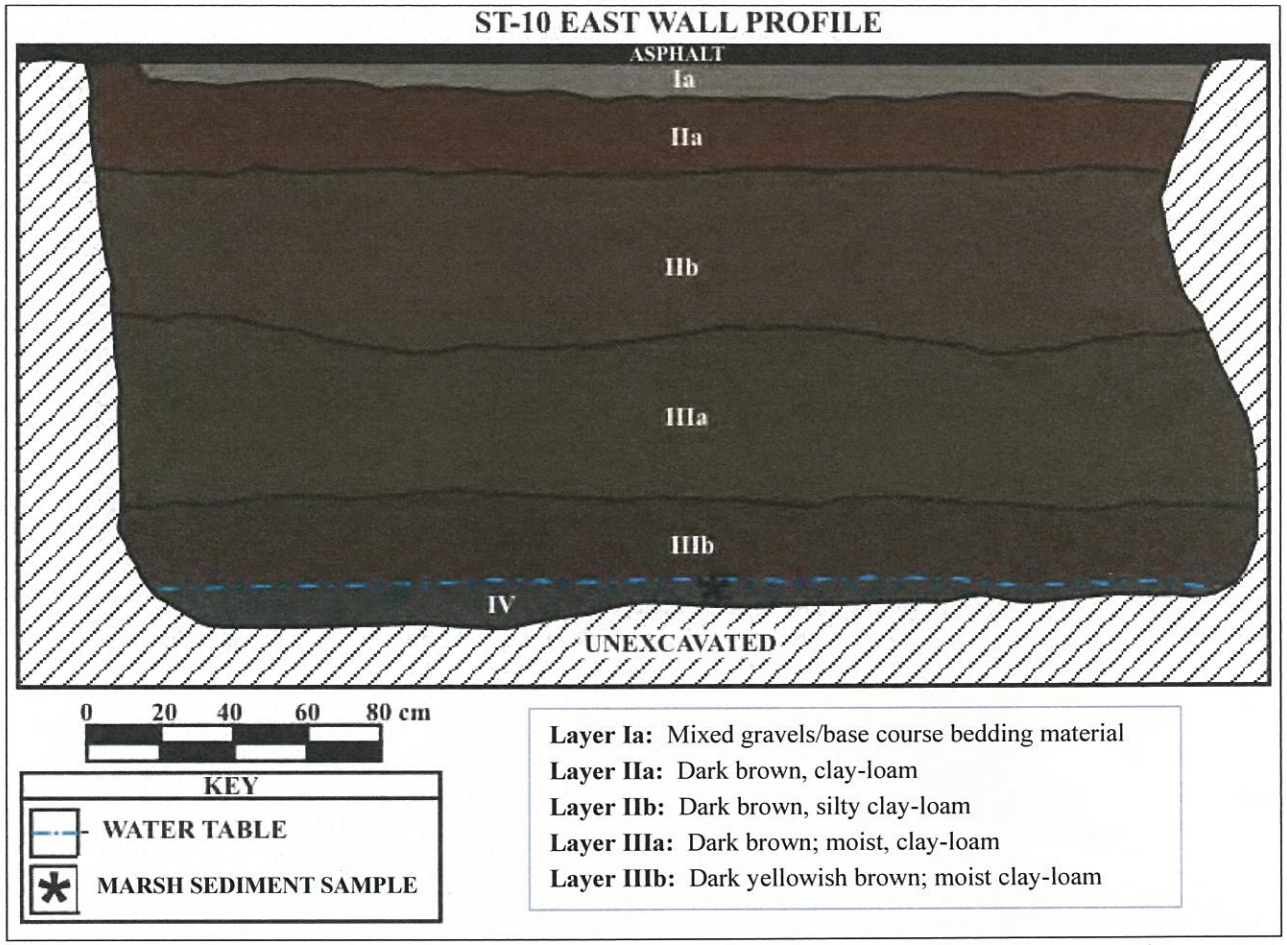

Figure 34: Stratigraphic Profile Illustration of ST-10, East Wall.

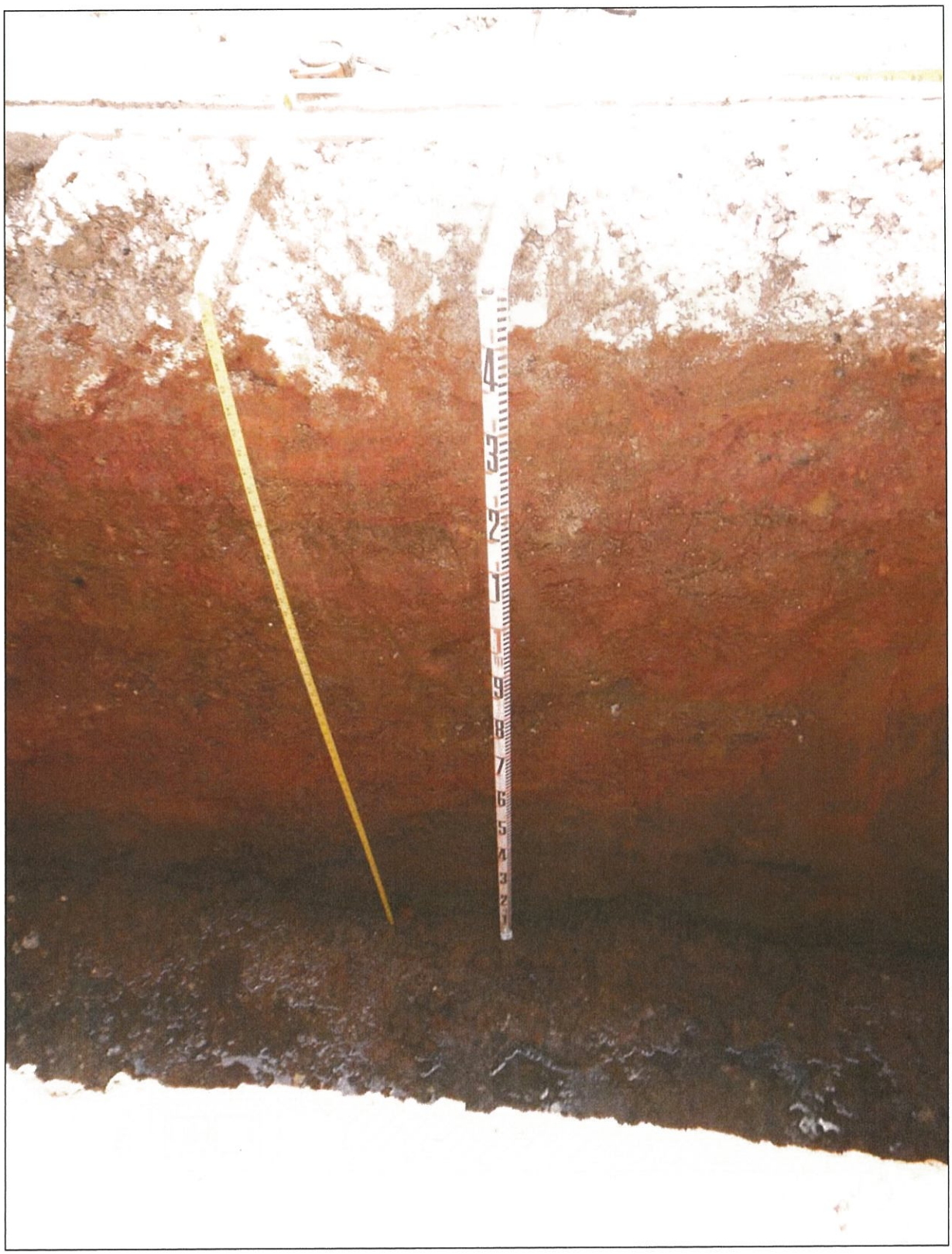

Figure 35: Photographic View of Profiled Section of ST-10, East Wall.

from 165 *in situ* contained flecks of carbonized organic material, and terrestrial snail shells (see Appendix A). Water table was encountered at 163 cmbs; No significant cultural features or materials were identified.

STRATIGRAPHIC TRENCH 11

ST-11 was placed in the southeast corner of project parcel 006, of the overall project area (see Figure 10). The test trench was excavated to a maximum depth of 150 cmbs and exposed five fill strata to the base of excavation (Figures 36 and 37). Little to no debris was observed in the excavated backfill. The water table was not encountered in the excavation but was observed eventually rising from base of excavation. No cultural features or materials were identified.

STRATIGRAPHIC TRENCH 12

ST-12 was placed in the southeast edge of project parcel 006, to north of ST-11 (see Figure 10). The test trench was excavated to a maximum depth of 156 cmbs, and exposed five fill strata to the base of excavation (Figures 38 and 39). Little to no debris was observed in the excavated backfill. The water table was encountered at 153 cmbs. No cultural features or materials were identified.

STRATIGRAPHIC TRENCH 13

ST-13 was placed in the north interior of project parcel 006 (see figure 10). The test trench was excavated to a maximum depth of 153 cmbs, and exposed five fill strata that included one discontinuous layer observed elsewhere within the project area, and a portion of the natural clay/marshy stratum representative of a former A-horizon observed in the basal deposit (Figures 40 and 41). A sediment sample of the marshy matrices collected from backfill contained flecks of carbonized organic material, and terrestrial snail shells (see Appendix A). The water table was not encountered during excavation of ST-13, but was observed eventually rising from the base of excavation. No cultural features or materials were identified.

STRATIGRAPHIC TRENCH 14

ST-14 was placed in the mid-south edge of project parcel 006 (see Figure 10). The test trench was excavated to a maximum depth of 150 cmbs, and exposed five fill strata, and a portion of the natural clay/marshy stratum representative of a former A-horizon (Figures 42 and 43). The water table was not encountered during excavation, or observed in ST-14. No debris was observed in the excavated backfill. No cultural features or materials were identified

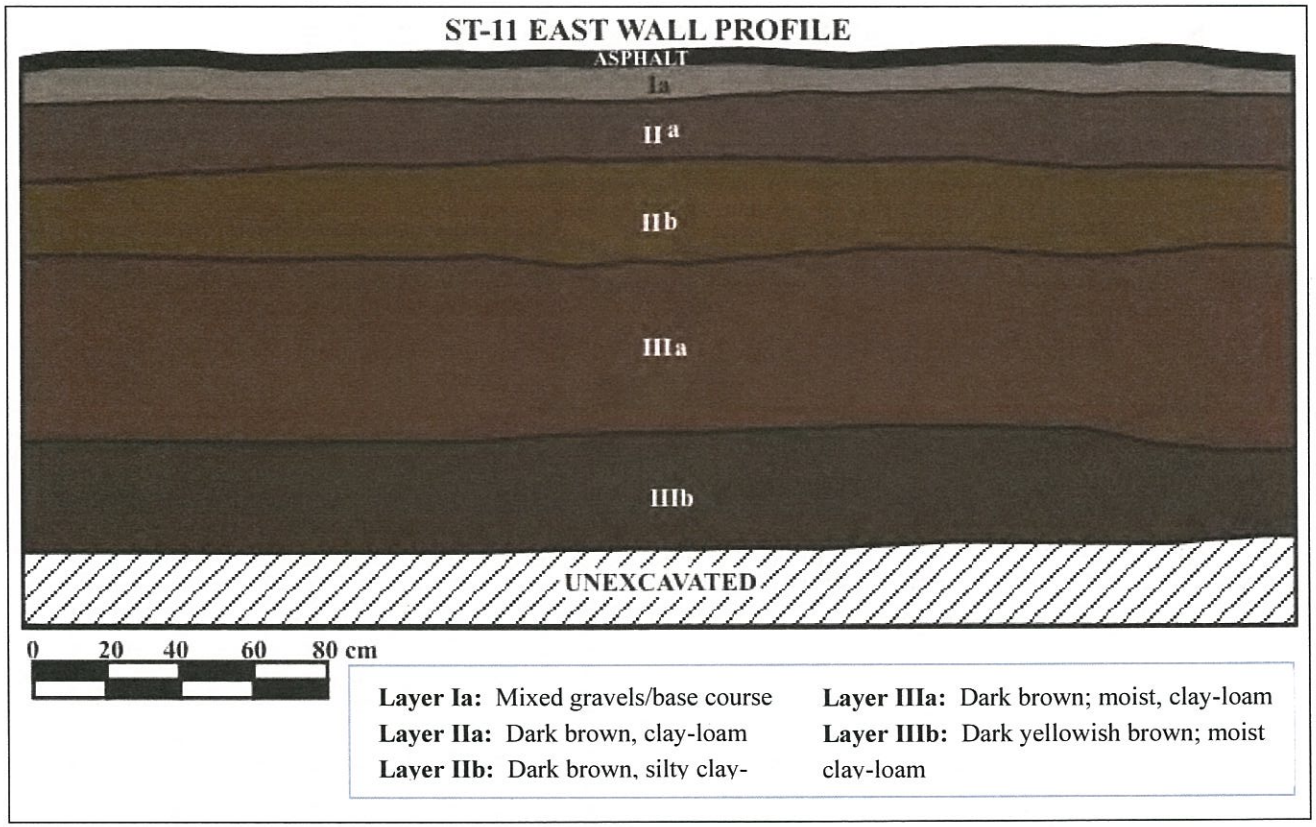

Figure 36: Stratigraphic Profile Illustration of ST-11, West Wall.

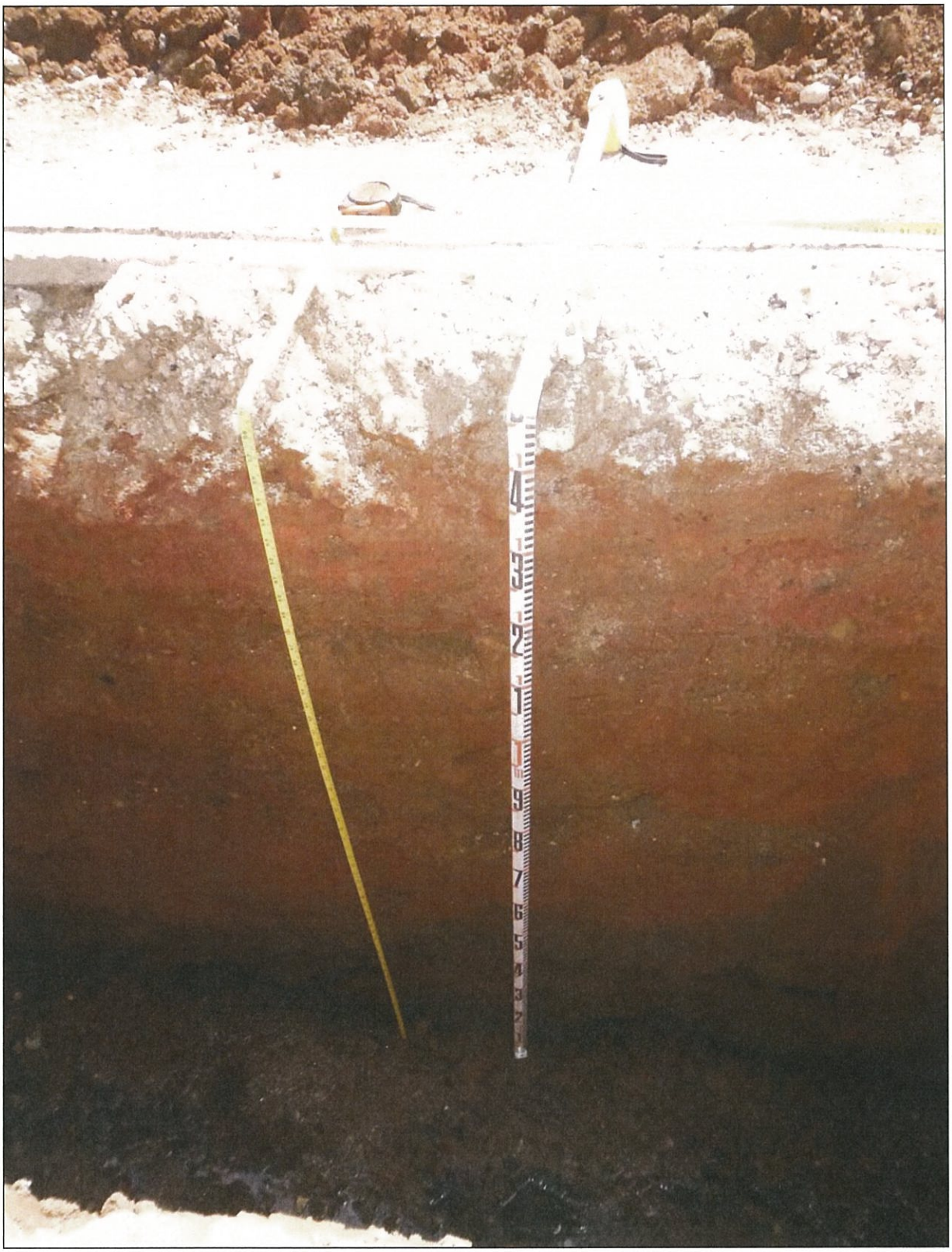

Figure 37: Photographic Overview of ST-11, East Wall.

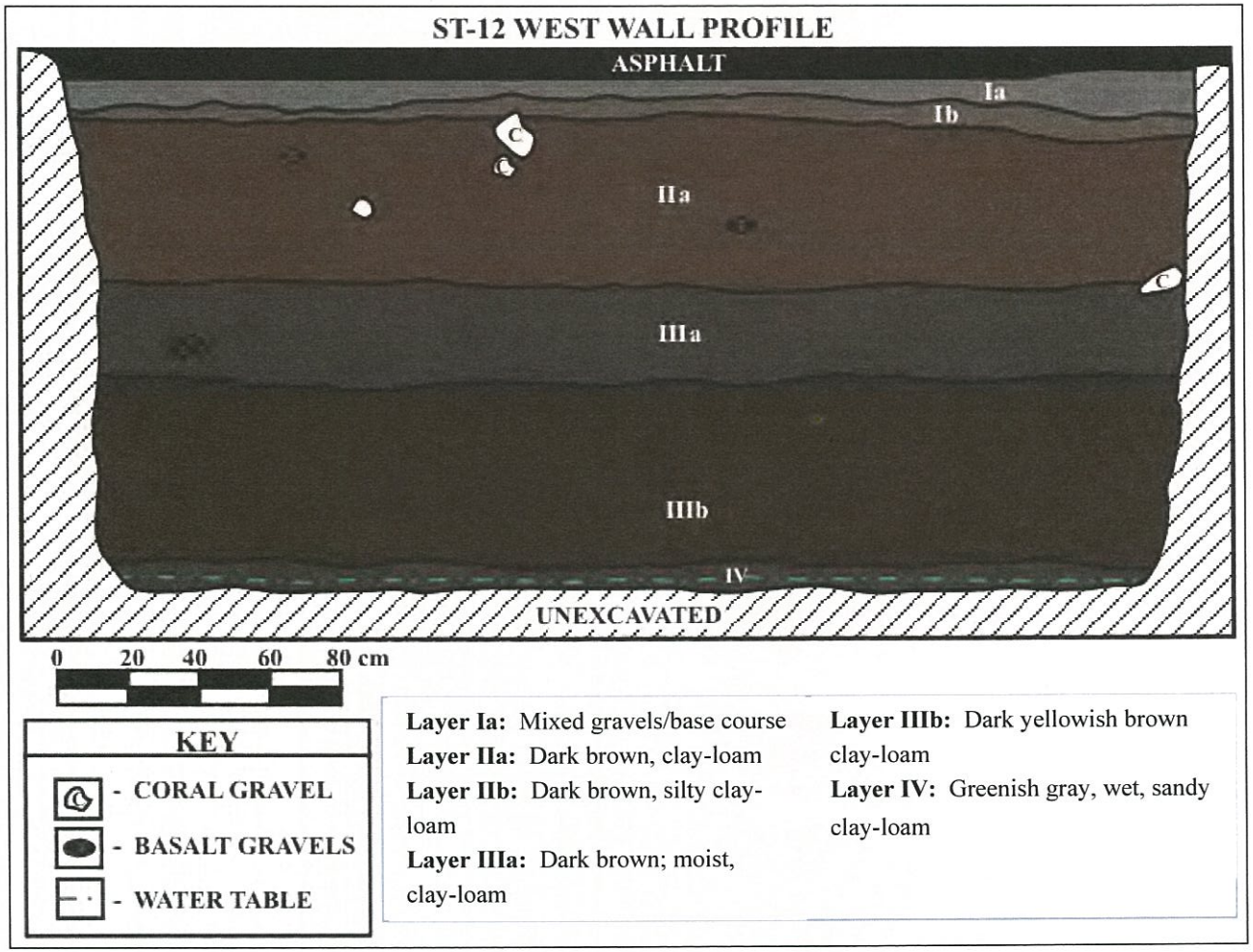

Figure 38: Stratigraphic Profile Illustration of ST-12, West Wall.

Figure 39: Photographic Overview Depicting ST-12, West Wall.

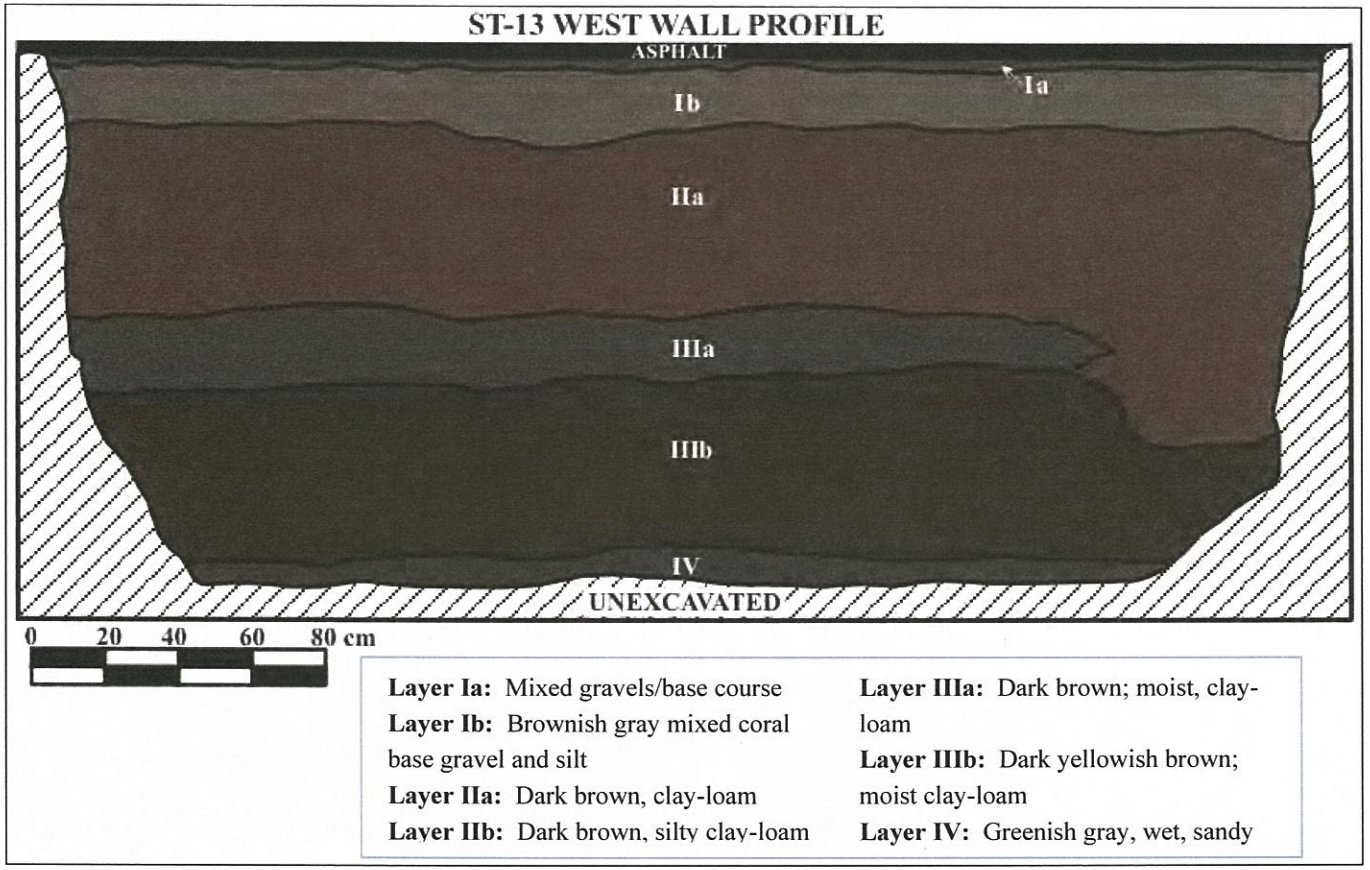

Figure 40: Stratigraphic Profile Illustration of ST-13, West Wall.

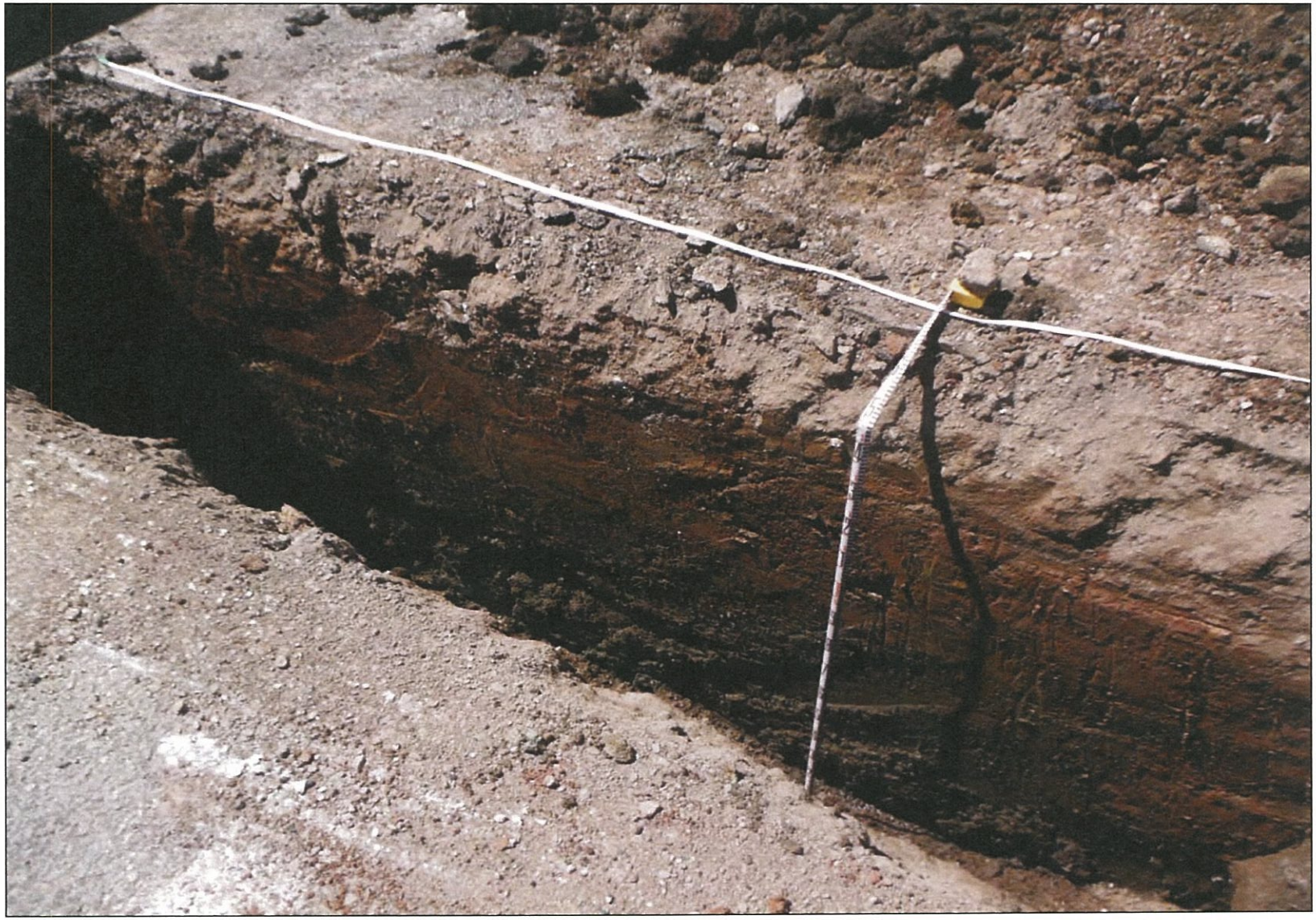

Figure 41: Photographic Overview Depicting ST-13, West Wall.

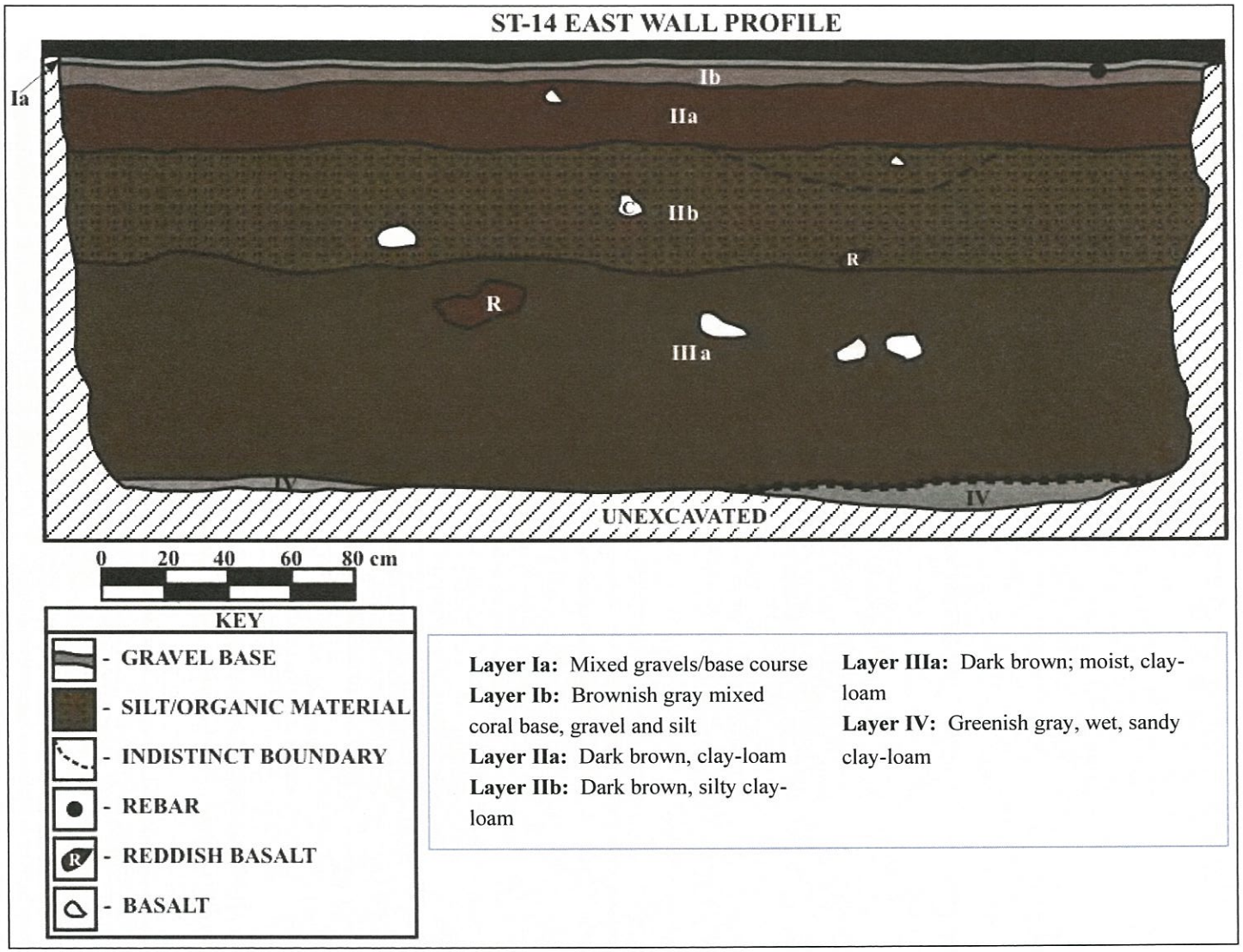

Figure 42: Stratigraphic Profile Illustration of ST-14, East Wall.

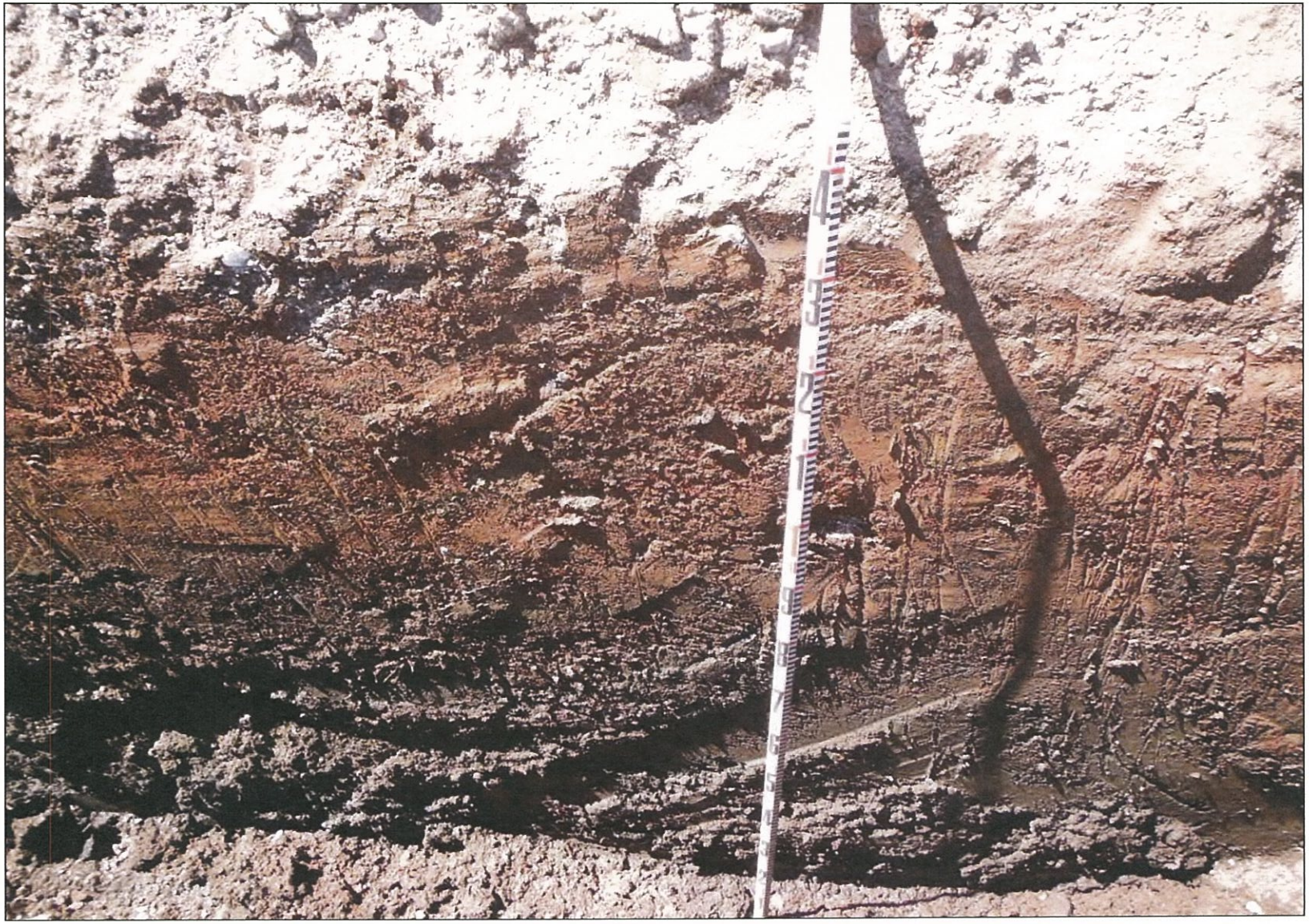

Figure 43: Photographic Overview Depicting ST-14, West Wall Profile.

STRATIGRAPHIC TRENCH 15

ST-15 was placed in the south interior of project parcel 006, to north of ST-14 (see Figure 10). The test trench was excavated to a maximum depth of 150 cmbs, and exposed four fill strata to the base of excavation (Figures 44 and 45). Little to no debris was observed in the excavated backfill. The water table was not encountered or observed in ST-15. No cultural features or materials were identified.

SIGNIFICANCE ASSESSMENT EVALUATION

The newly documented site identified and recorded by the current AIS consisting of a historic refuse deposit has been evaluated for its Historic/Cultural significance based on the five criteria outlined in Hawaii Administrative Rules (HAR) 13-284-6, as follows:

a) That are associated with events that have made a significant contribution to broad patterns of our American or Hawaiian history;

b) That are associated with the lives of persons significant in our past;

c) That embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic value, or that represent a significant and distinguishable entity whose components may lack individual distinction; or

d) That have yielded, or may be likely to yield, information important in prehistory or history;

TS-1 (State Site pending), which consists of cultural materials that indicate historic cultural activity of the project area location, is assessed as significant under criterion 'd' for the potential to inform on Historic era land use.

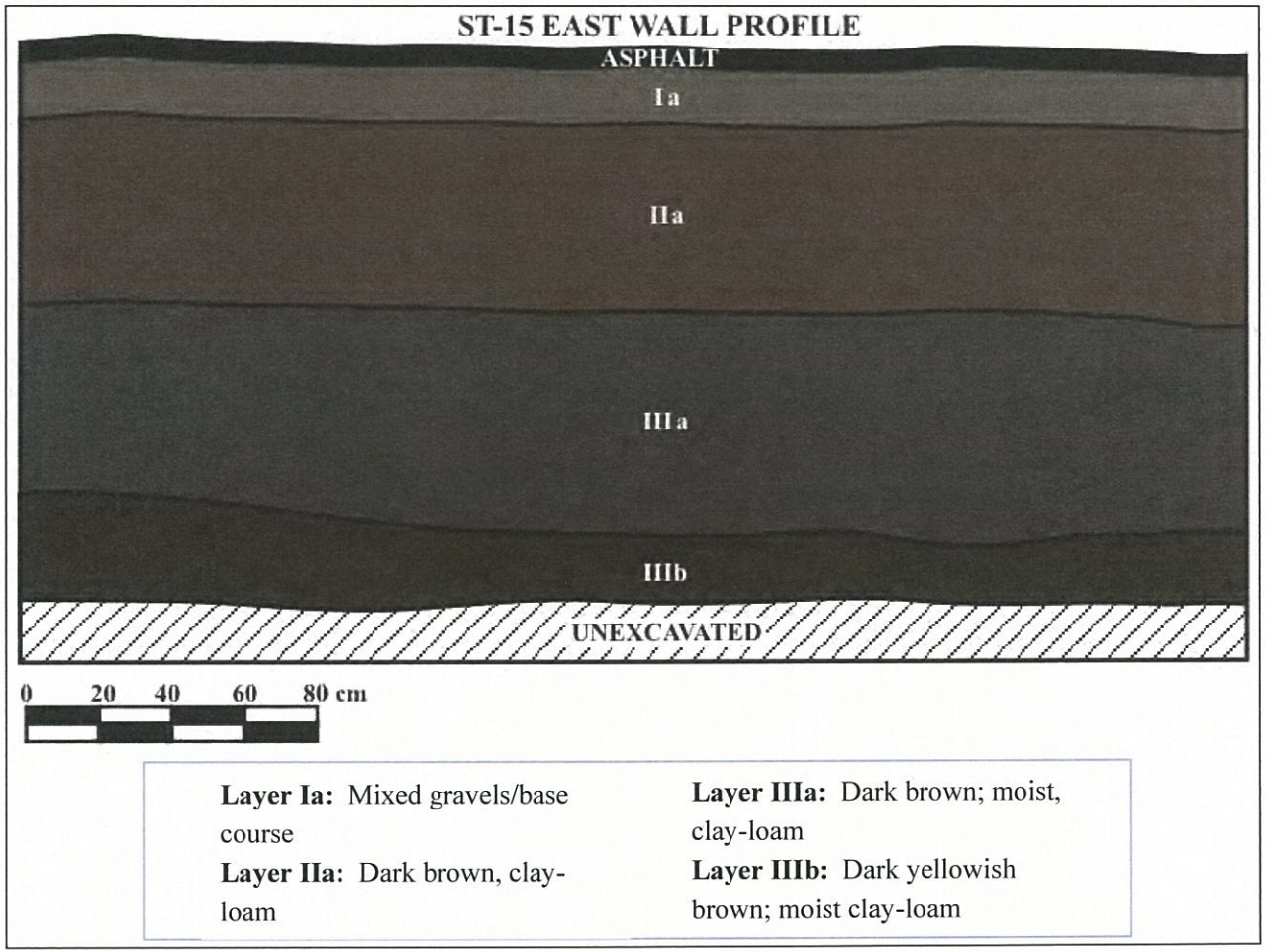

Figure 44: Stratigraphic Profile Illustration of ST-15, East Wall.

Figure 41: Photographic Overview Depicting ST-15, East Wall Profile.

DISCUSSION AND RECOMMENDATIONS

The current Inventory Survey involved subsurface testing in a built property comprising two parcels and 1.291 acres, by which fifteen mechanically excavated stratigraphic test trenches revealed the predominating fills and underlying natural sediments and portions of the remnant land surface across the project area. TS-1 (State Site number pending) that consisted of a historic refuse deposit was identified within the basal imported fill stratum at the interface of the natural sandy and clayey marsh sediment in project Parcel 006.

Archaeological Monitoring is recommended for both parcels if future subsurface disturbance will be greater than one meter in depth. Monitoring is warranted in Parcel 006 (*i.e.,* the existing parking lot), even though imported fill soils were observed in the lowest layers, because additional Historic properties may be contained in historic fill deposits; and currently built portions of the project area, particularly Parcel 009, were not subject to test excavations for practical reasons, and testing elsewhere in the project exposed sediments that represent deposits from the historic marshland landscape environment below roughly one and a half meters below the current surface. If intended construction excavation is planned to exceed basal fills and intrude into the natural deposit a monitor should be present. There is a possibility, however slight, that intact (natural) sediments still exist beneath the fills.

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APPENDIX A: CULTURAL ARTIFACTS INVENTORY & SAMPLED MATERIALS ANALYSIS

SCS PROJECT 1649 COLLECTED MATERIAL INVENTORY									
Lab Bag	**Site**	**Subsurface Feature**	**Excavation Unit**	**Layer/ Level**	**Depth**	**Collected Item**	**Measurements**	**Count**	**Remarks**
1	-	-	ST-1	IV	134–145 cmbs	Matrix Sample	143.7 g	-	No invertebrates observed.
2	-	-	ST-1	IV	163–165 cmbs	Matrix Sample	167.2 g	-	No invertebrates observed.
3	-	-	ST-2	Backfill	-	Possible Milled Wood	-	2	Fragments water logged.
4A	TS-1	3	ST-7	Backfill	-	Glass Bottle	Overall height (without stopper): 18.9 cm Body height: 8.5 cm Inner mouth diameter: 1.7 cm Base diameter: 4.4 cm Stopper top diameter: 2.7 cm Stopper top to bottom height: 3.0 cm	1	See below.
Complete, clear, club sauce glass bottle, "glass and cork" type with glass bottle stopper, stopper top embossed **57**, bottle automatic machine made, crown top finish with horizontal angular ring collar, slightly flared neck, rounded shoulders, cylindrical body, embossed heel and base. Heel embossment: **6**. Base embossment: 1st line (arched): **H.J. HEINZ CO.**, 2nd line (horizontal): **5**, 3rd line (horizontal): **281**, 4th line (horizontal): **H**, 5th line (negative arch): **PAT.D.** Possible bottle manufacturer: H.J. Heinz Company. Bottle manufacture date (based on general bottle assemblage methods): post-1904.									
4A	TS-1	3	ST-7	Backfill	-	Glass Light Bulb Fuse with Electrical Contact	-	1	Clear glass
4B	TS-1	3	ST-7	Backfill	-	Matrix Sample	41.2 g	-	Sample contains a non-diagnostic light blue bottle glass sherd and several rusted ferrous metal flakes; no invertebrates were observed.
5	TS-1	3	ST-7	IV	100 cmbs	Bottle Glass Body Sherds	-	2	Cobalt blue

SCS PROJECT 1649 COLLECTED MATERIAL INVENTORY									
Lab Bag	**Site**	**Subsurface Feature**	**Excavation Unit**	**Layer/ Level**	**Depth**	**Collected Item**	**Measurements**	**Count**	**Remarks**
5	TS-1	3	ST-7	IIIa	100 cmbs	Bottle Glass Base Sherd	Base diameter: 5.4 cm	1	Green, at least three-piece mold, embossed heel and base. Heel embossment: **83**. Base embossment: 1st line (horizontal): **30 S**, 2nd line: a horizontal line.
6	TS-1	3	ST-7	IIIa	115 cmbs	Porcelain Plate Rim/Body/Base Sherd	Vessel height: 2.1 cm Rim diameter: 9.0 cm	1	See below.
Exterior and interior glazed, shallow ringfoot present, rim exterior lipped, interior near rim hand painted under glaze with three alternating dark green lines (two-thin, one-thick) parallel to sherd rim.									
7A	TS-1	3	ST-7 South Wall	IIIa	123 cmbs	Bottle Glass Base Sherd	Base dimensions: 8.2 cm x 3.3 cm	1	See below.
Clear, at least three-piece mold, embossed body near heel, embossed excelsior/rounded corner Blake base. Wide Side 1 body embossment: 5 upside down horseshoes with a numeral **10** between the second and third horseshoe from the left. Wide Side 2 embossment: 5 upside down horseshoes. The two narrow sides of the bottle body near the base is embossed each with two upside down horseshoes. Base embossment: 1st line (vertical): manufacturer's stamp, 2nd line (horizontal): **D682**, 3rd line (horizontal): **56 6**. The manufacturer's stamp is a vertical oval intersected by a horizontal diamond and a capital **I** within the intersection of the two shapes. Bottle manufacturer: Owens Illinois Pacific Glass Company of Toledo, Ohio. Bottle manufacture date (based on manufacturer's stamp): 1929–1954.									
7B	TS-1	3	ST-7	IIIa	125 cmbs	Charcoal with Matrix	150.7 g	-	No invertebrates observed
8A	TS-1	3	ST-7	IIIa	100–120 cmbs	Glass Jar	Overall height: 10.5 cm Body height: 7.5 cm Inner mouth diameter: 4.5 cm Base diameter: 5.0 cm	1	See below.
Clear, automatic machine made, continuous thread finish with ring collar, short neck, nearly round shoulders, 12 vertical panels on skirted body, tapered heel, and embossed base. Base embossment: 1st line (arched): **DESIGN PATENTED**, 2nd line (horizontal): manufacturer's stamp, 3rd line (horizontal): **4**, 4th line (negative arch): **AUG 5th 1919**. The manufacturer's stamp is a capital **H** over a capital **A**. Jar manufacturer: Hazel-Atlas Glass Company of Wheeling, WV. Jar manufacture date (based on manufacturer's stamp): 1920–1964.									
8A	TS-1	3	ST-7	IIIa	100–120 cmbs	Possible Citrus Juicer Sherd	Rim diameter: 4.0 cm	1	Clear

SCS PROJECT 1649 COLLECTED MATERIAL INVENTORY									
Lab Bag	**Site**	**Subsurface Feature**	**Excavation Unit**	**Layer/ Level**	**Depth**	**Collected Item**	**Measurements**	**Count**	**Remarks**
8A	TS-1	3	ST-7	IIIa	100–120 cmbs	Glass Tumbler Base Sherd	Existing height: 9.4 cm Base diameter: 5.1 cm	1	Clear, body vertically tapered with vertically ridged heels, flat base.
8A	TS-1	3	ST-7	IIIa	100–120 cmbs	Bottle Glass Body Sherds	-	3	Clear
8A	TS-1	3	ST-7	IIIa	100–120 cmbs	Bottle Glass Base Sherd	-	1	Clear, body near base displays horizontal ribbing.
8A	TS-1	3	ST-7	IIIa	100–120 cmbs	Bottle Glass Base Sherd	-	1	Greenish aqua-marine, push-up base, heel embossed **/5 Q**…
8A	TS-1	3	ST-7	IIIa	100–120 cmbs	Bottle Glass Base Sherd	-	1	See below.
Clear, embossed heel and Philadelphia oval base. Heel Side 1 embossment: **ONE PINT**. Heel Side 2 embossment: **9**. Base embossment: 1st line (horizontal): **R 252**, 2nd line (horizontal): **90** manufacturer's stamp **5**. The manufacturer's stamp is a vertical oval intersected by a horizontal diamond and a capital **I** within the intersection of the two shapes. Bottle manufacturer: Owens Illinois Pacific Glass Company of Toledo, Ohio. Bottle manufacture date (based on manufacturer's stamp): 1929–1954.									
8A	TS-1	3	ST-7	IIIa	100–120 cmbs	Bottle Glass Body/Base Sherd	Existing height: 14.0 cm Base dimensions: 8.1 cm x 4.0 cm	1	See below.
Clear, two widest sides of body paneled, embossed body and monarch/erie oval base. Wide body panel embossment: 1st line (arched): …**LAW**, 2nd line (horizontal): …**RBIDS**, 3rd line (horizontal): **OR RE-USE**, 4th line (horizontal): **OF THIS BOTTLE**, 5th line (horizontal): **ONE PINT**, 6th line (horizontal): **R-409**. Base embossment: **87 6** (horizontal), **9** (vertical). Bottle manufacturer unknown. Bottle manufacture date (based on bottle body embossment): 1935–1964.									
8A	TS-1	3	ST-7	IIIa	100–120 cmbs	Bottle Glass Base Sherd	Base diameter: 7.0 cm	1	See below.
Cobalt blue, embossed body near embossed base. Body near base embossment: 1st line (horizontal): a lower case **x**, 2nd line (horizontal): **5**.									
8A	TS-1	3	ST-7	IIIa	100–120 cmbs	Bottle Glass Base Sherd	-	1	See below.

SCS PROJECT 1649 COLLECTED MATERIAL INVENTORY									
Lab Bag	**Site**	**Subsurface Feature**	**Excavation Unit**	**Layer/ Level**	**Depth**	**Collected Item**	**Measurements**	**Count**	**Remarks**
Amber, body embossed with vegetation (flowers with leaves and spiked stems), words, and numbers, base is plain oval. Body Side 1 embossment: **D 11**. Body Side 2 embossment: **HALF PIN**… Base embossment: 1st line (slight arch): **T.N. REG. US. PAT.**, 2nd line (horizontal): **56** manufacturer's stamp **4**, 3rd line (slight negative arch): **PAT. PENDING**. The manufacturer's stamp is a vertical oval intersected by a horizontal diamond and a capital **I** within the intersection of the two shapes. Bottle manufacturer: Owens Illinois Pacific Glass Company of Toledo, Ohio. Bottle manufacture date (based on manufacturer's stamp): 1929–1954.									
8B	TS-1	3	ST-7	IIIa/IV	135 cmbs	Black Rubber Shoe Fragment	-	1	Water soaked
9	TS-1	3	ST-7	IV	135 cmbs	Glass Citrus-Like Juicer	Diameter: 4.0 cm	1	Clear
9	TS-1	3	ST-7	IIIa	135 cmbs	Bottle Glass Body/Base Sherd	Existing height: 17.5 cm Base dimensions: 7.7 cm x 3.0 cm	1	See below.
Clear, body embossed and textured with raised triangles, both wide sides of body have flat areas for labels, heel and excelsior base embossed. Body embossment: **ONE PINT**. Heel embossment: **84** manufacturer's stamp **6**. Base embossment: a vertical **4** and **R-354**. The manufacturer's stamp is a capital **L** encompassed in a blocky horizontal oval (as opposed to a football shaped oval). Bottle manufacturer (based on similar manufacturer's stamp): W.J. Latchford Glass Company of Los Angeles, California (1925–1938).									
9	TS-1	3	ST-7	IV	135 cmbs	Bottle Glass Base Sherd	Base dimensions: 4.7 cm x 2.4 cm	1	See below.
Clear, one of the two widest sides of the body displays three vertical diamonds within one another, embossed Blake (Variant 1) base. Base embossment: vertical: manufacturer's stamp **6**, horizontal: **3 1/2 FL. OZ.**, vertical: **1813**. The manufacturer's stamp is a capital **L** with a smaller capital **B** near the inside of the 90 degree angle of the capital **L**. Bottle manufacturer (base on the manufacturer's stamp): Long Beach Glass Company of Long Beach, CA. (1920–1933).									
9	TS-1	3	ST-7	IV	135 cmbs	Glass Tumbler Base Sherd	Base diameter: 5.7 cm	1	See below.
Clear, body and heel display multiple wide vertical grooves, base embossed. Base embossment: manufacturer's stamp (a capital **H** over a capital **A**). Tumbler manufacturer: Hazel-Atlas Glass Company of Wheeling, WV. Tumble manufacturer date (based on manufacturer's stamp): 1920–1964.									
10	-	-	ST-9	IIIc	140 cmbs	Matrix Sample	~453.6 g	-	Few < 2 mm long, thin shelled gastropods observed (species unknown).
11	-	-	ST-10	IIIb	165 cmbs	Matrix Sample	181.0 g	-	Thiaridae and possible Endodontidae (both gastropods) shells observed as well as charcoal flecks.

SCS PROJECT 1649 COLLECTED MATERIAL INVENTORY									
Lab Bag	**Site**	**Subsurface Feature**	**Excavation Unit**	**Layer/ Level**	**Depth**	**Collected Item**	**Measurements**	**Count**	**Remarks**
11	-	-	ST-10	IIIb	155 cmbs	Bottle Glass Body Sherd	-	1	Light blue
12	-	-	ST-13	IV*	Backfill	Matrix Sample	88.9 g	-	Thiaridae and possible Endodontidae (both gastropods) shells observed as well as charcoal flecks.

*Associated Material

APPENDIX B: SELECT ARTIFACTS

Site TS-1 Subsurface Feature 3 Selected Artifacts Photo

1. Lab Bag 6: porcelain plate rim/body/base sherd.
2. Lab Bag 7A: bottle glass base sherd embossed with horseshoes.
3. Lab Bag 8A: glass jar.
4. Lab Bag 8A: bottle glass body/base sherd embossed with R-409.
5. Lab Bag 9: bottle glass base sherd embossed with three vertical diamonds.
6. Lab Bag 9: bottle glass body/base sherd textured with raised triangles.

G. TRAFFIC IMPACT ANALYSIS

FINAL

KAPI'OLANI RESIDENCE

1630-1631 Kapi'olani Boulevard

Honolulu, Hawai'i

Traffic Impact Analysis Report

January 26, 2015

Prepared for

Samkoo Pacific, LLC

Prepared by

SSFM INTERNATIONAL

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I. INTRODUCTION

Samkoo Pacific, LLC is proposing to develop Kapi'olani Residence, a 485-unit affordable housing condominium at 1630-1631 Kapi'olani Boulevard in Honolulu. The project site is on the block bordered by Kapi'olani Boulevard on the mauka (mountain) side, Kona Street on the makai (ocean) side, Mahukona Street on the west and Atkinson on the east (see Figure 1). It is anticipated that the condominium will be comprised of affordable housing residential units including studios, one-bedrooms, two-bedrooms, and three bedrooms with some commercial area. Primary access to the condominium is being proposed off of Kapi'olani Boulevard with a secondary access off of Kona Street for residents and deliveries (see Figure 2). The proposed Kapi'olani Residence project has an anticipated full build-out and occupancy year of 2017. The project site is currently comprised of one and two-story commercial buildings which house offices and commercial enterprises.

The proposed Honolulu Rail Transit project fixed guideway runs between East Kapolei and Ala Moana Center. The closest rail transit station will be at Ala Moana Center near the intersection of Kona Street and Kona Iki Street, 0.4-miles from the proposed development. The rail transit guideway and Ala Moana Rail Station have a proposed full build-out and operation year of 2019. In association with the Honolulu Rail Transit project, transit-oriented development (TOD) plans are being prepared for the neighborhoods surrounding each rail transit station site that integrate land use and transportation planning. Higher densities are an important characteristic of TOD, focusing on pedestrian facilities and a mix of land uses that include residential and commercial activities.

Samkoo Pacific, LLC is developing the project as a 201H Affordable housing project under the auspices of the State of Hawaii Housing Finance and Development Corporation (HHFDC). The 201H program, under the discretion of HHFDC, allows exemptions from underlying city zoning development standards and permitting fees.

This traffic impact analysis report (TIAR) is being prepared in support of the project's 201H application for the proposed condominium development. Existing (2014) conditions are established. Future (2017) Without Project and Future (2017) With Project conditions are evaluated for determination of project impact. In addition, Future (2030) With Project conditions are documented to establish the impact on the study area as a result of the proposed development and completion of the Honolulu Rail Transit project.

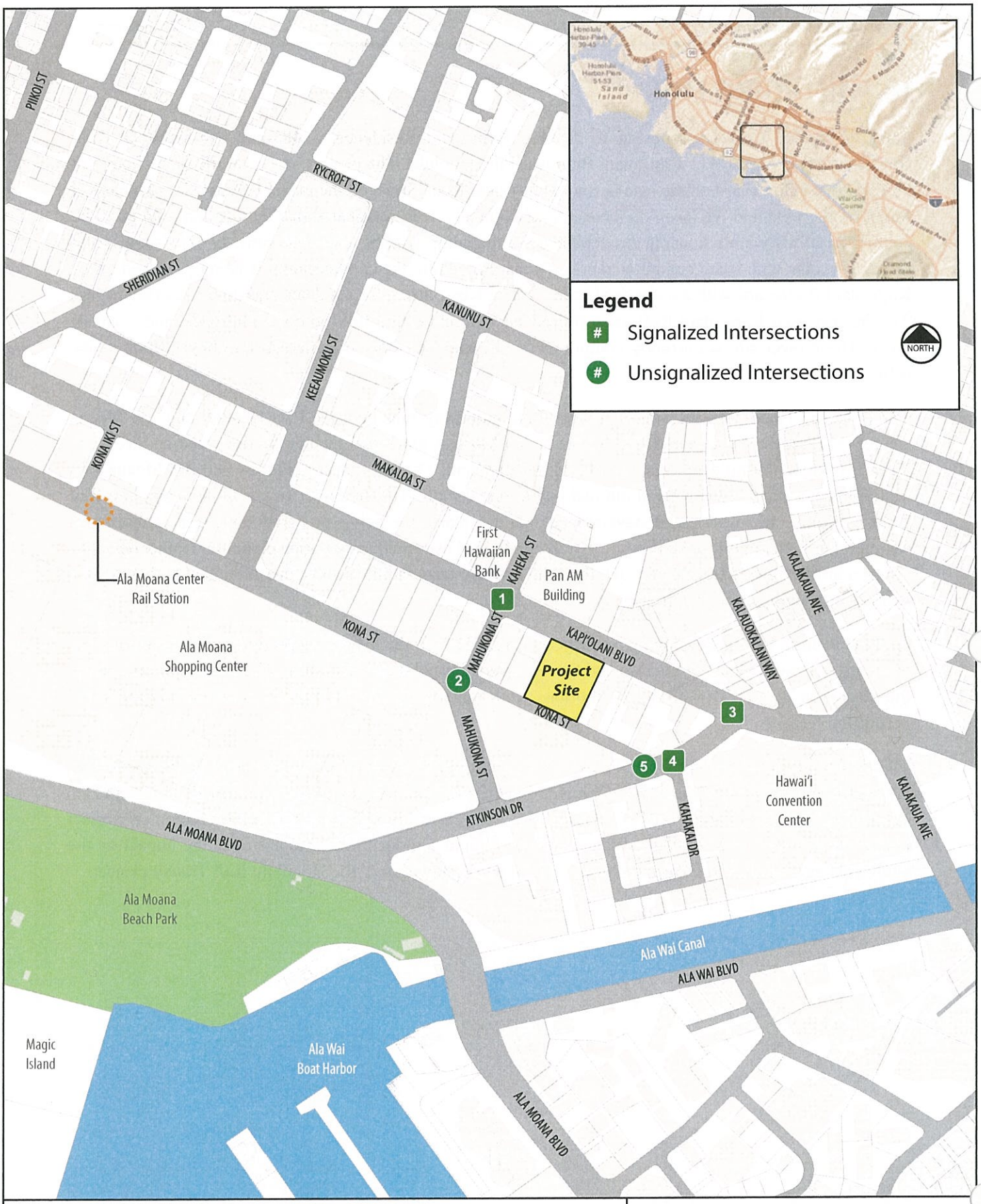

Figure 1: Project Location Map

Kapi'olani Residence – Honolulu, Hawai'i

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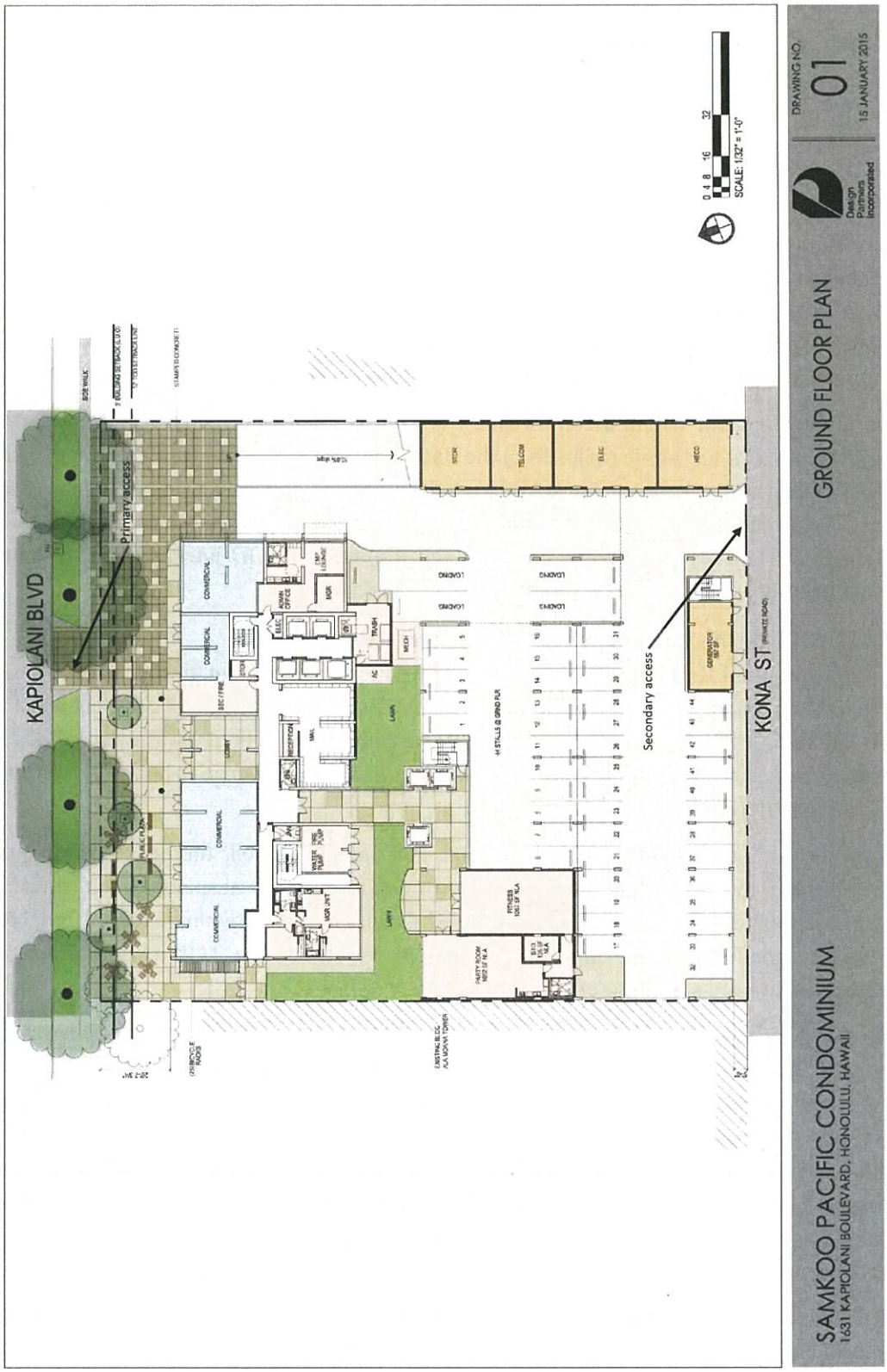


Figure 2: Kapi'olani Residence Site Plan

II. EXISTING PLANS AND PROCESSES

A. Transit Oriented Development Plan

The Land Use Ordinance (LUO) provisions for TOD special districts was adopted by the Honolulu City Council in 2009. They authorize preparation of a neighborhood TOD plan to serve as the basis for creation of a TOD Zone and the accompanying development regulations. The City is currently in the public review process for the *Ala Moana Neighborhood Transit-Oriented Development Plan, Public Review Draft* (RTKL, July 2014). The predecessor reports include: *Ala Moana Neighborhood Transit-Oriented Development Plan, Existing Conditions Report* (RTKL, August 2012), *Ala Moana Neighborhood Transit-Development Plan, Existing Conditions Report, Supplement – Market Opportunities Study* (KMA, October 2012), and *Ala Moana Neighborhood Transit-Development Plan, Station Area Alternatives Report* (RTKL, February 2013). The TOD plan is compliant with past plans and policies including the October 2002 *Oahu General Plan* and the June 2004 *Primary Urban Center Development Plan*.

TOD refers to development within a comfortable (five to ten minute) walking distance of a transit stop which translates into a ¼- to ½-mile radius from the station. Higher densities are an important characteristic of TOD development and are often achieved through development of vacant land or redevelopment of low density sites. The project site is located within ½ mile of the future Ala Moana Station. Although it is being developed under 201H rules, it generally observes and responds to TOD intent to provide housing for a range of income groups within the TOD area.

B. 201H Affordable Housing Program Application

Currently, the Kapi'olani Residence project site is under the zoning designation of BMX-3: Community Business Mixed Use District. This designation has a maximum building height of 350-feet and a maximum FAR (floor-area ratio) of 3.5. Figure 3 shows the existing zoning height limitations overlaid on the ¼ to ½-mile walking radius as referenced in the *Ala Moana Neighborhood Transit-Oriented Development Plan, Existing Conditions Report* (RTKL, August 2012).

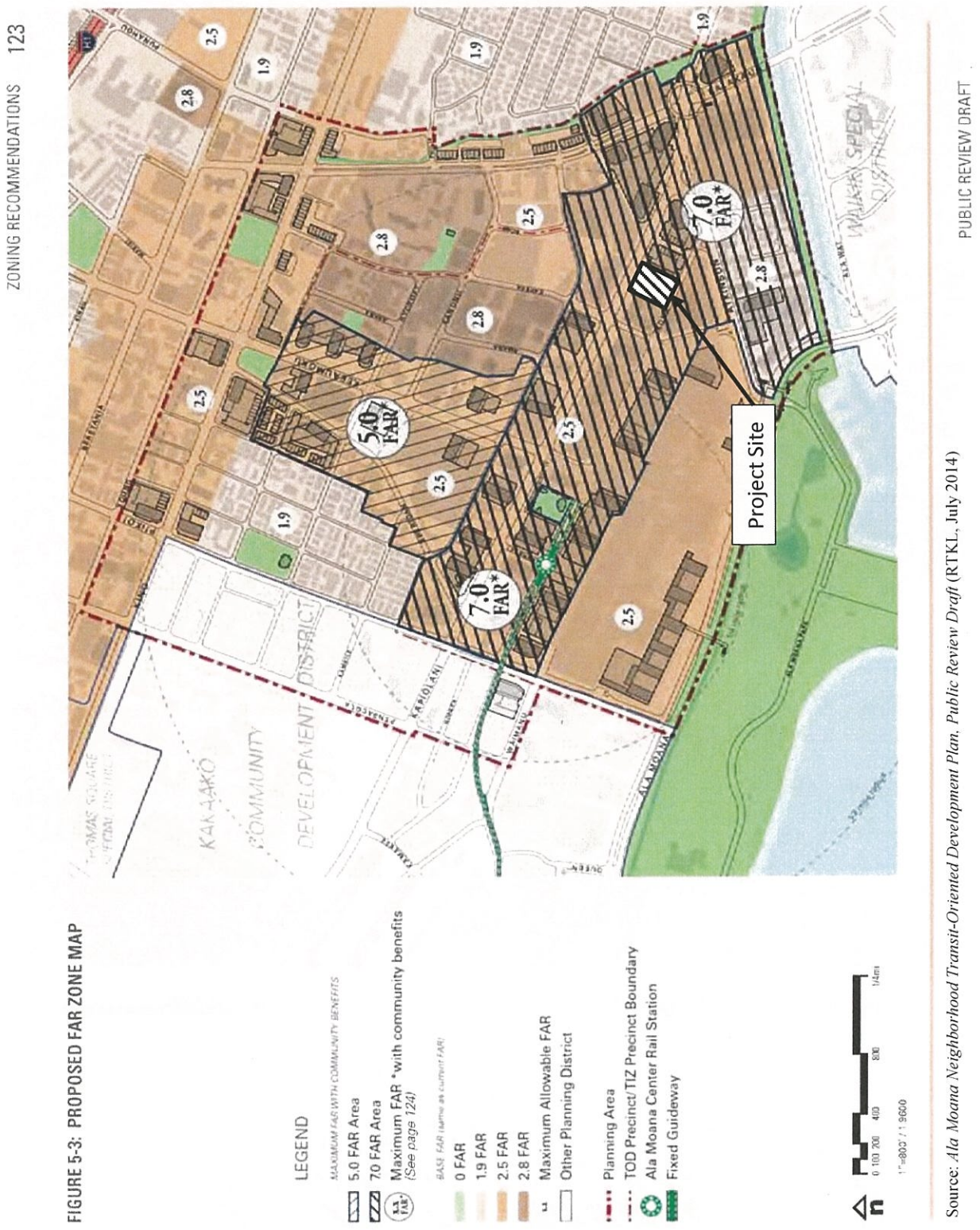
While the project site is located in the Ala Moana TOD neighborhood, the developer is pursuing the development through the 201H Affordable Housing Program under the auspices of the Hawai'i Housing Finance and Development Corporation. The proposed development is predominately affordable housing. 201H allows for expedited project approval process, in contrast to the TOD review process which is currently under review and subject to change.

The *Ala Moana Neighborhood Transit-Oriented Development Plan, Public Review Draft* (RTKL, July 2014) proposed FAR Zone Map shown in Figure 4 and Building Height Zone Map in Figure 5. The developer plans to request exemptions from the existing zoning standards, TOD policy, and other project requirements for this proposed project. The main exemption request is to allow a 400-foot building height with an additional 18 feet for mechanical equipment. This height would allow the residential tower to build the necessary number of residential units making the project economically feasibility. It would allow FAR of 8.43. Additional exemptions to be sought relate to parking, loading, park dedication and project fee requirements. Appendix A includes a report of the exemptions requested by the developer.

This TIAR is being developed to accompany the 201H application. The TIAR is to include general street patterns and intended connections of the proposed development to the regional roadway network, transit network and pedestrian and bicycle facilities. The TIAR must discuss the impact of the proposed project on surrounding streets, including traffic and transportation concerns, as well as identification of transportation network improvements that will be necessary.

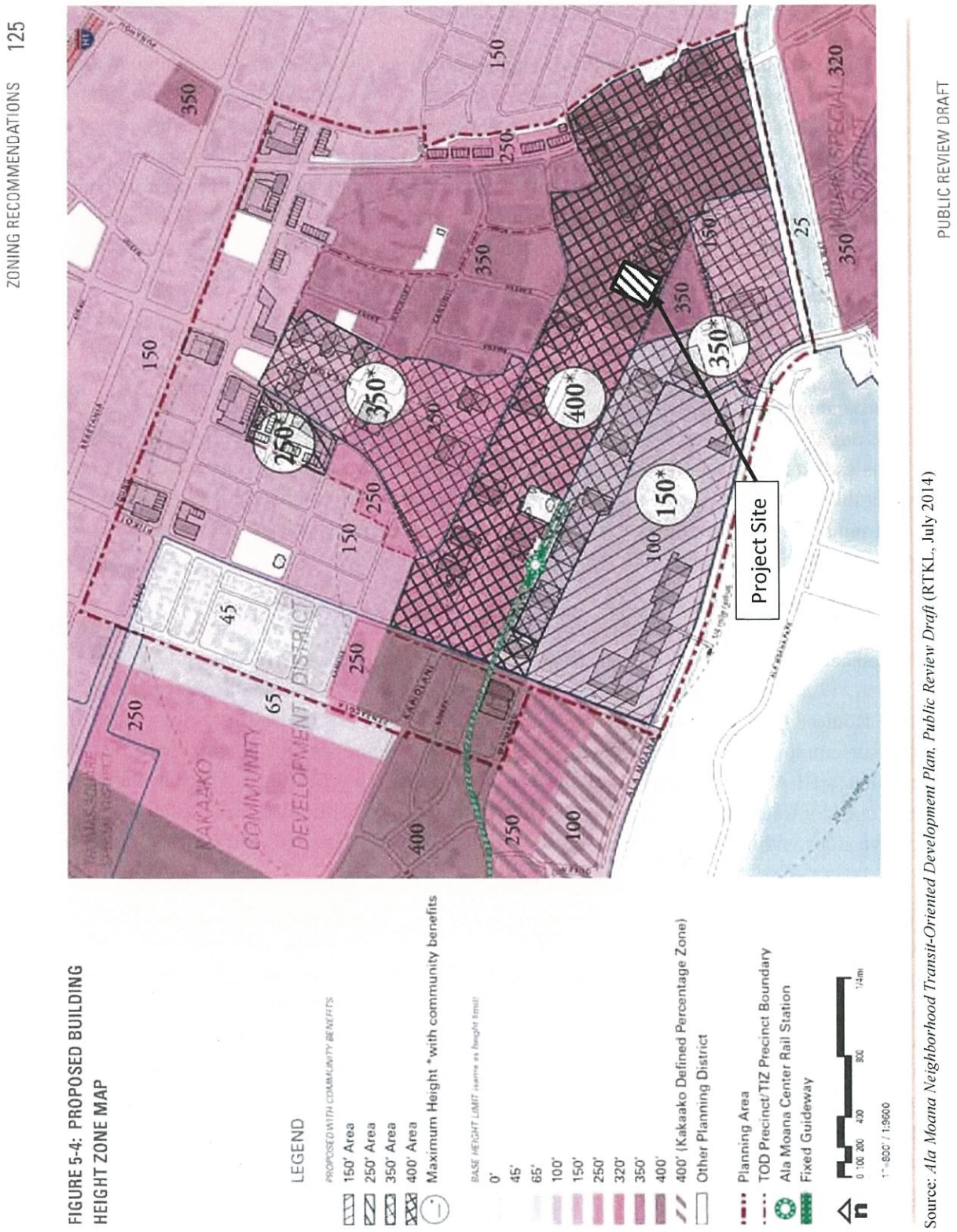
Source: Ala Moana Neighborhood Transit-Oriented Development Plan, Existing Conditions Report (RTKL, August 2012)

Figure 3: Existing Zoning Height Limitations



Source: *Ala Moana Neighborhood Transit-Oriented Development Plan. Public Review Draft* (RTKL, July 2014)

Figure 4: Proposed FAR Zone Map for TOD



Source: *Ala Moana Neighborhood Transit-Oriented Development Plan. Public Review Draft* (RTKL, July 2014)

Figure 5: Proposed Building Height Zone Map for TOD

III. EXISTING (2014) CONDITIONS

The surrounding Ala Moana neighborhood is an urban district that has a mix of commercial and residential uses. The neighborhood is a high employment zone due to the existence of Ala Moana Center and other surrounding commercial and retail establishments. Several high-rise condominiums have been constructed over the past ten years which adds to the neighborhood being a major residential area. Recently along Kapi'olani Boulevard small retail, dining, and entertainment establishments have been replaced by newer, higher value and higher capacity buildings. Currently, the project site at 1630-1631 Kapi'olani Boulevard is comprised of one and two-story commercial buildings which house offices and commercial enterprises.

A. Transportation Network

1. Vehicular Facilities

a) Passenger Vehicles

The surrounding transportation network consists of a gridded network of streets (see Figure 6). The *Ala Moana Neighborhood Transit-Oriented Development Plan, Existing Conditions Report* (RTKL, August 2012) states that the transportation network is disrupted by the existence of "superblocks" (large blocks that interrupt the street grid). These superblocks concentrate vehicular volumes at major intersections resulting in long signal timing cycle lengths of 120 seconds and strained capacity. They also make it difficult to maintain connectivity and mobility for other transportation modes.

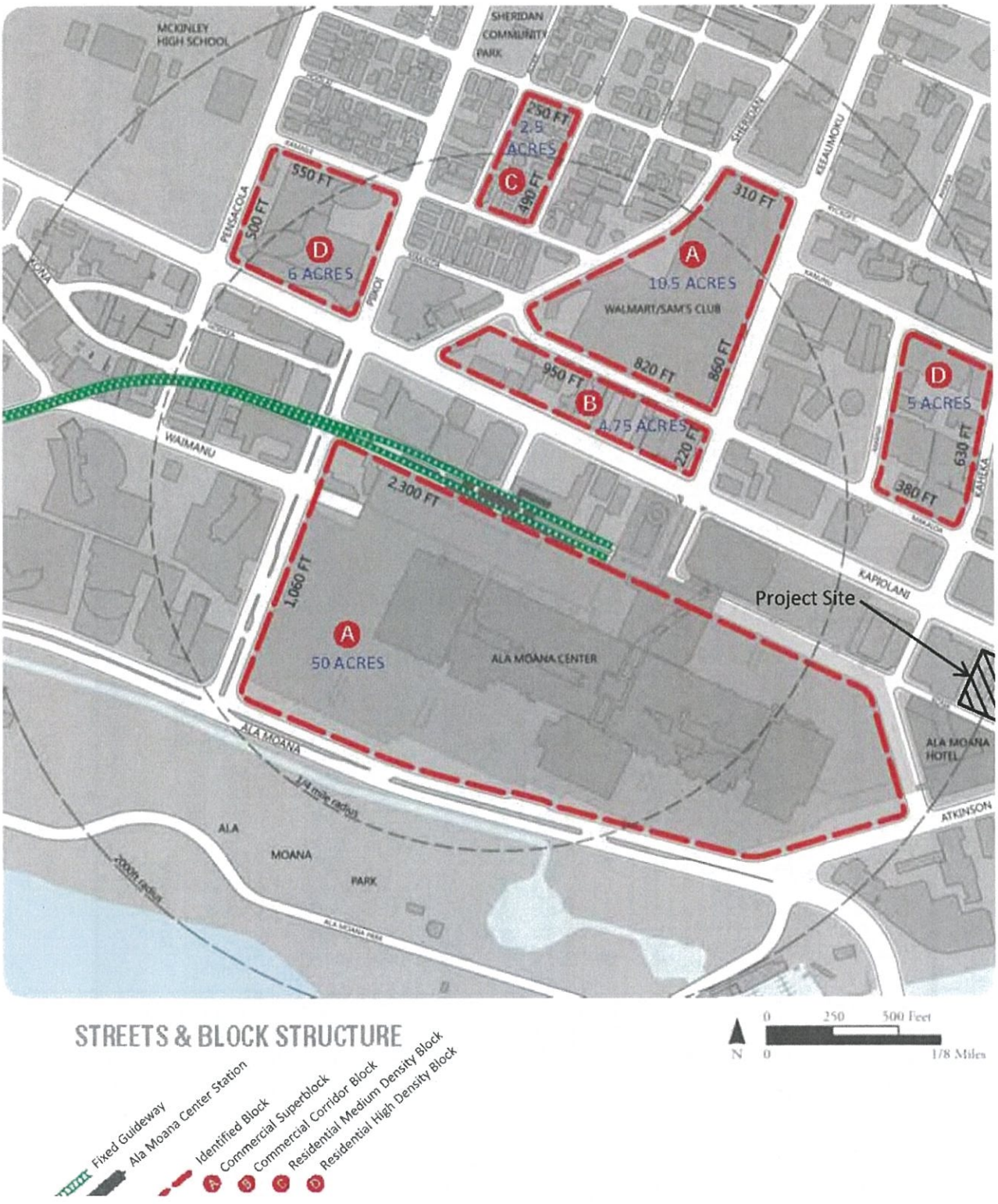
b) Buses and Heavy Vehicles

Ala Moana Center is the primary transfer point for TheBus system with a transit center located along Kona Street, adjacent to Ala Moana Center. Buses that service this area include Routes: C, 6, 8, 23, 40, 52, 53, 55, 56, 57, 57A, 62, 65 and 88A. Additional buses that stop along Kapi'olani Boulevard in the project area include Routes: A, 3, 9, 13, 17, and 18. See Figure 7 for locations of TheBus system stops and available routes surrounding Ala Moana Center. Included in the figure are the approximate bus stop "geoid" (identified as HEA Stop #), the physical identification of the stop according to TheBus internal management system used for tracking of buses using the TheBus smartphone application. Private bus and trolley services also have stops within the Ala Moana Center parking complex of garages and multi-storied lots.

2. Pedestrian Facilities

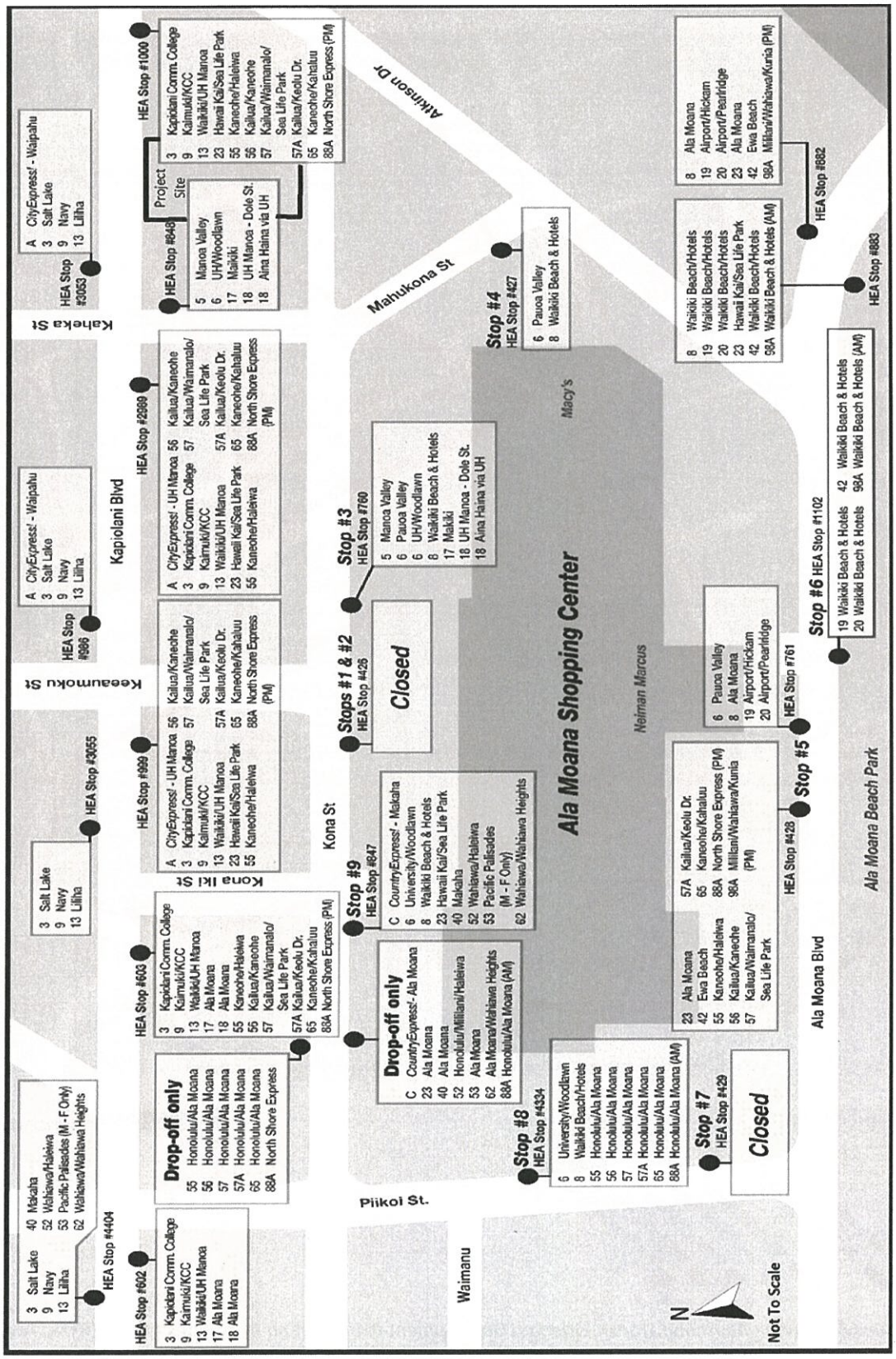
Sidewalks line both sides of Kapi'olani Boulevard with landscaped planter strips separating vehicular travel ways from pedestrians in most locations. Along Kona Street, sidewalks exist only along the makai side of the street. Fronting the project site along Kona Street, there is no sidewalk. Sidewalks widths in the surrounding project area range from 5-feet on Kona Street to 6 to 8-feet on Kapi'olani Boulevard. Other sidewalks on Kaheka Street and Mahukona Street range from 5 to 8-feet (see Figure 8). The City and County of Honolulu's *Traffic Standards Manual* (C&C, 1979) states that in most cases, concrete sidewalks shall be at least four feet wide in residential districts. The *Hawaii Statewide Design Manual* (HDOT, 1980) states that clear sidewalk width should be four feet minimum although widths of eight feet or greater may be needed in commercial areas. Along Kona Street, adjacent to the project area, there are frequent driveway locations that interrupt the sidewalks along both sides of the street.

Marked crosswalks exist at most major intersections with pedestrian signal heads and push-buttons for signalized intersections. Signalized intersections reflect vehicle and pedestrian actuated traffic control in the traffic model.



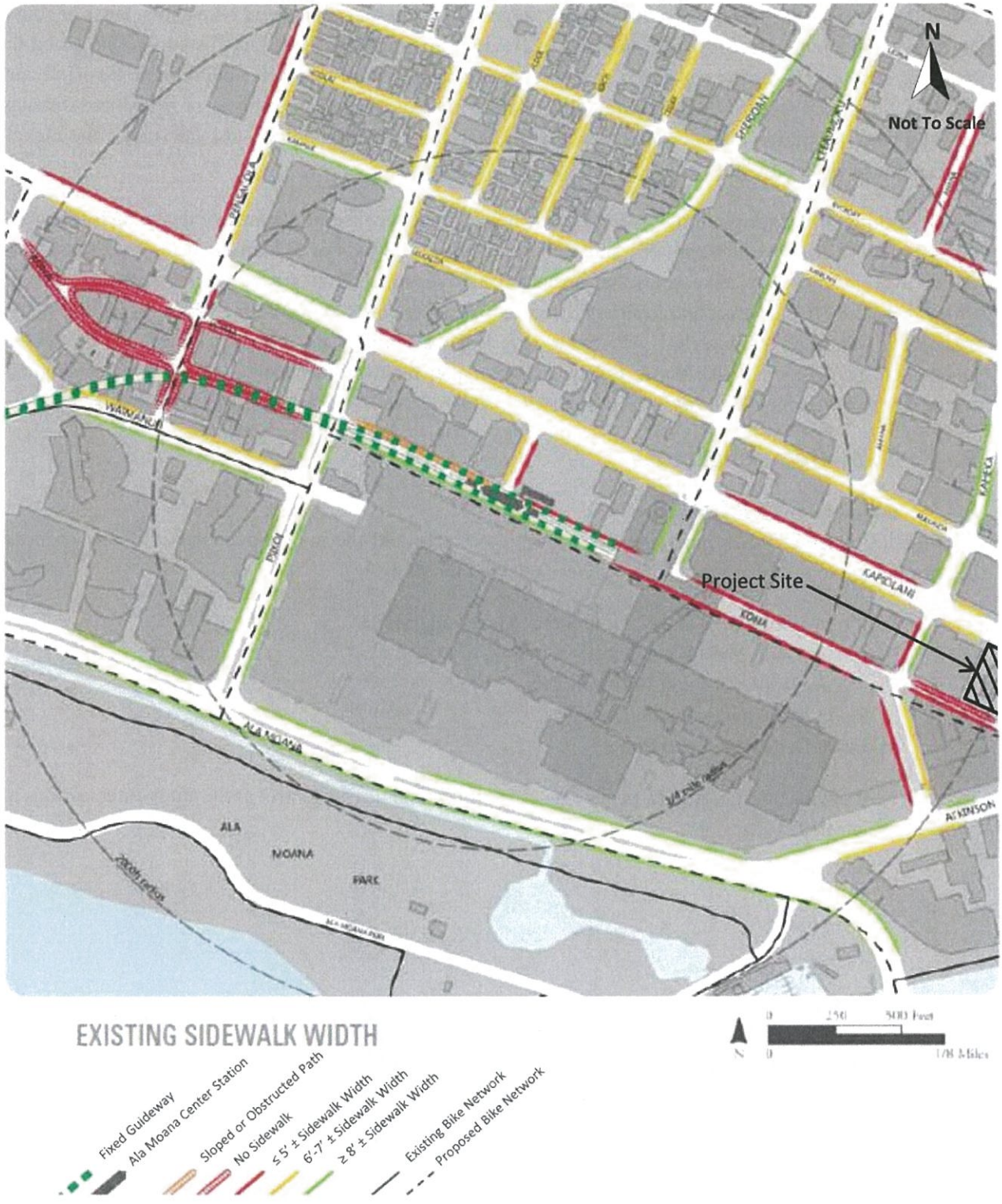
Source: Ala Moana Neighborhood Transit-Oriented Development Plan, Existing Conditions Report (RTKL, August 2012)

Figure 6: Street Network



Source: TheBus website (August 2, 2014)

Figure 7: TheBus Stops and Routes



Source: Ala Moana Neighborhood Transit-Oriented Development Plan, Existing Conditions Report (RTKL, August 2012)

Figure 8: Sidewalk Width

3. Bicycle Facilities

Oahu Bike Plan, A Bicycle Master Plan (HHF, August 2012) has no designated bike paths, lanes or routes on Kapi'olani Boulevard. However, the Hawaii Revised Statutes states that bicyclists traveling along the roadway slower than the normal speed of traffic should ride as close as practicable to the right-hand curb or edge of the road where bike lanes are not available. In areas other than business or prohibited districts, bicycles may be ridden on sidewalks provided the speed is 10 mph or less. On sidewalks, the bicycle operator must yield the right-of-way to pedestrians.

Ease of biking in the surrounding project area is not optimal because of the lack of designated bikeways, the presence of heavy vehicle traffic, and narrow sidewalk widths. For Diamond Head-'Ewa (east-west) travel, a cycle track (i.e., bike lanes that are physically separated from traffic) exists along South King Street, between Alapai Street and Isenberg Street, a bike route exists along Young Street and a bike path is adjacent to Ala Moana Boulevard. All of these are less than ¼-mile from the site. There are no existing designated mauka-makai bike ways. Future mauka-makai bikeways on Pi'ikoi Street and Ke'eaumoku Street are shown in the *Oahu Bike Plan, A Bicycle Master Plan* (HHF, August 2012) (see Figure 9).

B. Geometric Configuration

1. Intersection Configuration

Considering existing traffic movements in the project area and the anticipated impact of the proposed development, the following intersections were selected for study:

1. Kapi'olani Boulevard and Kaheka Street/Mahukona Street
2. Kona Street and Mahukona Street
3. Kapi'olani Boulevard and Atkinson Drive
4. Atkinson Drive and Kahakai Drive
5. Atkinson Drive and Kona Street

Existing (2014) lane configurations, pedestrian crosswalks, and traffic control at the study intersections are shown in Figure 10.

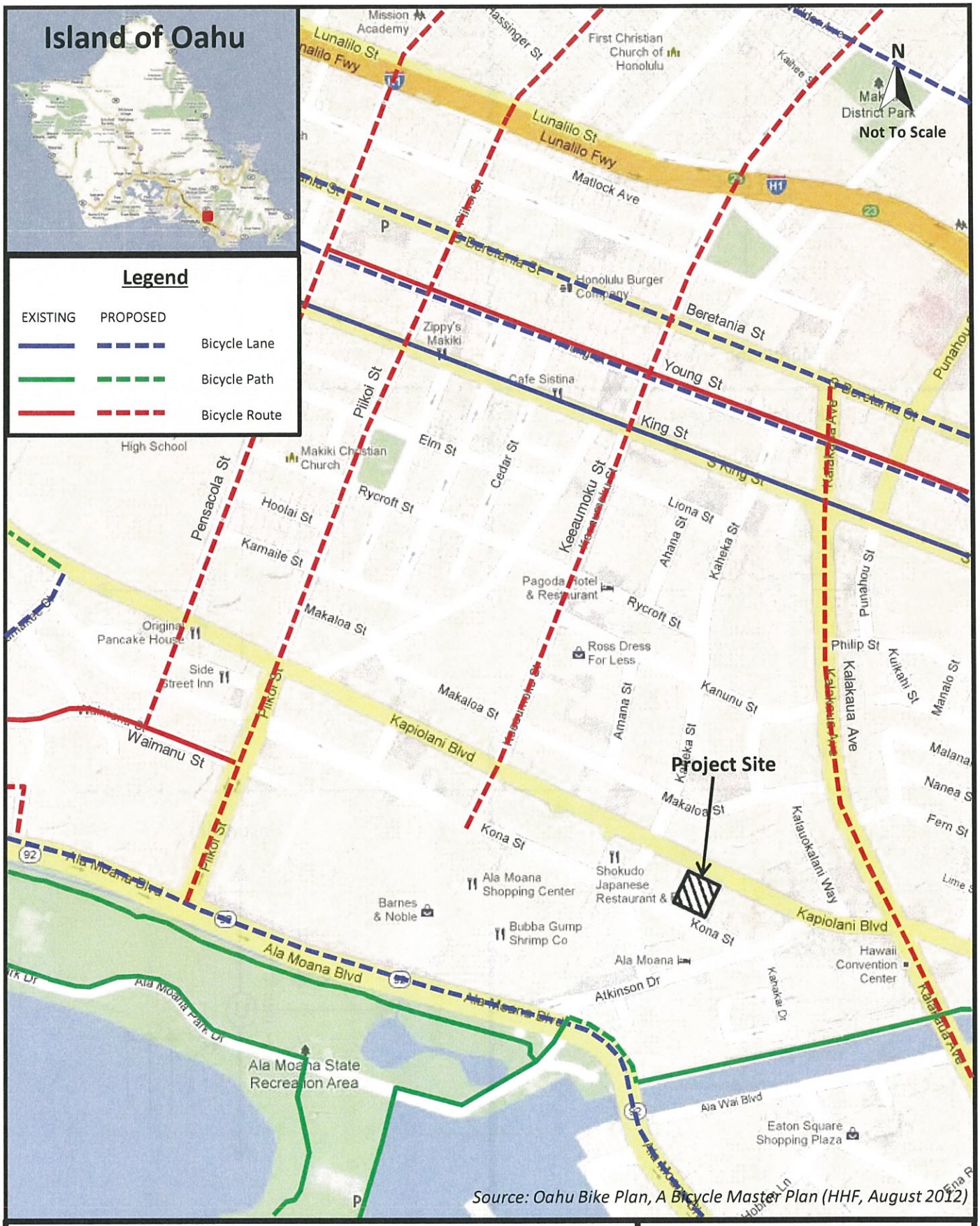


Figure 9: Bikeway Details

Kapi'olani Residence – Honolulu, Hawai'i

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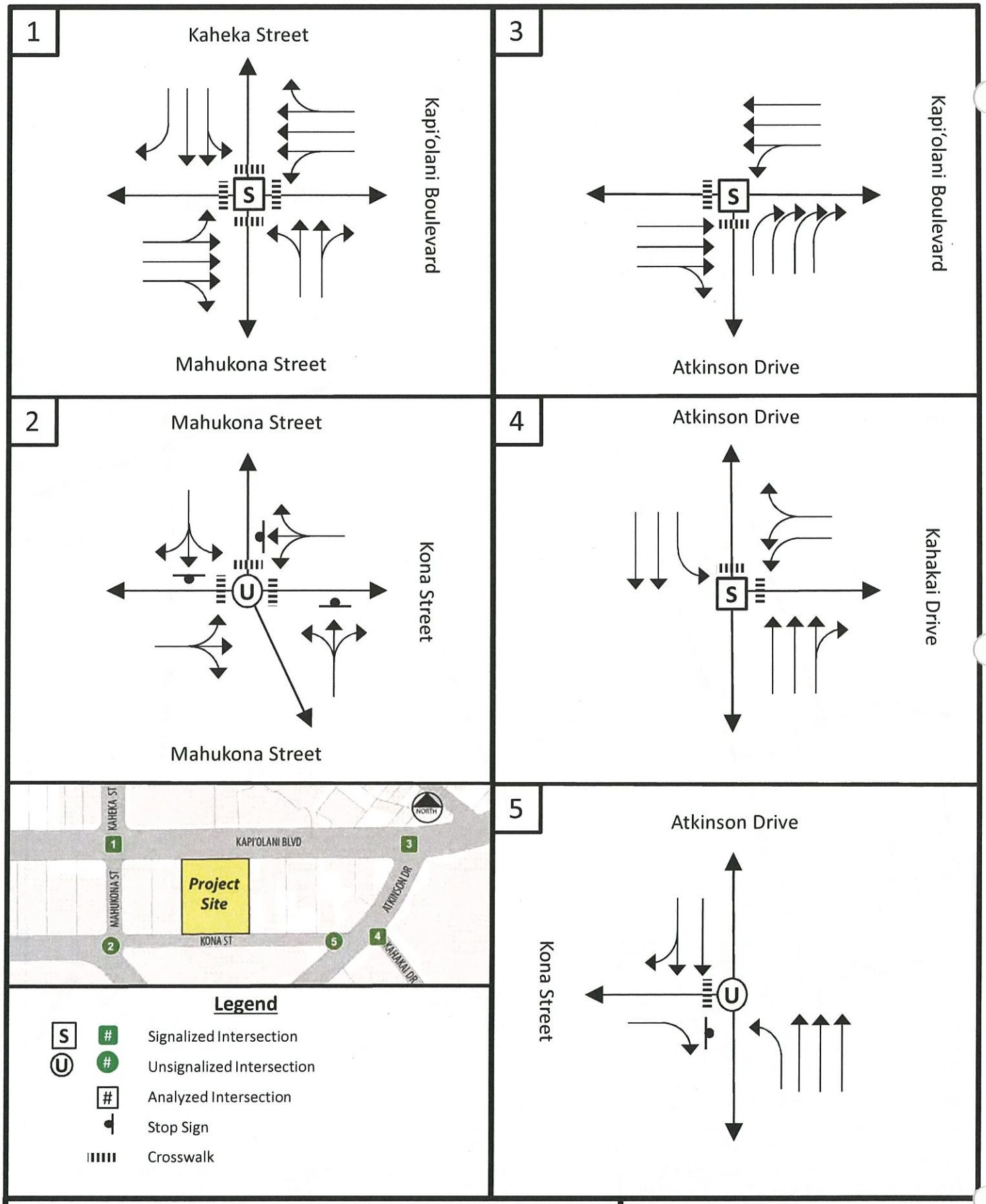

Figure 10: Existing (2014) Lane Configurations

Kapi'olani Residence – Honolulu, Hawai'i

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2. Roadway Configuration

Kapi'olani Boulevard is an urban principal arterial owned by the County that runs in the Diamond Head-'Ewa direction. In the project area, Kapi'olani Boulevard is a six-lane, undivided, signalized arterial with a 35 mph posted speed limit. During the AM peak period the corridor is coned for contraflow operations, providing an additional lane for approximately 2.3 miles in the 'Ewa-bound direction between the H-1 Freeway near South King Street to west of Ward Avenue. Left turns are prohibited for the Diamond Head direction during the AM contraflow (see Figure 11). During the PM peak period, an additional contraflow lane is provided in the Diamond Head-bound direction between Pensacola Street to McCully Street. Left turns are prohibited for the 'Ewa-bound direction during the PM contraflow.

Driveway accesses to existing properties in the project area, including the subject project site, are prevalent along Kapi'olani Boulevard and have no mid-block dedicated turn lanes. Kapi'olani Boulevard serves as a major bus route with no bus pullouts. Fronting the property, sidewalks exist along both sides of the street, with various widths and an 11-foot landscaped area providing a buffer from vehicular travel lanes.

Mahukona Street is a two-lane roadway that runs mauka-makai between Kapi'olani Boulevard and Atkinson Drive with a 15 mph posted speed limit. Mahukona Street is privately owned by General Growth Properties, the owners of Ala Moana Center. At the intersection with Kapi'olani Boulevard, the northbound approach is striped as a one-lane for all turning movements. However, it was observed that motorists utilize the approach as a two-lane roadway in order to separate conflicting movements, thereby resulting in a left-through and right-through lane. This aligns with the two receiving lanes on the other side of Kapi'olani Boulevard. Mahukona Street provides access to the Ala Moana Center parking garage. There is also a bus stop located on Mahukona Street in the mauka-bound direction, before its intersection with Kapi'olani Boulevard. Parking is permitted in designated meter parking stalls adjacent to the Ala Moana Shopping Center parking garage. Sidewalks line both sides of the street.

Kaheka Street is an urban major collector owned by the City that runs in the mauka-makai direction. No posted speed limit sign exists in this section and therefore is regulated to be 25 mph. Kaheka Street is the mauka leg at the intersection of Kapi'olani Boulevard and Mahukona Street. Between Kapi'olani Boulevard and Makaloa Street, Kaheka Street has two lanes in the mauka direction and three lanes in the makai direction with on-street parking on the Diamond Head side of the street. Mauka of Makaloa Street, Kaheka Street turns into a two-way, two-lane corridor with a posted speed of 25 mph and on-street parking on either sides of the roadway. Sidewalks exist on both sides of the street.

Kona Street, between Mahukona Street and Atkinson Drive, is a two-lane roadway that runs in the Diamond Head-'Ewa direction with a 15 mph posted speed limit. Like Mahukona Street, Kona Street is privately owned by General Growth Properties. Kona Street in this area serves as access for residential and delivery loading areas for apartments, condominiums, hotel and commercial areas. There is a sidewalk on the makai side of Kona Street with permitted on-street parking. At the T-intersection with Atkinson Drive, there is a right-turn out only for the eastbound approach. A raised island separates the right-in movements from the right-out movements.

Atkinson Drive is an urban minor arterial owned by the City that runs in the mauka-makai direction. It primarily has four lanes with dedicated left-turn lanes. At the T-intersection with Kapi'olani Boulevard, starting mauka of Kahakai Drive, Atkinson is seven lanes with four right-turn lanes in the mauka direction and three receiving lanes in the makai direction. There is on-street parking on Atkinson Drive makai of

Kona Street on the Diamond Head side of the road. Atkinson Drive provides access to Ala Moana Shopping Center, Ala Moana Beach Park, hotels, apartments/condominiums and other commercial and office spaces.

Kahakai Drive is a two-lane road owned by the County. The road provides access to residential units and for those leaving the Hawai'i Convention Center parking garage. Parking is allowed along the makai side of the roadway. Sidewalks exist along both sides of the street.

C. Volumes

The project is located in the urban Ala Moana neighborhood which experiences high vehicle volumes and multi-modal movements. The Ala Moana area has a high concentration of transit-dependent households, as noted in the *HHCTC, Transportation Technical Report, Addendum 2* (PB, October 2009).

1. Peak Hour Volumes

Intersection peak period turning movement traffic counts were taken on Wednesday, October 1, 2014 and Thursday, October 2, 2014. These counts also included classification of heavy vehicles as well as the tabulation of pedestrian movements at all intersections. Counts were taken during the AM and PM peak periods from 6:45–8:45 AM and 4:00–6:00 PM. Appendix B includes the detailed traffic count data. Peak hours varied per intersection and are provided in Table 1.

Table 1: Intersection Peak Hours

Intersection	AM Peak Hour	PM Peak Hour
Kapi'olani Boulevard and Kaheka Street/ Mahukona Street	7:15 – 8:15 AM	4:30 – 5:30 PM
Kona Street and Mahukona Street	7:45 – 8:45 AM	4:30 – 5:30 PM
Kapi'olani Boulevard and Atkinson Drive	7:30 – 8:30 AM	4:30 – 5:30 PM
Atkinson Drive and Kahakai Drive	7:45 – 8:45 AM	4:15 – 5:15 PM
Atkinson Drive and Kona Street	7:30 – 8:30 AM	5:00 – 6:00 PM

During the data collection at the intersection of Kapi'olani Boulevard and Kaheka Street/Mahukona Street, an accident occurred during the PM peak period along Kapi'olani Boulevard east of Kalakaua Avenue. Therefore, traffic counts from the *TIAR for Ala Moana 'Ewa Expansion* (WOC, 2012) were used to compare and balance the traffic data collected to best represent existing conditions. Vehicles were observed making prohibited turning movements at study intersections and thus were included in traffic volumes figures and existing conditions analysis. Peak hour vehicle volumes were balanced and are shown in Figure 12.

2. 24-Hour Volumes

Average daily traffic (ADT) along Kapi'olani Boulevard, based on Hawaii Department of Transportation (HDOT) *Historical Traffic Station Maps*, is shown in Table 2.

Table 2: Roadway ADT

Roadway	Station	Location	Year	ADT
Kapi'olani Boulevard	B727 503 00077	Between Sheridan Street and Ke'eaumoku Street	2010	46,000
	B727 503 00153	Between Atkinson Drive and Kalauokalani Way	2010	65,300

Source: *Historical Traffic Station Maps* (HDOT)

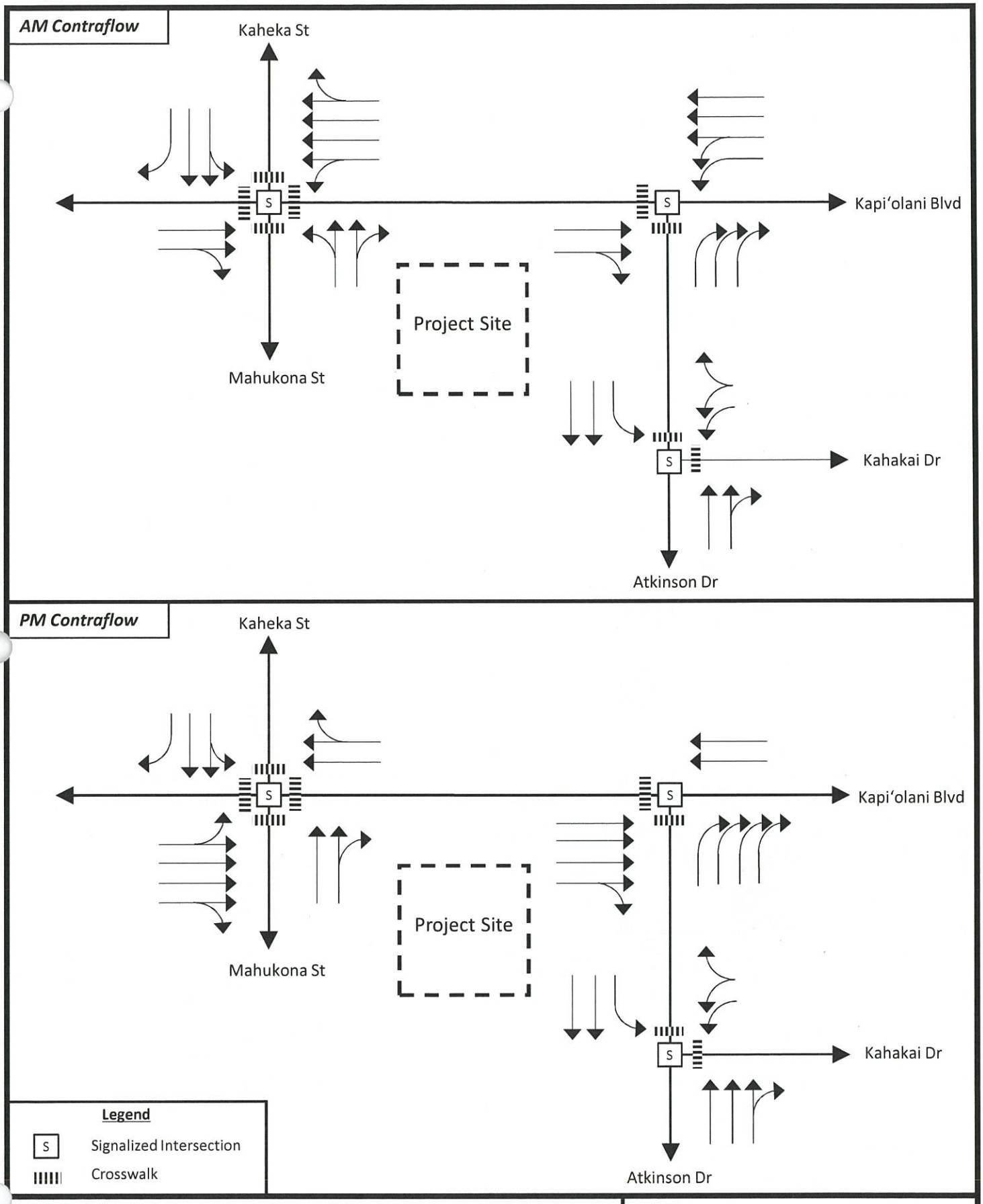

Figure 11: Existing (2014) Contraflow

Kapi'olani Residence – Honolulu, Hawai'i

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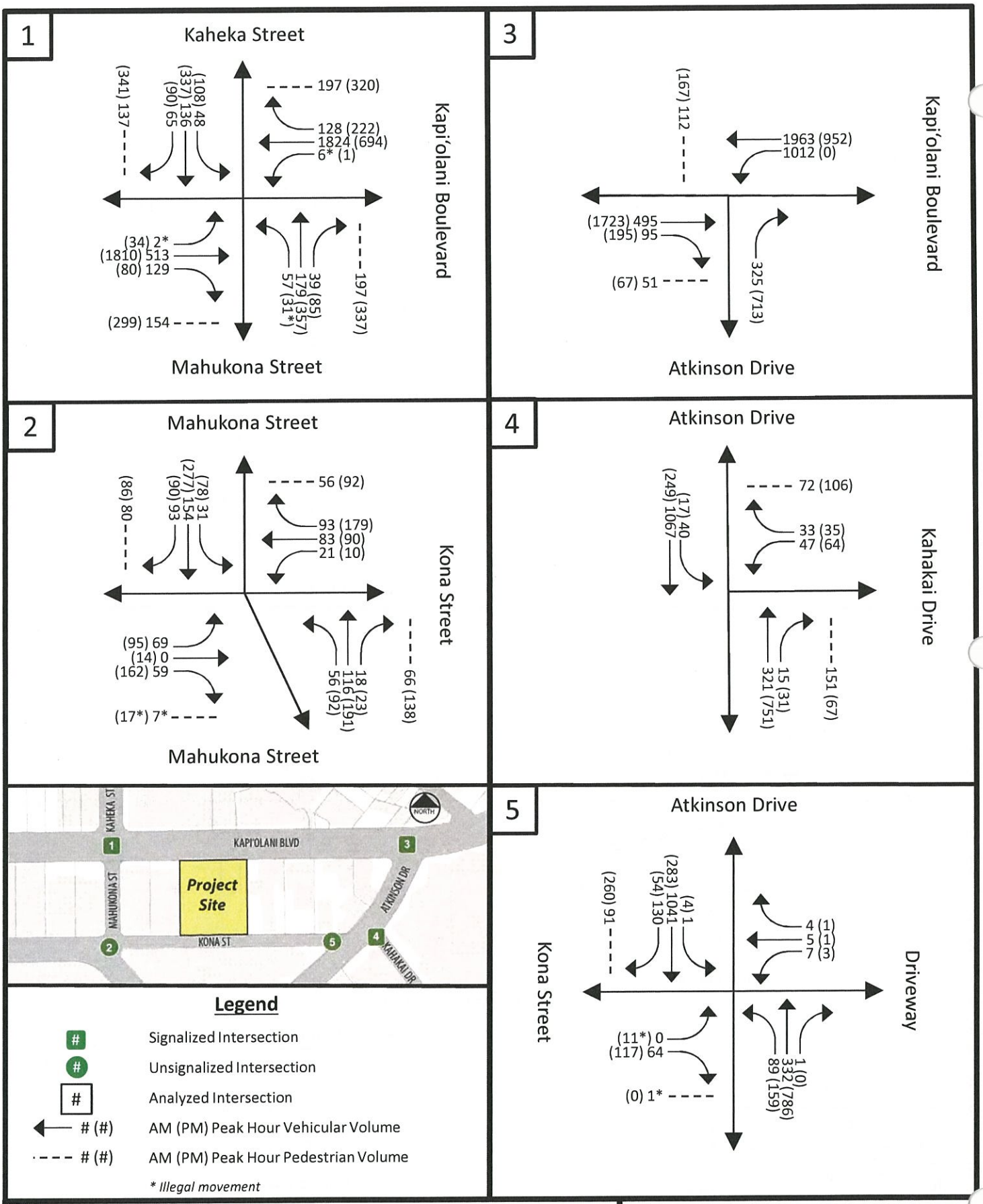

Figure 12: Existing (2014) Peak Hour Volumes

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3. Multi-Modal Volumes

a) Buses and Heavy Vehicles

Heavy vehicle movements consists of TheBus transit service, tourist bus/trolleys, and delivery trucks. Daily total ridership per stop for TheBus in the study area (see Table 3) was provided by the City and County of Honolulu, Department of Transportation Services, Public Transit Division.

Table 3: TheBus Daily Totals

Geoid	TheBus Stop	Daily Totals	
		On	Off
847	Kona Street, Opposite Kona Iki Street	3,053	1,174
1313	Kona Street, Opposite Kona Iki Street	19	1,544
425	Kona Street, Opposite Kona Iki Street	61	1,677
426*	Kona Street, Opposite Ke'eaumoku Street	2,723	38
760	Kona Street, Opposite Ke'eaumoku Street	356	246
427	Mahukona Street Atkinson Drive	12	17
602	Kapi'olani Boulevard – Eastbound, Pi'ikoi Street	157	360
603	Kapi'olani Boulevard – Eastbound, Kona Iki Street	479	691
999	Kapi'olani Boulevard – Eastbound, Ke'eaumoku Street	1,251	2,308
2989	Kapi'olani Boulevard – Eastbound, Ke'eaumoku Street	274	422
1000	Kapi'olani Boulevard – Eastbound, Atkinson Drive	260	427
985+	Kapi'olani Boulevard – Westbound, Atkinson Drive	327	340
3053	Kapi'olani Boulevard – Westbound, Kaheka Street	357	349
986**	Kapi'olani Boulevard – Westbound, Ke'eaumoku Street	1,738	1,762
3055	Kapi'olani Boulevard – Westbound, Kona Iki Street	148	108
4404	Kapi'olani Boulevard – Westbound, Pi'ikoi Street	208	150
Daily Totals		11,418	11,613

*-Per Ala Moana Area Bus Stop Listing dated August 2, 2014, bus stop is closed.
+-Not shown in Figure 7.
**-As of September 29, 2014, bus stop closed at Kapi'olani/Ke'eaumoku in the westbound direction.
Source: *City and County of Honolulu, DTS, Public Transit Division* (2013)

b) Pedestrians

Large pedestrian volumes were counted at the study intersections during the AM and PM peak hours (see Table 4) at the same time that vehicle turning movements were being counted. This is a result of the neighborhood being an urban district with high employment and residential accessibility. Additionally, a large number of pedestrians are generated by the TheBus transit center at Ala Moana Center.

Table 4: Intersection Peak Hour Pedestrian Volumes

Intersection	AM	PM
Kapi'olani Boulevard and Kaheka Street/ Mahukona Street	685	1,297
Kona Street and Mahukona Street	209	333
Kapi'olani Boulevard and Atkinson Drive	163	234
Atkinson Drive and Kahakai Drive	223	173
Atkinson Drive and Kona Street	92	260

c) Bicycles

Minimal bicycles were observed in the project area which are likely due to no dedicated on-street facilities being present, bicycling being prohibited on the sidewalk, and alternate parallel facilities existing.

D. Level of Service

1. Methodology

Level of service (LOS) is an operational analysis rating system used in traffic engineering to measure the effectiveness of roadway operating conditions. There are six LOS ranging from A to F. LOS A is defined as being the least interrupted flow conditions with little or no delays, whereas LOS F is defined as conditions where extreme delays exist. Guidelines from *A Policy on Geometric Design of Highways and Streets* (AASHTO, 2011) states that appropriate LOS for an urban road is LOS D or better. *Synchro Version 9.0* utilizes the methodology of the *Highway Capacity Manual* (*HCM*) (TRB, 2000 and TRB, 2010) to calculate delay and LOS. With the updates of the 2010 *HCM*, certain intersections were not considered NEPA-compliant and thereby not able to be tabulated. Therefore HCM 2000 methodology were used when analyzing intersection analysis in *Synchro*.

Pedestrian conflict volumes were included to reflect delay resulting from the conflict of turning vehicles and crossing pedestrians progressing in the same signal timing phase. For roadways and intersections near capacity the actual LOS may be worse than reported because intersection delay analysis is performed based on traffic volumes that are able to pass through intersections rather than on the actual demand volumes.

a) Two-Way Stop Controlled Intersection

The Highway Capacity Manual (TRB, 2010) LOS for a two-way stop controlled (TWSC) intersection is determined by the measured control delay (see Table 5). It is defined for each minor movement, not for the intersection as a whole. Vehicles traveling along the major, free-flow road, of a TWSC intersection, proceed through with minimal delay. Those vehicles approaching the intersection along the minor movement are controlled by a stop sign and thus experience delay attributable to the volume of vehicles passing along the free-flow road and the gaps available.

Table 5: LOS Criteria for Unsignalized Intersections

Average Control Delay (s/veh)	LOS by v/c Ratio	
	<=1.0	>1.0
≤ 10.0	A	F
>10 and ≤15	B	F
>15 and ≤25	C	F
>25 and ≤35	D	F
>35 and ≤50	E	F
>50	F	F

Source: *HCM* (TRB, 2010)

b) Signalized Intersection

The LOS analysis for signalized intersections is based on average total vehicle delay based on the methodologies of the *HCM* (TRB, 2010) shown in Table 6. High numbers of vehicles passing the intersection, long cycle lengths, inappropriate signal phasing, or a poor signal progression can result in long delays, and consequently poor LOS.

Table 6: LOS Criteria for Signalized Intersections

Average Control Delay (s/veh)	LOS by v/c Ratio	
	<=1.0	>1.0
≤ 10.0	A	F
>10 and ≤20	B	F
>20 and ≤35	C	F
>35 and ≤55	D	F
>55 and ≤80	E	F
>80	F	F

Source: *HCM* (TRB, 2010)

Another measure of intersection operation is the volume to capacity (v/c) ratio. This is the ratio of the volume of traffic utilizing the intersection compared to the maximum volume of vehicles that can be accommodated by the intersection during a specific period of time. A v/c ratio under 0.85 means the intersection is operating under capacity and excessive delays are not experienced. An intersection is operating near its capacity when v/c ratios range from 0.85 to 0.95. Unstable flows are expected when the v/c ratio is between 0.95 and 1.0. Any v/c ratio greater than or equal to 1.0 indicates that the intersection is operating at or above capacity which results in a LOS F per the *HCM* (TRB, 2010). A traffic movement can have a poor LOS but low v/c which suggests that the traffic volumes along that movement are low but have to wait a long time to make the movement. This is common for low volume protected turn movements or side streets that have to wait through a long cycle length for their split to come up.

2. Intersection Conditions

Existing (2014) unsignalized and signalized intersection LOS and delay were determined for the AM and PM peak hours (see Tables 7 and 8). Intersection traffic signal timing was optimized for the network which resulted in retaining the existing cycle length with updates to split times. Detailed analysis reports for these intersections during Existing (2014) conditions are provided in Appendix C. All signalized intersection conditions reported appropriate LOS although the southbound approach of Mahukona Street and Kona Street has LOS F in the PM peak hour and the eastbound approach of Atkinson Drive and Kona Street is LOS E in the PM peak hour. V/C for these movements were high but still less than 1.0 thereby suggesting additional capacity exists.

Table 7: Existing (2014) Unsignalized Intersection Level of Service

Unsignalized Intersection	Approach	Movement	AM			PM		
			Delay (s/veh)	v/c	LOS	Delay (s/veh)	v/c	LOS
Mahukona Street and Kona Street	Eastbound	LTR	9.9	0.21	A	24.2	0.64	C
	Westbound	LTR	10.6	0.30	B	24.4	0.65	C
	Northbound	LTR	10.7	0.30	B	29.4	0.73	D
	Southbound	LTR	11.7	0.41	B	**63.8**	0.98	**F**
Atkinson Drive and Kona Street	Eastbound	R	11.1	0.10	B	**43.8**	0.62	**E**
	Northbound	L	12.2	0.16	B	11.1	0.23	B

Table 8: Existing (2014) Signalized Intersection Level of Service

Signalized Intersection		AM			PM		
Approach	**Movement**	**Delay (s/veh)**	**v/c**	**LOS**	**Delay (s/veh)**	**v/c**	**LOS**
Kapi'olani Boulevard and Kaheka Street/Mahukona Street		19.7	0.54	B	22.0	0.63	C
Eastbound	T/TR (AM)	15.2	0.42	B	-		
	LT/T/T/TR (PM)	-			23.6	0.72	C
Westbound	LT/T/T/TR (AM)	18.8	0.68	B			
	T/TR (PM)	-			12.8	0.62	B
Northbound	LT/TR (AM)	29.2	0.32	C	-		
	T/TR (PM)	-			26.8	0.43	C
Southbound	LT/T	27.8	0.22	C	28.8	0.51	C
	R	27.0	0.14	C	23.6	0.17	C
Kapi'olani Boulevard and Atkinson Drive		4.8	0.73	A	11.6	0.54	B
Eastbound	T/TR (AM)	18.6	0.49	B	-		
	T/T/T/TR (PM)	-			9.7	0.65	A
Westbound	L (AM)	9.3	0.64	A	-		
	LT/T/T (AM)	0.8	0.67	A	-		
	T/T (PM)	-			22.8	0.58	C
Northbound	R/R/R (AM)	1.5	0.10	A	-		
	R/R/R/R (PM)	-			1.9	0.41	A
Atkinson Drive and Kahakai Drive		23.7	0.41	C	37.5	0.23	D
Westbound	L/LR	19.5	0.05	B	9.2	0.05	A
Northbound	T/TR (AM)	25.4	0.28	C	-		
	T/T/TR (PM)	-			43.7	0.70	D
Southbound	L	16.1	0.11	B	30.6	0.15	C
	T/T	23.8	0.70	C	29.7	0.25	C

Note: Lane configurations vary during AM and PM peak hours due to contraflow along Kapi'olani Boulevard. Movements are shown for AM and PM contraflow configurations. L = Left, T = Through, R = Right, (AM) = AM Contraflow, (PM) = PM Contraflow, / = lane separation, LT = shared lane for left-through movements, TR = shared lane for through-right movements, LR = shared lane for left-right movements.

E. Areas of Concern and Proposed Mitigation

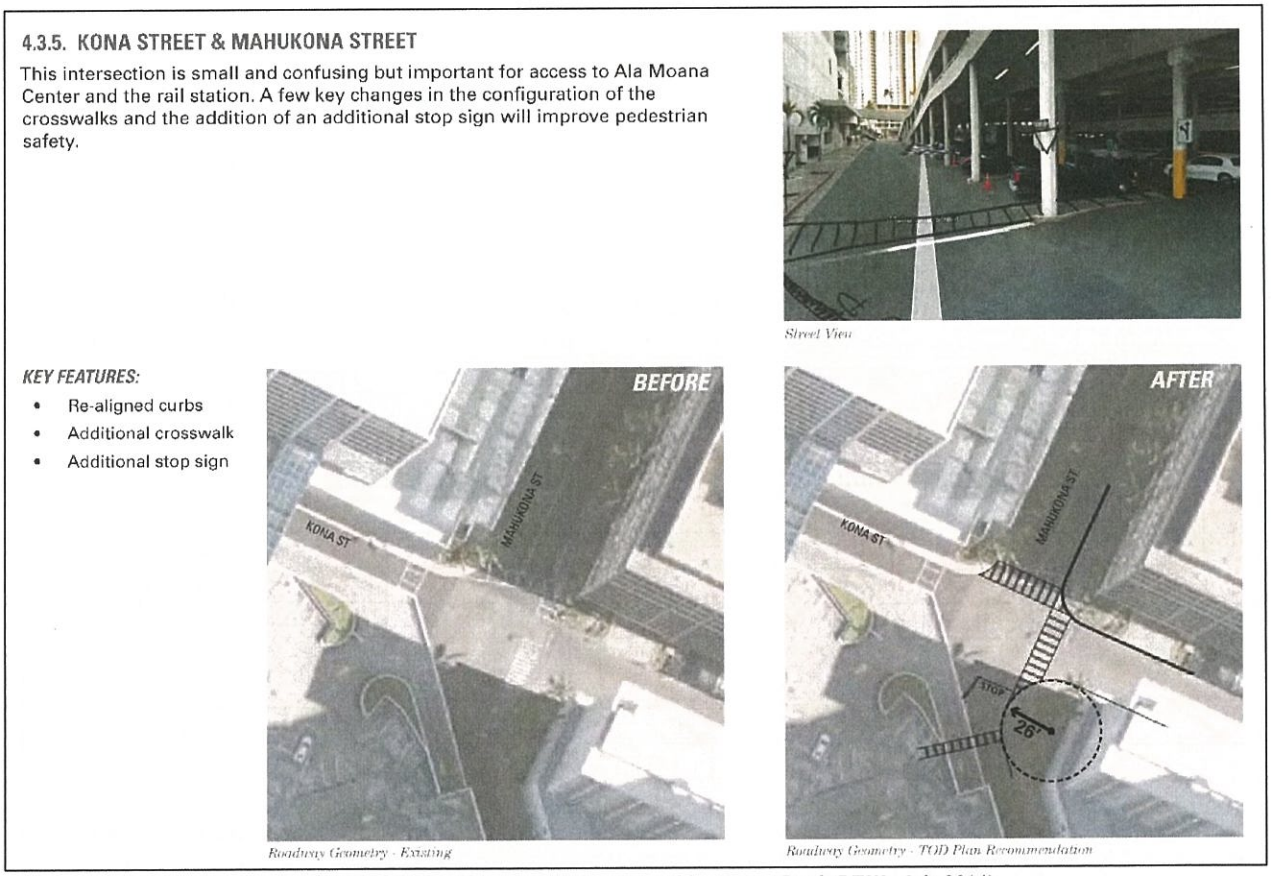
Existing project area conditions had some areas of concern noted through field observations and operational analysis. Mitigations are proposed for each area of concern.

1. Intersection Conditions

a) Mahukona Street and Kona Street

The unsignalized intersection of Mahukona Street and Kona Street resulted in LOS F for the southbound movement during the PM peak hour. Traffic signal warrants did not pass for the Peak Hour Warrant and the Four-Hour Warrant using existing traffic volumes. Therefore, with v/c less than 1.0, no additional

mitigation is recommended to improve operations. A second concern is the intersection geometry which is confusing due to a lack of defined travelway. There is a wide median though Kona Street, on the 'Ewa side, and through Mahukona Street, on the makai side. Ala Moana TOD notes that this intersection is of concern. Figure 13 below shows proposed mitigation to this intersection, including marked crosswalks on all legs.



Source: *Ala Moana Neighborhood Transit-Oriented Development Plan, Public Review Draft* (RTKL, July 2014)

Figure 13: Ala Moana TOD Kona Street and Mahukona Street Mitigation

b) Atkinson Drive and Kona Street

The eastbound approach at the intersection of Atkinson Drive and Kona Street results in LOS E. But a v/c less than 1.0 suggests sufficient capacity. The poor LOS could be due to the delay for a gap from the makai-bound through volumes during the PM peak period. The adjacent traffic signal at Atkinson Drive and Kahakai Drive should provide a gap during the side-street movement and the clearance interval.

There is a wide receiving lane and crosswalk across Kona Street. This results in some vehicles making an illegal left turn as well as resulting in pedestrians having a long crossing distance. It is recommended to consider enlarging the raised island to shorten the crosswalk and delineate turn movements.

c) Kapi'olani Boulevard and Kaheka Street/Mahukona Street

This intersection operates appropriately and has marked crosswalks on all legs of the intersection. Existing wide travelways could be marked to reflect how vehicles are treating the mauka-bound approach, or bulb outs could be included to shorten the pedestrian crossing and narrow the travel lanes to what is needed by the design vehicle.

d) Atkinson Drive and Kapi'olani Boulevard

The intersection of Atkinson Drive and Kapi'olani Boulevard has marked crosswalks on two legs of the intersection but is missing one across the Diamond Head leg, adjacent to the Convention Center. In the current configuration, with four lanes of right-turning traffic, an adjacent crosswalk that was permitted at the same time would be hazardous. Therefore, the only options would be to have a pedestrian signal on a separate phase or to provide a grade-separated crossing.

e) Atkinson Drive and Kahakai Drive

A marked crosswalk exists across the mauka leg of Atkinson Drive at the intersection with Kahakai Drive. This is approximately 200 feet from the crosswalk at the intersection with Kapi'olani Boulevard. A crosswalk on the makai leg of the intersection with Kahakai Drive would align with Kona Street and provide a 300-foot spacing from the intersection with Atkinson Drive. It is recommended to consider installing an additional crosswalk here or relocating the existing mauka-leg crosswalk to this side with a pedestrian signal and push-button activation.

IV. FUTURE (2017) CONDITIONS

Full build-out and occupancy of Kapi'olani Residence is planned for 2017 and therefore the Future Without Project (no-action) and Future With Project (full-build) conditions were evaluated for that year. Roadway changes and additional traffic as a result of surrounding area development and construction anticipated to be completed were considered for Future (2017) Without Project analysis. Project related volumes and proposed transportation network changes as a result of Kapi'olani Residence were included in Future (2017) With Project conditions.

A. Surrounding Area Conditions

Research through the State of Hawaii Office of Environmental Quality Control (OEQC) library showed no adjacent projects planned for construction by 2017. City and County of Honolulu Planning and Traffic personnel reported there are six development projects in the early planning stages for sites in the surrounding area with potential construction planned by 2017. The Ala Moana 'Ewa wing expansion is currently under construction and has a final traffic impact analysis report. There were projects being constructed during the time of writing this report including Kalakaua Gardens, located at 1723 Kalakaua Avenue, and The Plaza Assisted Living, located at 1812 across from the Hawaii Convention Center. Both of these projects are senior housing. At the mauka-east intersection corner of Kapi'olani Boulevard and Ke'eaumoku Street the existing Walgreens is being reconstructed. General background growth was used to estimate anticipated growth in the area by these and other unspecified developments. Plans for final construction of the Honolulu Rail Transit guideway and rail station estimate full-build out and operation by 2019 and therefore were not included in Future (2017) conditions analysis.

B. Transportation Network

1. Vehicular Facilities

a) Passenger Vehicles

Primary vehicular access to Kapi'olani Residence is being proposed through a single right-in/right-out driveway off Kapi'olani Boulevard. This condition is consistent with similar condominium developments in the area. Secondary full-access is being proposed off of Kona Street; this access is proposed for delivery vehicles and access to the first floor parking lot.

b) Bus and Heavy Vehicles

Changes are expected at the Ala Moana transit center, which are considered to be completed in advance of the Honolulu Rail Transit system opening. Such changes may include alterations of available routes, the location of the bus stops, and queuing. It is not expected that this will have a significant effect on this project.

2. Pedestrian Facilities

The latest ground level site plan for Kapi'olani Residence proposes to install sidewalks adjacent to the project site fronting Kona Street and Kapi'olani Boulevard.

3. Bicycle Facilities

Future bikeways included in the *Oahu Bike Plan, A Bicycle Master Plan* (HH&F, August 2012) are shown on Figure 9. Priority 1 projects in the project area anticipated to be built in the next five to ten years include a bike route along Pi'ikoi Street as well as transformation of the cycle track along South King Street to allow two-way movement.

C. Geometric Configuration

With limited right-of-way in this urban transportation network, no changes in roadway configuration are expected. Future (2017) conditions are evaluated using existing lane configurations which are shown in Figure 10.

D. Traffic Volumes

1. Background Growth

Changes in traffic volume along roadways in the surrounding area over the past ten years have been mixed. Despite large scale development and increased density from high-rise condominiums, vehicular traffic volumes have not grown at a steady rate. A decrease in ADT is noted for some roadways but large increases for others. This may be due to a change in motorist travel habits as a result of certain roadways operating at capacity or due to roadway construction projects on Kapi'olani Boulevard and on Ala Moana Boulevard. The *Ala Moana Neighborhood Transit-Development Plan, Existing Conditions Report, Supplement – Market Opportunities Study* (KMA, October 2012) forecasts a 1.75% cumulative growth in population for the area between the years 2013 and 2018. Although population growth is not directly related to traffic growth, a conservative 2.0% was assumed for traffic growth which is in line with prior studies in the area. This reflects current and future development planned for the area. Known project related trips generated from the Ala Moana 'Ewa wing expansion were included. Future (2017) Without Project Volumes are shown in Figure 14 which includes the anticipated growth.

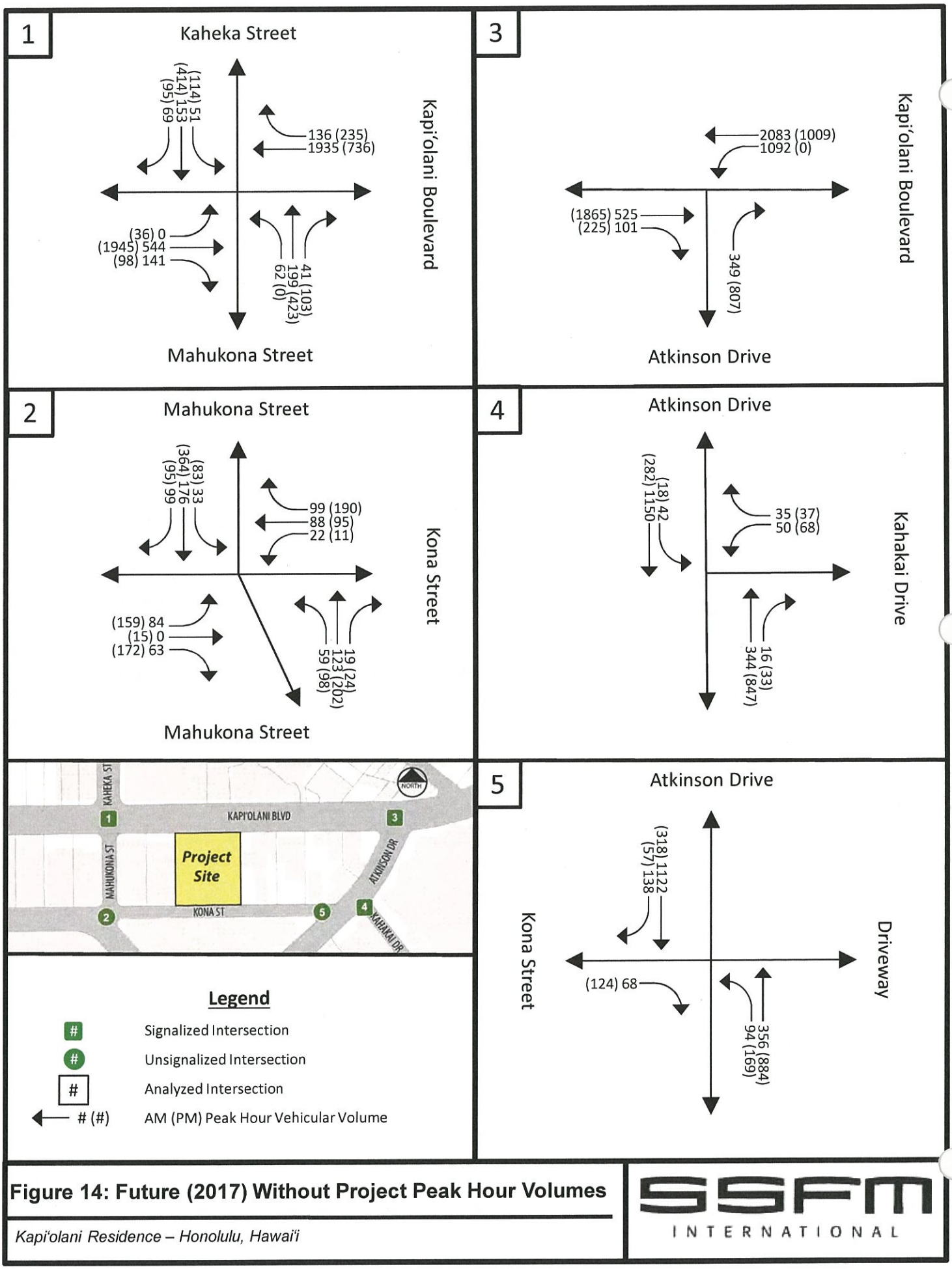


Figure 14: Future (2017) Without Project Peak Hour Volumes

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2. Project Related Volumes

The addition of trips resulting from Kapi'olani Residence was calculated using the four step trip generation methodology: trip generation, trip distribution, modal choice, route assignment.

a) Trip Generation

The proposed Kapi'olani Residence is planning to include affordable condominium units and a small commercial area. Resulting trip generation for the proposed development was calculated using *Trip Generation, 8th Edition* (ITE, 2008) and related trip generation rates are shown in Table 9. The commercial area was assumed to be similar to the "specialty retail" land use which includes a variety of retail shops and specialized services. "Specialty retail" land use typically opens after the morning peak hour of traffic, which results in no project related trips calculated for the AM peak hour. Resulting trip generation volumes for the AM and PM peak hours are shown in Table 10.

Table 9: Development Trip Generation Rates

Land Use [ITE Code]	Qty	Units	Trip Generation Average Rate	
			AM	PM
High Rise Residential Condominiums [232]	485	Dwelling Units	0.34	0.38
Specialty Retail [814]	3,427	Square Feet	0.00	2.71

Table 10: Development Trip Generation Volumes

Land Use [ITE Code]	Project Related Trips					
	AM			PM		
	In	Out	Total	In	Out	Total
High Rise Residential Condominiums [232]	31	134	165	114	70	184
Specialty Retail [814]	0	0	0	4	5	9

Methodologies described in *Trip Generation Handbook, 2nd Edition* (ITE, June 2004) state that although total project trips are calculated for a specified development, the total trips will not necessarily be new vehicles added to the adjacent roadways. The three types of project related trips considered are pass-by trips, diverted trips and primary trips. The definition of each type of trip is shown in Table 11.

Table 11: Project Related Trip Definitions

Type	Definition
Pass-by	Traffic currently passing the site on an adjacent street or roadway that offers direct access to the generator.
Diverted	Trips that are attracted from the traffic volume on roadways within the vicinity of the generator but require a diversion from that roadway to another roadway to gain access to the site.
Primary	Trips made for the specific purpose of visiting the generator. The stop at the generator is the primary reason for the trip.

Source: *Trip Generation Handbook, 2nd Edition* (ITE, June 2004)

The developer's intent for the commercial area of the condominium is to serve the pedestrian passer-by traffic including the internal condominium residents, be consistent with TOD, and provide for users of the rail system. No separate parking will be provided for patrons of the commercial space. Therefore, all external commercial trips, including customer and employee based trips, will be considered pass-by or diverted pedestrian trips. Therefore the only trips considered for distribution are those generated by the residential units.

b) Trip Distribution

Existing and future tripmakers' origin and destination were considered when evaluating future travel in the area. The *Kakaako Mauka Area Plan Transportation Analysis* (AECOM, April 2009) identified the future trip distribution trends (see Figure 15) using the *OahuMPO Travel Demand Forecast Model*. This future trip distribution is considered applicable for the Kapi'olani Residence development because the study area is directly adjacent to the project site.

The following trip distribution was assumed for the project related trips:

- 'Ewa bound (via surface streets): 25%
- Diamond Head bound (via surface streets): 22%
- 'Ewa bound (via H-1): 19%
- Diamond Head bound (via H-1): 24%
- Mauka bound: 3%; and,
- Within the project area: 7%.

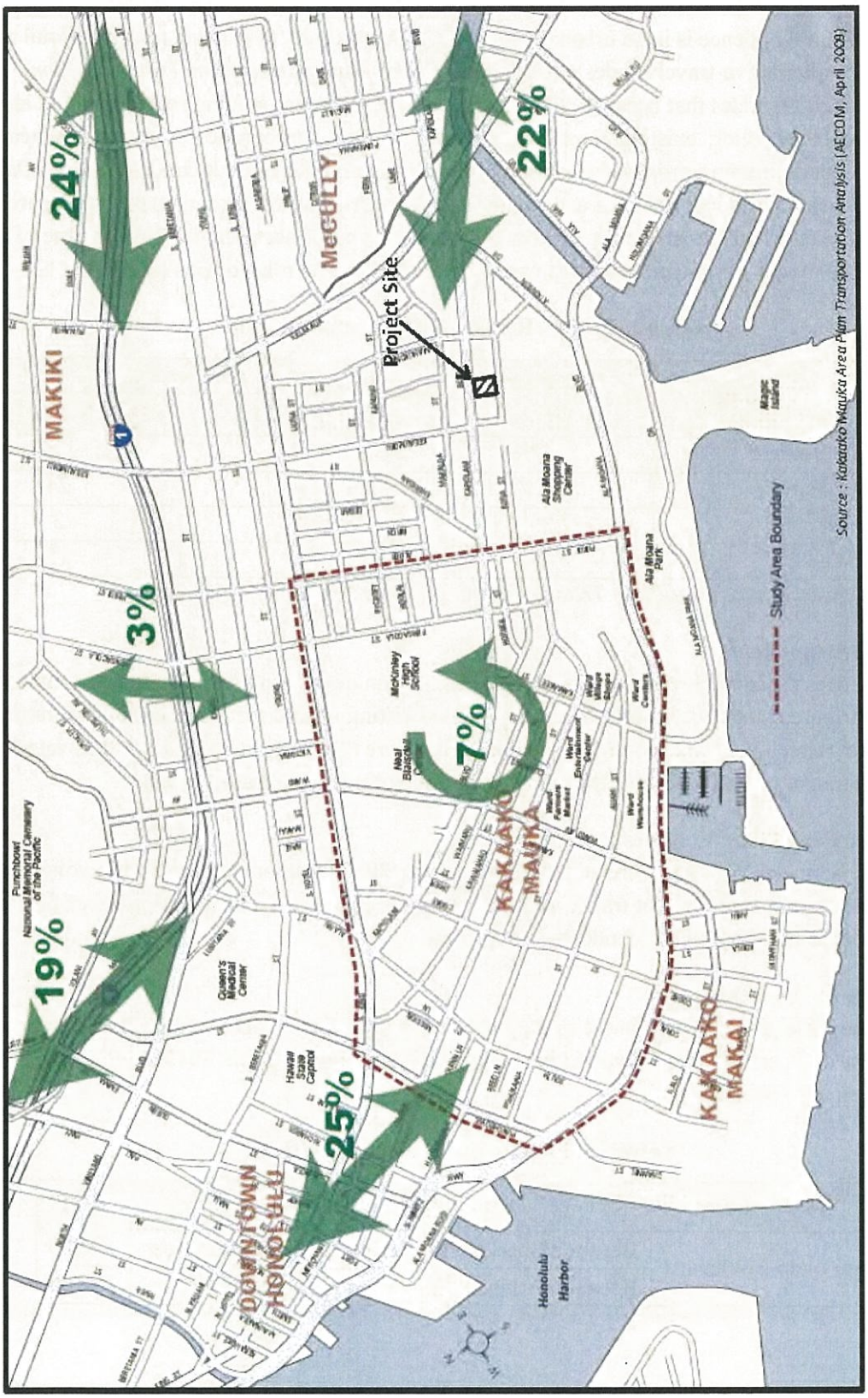

Figure 15: Future Trip Distribution

c) Modal Choice

Because Kapi'olani Residence is in an urban setting with high proximity to existing transit and rail options, a high degree of alternative travel modes exist. The *Kakaako Mauka Area Plan Transportation Analysis* (AECOM, April 2009) states that because of the difficulty in estimating ongoing redevelopment and TOD elements on travel behavior, existing modal split is still deemed appropriate for use in the near term. Kapi'olani Residence is being proposed for affordable housing and therefore it can be assumed that there will be a lower use of personal vehicles and higher use of other transportation modes as compared to an similar sized market-priced development. However, as a "worst case" scenario (highest volume of vehicle trips) the existing modal split percentage was used to calculate project related trips (see Table 12).

Table 12: Project Related Transportation Mode

Transportation Mode	Percentage *	Residential	
		AM Peak Hour	PM Peak Hour
Private Vehicle	76.9%	127	142
Transit	12.8%	21	24
Bike	2.3%	4	3
Walk	8.0%	13	15

* Source: *Kakaako Mauka Area Plan Transportation Analysis* (AECOM, April 2009)

d) Route Assignment

Project related trips associated with the proposed condominium development during the AM and PM peak hours were distributed along the adjacent roadways using existing intersection distribution and future travel patterns. Project related vehicular volumes (see Figure 16) were distributed through the study intersections. Project related transit use will increase the demand for and volume from transit riders.

3. Future Peak Hour Volumes

Project related vehicular volumes were added to the Future (2017) Without Project traffic volumes for the resulting Future (2017) With Project traffic volumes shown in Figure 17. This is reflective of future traffic conditions after the build out of the condominium project.

4. Future 24-Hour Volumes

Considering the anticipated growth in the area, projected Future (2017) ADT in the project area is shown in Table 13. The difference between Future (2017) Without Project and Future (2017) With Project roadway ADT is anticipated to be negligible.

Table 13: Future (2017) Roadway ADT

Roadway	Location	ADT
Kapi'olani Boulevard	Between Sheridan Street and Ke'eaumoku Street	52,900
	Between Atkinson Drive and Kalauokalani Way	75,100

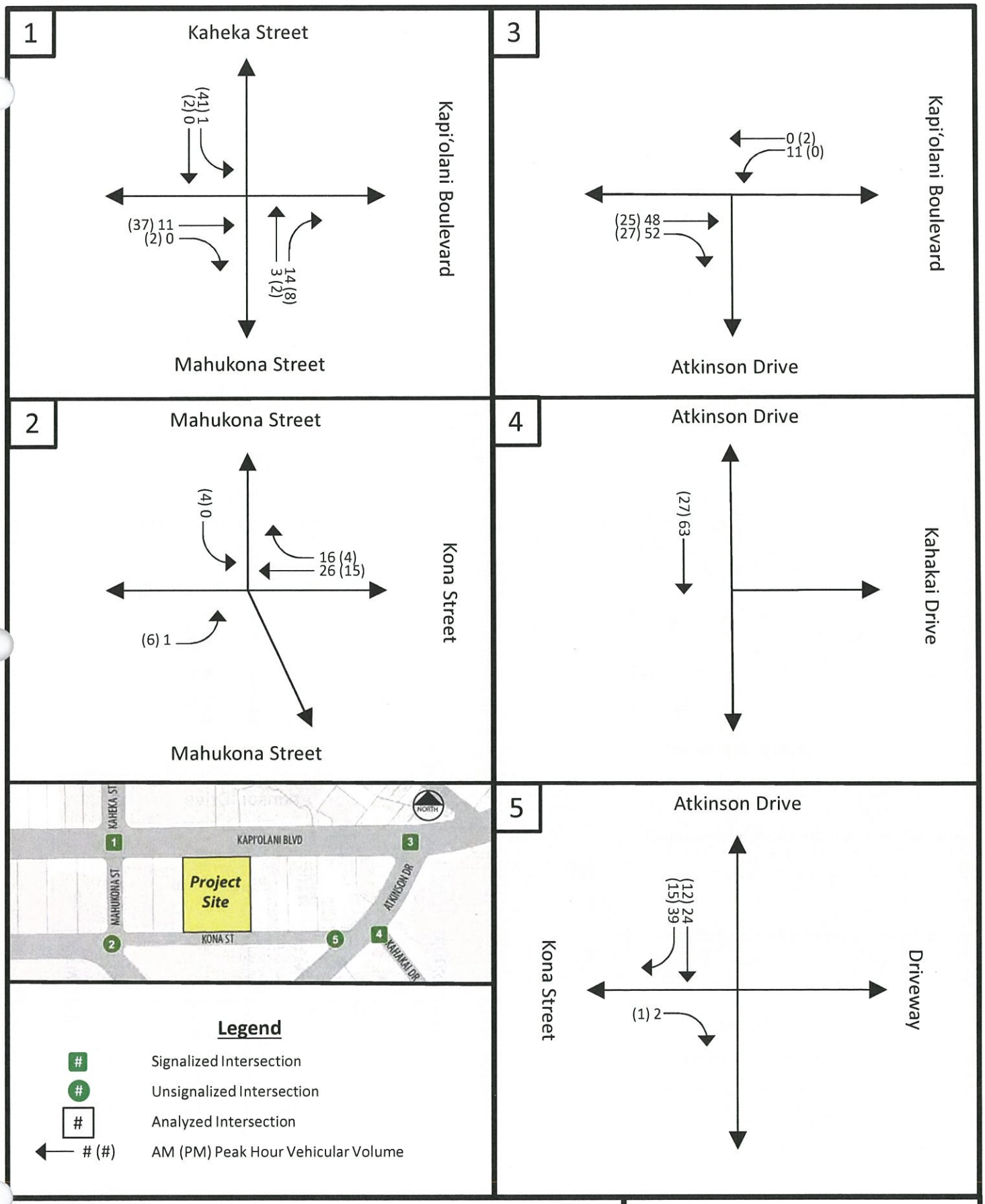

Figure 16: Project Related Peak Hour Volumes

Kapi'olani Residence – Honolulu, Hawai'i

SSFM INTERNATIONAL

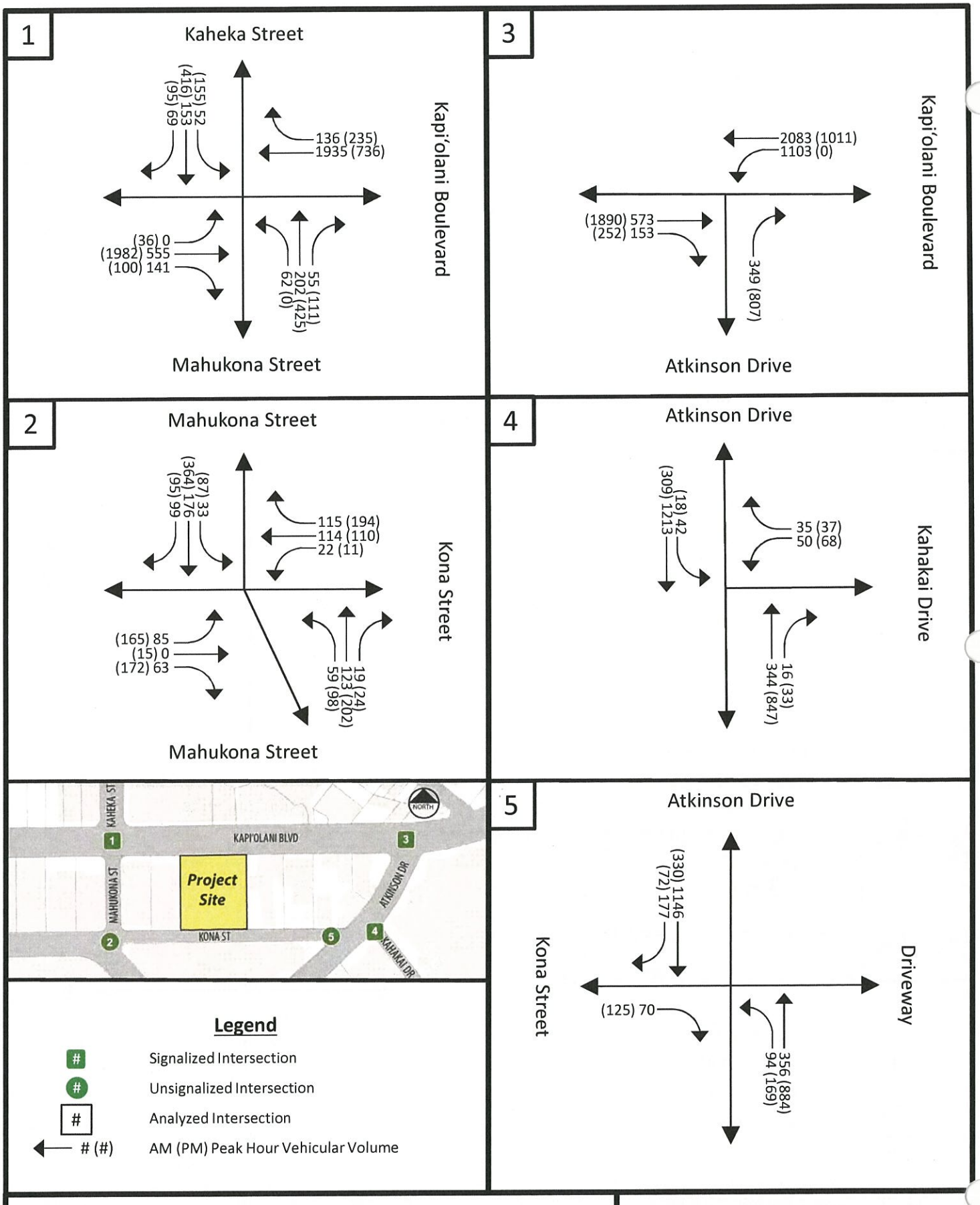

Figure 17: Future (2017) With Project Peak Hour Volumes

Kapi'olani Residence – Honolulu, Hawai'i

SSFM INTERNATIONAL

5. Multi-Modal Volumes

a) Buses and Heavy Vehicles

It is anticipated that for Future (2017) conditions, Ala Moana will remain the primary transfer point for TheBus system. It is expected that transit service will adjust to Future (2017) conditions and accommodate the changes in transit demand.

b) Pedestrians

It is anticipated that with additional TOD development in the area, pedestrian volumes will increase, as will the facilities and infrastructure to accommodate them.

c) Bicycles

As with pedestrian increase, the TOD development in the area, as well as the additional dedicated bicycle facilities will increase volumes in the area. Although, without dedicated bicycle facilities along Kapi'olani Boulevard, and cyclists prohibited on the sidewalk, this increase will likely be to adjacent facilities.

E. Level of Service

1. Intersection Conditions

a) Future (2017) Without Project

For Future (2017) Without Project traffic volumes, signal timing were optimized for the network using the *Synchro* model. The greater intersection and approach delay for Future (2017) Without Project conditions is reflective of the anticipated traffic volume growth in the surrounding area (see Table 14 and 15). Table 15 shows that during the PM peak hour, the eastbound and northbound approaches at the intersection of Mahukona Street and Kona Street resulted in LOS E, while the southbound approach continues to operate at LOS F and had a v/c = 1.0. At the intersection of Atkinson Drive and Kona Street, the eastbound right turn continues to operate at LOS E during the PM peak hour but has a low v/c. All signalized intersections resulted in appropriate LOS D or better. Appendix D provides detailed analysis reports for the Future (2017) Without Project conditions.

Table 14: Future (2017) Without Project Unsignalized Intersection Level of Service

Unsignalized Intersection	Approach	Movement	AM			PM		
			Delay (s/veh)	v/c	LOS	Delay (s/veh)	v/c	LOS
Mahukona Street and Kona Street	Eastbound	LTR	10.6	0.25	B	**47.1**	0.87	**E**
	Westbound	LTR	11.3	0.34	B	33.6	0.76	D
	Northbound	LTR	11.4	0.33	B	**44.1**	0.84	**E**
	Southbound	LTR	13.0	0.48	B	**73.1**	1.00	**F**
Atkinson Drive and Kona Street	Eastbound	R	11.4	0.11	B	**36.1**	0.55	**E**
	Northbound	L	13.2	0.18	B	11.4	0.25	B

Table 15: Future (2017) Without Project Signalized Intersection Level of Service

Signalized Intersection		AM			PM		
Approach	**Movement**	**Delay (s/veh)**	**v/c**	**LOS**	**Delay (s/veh)**	**v/c**	**LOS**
Kapi'olani Boulevard and Kaheka Street/Mahukona Street		20.0	0.55	C	23.1	0.71	C
Eastbound	T/TR (AM)	15.8	0.44	B	-		
	LT/T/T/TR (PM)	-			24.8	0.78	C
Westbound	LT/T/T/TR (AM)	19.2	0.68	B			
	T/TR (PM)	-			12.4	0.62	B
Northbound	LT/TR (AM)	29.0	0.34	C	-		
	T/TR (PM)	-			27.2	0.43	C
Southbound	LT/T	27.4	0.24	C	32.1	0.62	C
	R	26.5	0.14	C	24.5	0.20	C
Kapi'olani Boulevard and Atkinson Drive		5.0	0.80	A	10.5	0.59	B
Eastbound	T/TR (AM)	15.5	0.46	B	-		
	T/T/T/TR (PM)	-			8.6	0.66	A
Westbound	L (AM)	12.7	0.71	B	-		
	LT/T/T (AM)	1.1	0.73	A	-		
	T/T (PM)	-			20.5	0.57	C
Northbound	R/R/R (AM)	1.3	0.11	A	-		
	R/R/R/R (PM)	-			2.9	0.50	A
Atkinson Drive and Kahakai Drive		21.2	0.44	C	37.1	0.26	D
Westbound	L/LR	22.1	0.06	C	10.4	0.05	B
Northbound	T/TR (AM)	22.4	0.27	C	-		
	T/T/TR (PM)	-			41.4	0.70	D
Southbound	L	14.0	0.11	B	51.4	0.15	D
	T/T	21.0	0.70	C	32.6	0.26	C

Note: Lane configurations vary during AM and PM peak hours due to contraflow along Kapi'olani Boulevard. Movements are shown for AM and PM contraflow configurations. L = Left, T = Through, R = Right, (AM) = AM Contraflow, (PM) = PM Contraflow, / = lane separation, LT = shared lane for left-through movements, TR = shared lane for through-right movements, LR = shared lane for left-right movements.

b) Future (2017) With Project

Future (2017) With Project LOS and v/c ratios for the study intersections are shown in Tables 16 and 17. Detailed analysis reports for Future (2017) With Project conditions are provided in Appendix E. For Future (2017) With Project conditions, during the PM peak hour, all approaches of the Mahukona Street and Kona Street intersection operate at LOS E and LOS F. The eastbound approach at the intersection of Atkinson Drive and Kona Street operates at LOS E but has a low v/c. The signalized intersections continue to operate at appropriate LOS D or better.

Table 16: Future (2017) With Project Unsignalized Intersection Level of Service

Unsignalized Intersection	Approach	Movement	AM			PM		
			Delay (s/veh)	v/c	LOS	Delay (s/veh)	v/c	LOS
Mahukona Street and Kona Street	Eastbound	LTR	10.9	0.26	B	**54.4**	0.91	**F**
	Westbound	LTR	12.4	0.41	B	**40.9**	0.82	**E**
	Northbound	LTR	11.8	0.34	B	**48.7**	0.87	**E**
	Southbound	LTR	13.6	0.49	B	**74.5**	**1.00**	**F**
Atkinson Drive and Kona Street	Eastbound	R	11.7	0.12	B	**36.7**	0.56	**E**
	Northbound	L	13.9	0.20	B	11.6	0.25	B

Table 17: Future (2017) With Project Signalized Intersection Level of Service

Signalized Intersection		AM			PM		
Approach	Movement	Delay (s/veh)	v/c	LOS	Delay (s/veh)	v/c	LOS
Kapi'olani Boulevard and Kaheka Street/Mahukona Street		20.2	0.56	C	24.4	0.76	C
Eastbound	T/TR (AM)	15.9	0.44	B	-		
	LT/T/T/TR (PM)	-			27.0	0.82	C
Westbound	LT/T/T/TR (AM)	19.2	0.68	B			
	T/TR (PM)	-			12.9	0.64	B
Northbound	LT/TR (AM)	29.3	0.36	C	-		
	T/TR (PM)	-			26.2	0.43	C
Southbound	LT/T	27.5	0.24	C	33.2	0.68	C
	R	26.5	0.14	C	23.6	0.19	C
Kapi'olani Boulevard and Atkinson Drive		6.0	0.82	A	10.4	0.60	B
Eastbound	T/TR (AM)	16.8	0.53	B	-		
	T/T/T/TR (PM)	-			8.7	0.67	A
Westbound	L (AM)	15.6	0.72	B	-		
	LT/T/T (AM)	1.2	0.75	A	-		
	T/T (PM)	-			19.7	0.56	B
Northbound	R/R/R (AM)	2.0	0.12	A	-		
	R/R/R/R (PM)	-			3.0	0.52	A
Atkinson Drive and Kahakai Drive		19.7	0.46	B	36.8	0.26	D
Westbound	L/LR	24.2	0.06	C	10.4	0.05	B
Northbound	T/TR (AM)	20.1	0.25	C	-		
	T/T/TR (PM)	-			41.4	0.70	D
Southbound	L	12.8	0.10	B	50.0	0.15	D
	T/T	19.5	0.70	B	32.0	0.29	C

Note: Lane configurations vary during AM and PM peak hours due to contraflow along Kapi'olani Boulevard. Movements are shown for AM and PM contraflow configurations. L = Left, T = Through, R = Right, (AM) = AM Contraflow, (PM) = PM Contraflow, / = lane separation, LT = shared lane for left-through movements, TR = shared lane for through-right movements, LR = shared lane for left-right movements.

F. Mitigation

The proposed Kapi'olani Residence proposes to develop a site that previously generated minimal trips. This new project for affordable housing is projected to add vehicular and multi-modal traffic to the immediate area. The City and County of Honolulu, DTS has requested limited driveway access to the project site along Kapi'olani Boulevard with a single right-in/right-out driveway to reduce delay to vehicles traveling straight through along Kapi'olani Boulevard. A secondary, full-access, driveway off of Kona Street is proposed to serve delivery and residential vehicular access and is not expected to have a significant impact on delay. The secondary access will be located at the same location of the existing driveway off of the privately owned Kona Street; this will likely need to be coordinated with the owner, General Growth Properties.

1. Intersection Conditions

a) Mahukona Street and Kona Street

The intersection of Mahukona Street and Kona Street passed the Peak Hour signal warrant for Future (2017) Without Project using the PM peak hour volumes. Resulting intersection operations would be acceptable as a signalized intersection during the Future (2017) Without and With Project conditions (see Tables 18 19).

Table 18: Mahukona Street and Kona Street Future (2017) Without Project Signalized Mitigation

Signalized Intersection		AM			PM		
Approach	Movement	Delay (s/veh)	v/c	LOS	Delay (s/veh)	v/c	LOS
Mahukona Street and Kona Street		8.1	0.41	A	19.7	0.85	B
Eastbound	LTR	11.1	0.36	B	27.5	0.82	C
Westbound	LTR	11.2	0.41	B	11.9	0.38	B
Northbound	LTR	5.7	0.31	A	11.9	0.61	B
Southbound	LTR	6.1	0.41	A	23.7	0.87	C

Table 19: Mahukona Street and Kona Street Future (2017) With Project Signalized Mitigation

Signalized Intersection		AM			PM		
Approach	Movement	Delay (s/veh)	v/c	LOS	Delay (s/veh)	v/c	LOS
Mahukona Street and Kona Street		8.6	0.45	A	21.8	0.87	C
Eastbound	LTR	9.6	0.31	A	31.6	0.85	C
Westbound	LTR	10.1	0.43	B	12.2	0.43	B
Northbound	LTR	7.3	0.35	A	12.5	0.62	B
Southbound	LTR	7.9	0.47	A	26.4	0.89	C

V. FUTURE (2030) CONDITIONS

The Honolulu Rail Transit system has a projected full build-out and operation year of 2019. Utilizing forecasts and results from the *Honolulu High-Capacity Transit Corridor Project, Final Environmental Impact Statement* (City and County of Honolulu (C&C), June 2010), *Honolulu High-Capacity Transit Corridor Project, Transportation Technical Report* (C&C, August 2008), and subsequent addendums, Future (2030) conditions in the study area were reviewed as they relate to the proposed development of Kapi'olani Residence and the surrounding area.

A. Transportation Network

1. Vehicular Facilities

a) Passenger Vehicles

As the Ala Moana area progresses with TOD development, changes will be implemented that favor multi-modal travel. This may have a negative impact on passenger vehicle operations which is expected and acceptable in order to increase mobility and safety for all transportation modes.

b) Bus and Heavy Vehicles

The *HHCTCP, Transportation Technical Report* (C&C, August 2008) states that even though bus operations at Ala Moana Center would transition from being the primary transfer point for TheBus system to one of many throughout Oahu, it would continue to be a dominant transfer location on the island for buses and fixed guideway activity.

The *HHCTCP, Transportation Technical Report, Addendum 2* (C&C, October 2009) states that with the railway system in place, the Ala Moana transit center would need a substantial increase in volume of buses. The study predicts the station will be served by the following routes: 5, 6, 7, 8, 9, 17, 18, 23, 40, 40A, 52, and 88A with Routes A and 3 continuing to operate on Kapi'olani Boulevard.

2. Pedestrian Facilities

The *HHCTCP, Transportation Technical Report* (C&C, August 2008) states that escalators and elevators will be available at each station for pedestrian access.

3. Bicycle Facilities

The *HHCTCP, Transportation Technical Report* (C&C, August 2008) states that bicyclists will be encouraged and accommodated at each rail station. Each station will have facilities for parking bikes, and each rail car will be designed to accommodate bikes during the off peak hours.

Future bikeways included in the *Oahu Bike Plan, A Bicycle Master Plan* (HH&F, August 2012) are shown on Figure 9. All future projects noted on the plan are expected to be completed by Future (2030) conditions.

B. Geometric Configuration

1. Honolulu Rail Transit

The Ala Moana Rail Station is being proposed for construction along Kona Street, near the intersection with Kona Iki Street, approximately 0.4-miles from the proposed Kapi'olani Residence project site. The Ala Moana Rail Station will consist of a platform and a concourse level with total height approximately 60-feet above the ground level.

The *HHCTC, Transportation Technical Report, Addendum 2* (PB, October 2009) notes that along Kona Street, through lanes will be reduced to a minimum of 11 feet and turn lanes to a minimum of 10 feet to accommodate proposed guideway columns.

C. Traffic Volumes

1. Background Growth

The *HHCTCP, Transportation Technical Report, Addendum 2* (City and County of Honolulu [C&C], October 2009) forecasts that a total of 22,610 riders will board and 22,610 riders will depart the train daily at the Ala Moana Rail Station in 2030 conditions.

The existence of the rail station provides a more comprehensive transit network and additional transit alternative. The *HHCTCP, Transportation Technical Report, Addendum 2* (C&C, October 2009) predicts that the build-out of the rail will attract substantial ridership from local bus access and from people walking to stations. The forecasted daily volume of riders per each travel mode accessing the Ala Moana Rail Station is shown in Table 20.

Table 20: Ala Moana Rail Station Rider Modal Use

Transportation Mode	Percentage	Daily Riders
Vehicle (Parking)	1%	250
Vehicle (Kiss & Ride)	4%	890
Transit (Bus)	79%	17,790
Bike/Walk	16%	3,860
Total		22,610

Source: *HHCTC, Transportation Technical Report, Addendum 2* (PB, October 2009)

2. Project Related Volumes

The addition of the Honolulu Rail Transit system will likely increase the percentage of Kapi'olani Residence trips that use a transportation mode other than passenger vehicle. However, those who are likely to use rail transit as their primary transportation in the AM and PM peaks in future conditions, will likely use bus transit, accessed through the Ala Moana transit center, in the interim. Therefore the project related volume distribution reflects a "worst case" condition (highest volume of vehicle trips) and is still applicable for Future (2030) conditions.

3. Future Peak Hour Volumes

The *HHCTCP, Transportation Technical Report, Addendum 2* (C&C, October 2009) forecasts that during the AM two-hour peak period, 1,830 riders will board and 7,700 riders will depart the train at the Ala Moana Rail Station for 2030 conditions. The *HHCTCP, Transportation Technical Report, Addendum 2* (C&C, October 2009) provides the total peak hour vehicle trips generated at the Ala Moana Rail Station for 2030 conditions as a result of the rail system (see Table 21).

Table 21: Ala Moana Rail Station Peak Hour Vehicle Trip Generation

Mode	AM Peak		PM Peak	
	In	Out	In	Out
Bus Transit Vehicle Trips	74	74	74	74
Spillover Parking	87	0	0	87
Kiss-and-Ride	354	354	354	354
Total	515	428	428	515

Source: *HHCTC, Transportation Technical Report, Addendum 2* (PB, October 2009)

D. Level of Service

The *HHCTCP, Transportation Technical Report, Addendum 2* (C&C, October 2009) states that four intersections in the vicinity of the Ala Moana Rail Station are expected to experience large increases in bus activity, spillover parking, and kiss and ride activities. These intersections are adjacent to the study intersections for the Kapi'olani Residence and can be considered to have a similar resulting delay and LOS as the study intersections. Resulting Future (2030 LOS conditions are shown in Table 22.

Table 22: Future (2030) With Project Intersection Level of Service

Intersection	Traffic Control	AM		PM	
		Delay	LOS	Delay	LOS
Ala Moana Boulevard at Atkinson Drive	Signalized	49	D	46	D
Kona Street at Ke'eaumoku Street	AWSC	317	F	487	F
Kona Street at Pi'ikoi Street	Signalized	43	D	50	D
Kapi'olani Boulevard at Ke'eaumoku Street	Signalized	25	C	142	F

Source: *HHCTC, Transportation Technical Report, Addendum 2* (PB, October 2009)

E. Mitigation

The *HHCTCP, Transportation Technical Report* (C&C, August 2009) estimates that for the Ala Moana Center Station area, traffic conditions would experience added delay and would require consideration of mitigation measures. The *HHCTCP, Transportation Technical Report, Addendum 2* (C&C, October 2009) states that the signalization of Kona Street at Ke'eaumoku Street will reduce delay but not alleviate the poor LOS at the intersection in the AM peak hour. Depending on the mitigation measures used and transit routes proposed, the intersection of Kona Street and Mahukona Street may need additional mitigation to handle the increased volume of bus transit.

VI. SUMMARY

Existing (2014) conditions resulted in appropriate LOS conditions for all signalized intersections. The unsignalized southbound approach Mahukona Street and Kona Street and the eastbound right movement at Atkinson Drive and Kona Street resulted in poor LOS although a low v/c which suggests that capacity exists. Existing conditions could be changed to improve multi-modal operations and access.

- The unsignalized intersection of Mahukona Street and Kona Street resulted in poor LOS for the southbound movement during the PM peak hour. Additionally, the intersection has confusing geometry due to a lack of defined travelway. The Ala Moana TOD plan proposes potential mitigation options to help delineate traffic and pedestrian movements for consideration at this intersection of two privately owned streets.
- The unsignalized intersection of Atkinson Drive and Kona Street has a wide receiving lane and crosswalk across Kona Street. This results in some vehicles making an illegal left turn as well as resulting in pedestrians having a long crossing distance. It is recommended to consider enlarging the raised island to shorten the crosswalk and delineate turn movements. Adjacent developments in the area will likely be using this as their primary access and thus should coordinate improvements here with the City.
- The signalized intersection of Kapi'olani Boulevard and Kaheka Street/Mahukona Street operates appropriately and has marked crosswalks on all legs of the intersection. Existing wide travelways could be marked to reflect how vehicles are treating the mauka-bound approach, or bulb outs could be included to shorten the pedestrian crossing and narrow the travel lanes to what is needed by the design vehicle.
- The signalized intersection of Atkinson Drive and Kapi'olani Boulevard has marked crosswalks on two legs of the intersection but is missing one across the Diamond Head leg, adjacent to the Convention Center. In the current configuration, with four lanes of right-turning traffic, an adjacent crosswalk that was permitted at the same time would be hazardous. Therefore, the only options would be to have a pedestrian signal on a separate phase or to provide a grade-separated crossing.
- A marked crosswalk exists across the mauka leg of Atkinson Drive at the signalized intersection with Kahakai Drive. This is approximately 200 feet from the crosswalk at the intersection with Kapi'olani Boulevard. A crosswalk on the makai leg of the intersection with Kahakai Drive would align with Kona Street and provide a 300-foot spacing from the intersection with Atkinson Drive. It is recommended to consider installing an additional crosswalk here or relocating the existing mauka-leg crosswalk to this side with a pedestrian signal and push-button activation.

Future (2017) Without Project conditions resulted in appropriate signalized intersection operations although worsened operations at the unsignalized intersection approaches in the PM peak hour. The intersection of Mahukona Street and Kona Street warranted a traffic signal using the PM peak hour volumes. The intersection operated appropriately as a signalized intersection for Future (2017) Without Project and Future (2017) With Project conditions.

Kapi'olani Residence proposes primary vehicular access to the project site through a right-in/right-out driveway off of Kapi'olani Boulevard. Future (2017) With Project conditions maintained appropriate LOS conditions for all signalized intersections with poor operations for some unsignalized intersection approaches. The development should include the following mitigation to address projected impact:

- Include wide, tree-lined sidewalks along Kapi'olani Boulevard with convenient access to the project entrance. Serving a different purpose, Kona Street should include adequate sidewalks as well.
- It is also suggested that bicycle access and storage be considered within the development.

Future (2030) With Project conditions consider the effect of the build-out and operation of the Honolulu Rail Transit and Ala Moana Rail Station. As a result of the increased activity around the project area from the rail system, the intersections of Kona Street at Ke'eaumoku Street, Kona Street at Pi'ikoi Street, and Kapi'olani Boulevard at Ke'eaumoku Street will experience added delay. It is assumed that the Kapi'olani Residence study intersections will also experience additional delay as a result.

In conclusion, the proposed Kapi'olani Residence complies with TOD guidelines by providing a mix of high density residential and commercial 0.4-miles from the Ala Moana Rail Station, within the ½-mile TOD radius. This project is further beneficial in that it is providing much-needed affordable housing in the area. Existing conditions could be improved with the addition of pedestrian facilities in the form of sidewalks fronting the building along Kapi'olani Boulevard and Kona Street. The addition of project related traffic will have a negligible impact on the surrounding area.

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APPENDIX A

Kapi‘olani Residence Proposed Project Profile

KAPIOLANI RESIDENCE
1631 Kapiolani Boulevard
Honolulu, Hawaii

Proposed Project Profile

SamKoo Pacific, LLC
1631 Kapiolani Boulevard
Suite 200
Honolulu, Hawaii 96814

October 22, 2014

INTRODUCTION

SamKoo Pacific, LLC (**"SamKoo"**) proposes to develop a high-rise affordable housing project at 1631 Kapiolani Boulevard (**the "Project"**) in the Ala Moana District of Central Honolulu. The Project site is located along the makai side of Kapiolani Boulevard adjacent and across Kona Street from Ala Moana Center. The Ala Moana Hotel is located nearby, adjacent to and Diamond Head of Ala Moana Center. Provisionally named "Kapiolani Residence ", the Project's intent is to provide attractive, desirable, and conveniently located affordable housing opportunities in a location and manner that supports public directed growth policies, State of Hawaii (**"State"**) and City and County of Honolulu (**"City"**) affordable housing objectives, and the Project's economic requirements.

Project Objectives

The Project seeks to provide centrally located and affordable opportunities for urban living in convenient proximity to shopping, dining, business, employment, health, transportation, and other vital urban lifestyle support facilities and services. Many of these types of facilities are conveniently located in the immediate vicinity or within ¼ to ½ mile of the Project site. They include nearby grocery retailers Don Quixote and Palama Market located mauka of the Project and the Foodland Supermarket in Ala Moana Center, an abundance of retail shopping and dining establishments as well as family and professional services located at Ala Moana Center, along Kapiolani Boulevard, and on Keeaumoku Street, and nearby banking services at First Hawaiian Bank, Bank of Hawaii, Territorial Savings and Loan, and American Savings Bank. In addition, potential employment opportunities are located in the immediate vicinity or are reachable through nearby public transportation access points located in Ala Moana Center.

With its location along Kapiolani Boulevard within one-half mile of the City's proposed rail transit project **("Rail Project")** in the City-designated Convention Center Subdistrict of the Ala Moana Transit-Oriented Development **("TOD")** Precinct, the Project also intends to provide Honolulu's TOD initiative with a vital residential component, to support the future Rail Project with a substantial ridership component, and to provide the Project's future residents with multiple public as well as private transportation alternatives.

Finally, 60% of all Project residential units are intended to be affordable in accordance with Hawaii Housing Finance and Development Corporation **("HHFDC")** definitions and in compliance with HHFDC Development Unit Revolving Fund **("DURF")** requirements. By targeting a portion of the affordable housing market in this way, the Project seeks to provide, within a central urban setting, significant opportunities to meet a large and persistent housing need in those market segments.

Selection of the 201H Approach to Development

Given existing market conditions and the Project's significant economic constraints, SamKoo has found development in accordance with Chapter 201H of the Hawaii Revised Statutes ("**201H**") the most feasible way to meet both public need and Project economic requirements. SamKoo purchased the 1631 Kapiolani Boulevard site at the "peak of the market" in 2007, paying a significant premium to acquire it. After this purchase, SamKoo also contributed significantly toward the expansion of sewer line capacity in the area.

Since that time, SamKoo has experienced Hawaii's economic downturns, the State's partial economic recovery, and the ongoing emergence of new City development parameters, known generically as TOD, intended to complement its proposed Rail Project and to shape the neighborhoods envisioned to support it.

The City's Ala Moana Transit-Oriented Neighborhood (the **"TOD Plan"**), now in public review draft form, would allow variations from the BMX-3-prescribed development standards applicable to the Project site in exchange for "Community Benefits". Such variations could include greater building heights and onsite densities as well as waivers from existing setback requirements.

However, an observation of agency review times and the cumulative magnitude of City-proposed discretionary requirements in exchange for such variations imposed on a TOD-oriented project proposal located nearby suggested that a TOD approach would very likely impose too great a development and construction cost burden to enable this Project, the majority of which is intended for affordable housing, to be economically feasible.

The 201H approach, on the other hand, with its defined requirements, incentives, and increased degree of processing certainty presented a more certain path to development and a procedure which would support the feasibility of the predominantly affordable housing development this Project intends to be. It is for these reasons that the 201H approach has been selected as the logical approach to development. It presents the more feasible and possibly the only feasible method for providing affordable housing at this very premium location in Central Honolulu.

PROJECT DESCRIPTION

Location

The Project site is located in the Ala Moana area of Central Honolulu along the makai side of Kapiolani Boulevard. Its location is just east of the Diamond Head end of Ala Moana Center and immediately mauka of the Ala Moana Hotel. Kona Street forms its makai boundary. Kaheka Street runs mauka-makai two parcels west of the Project site. Further west, the future Ala Moana Rail Project Station is located a little over ¼ mile away, well within comfortable walking distance from the Project.

Several low-rise commercial buildings separate the site from Atkinson Drive to the east. Other major buildings in the vicinity include The Hawaii Convention Center at the Diamond Head-Makai corner of the Atkinson Drive/Kalakaua Avenue intersection, the "Pan Am" building immediately across Kapiolani Boulevard, and the First Hawaiian Bank building at the mauka-ewa corner of the Kaheka Street-Kapiolani Boulevard intersection.

High-rise residential towers and a variety of low-rise commercial buildings and grocery stores such as Quixote and Palama Market typify the area mauka of Kapiolani Boulevard. Just beyond these structures, the tree-lined mauka portion of Kalakaua Avenue connects the area to Waikiki. High-rise residential towers dominate the area Diamond Head of Atkinson Drive. The Central YMCA is also located along the east side of Atkinson Drive.

Site Description

The nearly square Project site consists of two parcels, TMK's: (1) 2-3-041:009 and (1) 2-3-041:006, totaling 1.291 acres or 56,250 square feet in area. The parcels are currently occupied by several one and two-story commercial buildings which house offices and commercial enterprises. The site is essentially flat. Monkeypod Trees line the site's Kapiolani Boulevard edge. Kona Street, which forms the site's makai boundary, is treeless.

The Institutional Context

As part of the area encompassed by the Convention Center Subdistrict of the Ala Moana TOD Precinct, the site is part of an area intended for transition to higher intensity development. One set of State Land Use regulations and three sets of City regulatory or policy parameters are currently in play. City regulatory and policy parameters are:

- The existing, "underlying" zoning (BMX-3: "Community Business Mixed Use") under the Land Use Ordinance of the City (the "**LUO**").

- The TOD Plan *"Public Review Draft"*, currently undergoing public review and requiring the development of enabling regulations after its approval. While this effort is not complete and may be modified in response to public comment, it nevertheless represents the City's current intent for the area.

- The recently enacted Ordinance 14-10, which provides an interim process for City review and processing of TOD projects in City-designated TOD areas.

The State Land Use District and the City's underlying BMX-3 zoning development standards are the regulatory parameters currently in force at the Project site. The Public Review Draft version of the TOD Plan is in effect a "statement of intent" currently without the force of law. As cited above, it is subject to public scrutiny and possible modifications and refinements, and will require an enabling ordinance for implementation. Finally, Ordinance 14-10, which provides a process for reviewing TOD proposals is only applicable to projects intended and framed as TOD projects.

As previously cited, the Project is not intended as a TOD project, but rather, as a predominantly affordable housing project to be reviewed and processed under the 201H Affordable Housing program under the auspices of the HHFDC.

Therefore, the existing City ordinance with which the Project is appropriately compared is the BMX-3 zoning district. However, as the Project also intends, in part, to support the Rail Project as a source of potential ridership, it is also useful and appropriate to compare it with the proposed building envelope aspects of the TOD Plan as it currently exists, since it represents, at least in draft form, an approximation of future policy for the area in which the Project will be located. Finally, to complete the survey of the Project's institutional context, parameters of Ordinance 14-10 have also been included in the following survey of institutional parameters for development.

Project Development Parameters

State Land Use Designation: Urban

City Development Parameters:

Zoning: BMX-3: Community Business Mixed Use

Height Limit:	350 feet
Height Setbacks:	No portion of a structure shall exceed a height equal to twice the distance from the structure to the vertical projection of the centerline of any street.
Yard Setbacks:	
Front (Street):	10 feet for dwellings; 5 feet for other uses
Side & Rear:	10 feet for multi-family dwellings; 0 feet for other uses
Maximum Site Coverage:	Not regulated
Maximum Density:	
Base FAR:	2.5
w/Bonuses:	3.5 maximum (based on provision of public open space or arcades)
Offstreet Parking:	Varies by Usage
Offstreet Loading:	Varies by Usage

TOD Plan (in progress)

Height Limit:	400 feet
Height Setback:	15 feet above a height of 60 feet
Maximum Density:	7.0, with community benefits
Street Frontage Setback:	
Kapiolani:	12 feet

City Ordinance 14-10:" Interim Planned Development Permits for Transit-Oriented Development Within Close Proximity to Future Rail Stations"

Ordinance 14-10 states that "catalytic TOD projects" (TOD project proposals) shall be *generally* consistent with the neighborhood TOD plan for the affected area, if such plan has been released by the director as a public review draft to the community for its review and comment".

According to its own parameters, Ordinance 14-10 would have assigned the Project site with the following guidance for height and density:

Height Limit: 450 feet ("twice that allowed by the underlying zoning or 450 feet, whichever is lower"; existing BMX-3 height limit at the site is 250 feet)

Max. Density: 7.0 ("twice that allowed by the underlying zoning district [plus underlying district density bonuses] or 7.5, whichever is lower"; therefore, allowable density is twice the maximum density allowed in BMX-3; therefore: FAR 3.5 x 2 = FAR 7.0)

Other Development Considerations:

Other conditions with possible influence on the shaping of any project were also examined. They are presented below. At this location, they do not affect the configuration or program of this project.

Flood Zone:	AE & X
Historic Designations:	None
Lot Restrictions:	None
SMA/Shoreline Zone:	Not Applicable
Special District:	Convention Center Subdistrict of the Ala Moana TOD Precinct, pending the adoption of the TOD Plan and the adoption of Special District Overlay Regulations.

Project Proposed Configuration and Program

The proposed Project will consist of a single 45-floor high-rise residential tower and a free-standing 11- floor parking garage. To adequately accommodate all programmed facilities, the Project proposes to occupy the entire site.

Major proposed project elements include:

- Residential units
- Resident Support Spaces and Amenities
- Staff Support Spaces
- Commercial Spaces
- Parking Facilities
- Loading Stalls

The Residential Tower first floor will consist of resident and staff support facilities and commercial spaces. The Parking Garage first floor will consist of parking and loading stalls, project mechanical and utility support spaces, and a resident "party room" which can be used by

Project residents in conjunction with the immediately adjacent outdoor open spaces for functions and social events.

Garage upper levels will hold parking stalls. Maximum height of the tower is estimated at 396.5 feet, with an additional projection of rooftop mechanical equipment rising an additional 18 feet to a cumulative height of 414.5 feet. The Project proposes a density or FAR of 8.34.

Project Program

The Project will house 485 residential units, as follows:

Unit Type	# Units	% Total
Resident Mgr.	1	2%
Studio	88	18%
1-Bedroom	132	27%
2-Bedroom	264	55%
Total:	**485**	**100%**

Intended Target Markets:

Sixty percent or 291 of total Project residential units will be affordable units targeting prospective buyers earning 80% - 120% of Area Median Income (AMI). At this time, affordable unit types are projected as follows:

Unit Type	# Units	% of Total Units
Studio	51	11%
1- Bedroom	81	17%
2 - Bedroom	156	32%
Total Affordable Units	**291**	**60%**

Support Facilities:

Onsite Parking

The Project proposes assignment of one parking space per unit regardless of size, in recognition of

- The Project's urban location,
- Anticipated proximity to employment and lifestyle support services and amenities, and
- The availability of multiple transportation modes, including a public bus system, the Rail Project, and provisions for pedestrian and bicycle travel.

The Project proposes to provide guest parking equivalent to 5% of total residential units. It proposes the provision of stalls equipped for charging electric cars in accordance with current LUO standards.

In addition, the Project proposes to make additional parking stalls available to Project unit owners who may wish to purchase an additional stall. Depending on the actual demand for

these additional stalls, there may additional stalls available for other uses located in nearby facilities. Decision for disposition of those stalls shall be by discretion of SamKoo, should such surplus result.

Onsite Loading

The Project proposes two loading spaces within the proposed parking structure, accessed from Kona Street, to accommodate resident needs.

Summary of Project Contributions

- **Provision of Affordable Housing:** As a primarily affordable housing project located in a uniquely central location in the heart of Central Honolulu, the Project proposes several significant community-oriented contributions:
  - It will help meet a strong, longstanding, and pervasive need for affordable housing in Central Honolulu
  - It will contribute to the City and State's directed growth policy
  - It will contribute to the City's intent to provide affordable housing on Oahu, and will also contribute significantly to the affordable housing component of the City's TOD Plan
  - It can help provide potentially significant ridership for the future Rail Project;

    In addition,

  - It proposes affordable housing at a uniquely premium urban location in direct proximity to urban lifestyle support facilities and services, with convenient access to multiple transportation choices to optimize resident mobility
- **Generous Provisions for the Public Domain within the Street-Level Environment:** The Project is set back 30 feet from Kapiolani Boulevard, providing generous accommodation for street-side pedestrian amenities and opportunities for landscaping to "soften" or counterbalance urban hardscape and vertical aspects of the proposed Project. This setback is also a functional necessity. The proposed distance from the street will help to mitigate Kapiolani Boulevard traffic noise impacts on mauka-facing residential units and will help the residential tower avoid potential conflicts with the shallow but far-ranging root systems of the Monkeypod Trees lining the street.
- **Participation in the Sewer Line Improvement Project:** SamKoo was one of six participants and the second largest contributor to the cost of expansion of sewer line capacity in the area from the east end of Waikiki to the Ala Moana area. This capacity expansion helps meet current neighborhood demand and facilitates the redevelopment of properties to meet future sewer demands as this and adjacent areas evolve into or support the Transit-Oriented Neighborhood envisioned by the City.

SamKoo believes that these project-generated community benefits eminently qualify the Project for its proposed departures from existing and proposed City development parameters at the Project site.

Comparison with Existing and Proposed City Development Parameters

As previously stated, land costs and the configuration of the Project for an adequately provisioned, affordable housing facility requires a certain magnitude to achieve economic feasibility. Project economic analyses have indicated the number of units and Area Median Income ("**AMI**") targets needed to achieve Project feasibility.

Fulfilling these requirements will require a certain building volume or "envelope" to house these units. To achieve this, SamKoo finds it necessary to depart from some of the City's existing and proposed development standards. For instance, in order to house the proposed Project unit count, the tower component is proposed as a simple prismatic volume rather than the "stepped" form that existing and proposed transitional height setbacks would require.

The Project proposes a maximum height of 396.5 feet, with an additional allowance of 18 feet for the vertical projection of mechanical equipment, and an FAR of 8.43. As an affordable housing project, it proposes to provide one parking stall per residential unit as well as additional parking stalls for resident and other uses.

The following table compares proposed Project building envelope, density, and resident support facilities with existing and proposed City development standards and policies.

Type of Standard	Proposed by Project	Existing Zoning (LUO)	Ordinance 14-10 (IPD-T)	TOD Plan
Building Ht. (ft.)	**396.5**	350'	450'	400'
Transitional Height Setbacks	**None**	>2x dist. to c/l of street	Modifiable if exist. uses & street character not affected	15' above 60'
Density (FAR)	**8.43**	2.5 – 3.5	7.0	7.0
Kapiolani Blvd. Setback	**30'**	10.0'	As approved for project	12'
Parking	• Res.:1 stall/ unit: 485 stalls • Guest: 5% of total units: 24 stalls • Electric: per LUO: 8 stalls • Total: **517 stalls**	Res.: 770st. Guest: 49st. (10% of total units) Electric: 8 st. Comm.: 3 st. Total: **830 stalls**	As specified in approved project plans	• Res.: 0.5 stall/ unit: 243 stalls • Comm.: 1.75 stall/ 1,000sf: 2 stalls. • Total: **245 stalls**
Loading	**2 stalls**	4 stalls		N/A

In summary, the Project relates to the foregoing parameters as follows:

- **Height:** The Project exceeds existing BMX-3 height limitations by 46.5 feet, but is within the intended future height parameters for the TOD Plan (Project height: 396.5 feet; proposed TOD Plan height: 400 feet);

- **Transitional Height Setbacks:** To adequately host its programmed building volume, the Project proposes no transitioal height setbacks, in contrast to existing BMX-3 and proposed Ala Moana TOD Plan standards;

- **Density:** To accommodate its required building program, the Project proposes an FAR exceeding BMX-3 and proposed TOD Plan density parameters;

- **Street Setbacks:** As previously discussed and as displayed on the above table, the Project's proposed Kapiolani Boulevard setback, which is intended to provide liberal accommodation for pedestrian traffic and streetscape amenities and to mitigate the impacts of traffic noise on mauka-facing residential units, are substantially more generous than prescribed by BMX-3 or the TOD Plan.

- **Parking:** Proposed resident and guest parking accommodations are below BMX-3 requirements but exceed proposed TOD Plan requirements.

- **Loading:** Proposed loading stall accommodations are below BMX-3 requirements.

Requested Exemptions from the BMX-3 Underlying Zoning

The Project requests a number of exemptions to existing zoning standards, stated TOD policy intent, and other project requirements and fees to adequately accommodate all project elements in a way that simultaneously provides resident and community amenities while meeting Project economic requirements. The requested exemptions will facilitate project economic feasibility and the optimization of architectural design quality. These requests are presented in conceptual form to make their intent clear. It is anticipated that they will be refined to a more technical level of expression when composed as language for a City Council Resolution. These requests are as follows:

- **Building Height:** The Project proposes a building height of 396.5 feet. This proposed height is in excess of the BMX-3 building height limitation of 350 feet but within the 400-foot height limitations proposed by the TOD Plan, which outlines future policy and regulatory intent for the Project and its immediate vicinity.

  In view of this, SamKoo requests an exemption from the 350-foot BMX-3 building height limit, since its proposed building height is consistent with the City's TOD Plan stated intent for the location encompassing the Project site. SamKoo requests an exemption to allow a building height of up to 400 feet plus an additional 18-foot projection above that height to allow for the height of necessary mechanical equipment.

- **Transitional Height Setback:** SamKoo requests an exemption from existing BMX-3 transitional height setback requirements to allow the residential tower to achieve the volume needed to house the number of residential units required to achieve project economic feasibility.

- **Density:** With its proposed FAR of 8.43, SamKoo requests an exemption from the maximum BMX-3 density limitation of 3.5 to achieve the floor area needed to provide the number, type, and size of units needed to achieve Project economic feasibility.

  In considering this request, it is useful to note that while the BMX-3 maximum density limitation of 3.5 represents current policy and regulatory conditions, the draft TOD Plan proposed density would be higher at 7.0, proposing a policy promoting intensification of land uses to create the concentration of lifestyle accommodations associated with vital, successful urban neighborhoods. The Project also proposes an intensification of land uses that would focus on attracting the vital residential component of a mixed use urban neighborhood needed to activate and support commercial establishments, businesses, professional services, and, in this context, the future Rail Project.

- **Parking:** The Project requests an exemption from LUO residential, commercial, and guest parking requirements.

  In contrast to LUO requirements, the Project proposes to provide 1 parking stall per residential unit and guest parking equivalent to 5% of residential units. It proposes to provide no parking stalls for commercial uses, in keeping with the City's TOD neighborhood intent to develop a pedestrian-oriented neighborhood at Ala Moana.

  The Project proposes to maintain conformity with current LUO parking requirements for electric charging stations.

  It is useful to note that the Project's proposed 1 stall per residential unit exceeds the TOD Plan's proposed residential parking requirement of 0.5 stall per residential unit, and that total parking proposed exceeds TOD Plan parking provisions.

- **Loading:** In contrast to existing BMX-3 requirements for 4 loading stalls, SamKoo proposes two loading stalls for the Project. SamKoo requests an exemption from BMX-3 loading requirements.

- **Park Dedication Requirements:** To meet Project economic requirements, SamKoo requests an exemption of all residential units from City Park Dedication requirements.

- **Project Fees:** To facilitate project economic feasibility, SamKoo requests waivers from all City application, permit and water and sewer service fees.

Requested Participation in HHFDC Financial Programs

SamKoo intends to configure the project to comply with HHDFC DURF and General Excise Tax ("GET") Exemption programs. It will configure the Project and develop the documentation for application to those programs.

CONCLUSION

The preceding information and the conceptual graphic representations which follow summarize the Project Profile proposed by SamKoo for Kapiolani Residence. The Project as proposed is based both on the requirements of economic feasibility and the desire to provide a sound, attractive addition to the urban environment of Central Honolulu. Therefore, while its formation has been guided by economic necessity, aesthetic considerations and the lifestyle needs of its residents have also been major factors in guiding its proposed configuration.

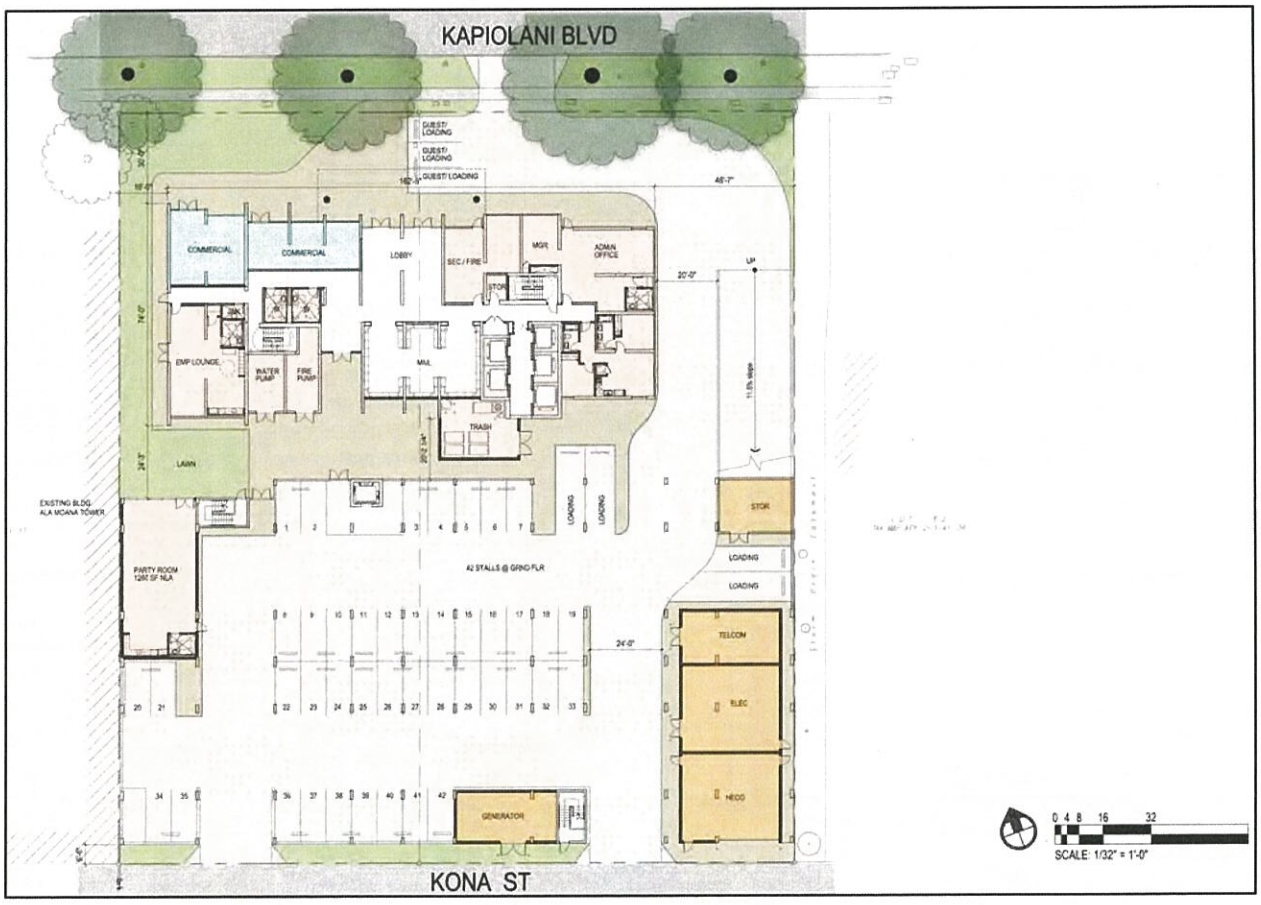
We hope that HHFDC finds that this is not only a desirable as well as needed Project, but one whose development parameters are reasonable and meriting of the agency's support and approval.

Thank you, in advance, for your time, attention, and favorable consideration of this proposed Project Profile. If you need further information, please feel free to contact:

Lowell Chun
Phone: 808.386.9596 (mobile)
808.593.9596 (office)
Email: pacificcatalyst@gmail.com

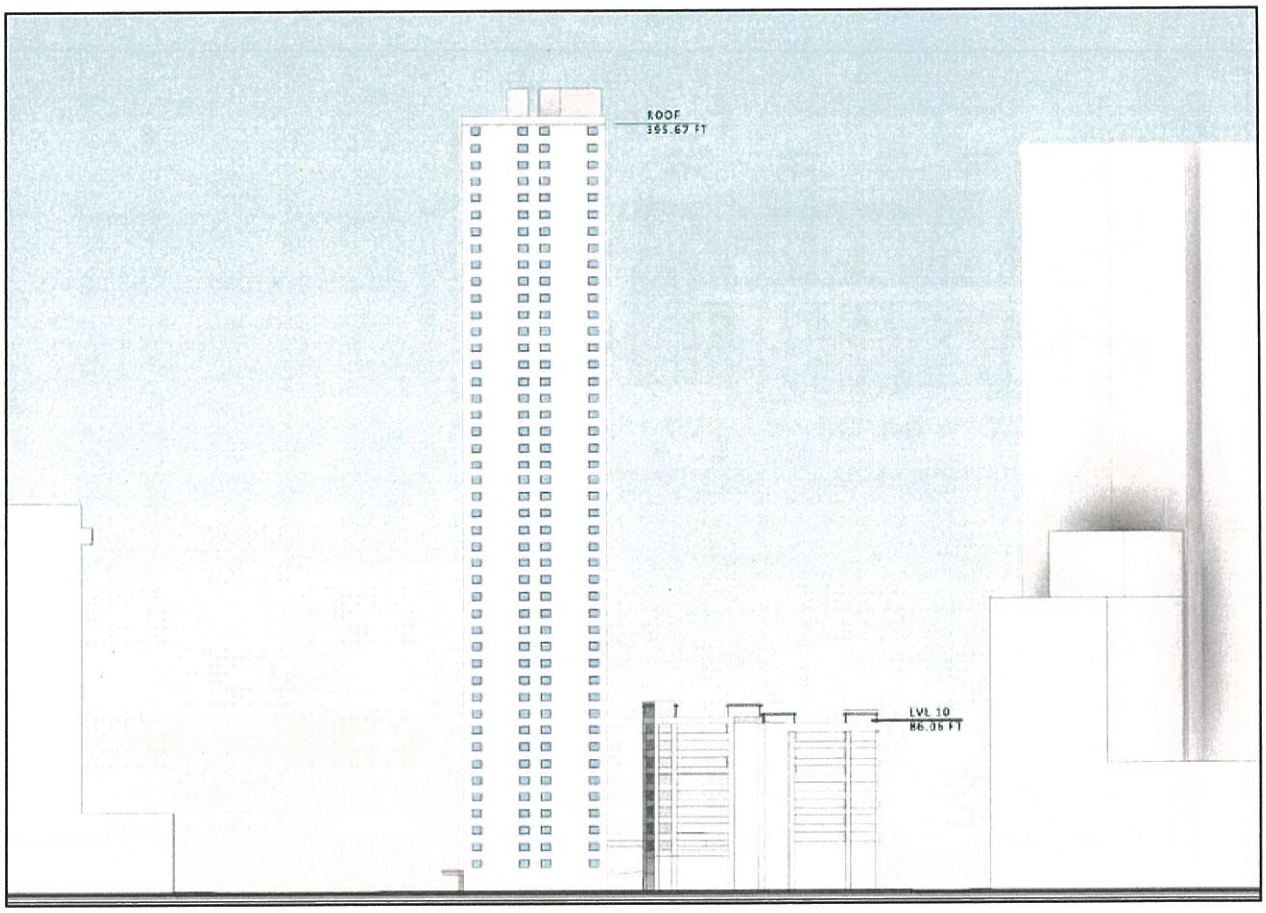
KAPIOLANI RESIDENCE GRAPHIC ILLUSTRATIONS

The 1631 Kapiolani Frontage


KAPIOLANI BLVD
GUEST/ LOADING
GUEST/ LOADING
GUEST LOADING
162'-4"
46'-7"
COMMERCIAL
COMMERCIAL
LOBBY
SEC / FIRE
MGR.
ADMIN. OFFICE
STOR.
UP
20'-0"
EMP. LOUNGE
WATER PUMP
FIRE PUMP
MAIL
TRASH
LAWN
EXISTING BLDG. ALA MOANA TOWER
PARTY ROOM 1280 SF NLA
42 STALLS @ GRND FLR
LOADING
LOADING
STOR.
LOADING
LOADING
TELCOM
ELEC
HECO
24'-0"
GENERATOR
KONA ST
0 4 8 16 32
SCALE: 1/32" = 1'-0"

Site Plan

Floors 2 – 10 (Upper Level Garage Floors and Typical Residential Floor)



View Looking East

APPENDIX B

Intersection Peak Period Traffic Counts and 24-Hour Traffic Data

SSFM International, Inc
501 Sumner Street, Suite 620
Honolulu, Hawaii 96817
(808) 531-1308

File Name : 141002 AM Kapiolani_Mahukona rev2
Site Code : 00000000
Start Date : 10/2/2014
Page No : 1

Groups Printed- Passenger - Bus - Truck

	Kaheka Street Southbound					Kapiolani Boulevard Westbound					Mahukona Street Northbound					Kapiolani Boulevard Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	* Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
06:45 AM	10	21	8	26	65	2	329	29	40	400	11	36	4	31	82	0	92	28	23	143	690
Total	10	21	8	26	65	2	329	29	40	400	11	36	4	31	82	0	92	28	23	143	690
07:00 AM	11	25	15	37	88	0	441	32	34	507	8	34	3	16	61	0	120	25	16	161	817
07:15 AM	8	20	13	25	66	1	428	22	40	491	17	45	11	42	115	0	130	30	25	185	857
07:30 AM	12	41	18	46	117	0	530	29	51	610	15	45	5	61	126	0	128	35	48	211	1064
07:45 AM	12	44	17	36	109	2	449	34	60	545	14	44	8	51	117	1	110	43	41	195	966
Total	43	130	63	144	380	3	1848	117	185	2153	54	168	27	170	419	1	488	133	130	752	3704
08:00 AM	16	31	17	30	94	3	417	43	46	509	11	45	15	43	114	1	145	21	40	207	924
08:15 AM	18	38	26	52	134	0	318	48	40	406	15	51	7	38	111	0	140	27	35	202	853
08:30 AM	27	53	22	51	153	4	242	22	45	313	12	57	10	37	116	10	135	25	34	204	786
Grand Total	114	273	136	303	826	12	3154	259	356	3781	103	357	63	319	842	12	1000	234	262	1508	6957
Apprch %	13.8	33.1	16.5	36.7		0.3	83.4	6.9	9.4		12.2	42.4	7.5	37.9		0.8	66.3	15.5	17.4		
Total %	1.6	3.9	2	4.4	11.9	0.2	45.3	3.7	5.1	54.3	1.5	5.1	0.9	4.6	12.1	0.2	14.4	3.4	3.8	21.7	
Passenger	114	269	134	303	820	12	3083	253	356	3704	93	314	47	319	773	11	938	231	262	1442	6739
% Passenger	100	98.5	98.5	100	99.3	100	97.7	97.7	100	98	90.3	88	74.6	100	91.8	91.7	93.8	98.7	100	95.6	96.9
Bus	0	1	0	0	1	0	40	0	0	40	2	15	2	0	19	0	55	0	0	55	115
% Bus	0	0.4	0	0	0.1	0	1.3	0	0	1.1	1.9	4.2	3.2	0	2.3	0	5.5	0	0	3.6	1.7
Truck	0	3	2	0	5	0	31	6	0	37	8	28	14	0	50	1	7	3	0	11	103
% Truck	0	1.1	1.5	0	0.6	0	1	2.3	0	1	7.8	7.8	22.2	0	5.9	8.3	0.7	1.3	0	0.7	1.5

* - Pedestrian counts for WB crosswalk was taken from *TIAR for Ala Moana Center Ewa Expansion* (WOC, 2013)

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	Kaheka Street Southbound					Kapiolani Boulevard Westbound					Mahukona Street Northbound					Kapiolani Boulevard Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 06:45 AM to 08:30 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:15 AM																					
07:15 AM	8	20	13	25	66	1	428	22	40	491	17	45	11	42	115	0	130	30	25	185	857
07:30 AM	12	41	18	46	117	0	530	29	51	610	15	45	5	61	126	0	128	35	48	211	1064
07:45 AM	12	44	17	36	109	2	449	34	60	545	14	44	8	51	117	1	110	43	41	195	966
08:00 AM	16	31	17	30	94	3	417	43	46	509	11	45	15	43	114	1	145	21	40	207	924
Total Volume	48	136	65	137	386	6	1824	128	197	2155	57	179	39	197	472	2	513	129	154	798	3811
% App. Total	12.4	35.2	16.8	35.5		0.3	84.6	5.9	9.1		12.1	37.9	8.3	41.7		0.3	64.3	16.2	19.3		
PHF	.750	.773	.903	.745	.825	.500	.860	.744	.821	.883	.838	.994	.650	.807	.937	.500	.884	.750	.802	.945	.895

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File Name : 141002 PM Kapiolani_Mahukona rev2
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Page No : 1

Groups Printed- Passenger - Bus - Truck

	Kaheka Street Southbound					Kapiolani Boulevard Westbound					Mahukona Street Northbound					Kapiolani Boulevard Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	* Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
04:00 PM	49	70	17	62	198	0	162	40	72	274	6	77	18	82	183	18	392	33	78	521	1176
04:15 PM	31	78	27	68	204	6	180	60	93	339	3	71	15	68	157	17	405	40	62	524	1224
04:30 PM	38	65	29	127	259	0	148	49	84	281	8	93	19	99	219	8	471	35	79	593	1352
04:45 PM	19	97	23	71	210	0	198	67	80	345	7	81	24	89	201	15	389	39	60	503	1259
Total	137	310	96	328	871	6	688	216	329	1239	24	322	76	338	760	58	1657	147	279	2141	5011
05:00 PM	23	84	14	62	183	0	153	45	74	272	4	95	28	91	218	3	431	32	73	539	1212
05:15 PM	28	91	24	81	224	1	195	61	82	339	12	88	14	58	172	8	463	30	87	588	1323
05:30 PM	42	92	26	66	226	0	142	51	47	240	11	73	32	73	189	2	428	38	85	553	1208
05:45 PM	40	88	20	77	225	0	161	59	66	286	10	53	33	62	158	7	403	42	63	515	1184
Total	133	355	84	286	858	1	651	216	269	1137	37	309	107	284	737	20	1725	142	308	2195	4927
Grand Total	270	665	180	614	1729	7	1339	432	598	2376	61	631	183	622	1497	78	3382	289	587	4336	9938
Apprch %	15.6	38.5	10.4	35.5		0.3	56.4	18.2	25.2		4.1	42.2	12.2	41.5		1.8	78	6.7	13.5		
Total %	2.7	6.7	1.8	6.2	17.4	0.1	13.5	4.3	6	23.9	0.6	6.3	1.8	6.3	15.1	0.8	34	2.9	5.9	43.6	
Passenger	268	662	180	614	1724	7	1288	429	598	2322	58	587	177	622	1444	78	3299	286	587	4250	9740
% Passenger	99.3	99.5	100	100	99.7	100	96.2	99.3	100	97.7	95.1	93	96.7	100	96.5	100	97.5	99	100	98	98
Bus	2	3	0	0	5	0	31	0	0	31	1	20	0	0	21	0	81	3	0	84	141
% Bus	0.7	0.5	0	0	0.3	0	2.3	0	0	1.3	1.6	3.2	0	0	1.4	0	2.4	1	0	1.9	1.4
Truck	0	0	0	0	0	0	20	3	0	23	2	24	6	0	32	0	2	0	0	2	57
% Truck	0	0	0	0	0	0	1.5	0.7	0	1	3.3	3.8	3.3	0	2.1	0	0.1	0	0	0	0.6

* - Pedestrian counts for WB crosswalk was taken from *TIAR for Ala Moana Center Ewa Expansion* (WOC, 2013)

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File Name : 141002 PM Kapiolani_Mahukona rev2
Site Code : 00000000
Start Date : 10/2/2014

	Kaheka Street Southbound					Kapiolani Boulevard Westbound					Mahukona Street Northbound					Kapiolani Boulevard Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:30 PM																					
04:30 PM	38	65	29	127	259	0	148	49	84	281	8	93	19	99	219	8	471	35	79	593	1352
04:45 PM	19	97	23	71	210	0	198	67	80	345	7	81	24	89	201	15	389	39	60	503	1259
05:00 PM	23	84	14	62	183	0	153	45	74	272	4	95	28	91	218	3	431	32	73	539	1212
05:15 PM	28	91	24	81	224	1	195	61	82	339	12	88	14	58	172	8	463	30	87	588	1323
Total Volume	108	337	90	341	876	1	694	222	320	1237	31	357	85	337	810	34	1754	136	299	2223	5146
% App. Total	12.3	38.5	10.3	38.9		0.1	56.1	17.9	25.9		3.8	44.1	10.5	41.6		1.5	78.9	6.1	13.5		
PHF	.711	.869	.776	.671	.846	.250	.876	.828	.952	.896	.646	.939	.759	.851	.925	.567	.931	.872	.859	.937	.952

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File Name : 141002 AM Kona_Mahukona rev2
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Start Date : 10/2/2014
Page No : 1

Groups Printed- Passenger - Bus - Truck

	Mahukona Street Southbound					Kona Street Westbound					Mahukona Street Northbound					Kona Street Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
06:45 AM	6	25	17	7	55	2	10	27	13	52	11	16	4	18	49	12	0	6	0	18	174
Total	6	25	17	7	55	2	10	27	13	52	11	16	4	18	49	12	0	6	0	18	174
07:00 AM	9	23	12	12	56	2	13	13	9	37	11	16	3	14	44	13	1	5	3	22	159
07:15 AM	14	23	16	9	62	2	17	32	18	69	14	22	3	29	68	15	0	8	3	26	225
07:30 AM	8	43	18	13	82	4	19	22	12	57	15	29	11	17	72	9	0	22	2	33	244
07:45 AM	12	39	28	17	96	4	26	17	14	61	6	27	7	17	57	21	0	8	1	30	244
Total	43	128	74	51	296	12	75	84	53	224	46	94	24	77	241	58	1	43	9	111	872
08:00 AM	4	28	24	15	71	0	18	25	18	61	16	31	7	26	80	19	0	9	3	31	243
08:15 AM	6	40	15	17	78	10	25	23	9	67	24	26	3	16	69	17	0	18	0	35	249
08:30 AM	9	47	26	31	113	7	14	28	15	64	10	32	1	7	50	12	0	24	3	39	266
Grand Total	68	268	156	121	613	31	142	187	108	468	107	199	39	144	489	118	1	100	15	234	1804
Apprch %	11.1	43.7	25.4	19.7		6.6	30.3	40	23.1		21.9	40.7	8	29.4		50.4	0.4	42.7	6.4		
Total %	3.8	14.9	8.6	6.7	34	1.7	7.9	10.4	6	25.9	5.9	11	2.2	8	27.1	6.5	0.1	5.5	0.8	13	
Passenger	64	264	153	121	602	31	136	184	107	458	92	184	21	144	441	94	1	86	15	196	1697
% Passenger	94.1	98.5	98.1	100	98.2	100	95.8	98.4	99.1	97.9	86	92.5	53.8	100	90.2	79.7	100	86	100	83.8	94.1
Bus	2	1	1	0	4	0	1	2	0	3	12	12	18	0	42	18	0	12	0	30	79
% Bus	2.9	0.4	0.6	0	0.7	0	0.7	1.1	0	0.6	11.2	6	46.2	0	8.6	15.3	0	12	0	12.8	4.4
Truck	2	3	2	0	7	0	5	1	1	7	3	3	0	0	6	6	0	2	0	8	28
% Truck	2.9	1.1	1.3	0	1.1	0	3.5	0.5	0.9	1.5	2.8	1.5	0	0	1.2	5.1	0	2	0	3.4	1.6

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File Name : 141002 AM Kona_Mahukona rev2
Site Code : 00000000
Start Date : 10/2/2014

	Mahukona Street Southbound					Kona Street Westbound					Mahukona Street Northbound					Kona Street Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 06:45 AM to 08:30 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:45 AM																					
07:45 AM	12	39	28	17	96	4	26	17	14	61	6	27	7	17	57	21	0	8	1	30	244
08:00 AM	4	28	24	15	71	0	18	25	18	61	16	31	7	26	80	19	0	9	3	31	243
08:15 AM	6	40	15	17	78	10	25	23	9	67	24	26	3	16	69	17	0	18	0	35	249
08:30 AM	9	47	26	31	113	7	14	28	15	64	10	32	1	7	50	12	0	24	3	39	266
Total Volume	31	154	93	80	358	21	83	93	56	253	56	116	18	66	256	69	0	59	7	135	1002
% App. Total	8.7	43	26	22.3		8.3	32.8	36.8	22.1		21.9	45.3	7	25.8		51.1	0	43.7	5.2		
PHF	.646	.819	.830	.645	.792	.525	.798	.830	.778	.944	.583	.906	.643	.635	.800	.821	.000	.615	.583	.865	.942

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File Name : 141002 PM Kona_Mahukona rev2
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Groups Printed- Passenger - Bus - Truck

	Mahukona Street Southbound					Kona Street Westbound					Mahukona Street Northbound					Kona Street Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
04:00 PM	23	61	19	22	125	2	12	35	23	72	22	30	6	30	88	0	3	24	10	37	322
04:15 PM	14	60	22	26	122	2	16	36	29	83	18	21	4	34	77	1	2	42	2	47	329
04:30 PM	24	61	21	15	121	2	29	47	15	93	26	27	11	41	105	1	2	36	3	42	361
04:45 PM	15	75	22	29	141	1	24	46	36	107	25	23	8	42	98	3	1	38	5	47	393
Total	76	257	84	92	509	7	81	164	103	355	91	101	29	147	368	5	8	140	20	173	1405
05:00 PM	20	65	23	16	124	4	21	45	26	96	17	36	3	43	99	0	7	43	8	58	377
05:15 PM	19	76	24	26	145	3	16	41	15	75	24	25	1	12	62	3	4	45	1	53	335
05:30 PM	17	65	17	29	128	5	21	40	13	79	25	30	3	35	93	0	6	47	0	53	353
05:45 PM	23	53	24	26	126	6	15	36	27	84	16	25	1	37	79	1	8	42	1	52	341
Total	79	259	88	97	523	18	73	162	81	334	82	116	8	127	333	4	25	177	10	216	1406
Grand Total	155	516	172	189	1032	25	154	326	184	689	173	217	37	274	701	9	33	317	30	389	2811
Apprch %	15	50	16.7	18.3		3.6	22.4	47.3	26.7		24.7	31	5.3	39.1		2.3	8.5	81.5	7.7		
Total %	5.5	18.4	6.1	6.7	36.7	0.9	5.5	11.6	6.5	24.5	6.2	7.7	1.3	9.7	24.9	0.3	1.2	11.3	1.1	13.8	
Passenger	152	515	169	189	1025	25	149	320	184	678	126	192	28	274	620	8	32	307	30	377	2700
% Passenger	98.1	99.8	98.3	100	99.3	100	96.8	98.2	100	98.4	72.8	88.5	75.7	100	88.4	88.9	97	96.8	100	96.9	96.1
Bus	1	1	1	0	3	0	1	0	0	1	42	22	7	0	71	0	1	6	0	7	82
% Bus	0.6	0.2	0.6	0	0.3	0	0.6	0	0	0.1	24.3	10.1	18.9	0	10.1	0	3	1.9	0	1.8	2.9
Truck	2	0	2	0	4	0	4	6	0	10	5	3	2	0	10	1	0	4	0	5	29
% Truck	1.3	0	1.2	0	0.4	0	2.6	1.8	0	1.5	2.9	1.4	5.4	0	1.4	11.1	0	1.3	0	1.3	1

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File Name : 141002 PM Kona_Mahukona rev2
Site Code : 00000000
Start Date : 10/2/2014

	Mahukona Street Southbound					Kona Street Westbound					Mahukona Street Northbound					Kona Street Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:30 PM																					
04:30 PM	24	61	21	15	121	2	29	47	15	93	26	27	11	41	105	1	2	36	3	42	361
04:45 PM	15	75	22	29	141	1	24	46	36	107	25	23	8	42	98	3	1	38	5	47	393
05:00 PM	20	65	23	16	124	4	21	45	26	96	17	36	3	43	99	0	7	43	8	58	377
05:15 PM	19	76	24	26	145	3	16	41	15	75	24	25	1	12	62	3	4	45	1	53	335
Total Volume	78	277	90	86	531	10	90	179	92	371	92	111	23	138	364	7	14	162	17	200	1466
% App. Total	14.7	52.2	16.9	16.2		2.7	24.3	48.2	24.8		25.3	30.5	6.3	37.9		3.5	7	81	8.5		
PHF	.813	.911	.938	.741	.916	.625	.776	.952	.639	.867	.885	.771	.523	.802	.867	.583	.500	.900	.531	.862	.933

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File Name : 141001 AM Kapiolani_Atkinson
Site Code : 00000000
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Page No : 1

Groups Printed- Passenger - Bus - Truck

	Southbound					Kapiolani Boulevard Westbound					Atkinson Drive Northbound					Kapiolani Boulevard Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
06:45 AM	0	0	0	16	16	210	476	0	0	686	0	2	77	0	79	0	64	7	7	78	859
Total	0	0	0	16	16	210	476	0	0	686	0	2	77	0	79	0	64	7	7	78	859
07:00 AM	0	0	0	23	23	211	435	0	0	646	0	1	75	0	76	0	93	12	7	112	857
07:15 AM	0	0	0	13	13	207	486	0	0	693	0	0	48	0	48	0	111	13	4	128	882
07:30 AM	0	0	0	44	44	257	544	0	0	801	0	0	58	0	58	0	136	20	15	171	1074
07:45 AM	0	0	0	20	20	248	521	0	0	769	0	0	41	0	41	0	124	14	11	149	979
Total	0	0	0	100	100	923	1986	0	0	2909	0	1	222	0	223	0	464	59	37	560	3792
08:00 AM	0	0	0	29	29	258	461	0	0	719	0	0	71	0	71	0	128	25	10	163	982
08:15 AM	0	0	0	19	19	249	437	0	0	686	0	0	49	0	49	0	107	36	15	158	912
08:30 AM	0	0	0	27	27	170	259	0	0	429	0	0	73	0	73	0	143	23	8	174	703
Grand Total	0	0	0	191	191	1810	3619	0	0	5429	0	3	492	0	495	0	906	150	77	1133	7248
Apprch %	0	0	0	100		33.3	66.7	0	0		0	0.6	99.4	0		0	80	13.2	6.8		
Total %	0	0	0	2.6	2.6	25	49.9	0	0	74.9	0	0	6.8	0	6.8	0	12.5	2.1	1.1	15.6	
Passenger	0	0	0	191	191	1786	3576	0	0	5362	0	0	455	0	455	0	821	132	77	1030	7038
% Passenger	0	0	0	100	100	98.7	98.8	0	0	98.8	0	0	92.5	0	91.9	0	90.6	88	100	90.9	97.1
Bus	0	0	0	0	0	7	28	0	0	35	0	2	6	0	8	0	43	12	0	55	98
% Bus	0	0	0	0	0	0.4	0.8	0	0	0.6	0	66.7	1.2	0	1.6	0	4.7	8	0	4.9	1.4
Truck	0	0	0	0	0	17	15	0	0	32	0	1	31	0	32	0	42	6	0	48	112
% Truck	0	0	0	0	0	0.9	0.4	0	0	0.6	0	33.3	6.3	0	6.5	0	4.6	4	0	4.2	1.5

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Default Comments
Change These in The Preferences Window
Select File/Preference in the Main Scree
Then Click the Comments Tab

File Name : 141001 AM Kapiolani_Atkinson
Site Code : 00000000
Start Date : 10/1/2014

	Southbound					Kapiolani Boulevard Westbound					Atkinson Drive Northbound					Kapiolani Boulevard Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 06:45 AM to 08:30 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:30 AM																					
07:30 AM	0	0	0	44	44	257	544	0	0	801	0	0	58	0	58	0	136	20	15	171	1074
07:45 AM	0	0	0	20	20	248	521	0	0	769	0	0	41	0	41	0	124	14	11	149	979
08:00 AM	0	0	0	29	29	258	461	0	0	719	0	0	71	0	71	0	128	25	10	163	982
08:15 AM	0	0	0	19	19	249	437	0	0	686	0	0	49	0	49	0	107	36	15	158	912
Total Volume	0	0	0	112	112	1012	1963	0	0	2975	0	0	219	0	219	0	495	95	51	641	3947
% App. Total	0	0	0	100		34	66	0	0		0	0	100	0		0	77.2	14.8	8		
PHF	.000	.000	.000	.636	.636	.981	.902	.000	.000	.929	.000	.000	.771	.000	.771	.000	.910	.660	.850	.937	.919

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File Name : 141001 PM Kapiolani_Atkinson
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Groups Printed- Passenger - Bus - Truck

	Southbound					Kapiolani Boulevard Westbound					Atkinson Drive Northbound					Kapiolani Boulevard Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
04:00 PM	0	0	0	25	25	0	242	0	0	242	0	0	148	0	148	0	359	47	17	423	838
04:15 PM	0	0	0	46	46	0	214	0	0	214	0	0	196	0	196	0	380	45	25	450	906
04:30 PM	0	0	0	33	33	0	252	0	0	252	0	0	175	0	175	0	446	59	17	522	982
04:45 PM	0	0	0	44	44	0	218	0	0	218	0	0	194	0	194	0	419	48	10	477	933
Total	0	0	0	148	148	0	926	0	0	926	0	0	713	0	713	0	1604	199	69	1872	3659
05:00 PM	0	0	0	40	40	0	221	0	0	221	0	0	170	0	170	0	441	42	19	502	933
05:15 PM	0	0	0	50	50	0	261	0	0	261	0	0	174	0	174	0	417	46	21	484	969
05:30 PM	0	0	0	55	55	0	226	0	0	226	0	0	185	0	185	0	367	56	21	444	910
05:45 PM	0	0	0	56	56	0	242	0	0	242	0	0	154	0	154	0	309	46	22	377	829
Total	0	0	0	201	201	0	950	0	0	950	0	0	683	0	683	0	1534	190	83	1807	3641
Grand Total	0	0	0	349	349	0	1876	0	0	1876	0	0	1396	0	1396	0	3138	389	152	3679	7300
Apprch %	0	0	0	100		0	100	0	0		0	0	100	0		0	85.3	10.6	4.1		
Total %	0	0	0	4.8	4.8	0	25.7	0	0	25.7	0	0	19.1	0	19.1	0	43	5.3	2.1	50.4	
Passenger	0	0	0	349	349	0	1832	0	0	1832	0	0	1386	0	1386	0	3071	354	152	3577	7144
% Passenger	0	0	0	100	100	0	97.7	0	0	97.7	0	0	99.3	0	99.3	0	97.9	91	100	97.2	97.9
Bus	0	0	0	0	0	0	30	0	0	30	0	0	4	0	4	0	48	28	0	76	110
% Bus	0	0	0	0	0	0	1.6	0	0	1.6	0	0	0.3	0	0.3	0	1.5	7.2	0	2.1	1.5
Truck	0	0	0	0	0	0	14	0	0	14	0	0	6	0	6	0	19	7	0	26	46
% Truck	0	0	0	0	0	0	0.7	0	0	0.7	0	0	0.4	0	0.4	0	0.6	1.8	0	0.7	0.6

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File Name : 141001 PM Kapiolani_Atkinson
Site Code : 00000000
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	Southbound					Kapiolani Boulevard Westbound					Atkinson Drive Northbound					Kapiolani Boulevard Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:30 PM																					
04:30 PM	0	0	0	33	33	0	252	0	0	252	0	0	175	0	175	0	446	59	17	522	982
04:45 PM	0	0	0	44	44	0	218	0	0	218	0	0	194	0	194	0	419	48	10	477	933
05:00 PM	0	0	0	40	40	0	221	0	0	221	0	0	170	0	170	0	441	42	19	502	933
05:15 PM	0	0	0	50	50	0	261	0	0	261	0	0	174	0	174	0	417	46	21	484	969
Total Volume	0	0	0	167	167	0	952	0	0	952	0	0	713	0	713	0	1723	195	67	1985	3817
% App. Total	0	0	0	100		0	100	0	0		0	0	100	0		0	86.8	9.8	3.4		
PHF	.000	.000	.000	.835	.835	.000	.912	.000	.000	.912	.000	.000	.919	.000	.919	.000	.966	.826	.798	.951	.972

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File Name : 141001 AM atkinson_kahakai rev
Site Code : 00000000
Start Date : 10/1/2014
Page No : 1

Groups Printed- Passenger - Bus - Trucks

	Southbound					Atkinson Drive Westbound					Kahakai Drive Northbound					Atkinson Drive Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
06:45 AM	0	0	0	0	0	4	145	0	0	149	6	0	4	0	10	0	41	2	2	45	204
Total	0	0	0	0	0	4	145	0	0	149	6	0	4	0	10	0	41	2	2	45	204
07:00 AM	0	0	0	0	0	6	208	0	0	214	21	0	6	0	27	0	62	5	0	67	308
07:15 AM	0	0	0	0	0	3	194	0	0	197	10	0	5	5	20	0	48	4	15	67	284
07:30 AM	0	0	0	0	0	5	220	0	0	225	12	0	7	24	43	0	52	5	26	83	351
07:45 AM	0	0	0	0	0	9	249	0	0	258	16	0	11	20	47	0	45	5	17	67	372
Total	0	0	0	0	0	23	871	0	0	894	59	0	29	49	137	0	207	19	58	284	1315
08:00 AM	0	0	0	0	0	10	262	0	0	272	12	0	9	13	34	0	62	4	14	80	386
08:15 AM	0	0	0	0	0	11	264	0	0	275	5	0	5	20	30	0	48	2	17	67	372
08:30 AM	0	0	0	0	0	10	210	0	0	220	14	0	8	19	41	0	60	4	103	167	428
Grand Total	0	0	0	0	0	58	1752	0	0	1810	96	0	55	101	252	0	418	31	194	643	2705
Apprch %	0	0	0	0		3.2	96.8	0	0		38.1	0	21.8	40.1		0	65	4.8	30.2		
Total %	0	0	0	0	0	2.1	64.8	0	0	66.9	3.5	0	2	3.7	9.3	0	15.5	1.1	7.2	23.8	
Passenger	0	0	0	0	0	57	1700	0	0	1757	96	0	55	101	252	0	392	30	194	616	2625
% Passenger	0	0	0	0	0	98.3	97	0	0	97.1	100	0	100	100	100	0	93.8	96.8	100	95.8	97
Bus	0	0	0	0	0	0	14	0	0	14	0	0	0	0	0	0	2	0	0	2	16
% Bus	0	0	0	0	0	0	0.8	0	0	0.8	0	0	0	0	0	0	0.5	0	0	0.3	0.6
Trucks	0	0	0	0	0	1	38	0	0	39	0	0	0	0	0	0	24	1	0	25	64
% Trucks	0	0	0	0	0	1.7	2.2	0	0	2.2	0	0	0	0	0	0	5.7	3.2	0	3.9	2.4

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File Name : 141001 AM atkinson_kahakai rev
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	Southbound					Atkinson Drive Westbound					Kahakai Drive Northbound					Atkinson Drive Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 06:45 AM to 08:30 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:45 AM																					
07:45 AM	0	0	0	0	0	9	249	0	0	258	16	0	11	20	47	0	45	5	17	67	372
08:00 AM	0	0	0	0	0	10	262	0	0	272	12	0	9	13	34	0	62	4	14	80	386
08:15 AM	0	0	0	0	0	11	264	0	0	275	5	0	5	20	30	0	48	2	17	67	372
08:30 AM	0	0	0	0	0	10	210	0	0	220	14	0	8	19	41	0	60	4	103	167	428
Total Volume	0	0	0	0	0	40	985	0	0	1025	47	0	33	72	152	0	215	15	151	381	1558
% App. Total	0	0	0	0		3.9	96.1	0	0		30.9	0	21.7	47.4		0	56.4	3.9	39.6		
PHF	.000	.000	.000	.000	.000	.909	.933	.000	.000	.932	.734	.000	.750	.900	.809	.000	.867	.750	.367	.570	.910

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File Name : 141001 PM Atkinson_Kahakai rev
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Groups Printed- Passenger - Bus - Truck

	Southbound					Atkinson Drive Westbound					Kahakai Drive Northbound					Atkinson Drive Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
04:00 PM	0	0	0	0	0	5	50	0	0	55	24	0	12	17	53	0	150	11	9	170	278
04:15 PM	0	0	0	0	0	3	66	0	0	69	19	0	5	11	35	0	200	3	23	226	330
04:30 PM	0	0	0	0	0	1	68	0	0	69	11	0	13	30	54	0	179	9	11	199	322
04:45 PM	0	0	0	0	0	6	56	0	0	62	21	0	10	32	63	0	204	7	12	223	348
Total	0	0	0	0	0	15	240	0	0	255	75	0	40	90	205	0	733	30	55	818	1278
05:00 PM	0	0	0	0	0	7	59	0	0	66	13	0	7	33	53	0	168	12	21	201	320
05:15 PM	0	0	0	0	0	9	46	0	0	55	13	0	8	15	36	0	187	1	3	191	282
05:30 PM	0	0	0	0	0	11	81	0	0	92	8	0	7	81	96	0	163	5	10	178	366
05:45 PM	0	0	0	0	0	8	52	0	0	60	9	0	3	29	41	0	101	2	6	109	210
Total	0	0	0	0	0	35	238	0	0	273	43	0	25	158	226	0	619	20	40	679	1178
Grand Total	0	0	0	0	0	50	478	0	0	528	118	0	65	248	431	0	1352	50	95	1497	2456
Apprch %	0	0	0	0		9.5	90.5	0	0		27.4	0	15.1	57.5		0	90.3	3.3	6.3		
Total %	0	0	0	0	0	2	19.5	0	0	21.5	4.8	0	2.6	10.1	17.5	0	55	2	3.9	61	
Passenger	0	0	0	0	0	50	438	0	0	488	116	0	64	248	428	0	1337	46	95	1478	2394
% Passenger	0	0	0	0	0	100	91.6	0	0	92.4	98.3	0	98.5	100	99.3	0	98.9	92	100	98.7	97.5
Bus	0	0	0	0	0	0	12	0	0	12	0	0	0	0	0	0	0	0	0	0	12
% Bus	0	0	0	0	0	0	2.5	0	0	2.3	0	0	0	0	0	0	0	0	0	0	0.5
Truck	0	0	0	0	0	0	28	0	0	28	2	0	1	0	3	0	15	4	0	19	50
% Truck	0	0	0	0	0	0	5.9	0	0	5.3	1.7	0	1.5	0	0.7	0	1.1	8	0	1.3	2

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File Name : 141001 PM Atkinson_Kahakai rev
Site Code : 00000000
Start Date : 10/1/2014

	Southbound					Atkinson Drive Westbound					Kahakai Drive Northbound					Atkinson Drive Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:15 PM																					
04:15 PM	0	0	0	0	0	3	66	0	0	69	19	0	5	11	35	0	200	3	23	226	330
04:30 PM	0	0	0	0	0	1	68	0	0	69	11	0	13	30	54	0	179	9	11	199	322
04:45 PM	0	0	0	0	0	6	56	0	0	62	21	0	10	32	63	0	204	7	12	223	348
05:00 PM	0	0	0	0	0	7	59	0	0	66	13	0	7	33	53	0	168	12	21	201	320
Total Volume	0	0	0	0	0	17	249	0	0	266	64	0	35	106	205	0	751	31	67	849	1320
% App. Total	0	0	0	0		6.4	93.6	0	0		31.2	0	17.1	51.7		0	88.5	3.7	7.9		
PHF	.000	.000	.000	.000	.000	.607	.915	.000	.000	.964	.762	.000	.673	.803	.813	.000	.920	.646	.728	.939	.948

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Groups Printed- Passenger - Bus - Truck

	Kona Street Southbound					Atkinson Drive Westbound					Driveway Northbound					Atkinson Drive Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
06:45 AM	0	0	17	0	17	2	203	24	9	238	2	4	1	0	7	18	66	0	0	84	346
Total	0	0	17	0	17	2	203	24	9	238	2	4	1	0	7	18	66	0	0	84	346
07:00 AM	0	0	15	0	15	1	225	20	14	260	0	2	1	0	3	23	78	0	0	101	379
07:15 AM	0	0	19	0	19	0	211	28	27	266	1	1	2	0	4	21	76	1	0	98	387
07:30 AM	0	0	23	0	23	0	233	43	28	304	1	2	1	0	4	17	79	1	0	97	428
07:45 AM	0	0	14	0	14	0	269	31	25	325	1	1	1	0	3	28	63	0	0	91	433
Total	0	0	71	0	71	1	938	122	94	1155	3	6	5	0	14	89	296	2	0	387	1627
08:00 AM	0	0	15	0	15	1	259	23	23	306	4	2	1	0	7	27	112	0	0	139	467
08:15 AM	0	0	12	1	13	0	280	33	15	328	1	0	1	0	2	17	78	0	0	95	438
08:30 AM	0	0	13	0	13	0	182	30	12	224	0	0	1	0	1	26	87	0	0	113	351
Grand Total	0	0	128	1	129	4	1862	232	153	2251	10	12	9	0	31	177	639	2	0	818	3229
Apprch %	0	0	99.2	0.8		0.2	82.7	10.3	6.8		32.3	38.7	29	0		21.6	78.1	0.2	0		
Total %	0	0	4	0	4	0.1	57.7	7.2	4.7	69.7	0.3	0.4	0.3	0	1	5.5	19.8	0.1	0	25.3	
Passenger	0	0	128	1	129	4	1858	232	153	2247	10	12	9	0	31	177	638	2	0	817	3224
% Passenger	0	0	100	100	100	100	99.8	100	100	99.8	100	100	100	0	100	100	99.8	100	0	99.9	99.8
Bus	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	2
% Bus	0	0	0	0	0	0	0.1	0	0	0.1	0	0	0	0	0	0	0	0	0	0	0.1
Truck	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	1	0	0	1	3
% Truck	0	0	0	0	0	0	0.1	0	0	0.1	0	0	0	0	0	0	0.2	0	0	0.1	0.1

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File Name : 141001 AM Kona_Atkinson rev
Site Code : 00000000
Start Date : 10/1/2014

	Kona Street Southbound					Atkinson Drive Westbound					Driveway Northbound					Atkinson Drive Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 06:45 AM to 08:30 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:30 AM																					
07:30 AM	0	0	23	0	23	0	233	43	28	304	1	2	1	0	4	17	79	1	0	97	428
07:45 AM	0	0	14	0	14	0	269	31	25	325	1	1	1	0	3	28	63	0	0	91	433
08:00 AM	0	0	15	0	15	1	259	23	23	306	4	2	1	0	7	27	112	0	0	139	467
08:15 AM	0	0	12	1	13	0	280	33	15	328	1	0	1	0	2	17	78	0	0	95	438
Total Volume	0	0	64	1	65	1	1041	130	91	1263	7	5	4	0	16	89	332	1	0	422	1766
% App. Total	0	0	98.5	1.5		0.1	82.4	10.3	7.2		43.8	31.2	25	0		21.1	78.7	0.2	0		
PHF	.000	.000	.696	.250	.707	.250	.929	.756	.813	.963	.438	.625	1.00	.000	.571	.795	.741	.250	.000	.759	.945

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File Name : 141001 PM Kona_Atkinson rev
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Groups Printed- Passenger - Bus - Truck

	Kona Street Southbound					Atkinson Drive Westbound					Driveway Northbound					Atkinson Drive Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
04:00 PM	1	0	26	0	27	0	69	13	25	107	0	1	1	0	2	52	160	2	0	214	350
04:15 PM	1	0	32	0	33	5	72	16	32	125	1	0	1	0	2	45	212	1	0	258	418
04:30 PM	0	0	31	0	31	2	72	10	33	117	0	0	0	0	0	49	188	2	0	239	387
04:45 PM	2	0	20	0	22	1	68	14	28	111	0	2	1	0	3	47	209	1	0	257	393
Total	4	0	109	0	113	8	281	53	118	460	1	3	3	0	7	193	769	6	0	968	1548
05:00 PM	6	0	32	0	38	1	74	11	31	117	1	0	1	0	2	47	194	0	0	241	398
05:15 PM	4	0	37	0	41	1	68	8	22	99	1	0	0	0	1	27	201	0	0	228	369
05:30 PM	1	0	24	0	25	1	68	14	103	186	0	0	0	0	0	34	213	0	0	247	458
05:45 PM	0	0	24	0	24	1	73	21	104	199	1	1	0	0	2	51	178	0	0	229	454
Total	11	0	117	0	128	4	283	54	260	601	3	1	1	0	5	159	786	0	0	945	1679
Grand Total	15	0	226	0	241	12	564	107	378	1061	4	4	4	0	12	352	1555	6	0	1913	3227
Apprch %	6.2	0	93.8	0		1.1	53.2	10.1	35.6		33.3	33.3	33.3	0		18.4	81.3	0.3	0		
Total %	0.5	0	7	0	7.5	0.4	17.5	3.3	11.7	32.9	0.1	0.1	0.1	0	0.4	10.9	48.2	0.2	0	59.3	
Passenger	15	0	225	0	240	12	542	106	378	1038	4	4	4	0	12	347	1548	6	0	1901	3191
% Passenger	100	0	99.6	0	99.6	100	96.1	99.1	100	97.8	100	100	100	0	100	98.6	99.5	100	0	99.4	98.9
Bus	0	0	1	0	1	0	20	1	0	21	0	0	0	0	0	4	5	0	0	9	31
% Bus	0	0	0.4	0	0.4	0	3.5	0.9	0	2	0	0	0	0	0	1.1	0.3	0	0	0.5	1
Truck	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	1	2	0	0	3	5
% Truck	0	0	0	0	0	0	0.4	0	0	0.2	0	0	0	0	0	0.3	0.1	0	0	0.2	0.2

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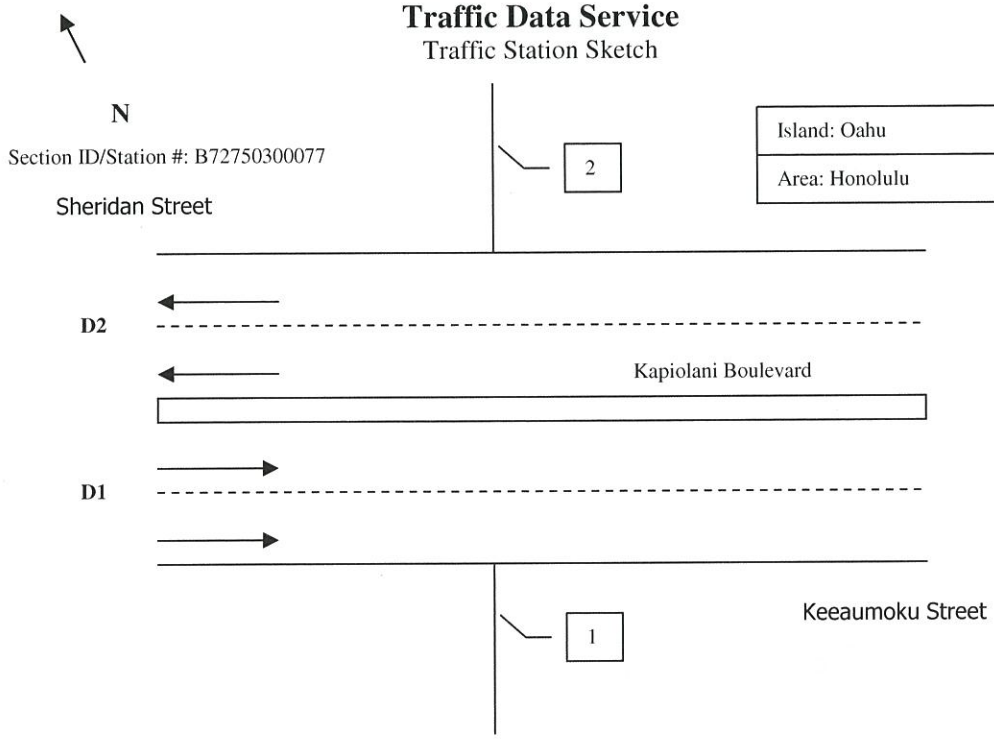
	Kona Street Southbound					Atkinson Drive Westbound					Driveway Northbound					Atkinson Drive Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 05:00 PM																					
05:00 PM	6	0	32	0	38	1	74	11	31	117	1	0	1	0	2	47	194	0	0	241	398
05:15 PM	4	0	37	0	41	1	68	8	22	99	1	0	0	0	1	27	201	0	0	228	369
05:30 PM	1	0	24	0	25	1	68	14	103	186	0	0	0	0	0	34	213	0	0	247	458
05:45 PM	0	0	24	0	24	1	73	21	104	199	1	1	0	0	2	51	178	0	0	229	454
Total Volume	11	0	117	0	128	4	283	54	260	601	3	1	1	0	5	159	786	0	0	945	1679
% App. Total	8.6	0	91.4	0		0.7	47.1	9	43.3		60	20	20	0		16.8	83.2	0	0		
PHF	.458	.000	.791	.000	.780	1.00	.956	.643	.625	.755	.750	.250	.250	.000	.625	.779	.923	.000	.000	.956	.916

Traffic Data Service

Traffic Station Sketch



Meter #	File Name	GPS
1. wave	D0421005_B72750300077	21.29416, -157.84528
2. wave	D0421006_B72750300077	21.29416, -157.84528

Station Description: Kapiolani Boulevard: Sheridan Street to Keeaumoku Street					
Survey Beginning Date/Time: 4/21/2010 @ 0000				Survey Ending Date/Time: 4/22/2010 @ 2400	
Survey Method:	Radar		Data Type:	Volume	
Survey Crew:	LM			Wavetronix	
Sketch Updated:			By:	SR	
Remarks:					
FACILITY NAME	JURI	FUNC CLASS	AREA TYPE	ROUTE NO.	MILE
Kapiolani Boulevard		14		7503	
D1= Direction to End D2= Direction to Begin				D1: Keeaumoku Street / Waialae Avenue D2: Sheridan Street / South Street	

Date: 2011/01/21

Hawaii Department of Transportation

Highways Division — **Highways Planning Survey Section**

2010 Program Count - Summary

Site ID: B72750300077 **Town:** Oahu **DIR 1:** +MP **DIR 2:** -MP **Final AADT:** 0

Functional Class: URBAN:PRINCIPAL ARTERIAL - OTHER **Count Type:** VOLUME **Counter Type:** Tube **Route No:** 7503

Location: Kapiolani Blvd b/t Kona Iki St and Kee

TIME-AM	DIR 1	DIR 2	TOTAL	TIME-AM	DIR 1	DIR 2	TOTAL	TIME-PM	DIR 1	DIR 2	TOTAL	TIME-PM	DIR 1	DIR 2	TOTAL
DATE : 04/21/2010															
12:00-12:15	85	91	176	06:00-06:15	99	80	179	12:00-12:15	312	333	645	06:00-06:15	450	372	822
12:15-12:30	79	89	168	06:15-06:30	132	82	214	12:15-12:30	302	361	663	06:15-06:30	457	316	773
12:30-12:45	80	69	149	06:30-06:45	137	121	258	12:30-12:45	296	313	609	06:30-06:45	364	305	669
12:45-01:00	54	76	130	06:45-07:00	224	216	440	12:45-01:00	278	317	595	06:45-07:00	385	242	627
01:00-01:15	33	49	82	07:00-07:15	291	259	550	01:00-01:15	352	321	673	07:00-07:15	353	259	612
01:15-01:30	43	50	93	07:15-07:30	312	309	621	01:15-01:30	325	315	640	07:15-07:30	313	351	664
01:30-01:45	30	55	85	07:30-07:45	379	360	739	01:30-01:45	295	339	634	07:30-07:45	298	387	685
01:45-02:00	33	44	77	07:45-08:00	456	376	832	01:45-02:00	337	349	686	07:45-08:00	243	333	576
02:00-02:15	49	64	113	08:00-08:15	463	327	790	02:00-02:15	337	350	687	08:00-08:15	237	365	602
02:15-02:30	39	79	118	08:15-08:30	381	304	685	02:15-02:30	336	313	649	08:15-08:30	240	307	547
02:30-02:45	47	48	95	08:30-08:45	399	265	664	02:30-02:45	334	368	702	08:30-08:45	227	304	531
02:45-03:00	28	37	65	08:45-09:00	329	234	563	02:45-03:00	354	319	673	08:45-09:00	214	274	488
03:00-03:15	31	27	58	09:00-09:15	347	233	580	03:00-03:15	340	347	687	09:00-09:15	286	299	585
03:15-03:30	34	33	67	09:15-09:30	331	175	506	03:15-03:30	352	259	611	09:15-09:30	245	269	514
03:30-03:45	24	23	47	09:30-09:45	352	199	551	03:30-03:45	315	369	684	09:30-09:45	205	254	459
03:45-04:00	25	26	51	09:45-10:00	364	241	605	03:45-04:00	330	415	745	09:45-10:00	219	201	420
04:00-04:15	12	16	28	10:00-10:15	228	320	548	04:00-04:15	323	422	745	10:00-10:15	182	248	430
04:15-04:30	22	32	54	10:15-10:30	199	272	471	04:15-04:30	389	497	886	10:15-10:30	206	213	419
04:30-04:45	24	28	52	10:30-10:45	218	291	509	04:30-04:45	445	436	881	10:30-10:45	193	193	386
04:45-05:00	18	36	54	10:45-11:00	230	259	489	04:45-05:00	517	504	1021	10:45-11:00	129	128	257
05:00-05:15	70	29	99	11:00-11:15	236	308	544	05:00-05:15	448	438	886	11:00-11:15	120	124	244
05:15-05:30	75	29	104	11:15-11:30	240	311	551	05:15-05:30	526	397	923	11:15-11:30	113	110	223
05:30-05:45	73	40	113	11:30-11:45	296	318	614	05:30-05:45	509	390	899	11:30-11:45	103	113	216
05:45-06:00	109	38	147	11:45-12:00	291	292	583	05:45-06:00	423	350	773	11:45-12:00	76	111	187

AM COMMUTER PERIOD (05:00-09:00)	DIR 1	DIR 2	
TWO DIRECTIONAL PEAK			
AM - PEAK HR TIME	07:30 AM to 08:30 AM		
AM - PEAK HR VOLUME	1679	1367	3046
AM - K FACTOR (%)			6.79
AM - D (%)	55.12	44.88	100.00
DIRECTIONAL PEAK			
AM - PEAK HR TIME	07:45 AM to 08:45 AM	07:15 AM to 08:15 AM	
AM - PEAK HR VOLUME	1699	1372	

PM COMMUTER PERIOD (15:00-19:00)	DIR 1	DIR 2	
TWO DIRECTIONAL PEAK			
PM - PEAK HR TIME	04:45 PM to 05:45 PM		
PM - PEAK HR VOLUME	2000	1729	3729
PM - K FACTOR (%)			8.32
PM - D (%)	53.63	46.37	100.00
DIRECTIONAL PEAK			
PM - PEAK HR TIME	04:45 PM to 05:45 PM	04:15 PM to 05:15 PM	
PM - PEAK HR VOLUME	2000	1875	

AM PERIOD (00:00-12:00)			
TWO DIRECTIONAL PEAK			
AM - PEAK HR TIME	07:30 AM to 08:30 AM		
AM - PEAK HR VOLUME	1679	1367	3046
AM - K FACTOR (%)			6.79
AM - D (%)	55.12	44.88	100.00

PM PERIOD (12:00-24:00)			
TWO DIRECTIONAL PEAK			
PM - PEAK HR TIME	04:45 PM to 05:45 PM		
PM - PEAK HR VOLUME	2000	1729	3729
PM - K FACTOR (%)			8.32
PM - D (%)	53.63	46.37	100.00

NON-COMMUTER PERIOD (09:00-15:00)			
TWO DIRECTIONAL PEAK			
PEAK HR TIME	01:45 PM to 02:45 PM		
PEAK HR VOLUME	1344	1380	2724
DIRECTIONAL PEAK			
PEAK HR TIME	09:00 AM to 10:00 AM	01:45 PM to 02:45 PM	
PEAK HR VOLUME	1394	1380	

6-HR, 12-HR, 24-HR PERIODS	DIR 1	DIR 2	Total
AM 6-HR PERIOD (06:00-12:00)	6,934	6,152	13,086
AM 12-HR PERIOD (00:00-12:00)	8,051	7,260	15,311
PM 6-HR PERIOD (12:00-18:00)	8,775	8,822	17,597
PM 12-HR PERIOD (12:00-24:00)	14,633	14,900	29,533
24 HOUR PERIOD	22,684	22,160	44,844
D (%)	50.58	49.42	100.00

Run Date: 2011/01/21

Hawaii Department of Transportation
Highways Division — Highways Planning Survey Section
2010 Program Count - Summary

Site ID: B72750300077 **Town:** Oahu **DIR 1:** +MP **DIR 2:** -MP **Final AADT:** 0
Functional Class: URBAN:PRINCIPAL ARTERIAL - OTHER **Count Type:** VOLUME **Counter Type:** Tube **Route No:** 7503
Location: Kapiolani Blvd b/t Kona Iki St and Kee

TIME-AM	DIR 1	DIR 2	TOTAL	TIME-AM	DIR 1	DIR 2	TOTAL	TIME-PM	DIR 1	DIR 2	TOTAL	TIME-PM	DIR 1	DIR 2	TOTAL
DATE : 04/22/2010															
12:00-12:15	91	99	190	06:00-06:15	109	68	177	12:00-12:15	300	334	634	06:00-06:15	478	416	894
12:15-12:30	58	82	140	06:15-06:30	120	77	197	12:15-12:30	332	353	685	06:15-06:30	471	387	858
12:30-12:45	79	66	145	06:30-06:45	177	145	322	12:30-12:45	335	402	737	06:30-06:45	476	283	759
12:45-01:00	69	56	125	06:45-07:00	225	214	439	12:45-01:00	272	351	623	06:45-07:00	381	286	667
01:00-01:15	72	82	154	07:00-07:15	292	265	557	01:00-01:15	257	324	581	07:00-07:15	361	358	719
01:15-01:30	42	59	101	07:15-07:30	361	314	675	01:15-01:30	335	362	697	07:15-07:30	326	382	708
01:30-01:45	49	64	113	07:30-07:45	402	340	742	01:30-01:45	317	358	675	07:30-07:45	322	342	664
01:45-02:00	52	57	109	07:45-08:00	459	382	841	01:45-02:00	291	333	624	07:45-08:00	276	370	646
02:00-02:15	63	78	141	08:00-08:15	411	362	773	02:00-02:15	320	323	643	08:00-08:15	291	315	606
02:15-02:30	67	92	159	08:15-08:30	389	282	671	02:15-02:30	330	335	665	08:15-08:30	251	350	601
02:30-02:45	37	59	96	08:30-08:45	369	273	642	02:30-02:45	325	375	700	08:30-08:45	248	289	537
02:45-03:00	31	43	74	08:45-09:00	327	184	511	02:45-03:00	334	416	750	08:45-09:00	252	295	547
03:00-03:15	26	44	70	09:00-09:15	377	244	621	03:00-03:15	348	370	718	09:00-09:15	238	247	485
03:15-03:30	36	35	71	09:15-09:30	281	206	487	03:15-03:30	359	319	678	09:15-09:30	255	241	496
03:30-03:45	32	25	57	09:30-09:45	352	186	538	03:30-03:45	328	431	759	09:30-09:45	203	295	498
03:45-04:00	37	41	78	09:45-10:00	382	209	591	03:45-04:00	380	431	811	09:45-10:00	228	221	449
04:00-04:15	26	26	52	10:00-10:15	197	333	530	04:00-04:15	375	443	818	10:00-10:15	197	316	513
04:15-04:30	35	31	66	10:15-10:30	245	375	620	04:15-04:30	430	401	831	10:15-10:30	215	273	488
04:30-04:45	26	33	59	10:30-10:45	242	348	590	04:30-04:45	417	438	855	10:30-10:45	156	205	361
04:45-05:00	27	38	65	10:45-11:00	278	326	604	04:45-05:00	501	431	932	10:45-11:00	130	149	279
05:00-05:15	53	29	82	11:00-11:15	282	325	607	05:00-05:15	509	471	980	11:00-11:15	151	149	300
05:15-05:30	65	31	96	11:15-11:30	305	292	597	05:15-05:30	580	524	1104	11:15-11:30	134	139	273
05:30-05:45	89	38	127	11:30-11:45	299	300	599	05:30-05:45	581	464	1045	11:30-11:45	100	141	241
05:45-06:00	70	36	106	11:45-12:00	273	327	600	05:45-06:00	452	432	884	11:45-12:00	102	107	209

AM COMMUTER PERIOD (05:00-09:00)	DIR 1	DIR 2	
TWO DIRECTIONAL PEAK			
AM - PEAK HR TIME	07:15 AM to 08:15 AM		
AM - PEAK HR VOLUME	1633	1398	3031
AM - K FACTOR (%)			6.42
AM - D (%)	53.88	46.12	100.00
DIRECTIONAL PEAK			
AM - PEAK HR TIME	07:30 AM to 08:30 AM	07:15 AM to 08:15 AM	
AM - PEAK HR VOLUME	1661	1398	

PM COMMUTER PERIOD (15:00-19:00)	DIR 1	DIR 2	
TWO DIRECTIONAL PEAK			
PM - PEAK HR TIME	04:45 PM to 05:45 PM		
PM - PEAK HR VOLUME	2171	1890	4061
PM - K FACTOR (%)			8.60
PM - D (%)	53.46	46.54	100.00
DIRECTIONAL PEAK			
PM - PEAK HR TIME	04:45 PM to 05:45 PM	05:00 PM to 06:00 PM	
PM - PEAK HR VOLUME	2171	1891	

AM PERIOD (00:00-12:00)			
TWO DIRECTIONAL PEAK			
AM - PEAK HR TIME	07:15 AM to 08:15 AM		
AM - PEAK HR VOLUME	1633	1398	3031
AM - K FACTOR (%)			6.42
AM - D (%)	53.88	46.12	100.00

PM PERIOD (12:00-24:00)			
TWO DIRECTIONAL PEAK			
PM - PEAK HR TIME	04:45 PM to 05:45 PM		
PM - PEAK HR VOLUME	2171	1890	4061
PM - K FACTOR (%)			8.60
PM - D (%)	53.46	46.54	100.00

NON-COMMUTER PERIOD (09:00-15:00)			
TWO DIRECTIONAL PEAK			
PEAK HR TIME	02:00 PM to 03:00 PM		
PEAK HR VOLUME	1309	1449	2758
DIRECTIONAL PEAK			
PEAK HR TIME	09:00 AM to 10:00 AM	02:00 PM to 03:00 PM	
PEAK HR VOLUME	1392	1449	

6-HR, 12-HR, 24-HR PERIODS	DIR 1	DIR 2	Total
AM 6-HR PERIOD (06:00-12:00)	7,154	6,377	13,531
AM 12-HR PERIOD (00:00-12:00)	8,386	7,621	16,007
PM 6-HR PERIOD (12:00-18:00)	9,008	9,421	18,429
PM 12-HR PERIOD (12:00-24:00)	15,250	15,977	31,227
24 HOUR PERIOD	23,636	23,598	47,234
D (%)	50.04	49.96	100.00

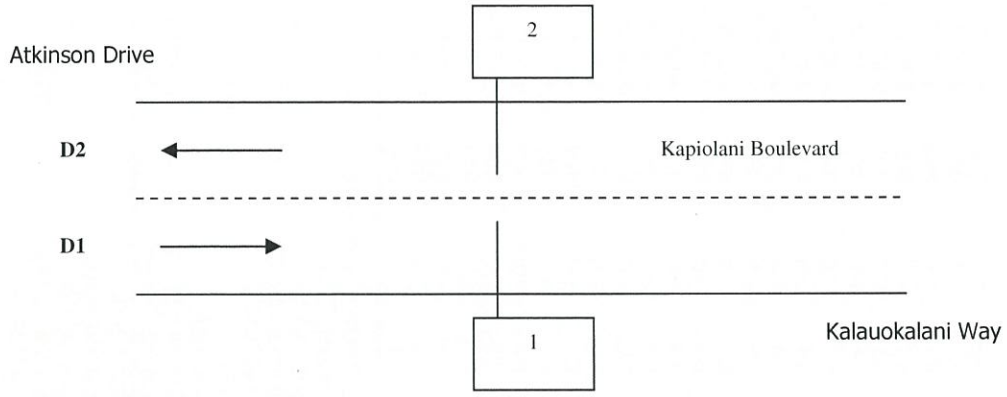
Traffic Data Service

Traffic Station Sketch

N

Section ID/Station #: B72750300153

Island: Oahu
Area: Honolulu



Meter #	File Name	GPS
1. bw82	D1207011_B72750300153	21.29055, -157.83694
2. bz84	D1207012_B72750300153	21.29055, -157.83694

Station Description: Kapiolani Boulevard: Atkinson Drive to Kalauokalani Way			
Survey Beginning Date/Time: 12/7/2010 @ 0000		Survey Ending Date/Time: 12/8/2010 @ 2400	
Survey Method:	Road Tube	Data Type:	Volume
Survey Crew:	LM		V5
Sketch Updated:		By:	SR
Remarks:			

FACILITY NAME	JURI	FUNC CLASS	AREA TYPE	ROUTE NO.	ROUTE MILE
Kapiolani Boulevard		14		7503	

D1= Direction to End	D1: Kalauokalani Way / Waialae Avenue
D2= Direction to Begin	D2: Atkinson Drive / South Street

Run Date: 2011/03/21

Hawaii Department of Transportation

Highways Division — Highways Planning Survey Section

2010 Program Count - Summary

Site ID: B72750300153 **Town:** Oahu **DIR 1:** +MP **DIR 2:** -MP **Final AADT:** 0
Functional Class: URBAN:PRINCIPAL ARTERIAL - OTHER **Count Type:** VOLUME **Counter Type:** Tube **Route No:** 7503
Location:

TIME-AM	DIR 1	DIR 2	TOTAL	TIME-AM	DIR 1	DIR 2	TOTAL	TIME-PM	DIR 1	DIR 2	TOTAL	TIME-PM	DIR 1	DIR 2	TOTAL
DATE : 12/07/2010															
12:00-12:15	103	91	194	06:00-06:15	104	211	315	12:00-12:15	439	518	957	06:00-06:15	676	446	1122
12:15-12:30	60	83	143	06:15-06:30	144	303	447	12:15-12:30	437	609	1046	06:15-06:30	573	419	992
12:30-12:45	68	63	131	06:30-06:45	228	487	715	12:30-12:45	416	600	1016	06:30-06:45	522	474	996
12:45-01:00	75	51	126	06:45-07:00	313	607	920	12:45-01:00	456	597	1053	06:45-07:00	420	422	842
01:00-01:15	43	47	90	07:00-07:15	397	689	1086	01:00-01:15	422	527	949	07:00-07:15	471	428	899
01:15-01:30	49	51	100	07:15-07:30	408	865	1273	01:15-01:30	424	546	970	07:15-07:30	434	421	855
01:30-01:45	46	40	86	07:30-07:45	461	769	1230	01:30-01:45	498	532	1030	07:30-07:45	379	414	793
01:45-02:00	56	35	91	07:45-08:00	458	898	1356	01:45-02:00	550	569	1119	07:45-08:00	392	359	751
02:00-02:15	39	62	101	08:00-08:15	423	847	1270	02:00-02:15	427	505	932	08:00-08:15	376	335	711
02:15-02:30	30	31	61	08:15-08:30	414	872	1286	02:15-02:30	469	493	962	08:15-08:30	368	243	611
02:30-02:45	24	49	73	08:30-08:45	236	728	964	02:30-02:45	511	576	1087	08:30-08:45	362	265	627
02:45-03:00	35	22	57	08:45-09:00	262	664	926	02:45-03:00	504	562	1066	08:45-09:00	399	266	665
03:00-03:15	27	32	59	09:00-09:15	245	537	782	03:00-03:15	572	403	975	09:00-09:15	396	271	667
03:15-03:30	21	36	57	09:15-09:30	288	618	906	03:15-03:30	585	366	951	09:15-09:30	422	260	682
03:30-03:45	11	33	44	09:30-09:45	290	537	827	03:30-03:45	549	455	1004	09:30-09:45	366	216	582
03:45-04:00	24	41	65	09:45-10:00	294	622	916	03:45-04:00	549	428	977	09:45-10:00	299	228	527
04:00-04:15	31	63	94	10:00-10:15	291	526	817	04:00-04:15	652	397	1049	10:00-10:15	274	233	507
04:15-04:30	18	81	99	10:15-10:30	295	574	869	04:15-04:30	616	421	1037	10:15-10:30	235	210	445
04:30-04:45	29	55	84	10:30-10:45	339	640	979	04:30-04:45	621	428	1049	10:30-10:45	166	193	359
04:45-05:00	30	83	113	10:45-11:00	324	577	901	04:45-05:00	770	483	1253	10:45-11:00	164	175	339
05:00-05:15	40	107	147	11:00-11:15	340	552	892	05:00-05:15	717	404	1121	11:00-11:15	119	179	298
05:15-05:30	44	88	132	11:15-11:30	350	563	913	05:15-05:30	729	455	1184	11:15-11:30	99	137	236
05:30-05:45	72	172	244	11:30-11:45	394	601	995	05:30-05:45	624	401	1025	11:30-11:45	107	132	239
05:45-06:00	99	226	325	11:45-12:00	433	597	1030	05:45-06:00	698	413	1111	11:45-12:00	99	92	191

AM COMMUTER PERIOD (05:00-09:00)	DIR 1	DIR 2	
TWO DIRECTIONAL PEAK			
AM - PEAK HR TIME	07:30 AM to 08:30 AM		
AM - PEAK HR VOLUME	1756	3386	5142
AM - K FACTOR (%)			7.89
AM - D (%)	34.15	65.85	100.00
DIRECTIONAL PEAK			
AM - PEAK HR TIME	07:30 AM to 08:30 AM	07:30 AM to 08:30 AM	
AM - PEAK HR VOLUME	1756	3386	

PM COMMUTER PERIOD (15:00-19:00)	DIR 1	DIR 2	
TWO DIRECTIONAL PEAK			
PM - PEAK HR TIME	04:30 PM to 05:30 PM		
PM - PEAK HR VOLUME	2837	1770	4607
PM - K FACTOR (%)			7.07
PM - D (%)	61.58	38.42	100.00
DIRECTIONAL PEAK			
PM - PEAK HR TIME	04:45 PM to 05:45 PM	04:30 PM to 05:30 PM	
PM - PEAK HR VOLUME	2840	1770	

AM PERIOD (00:00-12:00)			
TWO DIRECTIONAL PEAK			
AM - PEAK HR TIME	07:30 AM to 08:30 AM		
AM - PEAK HR VOLUME	1756	3386	5142
AM - K FACTOR (%)			7.89
AM - D (%)	34.15	65.85	100.00

PM PERIOD (12:00-24:00)			
TWO DIRECTIONAL PEAK			
PM - PEAK HR TIME	04:30 PM to 05:30 PM		
PM - PEAK HR VOLUME	2837	1770	4607
PM - K FACTOR (%)			7.07
PM - D (%)	61.58	38.42	100.00

NON-COMMUTER PERIOD (09:00-15:00)	DIR 1	DIR 2	
TWO DIRECTIONAL PEAK			
PEAK HR TIME	01:45 PM to 02:45 PM		
PEAK HR VOLUME	1957	2143	4100
DIRECTIONAL PEAK			
PEAK HR TIME	01:45 PM to 02:45 PM	09:45 AM to 10:45 AM	
PEAK HR VOLUME	1957	2362	

6-HR, 12-HR, 24-HR PERIODS	DIR 1	DIR 2	Total
AM 6-HR PERIOD (06:00-12:00)	7,731	14,884	22,615
AM 12-HR PERIOD (00:00-12:00)	8,805	16,526	25,331
PM 6-HR PERIOD (12:00-18:00)	13,235	11,688	24,923
PM 12-HR PERIOD (12:00-24:00)	21,353	18,506	39,859
24 HOUR PERIOD	30,158	35,032	65,190
D (%)	46.26	53.74	100.00

n Date: 2011/03/21

Hawaii Dep ment of Transportation
Highways Division **Highways Planning Survey Section**

2010 Program Count - Summary

Site ID: B72750300153 **Town:** Oahu **DIR 1:** +MP **DIR 2:** -MP **Final AADT:** 0
Functional Class: URBAN:PRINCIPAL ARTERIAL - OTHER **Count Type:** VOLUME **Counter Type:** Tube **Route No:** 7503
Location:

TIME-AM	DIR 1	DIR 2	TOTAL	TIME-AM	DIR 1	DIR 2	TOTAL	TIME-PM	DIR 1	DIR 2	TOTAL	TIME-PM	DIR 1	DIR 2	TOTAL
DATE : 12/08/2010															
12:00-12:15	94	98	192	06:00-06:15	119	212	331	12:00-12:15	443	537	980	06:00-06:15	659	358	1017
12:15-12:30	66	82	148	06:15-06:30	145	286	431	12:15-12:30	505	551	1056	06:15-06:30	647	389	1036
12:30-12:45	85	77	162	06:30-06:45	245	454	699	12:30-12:45	436	562	998	06:30-06:45	564	457	1021
12:45-01:00	82	67	149	06:45-07:00	286	634	920	12:45-01:00	430	557	987	06:45-07:00	531	410	941
01:00-01:15	46	64	110	07:00-07:15	385	673	1058	01:00-01:15	453	510	963	07:00-07:15	482	417	899
01:15-01:30	55	54	109	07:15-07:30	447	753	1200	01:15-01:30	514	524	1038	07:15-07:30	412	423	835
01:30-01:45	43	41	84	07:30-07:45	433	802	1235	01:30-01:45	488	560	1048	07:30-07:45	377	381	758
01:45-02:00	59	64	123	07:45-08:00	469	851	1320	01:45-02:00	520	586	1106	07:45-08:00	403	368	771
02:00-02:15	49	56	105	08:00-08:15	400	841	1241	02:00-02:15	478	513	991	08:00-08:15	396	295	691
02:15-02:30	47	33	80	08:15-08:30	445	836	1281	02:15-02:30	474	468	942	08:15-08:30	382	293	675
02:30-02:45	39	38	77	08:30-08:45	300	656	956	02:30-02:45	544	512	1056	08:30-08:45	362	305	667
02:45-03:00	25	33	58	08:45-09:00	292	675	967	02:45-03:00	564	561	1125	08:45-09:00	370	238	608
03:00-03:15	17	22	39	09:00-09:15	264	526	790	03:00-03:15	660	449	1109	09:00-09:15	367	269	636
03:15-03:30	26	28	54	09:15-09:30	233	552	785	03:15-03:30	566	389	955	09:15-09:30	361	288	649
03:30-03:45	20	27	47	09:30-09:45	227	537	764	03:30-03:45	573	515	1088	09:30-09:45	366	253	619
03:45-04:00	21	30	51	09:45-10:00	299	591	890	03:45-04:00	560	408	968	09:45-10:00	261	213	474
04:00-04:15	21	38	59	10:00-10:15	289	565	854	04:00-04:15	624	409	1033	10:00-10:15	266	209	475
04:15-04:30	26	84	110	10:15-10:30	288	586	874	04:15-04:30	611	450	1061	10:15-10:30	235	262	497
04:30-04:45	17	61	78	10:30-10:45	319	559	878	04:30-04:45	678	455	1133	10:30-10:45	206	194	400
04:45-05:00	19	53	72	10:45-11:00	376	595	971	04:45-05:00	770	425	1195	10:45-11:00	168	173	341
05:00-05:15	44	110	154	11:00-11:15	340	575	915	05:00-05:15	693	403	1096	11:00-11:15	158	169	327
05:15-05:30	35	106	141	11:15-11:30	390	620	1010	05:15-05:30	752	438	1190	11:15-11:30	119	149	268
05:30-05:45	52	156	208	11:30-11:45	422	535	957	05:30-05:45	653	365	1018	11:30-11:45	105	132	237
05:45-06:00	96	190	286	11:45-12:00	431	639	1070	05:45-06:00	696	419	1115	11:45-12:00	102	118	220

AM COMMUTER PERIOD (05:00-09:00)	DIR 1	DIR 2	
TWO DIRECTIONAL PEAK			
AM - PEAK HR TIME	07:30 AM to 08:30 AM		
AM - PEAK HR VOLUME	1747	3330	5077
AM - K FACTOR (%)			7.76
AM - D (%)	34.41	65.59	100.00
DIRECTIONAL PEAK			
AM - PEAK HR TIME	07:15 AM to 08:15 AM	07:30 AM to 08:30 AM	
AM - PEAK HR VOLUME	1749	3330	

PM COMMUTER PERIOD (15:00-19:00)	DIR 1	DIR 2	
TWO DIRECTIONAL PEAK			
PM - PEAK HR TIME	04:30 PM to 05:30 PM		
PM - PEAK HR VOLUME	2893	1721	4614
PM - K FACTOR (%)			7.05
PM - D (%)	62.70	37.30	100.00
DIRECTIONAL PEAK			
PM - PEAK HR TIME	04:30 PM to 05:30 PM	03:30 PM to 04:30 PM	
PM - PEAK HR VOLUME	2893	1782	

AM PERIOD (00:00-12:00)			
TWO DIRECTIONAL PEAK			
AM - PEAK HR TIME	07:30 AM to 08:30 AM		
AM - PEAK HR VOLUME	1747	3330	5077
AM - K FACTOR (%)			7.76
AM - D (%)	34.41	65.59	100.00

PM PERIOD (12:00-24:00)			
TWO DIRECTIONAL PEAK			
PM - PEAK HR TIME	04:30 PM to 05:30 PM		
PM - PEAK HR VOLUME	2893	1721	4614
PM - K FACTOR (%)			7.05
PM - D (%)	62.70	37.30	100.00

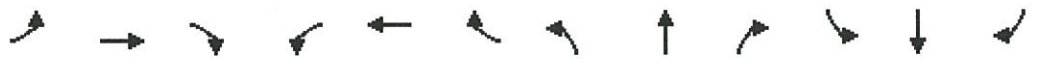
NON-COMMUTER PERIOD (09:00-15:00)	DIR 1	DIR 2	
TWO DIRECTIONAL PEAK			
PEAK HR TIME	01:15 PM to 02:15 PM		
PEAK HR VOLUME	2000	2183	4183
DIRECTIONAL PEAK			
PEAK HR TIME	02:00 PM to 03:00 PM	11:00 AM to 12:00 PM	
PEAK HR VOLUME	2060	2369	

6-HR, 12-HR, 24-HR PERIODS	DIR 1	DIR 2	Total
AM 6-HR PERIOD (06:00-12:00)	7,844	14,553	22,397
AM 12-HR PERIOD (00:00-12:00)	8,928	16,165	25,093
PM 6-HR PERIOD (12:00-18:00)	13,685	11,566	25,251
PM 12-HR PERIOD (12:00-24:00)	21,984	18,329	40,313
24 HOUR PERIOD	30,912	34,494	65,406
D (%)	47.26	52.74	100.00

APPENDIX C

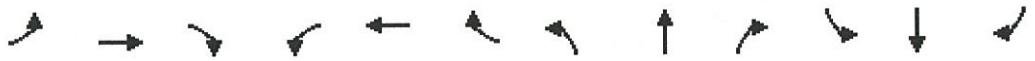
Analysis Reports

Existing (2014) Conditions



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	2	513	129	6	1824	128	57	179	39	48	136	65
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0			5.0			5.0			5.0	5.0
Lane Util. Factor		0.95			0.86			0.95			0.95	1.00
Frpb, ped/bikes		0.92			0.98			0.97			1.00	0.83
Flpb, ped/bikes		1.00			1.00			0.97			0.97	1.00
Frt		0.97			0.99			0.98			1.00	0.85
Flt Protected		1.00			1.00			0.99			0.99	1.00
Satd. Flow (prot)		3098			6110			3172			3307	1284
Flt Permitted		0.95			0.93			0.84			0.79	1.00
Satd. Flow (perm)		2934			5684			2679			2663	1284
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	2	576	145	7	2049	144	64	201	44	54	153	73
RTOR Reduction (vph)	0	20	0	0	10	0	0	10	0	0	0	12
Lane Group Flow (vph)	0	703	0	0	2190	0	0	299	0	0	207	61
Confl. Peds. (#/hr)	197		154	154		197	137		197	197		137
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		6
Actuated Green, G (s)		67.7			67.7			42.3			42.3	42.3
Effective Green, g (s)		67.7			67.7			42.3			42.3	42.3
Actuated g/C Ratio		0.56			0.56			0.35			0.35	0.35
Clearance Time (s)		5.0			5.0			5.0			5.0	5.0
Vehicle Extension (s)		3.0			3.0			3.0			3.0	3.0
Lane Grp Cap (vph)		1655			3206			944			938	452
v/s Ratio Prot												
v/s Ratio Perm		0.24			c0.39			c0.11			0.08	0.05
v/c Ratio		0.42			0.68			0.32			0.22	0.14
Uniform Delay, d1		15.0			18.5			28.3			27.3	26.4
Progression Factor		1.00			0.99			1.00			1.00	1.00
Incremental Delay, d2		0.2			0.5			0.9			0.5	0.6
Delay (s)		15.2			18.8			29.2			27.8	27.0
Level of Service		B			B			C			C	C
Approach Delay (s)		15.2			18.8			29.2			27.6	
Approach LOS		B			B			C			C	

Intersection Summary			
HCM 2000 Control Delay	19.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	94.2%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Yield			Stop			Stop			Stop	
Volume (vph)	69	0	59	21	83	93	56	116	18	31	154	93
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	73	0	62	22	87	98	59	122	19	33	162	98

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	135	207	200	293
Volume Left (vph)	73	22	59	33
Volume Right (vph)	62	98	19	98
Hadj (s)	-0.07	-0.16	0.10	-0.08
Departure Headway (s)	5.5	5.3	5.4	5.1
Degree Utilization, x	0.21	0.30	0.30	0.41
Capacity (veh/h)	581	619	607	662
Control Delay (s)	9.9	10.6	10.7	11.7
Approach Delay (s)	9.9	10.6	10.7	11.7
Approach LOS	A	B	B	B

Intersection Summary			
Delay	10.9		
Level of Service	B		
Intersection Capacity Utilization	55.9%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	495	95	1012	1963	0	325
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0		5.0	5.0		5.0
Lane Util. Factor	0.95		0.86	0.86		0.76
Frpb, ped/bikes	0.99		1.00	1.00		1.00
Flpb, ped/bikes	1.00		1.00	1.00		1.00
Frt	0.98		1.00	1.00		0.85
Flt Protected	1.00		0.95	0.99		1.00
Satd. Flow (prot)	3387		1502	4708		3575
Flt Permitted	1.00		0.27	0.67		1.00
Satd. Flow (perm)	3387		427	3205		3575
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	538	103	1100	2134	0	353
RTOR Reduction (vph)	16	0	0	0	0	164
Lane Group Flow (vph)	625	0	627	2607	0	189
Confl. Peds. (#/hr)		51	51			
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%
Turn Type	NA		pm+pt	NA		pt+ov
Protected Phases	4		2 3	8		2 3
Permitted Phases			8			
Actuated Green, G (s)	45.6		115.0	115.0		64.4
Effective Green, g (s)	45.6		115.0	115.0		64.4
Actuated g/C Ratio	0.38		0.96	0.96		0.54
Clearance Time (s)	5.0			5.0		
Vehicle Extension (s)	3.0			3.0		
Lane Grp Cap (vph)	1287		986	3878		1918
v/s Ratio Prot	0.18		0.34	c0.36		0.05
v/s Ratio Perm			0.27	c0.28		
v/c Ratio	0.49		0.64	0.67		0.10
Uniform Delay, d1	28.3		8.0	0.3		13.6
Progression Factor	0.65		1.00	1.00		0.11
Incremental Delay, d2	0.3		1.4	0.5		0.0
Delay (s)	18.6		9.3	0.8		1.5
Level of Service	B		A	A		A
Approach Delay (s)	18.6			2.4	1.5	
Approach LOS	B			A	A	

Intersection Summary			
HCM 2000 Control Delay	4.8	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	80.6%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	47	33	321	15	40	1067
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0		5.0		5.0	5.0
Lane Util. Factor	0.97		0.95		1.00	0.95
Frpb, ped/bikes	0.96		0.99		1.00	1.00
Flpb, ped/bikes	1.00		1.00		0.94	1.00
Frt	0.94		0.99		1.00	1.00
Flt Protected	0.97		1.00		0.95	1.00
Satd. Flow (prot)	3126		3434		1642	3505
Flt Permitted	0.97		1.00		0.44	1.00
Satd. Flow (perm)	3126		3434		760	3505
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	52	36	353	16	44	1173
RTOR Reduction (vph)	20	0	4	0	0	0
Lane Group Flow (vph)	68	0	365	0	44	1173
Confl. Peds. (#/hr)		72		151	151	
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%
Turn Type	Prot		NA		pm+pt	NA
Protected Phases	2		4		3	8
Permitted Phases					8	
Actuated Green, G (s)	52.5		46.4		57.5	57.5
Effective Green, g (s)	52.5		46.4		57.5	57.5
Actuated g/C Ratio	0.44		0.39		0.48	0.48
Clearance Time (s)	5.0		5.0		5.0	5.0
Vehicle Extension (s)	3.0		3.0		3.0	3.0
Lane Grp Cap (vph)	1367		1327		409	1679
v/s Ratio Prot	c0.02		0.11		0.01	c0.33
v/s Ratio Perm					0.05	
v/c Ratio	0.05		0.28		0.11	0.70
Uniform Delay, d1	19.4		25.3		17.1	24.5
Progression Factor	1.00		1.00		0.93	0.93
Incremental Delay, d2	0.1		0.1		0.1	1.0
Delay (s)	19.5		25.4		16.1	23.8
Level of Service	B		C		B	C
Approach Delay (s)	19.5		25.4			23.5
Approach LOS	B		C			C

Intersection Summary			
HCM 2000 Control Delay	23.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.41		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	64.9%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	0	64	89	332	1041	130
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	0	67	94	349	1096	137
Pedestrians	91			91		
Lane Width (ft)	12.0			12.0		
Walking Speed (ft/s)	3.5			3.5		
Percent Blockage	9			9		
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)					114	
pX, platoon unblocked	0.74	0.74	0.74			
vC, conflicting volume	1559	798	1324			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1043	10	723			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	90	84			
cM capacity (veh/h)	128	659	593			

Direction, Lane #	EB 1	NB 1	NB 2	NB 3	NB 4	SB 1	SB 2
Volume Total	67	94	116	116	116	731	502
Volume Left	0	94	0	0	0	0	0
Volume Right	67	0	0	0	0	0	137
cSH	659	593	1700	1700	1700	1700	1700
Volume to Capacity	0.10	0.16	0.07	0.07	0.07	0.43	0.30
Queue Length 95th (ft)	9	14	0	0	0	0	0
Control Delay (s)	11.1	12.2	0.0	0.0	0.0	0.0	0.0
Lane LOS	B	B					
Approach Delay (s)	11.1	2.6				0.0	
Approach LOS	B						

Intersection Summary			
Average Delay	1.1		
Intersection Capacity Utilization	61.3%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	34	1810	80	1	694	222	31	357	85	108	337	90
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0			5.0			5.0			5.0	5.0
Lane Util. Factor		0.86			0.95			0.95			0.95	1.00
Frpb, ped/bikes		0.98			0.92			0.94			1.00	0.67
Flpb, ped/bikes		1.00			1.00			0.99			0.97	1.00
Frt		0.99			0.96			0.97			1.00	0.85
Flt Protected		1.00			1.00			1.00			0.99	1.00
Satd. Flow (prot)		6209			3137			3205			3378	1065
Flt Permitted		0.89			0.95			0.89			0.66	1.00
Satd. Flow (perm)		5509			2990			2872			2263	1065
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	36	1905	84	1	731	234	33	376	89	114	355	95
RTOR Reduction (vph)	0	5	0	0	12	0	0	1	0	0	0	21
Lane Group Flow (vph)	0	2020	0	0	954	0	0	497	0	0	469	74
Confl. Peds. (#/hr)	320		299	299		320	341		337	337		341
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		6
Actuated Green, G (s)		61.3			61.3			48.7			48.7	48.7
Effective Green, g (s)		61.3			61.3			48.7			48.7	48.7
Actuated g/C Ratio		0.51			0.51			0.41			0.41	0.41
Clearance Time (s)		5.0			5.0			5.0			5.0	5.0
Vehicle Extension (s)		3.0			3.0			3.0			3.0	3.0
Lane Grp Cap (vph)		2814			1527			1165			918	432
v/s Ratio Prot												
v/s Ratio Perm		c0.37			0.32			0.17			c0.21	0.07
v/c Ratio		0.72			0.62			0.43			0.51	0.17
Uniform Delay, d1		22.7			21.1			25.6			26.7	22.8
Progression Factor		1.00			0.57			1.00			1.00	1.00
Incremental Delay, d2		0.9			0.7			1.1			2.0	0.9
Delay (s)		23.6			12.8			26.8			28.8	23.6
Level of Service		C			B			C			C	C
Approach Delay (s)		23.6			12.8			26.8			27.9	
Approach LOS		C			B			C			C	

Intersection Summary			
HCM 2000 Control Delay	22.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	116.6%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Yield			Stop			Stop			Stop	
Volume (vph)	95	14	162	10	90	179	92	191	23	78	277	90
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	102	15	174	11	97	192	99	205	25	84	298	97

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	291	300	329	478
Volume Left (vph)	102	11	99	84
Volume Right (vph)	174	192	25	97
Hadj (s)	-0.22	-0.31	0.08	-0.02
Departure Headway (s)	8.0	7.8	8.0	7.4
Degree Utilization, x	0.64	0.65	0.73	0.98
Capacity (veh/h)	430	436	439	478
Control Delay (s)	24.2	24.4	29.4	63.8
Approach Delay (s)	24.2	24.4	29.4	63.8
Approach LOS	C	C	D	F

Intersection Summary			
Delay	39.0		
Level of Service	E		
Intersection Capacity Utilization	80.6%	ICU Level of Service	D
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	1723	195	0	952	0	713
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0			5.0		5.0
Lane Util. Factor	0.86			0.95		0.64
Frpb, ped/bikes	0.99			1.00		1.00
Flpb, ped/bikes	1.00			1.00		1.00
Frt	0.98			1.00		0.85
Flt Protected	1.00			1.00		1.00
Satd. Flow (prot)	6261			3539		4053
Flt Permitted	1.00			1.00		1.00
Satd. Flow (perm)	6261			3539		4053
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	1776	201	0	981	0	735
RTOR Reduction (vph)	19	0	0	0	0	13
Lane Group Flow (vph)	1958	0	0	981	0	722
Confl. Peds. (#/hr)		67	67			
Turn Type	NA			NA		Prot
Protected Phases	4			8		2
Permitted Phases						
Actuated Green, G (s)	57.8			57.8		52.2
Effective Green, g (s)	57.8			57.8		52.2
Actuated g/C Ratio	0.48			0.48		0.44
Clearance Time (s)	5.0			5.0		5.0
Vehicle Extension (s)	3.0			3.0		3.0
Lane Grp Cap (vph)	3015			1704		1763
v/s Ratio Prot	c0.31			0.28		c0.18
v/s Ratio Perm						
v/c Ratio	0.65			0.58		0.41
Uniform Delay, d1	23.5			22.3		23.3
Progression Factor	0.40			1.00		0.05
Incremental Delay, d2	0.4			0.5		0.7
Delay (s)	9.7			22.8		1.9
Level of Service	A			C		A
Approach Delay (s)	9.7			22.8	1.9	
Approach LOS	A			C	A	

Intersection Summary			
HCM 2000 Control Delay	11.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	51.4%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	64	35	751	31	17	249
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0		5.0		5.0	5.0
Lane Util. Factor	0.97		0.91		1.00	0.95
Frpb, ped/bikes	0.95		0.99		1.00	1.00
Flpb, ped/bikes	1.00		1.00		1.00	1.00
Frt	0.95		0.99		1.00	1.00
Flt Protected	0.97		1.00		0.95	1.00
Satd. Flow (prot)	3112		4975		1747	3505
Flt Permitted	0.97		1.00		0.15	1.00
Satd. Flow (perm)	3112		4975		271	3505
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	67	37	791	33	18	262
RTOR Reduction (vph)	14	0	5	0	0	0
Lane Group Flow (vph)	90	0	819	0	18	262
Confl. Peds. (#/hr)		106		67	67	
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%
Turn Type	Prot		NA		pm+pt	NA
Protected Phases	2		4		3	8
Permitted Phases					8	
Actuated Green, G (s)	73.7		28.4		36.3	36.3
Effective Green, g (s)	73.7		28.4		36.3	36.3
Actuated g/C Ratio	0.61		0.24		0.30	0.30
Clearance Time (s)	5.0		5.0		5.0	5.0
Vehicle Extension (s)	3.0		3.0		3.0	3.0
Lane Grp Cap (vph)	1911		1177		117	1060
v/s Ratio Prot	c0.03		c0.16		0.00	c0.07
v/s Ratio Perm					0.04	
v/c Ratio	0.05		0.70		0.15	0.25
Uniform Delay, d1	9.2		41.8		31.0	31.5
Progression Factor	1.00		1.00		0.97	0.94
Incremental Delay, d2	0.0		1.8		0.6	0.1
Delay (s)	9.2		43.7		30.6	29.7
Level of Service	A		D		C	C
Approach Delay (s)	9.2		43.7			29.8
Approach LOS	A		D			C

Intersection Summary			
HCM 2000 Control Delay	37.5	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.23		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	55.6%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	11	117	159	786	283	54
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	12	127	173	854	308	59
Pedestrians	260			260		
Lane Width (ft)	12.0			12.0		
Walking Speed (ft/s)	3.5			3.5		
Percent Blockage	25			25		
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)					114	
pX, platoon unblocked	0.95	0.95	0.95			
vC, conflicting volume	1227	703	626			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1126	571	490			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	89	49	77			
cM capacity (veh/h)	110	250	766			

Direction, Lane #	EB 1	NB 1	NB 2	NB 3	NB 4	SB 1	SB 2
Volume Total	139	173	285	285	285	205	161
Volume Left	12	173	0	0	0	0	0
Volume Right	127	0	0	0	0	0	59
cSH	225	766	1700	1700	1700	1700	1700
Volume to Capacity	0.62	0.23	0.17	0.17	0.17	0.12	0.09
Queue Length 95th (ft)	91	22	0	0	0	0	0
Control Delay (s)	43.8	11.1	0.0	0.0	0.0	0.0	0.0
Lane LOS	E	B					
Approach Delay (s)	43.8	1.9				0.0	
Approach LOS	E						

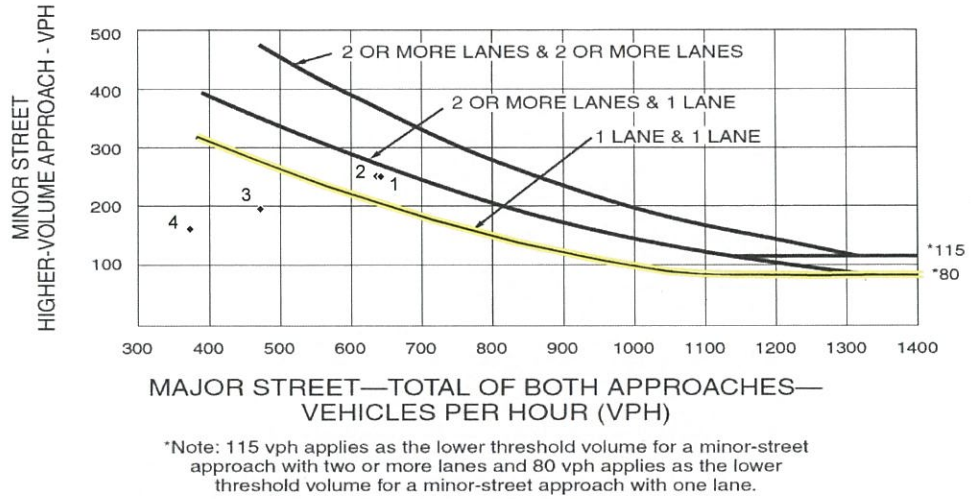
Intersection Summary			
Average Delay	5.2		
Intersection Capacity Utilization	Err%	ICU Level of Service	H
Analysis Period (min)	15		

Traffic Signal Warrants - Existing (2014)
Mahukona St. and Kona St.

4-Hour Warrant - Figure 4C-2

Major/Minor Roads	Approach Type	# of Lanes	1		2		3		4		Pass?
Mahukona St. /	Major	1	632	Yes	638	Yes	468	No	369	No	No
Kona St.	Minor	1	253		252		197		163		

Figure 4C-1. Warrant 2, Four-Hour Vehicular Volume

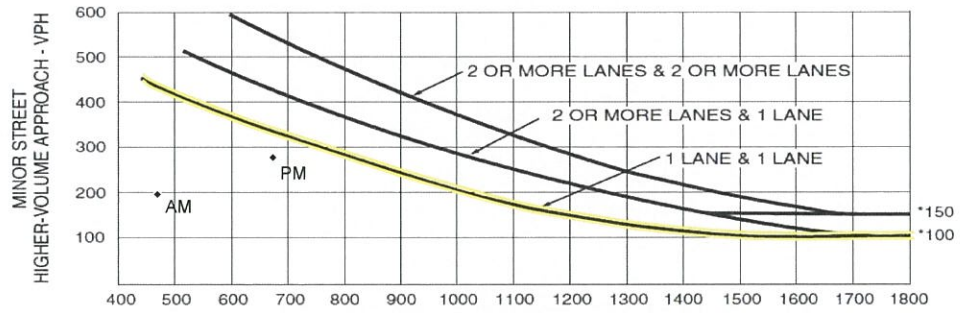


*Note: 115 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 80 vph applies as the lower threshold volume for a minor-street approach with one lane.

Peak Hour Warrant - Figure 4C-3

Major/Minor Roads	Approach Type	# of Lanes	AM Volume	Pass?	Mid Volume	Pass?	PM Volume	Pass?	Pass?
Mahukona St. /	Major	1	468	No		N/A	671	No	No
Kona St.	Minor	1	197				279		

Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Source: *MUTCD, 2009.*

APPENDIX D

Analysis Reports

Future (2017) Without Project Conditions

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	544	141	0	1935	136	62	199	41	51	153	69
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0			5.0			5.0			5.0	5.0
Lane Util. Factor		0.95			0.86			0.95			0.95	1.00
Frpb, ped/bikes		0.92			0.98			0.97			1.00	0.83
Flpb, ped/bikes		1.00			1.00			0.98			0.97	1.00
Frt		0.97			0.99			0.98			1.00	0.85
Flt Protected		1.00			1.00			0.99			0.99	1.00
Satd. Flow (prot)		3090			6112			3185			3320	1284
Flt Permitted		1.00			1.00			0.83			0.79	1.00
Satd. Flow (perm)		3090			6112			2662			2652	1284
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	0	611	158	0	2174	153	70	224	46	57	172	78
RTOR Reduction (vph)	0	20	0	0	9	0	0	10	0	0	0	12
Lane Group Flow (vph)	0	749	0	0	2318	0	0	330	0	0	229	66
Confl. Peds. (#/hr)	197		154	154		197	137		197	197		137
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
Turn Type		NA			NA		Perm	NA		Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases				8			2			6		6
Actuated Green, G (s)		66.7			66.7			43.3			43.3	43.3
Effective Green, g (s)		66.7			66.7			43.3			43.3	43.3
Actuated g/C Ratio		0.56			0.56			0.36			0.36	0.36
Clearance Time (s)		5.0			5.0			5.0			5.0	5.0
Vehicle Extension (s)		3.0			3.0			3.0			3.0	3.0
Lane Grp Cap (vph)		1717			3397			960			956	463
v/s Ratio Prot		0.24			c0.38							
v/s Ratio Perm								c0.12			0.09	0.05
v/c Ratio		0.44			0.68			0.34			0.24	0.14
Uniform Delay, d1		15.6			19.1			28.0			26.8	25.9
Progression Factor		1.00			0.99			1.00			1.00	1.00
Incremental Delay, d2		0.2			0.4			1.0			0.6	0.7
Delay (s)		15.8			19.2			29.0			27.4	26.5
Level of Service		B			B			C			C	C
Approach Delay (s)		15.8			19.2			29.0			27.2	
Approach LOS		B			B			C			C	

Intersection Summary			
HCM 2000 Control Delay	20.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	95.8%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Sign Control		Yield			Stop			Stop			Stop	
Volume (vph)	84	0	63	22	88	99	59	123	19	33	176	99
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	88	0	66	23	93	104	62	129	20	35	185	104

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	155	220	212	324
Volume Left (vph)	88	23	62	35
Volume Right (vph)	66	104	20	104
Hadj (s)	-0.04	-0.16	0.10	-0.07
Departure Headway (s)	5.8	5.5	5.6	5.3
Degree Utilization, x	0.25	0.34	0.33	0.48
Capacity (veh/h)	554	590	582	640
Control Delay (s)	10.6	11.3	11.4	13.0
Approach Delay (s)	10.6	11.3	11.4	13.0
Approach LOS	B	B	B	B

Intersection Summary			
Delay	11.8		
Level of Service	B		
Intersection Capacity Utilization	61.5%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	525	101	1092	2083	0	349
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0		5.0	5.0		5.0
Lane Util. Factor	0.95		0.86	0.86		0.76
Frpb, ped/bikes	0.99		1.00	1.00		1.00
Flpb, ped/bikes	1.00		1.00	1.00		1.00
Frt	0.98		1.00	1.00		0.85
Flt Protected	1.00		0.95	0.99		1.00
Satd. Flow (prot)	3386		1502	4706		3575
Flt Permitted	1.00		0.27	0.67		1.00
Satd. Flow (perm)	3386		433	3198		3575
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	571	110	1187	2264	0	379
RTOR Reduction (vph)	15	0	0	0	0	194
Lane Group Flow (vph)	666	0	665	2786	0	185
Confl. Peds. (#/hr)		51	51			
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%
Turn Type	NA		pm+pt	NA		pt+ov
Protected Phases	4		2 3	8		2 3
Permitted Phases			8			
Actuated Green, G (s)	51.4		115.0	115.0		58.6
Effective Green, g (s)	51.4		115.0	115.0		58.6
Actuated g/C Ratio	0.43		0.96	0.96		0.49
Clearance Time (s)	5.0			5.0		
Vehicle Extension (s)	3.0			3.0		
Lane Grp Cap (vph)	1450		936	3801		1745
v/s Ratio Prot	0.20		0.35	c0.36		0.05
v/s Ratio Perm			0.33	c0.34		
v/c Ratio	0.46		0.71	0.73		0.11
Uniform Delay, d1	24.4		10.2	0.4		16.6
Progression Factor	0.63		1.00	1.00		0.08
Incremental Delay, d2	0.2		2.6	0.8		0.0
Delay (s)	15.5		12.7	1.1		1.3
Level of Service	B		B	A		A
Approach Delay (s)	15.5			3.3	1.3	
Approach LOS	B			A	A	

Intersection Summary			
HCM 2000 Control Delay	5.0	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.80		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	83.7%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	50	35	344	16	42	1150
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0		5.0		5.0	5.0
Lane Util. Factor	0.97		0.95		1.00	0.95
Frpb, ped/bikes	0.96		0.99		1.00	1.00
Flpb, ped/bikes	1.00		1.00		0.94	1.00
Frt	0.94		0.99		1.00	1.00
Flt Protected	0.97		1.00		0.95	1.00
Satd. Flow (prot)	3126		3431		1647	3505
Flt Permitted	0.97		1.00		0.44	1.00
Satd. Flow (perm)	3126		3431		755	3505
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	55	38	378	18	46	1264
RTOR Reduction (vph)	23	0	3	0	0	0
Lane Group Flow (vph)	70	0	393	0	46	1264
Confl. Peds. (#/hr)		72		151	151	
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%
Turn Type	Prot		NA		pm+pt	NA
Protected Phases	2		4		3	8
Permitted Phases					8	
Actuated Green, G (s)	48.2		51.2		61.8	61.8
Effective Green, g (s)	48.2		51.2		61.8	61.8
Actuated g/C Ratio	0.40		0.43		0.51	0.51
Clearance Time (s)	5.0		5.0		5.0	5.0
Vehicle Extension (s)	3.0		3.0		3.0	3.0
Lane Grp Cap (vph)	1255		1463		430	1805
v/s Ratio Prot	c0.02		0.11		0.00	c0.36
v/s Ratio Perm					0.05	
v/c Ratio	0.06		0.27		0.11	0.70
Uniform Delay, d1	22.0		22.3		14.9	22.1
Progression Factor	1.00		1.00		0.94	0.91
Incremental Delay, d2	0.1		0.1		0.1	0.9
Delay (s)	22.1		22.4		14.0	21.0
Level of Service	C		C		B	C
Approach Delay (s)	22.1		22.4			20.8
Approach LOS	C		C			C

Intersection Summary			
HCM 2000 Control Delay	21.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.44		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	64.9%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	0	68	94	356	1122	138
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	0	72	99	375	1181	145
Pedestrians	91			91		
Lane Width (ft)	12.0			12.0		
Walking Speed (ft/s)	3.5			3.5		
Percent Blockage	9			9		
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)					114	
pX, platoon unblocked	0.72	0.72	0.72			
vC, conflicting volume	1667	845	1417			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1159	24	814			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	89	82			
cM capacity (veh/h)	103	634	539			

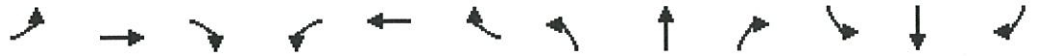
Direction, Lane #	EB 1	NB 1	NB 2	NB 3	NB 4	SB 1	SB 2
Volume Total	72	99	125	125	125	787	539
Volume Left	0	99	0	0	0	0	0
Volume Right	72	0	0	0	0	0	145
cSH	634	539	1700	1700	1700	1700	1700
Volume to Capacity	0.11	0.18	0.07	0.07	0.07	0.46	0.32
Queue Length 95th (ft)	9	17	0	0	0	0	0
Control Delay (s)	11.4	13.2	0.0	0.0	0.0	0.0	0.0
Lane LOS	B	B					
Approach Delay (s)	11.4	2.8				0.0	
Approach LOS	B						

Intersection Summary			
Average Delay	1.1		
Intersection Capacity Utilization	64.1%	ICU Level of Service	C
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	36	1945	98	0	736	235	0	423	103	114	414	95
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0			5.0			5.0			5.0	5.0
Lane Util. Factor		0.86			0.95			0.95			0.95	1.00
Frpb, ped/bikes		0.97			0.92			0.94			1.00	0.67
Flpb, ped/bikes		1.00			1.00			1.00			0.97	1.00
Frt		0.99			0.96			0.97			1.00	0.85
Flt Protected		1.00			1.00			1.00			0.99	1.00
Satd. Flow (prot)		6185			3138			3221			3406	1065
Flt Permitted		0.88			1.00			1.00			0.65	1.00
Satd. Flow (perm)		5422			3138			3221			2234	1065
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	38	2047	103	0	775	247	0	445	108	120	436	100
RTOR Reduction (vph)	0	6	0	0	11	0	0	1	0	0	0	17
Lane Group Flow (vph)	0	2182	0	0	1011	0	0	552	0	0	556	83
Confl. Peds. (#/hr)	320		299	299		320	341		337	337		341
Turn Type	Perm	NA			NA			NA		Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4									6		6
Actuated Green, G (s)		62.1			62.1			47.9			47.9	47.9
Effective Green, g (s)		62.1			62.1			47.9			47.9	47.9
Actuated g/C Ratio		0.52			0.52			0.40			0.40	0.40
Clearance Time (s)		5.0			5.0			5.0			5.0	5.0
Vehicle Extension (s)		3.0			3.0			3.0			3.0	3.0
Lane Grp Cap (vph)		2805			1623			1285			891	425
v/s Ratio Prot					0.32			0.17				
v/s Ratio Perm		c0.40									c0.25	0.08
v/c Ratio		0.78			0.62			0.43			0.62	0.20
Uniform Delay, d1		23.4			20.6			26.1			28.8	23.5
Progression Factor		1.00			0.57			1.00			1.00	1.00
Incremental Delay, d2		1.4			0.6			1.1			3.3	1.0
Delay (s)		24.8			12.4			27.2			32.1	24.5
Level of Service		C			B			C			C	C
Approach Delay (s)		24.8			12.4			27.2			31.0	
Approach LOS		C			B			C			C	

Intersection Summary			
HCM 2000 Control Delay	23.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	120.3%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Yield			Stop			Stop			Stop	
Volume (vph)	159	15	172	11	95	190	98	202	24	83	364	95
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	171	16	185	12	102	204	105	217	26	89	391	102

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	372	318	348	583
Volume Left (vph)	171	12	105	89
Volume Right (vph)	185	204	26	102
Hadj (s)	-0.14	-0.31	0.08	-0.01
Departure Headway (s)	8.4	8.6	8.7	8.5
Degree Utilization, x	0.87	0.76	0.84	1.00
Capacity (veh/h)	416	401	397	583
Control Delay (s)	47.1	33.6	44.1	73.1
Approach Delay (s)	47.1	33.6	44.1	73.1
Approach LOS	E	D	E	F

Intersection Summary			
Delay	53.2		
Level of Service	F		
Intersection Capacity Utilization	90.1%	ICU Level of Service	E
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	1865	225	0	1009	0	807
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0			5.0		5.0
Lane Util. Factor	0.86			0.95		0.64
Frpb, ped/bikes	0.99			1.00		1.00
Flpb, ped/bikes	1.00			1.00		1.00
Frt	0.98			1.00		0.85
Flt Protected	1.00			1.00		1.00
Satd. Flow (prot)	6253			3539		4053
Flt Permitted	1.00			1.00		1.00
Satd. Flow (perm)	6253			3539		4053
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	1923	232	0	1040	0	832
RTOR Reduction (vph)	19	0	0	0	0	10
Lane Group Flow (vph)	2136	0	0	1040	0	822
Confl. Peds. (#/hr)		67	67			
Turn Type	NA			NA		Prot
Protected Phases	4			8		2
Permitted Phases						
Actuated Green, G (s)	61.7			61.7		48.3
Effective Green, g (s)	61.7			61.7		48.3
Actuated g/C Ratio	0.51			0.51		0.40
Clearance Time (s)	5.0			5.0		5.0
Vehicle Extension (s)	3.0			3.0		3.0
Lane Grp Cap (vph)	3215			1819		1631
v/s Ratio Prot	c0.34			0.29		c0.20
v/s Ratio Perm						
v/c Ratio	0.66			0.57		0.50
Uniform Delay, d1	21.5			20.1		26.9
Progression Factor	0.38			1.00		0.07
Incremental Delay, d2	0.3			0.4		1.1
Delay (s)	8.6			20.5		2.9
Level of Service	A			C		A
Approach Delay (s)	8.6			20.5	2.9	
Approach LOS	A			C	A	

Intersection Summary			
HCM 2000 Control Delay	10.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	53.7%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	68	37	847	33	18	282
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0		5.0		5.0	5.0
Lane Util. Factor	0.97		0.91		1.00	0.95
Frpb, ped/bikes	0.95		0.99		1.00	1.00
Flpb, ped/bikes	1.00		1.00		1.00	1.00
Frt	0.95		0.99		1.00	1.00
Flt Protected	0.97		1.00		0.95	1.00
Satd. Flow (prot)	3116		4979		1746	3505
Flt Permitted	0.97		1.00		0.17	1.00
Satd. Flow (perm)	3116		4979		315	3505
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	72	39	892	35	19	297
RTOR Reduction (vph)	16	0	5	0	0	0
Lane Group Flow (vph)	95	0	922	0	19	297
Confl. Peds. (#/hr)		106		67	67	
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%
Turn Type	Prot		NA		pm+pt	NA
Protected Phases	2		4		3	8
Permitted Phases					8	
Actuated Green, G (s)	71.0		31.8		39.0	39.0
Effective Green, g (s)	71.0		31.8		39.0	39.0
Actuated g/C Ratio	0.59		0.27		0.32	0.32
Clearance Time (s)	5.0		5.0		5.0	5.0
Vehicle Extension (s)	3.0		3.0		3.0	3.0
Lane Grp Cap (vph)	1843		1319		128	1139
v/s Ratio Prot	c0.03		c0.19		0.00	c0.08
v/s Ratio Perm					0.05	
v/c Ratio	0.05		0.70		0.15	0.26
Uniform Delay, d1	10.3		39.8		40.2	29.9
Progression Factor	1.00		1.00		1.26	1.09
Incremental Delay, d2	0.1		1.6		0.5	0.1
Delay (s)	10.4		41.4		51.4	32.6
Level of Service	B		D		D	C
Approach Delay (s)	10.4		41.4			33.8
Approach LOS	B		D			C

Intersection Summary			
HCM 2000 Control Delay	37.1	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.26		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	55.8%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	0	124	169	884	318	57
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	135	184	961	346	62
Pedestrians	260			260		
Lane Width (ft)	12.0			12.0		
Walking Speed (ft/s)	3.5			3.5		
Percent Blockage	25			25		
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)					114	
pX, platoon unblocked	0.94	0.94	0.94			
vC, conflicting volume	1324	724	668			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1216	577	517			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	45	75			
cM capacity (veh/h)	93	246	743			

Direction, Lane #	EB 1	NB 1	NB 2	NB 3	NB 4	SB 1	SB 2
Volume Total	135	184	320	320	320	230	177
Volume Left	0	184	0	0	0	0	0
Volume Right	135	0	0	0	0	0	62
cSH	246	743	1700	1700	1700	1700	1700
Volume to Capacity	0.55	0.25	0.19	0.19	0.19	0.14	0.10
Queue Length 95th (ft)	75	24	0	0	0	0	0
Control Delay (s)	36.1	11.4	0.0	0.0	0.0	0.0	0.0
Lane LOS	E	B					
Approach Delay (s)	36.1	1.8				0.0	
Approach LOS	E						

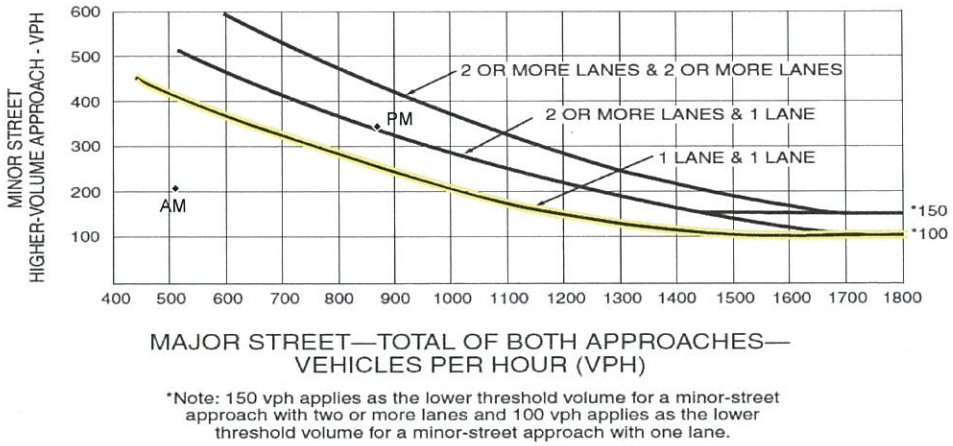
Intersection Summary			
Average Delay	4.1		
Intersection Capacity Utilization	46.0%	ICU Level of Service	A
Analysis Period (min)	15		

Traffic Signal Warrants - Future (2017) Without Project
Mahukona St. and Kona St.

Peak Hour Warrant - Figure 4C-3

Major/Minor Roads	Approach Type	# of Lanes	AM Volume	Pass?	Mid Volume	Pass?	PM Volume	Pass?	Pass?
Mahukona St. /	Major	1	509	No		N/A	866	Yes	No
Kona St.	Minor	1	209				346		

Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Source: *MUTCD, 2009.*

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Volume (vph)	84	0	63	22	88	99	59	123	19	33	176	99
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0			5.0			5.0			5.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frpb, ped/bikes		0.96			0.96			0.99			0.96	
Flpb, ped/bikes		0.97			0.99			0.99			0.99	
Frt		0.94			0.94			0.99			0.96	
Flt Protected		0.97			0.99			0.99			0.99	
Satd. Flow (prot)		1525			1601			1706			1616	
Flt Permitted		0.80			0.94			0.83			0.95	
Satd. Flow (perm)		1257			1515			1438			1545	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	88	0	66	23	93	104	62	129	20	35	185	104
RTOR Reduction (vph)	0	51	0	0	80	0	0	7	0	0	32	0
Lane Group Flow (vph)	0	103	0	0	140	0	0	204	0	0	292	0
Confl. Peds. (#/hr)	136		93	73		122	87		73	122		136
Heavy Vehicles (%)	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		7.2			7.2			14.5			14.5	
Effective Green, g (s)		7.2			7.2			14.5			14.5	
Actuated g/C Ratio		0.23			0.23			0.46			0.46	
Clearance Time (s)		5.0			5.0			5.0			5.0	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		285			344			657			706	
v/s Ratio Prot												
v/s Ratio Perm		0.08			c0.09			0.14			c0.19	
v/c Ratio		0.36			0.41			0.31			0.41	
Uniform Delay, d1		10.3			10.4			5.4			5.8	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		0.8			0.8			0.3			0.4	
Delay (s)		11.1			11.2			5.7			6.1	
Level of Service		B			B			A			A	
Approach Delay (s)		11.1			11.2			5.7			6.1	
Approach LOS		B			B			A			A	

Intersection Summary			
HCM 2000 Control Delay	8.1	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.41		
Actuated Cycle Length (s)	31.7	Sum of lost time (s)	10.0
Intersection Capacity Utilization	64.2%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Volume (vph)	159	15	172	11	95	190	98	202	24	83	364	95
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0			5.0			5.0			5.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frpb, ped/bikes		0.93			0.88			0.98			0.96	
Flpb, ped/bikes		0.96			1.00			0.99			0.97	
Frt		0.93			0.91			0.99			0.98	
Flt Protected		0.98			1.00			0.99			0.99	
Satd. Flow (prot)		1487			1461			1728			1652	
Flt Permitted		0.70			0.98			0.73			0.89	
Satd. Flow (perm)		1057			1434			1281			1489	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	171	16	185	12	102	204	105	217	26	89	391	102
RTOR Reduction (vph)	0	73	0	0	132	0	0	6	0	0	15	0
Lane Group Flow (vph)	0	299	0	0	186	0	0	342	0	0	567	0
Confl. Peds. (#/hr)	178		103	155		230	103		155	230		178
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		16.0			16.0			20.3			20.3	
Effective Green, g (s)		16.0			16.0			20.3			20.3	
Actuated g/C Ratio		0.35			0.35			0.44			0.44	
Clearance Time (s)		5.0			5.0			5.0			5.0	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		365			495			561			652	
v/s Ratio Prot												
v/s Ratio Perm		c0.28			0.13			0.27			c0.38	
v/c Ratio		0.82			0.38			0.61			0.87	
Uniform Delay, d1		13.8			11.4			10.0			11.8	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		13.7			0.5			2.0			11.9	
Delay (s)		27.5			11.9			11.9			23.7	
Level of Service		C			B			B			C	
Approach Delay (s)		27.5			11.9			11.9			23.7	
Approach LOS		C			B			B			C	

Intersection Summary			
HCM 2000 Control Delay	19.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.85		
Actuated Cycle Length (s)	46.3	Sum of lost time (s)	10.0
Intersection Capacity Utilization	92.6%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

APPENDIX E

Analysis Report

Future (2017) With Project Conditions

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	555	141	0	1935	136	62	202	55	52	153	69
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0			5.0			5.0			5.0	5.0
Lane Util. Factor		0.95			0.86			0.95			0.95	1.00
Frpb, ped/bikes		0.92			0.98			0.96			1.00	0.83
Flpb, ped/bikes		1.00			1.00			0.98			0.97	1.00
Frt		0.97			0.99			0.97			1.00	0.85
Flt Protected		1.00			1.00			0.99			0.99	1.00
Satd. Flow (prot)		3096			6112			3146			3322	1284
Flt Permitted		1.00			1.00			0.83			0.78	1.00
Satd. Flow (perm)		3096			6112			2642			2629	1284
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	0	624	158	0	2174	153	70	227	62	58	172	78
RTOR Reduction (vph)	0	20	0	0	9	0	0	14	0	0	0	12
Lane Group Flow (vph)	0	762	0	0	2318	0	0	345	0	0	230	66
Confl. Peds. (#/hr)	197		154	154		197	137		197	197		137
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
Turn Type		NA			NA		Perm	NA		Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases				8			2			6		6
Actuated Green, G (s)		66.7			66.7			43.3			43.3	43.3
Effective Green, g (s)		66.7			66.7			43.3			43.3	43.3
Actuated g/C Ratio		0.56			0.56			0.36			0.36	0.36
Clearance Time (s)		5.0			5.0			5.0			5.0	5.0
Vehicle Extension (s)		3.0			3.0			3.0			3.0	3.0
Lane Grp Cap (vph)		1720			3397			953			948	463
v/s Ratio Prot		0.25			c0.38							
v/s Ratio Perm								c0.13			0.09	0.05
v/c Ratio		0.44			0.68			0.36			0.24	0.14
Uniform Delay, d1		15.7			19.1			28.2			26.9	25.9
Progression Factor		1.00			0.99			1.00			1.00	1.00
Incremental Delay, d2		0.2			0.4			1.1			0.6	0.7
Delay (s)		15.9			19.2			29.3			27.5	26.5
Level of Service		B			B			C			C	C
Approach Delay (s)		15.9			19.2			29.3			27.2	
Approach LOS		B			B			C			C	

Intersection Summary			
HCM 2000 Control Delay	20.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	95.8%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Sign Control		Yield			Stop			Stop			Stop	
Volume (vph)	85	0	63	22	114	115	59	123	19	33	176	99
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	89	0	66	23	120	121	62	129	20	35	185	104

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	156	264	212	324
Volume Left (vph)	89	23	62	35
Volume Right (vph)	66	121	20	104
Hadj (s)	-0.04	-0.16	0.10	-0.07
Departure Headway (s)	5.9	5.6	5.8	5.4
Degree Utilization, x	0.26	0.41	0.34	0.49
Capacity (veh/h)	528	589	559	618
Control Delay (s)	10.9	12.4	11.8	13.6
Approach Delay (s)	10.9	12.4	11.8	13.6
Approach LOS	B	B	B	B

Intersection Summary			
Delay	12.4		
Level of Service	B		
Intersection Capacity Utilization	63.7%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	573	153	1103	2083	0	349
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0		5.0	5.0		5.0
Lane Util. Factor	0.95		0.86	0.86		0.76
Frpb, ped/bikes	0.99		1.00	1.00		1.00
Flpb, ped/bikes	1.00		1.00	1.00		1.00
Frt	0.97		1.00	1.00		0.85
Flt Protected	1.00		0.95	0.99		1.00
Satd. Flow (prot)	3351		1504	4706		3575
Flt Permitted	1.00		0.23	0.65		1.00
Satd. Flow (perm)	3351		358	3108		3575
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	623	166	1199	2264	0	379
RTOR Reduction (vph)	22	0	0	0	0	172
Lane Group Flow (vph)	767	0	647	2816	0	207
Confl. Peds. (#/hr)		51	51			
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%
Turn Type	NA		pm+pt	NA		pt+ov
Protected Phases	4		2 3	8		2 3
Permitted Phases			8			
Actuated Green, G (s)	51.8		115.0	115.0		58.2
Effective Green, g (s)	51.8		115.0	115.0		58.2
Actuated g/C Ratio	0.43		0.96	0.96		0.49
Clearance Time (s)	5.0			5.0		
Vehicle Extension (s)	3.0			3.0		
Lane Grp Cap (vph)	1446		898	3753		1733
v/s Ratio Prot	0.23		0.35	c0.36		0.06
v/s Ratio Perm			0.34	c0.36		
v/c Ratio	0.53		0.72	0.75		0.12
Uniform Delay, d1	25.1		12.8	0.4		16.9
Progression Factor	0.66		1.00	1.00		0.12
Incremental Delay, d2	0.4		2.9	0.9		0.0
Delay (s)	16.8		15.6	1.2		2.0
Level of Service	B		B	A		A
Approach Delay (s)	16.8			3.9	2.0	
Approach LOS	B			A	A	

Intersection Summary			
HCM 2000 Control Delay	6.0	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	84.5%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	50	35	344	16	42	1213
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0		5.0		5.0	5.0
Lane Util. Factor	0.97		0.95		1.00	0.95
Frpb, ped/bikes	0.96		0.99		1.00	1.00
Flpb, ped/bikes	1.00		1.00		0.94	1.00
Frt	0.94		0.99		1.00	1.00
Flt Protected	0.97		1.00		0.95	1.00
Satd. Flow (prot)	3126		3431		1644	3505
Flt Permitted	0.97		1.00		0.44	1.00
Satd. Flow (perm)	3126		3431		769	3505
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	55	38	378	18	46	1333
RTOR Reduction (vph)	24	0	4	0	0	0
Lane Group Flow (vph)	69	0	392	0	46	1333
Confl. Peds. (#/hr)		72		151	151	
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%
Turn Type	Prot		NA		pm+pt	NA
Protected Phases	2		4		3	8
Permitted Phases					8	
Actuated Green, G (s)	44.8		54.7		65.2	65.2
Effective Green, g (s)	44.8		54.7		65.2	65.2
Actuated g/C Ratio	0.37		0.46		0.54	0.54
Clearance Time (s)	5.0		5.0		5.0	5.0
Vehicle Extension (s)	3.0		3.0		3.0	3.0
Lane Grp Cap (vph)	1167		1563		457	1904
v/s Ratio Prot	c0.02		0.11		0.00	c0.38
v/s Ratio Perm					0.05	
v/c Ratio	0.06		0.25		0.10	0.70
Uniform Delay, d1	24.1		20.1		13.2	20.2
Progression Factor	1.00		1.00		0.97	0.93
Incremental Delay, d2	0.1		0.1		0.1	0.8
Delay (s)	24.2		20.1		12.8	19.5
Level of Service	C		C		B	B
Approach Delay (s)	24.2		20.1			19.3
Approach LOS	C		C			B

Intersection Summary			
HCM 2000 Control Delay	19.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.46		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	65.2%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	0	70	94	356	1146	177
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	0	74	99	375	1206	186
Pedestrians	91			91		
Lane Width (ft)	12.0			12.0		
Walking Speed (ft/s)	3.5			3.5		
Percent Blockage	9			9		
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)					114	
pX, platoon unblocked	0.72	0.72	0.72			
vC, conflicting volume	1713	878	1484			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1205	40	884			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	88	80			
cM capacity (veh/h)	94	614	502			

Direction, Lane #	EB 1	NB 1	NB 2	NB 3	NB 4	SB 1	SB 2
Volume Total	74	99	125	125	125	804	588
Volume Left	0	99	0	0	0	0	0
Volume Right	74	0	0	0	0	0	186
cSH	614	502	1700	1700	1700	1700	1700
Volume to Capacity	0.12	0.20	0.07	0.07	0.07	0.47	0.35
Queue Length 95th (ft)	10	18	0	0	0	0	0
Control Delay (s)	11.7	13.9	0.0	0.0	0.0	0.0	0.0
Lane LOS	B	B					
Approach Delay (s)	11.7	2.9				0.0	
Approach LOS	B						

Intersection Summary			
Average Delay	1.2		
Intersection Capacity Utilization	66.1%	ICU Level of Service	C
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	36	1982	100	0	736	235	0	425	111	155	416	95
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0			5.0			5.0			5.0	5.0
Lane Util. Factor		0.86			0.95			0.95			0.95	1.00
Frpb, ped/bikes		0.97			0.92			0.93			1.00	0.67
Flpb, ped/bikes		1.00			1.00			1.00			0.97	1.00
Frt		0.99			0.96			0.97			1.00	0.85
Flt Protected		1.00			1.00			1.00			0.99	1.00
Satd. Flow (prot)		6185			3138			3202			3375	1065
Flt Permitted		0.87			1.00			1.00			0.62	1.00
Satd. Flow (perm)		5400			3138			3202			2136	1065
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	38	2086	105	0	775	247	0	447	117	163	438	100
RTOR Reduction (vph)	0	6	0	0	13	0	0	1	0	0	0	15
Lane Group Flow (vph)	0	2223	0	0	1009	0	0	563	0	0	601	85
Confl. Peds. (#/hr)	320		299	299		320	341		337	337		341
Turn Type	Perm	NA			NA			NA		Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4									6		6
Actuated Green, G (s)		60.6			60.6			49.4			49.4	49.4
Effective Green, g (s)		60.6			60.6			49.4			49.4	49.4
Actuated g/C Ratio		0.51			0.51			0.41			0.41	0.41
Clearance Time (s)		5.0			5.0			5.0			5.0	5.0
Vehicle Extension (s)		3.0			3.0			3.0			3.0	3.0
Lane Grp Cap (vph)		2727			1584			1318			879	438
v/s Ratio Prot					0.32			0.18				
v/s Ratio Perm		c0.41									c0.28	0.08
v/c Ratio		0.82			0.64			0.43			0.68	0.19
Uniform Delay, d1		25.0			21.7			25.2			28.9	22.6
Progression Factor		1.00			0.56			1.00			1.00	1.00
Incremental Delay, d2		2.0			0.7			1.0			4.3	1.0
Delay (s)		27.0			12.9			26.2			33.2	23.6
Level of Service		C			B			C			C	C
Approach Delay (s)		27.0			12.9			26.2			31.8	
Approach LOS		C			B			C			C	

Intersection Summary			
HCM 2000 Control Delay	24.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	120.8%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Sign Control		Yield			Stop			Stop			Stop	
Volume (vph)	165	15	172	11	110	194	98	202	24	87	364	95
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	177	16	185	12	118	209	105	217	26	94	391	102

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	378	339	348	587
Volume Left (vph)	177	12	105	94
Volume Right (vph)	185	209	26	102
Hadj (s)	-0.13	-0.29	0.08	0.00
Departure Headway (s)	8.7	8.7	9.0	8.8
Degree Utilization, x	0.91	0.82	0.87	1.00
Capacity (veh/h)	408	399	388	587
Control Delay (s)	54.4	40.9	48.7	74.5
Approach Delay (s)	54.4	40.9	48.7	74.5
Approach LOS	F	E	E	F

Intersection Summary			
Delay	57.6		
Level of Service	F		
Intersection Capacity Utilization	91.6%	ICU Level of Service	F
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	1890	252	0	1011	0	807
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0			5.0		5.0
Lane Util. Factor	0.86			0.95		0.64
Frpb, ped/bikes	0.99			1.00		1.00
Flpb, ped/bikes	1.00			1.00		1.00
Frt	0.98			1.00		0.85
Flt Protected	1.00			1.00		1.00
Satd. Flow (prot)	6238			3539		4053
Flt Permitted	1.00			1.00		1.00
Satd. Flow (perm)	6238			3539		4053
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	1948	260	0	1042	0	832
RTOR Reduction (vph)	21	0	0	0	0	9
Lane Group Flow (vph)	2187	0	0	1042	0	823
Confl. Peds. (#/hr)		67	67			
Turn Type	NA			NA		Prot
Protected Phases	4			8		2
Permitted Phases						
Actuated Green, G (s)	62.8			62.8		47.2
Effective Green, g (s)	62.8			62.8		47.2
Actuated g/C Ratio	0.52			0.52		0.39
Clearance Time (s)	5.0			5.0		5.0
Vehicle Extension (s)	3.0			3.0		3.0
Lane Grp Cap (vph)	3264			1852		1594
v/s Ratio Prot	c0.35			0.29		c0.20
v/s Ratio Perm						
v/c Ratio	0.67			0.56		0.52
Uniform Delay, d1	21.0			19.3		27.7
Progression Factor	0.40			1.00		0.07
Incremental Delay, d2	0.3			0.4		1.1
Delay (s)	8.7			19.7		3.0
Level of Service	A			B		A
Approach Delay (s)	8.7			19.7	3.0	
Approach LOS	A			B	A	

Intersection Summary			
HCM 2000 Control Delay	10.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	54.6%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	68	37	847	33	18	309
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0		5.0		5.0	5.0
Lane Util. Factor	0.97		0.91		1.00	0.95
Frpb, ped/bikes	0.95		0.99		1.00	1.00
Flpb, ped/bikes	1.00		1.00		1.00	1.00
Frt	0.95		0.99		1.00	1.00
Flt Protected	0.97		1.00		0.95	1.00
Satd. Flow (prot)	3116		4979		1746	3505
Flt Permitted	0.97		1.00		0.17	1.00
Satd. Flow (perm)	3116		4979		315	3505
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	72	39	892	35	19	325
RTOR Reduction (vph)	16	0	5	0	0	0
Lane Group Flow (vph)	95	0	922	0	19	325
Confl. Peds. (#/hr)		106		67	67	
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%
Turn Type	Prot		NA		pm+pt	NA
Protected Phases	2		4		3	8
Permitted Phases					8	
Actuated Green, G (s)	71.0		31.8		39.0	39.0
Effective Green, g (s)	71.0		31.8		39.0	39.0
Actuated g/C Ratio	0.59		0.27		0.32	0.32
Clearance Time (s)	5.0		5.0		5.0	5.0
Vehicle Extension (s)	3.0		3.0		3.0	3.0
Lane Grp Cap (vph)	1843		1319		128	1139
v/s Ratio Prot	c0.03		c0.19		0.00	c0.09
v/s Ratio Perm					0.05	
v/c Ratio	0.05		0.70		0.15	0.29
Uniform Delay, d1	10.3		39.8		40.2	30.1
Progression Factor	1.00		1.00		1.23	1.06
Incremental Delay, d2	0.1		1.6		0.5	0.1
Delay (s)	10.4		41.4		50.0	32.0
Level of Service	B		D		D	C
Approach Delay (s)	10.4		41.4			33.0
Approach LOS	B		D			C

Intersection Summary			
HCM 2000 Control Delay	36.8	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.26		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	55.8%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	0	125	169	884	330	72
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	136	184	961	359	78
Pedestrians	260			260		
Lane Width (ft)	12.0			12.0		
Walking Speed (ft/s)	3.5			3.5		
Percent Blockage	25			25		
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)					114	
pX, platoon unblocked	0.93	0.93	0.93			
vC, conflicting volume	1346	738	697			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1226	576	531			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	44	75			
cM capacity (veh/h)	90	245	729			

Direction, Lane #	EB 1	NB 1	NB 2	NB 3	NB 4	SB 1	SB 2
Volume Total	136	184	320	320	320	239	198
Volume Left	0	184	0	0	0	0	0
Volume Right	136	0	0	0	0	0	78
cSH	245	729	1700	1700	1700	1700	1700
Volume to Capacity	0.56	0.25	0.19	0.19	0.19	0.14	0.12
Queue Length 95th (ft)	77	25	0	0	0	0	0
Control Delay (s)	36.7	11.6	0.0	0.0	0.0	0.0	0.0
Lane LOS	E	B					
Approach Delay (s)	36.7	1.9				0.0	
Approach LOS	E						

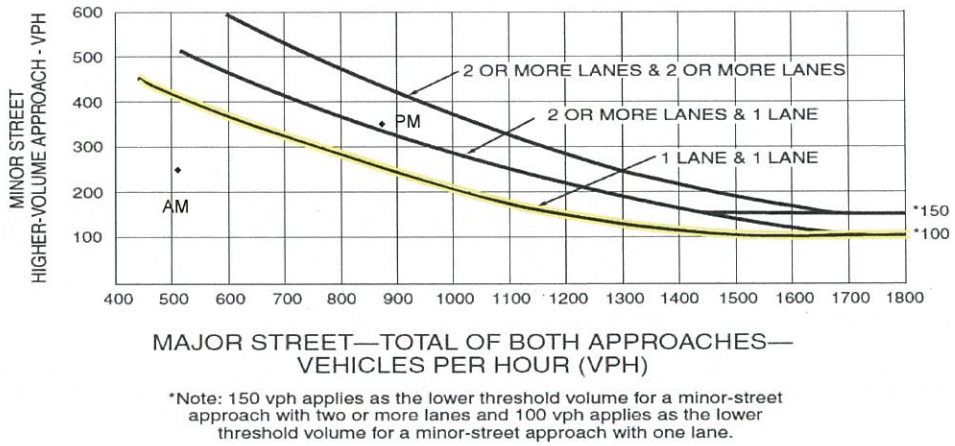
Intersection Summary			
Average Delay	4.1		
Intersection Capacity Utilization	46.0%	ICU Level of Service	A
Analysis Period (min)	15		

Traffic Signal Warrants - Future (2017) With Project
Mahukona St. and Kona St.

Peak Hour Warrant - Figure 4C-3

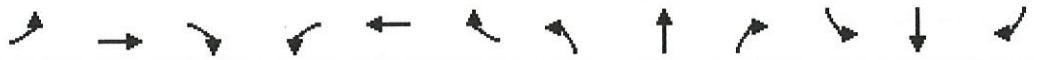
Major/Minor Roads	Approach Type	# of Lanes	AM Volume	Pass?	Mid Volume	Pass?	PM Volume	Pass?	Pass?
Mahukona St. /	Major	1	509	No		N/A	870	Yes	No
Kona St.	Minor	1	251				352		

Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Source: *MUTCD, 2009.*



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Volume (vph)	85	0	63	22	114	115	59	123	19	33	176	99
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0			5.0			5.0			5.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frpb, ped/bikes		0.96			0.96			0.99			0.95	
Flpb, ped/bikes		0.97			1.00			0.99			0.99	
Frt		0.94			0.94			0.99			0.96	
Flt Protected		0.97			1.00			0.99			0.99	
Satd. Flow (prot)		1524			1606			1705			1612	
Flt Permitted		0.75			0.96			0.82			0.95	
Satd. Flow (perm)		1178			1548			1424			1537	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	89	0	66	23	120	121	62	129	20	35	185	104
RTOR Reduction (vph)	0	46	0	0	69	0	0	8	0	0	35	0
Lane Group Flow (vph)	0	109	0	0	195	0	0	203	0	0	289	0
Confl. Peds. (#/hr)	136		93	73		122	87		73	122		136
Heavy Vehicles (%)	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		9.9			9.9			13.5			13.5	
Effective Green, g (s)		9.9			9.9			13.5			13.5	
Actuated g/C Ratio		0.30			0.30			0.40			0.40	
Clearance Time (s)		5.0			5.0			5.0			5.0	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		349			458			575			621	
v/s Ratio Prot												
v/s Ratio Perm		0.09			c0.13			0.14			c0.19	
v/c Ratio		0.31			0.43			0.35			0.47	
Uniform Delay, d1		9.1			9.5			6.9			7.3	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		0.5			0.6			0.4			0.6	
Delay (s)		9.6			10.1			7.3			7.9	
Level of Service		A			B			A			A	
Approach Delay (s)		9.6			10.1			7.3			7.9	
Approach LOS		A			B			A			A	

Intersection Summary			
HCM 2000 Control Delay	8.6	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.45		
Actuated Cycle Length (s)	33.4	Sum of lost time (s)	10.0
Intersection Capacity Utilization	67.8%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Volume (vph)	165	15	172	11	110	194	98	202	24	87	364	95
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0			5.0			5.0			5.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frpb, ped/bikes		0.93			0.88			0.98			0.96	
Flpb, ped/bikes		0.96			1.00			0.99			0.97	
Frt		0.93			0.92			0.99			0.98	
Flt Protected		0.98			1.00			0.99			0.99	
Satd. Flow (prot)		1488			1471			1728			1648	
Flt Permitted		0.67			0.98			0.72			0.89	
Satd. Flow (perm)		1023			1446			1270			1482	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	177	16	185	12	118	209	105	217	26	94	391	102
RTOR Reduction (vph)	0	70	0	0	117	0	0	6	0	0	15	0
Lane Group Flow (vph)	0	308	0	0	222	0	0	342	0	0	572	0
Confl. Peds. (#/hr)	178		103	155		230	103		155	230		178
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		16.7			16.7			20.5			20.5	
Effective Green, g (s)		16.7			16.7			20.5			20.5	
Actuated g/C Ratio		0.35			0.35			0.43			0.43	
Clearance Time (s)		5.0			5.0			5.0			5.0	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		361			511			551			643	
v/s Ratio Prot												
v/s Ratio Perm		c0.30			0.15			0.27			c0.39	
v/c Ratio		0.85			0.43			0.62			0.89	
Uniform Delay, d1		14.1			11.6			10.3			12.3	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		17.5			0.6			2.2			14.1	
Delay (s)		31.6			12.2			12.5			26.4	
Level of Service		C			B			B			C	
Approach Delay (s)		31.6			12.2			12.5			26.4	
Approach LOS		C			B			B			C	

Intersection Summary			
HCM 2000 Control Delay	21.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.87		
Actuated Cycle Length (s)	47.2	Sum of lost time (s)	10.0
Intersection Capacity Utilization	94.1%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

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KAPIOLANI RESIDENCE TIAR ADDENDUM

1630-1631 Kapi'olani Boulevard

July 29, 2015

A traffic impact analysis report (TIAR) was prepared in January 2015 in support of the 201H application for the proposed Kapi'olani Residence condominium development. This addendum addresses comments that were received on the project's Draft Environmental Assessment, of which the TIAR was included.

Figure 2 of the TIAR included the Kapi'olani Residence Site Plan dated January 15, 2015. The location of the project's primary driveway has since shifted further east as shown in the attached Exhibit 1. The proposal by DPP to locate the project's primary driveway on Kona Street is out of the control of the Kapi'olani Residence developer as Kona Street is privately owned and requires additional coordination. The Kapi'olani Boulevard driveway location will be restricted to right-in/right-out only through the installation of a raised center median that channelizes traffic. With wide sidewalks, landscaped buffer, and property offset, sufficient space should be sought to allow for clear vehicle and pedestrian line of sight. It has been noted that driveway line of sight will be maintained for the proposed driveway location through removal of any visual obstructions. The City's intent to emphasize transit oriented development in the project area is to support multi-modal travel in order to reduce the need for personal vehicle use. Therefore, it is expected that residents of Kapi'olani Residence will seek this property due to these benefits and look to use means other than personal vehicles for travel. This change will limit the impacts of vehicles from Kapi'olani Residence and add to an increased pedestrian population. Therefore, as pedestrian volumes increase in the area, it is the expectation that vehicle conflicts will similarly decrease.

The TIAR recommended that a sidewalk be included on the Kona Street side of the property. However, it should be noted that existing constraints out of the control of the Kapi'olani Residence developer present obstacles to the inclusion of a continuous sidewalk along Kona Street. These obstacles include the existence of an adjacent property on the 'Ewa side that has a parking garage constructed to edge of the property line abutting Kona Street. On the Diamond Head side, there is an opportunity for redevelopment of parcels to ultimately include a continuous sidewalk to Atkinson Drive. At this time no dedicated facility exists along this side of the road although a sidewalk does exist on the makai side of Kona Street. Kona Street is a private road, owned by General Growth Properties with whom coordination would be required in any consideration of a continuous sidewalk that supports the multi-modal needs of the road.

Section II. Existing Plans and Processes, B. 201H Affordable Housing Program Application, makes reference to exemptions requested by the developer. This includes a building height zone which would allow FAR of 8.43. This has since been superseded and is now 9.32. In addition, details in Addendum A - Kapi'olani Residence Proposed Project Profile dated October 22, 2014 have since been superseded and updated as a part of the whole project package application. Therefore, Addendum A will be deleted from the TIAR as the information can be referenced elsewhere in the project files.

Figure 9 of the TIAR includes the Bikeway Details as identified in the *O'ahu Bike Plan* (HHF, August 2012). It is acknowledged that this information is dated and that potential bikeway projects are actively changing. This includes the recent construction of the King Street Cycle Track pilot project and the planned installation of a bikeway along Pensacola Street. As a development within the urban core and part of transit oriented development, sufficient access, parking and storage for bikes should be provided at Kapi'olani Residence in response to demand, regardless of the proximity to existing or proposed bike facilities as the demand for these uses will probably increase.

KAPIOLANI RESIDENCE
1631 KAPIOLANI BOULEVARD, HONOLULU HAWAII

SITE PLAN

SAMKOO

Exhibit 1

H. PRELIMINARY ENGINEERING REPORT

PRELIMINARY ENGINEERING REPORT

for

SAMKOO PACIFIC CONDOMINIUM

HONOLULU, OAHU, HAWAII 96814

TMK: 2-3-041:006 and TMK: 2-3-041:009

January 2015

Submitted By

SSFM INTERNATIONAL, INC.

Project Managers, Planners, & Engineers

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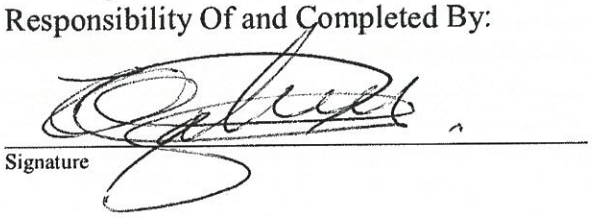
Statement of SSFM International, Inc.'s Quality Process

It is the policy of SSFM to have a consistent and systematic approach to the development and review of its reports and other project deliverables.

All projects and products of our service are subject to a quality process and in no case will the quality review be eliminated. The main purpose of this process is to assure:

- Clarity, completeness, coordination, and accuracy of documents.
- That the project, study or investigation meets the Client's objectives.
- That the requirements of our Agreement with the Client have been met, and the Client has received the value of the fee to be paid.

The Preparation of This Report Was The Responsibility Of and Completed By:



Signature

January 27, 2015
Date

The Quality Review of This Report Was The Responsibility Of and Completed By:

Signature

January 27, 2015
Date

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INTRODUCTION

SamKoo Pacific, LLC is proposing a residential and commercial condominium development in Honolulu, Oahu. The development, known as SamKoo Pacific Condominium ("Kapiolani residence"), will occupy approximately 1.3 acres (56,250 sq. ft.) on TMK: 2-3-041:006 and TMK: 2-3-041:009 (1637 Kapiolani Boulevard and 1631 Kapiolani Boulevard, respectively). The Kapiolani residence site is bordered to the north by Kapiolani Boulevard, to the south by Kona Street and Ala Moana Shopping Center, and by the adjacent property TMK: 2-3-041:011 to the west of the TMK: 2-3-041:009 property and TMK: 2-3-041:004 to east of the TMK: 2-3-041:006 property (see Figure 1).

The objectives of this preliminary engineering investigation are to present information on infrastructure requirements for the proposed SamKoo Pacific Condominium development. Specifically, this report will address:

1. Background information on the proposed project;
2. Existing conditions;
3. Modifications after development; and
4. Potential impacts due to development and proposed mitigated measures

I. BACKGROUND

LAND USE AND ZONING

The proposed project site is currently designated as BMX-3 for both properties, Floor Area Ratio (FAR) 3.5 Community Business Mixed Use under the City and County of Honolulu's Land Use Ordinance (LUO) zoning code with a maximum building height of 350 ft. The project adjacent lots will proceed with a Joint Development Agreement (JDA).

FLOOD ZONE

The project's site location has been designated to be within flood zones X under the Federal Emergency Management Agency (FEMA). The FEMA Flood Insurance Rate Map (FIRM) for the site is shown in Figure 2, release date January 19, 2011, Map 15003C0310G. Development of the project site must meet floodplain regulations of the City and County of Honolulu as those regulations were approved by FEMA for the National Flood Insurance Program.

Zone X corresponds to the flood to areas outside the 1% annual chance floodplain, areas of 1% annual chance sheet flow flooding where average depths are less than 1 ft., areas of 1% annual chance stream flooding where the contributing drainage area is less than 1 square mile, or areas protected from the 1% annual chance flood by levees. No Base Flood Elevations or depths are shown within this zone.

EXISTING USES

TMK: 2-3-041:006 (1637 Kapiolani Boulevard)
The project site is presently developed and is composed of a two story Commercial Building which tenants include SamKoo LLC office, Hime Restaurant, Kiki After Hours Bar, Waikiki Auto, Beautiful Days, Yakikniku Korea House restaurant, and an asphalt pavement parking lot. These establishments are currently under lease. A map showing the establishments described above are shown in Figure 3.

There are two (2) existing driveways to property; a one-way entrance on Kapiolani Boulevard and a one-way exit Kona Street.

TMK: 2-3-041:009 (1631 Kapiolani Boulevard)
The project site is presently an asphalt paved parking lot, with a Pro Wash car wash business. A map showing the establishments described above are shown in Figure 3.

Food/Lunch wagons (privately operated) are also located on leased property of the project site.

There are three (3) existing driveways to the parking lot; one (1) along Kapiolani Boulevard and two (2) along Kona Street.

CLIMATE

The project site is located in the Metro Oahu region. The climate is relatively warm and dry. Trade winds from the northeast occur much of the time, with occasional Kona winds. The normal temperature range for the region varies from the high 60's (degrees Fahrenheit) to the low 90's. Rainfall is light, with mean annual rainfall of about 28 inches in Honolulu.

TOPOGRAPHIC FEATURES

The project site ranges from about 5.1 to 7.1 feet mean sea level (MSL) elevation per the Hawaii state plane coordinate grid system, Zone III with the North American Datum of 83 high accuracy reference network.

SOILS

The soil type within the project site is identified in the U.S. Department of Agriculture, Soil Conservation Service Survey as Fill Land, mixed (FL) and is depicted on Figure 4. This type of soil occurs mostly near Pearl Harbor and the Honolulu areas adjacent to the ocean. It consists of areas filled with material dredged from the ocean or hauled from nearby areas and general materials from several other sources. This type of land type is used for urban development including airports, housing areas, and industrial facilities.

II. DRAINAGE

EXISTING CONDITIONS

The project site occupies approximately 1.3 acres (56,250 sq. ft.). In the existing condition of the project site, the storm water runoff sheet flows across the asphalt pavement towards Kapiolani Boulevard and Kona Street and is intercepted by an existing catch basin east of the property, entering the existing storm drainage system. Storm water runoff from the property also flows towards Kona Street where it flows into a catch basin across Kona Street and enters the storm drainage system. There are no drainage structures, such as drain inlets or manholes, on the subject properties. Preliminary as-built research indicates all runoff from the site is conveyed via a network of existing concrete box drains along Kapiolani Avenue and Kona Street, to an existing 36-in drain line along Atkinson Drive, going to an underground line at Kahakai Drive to the final discharge point at Ala Wai Canal.

Ultimately the storm water drains into the Ala Wai Canal which is a 2-mile-long man-made waterway constructed in the 1920's to drain extensive wetlands in order to allow development of the Waikiki area on the island of Oahu.

MODIFICATIONS AFTER DEVELOPMENT

There will be drainage improvements within the project site to accommodate the proposed development. However, storm water runoff is not expected to increase due to construction of the SamKoo Pacific Condominium structure. The project is anticipated to reduce the amount of impervious surface at the project site with the planned landscaped areas. Where possible, there will be mitigation measures considered using natural runoff control such as bio-infiltration areas along with the landscaping treatments. Storm water quality features will be finalized as necessary during the design phase to satisfy agency requirements.

It is anticipated that wherever possible the project will continue to sheet flow into the Kapiolani Boulevard and Kona Street existing catch basins. There is an existing 10' wide storm drain easement adjacent to property TMK: 3-2-41:06 on the east side, where a 60" storm drain line is located. Drainage structures, such as drain inlets will be placed in areas within the property where runoff flows will not be able to sheet flow following existing patterns. These inlets will be a network that will connect and discharge to the existing storm drainage system, with proper provisions to satisfy storm water quality requirements. Storm water from roof will be conveyed to the inlet network.

There will not be any drainage improvements outside of the project site as the proposed improvements should not alter nor impact the downstream system flows. A drainage analysis based on City and County of Honolulu standards will be developed during the design phase of this project.

IMPACTS AND MITIGATION

Impacts related to construction will be short term (approximately 1-2 years) and may include traffic disturbances, and inconveniences to motorists along Kapiolani Boulevard and Kona Street. These

short term impacts can be mitigated by limiting construction to off-peak traffic hours, implementing an approved traffic control plan, and coordinating construction with any other construction or events in the area. Generation of erosion, dust and noise due to construction operations will be mitigated by required compliance with the applicable Administrative Rules of the State Department of Health and further identified during the design and construction phases.

III. GRADING AND SOIL EROSION

GRADING

It is anticipated that the grading within the project site should be limited within the property boundary. The grading concept will be coordinated during the design phase of the project.

An effort to balance the earthwork quantities of cut and fill is expected to minimize the cost of purchasing offsite borrow material and disposing excess excavated material at an off-site location. Grading operations will be in conformance with the applicable ordinances of the City and County of Honolulu.

A detailed soil analysis will be performed as planning of the project proceeds. Mitigative measures, if required, will be recommended by the project's soils engineers as building design and final locations are further defined. Mitigative measures may include removal of unsuitable soils under foundations and/or special foundation design.

SOIL EROSION

The U.S. Department of Agriculture, Soil Conservation Service, uses the Universal Soil Loss Equation (USLE) to estimate long term average annual soil erosion losses from sheet and rill erosion. It is used to estimate erosion on forest land, farm fields, construction/development sites, and other areas. An assessment on the project site soil losses will be determined during the design and construction phases, however it is anticipated that it should not have a significant impact to surrounding areas.

IV. ROADS

EXISTING CONDITIONS

The project site is located along Kapiolani Boulevard and Kona Street. Kapiolani Boulevard, which is under the city's jurisdiction, borders the north side of the project and has the highest traffic volume of both aforementioned roadways. The existing (and original) Honolulu Authority for Rapid Transporation (HART) EIS had designated Kona Street on the Diamond Head (east) side of Nordstom as the alignment for the HART phase 2 rail project to the University of Hawaii. The privately owned Kona Street runs along the south side of the project and is adjacent to the Ala Moana shopping center. It is heavily traveled by City Buses between Pi'ikoi Street on the east and

Atkinson Drive on the west, it serves as the transfer location (beginning/end point) for many City Bus routes.

MODIFICATIONS AFTER DEVELOPMENT

Access to the project site is currently proposed from Kapiolani Boulevard and from Kona Street. It is anticipated that there will be no widening to any of any existing surrounding roadways. Entry location of driveway entry will be adjusted to new Kapiolani residence layout.

V. WATER

EXISTING CONDITIONS

The Board of Water Supply (BWS) system provides water service to the existing project sites; TMK: 2-3-041:006 and TMK: 2-3-041:009. Based on BWS system as-built plans, potable water service is currently provided by a 1-1/2-inch lateral (meter no. 06040357 and 01600528) connected to an existing 12-inch water main along Kapiolani Blvd for TMK: 2-3-041:009. Also, based on BWS system as-built plans, potable water service is currently provided by a 1-inch lateral (meter no. 98022298) connected to an existing 12-inch water main along Kapiolani Blvd for TMK: 2-3-041:009.

PROJECTED WATER DEMAND

The proposed project development will create additional water demands on the BWS system. Potable water demands will include service to the proposed residential/commercial development, fire protection and landscaping irrigation. A preliminary review of the existing system to adequately accommodate the proposed development has been coordinated with BWS based on the following water demand and consumption estimates.

Water demand estimates for this project are based upon BWS Water System Standards 2002 (BWS Standards) guidelines and should provide an adequate water consumption system. A domestic water connection for the proposed building, including landscape irrigation will be provided. The projected potable water average daily demand for the project based on BWS Domestic Consumption Guidelines is summarized below:

Land Use	*Sq. ft*	*GDP/sq.ft.*	*Average Daily Demand (GDP)*
Commercial/Residential Mix	728,884	120/1000 (0.12)	87,466.08
		Assume:	**0.1 MGD**

A fire service connection will also be provided for the building fire sprinklers. The projected fire flow, duration and hydrant spacing for the project based on BWS Fire Flow Requirements are summarized below:

Land Use	*Flow (gpm)/Duration (hrs.)/Fire Hydrant Spacing (ft.)*
High Rise Apartments	2000/2/250

Based on the average daily demand of 0.1 MGD on the island of Oahu, using BWS demand factor of 1.5, a maximum daily demand of 0.15 MGD is expected. The corresponding peak hour demand using BWS demand factor of 3 will be 0.3 MGD. The factors for maximum daily demand and peak hour demand are from Table 100-20 of the BWS Standard, and is directly applied to the calculated average daily demand. Per BWS guidelines, the capacity of the system shall deliver the maximum daily demand simultaneously with the required fire flow.

Note that these water system requirements were based on initial planning efforts and further coordination with BWS will be required during the design phase. Per BWS the existing water system is adequate to accommodate the proposed development. BWS has advised that the preliminary capacity analysis is based upon current data and therefore, BWS reserves the right to change any position or information provided during the preliminary design coordination until final approval of the building permit application. The final decision on the availability of water for domestic, fire, and irrigation demand will be confirmed when the building permit application is submitted for approval.

LANDSCAPING IRRIGATION

There will be landscaping in areas throughout the development. Approximate area of landscaping is 11,000 square feet mostly on the ground floor of the development. Irrigation for the development will practice water conservation measures. Other possible measures that may be considered are drought tolerant plants, xeriscape landscaping, efficient irrigations systems. The landscaping provided on the project site will require a permanent irrigation system which will be confirmed and coordinated with the landscape architect. A sub-meter to measure the actual volume of irrigation water will be placed on the property.

FIRE PROTECTION

The on-site fire protection requirements will be coordinated with the Fire Prevent Bureau of the Honolulu Fire Department. Fire requirements related to water consumption will include the construction of a connection lateral to the proposed building and associated occupied structures and includes the installation of a building fire sprinkler system to meet National Fire Protection Association (NFPA) requirements. There is an existing fire hydrant at the frontage of the two properties along Kapiolani Boulevard and an existing fire hydrant on Kona Street. These two fire hydrants will be able to serve the proposed development and meet fire hydrant location and servicing requirements per NFPA. Also, based on letter received from the Board of Water Supply dated October 9, 2014 it has been assessed that the existing system is adequate to accommodate the proposed development.

IMPACTS AND MITIGATION

The final decision on the availability of water will be confirmed when the building permit application is submitted for approval. When water is made available, the project development will be required to pay BWS water system facilities charges for resource development, transmission and daily storage.

VI. WASTEWATER

EXISTING CONDITIONS

An existing 6-inch gravity system lateral currently services the project site on TMK: 2-3-041: 006. The gravity system then connects to the existing 36-inch trunk sewer running parallel along Kapiolani Blvd. Similarly, an existing 6-inch gravity system lateral currently services the project site on TMK: 2-3-041: 009. The gravity system then connects to the existing 36-inch trunk sewer running parallel along Kapiolani Blvd, same as the TMK: 2-3-041: 006 property.
The system sewer lines ultimately transfer wastewater to the Sand Island Wastewater Treatment Facility where it is processed and discharged.

PROJECTED WASTEWATER FLOWS

Wastewater will be generated from the various facilities within the proposed development. Design and construction of the system will be in accordance with the City and County of Honolulu standards. Implementation of the proposed improvements is subject to approval from the City and County of Honolulu Department of Planning and Permitting (DPP). A sewer application for sewer connection (No. 2012/SCA-0658) has been submitted to DPP-Wastewater Branch and has been preliminary approved partially with the condition that all applicable WSFC credits shall be collected at the prevailing rate in accordance with Honolulu's revised ordinances (sewer connection pre-approval is under review by DPP-Wastewater). It is anticipated that DPP-Wastewater will revisit and reevaluate the capacity of the municipal sewerage system and treatment facility to handle the expected wastewater flow from the project site at the permit and construction phase of the project.

The estimated average wastewater design flow is based on estimated water use calculations and the City and County Sewer Standards. Preliminary contributions expected from the proposed facilities within the project are listed below.

Category	*Average Waste Water Flow Rate (GDP)*
Residential (485 units)	108,640
Commercial floors (1st)	489
Total:	108,905
Assume:	**0.11MGD**

For planning purposes, based on the information provided above and per City & County of Honolulu wastewater standards:

- Design Average Flow: 0.116 MGD
- Design Maximum Flow: 0.633 MGD
- Design Peak Flow: 0.633 MGD

These wastewater flow calculations are used in determining the required capacities for the development and to check if the existing system is adequate to accommodate the additional flows generated by the proposed project.
Additional information regarding methodology and terminology of the sewer design information provided above can be found in the *Design Standards of the Department of Wastewater Management Vol. I, City and County of Honolulu, July 1993 – Chapter 20, Design of Sewers.*

CONNECTION TO THE CITY WASTEWATER SYSTEM

SamKoo Pacific, LLC and SamKoo Hawaii, LLC (formerly Sam House Development, LLC) are part of a group of developers defined as "Kalakaua Relief Line, LLC" (also known as "HUI"), that had partnered together to build a 2000 foot long sewer line along Kalakaua Avenue to relieve the strain on the City's main on Kapiolani Blvd that was threatening to delay contemplated projects in the Ala Moana and Waikiki area. A Memorandum of Understanding and Agreement (MOUA) dated December 19, 2007, and amended September 22, 2011 was signed between Kalakaua Relief Line, LLC members and the City and County of Honolulu (C&CH) Department of Environmental Services (ENV) and Department of Permitting and Planning (DPP), Wastewater Branch. Under this agreement, Kalakaua Relief Line, LLC members' responsibility was to design and construct the sewer line based on plans and specifications approved by the City. And in return, the City has awarded the Kalakaua Relief Line, LLC members' sewer credits in the amount of the actual total construction costs of the sewer line under the MOUA, based upon the City's 2010-2011 Wastewater System Facility Charges. In October 2011, the City issued letters to each of the members confirming the number of sewer credits to be allocated and assigned to each member under MOUA. The following are the Wastewater System Facility Charge (WSFC) Credits allocations made to SamKoo members per the MOUA:

Member	*Total WSFC Credits or ESDU issued by C&CH (10/18/11)*
Sam House Development, LLC (TMK 2-3-039:011)	167.79
SamKoo Pacific, LLC (TMK 2-3-041:009)	128.13

All relevant information regarding the WSFC credits allocation and the actual signed MUOA memorandum and asscociated amendments has been provided in the appendix. Continuing coordination on the possibility of sharing WSFC credits between both properties is ongoing between the proposed development and DPP-Wastewater Branch.

Continuing coordination with DPP-Wastewater is currently ongoing regarding the MOUA and its allocation and use of WSFC credits. In discussions with DPP – Wastewater Branch, the sharing of sewer credits will be allowed being that SamKoo owns the credits and both projects and project parcels (SamKoo Hawaii TMK: 2-3- TMK: 2-3-041: 006 & TMK: 2-3-041: 009) discharge to the same treatment facility. Per DPP, they would like to have a letter from SamKoo to indicate specifically the designation of the ESDU (Equivalent single-family dwelling unit) credits between the parcels. It was also indicated that a minimum of one (1) ESDU credit would need to remain with either of the parcels and not all of the credits can be applied to either developments. Per MUOA it is stated that the credits cover both capacity (ESDU) and monetary credits (WSFC) in the amount contributed to the Kalakaua Avenue transmission line relief project. Coordination with DPP will be made during design to confirm that the proposed development will have necessary capacity per city to connect in regards to available credits owned by the developer, city and or by purchasing from other developers as needed. Coordination also will be made with DPP prior to the time of connection the amount of the connection WSFC charge minus the monetary credits allocated per the MUOA. Per the MUOA and the supplemental letters showing the allocated credits and monetary contributions for the "HUI" project, these monetary and capacity credits can be allocated to the SamKoo Pacific Condo project. There may be a remaining balanced owed to the City for connection. The project will need to submit a letter to the City from the "HUI" authorizing the transfer of the sewer capacity and credits to the project.

IMPACTS AND MITIGATION

The final decision and approval on the availability of sewer capacity will be confirmed when the building permit application is submitted for approval.

VII. SOLID WASTE

EXISTING CONDITIONS

A refuse service currently serves the present project site. The establishments currently under lease on the property generate solid wastes.

PROJECTED SOLID WASTE GENERATION

Solid waste will be generated by the project site during construction and post-construction.

During Construction

The construction wastes will primarily be made up of construction packing and materials, vegetation, pavement, rocks, and debris resulting from clearing the site prior to construction.

Post-Construction

It is anticipated that refuse generated by the proposed residential and commercial development will be collected by the City and County refuse collection service. Solid waste generation from the proposed development is estimated to be 2.92 tons/day based on an average per capita generation rate of 12 pounds/dwelling unit/day and 13 pounds/per 1000 square foot commercial/day from the residential and commercial areas within the site, this equates to approximately twenty-six (26) cubic yards per day. It is anticipated that garbage collection will be collected by the City and County of Honolulu.

IMPACTS AND MITIGATION

The proposed development will be an additional generator of solid waste. Generation of construction wastes due to clearing and construction activities of the site will be a short term impact and should not cause major impact to the existing landfills.

The City and County is currently operating a landfill site in Waimanalo Gulch and the H-POWER waste energy recovery facility on the leeward side of Oahu. It is understood that the City is currently exploring alternative means of handling solid waste as an ongoing city-wide concern.

VIII. ELECTRICAL AND TELECOM UTILITIES

PROJECT CONDITIONS

Electrical

National Electrical Code (NEC) load calculations for this project yields approximately 2500kVA, at 480Y/277 volts, 3-phase, 4-wire. The first floor will contain a Hawaiian Electric Company (HECo) vault sized for a new HECo primary padmount switchgear and a padmount transformer. Service location for connection to HECO's existing 25kV system will be determined by HECo. Empty primary concrete encased ductlines will be provided from the HECo service location to the HECo vault by the contractor. The 25kV primary cables will be provided by HECO. The ducts will terminate in a corner of the vault with cables pulled and laid on the floor terminating in the padmount switchgear. HECo will provide the 25kV primary padmount switchgear and pad mounted transformer. Primary conductors will be laid on the vault floor from the switchgear to the transformer. Secondary service conductors will be laid on the floor and will run from the transformer to the main switchboard. The HECo Vault will require a roll up door directly fronting the primary electrical equipment. The vault will also be provided with a personnel door. The main electrical room will be located adjacent to the HECo Vault and will contain the building's main service switchboard.

Telecom

The project will include telecommunication services for Telephone and CATV for both Residential and Common Areas. Service location for connection to Telecommunication service providers (Hawaiian Tel Com and Time Warner Oceanic) existing system will be determined by the service provider. Empty primary concrete encased ductlines will be provided from the service provider location to the Telcom room MDF by the contractor. Infrastructure such as conduit, raceways and pathways will be provided by the contractor to enable the support of the following services to both the residents and the operation of the building:

- Residential Services
  - Telephone service (traditionally from Hawaiian Telcom)
  - Cable TV access (CATV) (traditionally from Oceanic Time Warner, Dish or DirectTV).
  - Internet Access
- AOAO Services
  - Internal Telephone network and access to telephone service
  - Internal Data network
  - Internet Access
  - CATV Service
  - Security
    - CCTV
    - Access Control
  - Entry Phone
  - Parking Garage Access

IX. REFERENCES

1. Design Standards of the Department of Wastewater Management, Volume I, Department of Wastewater Management, City and County of Honolulu, Hawaii, July 1993

2. Water System Standards, Board of Water Supply, City and County of Honolulu, Hawaii 2002.

3. Rules Relating to Soil Erosion Standards and Guidelines, Department of Planning and Permitting, City and County of Honolulu, Honolulu, Hawaii, April 1999.

4. Soil Survey of Islands of Kauai, Oahu, Maui, Molokai, and Lanai, State of Hawaii. U.S. Department of Agriculture, Soil Conservation Service, August 1972.

TABLE OF FIGURES

FIGURE 1: Project Location Map

PROJECT LOCATION MAP

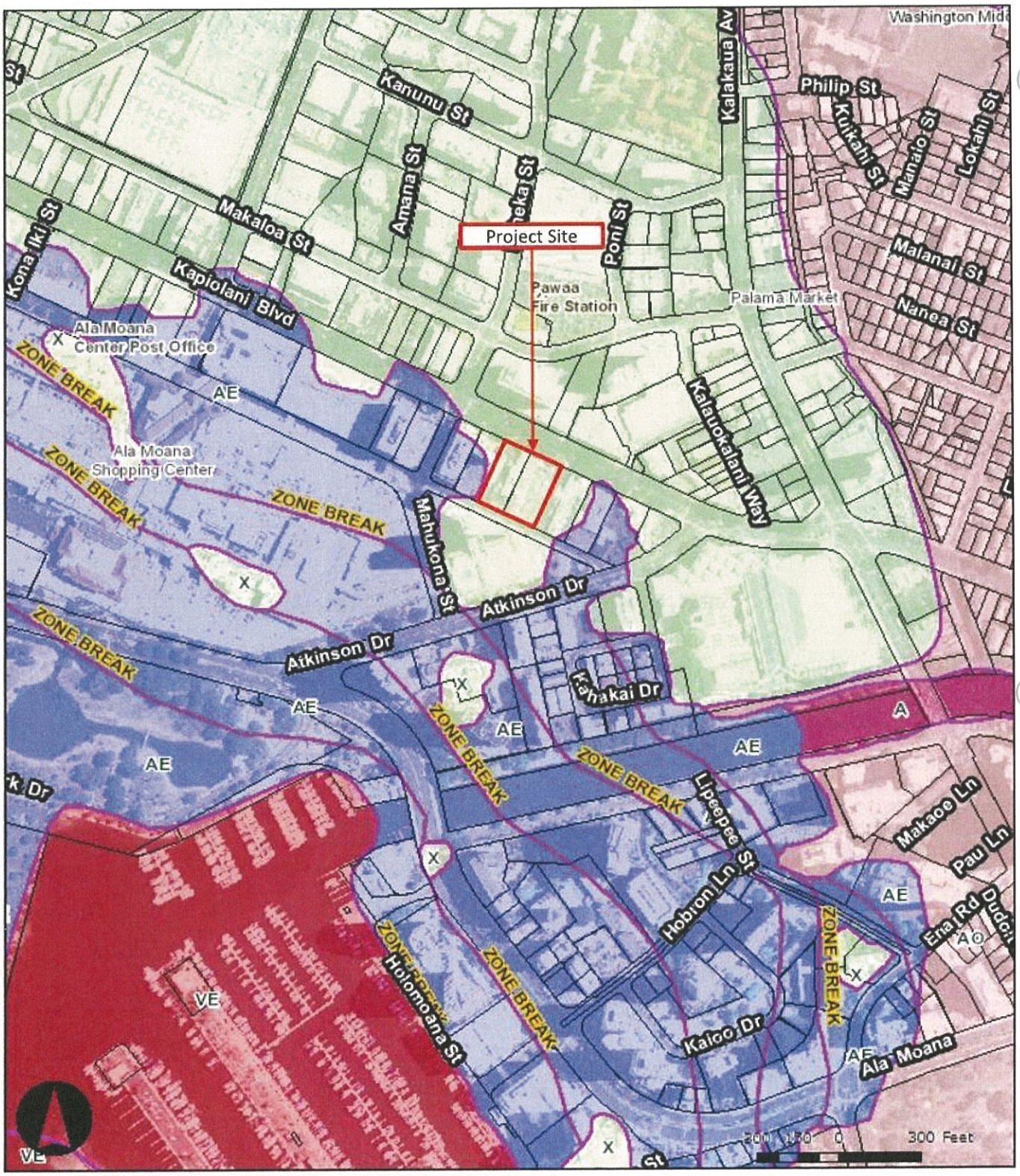
FIGURE 1

Preliminary Engineering Report For Samkoo Pacific Condominium
Samkoo Pacific, LLC.

Map Sources:
ESRI (Street Map)

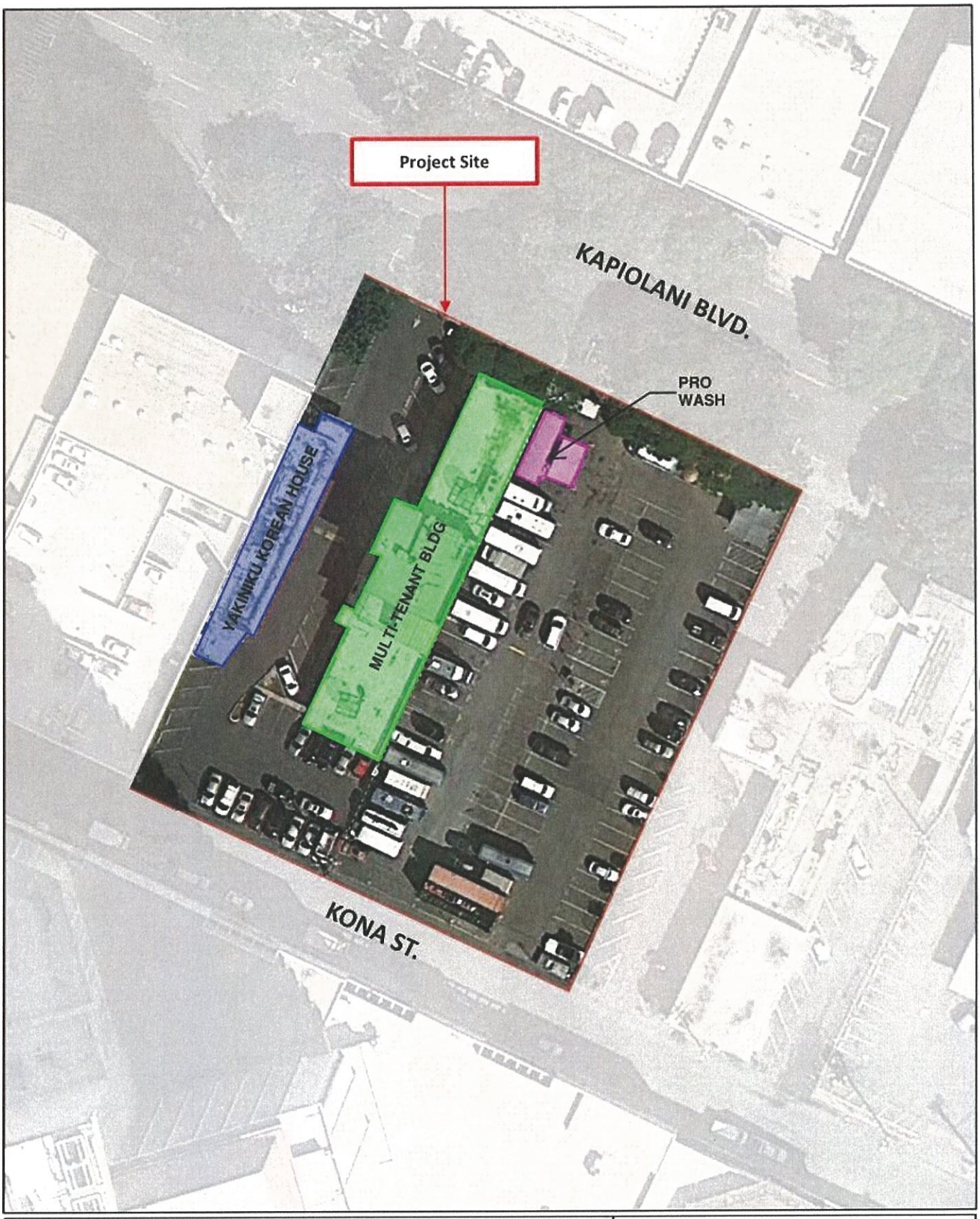
SSFM INTERNATIONAL

FIGURE 2: Flood Insurance Rate Map



FLOOD INSURANCE RATE MAP	FIGURE 2
Preliminary Engineering Report For Samkoo Pacific Condominium Samkoo Pacific, LLC.	Map Sources: C&C HOLIS SSFM INTERNATIONAL

FIGURE 3: Site Lease Establishments



SITE LEASE ESTABLISHMENTS

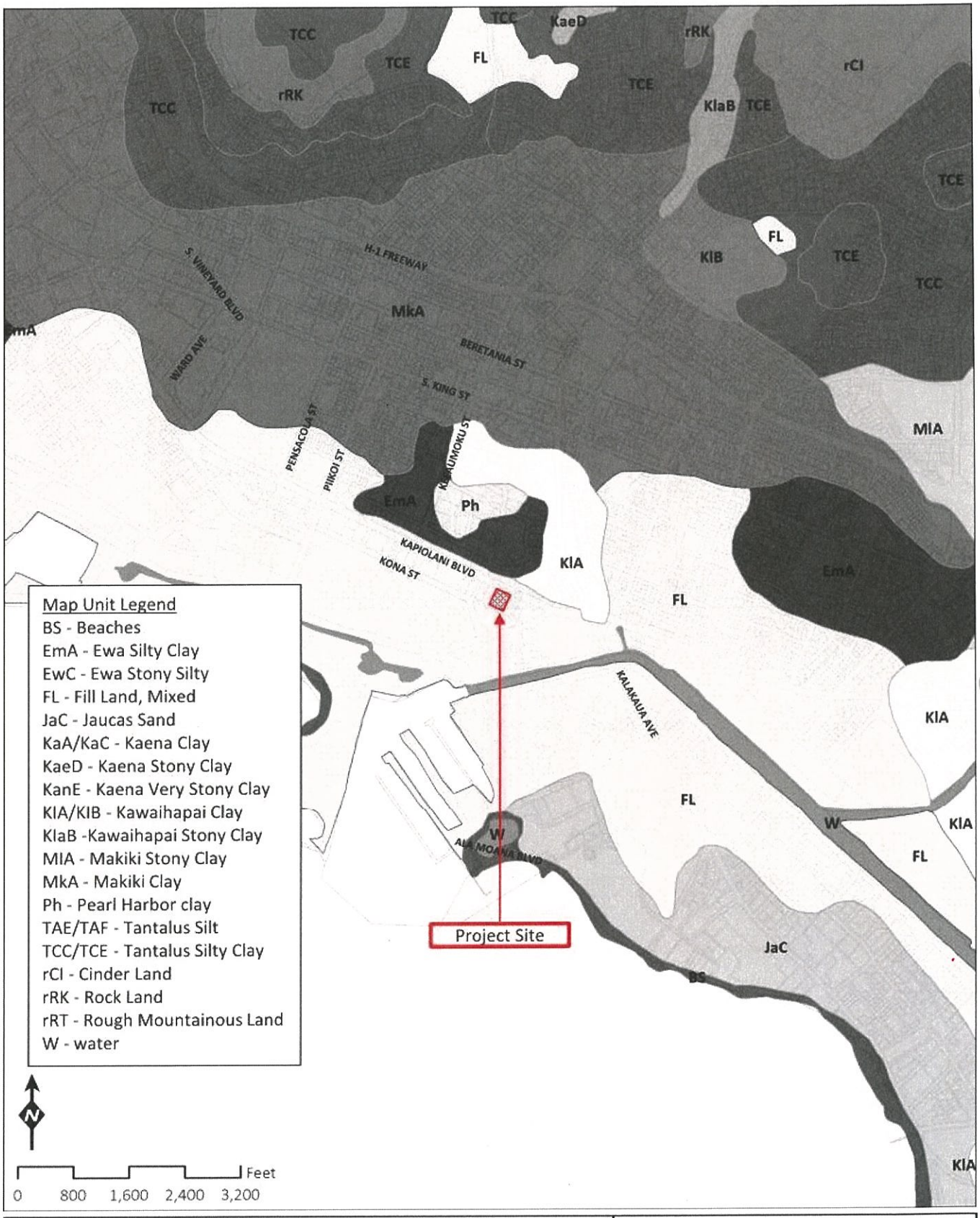
FIGURE 3

Preliminary Engineering Report For Samkoo Pacific Condominium
Samkoo Pacific, LLC.

Map Sources:
Google Earth (aerial)

SSFM INTERNATIONAL

FIGURE 4: Soils Map



SOILS MAP

FIGURE 4

Preliminary Engineering Report For Samkoo Pacific Condominium
Samkoo Pacific, LLC.

Map Sources:
Office of Planning
Soil Survey

SSFM INTERNATIONAL

APPENDIX

Board of Water Supply: Water Capacity Pre-Approval Letter

BOARD OF WATER SUPPLY

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

SSFM INTERNATIONAL, INC.
RECEIVED
OCT 16 2014
BY
FILE

October 9, 2014

FILE COPY

KIRK CALDWELL, MAYOR

DUANE R. MIYASHIRO, Chair
ADAM C. WONG, Vice Chair
MAHEALANI CYPHER
THERESIA C. McMURDO
DAVID C. HULIHEE

ROSS S. SASAMURA, Ex-Officio
FORD N. FUCHIGAMI, Ex-Officio

ERNEST Y. W. LAU, P.E.
Manager and Chief Engineer

ELLEN E. KITAMURA, P.E.
Deputy Manager and Chief Engineer

Mr. Benjamin Rasa
SSFM International, Inc.
501 Sumner Street, Suite 620
Honolulu, Hawaii 96817

Dear Mr. Rasa:

Subject: Your Email Dated October 2, 2014 Requesting the Availability of Water to the Proposed Samkoo Pacific Condominium and Samkoo Hawaii Condominium – Tax Map Key: 2-3-041: 006, 009; 2-3-039: 011

Thank you for your letter on the two proposed commercial/high rise condominium developments.

The existing water system is adequate to accommodate the proposed commercial/residential developments. However, please be advised that this information is based upon current data, and therefore, the Board of Water Supply (BWS) reserves the right to change any position or information stated herein up until the final approval of the building permit application. The final decision on the availability of water will be confirmed when the building permit application is submitted for approval.

When water is made available, the applicant will be required to pay our Water System Facilities Charges for resource development, transmission and daily storage.

Water conservation measures are required for all proposed developments. These measures include low flow plumbing fixtures, utilization of nonpotable water for irrigation using rain catchment and chiller/air handler condensate, cooling tower conductivity meters and water softening recycling systems, drought tolerant plants, xeriscape landscaping, efficient irrigation systems and the use of Water Sense labeled ultra-low-flow water fixtures and toilets.

High-rise buildings with booster pumps will be required to install water hammer arrestors or expansion tanks to reduce pressure spikes and potential main breaks in our water system.

The on-site fire protection requirements should be coordinated with the Fire Prevention Bureau of the Honolulu Fire Department.

The BWS has suspended fire flow tests on fire hydrants as a water conservation measure. However, you may use the following calculated flow data for Fire Hydrant No. M-07859 and M-07888:

Static Pressure.....	76 psi
Residual Pressure.....	56 psi
Flow.....	4000 gpm

The data are based on the existing water system, and the static pressure represents the theoretical pressure at the point of calculation with the reservoir full and no demands on the water system. The static pressure is not indicative of the actual pressure in the field. Therefore, in order to determine the flows that are available to the site, you will have to determine the actual field pressure by taking on-site pressure readings at various times of the day and correlating that field data with the above hydraulic design data.

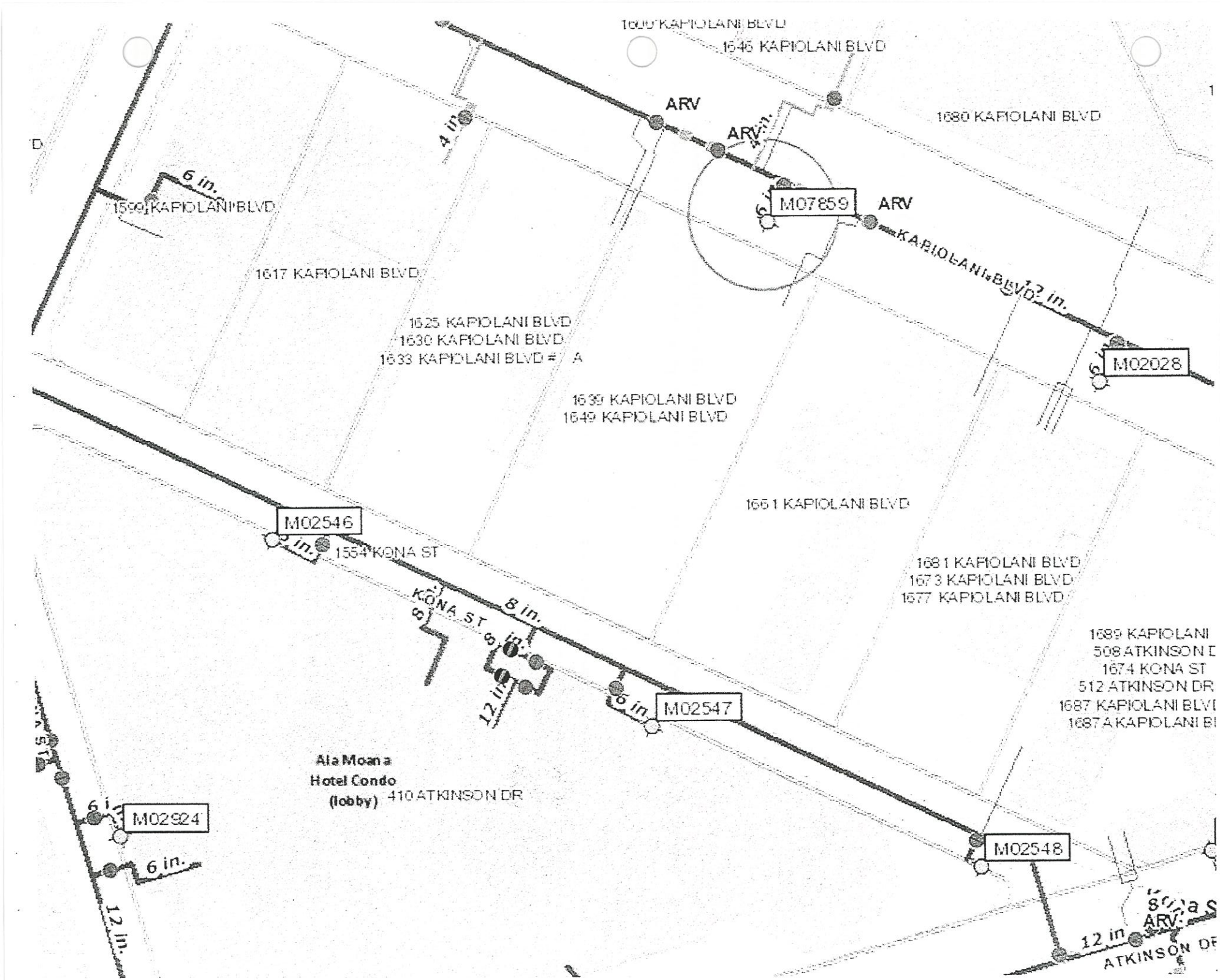
The map showing the locations of the fire hydrants is attached.

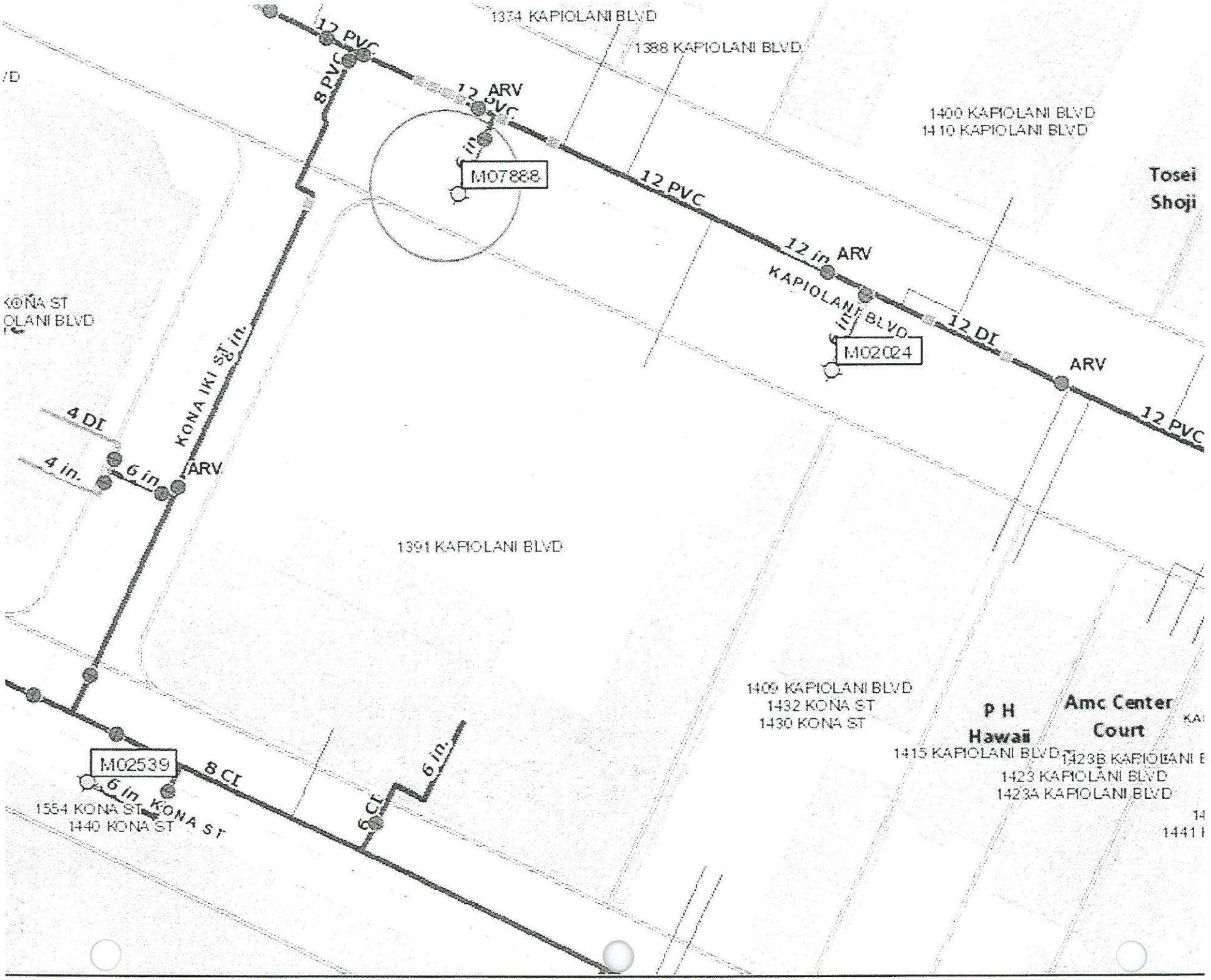
If you have any questions, please contact Robert Chun, Project Review Branch of our Water Resources Division at 748-5443.

Very truly yours,

ERNEST Y.W. LAU, P.E.
Manager and Chief Engineer

Attachment


1600 KAPIOLANI BLVD
1645 KAPIOLANI BLVD
1680 KAPIOLANI BLVD
ARV
ARV
4 in.
M07859
ARV
KAPIOLANI BLVD 12 in.
6 in.
1599 KAPIOLANI BLVD
1617 KAPIOLANI BLVD
1625 KAPIOLANI BLVD
1630 KAPIOLANI BLVD
1633 KAPIOLANI BLVD # A
M02028
1639 KAPIOLANI BLVD
1649 KAPIOLANI BLVD
1661 KAPIOLANI BLVD
M02546
1554 KONA ST
KONA ST 8 in.
8 in.
6 in.
12 in.
6 in.
M02547
1681 KAPIOLANI BLVD
1673 KAPIOLANI BLVD
1677 KAPIOLANI BLVD
1689 KAPIOLANI
508 ATKINSON D
1674 KONA ST
512 ATKINSON DR
1687 KAPIOLANI BLVI
1687 A KAPIOLANI BI
Ala Moana
Hotel Condo
(lobby)
410 ATKINSON DR
M02924
6 in.
12 in.
M02548
12 in
ARV
ATKINSON DR


1374 KAPIOLANI BLVD
1388 KAPIOLANI BLVD
1400 KAPIOLANI BLVD
1410 KAPIOLANI BLVD
12 PVC
8 PVC
12 ARV
6 in.
M07888
12 PVC
12 in ARV
KAPIOLANI BLVD
12 in.
M02024
12 DI
ARV
12 PVC
Tosei
Shoji
KONA IKI ST
8 in.
4 DI
4 in.
6 in.
ARV
1391 KAPIOLANI BLVD
1409 KAPIOLANI BLVD
1432 KONA ST
1430 KONA ST
P H
Hawaii
Amc Center
Court
1415 KAPIOLANI BLVD
1423B KAPIOLANI B
1423 KAPIOLANI BLVD
1423A KAPIOLANI BLVD
M02539
8 CI
6 in.
6 CI
6 in.
1554 KONA ST
1440 KONA ST
KONA ST

DPP Waste Water Branch: Sewer Capacity Pre-Approval Letter

DEPARTMENT OF PLANNING AND PERMITTING
CITY AND COUNTY OF HONOLULU
650 SOUTH KING STREET * HONOLULU, HAWAII 96813
Phone: (808) 768-8209 * Fax: (808) 768-4210

SEWER CONNECTION APPLICATION

APPLICATION NO.: **2014/SCA-0720** STATUS: **Approved with conditions**

DATE RECEIVED: **09/26/2014** IWDP APP. NO.:

PROJECT NAME: **2014/SCA-0720 Samkoo Pacific Condominium at 1631 Kapiolani Blvd.**

$2,112,756.80
Estimated Wastewater System Facility Charge*

LOCATION:

Zone	Section	Plat	Parcel		
2	3	041	006	1637 KAPIOLANI BLVD Honolulu / I	31,250 Sq. Ft.
2	3	041	009	1625 KAPIOLANI BLVD Honolulu / I	25,000 Sq. Ft.

SPECIFIC LOCATION: **1631 Kapiolani Blvd.**

APPLICANT: **SSFM INTERNATIONAL INC.**
ATTN: Benjamin Rasa
501 SUMNER STREET SUITE 620
HONOLULU, HAWAII 96817

DEVELOPMENT TYPE: **Dwelling, Multi-family** SEWER CONNECTION WORK DESIRED:

OTHER USES:

NON-RESIDENTIAL AREA: s.f. APPROXIMATE DATE OF CONNECTION: **12/14/2015**

PROPOSED UNITS	EXISTING UNITS	UNITS TO BE DEMOLISHED
No. of New Units: **484**	No. of Existing Units: **0**	No. of Units to be Demolished: **0**
Studios: **88**	Studios:	Studios:
1-Bedroom: **132**	1-Bedroom:	1-Bedroom:
2-Bedroom: **264**	2-Bedroom:	2-Bedroom:
3-Bedroom:	3-Bedroom:	3-Bedroom:
4-Bedroom:	4-Bedroom:	4-Bedroom:
5-Bedroom:	5-Bedroom:	5-Bedroom:
6-Bedroom:	6-Bedroom:	6-Bedroom:

REMARKS **Submit letter from the HUI authorizing transfer of sewer capacity (108,416 gpd) and credits ($2,112,756.80 at the current rate). Sewer lateral should be sized according to the mechanical engineer's flow calculations.**

APPROVAL DATE: **12/08/2014**

EXPIRATION DATE: **12/03/2016**

Valid 2-years after approval date. Construction plans shall be completed and approved within this 2-year period. Construction shall commence within 1-year after approval of plans.
** Applicable WSFC shall be collected at the prevailing rate in accordance with ROH 1990, Chapter 14, Sections 14-10.3, 14-10.4, 14-10.5 and Appendix 14-D.*

REVIEWED BY: ***Tessa Ching***

Site Development Division, Wastewater Branch

SamKoo C&C Sewer Credit Confirmation Letter 1

DEPARTMENT OF PLANNING AND PERMITTING
CITY AND COUNTY OF HONOLULU
650 SOUTH KING STREET, 7TH FLOOR • HONOLULU, HAWAII 96813
PHONE: (808) 768-8000 • FAX: (808) 768-6041
DEPT. WEB SITE: www.honoluludpp.org • CITY WEB SITE: www.honolulu.gov

PETER B. CARLISLE
MAYOR

DAVID K. TANOUE
DIRECTOR

JIRO A. SUMADA
DEPUTY DIRECTOR

11WWB053 (DMN)

October 27, 2011

Sam House Development, LLC
c/o David Shibata, Esq.
Rush Moore LLP
737 Bishop Street, Suite 2400
Honolulu, Hawaii 96813

Dear Mr. Shibata:

Subject: Request for Wastewater System Facility Charge Credits Under Memorandum of Understanding and Agreement dated December 19, 2007, as amended September 22, 2011 (as amended, the "MOUA", by and between Kalakaua Relief Line, LLC ("Company") and the City and County of Honolulu (the "City")

In response to the Company's November 18, 2010 request, as amended by letter dated June 28, 2011, for issuance of Wastewater System Facility Charge ("WSFC") Credits or ESDU under the MOUA, and in accordance with the provisions of Section 7.2 (Issuance of Credits) of the MOUA, the Department confirms that Sam House Development, LLC (1391 Kapiolani Project) is allocated the following Wastewater System Facility Charge Credits or ESDU as of the date hereof:

WSFC Credits or ESDU to be issued to Sam House Development, LLC pursuant to Exhibit 3 of the MOUA	*Less* Total WSFC Credits Or ESDU Used to Date	**Total WSFC Credits or ESDU Issued to Sam House Development, LLC as of October 18, 2011**
167.79	0.00	**167.79**

Should you have any questions, please contact Dennis Nishimura of our Wastewater Branch at 768-8197.

Very truly yours,

David K. Tanoue, Director
Department of Planning and Permitting

CONCUR:

FOR Timothy E. Steinberger, Director
Department of Environmental Services

DKT:dl
cc: Esther Roberts, Esq. (Case Lombardi & Pettit)

SamKoo C&C Sewer Credit Confirmation Letter 2

DEPARTMENT OF PLANNING AND PERMITTING
CITY AND COUNTY OF HONOLULU
650 SOUTH KING STREET, 7TH FLOOR • HONOLULU, HAWAII 96813
PHONE: (808) 768-8000 • FAX: (808) 768-6041
DEPT. WEB SITE: www.honoluludpp.org • CITY WEB SITE: www.honolulu.gov

PETER B. CARLISLE
MAYOR

DAVID K. TANOUE
DIRECTOR

JIRO A. SUMADA
DEPUTY DIRECTOR

11WWB054 (DMN)

October 27, 2011

Samkoo Pacific, LLc
c/o David Shibata, Esq.
Rush Moore LLP
737 Bishop Street, Suite 2400
Honolulu, Hawaii 96813

Dear Mr. Shibata:

Subject: Request for Wastewater System Facility Charge Credits Under Memorandum of Understanding and Agreement dated December 19, 2007, as amended September 22, 2011 (as amended, the "MOUA", by and between Kalakaua Relief Line, LLC ("Company") and the City and County of Honolulu (the "City")

In response to the Company's November 18, 2010 request, as amended by letter dated June 28, 2011, for issuance of Wastewater System Facility Charge ("WSFC") Credits or ESDU under the MOUA, and in accordance with the provisions of Section 7.2 (Issuance of Credits) of the MOUA, the Department confirms that Samkoo Pacific, LLC (1625 Kapiolani Project) is allocated the following Wastewater System Facility Charge Credits or ESDU as of the date hereof:

WSFC Credits or ESDU to be issued to Samkoo Pacific, LLC pursuant to Exhibit 3 of the MOUA	*Less* Total WSFC Credits Or ESDU Used to Date	**Total WSFC Credits or ESDU Issued to Samkoo Pacific, LLC as of October 18, 2011**
128.13	0.00	**128.13**

Should you have any questions, please contact Dennis Nishimura of our Wastewater Branch at 768-8197.

Very truly yours,

David K. Tanoue, Director
Department of Planning and Permitting

CONCUR:

FOR Timothy E. Steinberger, Director
Department of Environmental Services

DKT:dl
cc: Esther Roberts, Esq. (Case Lombardi & Pettit)

SamKoo Memorandum of Understanding and Agreement

DEPARTMENT OF ENVIRONMENTAL SERVICES
CITY AND COUNTY OF HONOLULU
1000 ULUOHIA STREET, SUITE 308, KAPOLEI, HAWAII 96707
TELELPHONE: (808) 768-3486 • FAX: (808) 768-3487 • WEBSITE: http://www.co.honolulu.gov

MUFI HANNEMANN
MAYOR

ERIC S. TAKAMURA, Ph.D., P.E.
DIRECTOR

KENNETH A. SHIMIZU
DEPUTY DIRECTOR

ROSS S. TANIMOTO, P.E.
DEPUTY DIRECTOR

IN REPLY REFER TO:
WAS 07-369

December 21, 2007

Case Lombardi & Pettit
Attn: Esther S. Han, Esq.
Pacific Guardian Center, Mauka Tower
737 Bishop Street, Suite 2600
Honolulu, Hawaii 96813-3283

Dear Ms. Han:

Re: Memorandum of Understanding and Agreement –
Kalakaua Avenue Relief Sewer Line

Enclosed find an original fully executed original copy of the Memorandum of Understanding and Agreement – Kalakaua Avenue Relief Sewer Line.

Sincerely,

Timothy A. Houghton
Executive Assistant to the Director

Enclosure

MEMORANDUM OF UNDERSTANDING AND AGREEMENT
KALAKAUA AVENUE RELIEF SEWER LINE

THIS MEMORANDUM OF UNDERSTANDING AND AGREEMENT (this "Agreement") is made this 19th day of December, 2007, by and among KALAKAUA RELIEF LINE, LLC (the "Company"), a Hawaii limited liability company, and the CITY AND COUNTY OF HONOLULU (the "City").

RECITALS:

A. The Company is a Hawaii limited liability company whose initial member is FRC Waikiki, LLC, a Delaware limited liability company and owner of that certain parcel of land located at 1837 Kalakaua Avenue, Honolulu, Hawaii 96813 ("FRC Waikiki"). The Company will be comprised of FRC Waikiki and additional members who are owners or representatives of owners of certain lands located within the City and County of Honolulu, Oahu, Hawaii (each a "Member", and, collectively, the "Members"). The planned and continuing development of the lands owned by the Members of the Company or their representatives requires sewer transmission capacity to accommodate the projects planned for these lands (each, a "Designated Project").

B. The existing Kapiolani Trunk Sewer System lacks the capacity to accommodate the increase in sewer transmission demand anticipated for the Designated Projects. The Company recognizes the immediate need for additional sewer capacity to accommodate new development and proposes to design and construct a new sewer line within the City and County of Honolulu, Oahu, Hawaii (the "Kalakaua Avenue Relief Sewer Line" or the "Line") to benefit the planned development for the area and, upon completion of the Kalakaua Avenue Relief Sewer Line to transfer the Line to the City.

C. The lands to be benefited by the Line are shown on the map attached hereto as Exhibit 1 and incorporated herein by reference, designated as the "Tributary Area". The lands owned by the Members of the Company or their representatives to be specifically benefited by the Kalakaua Avenue Relief Sewer Line are shown on the map attached hereto as Exhibit 2 and incorporated herein by reference. The Designated Projects of the Members will connect within the Tributary Area to either the Kapiolani Trunk Sewer System or the Fort DeRussy Pump Station service area as specified on Exhibit 3 attached hereto and incorporated herein by reference.

D. The Company is entering into this Agreement for the benefit of the Members and their Designated Projects within the Tributary Area.

AGREEMENT:

NOW THEREFORE, the parties agree as follows:

1. Construction of Kalakaua Avenue Relief Sewer Line. The Company, at its expense, shall be responsible for the design, planning and permits, management and construction of the Line. The Line shall be designed and constructed based on the plans and specifications approved by the City. The City agrees to undertake to turnover to the Company those certain construction plans prepared by R.M. Towill Corporation ("RMTC") for the Line (the "Existing Plans"). The Company agrees to indemnify, defend and hold the City harmless against any loss, liability, damage, cost, claim or expense (including reasonable attorneys' fees) incurred by reason of the Company's use of the Existing Plans.

2. Completion of Kalakaua Avenue Relief Sewer Line. The Kalakaua Avenue Relief Sewer Line shall be completed in a timely manner and made available for transfer to the City not later than twelve months following issuance ofthe last required permit for the Line, subject to reasonable extensions due to force majeure, including, without limitation, shipping strikes and acts of God. The City will provide assistance in the design review and approval and permits needed for the Line.

3. Acceptance of Line. Upon the completion of the Kalakaua Avenue Relief Sewer Line, the Company will transfer the Line to the City, which transfer shall be completed pursuant to Chapter 14 of the Revised Ordinances of Honolulu 1990, as amended. The City agrees that, upon satisfactory completion of the Line and acceptable completion of all inspections of the Line as evidenced by a certificate(s) of completion of improvements from the City, the City shall grant approval and accept the Line.

4. Maintenance of Kalakaua Avenue Relief Sewer Line. Upon transfer to and acceptance of the Kalakaua Avenue Relief Sewer Line by the City, the City shall be responsible for the operation and maintenance of the Kalakaua Avenue Relief Sewer Line.

5. Allocation and Assignment of Sewer Capacities.

5.1 Allocation of Sewer Capacities. The City agrees to honor the Member capacity allocations attributable to the Credits (as defined below) and the assignment of capacity permitted by Section 5.2 as set forth herein. The Member capacity allocations, as provided by the Company and expressed in Exhibit 3 (the preliminary estimate of which appears on Exhibit 3 under column 10 labeled "Total E.S.D.U. (Credits)"), will not change except as provided for in Section 5.2, Assignment of Sewer Capacities, and Section 7.2.1, Issuance of Credits, below. The City agrees to process and conditionally approve (to the extent not previously approved by the City) sewer connection applications for each Member's Designated Project provided such sewer connection applications are within the capacity allocated to the Member as allocated or assigned pursuant to this Agreement and conform to all standard requirements. The City further agrees to allow issuance of building permits without levy of sewer connection fees provided conditional approval of a Member's sewer connection application has been provided together with certification of membership in the Company and payment of required capital contributions to the Company.

5.2 Assignment of Sewer Capacities. The Members of the Company shall be permitted to assign all or part of their allocated sewer capacity to other Designated Projects or any other project within the Tributary Area as identified in Exhibit 1, provided that any assignment of sewer capacity shall not exceed the total capacity required for such Project. The City shall require that any Member's assignee applying for a sewer connection, a building permit or a subdivision permit deliver to the City a letter of authorization from a Member reflecting such assignment at the time said application is submitted. Any assignment of sewer capacity by a Member pursuant to this Section shall also include an assignment of the total number of ESDU required for the amount of sewer capacity being assigned, provided that, in no event, shall any assignment exceed a Member's allocated capacity or associated ESDU. For example, if a Member seeks to assign sewer capacity for 60 multi-family dwelling units, such Member shall also assign 42 (60 multiplied by a factor of 0.7 pursuant to Section 14-10.3 of the Revised Ordinances of Honolulu) total number of ESDU.

6. Reservation of Sewer Capacities. Upon completion of the Line, the City agrees to provide the Company and its Members, whether utilizing the Line or by any other suitable alternative means, with sewer transmission capacity up to the aggregate amount allocated herein, as and when required by the Members of the Company for their respective Designated Projects.

7. Wastewater System Facility Charge Credits. In consideration of the Company's construction and delivery of the Line, the City agrees to make available to the Company Wastewater System Facility Charge Credits in the amount of the actual total construction (not including planning, design, and permitting) costs of the Line, as allowed under Sections 14-10.3 and 14-10.4, and Appendix 14-D of the Revised Ordinances of Honolulu 1990, as amended and further clarified under Wastewater Policy No. 2001/WWPOL-11 of the Department of Planning and Permitting (the "Credits" or "Total ESDU"), which are equal to the Members' allocated capacity, as shown in Exhibit 3. The computation of the Credits equal to the allocated capacity shall be based upon the wastewater system facility charge assessable with respect to such capacity as of the date the Line is transferred to and accepted by the City or the date the actual total costs of the Line are approved by the City, whichever is earlier.

By way of illustration only, the Company estimates the total costs of the Line to be $5,773,320.00. Assuming the Line is completed and transferred to the City in December 2008, at a total cost of $5,773,320.00, which costs are approved by the City, the City would make available to the Company Credits in the amount of $5,773,320.00, which are equal to 1105.36 Total ESDU, as reflected in, and as indicated in the capacity allocation set forth in, Exhibit 3. The computation of the Credits in this example is based upon the Wastewater System Facility Charge assessable with respect to the Allocated ESDU at the current Wastewater System Facility Charge for fiscal year 2008/09, which rates are subject to change.

7.1 No Further Assessment in Use of Credits Once Allocated and Assigned. The parties agree that once credits are allocated and assigned no further assessment or charge will be made by the City on any Member in the use of its Credits for any Designated Project or assigned Project, (including, without limitation, in the event of a change in the Wastewater System Facility Charge attributable to the ESDU standard), unless the allocated capacity as reflected on Exhibit 3 is exceeded, in which event an additional assessment or charge may be applied to the increased capacity and related required ESDU. The Credits, as and when

earned, will be allocated and assigned by the City to the Members of the Company as set forth in Exhibit 3. The City agrees, without limitation as to the time period within which such Credits are used, and notwithstanding any early termination or expiration of this Agreement, to honor the allocation and assignment set forth on Exhibit 3 and any transfers of such Credits allocated.

7.2 Issuance of Credits. The parties agree that as soon as reasonably practicable upon (A) transfer to and acceptance by the City of the Line and (B) approval by the City of the actual total costs of the Line:

7.2.1 Exhibit 3 shall be amended to reflect the final allocation of Credits to the Members of the Company without prejudice to the rights of Members under Section 5 of this Agreement; and

7.2.2 Such final allocation of Credits shall be transmitted by the Department of Planning and Permitting of the City and County of Honolulu (DPP) to the Company confirming the number of Credits to be allocated and assigned to each Member and such Member's Designated Project under this Agreement.

8. Future Development Along Kapiolani Trunk Sewer System. Subsequent to the execution of this Agreement by the City and the Company, future development serviced in the Tributary Area shall be reviewed by DPP on a project by project basis

9. Term. This Agreement, including, without limitation, the reservation of sewer capacity in favor of each Member given hereunder, shall expire twenty (20) years from the date the Line is accepted by the City, provided that the Credits shall survive any termination of this Agreement.

10. Remedies. If any party to this Agreement fails to fulfill or perform any of its obligations hereunder, non-defaulting parties shall be entitled to all remedies available at law or in equity, including damages, specific performance and injunctive relief. In any dispute or litigation arising out of or in connection with this Agreement, the prevailing party shall be entitled to receive and recover its costs and expenses, including reasonable attorneys' fees, from the other party.

11. Notices. Any notice to be given to or served upon any of the parties hereto shall be deemed to have been sufficiently given or served for all purposes when actually delivered by messenger or by certified mail, return receipt requested, as follows:

In the case of the City:

Department of Environmental Services
City and County of Honolulu
1000 Uluohia Street, Suite 308
Kapolei, Hawaii 96707
Attention: Eric S. Takamura, Director

Department of Planning and Permitting
City and County of Honolulu
650 South King Street, 7th Floor

Honolulu, Hawaii 96813
Attention: Henry Eng, Director

If to the Company:

Kalakaua Relief Line, LLC
c/o FRC Waikiki, LLC, Manager
19900 MacArthur Boulevard, Suite 655
Irvine, California, 92612
Attention: Benjamin L. Ortega

With a copy to Case Lombardi & Pettit:

Case Lombardi & Pettit
737 Bishop Street, Suite 2600
Honolulu, Hawaii 96813
Attention: Dennis Lombardi, Esq.
Esther Han, Esq.

12. No Party Deemed Drafter. The parties agree that no party shall be deemed to be the drafter of this Agreement and further that in the event that this Agreement is ever construed by a court of law, such court shall not construe this Agreement or any provision of this Agreement against any party as the drafter of the Agreement.

13. Successors and Assigns. All of the terms, provisions, conditions and agreements contained herein shall inure to the benefit of and be binding upon each of the parties hereto, and their respective successors and permitted assigns, to the same extent as said terms, provisions, conditions and agreements inure to the benefit of and are binding upon each of the respective parties.

14. Governing Law. This Agreement shall be governed and construed in accordance with the laws of the State of Hawaii.

15. Recitals: Exhibits. All recitals set forth at the beginning of this Agreement shall be deemed to be incorporated as agreements of the parties in this Agreement. All Exhibits referred to in this Agreement shall be deemed to be incorporated herein by the reference made to them as fully as though the entire Exhibit were set forth within the body of this Agreement itself.

16. Survival. All agreements, representations, warranties, covenants, and undertakings of the parties contained herein shall survive the consummation of the transactions contemplated hereby and shall not be merged therein.

17. Amendments. This Agreement shall not be modified except by an instrument in writing signed by all of the parties.

18. Counterparts. This Agreement may be executed in counterparts, each of which so executed shall, irrespective of the date of its execution and delivery, be deemed an original and said counterparts together shall constitute one and the same instrument.

IN WITNESS WHEREOF, the parties hereto have executed this Agreement effective on the day and year first above written.

CITY AND COUNTY OF HONOLULU

By _____
Eric S. Takamura
Director, Department of Environmental Services,
City and County of Honolulu

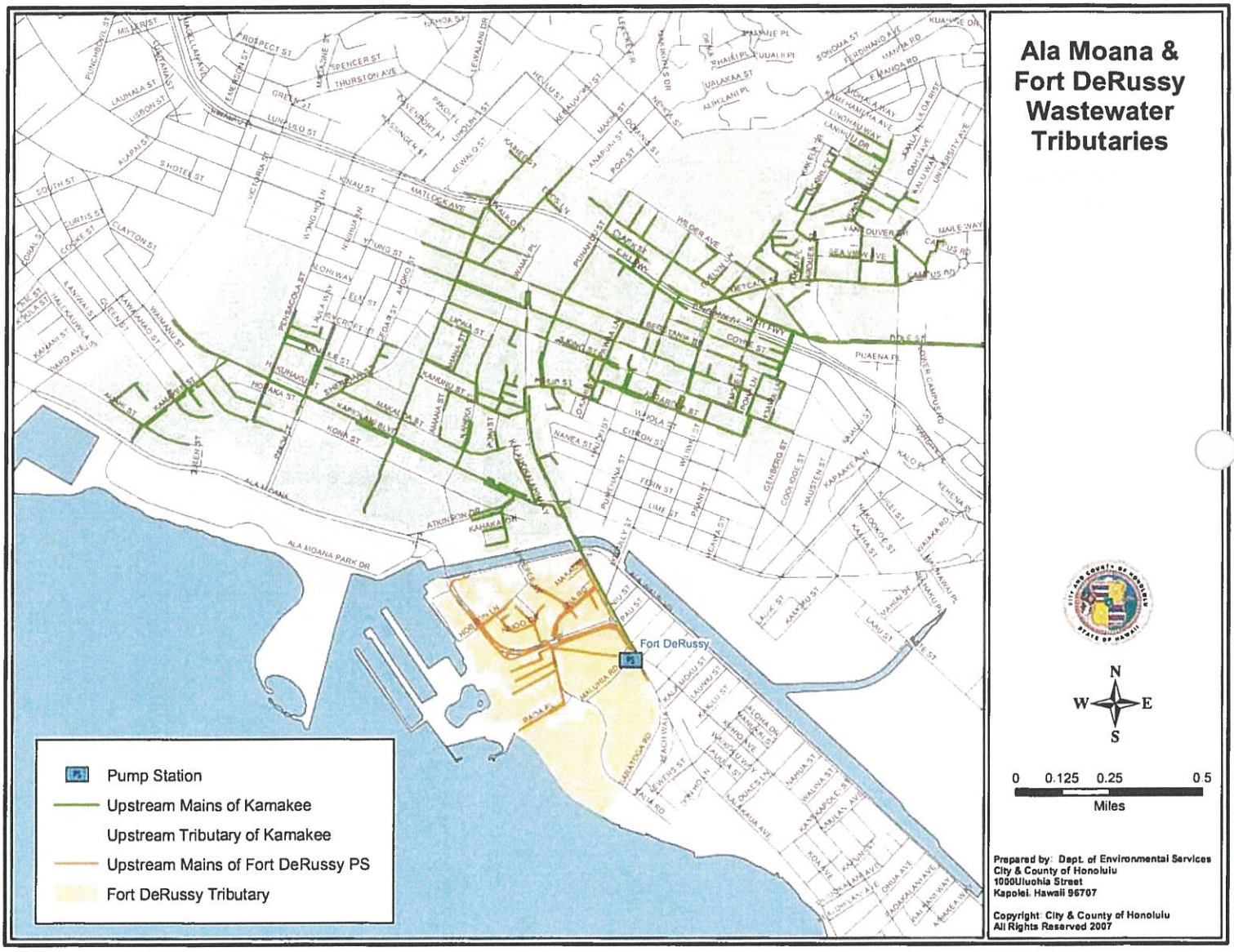
APPROVED AS TO FORM
AND LEGALITY

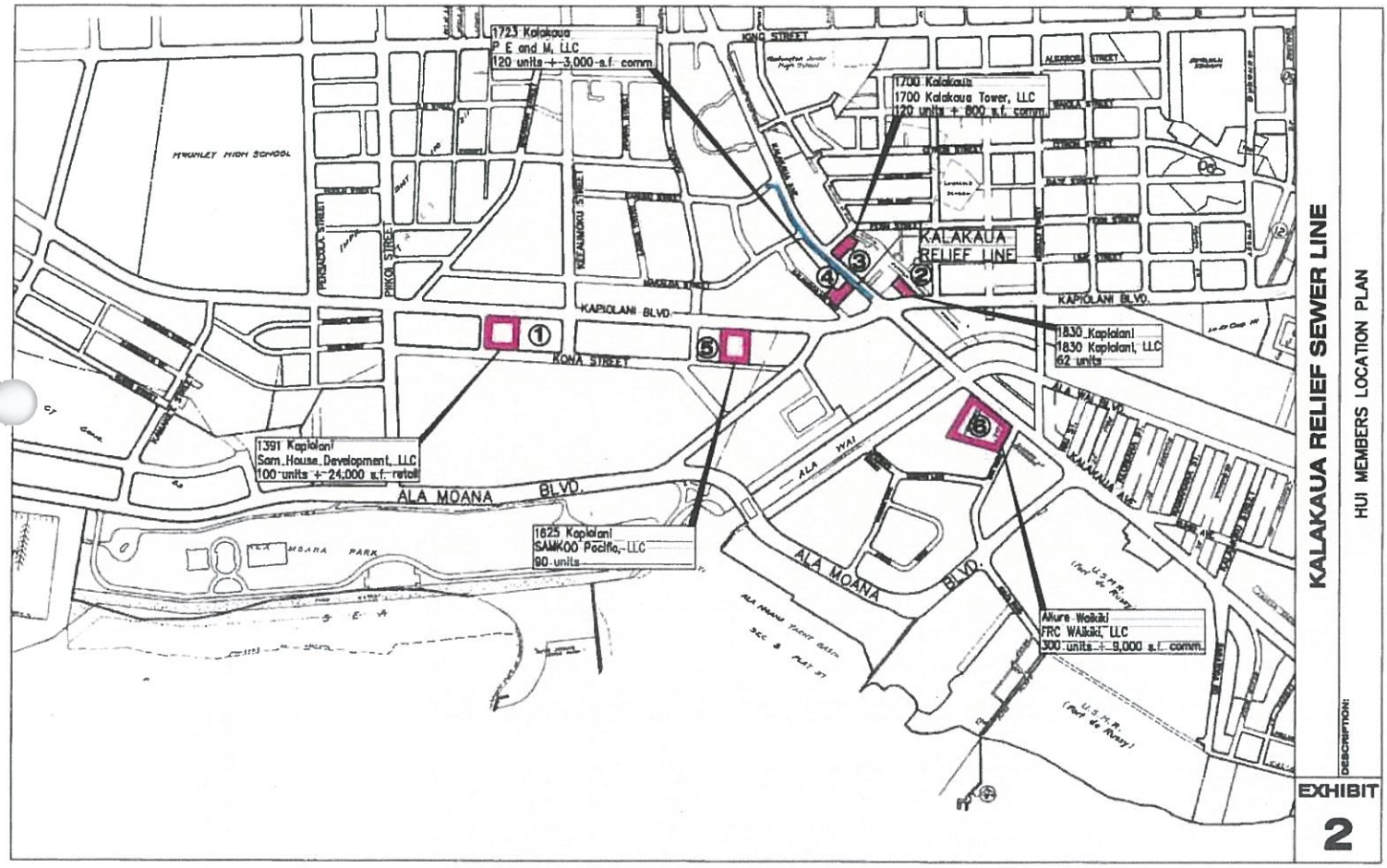
_____
Deputy Corporation Counsel

KALAKAUA RELIEF LINE, LLC

By FRC WAIKIKI, LLC, a Delaware limited liability company
Its Manager

By _____
Steven D. Fifield
Its Manager


Ala Moana & Fort DeRussy Wastewater Tributaries
Pump Station
Upstream Mains of Kamakee
Upstream Tributary of Kamakee
Upstream Mains of Fort DeRussy PS
Fort DeRussy Tributary
Fort DeRussy
N
W
E
S
0 0.125 0.25 0.5
Miles
Prepared by: Dept. of Environmental Services
City & County of Honolulu
1000Uluohia Street
Kapolei, Hawaii 96707
Copyright: City & County of Honolulu
All Rights Reserved 2007


1723 Kalakaua
P E and M, LLC
120 units +- 3,000 s.f. comm
1700 Kalakaua
1700 Kalakaua Tower, LLC
120 units + 800 s.f. comm
KALAKAUA RELIEF LINE
1830 Kapiolani
1830 Kapiolani, LLC
62 units
1391 Kapiolani
Sam House Development, LLC
100 units +- 24,000 s.f. retail
1625 Kapiolani
SAMKOO Pacific, LLC
90 units
Allure Waikiki
FRC Waikiki, LLC
300 units +- 9,000 s.f. comm
KING STREET
KAPIOLANI BLVD.
KONA STREET
ALA MOANA BLVD.
MCKINLEY HIGH SCHOOL
ALA MOANA PARK
KALAKAUA RELIEF SEWER LINE
HUI MEMBERS LOCATION PLAN
DESCRIPTION:
EXHIBIT
2

KALAKAUA RELIEF LINE, LLC

MEMBERS

As of December 4, 2007

	1	2	3	4	5	6	7	8	9	10	11	12
	Tax Map Key	Project Name	Connection	Owner (Mamber)	Consultant/ Applicant	No of Units	Demo Credits	No. Sawar Assased Units	Required E.S.D.U.	Total E.S.D.U. (Credits)	Prorata Shara Percentaga	Total Capital Contributions
1	2-3-039: 011	1391 Kepi'olani	Kapiolani Trunk Sewer System	Sam House Development, LLC	Seto & Assoc., Inc.	100 + 24,000 s.f. retail		100 + 24,000 s.f. retail	82.50	169.77	15.36%	$886,687.37
2	2-3-032: 006	1830 Kapiolani	Kapiolani Trunk Sewer System	1830 Kapioleni LLC	Jim Hutchinson	62		62	43.40	89.31	8.08%	$466,451.30
3	2-3-032: 052	1700 Kalakaue	Kapiolani Trunk Sewer System	1700 Kalakaua Tower, LLC	Pankow-Al Fink	120 + 800 s.f. commerciel		120 + 800 s.f. commercial	84.42	173.71	15.72%	$907,287.18
4	2-3-022: 009, 010, 025	1723 Kalakaua	Kapiolani Trunk Sewer System	P E end M, LLC	R.M. Towill Corp.	120 + 3,000 s.f. commercial		120 + 3,000 s.f. commercial	85.56	176.07	15.93%	$919,602.28
5	2-3-041: 006, 009	1625 Kapi'olani	Kapioleni Trunk Sewer System	SAMKOO Pecific, LLC	Sato & Assoc., Inc.	90		90	63.00	129.64	11.73%	$677,106.72
6	2-6-013: 001, 003, 004, 007, 008, 009, 011, 012	Allure Waikiki	Fort DeRussy Sewer Pump Station System	FRC Waikiki, LLC	Hida, Okamoto & Assoc., Inc.	300 + 9000 s.f. commercial	52	248 + 9000 s.f. commercial	178.29	366.87	33.19%	$1,916,185.15
									537.17	1105.36	100%	$5,773,320.00

$5,773,320.00

Notes:

1. **$5,223.00 / ESDU**
2. **ESDU Calculation:**
   a. **Multi Family Dwellings (5 or more units): ESDU = # of Units X 0.7 (Wastewater Factor)**
   b. **Business/Commercial: ESDU = Area (s.f.) / 1920 (Wastewater Factor)**

EXHIBIT 3

DEPARTMENT OF ENVIRONMENTAL SERVICES
CITY AND COUNTY OF HONOLULU
1000 ULUOHIA STREET, SUITE 308, KAPOLEI, HAWAII 96707
TELEPHONE: (808) 768-3486 • FAX: (808) 768-3487 • WEBSITE: http://envhonolulu.org

9/28/11

PETER B. CARLISLE
MAYOR

TIMOTHY E. STEINBERGER, P.E.
DIRECTOR

MANUEL S. LANUEVO, P.E., LEED AP
DEPUTY DIRECTOR

ROSS S. TANIMOTO, P.E.
DEPUTY DIRECTOR

IN REPLY REFER TO:
PRO 11-106

September 22, 2011

Via Certified Mail

Mr. James Dow, Manager
Kalakaua Relief Line, LLC
c/o Allure Waikiki Marketing LLC
175 West Jackson Boulevard, Suite 540
Chicago, Illinois 60604

Dear Mr. Dow:

Subject: Amendment to Memorandum of Understanding and Agreement (MOUA)
Kalakaua Avenue Relief Sewer Line Executed by Kalakaua Relief Line, LLC

We have reviewed your amendment request as transmitted by your letter dated, June 28, 2011. We have enclosed the Amendment to the MOUA – Kalakaua Avenue Relief Sewer Line with our approval signatures.

Should you have any questions, please call Tim Houghton, Executive Assistant, at 768-3475, or Jack Pobuk, CIP Program Coordinator, at 768-3464.

Sincerely,

Timothy E. Steinberger, P.E.
FOR Director

Enclosure

cc: Case Lombardi & Pettit

AMENDMENT TO MEMORANDUM OF UNDERSTANDING AND AGREEMENT
KALAKAUA AVENUE RELIEF SEWER LINE

THIS AMENDMENT TO MEMORANDUM OF UNDERSTANDING AND AGREEMENT (this "Amendment") is made this 22nd day of September, 2011, by and among KALAKAUA RELIEF LINE, LLC (the "Company"), a Hawaii limited liability company, and the CITY AND COUNTY OF HONOLULU (the "City").

RECITALS:

A. The Company and the City entered into that certain Memorandum of Understanding and Agreement dated December 19, 2007 (the "Agreement"). Capitalized terms used herein without definition shall have the meanings ascribed to such terms on the Agreement.

B. The Company has completed construction of the Line and has requested that the City issue Credits to the Company in the amount of the actual total construction costs of the Line in accordance with the terms of the Agreement. In connection with the issuance of Credits to the Company, the Agreement contemplates that Exhibit 3 thereto shall be amended to reflect the final allocations of Credits to the Members of the Company without prejudice to the rights of Members under Section 5 of the Agreement.

NOW, THEREFORE, in consideration of the premises and the mutual covenants contained herein, and other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the parties hereby covenant and agree to amend the Agreement as follows:

1. Amendment to Section 11. Section 11 of the Agreement shall be amended and restated in its entirety as follows (solely for convenience, modified language appears in italics, deleted language is not shown):

> 11. Notices. Any notice to be given to or served upon any of the parties hereto shall be deemed to have been sufficiently given or served for all purposes when actually delivered by messenger or by certified mail, return receipt requested, as follows:
>
> In the case of the City:
>
> Department of Environmental Services
> City and County of Honolulu
> 1000 Uluohia Street, Suite 308
> Kapolei, Hawaii 96707
> Attention: *Tim Steinberger*, Director
>
> Department of Planning and Permitting
> City and County of Honolulu

650 South King Street, 7th Floor
Honolulu, Hawaii 96813
Attention: *David K. Tanoue*, Director

If to the Company:

Kalakaua Relief Line, LLC
c/o *Allure Waikiki Marketing, LLC*, Manager
175 W. Jackson Blvd., Suite 540
Chicago, IL 60604
Attention: *James J. Dow*

With a copy to Case Lombardi & Pettit:

Case Lombardi & Pettit
737 Bishop Street, Suite 2600
Honolulu, Hawaii 96813
Attention: Dennis Lombardi, Esq.
Esther Han *Roberts*, Esq.

2. Amendment to Exhibit 3 to Agreement. Exhibit 3 of the Agreement is hereby amended and replaced in its entirety with the Exhibit 3 attached hereto and incorporated herein by this reference.

3. No Other Amendments. In all other respects, the Agreement, except as amended by this Amendment, is unamended and unmodified and is in full force and effect.

4. Counterparts. The parties hereto agree that this Amendment may be executed in counterparts, each of which shall be deemed an original, and said counterparts shall together constitute one and the same instrument, binding all of the parties hereto, notwithstanding that all of the parties are not signatories to the original or the same counterparts. For all purposes, including, without limitation, the delivery of this Amendment, duplicate, unexecuted and unacknowledged pages of the counterparts may be discarded and the remaining pages assembled as one document.

[Signature Page Follows]

IN WITNESS WHEREOF, the parties hereto have executed this Agreement effective on the day and year first above written.

CITY AND COUNTY OF HONOLULU

By _____
Tim Steinberger
Director, Department of Environmental Services,
City and County of Honolulu
FOR

APPROVED AS TO FORM
AND LEGALITY

_____
Deputy Corporation Counsel

KALAKAUA RELIEF LINE, LLC, a Hawaii limited liability company

By ALLURE WAIKIKI MARKETING, LLC, a Delaware limited liability company
Its Manager

By _____
James J. Dow
Its Vice President

Exhibit 3

See attached.

Exhibit "A"

	Members	Total Capital Contributions	Membership Interest	E.S.D.U. to be Issued per Member Based on Total Qualified Construction Costs
1.	Allure Waikiki Marketing, LLC (formerly FRC Waikiki, LLC) (Allure Waikiki Project)	$2,412,196.93	41.22%	400.98
2.	Sam House Development, LLC (1391 Kapiolani Project)	$929,724.14	15.89%	167.79
3.	Samkoo Pacific, LLC (1625 Kapiolani Project)	$709,971.16	12.13%	128.13
4.	1830 Kapiolani, LLC (1830 Kapiolani Project)	$587,193.98	10.03%	97.61
5.	1617 Fern LLC (1700 Kalakaua Project)	$1,142,141.80	19.52%	189.86
6.	Island Paradise Investments Limited Partnership (1723 Kalakaua Project)	$70,997.23	1.21%	12.81
TOTAL		$5,852,225.24	100%	997.18

Hawaiian Electric Company Informational Service Letter

April 14, 2015

RECEIVED
APR 16 2015
INSYNERGY ENG.

Mr. Srdjan Nikolic
InSynergy Engineering, Inc.
828 Fort Street Mall, Suite 500
Honolulu, Hawaii 96813

Dear Mr. Nikolic:

Re: Samkoo Pacific Condominium
1631 Kapiolani Boulevard, Honolulu
HECO Request No. 6043663

This informational letter is in reply to your request, dated March 31, 2015 concerning the installation of an underground electrical distribution system to serve the subject development.

The rough estimated total charge for our underground distribution system is $170,000. This non-refundable contribution is payment for the installation of an underground cable from an existing manhole on Kapiolani Boulevard to an automatic transfer switchgear that serves one 2000 kVA transformer. The switchgear and transformer will be installed in a vault room built by the customer and approved by Hawaiian Electric Company.

This amount represents present day costs and is based on our existing electric rates and is noted for your planning and financing requirements. Should you desire a detailed design, construction drawing and firm costs based on an anticipated service date, we will require an initial payment of $34,000 (20% of the rough estimated total charge), which shall be credited to the developer's total charge when the installation is authorized for construction. This initial payment will be used to cover engineering expenses incurred in providing the detailed design and cost quotation.

Upon receipt of your request for a firm proposal and the initial payment of $34,000, we will update our costs in a proposal letter.

This project requires a rough lead time of 6-8 months for ordering the materials and approximately two months duration to complete the work.

Please signify acceptance of this proposal by an appropriate signature in the space provided. We request that the signed original, along with your check for $34,000, be returned to us in the self-addressed envelope enclosed to expedite its receipt.

Michael Hahn is the Customer Installations Department Engineer assigned to this project. Please correspond directly with him on all matters relating to this project or call him at 543-7097.

Sincerely,

Gary Fukumoto
Director
Planning & Design Division
Customer Installations Department

MN/EK/GF/:ks
Enclosure

Firm Engineering Proposal Desired:

Name of Requester: _____
Type or Print

Approved: _____
Signature in Ink

Title: _____ Date: _____

Name of Company: _____ Phone #: _____

Estimated date your contractor will be ready for HECO to begin our installation:

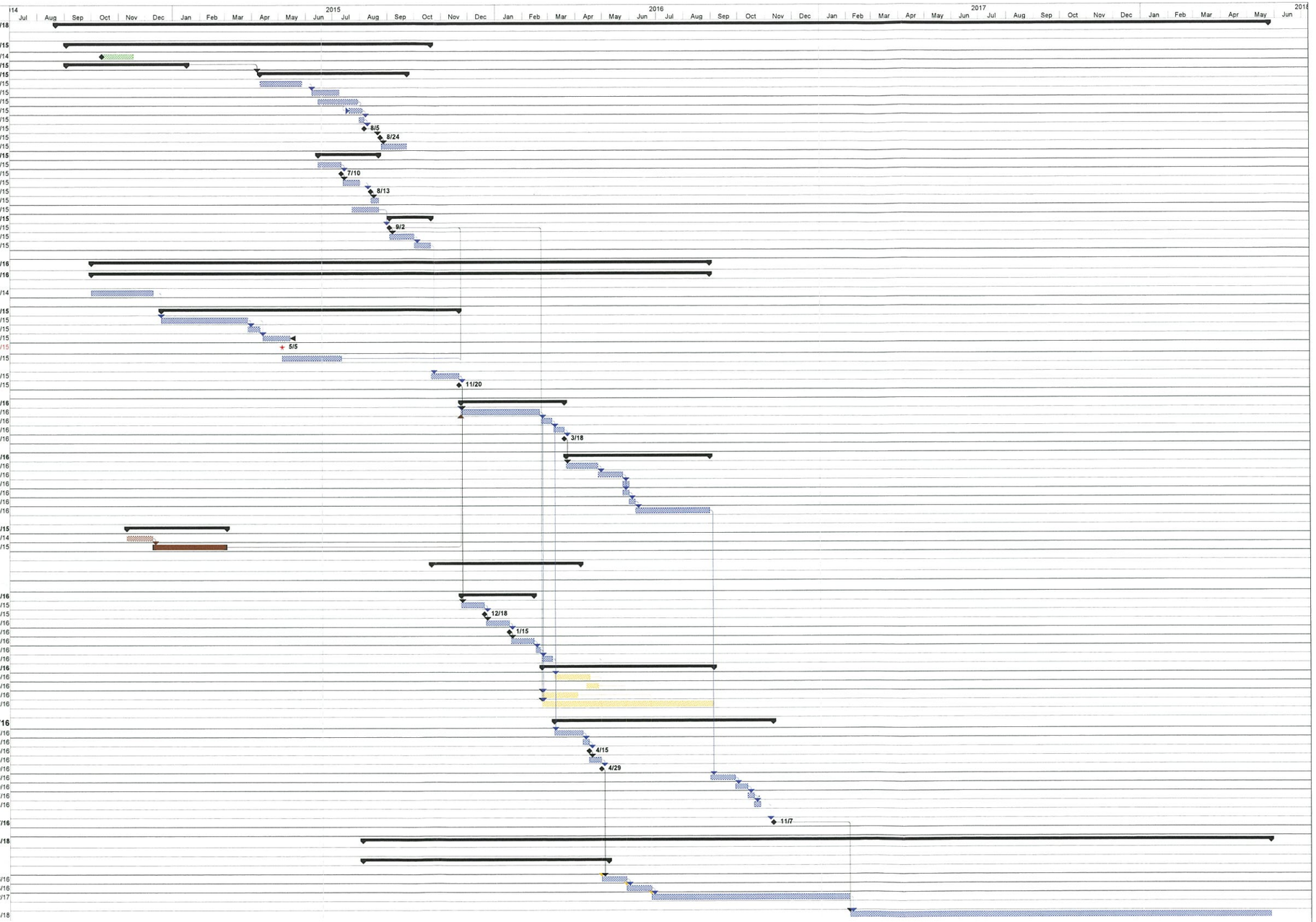
_____

Check No. and Amount: _____

Initial payment (20%): $34,000
(GL Code 24233000)

I. PRELIMINARY PROJECT SCHEDULE

ID	Task Name	Duration	Start	Finish
1	**1631 SAMKOO KAPIOLANI RESIDENCE**	**980 days?**	**Fri 8/22/14**	**Thu 5/24/18**
2				
3	**ENTITLEMENTS**	**294 days?**	**Wed 9/3/14**	**Mon 10/19/15**
4	HHFDC PROJECT DEFINITION SUBMITTAL / APPROVAL	1.3 mons	Mon 10/13/14	Mon 11/17/14
5	**Preparatory Work for Submittals**	**98 days**	**Wed 9/3/14**	**Fri 1/16/15**
15	**Environmental Assessment**	**118 days**	**Fri 4/10/15**	**Tue 9/22/15**
16	Draft EA Initial Submission	34 days	Fri 4/10/15	Wed 5/27/15
17	Draft EA Formal Review Period	23 days	Mon 6/8/15	Wed 7/8/15
18	HHFDC Comment/Response Review	33 days	Mon 6/15/15	Wed 7/29/15
19	Prepare Final EA	11 days	Mon 7/20/15	Mon 8/3/15
20	HHFDC Approves FONSI and signs OEQC Transmittal Letter	4 days	Fri 7/31/15	Wed 8/5/15
21	HHFDC Submits FEA to OEQC	0 days	Wed 8/5/15	Wed 8/5/15
22	OEQC Issues FONSI Notice	0 days	Mon 8/24/15	Mon 8/24/15
23	30 Day Public Challenge Period	21 days	Tue 8/25/15	Tue 9/22/15
24	**201H Application**	**50 days**	**Mon 6/15/15**	**Fri 8/21/15**
25	Prepare Application	20 days	Mon 6/15/15	Fri 7/10/15
26	Submit to HHFDC	0 days	Fri 7/10/15	Fri 7/10/15
27	HHFDC Review	15 days	Mon 7/13/15	Fri 7/31/15
28	HHFDC Board Meeting	0 days	Thu 8/13/15	Thu 8/13/15
29	HHFDC Submits to City Council	7 days	Thu 8/13/15	Fri 8/21/15
30	Draft Bill for City Council	22 days	Thu 7/23/15	Fri 8/21/15
31	**CITY COUNCIL REVIEW / APPROVAL**	**33 days?**	**Wed 9/2/15**	**Mon 10/19/15**
32	Introduction and Referral	0 days	Wed 9/2/15	Wed 9/2/15
33	Zoning and Planning Committee	20 days	Thu 9/3/15	Wed 9/30/15
34	Council Decision	13 days	Thu 10/1/15	Mon 10/19/15
35				
36	**DESIGN AND ENGINEERING**	**499 days?**	**Wed 10/1/14**	**Mon 8/29/16**
37	**DESIGN DRAWNG PROCESS**	**499 days?**	**Wed 10/1/14**	**Mon 8/29/16**
38				
39	**PRE-DEVELOPMENT DRAWINGS 35%**	50 days	Wed 10/1/14	Tue 12/9/14
40				
41	**SCHEMATIC DESIGN PHASE**	**241 days?**	**Fri 12/19/14**	**Fri 11/20/15**
42	SD 100% Pricing Set	3.5 mons	Fri 12/19/14	Thu 3/26/15
43	Design Review	0.5 mons	Fri 3/27/15	Thu 4/9/15
44	Contractor Pricing SD 100%	1.35 mons	Mon 4/13/15	Tue 5/19/15
45	Stop Work	0 days	Tue 5/5/15	Tue 5/5/15
46	Wind Tunnel Testing	49 days	Tue 5/5/15	Fri 7/10/15
47				
48	Redo Base Drawing for Prefab System	24 days	Tue 10/20/15	Fri 11/20/15
49	Final Approved Architectural Schematic Design Package	0 days	Fri 11/20/15	Fri 11/20/15
50				
51	**Design Development Phase**	**85 days?**	**Mon 11/23/15**	**Fri 3/18/16**
52	Prepare 100% DD Set	3.25 mons	Mon 11/23/15	Fri 2/19/16
53	Design Review 100% DD Set	0.5 mons	Mon 2/22/16	Fri 3/4/16
54	Review 100% Coordination Set w/Owner	0.5 mons	Mon 3/7/16	Fri 3/18/16
55	Approval by Ownership to Move into Construction Documents	0 days	Fri 3/18/16	Fri 3/18/16
56				
57	**Construction Documents Phase**	**116 days?**	**Mon 3/21/16**	**Mon 8/29/16**
58	Prepare & Submit 50% CD Set	1.3 mons	Mon 3/21/16	Mon 4/25/16
59	Design Review 50% CD Set	1 mon	Tue 4/26/16	Mon 5/23/16
60	Value Engineering	5 days	Tue 5/24/16	Mon 5/30/16
61	Review Design review Comments with Architect	5 days	Tue 5/24/16	Mon 5/30/16
62	Review 50% Pricing Set w/Owner	5 days	Tue 5/31/16	Mon 6/6/16
63	Prepare & Submit 100% CD Contract Set	3 mons	Tue 6/7/16	Mon 8/29/16
64				
65	**GEOTECHNICAL**	**81 days?**	**Mon 11/10/14**	**Mon 3/2/15**
66	Field Work	21 days	Mon 11/10/14	Mon 12/8/14
67	Report	60 days	Tue 12/9/14	Mon 3/2/15
68				
69				
75				
76				
81	**National Pollutant Discharge Elimination System (NPDES)**	**60 days**	**Mon 11/23/15**	**Fri 2/12/16**
82	Best Management Plan by Civil Engineer	20 days	Mon 11/23/15	Fri 12/18/15
83	NPDES Application to Dept. of Health, State of Hawaii	0 days	Fri 12/18/15	Fri 12/18/15
84	NPDES Review	20 days	Mon 12/21/15	Fri 1/15/16
85	Receive NPDES Permit	0 days	Fri 1/15/16	Fri 1/15/16
86	NPDES 30 day Public Notice	20 days	Mon 1/18/16	Fri 2/12/16
87	Demolition Permit	5 days	Mon 2/15/16	Fri 2/19/16
88	File 10 Day DOH Demolition Notice	10 days	Mon 2/22/16	Fri 3/4/16
89	**SUBMIT PERMIT SET**	**140 days**	**Mon 2/22/16**	**Fri 9/2/16**
90	Demolition Permit	30 days	Mon 3/7/16	Fri 4/15/16
91	Grading Permit	10 days	Tue 4/12/16	Mon 4/25/16
92	Foundation Permit	30 days	Mon 2/22/16	Fri 4/1/16
93	Building Permit	140 days	Mon 2/22/16	Fri 9/2/16
94				
95	**PRICING/NEGOTIATION**	**176 days**	**Mon 3/7/16**	**Mon 11/7/16**
96	Contractor Rebid on 100% DD	24 days	Mon 3/7/16	Thu 4/7/16
97	Review Bids	5 days	Fri 4/8/16	Thu 4/14/16
98	Select Contractor	0 days	Fri 4/15/16	Fri 4/15/16
99	Negotiate Pricing on Sitework and Foundation	10 days	Fri 4/15/16	Thu 4/28/16
100	Notice to Proceed on Sitework and Foundation	0 days	Fri 4/29/16	Fri 4/29/16
101	100% CD Contract Set Pricing	1 mon	Tue 8/30/16	Mon 9/26/16
102	Review Pricing	10 days	Tue 9/27/16	Mon 10/10/16
103	Review Bid Alternates & Contract Negotiations	5 days	Tue 10/11/16	Mon 10/17/16
104	Award & Construction Contract Preparation	5 days	Tue 10/18/16	Mon 10/24/16
105				
106	**SIGN CONSTRUCTION CONTRACT**	0 mons	**Mon 11/7/16**	**Mon 11/7/16**
107				
108	**CONSTRUCTION**	**734 days?**	**Mon 8/3/15**	**Thu 5/24/18**
109				
110				
115				
116	Site Demolition	20 days	Fri 4/29/16	Thu 5/26/16
117	Clearing and Rough Grading	20 days	Fri 5/27/16	Thu 6/23/16
118	Foundation Work	8 mons	Fri 6/24/16	Thu 2/2/17
119				
120	**Tower and Parking Structure**	17 mons	Fri 2/3/17	Thu 5/24/18



Project: 1631 Kapiolani Residence Revision 150619
Date: Fri 6/19/15

Task | Split | Milestone | Summary | Project Summary | External Tasks | External Milestone | Inactive Milestone | Inactive Summary | Manual Task | Duration-only | Manual Summary Rollup | Manual Summary | Start-only | Finish-only | External Tasks | External Milestone | Progress | Deadline

J. WIND STUDY

Wind Study

Kapiolani Residence

Honolulu, Hawaii

Englekirk

STRUCTURAL ENGINEERS

August 4, 2015

Job No. 14-H077A

Wind Study

Kapiolani Residence

Honolulu, Hawaii

Submitted to:

Design Partners, Inc.
1580 Makaloa Street,
Suite 1100
Honolulu, Hawaii 96814
(808) 949-0044

August 4, 2015

Job No. 14-H077A

Englekirk
STRUCTURAL ENGINEERS

888 S. Figueroa Street
18th Floor
Los Angeles, California 90017

323.733.6673 T

www.englekirk.com

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EXECUTIVE SUMMARY

This report describes the methodology used and results from an assessment of the wind effects of wind on the Kapiolani Residence in Honolulu, Hawaii. The project consists of a 45-story residential tower and adjacent 10-level parking structure. The proposed site development is shown in Figure 1.1.

Included in the wind tunnel study were evaluations of pedestrian-level winds (PLW) in and around the project, estimation of design wind loads for the cladding and estimation of design wind loads on the structural system.

The assessment of pedestrian level winds and the determination of design wind loads were accomplished using wind-tunnel testing that match full-scale meteorological data to physical modeling data.

Pedestrian Level Wind Study Results

The frequency of occurrence, speed, and level of turbulence of winds at street level are important to the comfort and safety of people in pedestrian areas. Tall structures or rapidly changing terrain may intercept the faster wind speeds that flow higher above the ground. Consequently, pedestrian-level wind speeds can be changed significantly when a taller structure, or sharply sloping terrain, divert a portion of the higher-level wind speed either down the face of the structure or along the sloping terrain until that flow reaches the pedestrian level. Because the diverted winds have higher speeds than those near the ground, the effects of those diverted winds can be substantial.

Wind speed comfort is subjective but the following criteria have been applied successfully to projects involving similar uses. A point on the site where the wind speed of 7 mph is exceeded not more than 10% of the time will be considered comfortable for outdoor seating and quiet activities. In this instance, 7 mph is called the "ten percent exceedance speed." Ten-percent exceedance speed of 11 mph and less will be considered comfortable for standing and leisure walking, while those between 12 and 15 mph will be suitable for walking and other occasional, more active uses. Ten percent exceedance speeds in excess of 15 mph will result in potentially uncomfortable pedestrian conditions. Ten percent exceedance speeds reaching or surpassing 36 mph create potential safety hazards for pedestrians. There were no points that reported wind speeds of this magnitude for this site.

Gustiness can also be incorporated into the data evaluation by comparing the mean wind speed to the gust speed for the same probability of exceedance. In general, if the gust speed is twice that of the mean wind speed, the wind gusts will be perceived as controlling the human comfort. A second set of results based on gusting wind speeds is also presented. At this site, wind gusts govern the perceived windiness at some points that would otherwise meet the stated mean wind speed criteria. This can be seen by comparing figures such as Figures 4.4 and 4.5 where three additional points in Figure 4.5 are identified as exceeding the 7 mph criterion based on gustiness.

The wind-tunnel test results are summarized in Table 4.2 and Figures 4.4 through 4.9. One test setting was conducted that examined the developed project site along with adjacent structures in the vicinity.

Table 4.2 indicates that the reference suburban and open wind speeds have 10% wind exceedance speeds of 7.5 mph and 12.5 mph, which suggest an already breezy site, even without additional development. The reference suburban and open wind speeds reflect the 10% wind exceedance speeds at a typical suburban site built up with a mix of different building heights or a site exposed to the ocean without intervening development, respectively. In other words, these speeds provide a frame of reference to judge how the proposed development influences the pedestrian level wind speeds.

The figures indicate that most points at the perimeter of the site do not satisfy the 7 mph criterion based upon either the mean wind speed or gust wind speed, which is a direct reflection of the site's characteristic breeziness. The number of points that do not meet the 11 mph criterion is less and these points are mostly clustered around the northeast corner of the tower; the buildings appear to shelter the interior measurement points. Point 12, at the main entrance, does not satisfy the 15 mph criterion based on the mean wind speed. All of the windier points are what would be expected in general suburban locations and the windiest point, Point 12, is what would be expected in an open environment.

There are no points that exceed the hazard condition (i.e. 10% mean exceedance speed of 36 mph) as specified in typical safety criteria. No points were close to this criterion.

The winds are dominated by trade winds from the northeast. From that direction, flow acceleration in front of the building is most likely a combination of two factors. The first is wind flowing down the face of the tower. There are low-rise buildings upstream for this wind direction that tends to increase the amount of flow being directed down to street level. The second factor is channeling along the face of the building.

Mitigation options for windier points within the site boundaries include landscaping and screening. Although not modeled directly in the wind tunnel study, landscaping in front of the tower is expected to reduce the wind speeds in front of the entrance. Landscaping must be relatively dense to provide effective protection, although flexible planting can itself be distracting if it moves too much in the wind.

Additional screening may also help reduce the wind speed in front of the building. To the extent that the objectionable wind effects are produced by wind from the prevailing wind direction, vertical screening at the northeast corner of the building that blocks the prevailing wind may be most effective. Vertical screening that is opaque to the wind (e.g., a glass wall) generally creates a protected area that is twice as deep as the screen is tall, whereas open screening is less effective. For example, screening that is 50% open will protect an area that is generally no deeper than the height of the screen.

To the extent that the objectionable wind effects are produced by wind from the washing down the face of the building, horizontal screening along the north elevation (e.g., awnings) may be effective. Umbrellas may be able to provide localized protection.

Definitive advice regarding mitigation strategies is difficult to provide in the absence of wind tunnel testing that investigates specific mitigation measures. Mitigation testing can be provided as an additional service.

If accessibility requirements limit the maximum force needed to open a door, a mechanical door opener may be required.

Cladding Pressure Wind Study Results

The design wind speeds produced by the hurricane simulation were consistent with the design wind speed for the area. The reductions in design wind loads were not capped so that the maximum and minimum cladding pressures were not less than 80% of the code specified cladding loads for interior wall and roof pressure zones as discussed in ASCE 7-05 and required in ASCE 7-10. The cladding pressure coefficients were combined with the results of 100,000 years of hurricane simulations to produce cladding design pressures as a function of return period. The design values shown in Figures 5.7 through 5.16 are based on 500-year return period wind speeds divided by the square root of 1.5 as specified in ASCE 7-05 (limitation on site specific design wind speed analysis). This is also consistent with ASCE 7-10 700-year return period wind speeds divided by the square root of 1.6 as both produce the same allowable stress design wind speed for the site.

Design pressures were plotted over the surface of the building and used to develop the design pressure contours shown in Figures 5.7 through 5.16. These contours represent peak external positive (directed towards the surface of the building) and negative (directed away from the surface of the building) design pressures. Internal pressures of 8 psf must be added to the pressures shown on the figures to arrive at total net design pressures. These internal pressures are based on treating the building as a normally enclosed building. Adjustments to design pressures based on tributary area are found in Table 5.1.

Structural Frame Load Wind Study Results

Mean forces and moments at the base of the building due to wind loading on the tower were obtained directly from the force balance tests. Full-scale mean forces and moments were computed by combining the model results with information on the wind climate at the site and scaling the results of the model tests to their full-scale equivalent values. Dynamic loads were derived from the measured dynamic loads on the model. The base overturning moments provide a good approximation of the modal sway forces on the building and the base torsional moment provides an over-estimate of the modal torsional forces on the building.

Research at several laboratories has shown that using 75% of the base torque provides a reasonable, but still slightly conservative, approximation of the modal torsional forces. The analysis provides full-scale values of the dynamic loads that includes gust loading of the turbulent wind, wake effects and the dynamic amplification of the loading caused by the response of the building at its fundamental natural frequencies. Information on the dynamic characteristics of the building was provided by the structural engineer of record.

Figure 6.1 illustrates the coordinate system used to describe the structural loads. Base overturning moments about the x- and y-axes and torsional moments about the z-axis are given in Figures 6.2 through 6.4 as a function of wind direction for the strength load case.

The results appear to be less than the results that would be obtained from application of the building code procedures for calculating wind forces in ASCE 7-05 and may be below the minimum limits in ASCE 7-10 for some of the forces and moments. There appears to be a significant influence caused by the tower across the street from this project. This influence may be seen in Figure 6.4 as the large increase in M_z (torsion) on the building for wind directions 170, 180 and 190 when the wake of the nearby tower loads up a portion of the building's broad face, and the significant drop in M_y in Figure 6.3 at direction 200 when this project's tower is in the shadow of the adjacent tower.

Floor-by-floor loading vectors were developed that produce base overturning moments and torques for the critical combination of wind directions. The dynamic loads were distributed according to the modal mass of the building in the appropriate sway or torsional mode of vibration as calculated by the structural engineer of record.

The mean loads were distributed using a power law relationship that provided a match with the mean overturning moment at the base and matched the base shear. The floor-by-floor loads are for the tower above the base. The proportioning of mean and dynamic loads was set to match the general relationships between these load effects obtained from the force balance tests. Critical wind directions were identified as 90 degrees (maximum negative overturning moment about the y-axis), 120 degrees (maximum negative torsion about the z-axis), 170-180 degrees (maximum positive and negative overturning moments about the x- and y- axes, respectively plus maximum positive torsion about the z-axis) and 260 degrees (maximum positive overturning moment about the x-axis). The floor-by-floor loads for these combined wind directions are presented in Tables 6.1 through 6.4 for the strength case. For use in strength design, these loads need to be factored using a 1.6 load factor on the wind load given in the tables as specified in ASCE 7-05.

The application of the floor by floor loads in the various directions together with the torsional forces requires several load combinations for each set of wind directions. The underlying logic is that the peak load in any direction can certainly occur but the chances that the peak load effects from several components will occur at the same instant in time is much less likely. A reasonable but slightly conservative approach to combining the load effects for the various load components is to combine the peak load effect from one component with the mean plus half the dynamic load from each of the other load components. This results in three load combinations for each wind direction considered.
The recommended wind load combinations for the critical wind direction are:

1. $Fx_{mean} + Fx_{dyn} = Fx_{peak}$
   $Fy_{mean} + \frac{1}{2} Fy_{dyn}$
   $Mz_{mean} + \frac{1}{2} Mz_{dyn}$

2. $Fx_{mean} + \frac{1}{2} Fx_{dyn}$
   $Fy_{mean} + Fy_{dyn} = Fy_{peak}$
   $Mz_{mean} + \frac{1}{2} Mz_{dyn}$

3. $Fx_{mean} + \frac{1}{2} Fx_{dyn}$
   $Fy_{mean} + \frac{1}{2} Fy_{dyn}$
   $Mz_{mean} + Mz_{dyn} = Mz_{peak}$

1.0 INTRODUCTION

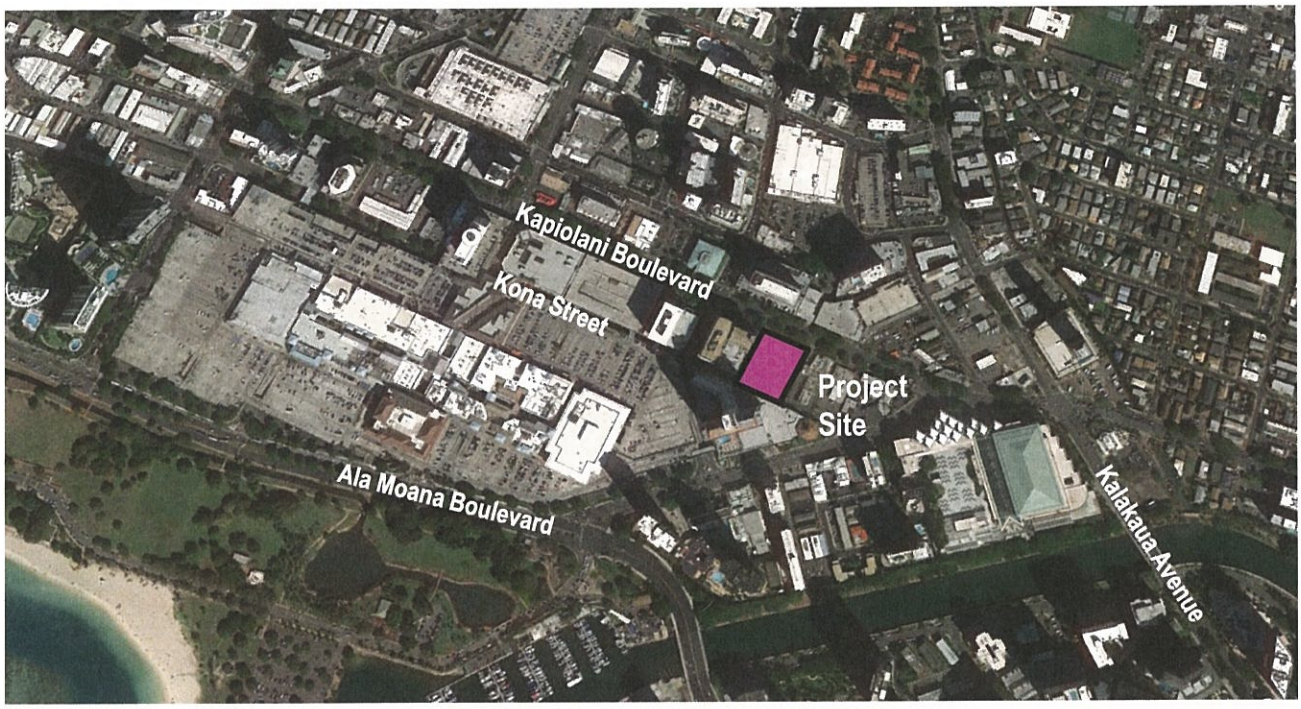
This report describes the methodology used and results from an assessment of the wind effects of wind on the Kapiolani Residence in Honolulu, Hawaii. The project consists of a 45-story residential tower and adjacent 10-level parking structure. The proposed site development is shown in Figure 1.1.

Included in the wind tunnel study were evaluations of pedestrian-level winds (PLW) in and around the project, estimation of design wind loads for the cladding and estimation of design wind loads on the structural system.

The assessment of pedestrian level winds and the determination of design wind loads were accomplished using wind-tunnel testing that match full-scale meteorological data to physical modeling data.

Traditionally, the primary application of the PLW evaluation process is in the environmental impact assessment of proposed buildings and other construction projects that may substantially alter pedestrian-level winds in site areas. Other applications of this process are to evaluate existing or potentially problematic wind conditions for specific building projects from the perspective of user satisfaction. It is this latter application upon which this PLW study focuses.

From the perspective of cladding design and structural frame design, building codes and standards contain guidance for estimating wind loads for typical rectangular buildings. They incorporate a number of approximations that are suitable for typical simple building shapes. The codes have long acknowledged and accepted wind tunnel studies as an alternative method for obtaining design loads for specific buildings. The load studies conducted for this development follow the guidelines outlined in the American Society of Civil Engineers Standard ASCE 7-05. The study also follows the guidance in the ASCE Manual of Practice for wind tunnel testing of buildings and structures.



Source: Google Earth

Figure 1.1: Project Site: 1631 Kapiolani Boulevard, Honolulu, Hawaii

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Job No. 14-H077A

2.0 WIND ENVIRONMENT AT THE SITE

2.1 General Wind Environment

The wind of interest in this evaluation flows along the interface between the boundary between the ground and the upper atmosphere. This interface, as shown in Figure 2.1, is called the "boundary layer." Wind at the boundary layer is influenced by a number of factors including general topography, characteristics of the built environment, and specifics of the local site. In general, wind speeds increase with height according to the power law, as shown in Figure 2.2.

Figure 2.2 also illustrates the effect of increasing surface roughness (i.e. "friction") on the height of the boundary layer. Wind near the ground decelerates due to the "friction" between the wind molecules and the ground as well as the turbulent flow caused by surface roughness characteristics. Wind at higher elevations is less impacted by these near-surface characteristics, and the wind speed is therefore faster. The boundary layer is generally higher in urban environments where the surface roughness characteristics are more pronounced than in open country environments because of the ability of buildings to impact the flow of wind.

Surface topography influences wind speed by disrupting or channeling wind flow. Structures built on the top of a hill generally experience faster wind speeds, while structures shielded by vegetation or topographic features tend to experience slower wind speeds. Valleys can locally direct the flow of wind. The less shielded a building site is, the faster the wind is able to flow. Examples of poorly shielded sites include those located within or along the edges of bodies of water. Examples of better shielding include sites surrounded by gently rolling hills and vegetation.

The built environment can also influence the flow of wind. Long expanses of built-up areas, such as those in urban areas, tend to increase the surface roughness and result in reduced wind speeds. Structures surrounded by wide and flat plains tend to experience faster wind speeds. In general, a mix of structures of relatively uniform height separated by streets and randomly interspersed with taller structures results in a more significant reduction of wind speed than tall structures regularly arranged to create canyons in which in the wind can flow without impediment

In general, the building code recognizes three different wind exposures that reflect the topographic and urban densities discussed. The precise definitions can be found in ASCE 7, but the essential characteristics of each exposure are as follows:

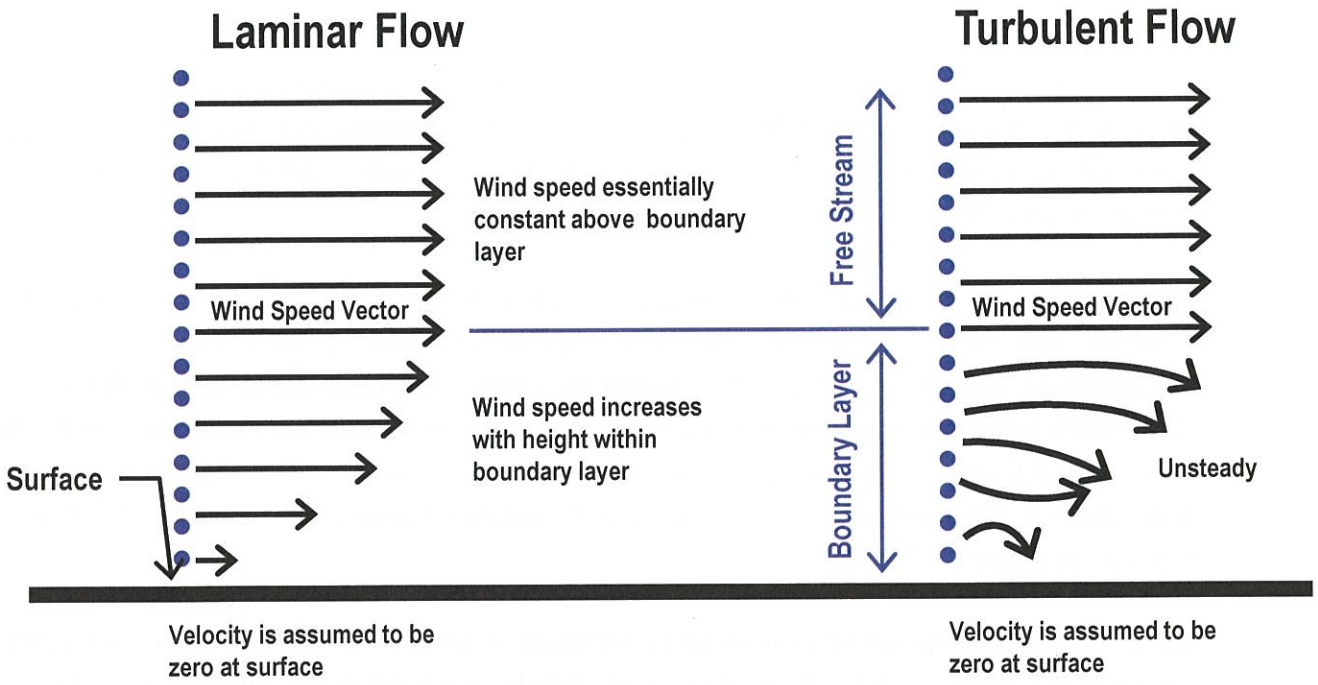
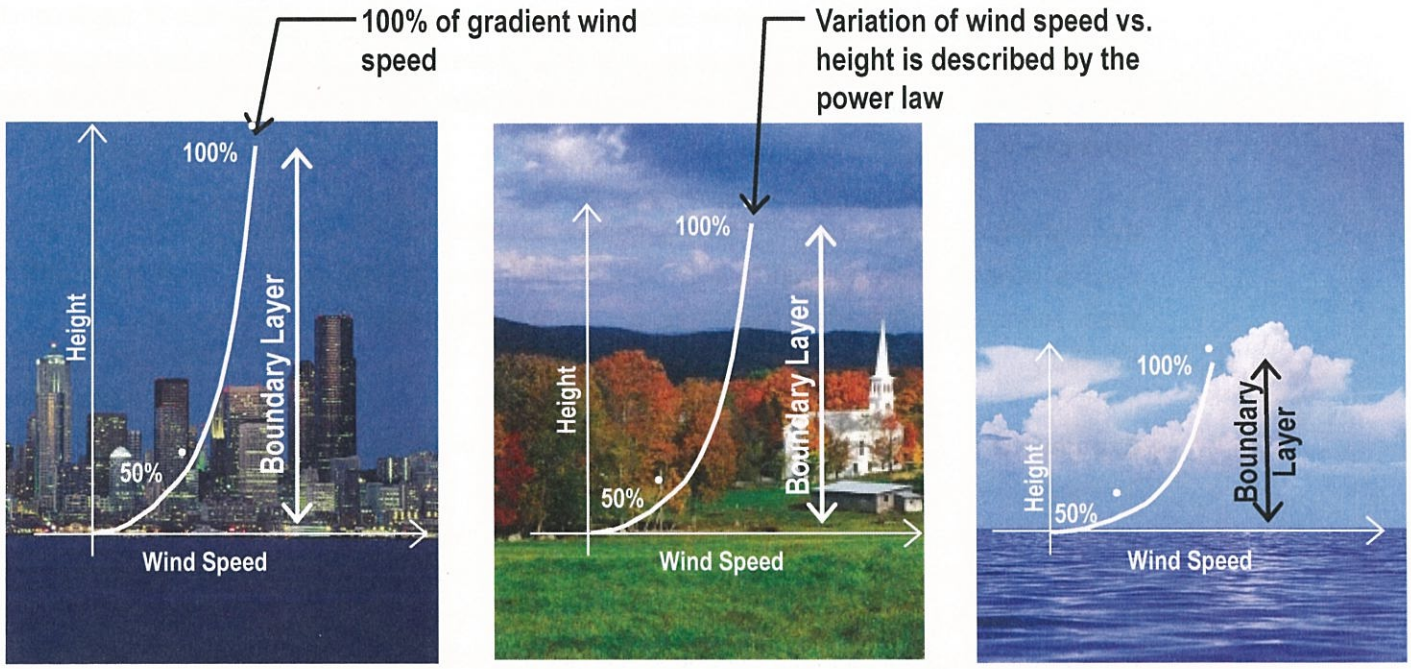


Figure 2.1: The Atmospheric Boundary Layer: Laminar and Turbulent Flow



The height of the boundary layer increases with increasing surface roughness. An urban environment has higher surface roughness than does open country, so the boundary layer is higher. For a given height, the gradient wind speed will be lower in an urban environment than in other exposures, all other things being equal.

Figure 2.2: The Atmospheric Boundary Layer: Variation with Exposure Condition

Exposure B: Defined by surface roughness found in in urban and suburban areas, wood areas, or other terrain with numerous closely spaced obstructions having the size of single-family dwellings or larger. Exposure B would apply to sites where this type of surface roughness prevails in the upwind direction for a distance of at least 2,600 ft. or 20 times the building height, whichever is greater.

Exposure C: Defined by surface roughness in open terrain with scattered obstructions having heights generally less than 30 ft. This category includes flat open country, grasslands, and all water surfaces in hurricane-prone areas. Exposure C would apply where exposures B and D do not apply.

Exposure D: Defined by surface roughness in flat, unobstructed areas and water surfaces. This category includes smooth mud flats, salt flats, and unbroken ice. Exposure D would apply where this type of surface roughness prevails in the upwind direction for a distance at least 5,000 ft. or 20 times the building height, whichever is greater. Exposure D would also extend from the shoreline inland for a distance of 600 ft. or 20 times the building height, whichever is greater, even when the upwind surface roughness is consistent with Exposures B and C.

Conditions specific to the buildings at a given site can also influence the wind speed. Large, massive structures can impede the flow of wind such that sites downwind are shielded. On the other hand, tall, narrow structures can locally accelerate wind speeds. The actual impact of buildings at a given site is a complex phenomenon, but general observations can be made to help assess the likelihood of a specific project producing a locally unacceptable wind environment.

When wind impinges on a building, some of the wind is directed above the building, some of the wind is directed downward as down-washing wind, and some of the wind stagnates. At the corners of buildings, wind is directed around the building creating corner streams. The down-washing wind and the corner streams can create locally accelerated wind speeds at the ground level.

Wind directed above and over a building can create significant negative pressures on the leeward side of the building (i.e. the side away from the direct flow of the wind) and, in extreme cases, can create even higher wind speeds on the leeward side caused by vortex shedding within the zone of recirculation flow. Generally, however, the ground level at a distance approximately twice the building height is shielded from the effects of wind by the building.

On the upwind, or windward, side of the building, the down-washing winds can create an upwind vortex that can accelerate wind speeds. Highly articulated building facades, such as those with balconies, sunshades, and building setbacks at the lower levels, can mitigate the impact of the down-washing winds because they disrupt the flow of the wind. Smooth, simple building facades do not disrupt the down-washing winds and ground level wind speeds would be expected to be higher.

Corner streams can create very high localized negative wind pressures on the leeward side of the building, but building orientation and the degree of building façade articulation can directly impact the resulting wind speeds at ground level. Buildings that are oriented with their broad face perpendicular to the flow of the wind will disrupt the wind flow more effectively than buildings with their broad face parallel to the wind flow. Buildings with highly articulated corners will also disrupt the wind flow resulting in lower wind speeds.

The directional nature of the wind climate is included in the analysis to determine wind loads. However, the most recent editions of ASCE 7 and the International Building Code have placed limits on the reductions that can be taken using wind tunnel studies. These limits are set at a 20 percent reduction in structural loads from those that would be calculated using ASCE 7 provisions. The limit has been set at a 20 percent reduction below the Zone 4 pressures (interior portion of walls away from corners) for wall pressures and at a 20 percent reduction below Zone 1 procedures (interior portion of the roof) for roof pressures. Inasmuch as ASCE 7-05 is the governing wind load reference documents, the results of this study do not need to comply with the restrictions on minimum values described above.

2.2 Typical Wind Environment in Honolulu, Hawaii

The wind environment at the site used in the pedestrian level wind comfort assessment was characterized by analysis of surface level wind observations collected by the National Weather Service at the Honolulu International Airport. This is the closest NWS station to the site and is located on the same side of the island. Annual wind statistics were used in the analysis without regard to season because of the relatively warm climate in Honolulu.

Figure 2.3 illustrates examples of wind roses that presents wind speed, frequency and direction for a given site. Wind roses can be configured in different ways. In Figure 2.3a, the length of each spoke corresponds to the frequency the wind blows from a given direction. The concentric circles represent frequency starting from 0% of the time at the center. Depending upon the frequency distribution of the wind, the circles may represent different frequency values that vary from month-to-moth or at different sites. The colors illustrate distinct frequency categories showing the percentage of time that winds blow

from a given direction within specified speed ranges, as shown in the Legend. The spokes correspond to the 16 cardinal directions (e.g., North, North northeast, Northeast, etc.).

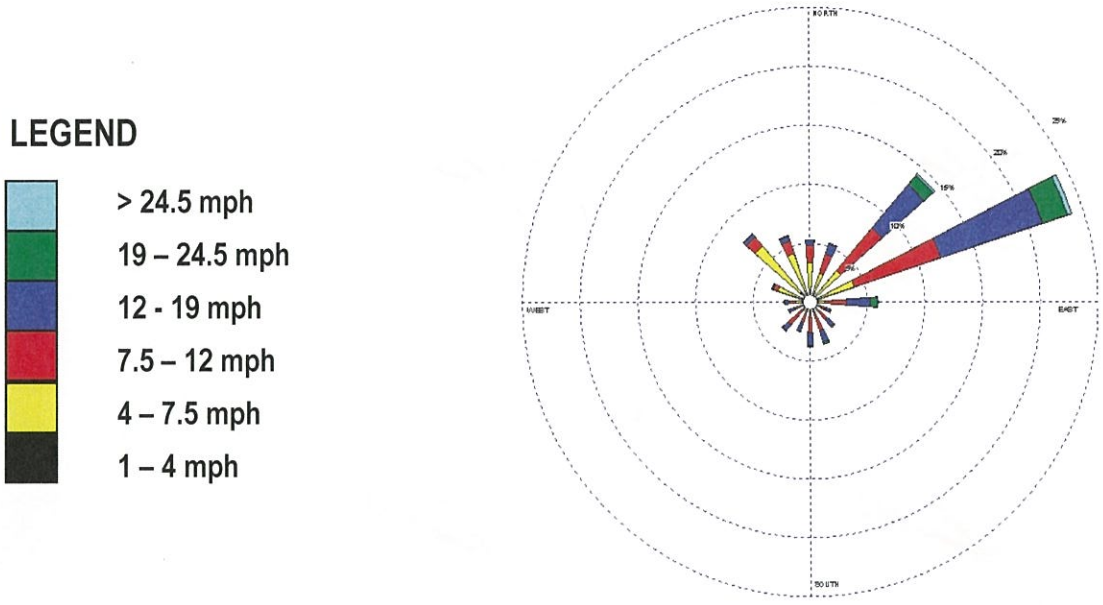
In Figure 2.3b, the wind rose shows the direction and speed of the wind for a constant probability of occurrence. In this case, the concentric circles represent wind speed. The heavy line gives an indication of the wind's speed and direction for an hourly probability of occurrence of 0.5%.

The monthly variation in wind speed and direction at this site is illustrated in Figure 2.4 using wind roses configured as shown in Figure 2.3a (i.e., the concentric circles represent probability of occurrence in a month and the colors represent wind speed). Except during the winter period from December to February, where there are some statistically significant winds blowing from around the compass, the prevailing winds are nearly all from the northeast and east-northeast. Even during the winter, the prevailing wind is similar to the rest of the year and represents the "trade winds."

Figure 2.5 superimposes a yearly wind rose on the site plan illustrating how the prevailing winds correspond to the orientation of the residential tower and the parking structure. This wind rose is configured as shown in Figure 2.3b (i.e., the concentric circles represent wind speed and the shaded area illustrates how often the wind blows from a given direction with a 0.5% hourly probability level). The 0.5% probability level represents relatively infrequent winds occurring roughly once or twice a year.

2.3 Hurricane Wind Environment in Honolulu, Hawaii

The analysis of extreme winds was accomplished by engaging Applied Research Associates (ARA) of Raleigh, North Carolina, to produce a 100,000 year simulation of hurricanes for this area of the Pacific. ARA conducted the simulations of hurricane winds for the maps found in ASCE 7. As such, they are the organization recognized by the ASCE 7 standard as having the most reliable and verified hurricane simulation model. The simulation produced design winds that are consistent with the 132-mph, 3-second gust, 700-year return period design wind speed that is consistent with ASCE 7. In addition, the over land winds were adjusted so that design loads associated with these wind directions were increased by 20 percent. This is consistent with the topographic effect factors adopted by the State of Hawaii for this site. The extreme wind events for Hawaii are associated with the passage of hurricanes, and this has been accounted for in the wind load analysis.



Source: National Weather and Climate Center

Figure 2.3a. The wind rose illustrates wind speed, frequency and direction. The length of each spoke corresponds to the frequency the wind blows from a given direction. The concentric circles represent frequency starting from 0% of the time at the center. The colors illustrate distinct frequency categories showing the percentage of time that winds blow from a given direction within specified speed ranges, as shown in the Legend. The spokes correspond to the 16 cardinal directions (e.g., North, North northeast, Northeast, etc.).

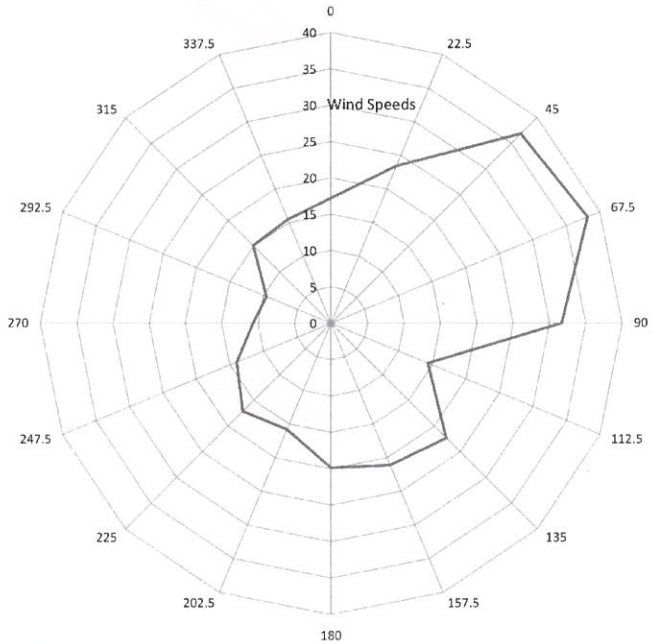
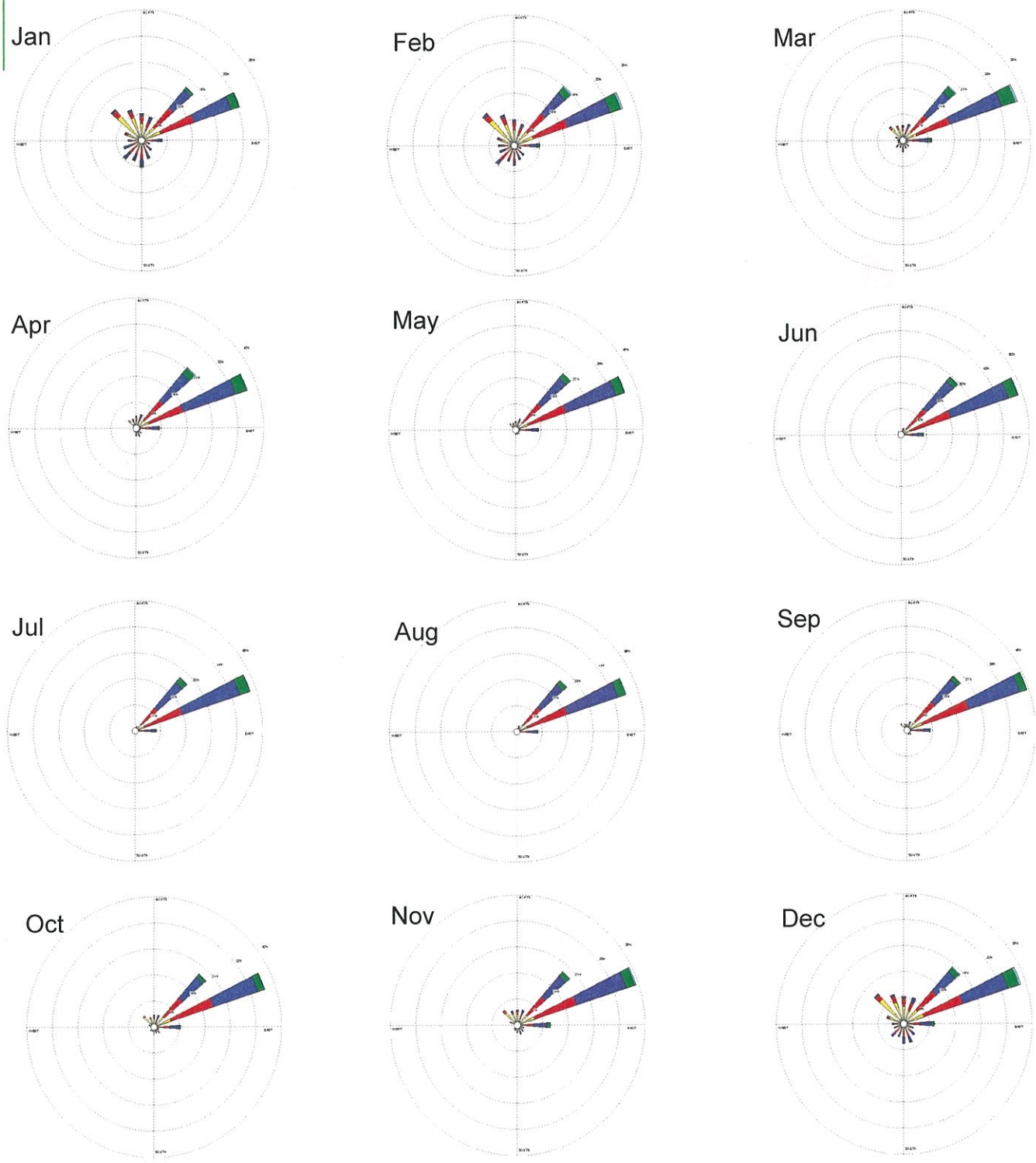


Figure 2.3b. The wind rose illustrates hourly wind speeds and direction for a constant probability level, in this case, 0.5%. The concentric circles represent wind speeds, from 0 mph at the center to 40 mph at the outer circle.

Figure 2.3: Wind Roses



Note: The concentric circles on these wind roses do not all represent the same frequencies because they have been normalized to the same size for presentation purposes. Source: National Weather and Climate Center

Figure 2.4: Monthly Wind Roses for Honolulu, Hawaii

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Figure 2.5: Honolulu Hourly Wind Rose at 0.5% Probability Level

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The hurricane simulation study employs the HURSIM hurricane simulation code, described in Vickery, et al. (2000a, 2000b, 2008a, 2008b, 2009). The wind field model used in the computer code has been extensively validated for surface level winds at both coastal and inland stations. The hurricane risk model includes the latest updates and is the model used to produce the design wind speeds in the latest editions of ASCE 7.

Predictions of wind speed versus return period are given for both surface level and upper level (500 m) winds and are based upon a simulation of 100,000 years of storms occurring in the Hawaii area of the Pacific Ocean. Wind speeds are computed if simulated storms pass within 250 km of the site, and the wind speeds produced by the storm are retained if the peak gust wind speed exceeds 20 mph. In the Honolulu simulation a total of 41,841 storms pass within this 250 km radius and produce a peak gust wind speed of at least 20 mph during the 100,000 year simulation.

For storms within the 250 km limit, wind speeds and directions are computed every 10 minutes, with the maximum wind speeds produced by each simulated storm, in each of 36 directional sectors (10 degree intervals), saved for use in the extreme value analysis.

Predicted wind speeds at the site have been derived using the conditional wind speed exceedance probabilities obtained by rank ordering the wind speeds resulting from the simulation of the 100,000 years of storms. An interpolation technique is then used to obtain wind speed exceedance probabilities.

The predicted mean hourly wind speeds at 10 m above ground in open terrain for return periods of 50 and 100 years are about 20 m/sec and 26 m/sec, respectively. The predicted 50 and 100 year return period mean hourly wind speeds at gradient height are about 32 and 41 m/sec, respectively.

The directional wind speeds were derived for return periods of 25, 50, 100, 200, 500, 1,000, 2,000, 5,000 and 10,000 years and represent the wind speed expected to be exceeded once every N years within ±5 degrees of the indicated direction. The predicted "design" gust wind speed, given for comparison with the ASCE specified value, (500-year return period wind speed divided by the square root of the load factor, taken as 1.5 per ASCE 7-05 and 700-year return period wind speed divided by the square root of the load factor, taken as 1.6 per ASCE 7-10) is 105 mph.

It is estimated that the average number of storms per year is 0.4184.

3.0 CODE ACCEPTANCE OF A BOUNDARY LAYER WIND TUNNEL STUDY

ASCE 7 describes minimum requirements for acceptable wind tunnel procedures. The wind tunnel studies conducted for this project meet or exceed all the requirements listed:

1. The natural atmospheric boundary layer has been modeled to account for the variation of wind speed with height;
2. The relevant macro (integral) length and micro length scales of the longitudinal component of atmospheric turbulence are modeled to approximately the same scale as that used to model the building or structure;
3. The model building or other structure and surrounding structures or topography are geometrically similar to their full-scale counterparts;
4. The projected area of the model building or other structure and surroundings is less than 8% of the test section cross-sectional area unless correction is made for blockage;
5. The longitudinal pressure gradient in the wind tunnel test section is accounted for;
6. Reynolds number effects on pressures and forces are minimized; and
7. Response characteristics of the wind tunnel instrumentation are consistent with the required measurements.

This wind-tunnel investigation was performed in the Boundary Layer Wind Tunnel located at the Wind Load Test Facility operated by the Clemson University Department of Civil Engineering. The study was independent of the University. A description of the boundary-layer wind tunnel is found in Appendix A.

4.0 PEDESTRIAN LEVEL WIND STUDY

The frequency of occurrence, speed, and level of turbulence of winds at street level are important to the comfort and safety of pedestrians in pedestrian areas. Tall structures or rapidly changing terrain may intercept the faster wind speeds that flow higher above the ground. Consequently, pedestrian-level wind speeds can be significantly changed when a taller structure, or sharply sloping terrain divert a portion of the higher-level wind speed either down the face of the structure or along the sloping terrain until that flow reaches pedestrian level. Because the diverted winds have higher speeds than those near the ground, the effects of those diverted winds can be substantial. The proposed project rises substantially above the site and can cause accelerations of the wind speeds over the site that would otherwise not occur. The purpose of this study is to assess the degree to which this acceleration occurs.

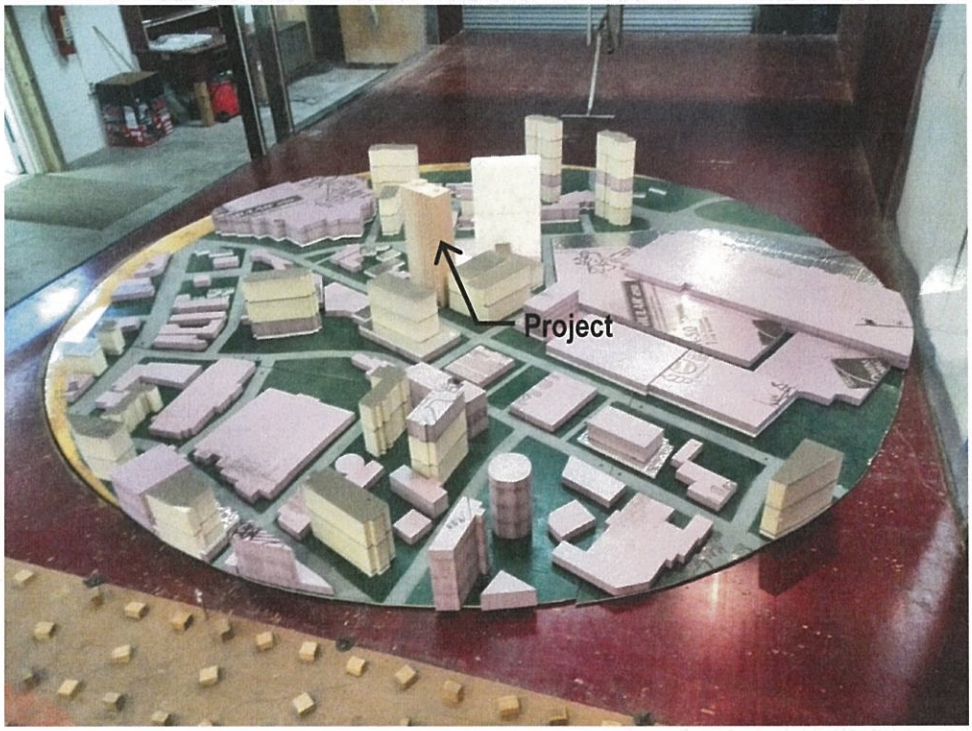
4.1 Wind-Tunnel Model Used for PLW Study

A scale model, as shown in Figures 4.1 and 4.2, was constructed at 1:300 scale and included the proposed building and buildings within a 1,350 ft. radius of the site such that the model would fit on the wind tunnel turntable.

The model included sufficiently accurate representations of building geometry to produce a reasonable representation of the pedestrian level wind environment. Areas beyond the constructed model were simulated in the wind-tunnel test through the use of surface roughness parameters characteristic of the open water and suburban environment appropriate for the wind direction being tested. The flow approaching the detailed model was generated by wind drawing over spires and a long fetch of roughness elements mounted on the floor of the test section. The spires and floor roughness were designed to produce the variation of mean wind speed with height and variation of turbulence intensity with height expected for natural winds approaching the site.

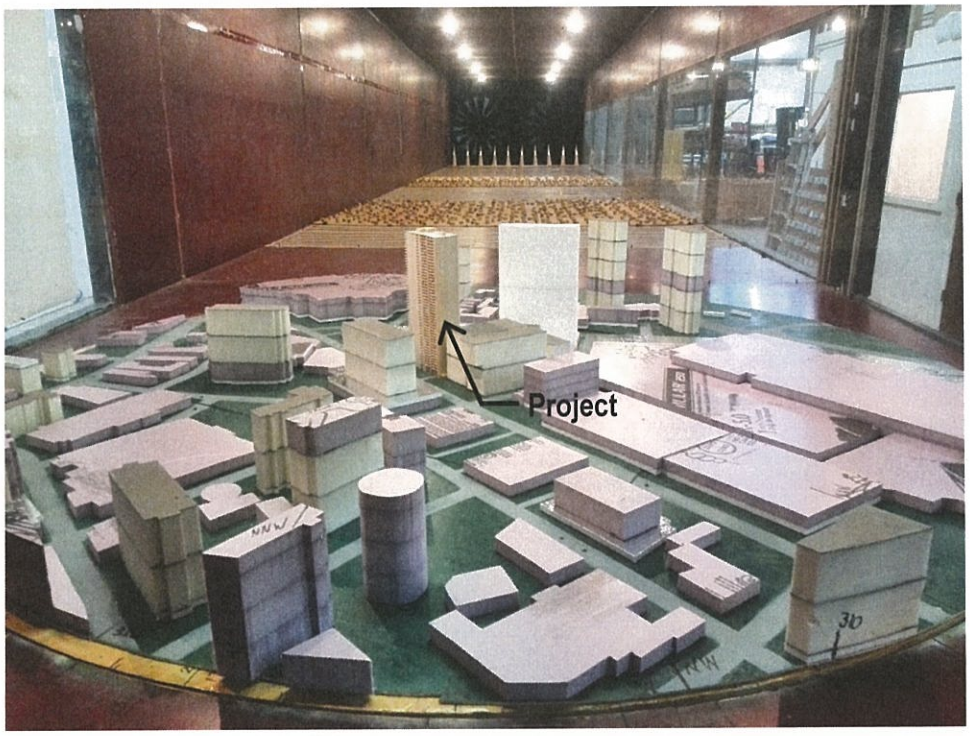
Since models used in a wind-tunnel simulation are typically orders of magnitude smaller than the full-scale object, it is not obvious that the results obtained will correspond to nature. However, results from wind-tunnel tests can be representative of full-scale conditions, as long as critical simulation of flow parameters between the model and full-scale are satisfied. For exact modeling, all flow parameters should be matched, which is impracticable, if not impossible. Thus, similitude parameters, critical to the modeling of the present wind-tunnel simulation, must be selected. Important modeling parameters are discussed in Appendices B and C.

a. Wind tunnel model viewed from south looing upwind into the wind tunnel

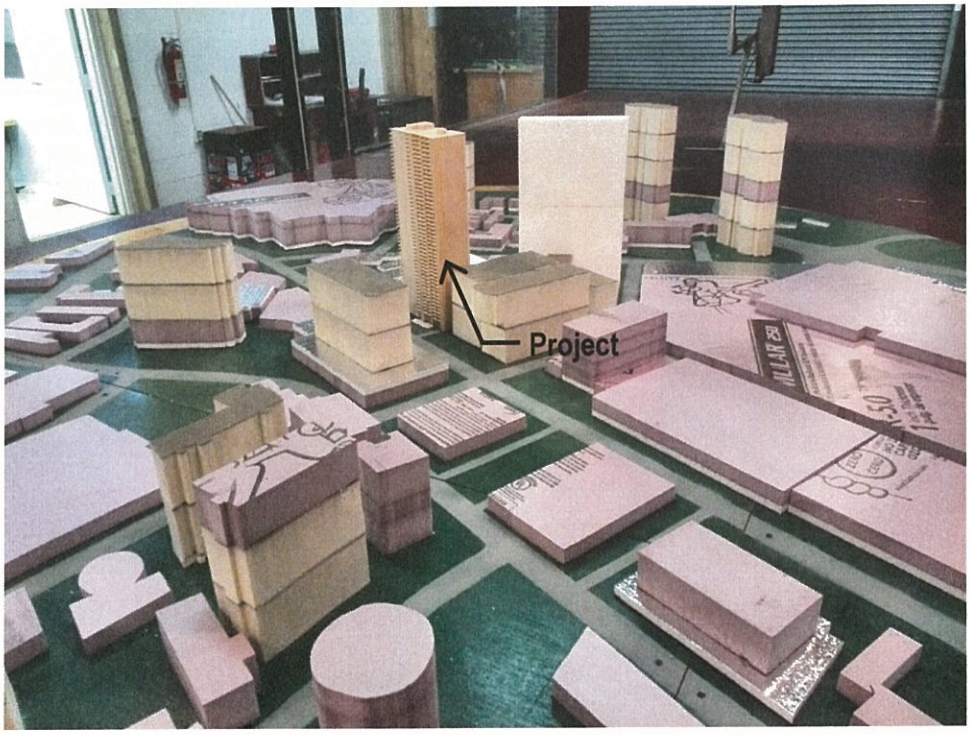


b. Wind tunnel model viewed from northwest.

Figure 4.1: Wind Study Model



a. Wind study model viewed from northwest looking upwind into the wind tunnel



b. Wind study model viewed from northwest

Figure 4.2: Wind Study Model

For the pedestrian level wind study, wind speeds and turbulence intensities were measured at representative locations both off-site and on-site. The measurement locations are shown in Figure 4.3. Wind speeds were calculated for the sixteen cardinal wind directions (N, NNE, NE, ENE, E, ESE, SE, SSE, S, SSW, SW, WSW, W, WNW, NW, NNW). This provides a means for completely mapping to the historical wind data collected by the National Weather Service to conditions at the site.

Wind speed and the corresponding turbulence intensities were measured using a number of pedestrian level wind probes that were constructed based on a design developed at the National Research Council of Canada and calibrated against a Cobra Probe. These sensors have been checked against results obtained using a TSI, Inc. Model 1210 single hot-film anemometer probe in earlier pedestrian level wind studies. Using a National Instruments data-acquisition system and a Lab-View program, data was acquired and digitally recorded for each measurement point at a sample rate of 500 Hz for 60 seconds. This yielded 30,000 individual voltage values that were individually converted to instantaneous wind speed readings using the calibration curve developed by calibrating against the Cobra Probe. The 30,000 samples were then averaged to produce a single mean surface wind speed and the root-mean-square value for the turbulence intensity. The resulting mean speeds and turbulence intensities represent one-hour full-scale average time measurements when the wind-tunnel data is converted to the full scale.

4.2 PLW Methodology and Assumptions

For each surface wind-speed measurement made in the wind tunnel, it is desirable to estimate an associated full-scale wind speed frequency distribution. The determination of the full-scale wind distribution will, of course, depend upon the nature of the meteorological conditions at the site. For the present study, it was determined to use the full-scale mean wind speed that is exceeded 10% of the time. Additionally, an evaluation of gust wind speeds was carried out to ensure that locations with lower mean wind speeds would not be perceived as windy because they were subjected to significant gusty wind conditions.

In order to determine whether wind speeds are acceptable at specific locations, it is necessary to establish "comfort" criteria that define wind speeds that are usually acceptable for specific pedestrian uses. The term "10% exceedance speed" is used in the criteria to account for the frequency with which winds occur. The 10% exceedance speed is the speed that is exceeded on one day out of 10, or 10% of the time. This can also be thought of as a weekly occurrence.

Figure 4.3: Wind Speed Measurement Points

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For each wind direction tested, the approach wind speed, as a function of height above the ground (boundary-layer velocity profile), was non-dimensionally simulated in the wind tunnel based upon the upwind surface terrain-roughness features (i.e., the effect of buildings immediately upwind were specifically modeled and the terrain roughness beyond was modeled using generic roughness elements). This technique is believed to provide accurate surface wind speed simulation of the full-scale case. Mean wind speeds and the fluctuating components of the speeds (i.e., turbulence intensities [TI]) were measured at surface locations distributed around the project site.

Wind speed ratios were developed between the wind speeds measured at pedestrian level (about 6-feet above grade) and those measured at a reference point well above the effects of the study building or the surrounding buildings. This allows results from different testing sessions and different sensor locations to be directly compared to one another. Thus, the higher this ratio, the more unpleasant the effects of wind will be on pedestrians. The exact full-scale wind speed values will depend upon the mean full-scale wind speed for the particular wind direction being measured. Accordingly, the ratio values are combined with historical data for winds in the area to produce probability distributions that describe the percent of time the wind speed will equal or exceed a certain value. The results of the analysis are plotted for each wind direction and the value of wind speed exceeded 10% of the time is extracted from the plot of the results.

Two individual methods of analysis were employed to reduce and interpret the data. The first technique was an examination of the ratio of equivalent wind speed to a reference speed. This analysis method is referred to as wind-speed ratios. The equivalent wind speed mathematically accounts for the measured mean speed and the measured level of turbulence. It provides an equivalent wind speed of normal turbulence. For example, wind speed data with larger than normal turbulence are adjusted upward to account for the amplified effects on pedestrians.

The equivalent wind speed is then normalized by the constant wind speed of the centerline of the wind tunnel. This allows results from different testing sessions to be directly compared to one another. Thus, the higher this ratio, the more unpleasant the effects of wind will be on pedestrians. The exact full-scale wind speed values will depend upon the mean full-scale wind speed for the particular wind direction being measured. Accordingly, the ratio values are weighted with wind directions having the highest frequency and relatively strongest wind.

A second method was also used to analyze the wind-tunnel data. The wind-speed ratios were used as input data to a computer code that integrates the data with full-scale meteorological data to produce an averaged full-scale 10% exceeded equivalent wind speed.

The wind intensity is defined in terms of the equivalent wind speed. This term denotes the wind speed averaged over an hour (hourly mean wind speed), modified to include the level of gustiness, or turbulence, expected on the site. The equivalent wind speed calculated in the present context assumes an unaltered wind with an appropriate inherent turbulence intensity of the hourly mean wind-speed value. The turbulence intensity is defined as the root mean square of the instantaneous deviations from the value of the mean velocity, divided by the mean velocity value. When turbulence intensity at a street level point is greater than the assumed value, the mean velocity for that point is increased by an adjustment factor to create the equivalent wind speed for that point. This equation follows relationships developed by Hunt et. al. (1976) and Jackson (1978) in which winds with different turbulence intensities were compared to each other for their effects on pedestrians.

The method used to estimate the full-scale 10% exceeded wind speed assumed the ratio of pedestrian-level wind speed to reference height speed (both in the wind tunnel) was equal to the same ratio in full scale. Thus, the weighted cumulative averaged pedestrian-level 10% exceeded wind speed calculations account for all wind directions.

The ratio of the reference height wind speed to the wind speed at pedestrian-level is calculated from th results of the wind-tunnel experiment for each major direction at each observation location. For each, the calculation procedure to determine a given percent exceeded wind speed (in the present case this is 10% exceeded wind speed) involves three steps.

- First, a pedestrian-level wind speed is selected.
- Second, the specific pedestrian-level wind speed is used to calculate the reference height wind speed for each wind speed component (using the ratios from the wind-tunnel experiment).
- Third, the meteorological data is used to determine the percentage of time each of the reference level wind speeds is exceeded.

The three steps are iterated, with changes in the pedestrian-level wind speed, until the percentage of the time the winds are exceeded equals the selected percentage of time, thus yielding the selected percent exceeded wind speed. The process may be repeated numerous times in 1% increments to develop pedestrian level wind speed frequency distributions.

For the present case, the 10% exceeded pedestrian-level wind speed is determined from wind-tunnel measurements made for the tested wind directions. The wind-tunnel speed is scaled to the full-scale speed by use of the power-law relationship given by Davenport (1961). The meteorological data is used to find the distribution of speed as a function of time based on the wind-tunnel speed ratio. The meteorological data is adjusted to the appropriate, α power-law coefficient value, which is set depending upon the local terrain of the test area.

The individual wind direction meteorological data is expressed as a cumulative frequency distribution which is reasonably well described by the relation, $N=\exp(k_1 \log(S) + k_2)$ where N is the number of hourly observations, or percent of total time, the wind speed exceeds the value S. S is the wind speed of interest; e.g., 11 mph, and k_1, k_2 are empirical constants fit to the data. The cumulative full-scale frequency distribution of wind, at a height of 33 feet, is then calculated and the desired percent-exceeded wind speed is mathematically described.

4.3 Comfort Criteria

"Comfort" criteria define wind speeds that are usually acceptable for specific pedestrian uses. The term "10% exceedance speed" is used in these criteria to account for the frequency with which such winds occur. Municipal officials have agreed to the criteria summarized in Table 4.1 for other wind-tunnel studies (White, 1991 and 1994), and these criteria appear to be appropriate for this site.

Wind speed comfort is subjective but the following criteria have been applied successfully to projects involving similar uses. A point on the site where the wind speed of 7 mph is exceeded not more than 10% of the time will be considered comfortable for outdoor seating and quiet activities. In this instance, 7 mph is called the "ten percent exceedance speed." Ten-percent exceedance speed of 11 mph and less will be considered comfortable for standing and leisure walking, while those between 12 and 15 mph will be suitable for walking and other occasional, more active uses. Ten percent exceedance speeds in excess of 15 mph will result in potentially uncomfortable pedestrian conditions. Ten percent exceeded speeds reaching or exceeding 36 mph create potential safety hazards for pedestrians. There were no points that reported wind speeds of this magnitude for this site.

Table 4.1
Wind Speed Comfort Criteria

Maximum Wind Speed Exceeded 10% or Less of the Time	Comfort Criterion
7 mph	Considered comfortable for outdoor seating
11 mph	Considered comfortable for standing and leisure walking
15 mph	Considered acceptable for brisk walking and other occasional uses
Greater than 15 mph but less than 36 mph	Considered potentially uncomfortable condition for pedestrians
Greater than or equal to 36 mph	Considered potential hazardous condition for pedestrians

The seating criterion of 7 mph equivalent wind speed not-to-be exceeded more than 10% of the time year round between 8 a.m. and 7 p.m. was based on the wind-speed seating criterion given by Penwarden (1973), Melbourne (1978), Arens (1981) and Arens et al. (1989). The interval time of interest was chosen when most of the population would be exposed to the wind. It was essentially an environmental quality decision based on the study of wind related complaints in shopping centers (Penwarden, 1973). Penwarden found that most complaints occurred when the limit of comfort (7 mph) was exceeded mor than 10% of the time. The same also was found to be true for the 11-mph and 15-mph comfort criteria.

Additionally, Penwarden's suggestions for the onset of discomfort were based on mean speeds and did not contain effects of turbulence or gustiness in his assessment. This is precisely the reason the current study also assessed gust wind speeds at the various locations. Since gusts of higher speed wind are considered acceptable if they occur infrequently, one set of results from this analysis are presented as 10% exceeded mean wind speeds. The 10% exceeded wind speed is the estimated full-scale mean wind speed exceeded 10% of the time on an annual hourly averaged basis, i.e., one day out of ten the wind speed is expected to achieve this magnitude on an hourly basis.

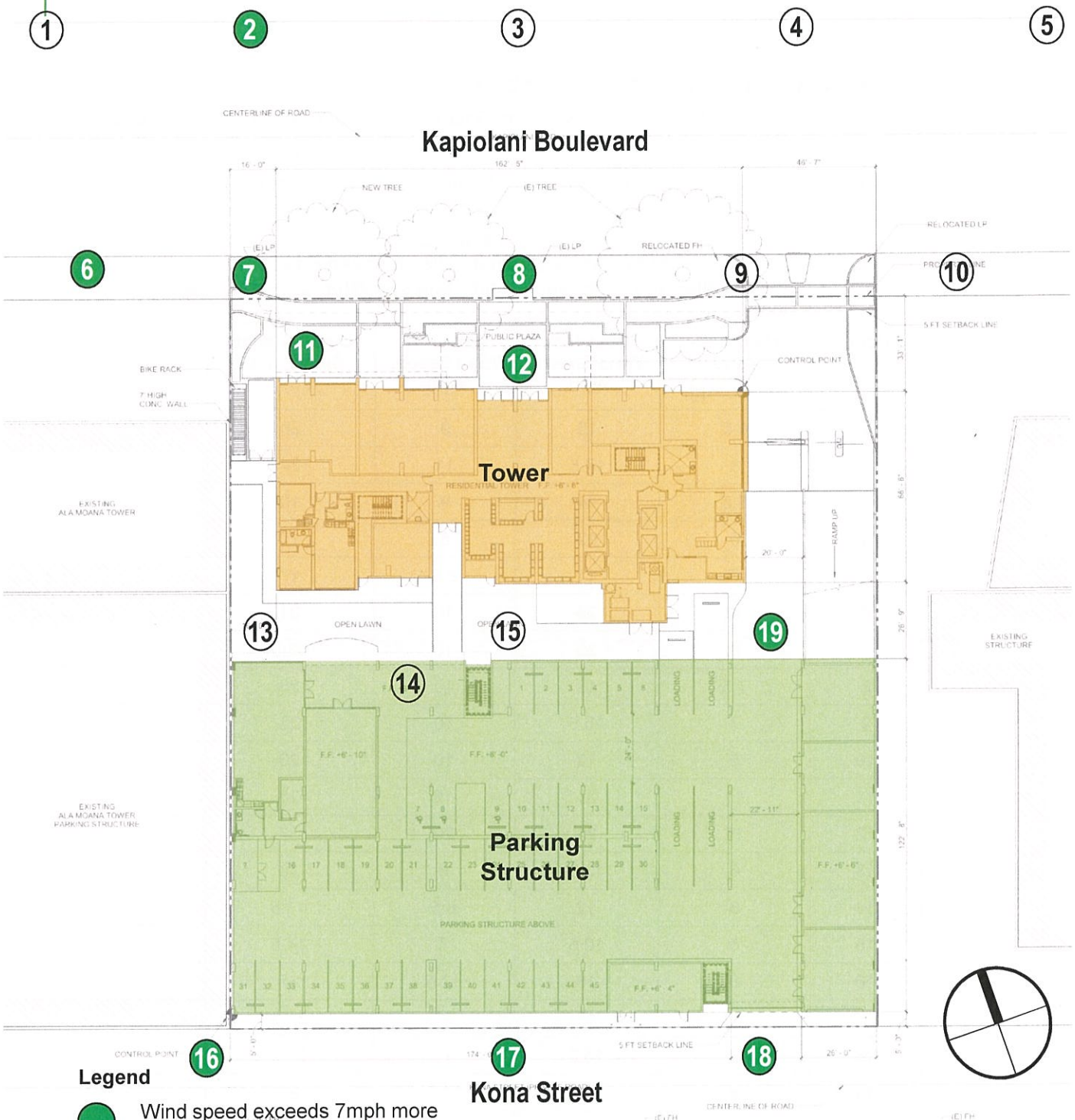
Gustiness can also be incorporated into the data evaluation by comparing the mean wind speed to the gust speed for the same probability of exceedance. In general, if the gust speed is twice that of the mean wind speed, the wind gusts will be perceived as controlling the human comfort. A second set of results based on gusting wind speeds is also presented. At this site, wind gusts govern the perceived windiness at some points that would otherwise meet the stated mean wind speed criteria. This can be seen by comparing figures such as Figures 4.4 and 4.5 where three additional points in Figure 4.5 are identified as exceeding the 7 mph criterion based on gustiness.

4.4 PLW Results and Wind Tunnel Test Data

The wind-tunnel test results are summarized in Figures 4.4 through 4.9. Table 4.2 presents the actual 10% (weekly) and 1% (monthly) wind speeds. The tabular values provide a way of judging how close a given point is to satisfying or not satisfying the 7, 11 and 15 mph wind speed criteria.

Table 4.2
10% and 1% Exceeded Wind Speed Based
on Wind-tunnel Measurement Data and Wind Climate Model

Point	Mean 10% Wind Speed, mph	Gust 10% Wind Speed, mph	Mean 1% Wind Speed, mph	Gust 1% Wind Speed, mph	Comments
1	6.5	15	9	20	
2	8	17.5	11	24	
3	6.5	14	9	19	
4	6	12	8	17	
5	7	11	9.5	17	
6	12	24	16	32	
7	14	25	19	32.5	
8	7.5	18	10	25	
9	7	15.5	10	23	
10	5	12	10	20	
11	11	21	15	28	
12	15	28	20	37	
13	6	13.5	8	18	
14	6	12	8.5	17.5	
15	5	10.5	7	14.5	
16	8	18	12.5	25	
17	7	15	10	21.5	
18	8	15.5	11	21.5	
19	8	14	11.5	25	
Ref Suburban	7.5	15	10	20	
Ref Open	12.5	25	16.5	33.5	



Legend

- Wind speed exceeds 7mph more than 10% of the time
- Wind speed does not exceed 7mph more than 10% of the time

Figure 4.4: 7 mph Wind Speed Exceedance Points

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Figure 4.5: 2x7 mph (Gust) Wind Speed Exceedance Points

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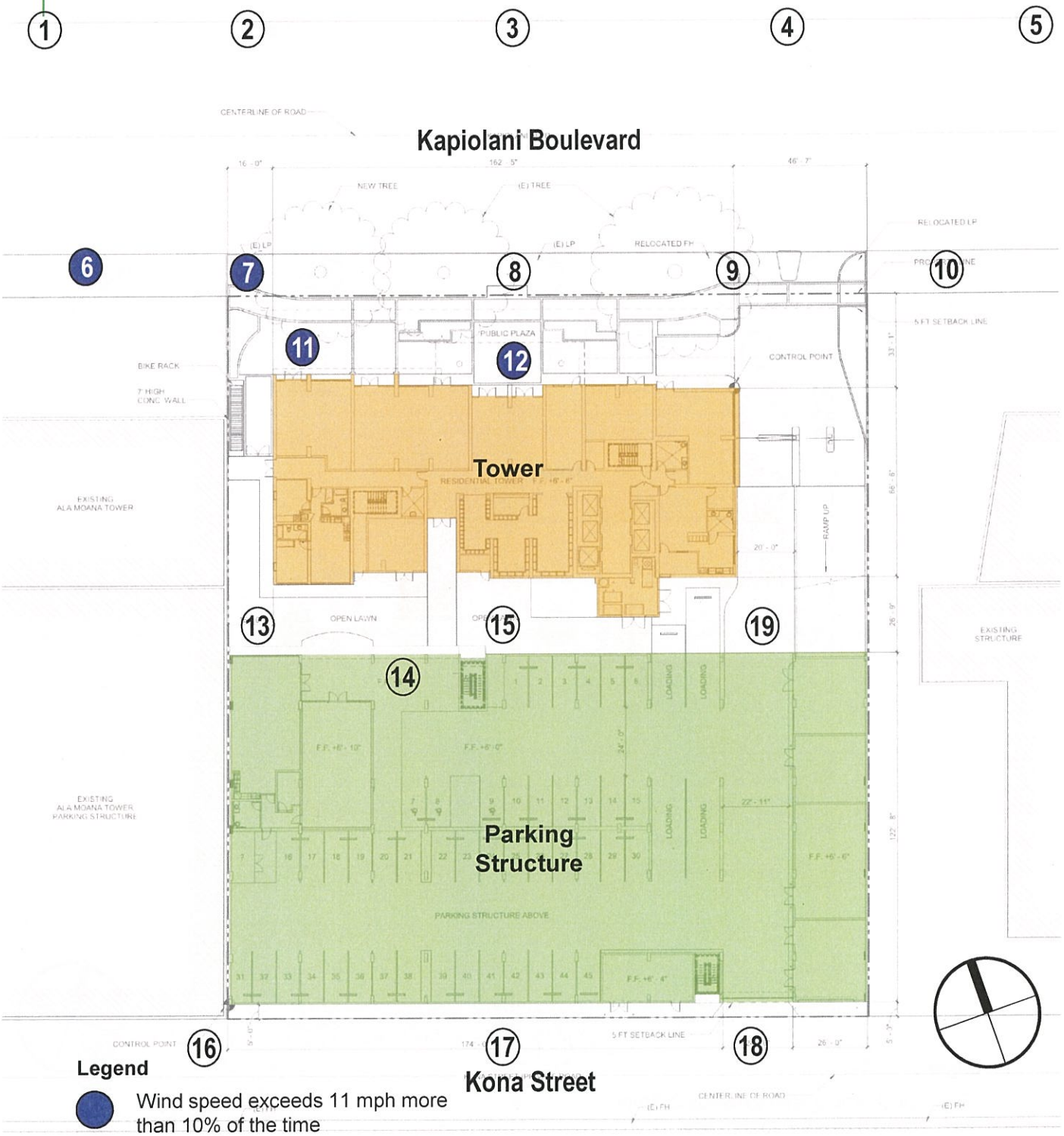

Figure 4.6: 11 mph Wind Speed Exceedance Points

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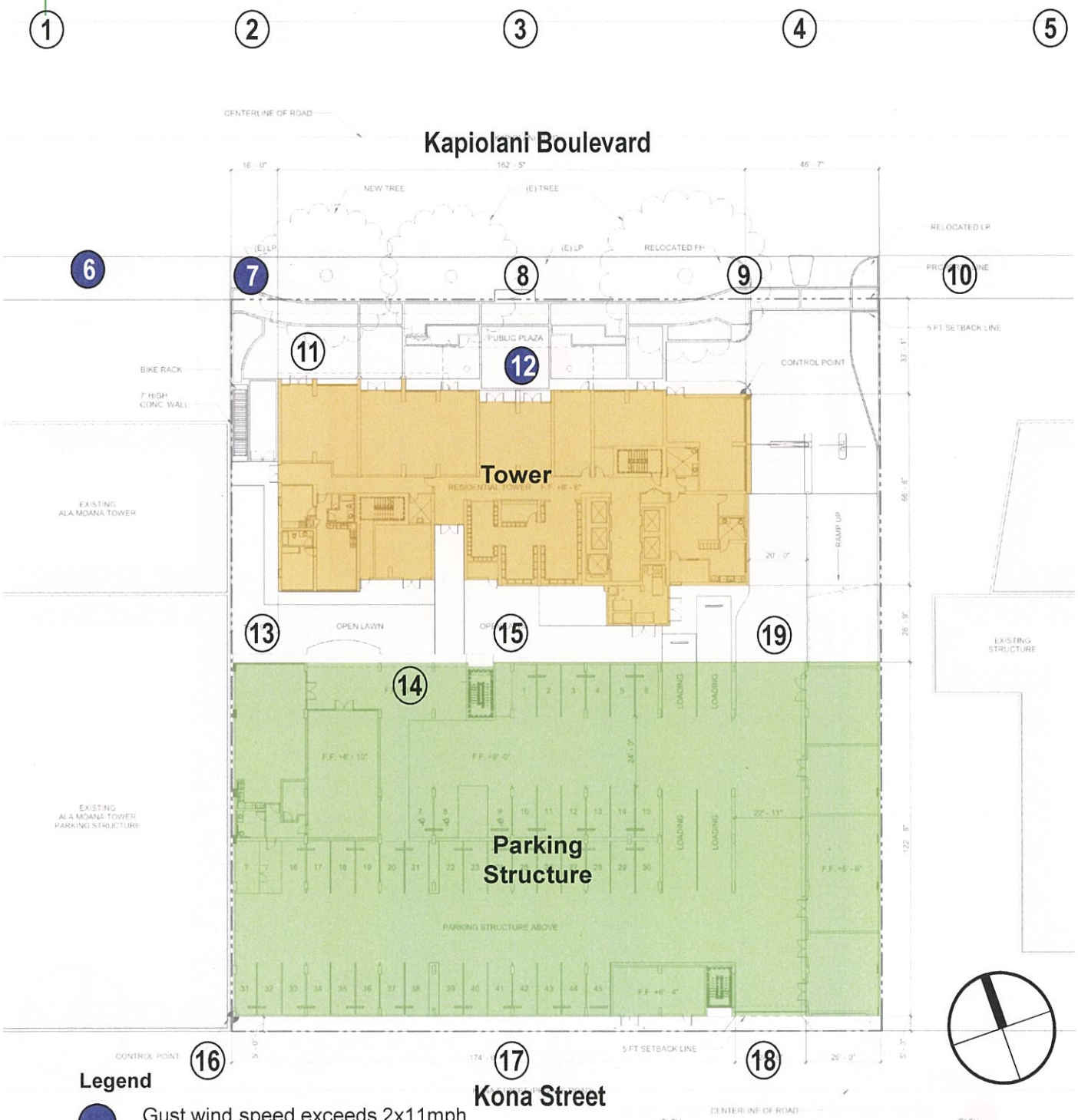

Figure 4.7: 2x11 mph (Gust) Wind Speed Exceedance Points

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Figure 4.8: 15 mph Wind Speed Exceedance Points

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Figure 4.9: 2x 15 mph (Gust) Wind Speed Exceedance Points

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The main objective of the PLW test was to predict the wind speeds that would exist on the site for the determination of the various corresponding comfort levels. Surface points, shown in Figure 4.3, were measured to evaluate the wind speeds at the ground level of the project site.

Table 4.2 indicates that the reference suburban and open wind speeds have 10% wind exceedance speeds of 7.5 mph and 12.5 mph, which suggest an already breezy site, even without additional development. The reference suburban and open wind speeds reflect the 10% wind exceedance speeds at a typical suburban site built up with a mix of different building heights or a site exposed to the ocean without intervening development, respectively. In other words, these speeds provide a frame of reference to judge how the proposed development influences the pedestrian level wind speeds.

The figures indicate that most points at the perimeter of the site do not satisfy the 7 mph criterion based upon either the mean wind speed or gust wind speed, which is a direct reflection of the site's characteristic breeziness. The number of points that do not meet the 11 mph criterion is less and these points are mostly clustered around the northeast corner of the tower; the buildings appear to shelter the interior measurement points. Point 12, at the main entrance, does not satisfy the 15 mph criterion based on the mean wind speed. All of the windier points are what would be expected in general suburban locations and the windiest point, Point 12, is what would be expected in an open environment.

There are no points that exceed the hazard condition (i.e. 10% mean exceedance speed of 36 mph) as specified in typical safety criteria. No points were close to this criterion.

4.5 PLW Mitigation

The winds are dominated by trade winds from the northeast. From that direction, flow acceleration in front of the building is most likely a combination of two factors. The first is wind flowing down the face of the tower. There are low-rise buildings upstream for this wind direction that tends to increase the amount of flow being directed down to street level. The second factor is channeling along the face of the building.

Mitigation options for windier points within the site boundaries include landscaping and screening. Although not modeled directly in the wind tunnel study, landscaping in front of the tower is expected to reduce the wind speeds in front of the entrance. Landscaping must be relatively dense to provide effective protection, although flexible planting can itself be distracting if it moves too much in the wind.

Additional screening may also help reduce the wind speed in front of the building. To the extent that the objectionable wind effects are produced by wind from the prevailing wind direction, vertical screening at the northeast corner of the building that blocks the prevailing wind may be most effective. Vertical screening that is opaque to the wind (e.g., a glass wall) generally creates a protected area that is twice as deep as the screen is tall, whereas open screening is less effective. For example, screening that is 50% open will protect an area that is generally no deeper than the height of the screen.

To the extent that the objectionable wind effects are produced by wind from the washing down the face of the building, horizontal screening along the north elevation (e.g., awnings) may be effective. Umbrellas may be able to provide localized protection.

Definitive advice regarding mitigation strategies is difficult to provide in the absence of wind tunnel testing that investigates specific mitigation measures. One important reason for this is that acceleration of the wind is a function of many factors, including, but not limited to, the direction of prevailing winds, the presence of adjacent buildings, and the relative mix of wind washing down the face of the building vs. channeled wind. Thus, strategies that rely on blocking prevailing wind may not prove as effective as intuition would suggest. As outlined in our proposal, mitigation testing can be provided as an additional service.

Alternatively, mitigation strategies can be tried *in situ* once the building is enclosed, but not necessarily completed, to provide time to develop and adopt site planning adjustments. Screening can be approximated in relatively adjustable configurations using plywood, tarps and the like. This approach runs the risk that effective strategies prove infeasible due to functional or aesthetic objections and significant adjustments in the plan can no longer be accommodated easily. Lastly, observation of the wind in other Honolulu locations may provide insight as to whether the wind speeds are unduly objectionable because the windiest point corresponds to typical open (unprotected) sites in the Honolulu area, while the balance of the windy points correspond to typical suburban (developed) sites in the Honolulu area. The warmer climate in Honolulu may increase pedestrian tolerance somewhat to otherwise objectionable wind speeds, although some objectionable aspects of faster wind speeds are not necessarily related to temperature (e.g., movement of napkins and partially filled cups).

If accessibility requirements limit the maximum force needed to open a door, a mechanical door opener may be required.

5.0 CLADDING DESIGN PRESSURES

This section of the report presents the wind pressure study. The objective of this phase of the study was to determine wind loads for the exterior cladding and roof consistent with ASCE 7 requirements and that represent the particular geometry and location of this project.

5.1 Measurement and Analysis Methods

A rigid model of the project was constructed from acrylic at scale of 1:300. A detailed model of buildings within a 1,350-foot radius of the site was used in this study. Photographs of the model are shown in Figure 5.1. The walls and roof of the model were instrumented with approximately 490 pressure taps as shown in Figures 5.2 through 5.6.

Information on the model development and flow simulation is presented in Section 4.1. Surroundings were modeled as suburban for wind directions 270 through 360 and 10 through 160 degrees. Open water was modeled beyond the surrounding model for wind directions 170 through 260 degrees. Tests were conducted every 10 degrees. All tests were conducted in the boundary layer wind tunnel at Clemson University.

Tests were conducted using a 512-channel pressure scanning system which simultaneously collected data from the pressure taps channels at a rate of 300 Hertz on each channel. A complete battery of tests were conducted to determine mean, root-mean-square, peak negative and peak positive pressures for each pressure tap at 36 wind directions taken at 10-degree intervals. Complete time histories of the data from all pressure taps monitored using the 512-channel scanning system were stored for each test case. This data was used to produce pressure coefficients based on the dynamic pressure of the wind stream at mean roof height. These coefficients were then used in a series of analyses to calculate design wind loads on the full-scale building.

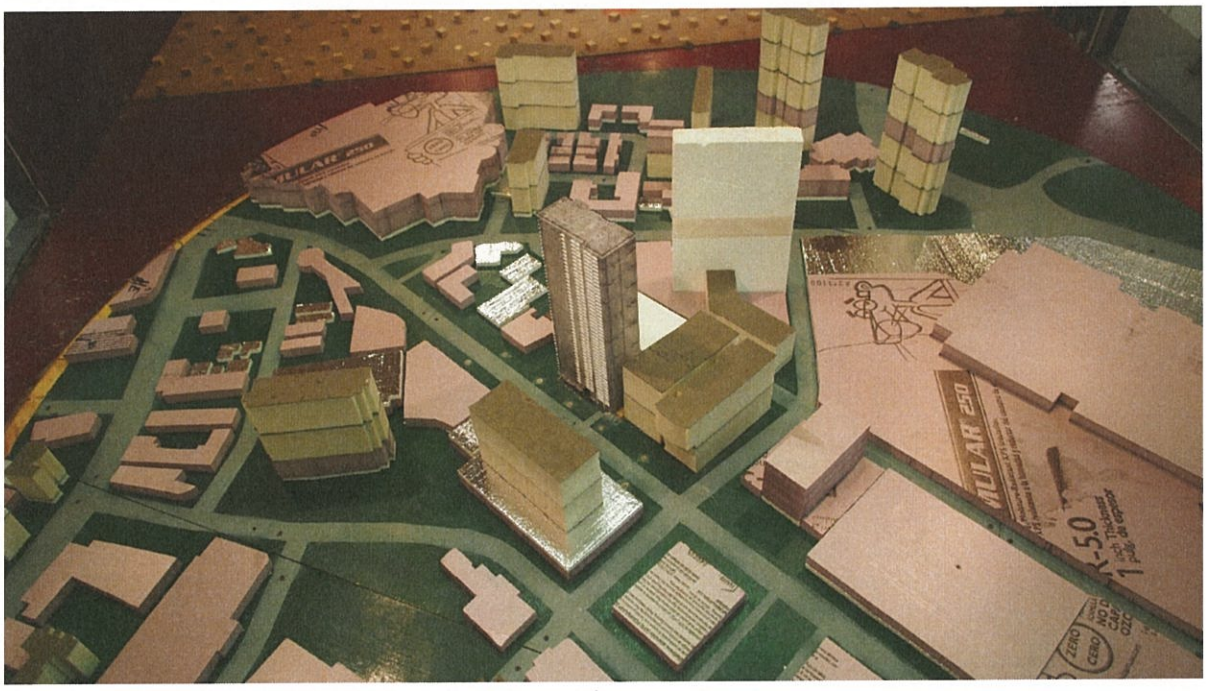
5.2 Design Pressures for Cladding

The design wind speed produced by the hurricane simulation was consistent with the design wind speed for the area. The reduction in structural loads was not capped so that the loads did not decrease below 80% of code values for interior wall and roof zones as discussed in ASCE 7-05 and required by ASCE 7-10. The cladding pressure coefficients were combined with the results of 100,000 years of hurricane simulations to produce cladding design pressures as a function of return period. The design values shown in the Figures 5.7 through 5.16 are based on 700 year return period loads divided by the square root of 1.6 as specified in ASCE 7-05 (limitation on site specific design wind speed analysis). The results are also consistent with ASCE 7-10 700 year return period loads divided by the square root of 1.6.

The minimum and maximum pressure coefficient data from the wind tunnel tests were combined with a wind climate model for Honolulu to produce design pressures at each point. The analysis of extreme winds for Honolulu produced design winds that are consistent with the 105-mph 3-second gust design wind speed specified in ASCE 7-05. The analysis of extreme winds for Honolulu produced design winds that are also consistent with the 130-mph 3-second gust design wind speed specified in ASCE 7-10. These design pressures were plotted over the surface of the building and used to develop the design pressure contours shown in Figures 5.7 through 5.16. These contours represent peak external positive (directed towards the surface of the building) and negative (directed away from the surface of the building) design pressures.

The exterior pressures shown in these figures represent point pressures and are appropriate for panels or anchors with tributary areas of less than or equal to 20 square feet. For panels with larger tributary areas, the percent reductions implied in the chart for pressures on buildings with heights greater than 60 feet in ASCE 7 can be used to reduce the loads shown in the figures. This translates to a reduction of about 10 percent for panels with tributary areas of 50 sq. ft., a reduction of about 18 percent for panels with tributary areas of about 100 sq. ft., and a reduction of about 25 percent for panels with tributary areas of about 200 sq. ft. For anchors used to attach individual panels, the pressures associated with areas less than 20 sq. ft. should be used. Reduced design pressures, corresponding to the reduction factors listed above, are presented in Table 5.1

a.: Cladding pressure model viewed from south



b.: Cladding pressure model viewed from north

Figure 5.1: Cladding Pressure Model

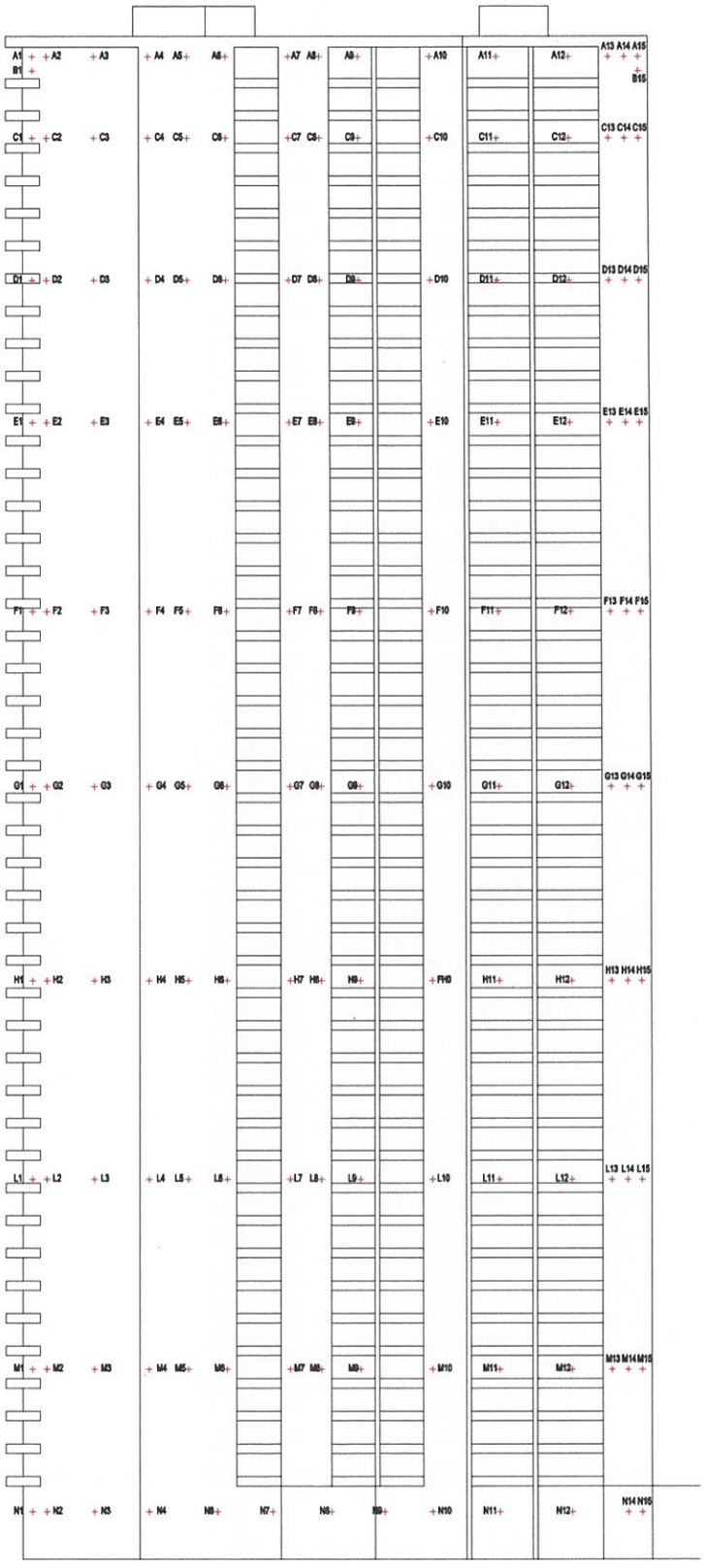


Figure 5.2: Cladding Pressure Measurement Points: North Elevation

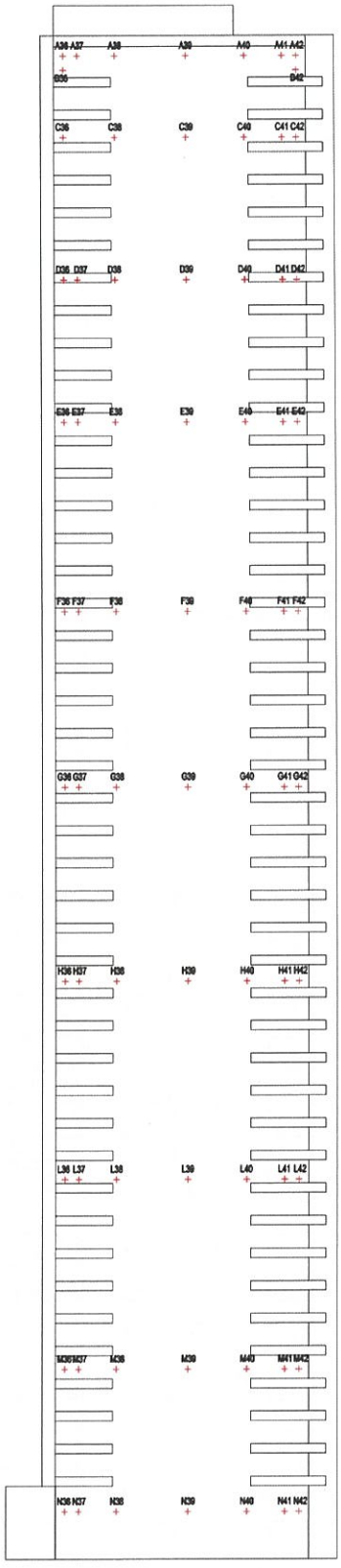


Figure 5.3: Cladding Pressure Measurement Points: East Elevation

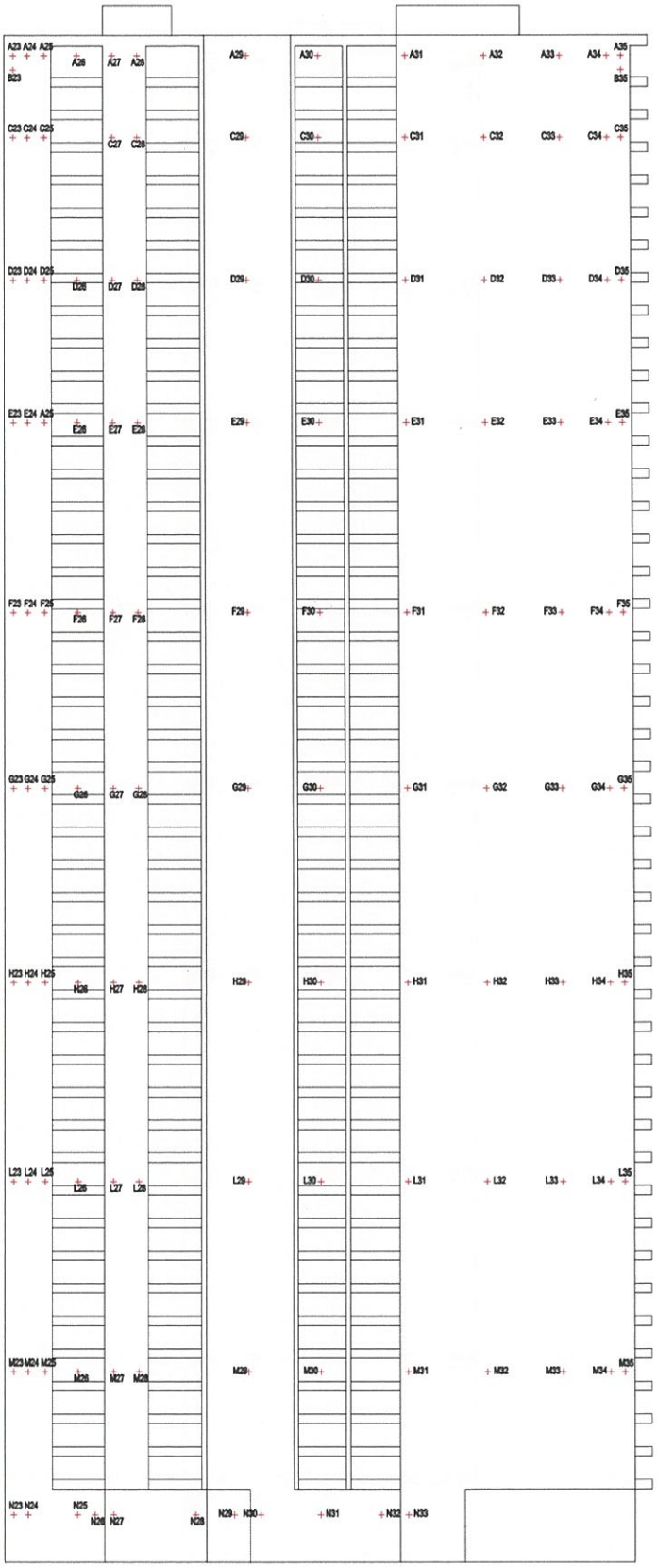


Figure 5.4: Cladding Pressure Measurement Points: South Elevation

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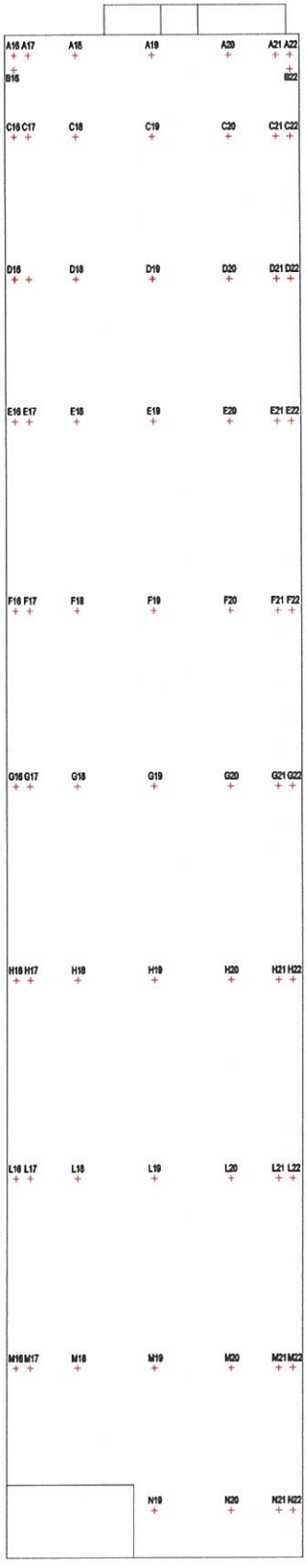

Figure 5.5: Cladding Pressure Measurement Points: West Elevation

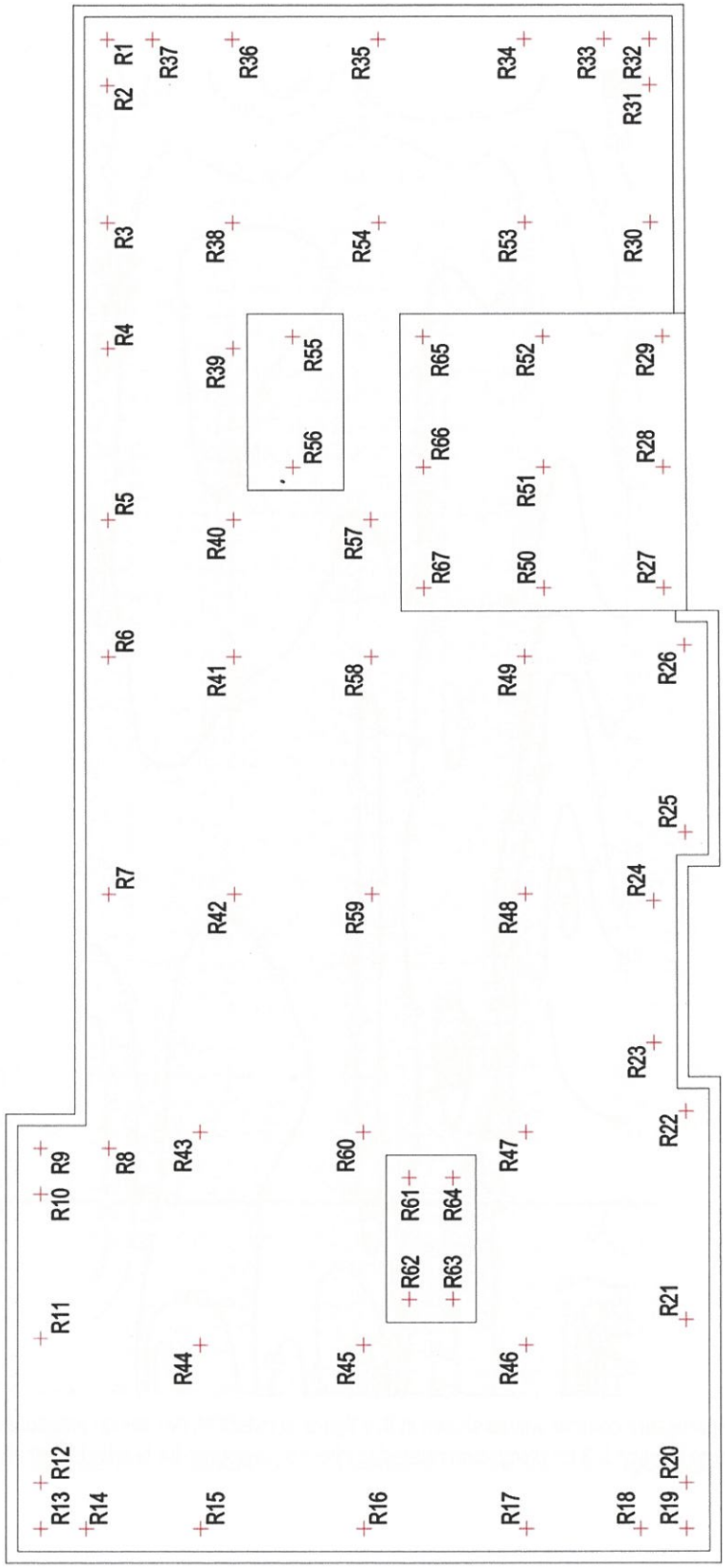

Figure 5.6: Cladding Pressure Measurement Points: Roof

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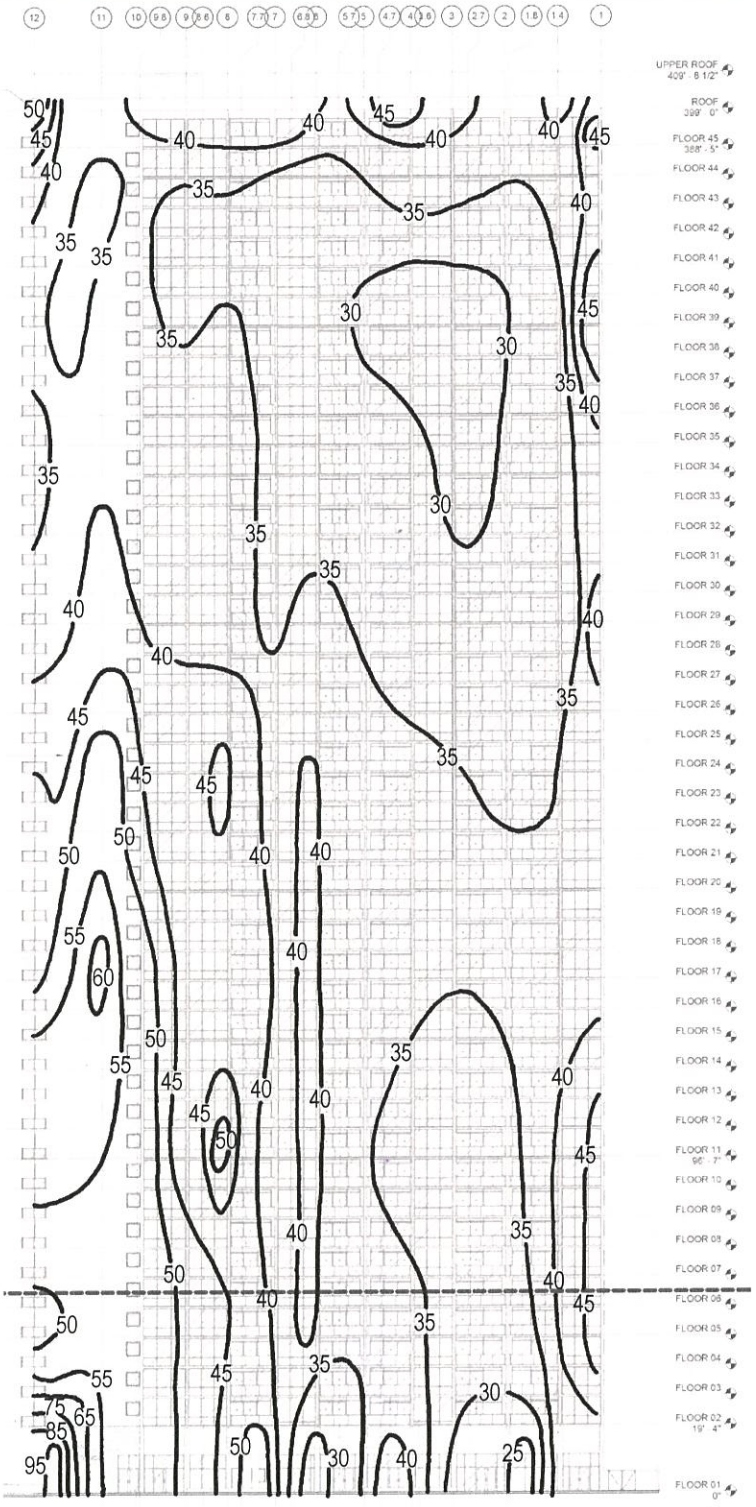
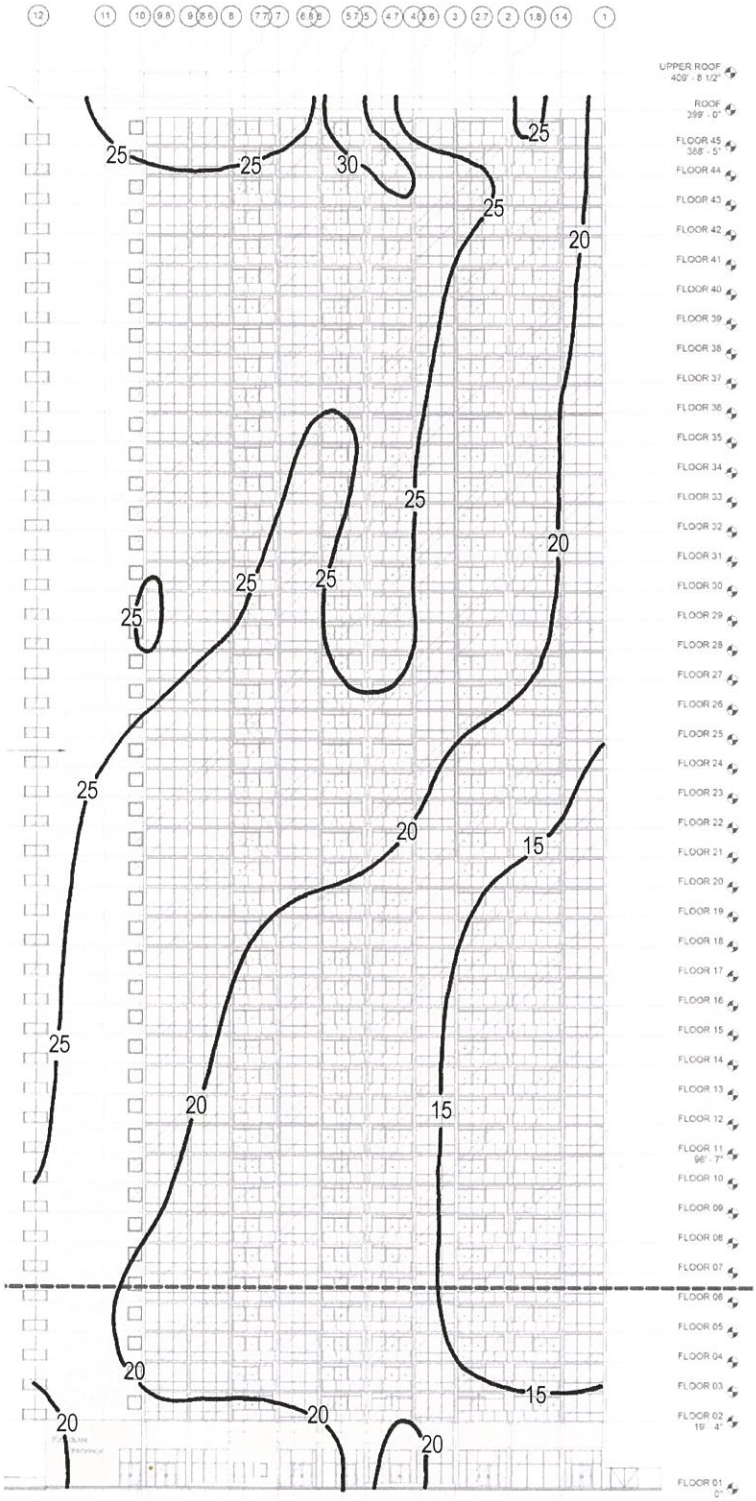


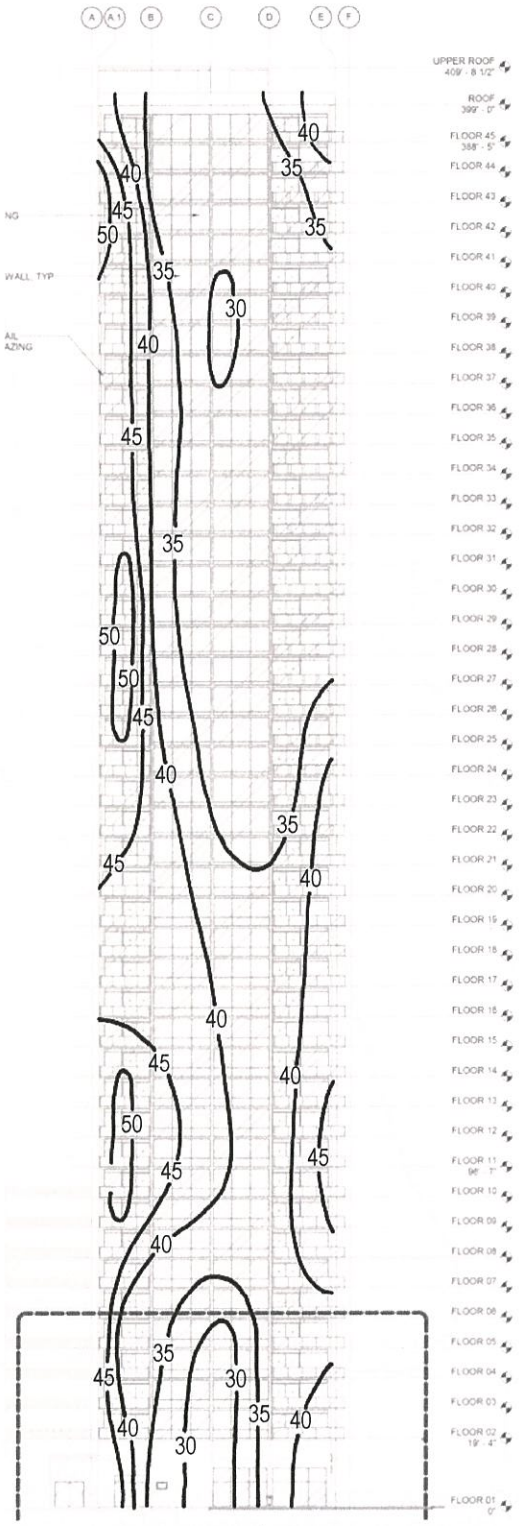
Add 8 psf to the pressure contour values shown in this figure to establish net design pressures for enclosed closed buildings. Refer to Section 5.3 for discussion related to internal pressures for buildings that are not considered enclosed.

Figure 5.7: North Negative



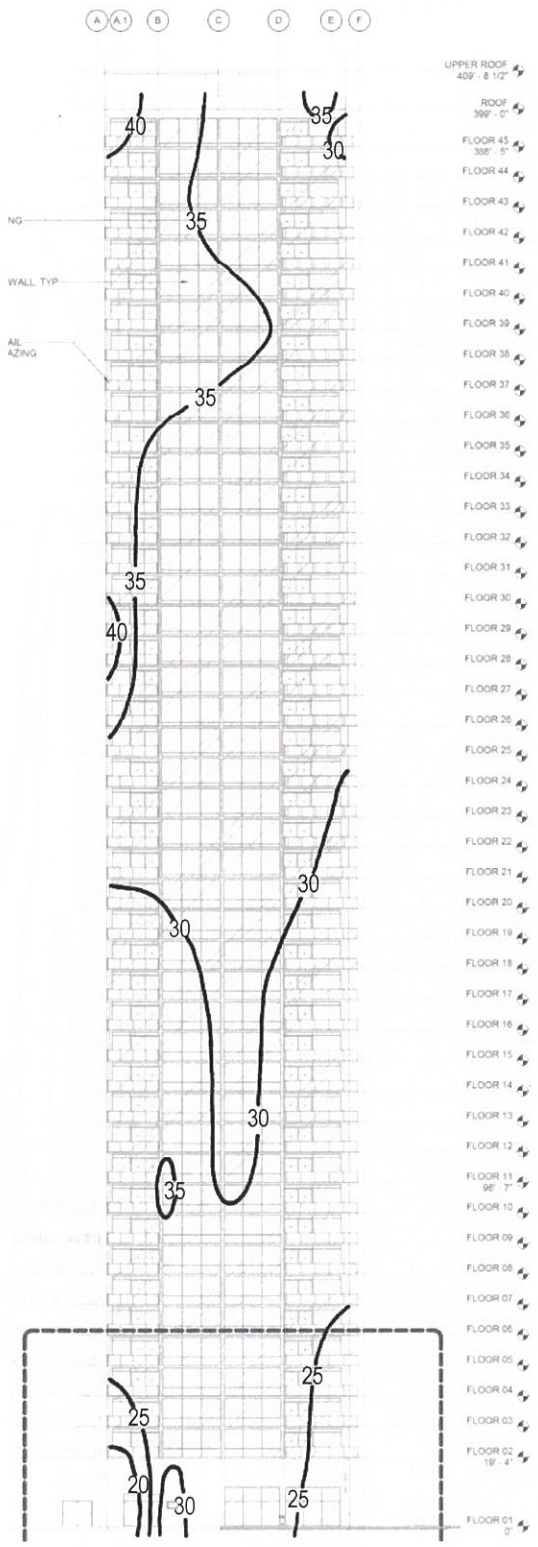
Add 8 psf to the pressure contour values shown in this figure to establish net design pressures for enclosed closed buildings. Refer to Section 5.3 for discussion related to internal pressures for buildings that are not considered enclosed.

Figure 5.8: North Positive



Add 8 psf to the pressure contour values shown in this figure to establish net design pressures for enclosed closed buildings. Refer to Section 5.3 for discussion related to internal pressures for buildings that are not considered enclosed.

Figure 5.9: East Negative



Add 8 psf to the pressure contour values shown in this figure to establish net design pressures for enclosed closed buildings. Refer to Section 5.3 for discussion related to internal pressures for buildings that are not considered enclosed.

Figure 5.10: East Positive

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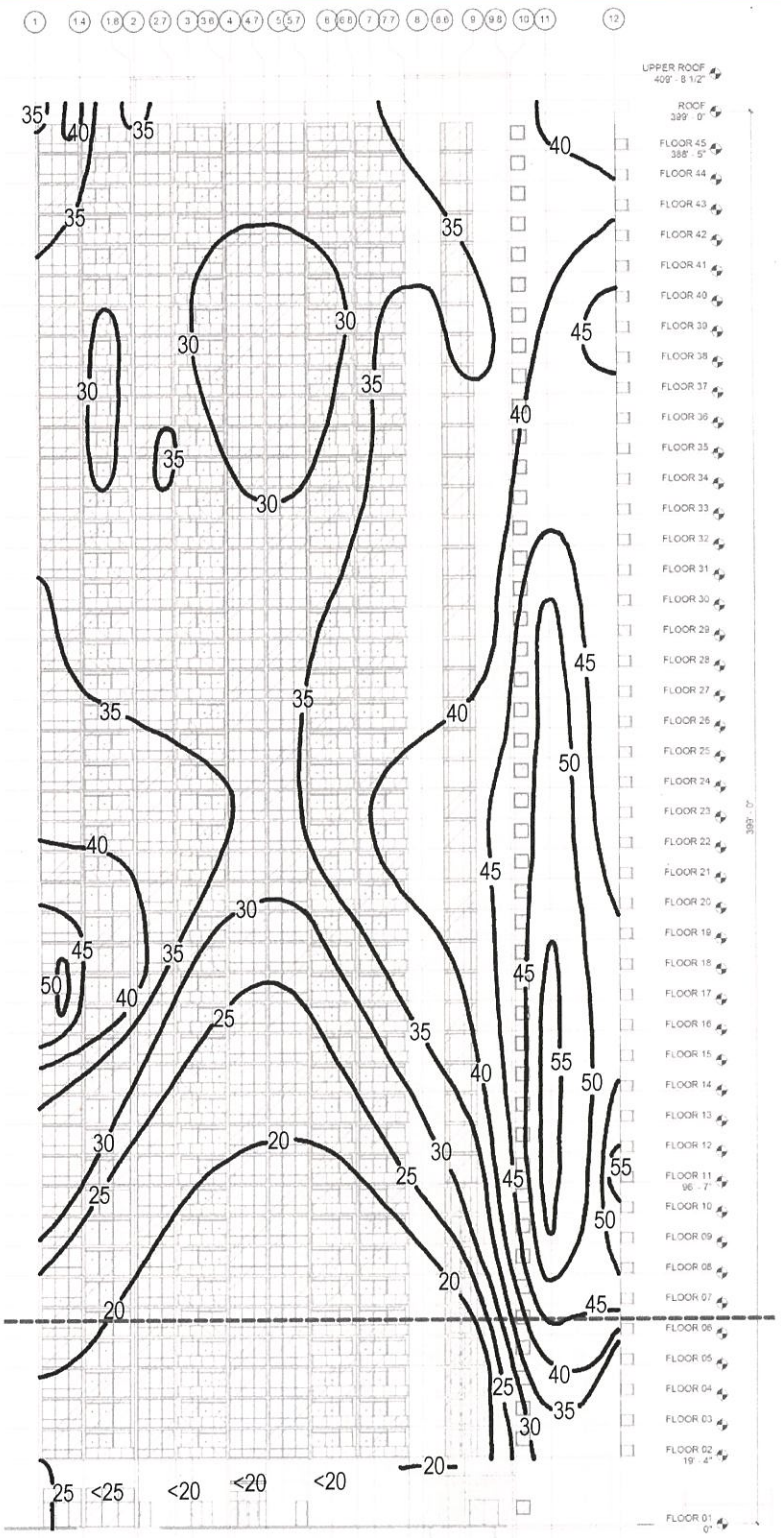

Add 8 psf to the pressure contour values shown in this figure to establish net design pressures for enclosed closed buildings. Refer to Section 5.3 for discussion related to internal pressures for buildings that are not considered enclosed.

Figure 5.11: South Negative

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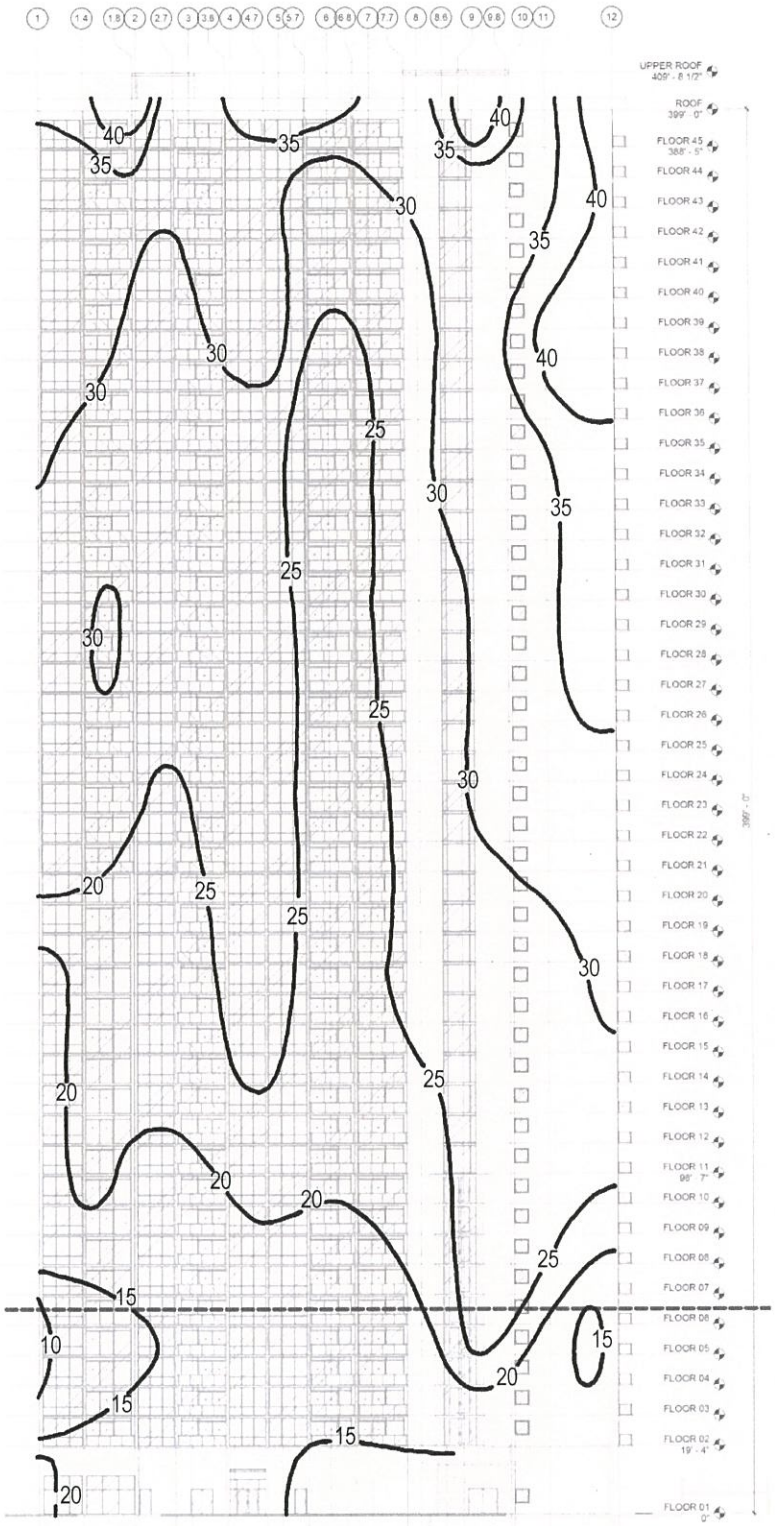

Add 8 psf to the pressure contour values shown in this figure to establish net design pressures for enclosed closed buildings. Refer to Section 5.3 for discussion related to internal pressures for buildings that are not considered enclosed.

Figure 5.12: South Positive

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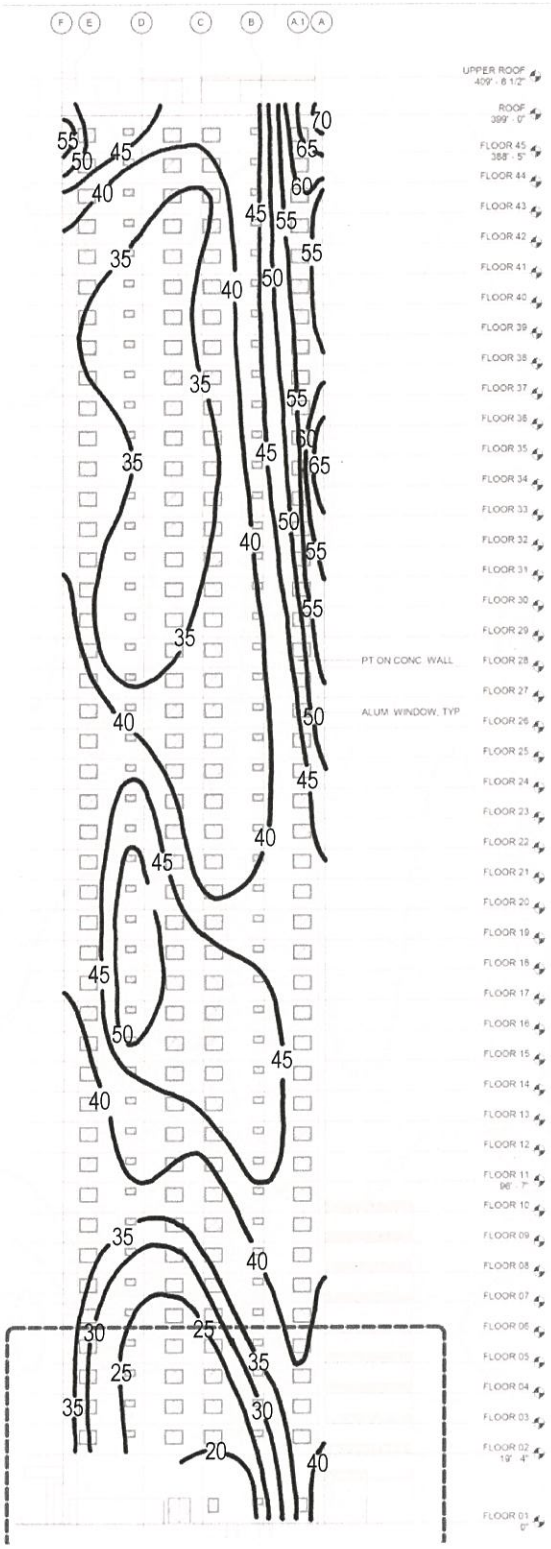

Add 8 psf to the pressure contour values shown in this figure to establish net design pressures for enclosed closed buildings. Refer to Section 5.3 for discussion related to internal pressures for buildings that are not considered enclosed.

Figure 5.13: West Negative

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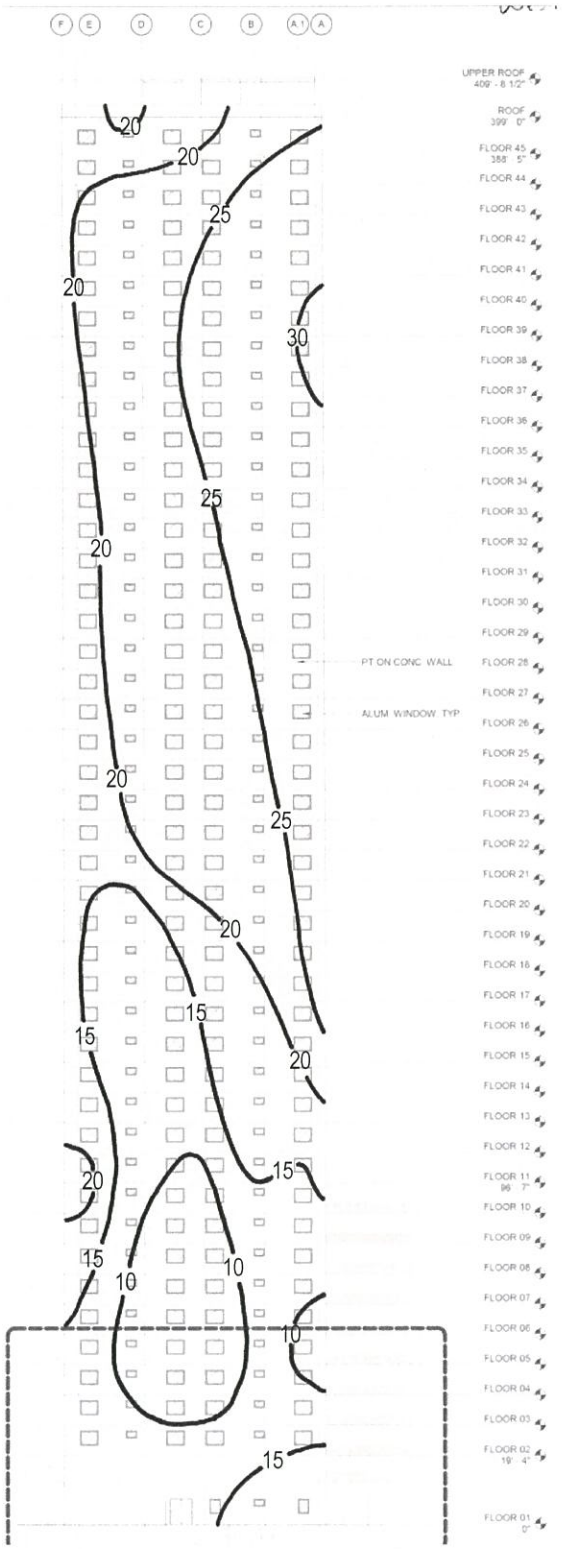
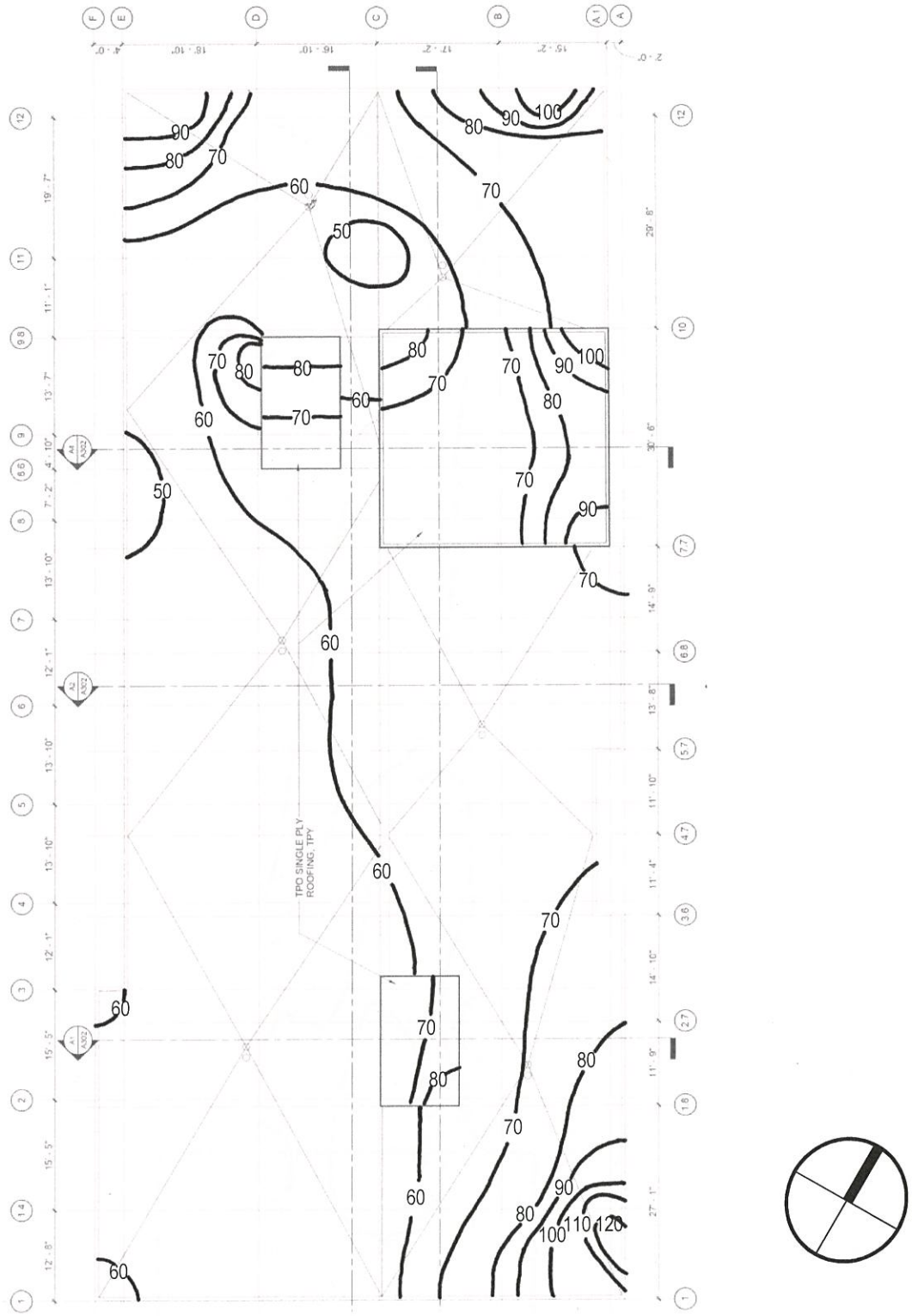


Add 8 psf to the pressure contour values shown in this figure to establish net design pressures for enclosed closed buildings. Refer to Section 5.3 for discussion related to internal pressures for buildings that are not considered enclosed.

Figure 5.14: West 9 Positive

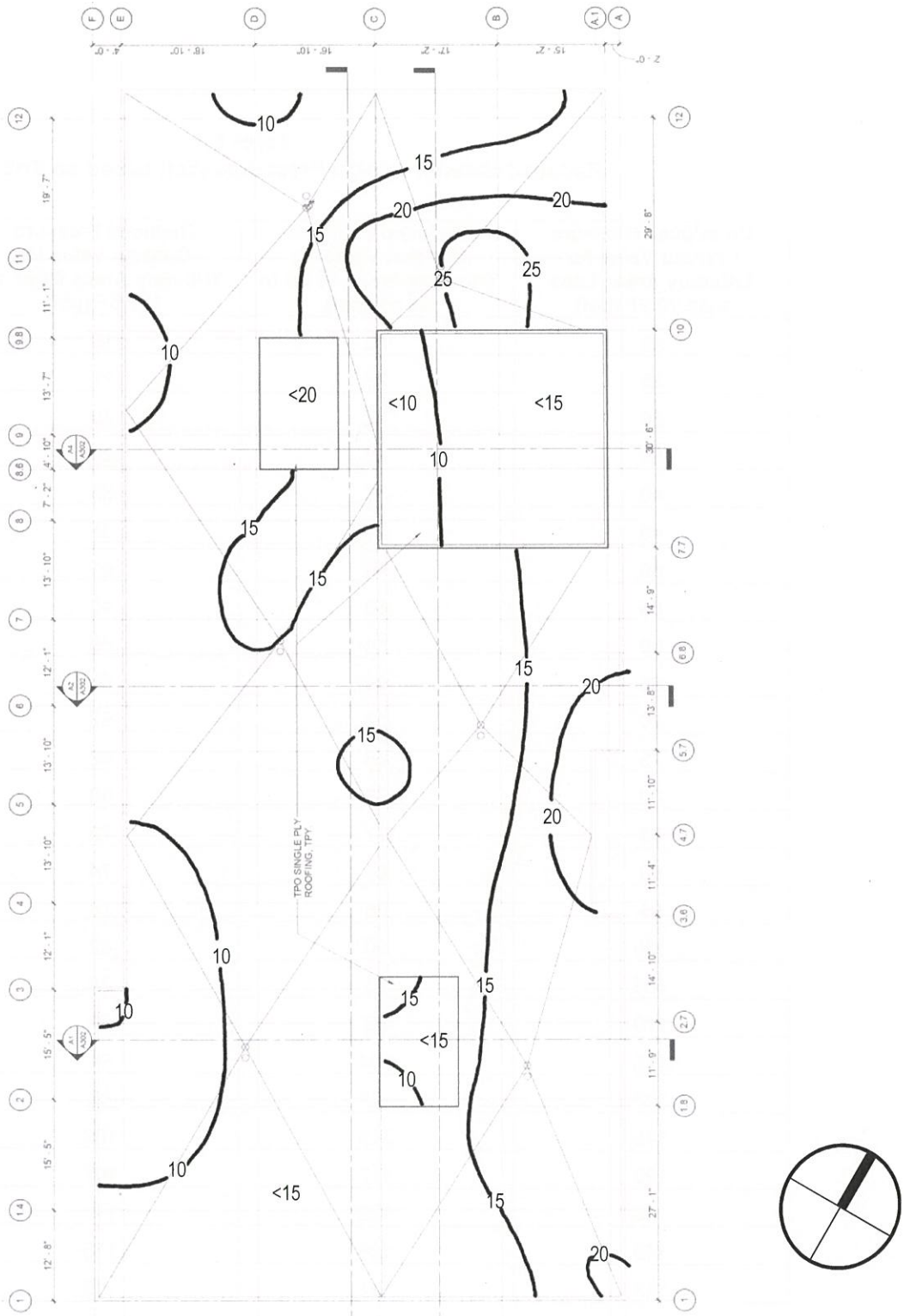
August 4, 2015
Job No. 14-H077A



Add 8 psf to the pressure contour values shown in this figure to establish net design pressures for enclosed closed buildings. Refer to Section 5.3 for discussion related to internal pressures for buildings that are not considered enclosed.

Figure 5.15: Roof Negative

August 4, 2015
Job No. 14-H077A



Add 8 psf to the pressure contour values shown in this figure to establish net design pressures for enclosed closed buildings. Refer to Section 5.3 for discussion related to internal pressures for buildings that are not considered enclosed.

Figure 5.16: Roof Positive

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Table 5.1
Reduced Exterior Design Pressures (psf) based on Tributary Area[1]

Unreduced Pressure Contour Value for Tributary Areas Less than 20 SF (psf)	Reduced Pressure Contour Value for Tributary Areas 40 SF to 89 SF (psf)	Reduced Pressure Contour Value for Tributary Areas 90 SF to 179 SF (psf)	Reduced Pressure Contour Value for Tributary Areas 180 SF to 450 SF (psf)
20	18	16	15
25	22	21	19
30	27	25	23
35	32	29	26
40	36	33	30
45	41	37	34
50	45	41	38
55	50	45	41
60	54	49	45
65	59	53	49
70	63	57	53
75	68	62	56
80	72	66	60
85	77	70	64
90	81	74	68
95	86	78	71
100	90	82	75
105	95	86	79
110	99	90	83
115	104	94	86
120	108	98	90
125	113	103	94
130	117	107	98
135	122	111	101
140	126	115	105
145	131	119	109

1. Values shown are peak negative or peak positive exterior pressures and do not include effects of possible internal pressures. Total net pressures are equal to the values in the table plus 8 psf for cladding

5.3 Internal Pressures

Internal pressures of 8 psf must be added to the pressures shown on the figures to arrive at total net design pressures for a typical enclosed building.

Building areas within the control of the facility's operations staff can generally be secured so that unauthorized opening of doors or windows does not occur during extreme wind events (e.g., a hurricane). The proposed building has units that open onto balconies or have windows, which are more difficult for the operations staff to control. Should a door or window be opened during an extreme wind event, it can adversely impact the internal pressure assumptions used in designing interior partitions. It is recommended that an operational procedure be developed to ensure that all openings are closed and remain closed in the event of an extreme wind event.

Alternatively, extreme pressures may be limited to a single unit or other defined area by ensuring that the walls between units or defined areas are strong enough to withstand the pressure difference that would occur if a door or window is opened. If these higher pressures are used, it is recommended that the walls be designed to resist at least 45 psf using code loads if a door or window were opened on the windward side or in the middle of the leeward side. This approach cannot guarantee that interior pressure damage would be confined to a limited area should something unlikely to occur (e.g., if a door or window near a corner of the building was opened when that section of the building experienced high negative external pressures).

5.4 Wind-Born Debris Protection

Hawaii is classified as a wind-borne debris region and Section 6.5.9.3 of ASCE 7-05 requires wind-borne debris protection. Windows and glass doors in the lowest 60 feet would have to be impact rated (for 2x4 impact) or protected with shutters. Above 60 feet and up to a height 30 feet above any roof on a surrounding building within a 1500 ft. radius that used aggregate ballast as part of the roofing system, windows and glass doors would have to be rated for small missile impact. This protection is specified in ASTM E1986 and ASTM E1996, but can usually be accomplished with certain types of tempered glass or by glass with a structural window film.

6.0 STRUCTURAL LOADS

6.1 Model Tests and Data

A lightweight rigid 1:300 scale model of the project was constructed and mounted on a very rigid but sensitive 5-component base balance. Surrounding buildings within a radius of 1,350-feet of the site, including selected but not yet constructed buildings, were also modeled and included on the wind tunnel's turntable. The tower was separated by a 1/8-inch gap from the base. This isolated the tower from the base and allowed measurement of the wind forces on the tower portion of the development. Tests were conducted for 36 wind directions at 10 degree intervals. The model is shown in Figures 4.1 and 4.2, which is the same basic model used to measure pedestrian level wind speeds.

Information regarding the development of the wind statistics are discussed in Section 2. As required by ASCE 7 for wind tunnel testing, assumptions consistent with a mean recurrence interval of 700 years were used to develop the loads for the strength case. Service level wind forces were not requested.

Mean and dynamic overturning moments and torsional moments were measured at the base. The dynamic moments were analyzed to obtain root-mean-square (RMS) values and power spectral density functions (i.e., the variation in the "energy" of the fluctuations in the forcing functions as a function of frequency). Overturning moments were also measured at a second elevation and instantaneous base shear forces, due to loading on the tower, were obtained from the instantaneous differences between the overturning moments at the base and at this second elevation. Data on the overturning moments, shear forces and torsional moments were obtained for periods of time corresponding to about one hour at full scale. The results were stored for subsequent analysis.

6.2 Results of Structural Load Study

6.2.1 Analysis of Results

Mean forces and moments at the base of the building due to wind loading on the tower were obtained directly from the force balance tests. Full-scale mean forces and moments were computed by combining the model results with information on the wind climate at the site and scaling the results of the model tests to their full-scale equivalent values. Dynamic loads were derived from the measured dynamic loads on the model. The base overturning moments provide a good approximation of the modal sway forces on the building and the base torsional moment provides an over-estimate of the modal torsional forces on the building.

Research at several laboratories has shown that using 75% of the base torque provides a reasonable, but still slightly conservative, approximation of the modal torsional forces. The analysis provides full-scale values of the dynamic loads that includes gust loading of the turbulent wind, wake effects and the dynamic amplification of the loading caused by the response of the building at its fundamental natural frequencies. Information on the dynamic characteristics of the building was provided by the structural engineer of record.

6.2.2 Test Results

Figure 6.1 illustrates the coordinate system used to describe the structural loads. Base overturning moments about the x- and y-axes and torsional moments about the z-axis are given in Figures 6.2 through 6.4 as a function of wind direction for the strength load case.

The results appear to be less than the results that would be obtained from application of the building code procedures for calculating wind forces in ASCE 7-05 and may be below the minimum limits in ASCE 7-10 for some of the forces and moments. There appears to be a significant influence caused by the tower across the street from this project. This influence may be seen in Figure 6.4 as the large increase in M_z (torsion) on the building for wind directions 170, 180 and 190 when the wake of the nearby tower loads up a portion of the building's broad face, and the significant drop in M_y in Figure 6.3 at direction 200 when this project's tower is in the shadow of the adjacent tower.

Floor-by-floor loading vectors were developed that produce base overturning moments and torques for the critical combination of wind directions. The dynamic loads were distributed according to the modal mass of the building in the appropriate sway or torsional mode of vibration as calculated by the structural engineer of record.

The mean loads were distributed using a power law relationship that provided a match with the mean overturning moment at the base and matched the base shear. The floor-by-floor loads are for the tower above the base. The proportioning of mean and dynamic loads was set to match the general relationships between these load effects obtained from the force balance tests. Critical wind directions were identified as 90 degrees (maximum negative overturning moment about the y-axis), 120 degrees (maximum negative torsion about the z-axis), 170-180 degrees (maximum positive and negative overturning moments about the x- and y- axes, respectively plus maximum positive torsion about the z-axis) and 260 degrees (maximum positive overturning moment about the x-axis). The floor-by-floor loads for these combined wind directions are presented in Tables 6.1 through 6.4 for the strength case. For use in strength design, these loads need to be factored using a 1.6 load factor on the wind load given in Tables 6.1 through 6.4 as specified in ASCE 7-05.

The application of the floor by floor loads in the various directions together with the torsional forces requires several load combinations for each set of wind directions. The underlying logic is that the peak load in any direction can certainly occur but the chances that the peak load effects from several components will occur at the same instant in time is much less likely. A reasonable but slightly conservative approach to combining the load effects for the various load components is to combine the peak load effect from one component with the mean plus half the dynamic load from each of the other load components. This results in three load combinations for each wind direction considered.

The recommended wind load combinations for the critical wind direction are:

1. $Fx_{mean} + Fx_{dyn} = Fx_{peak}$
   $Fy_{mean} + \frac{1}{2} Fy_{dyn}$
   $Mz_{mean} + \frac{1}{2} Mz_{dyn}$

2. $Fx_{mean} + \frac{1}{2} Fx_{dyn}$
   $Fy_{mean} + Fy_{dyn} = Fy_{peak}$
   $Mz_{mean} + \frac{1}{2} Mz_{dyn}$

3. $Fx_{mean} + \frac{1}{2} Fx_{dyn}$
   $Fy_{mean} + \frac{1}{2} Fy_{dyn}$
   $Mz_{mean} + Mz_{dyn} = Mz_{peak}$

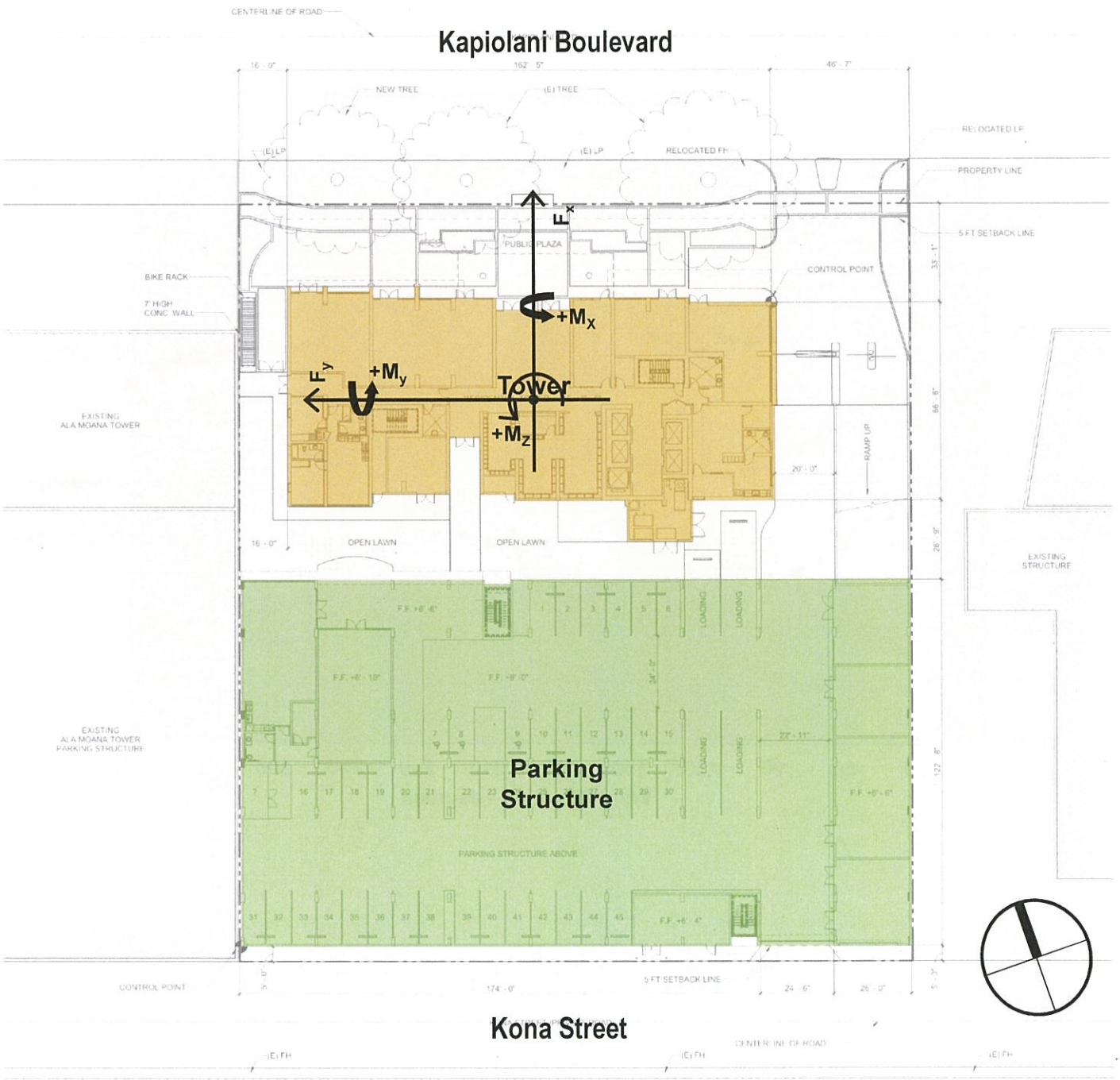

Figure 6.1: Force Balance Accelerometer (FBA) Model Coordinate System

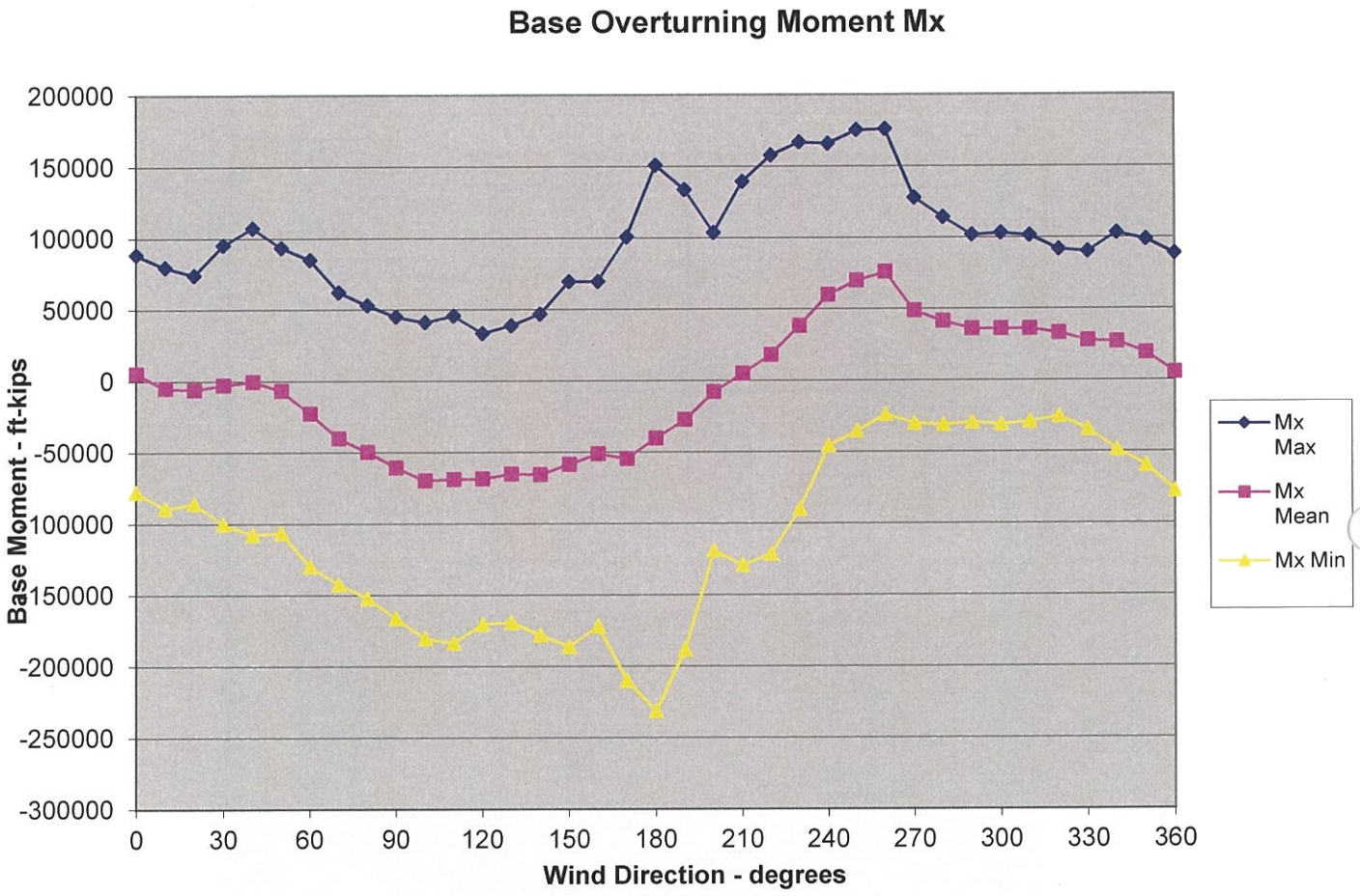

Figure 6.2: M_x Overturning Moment vs. Direction

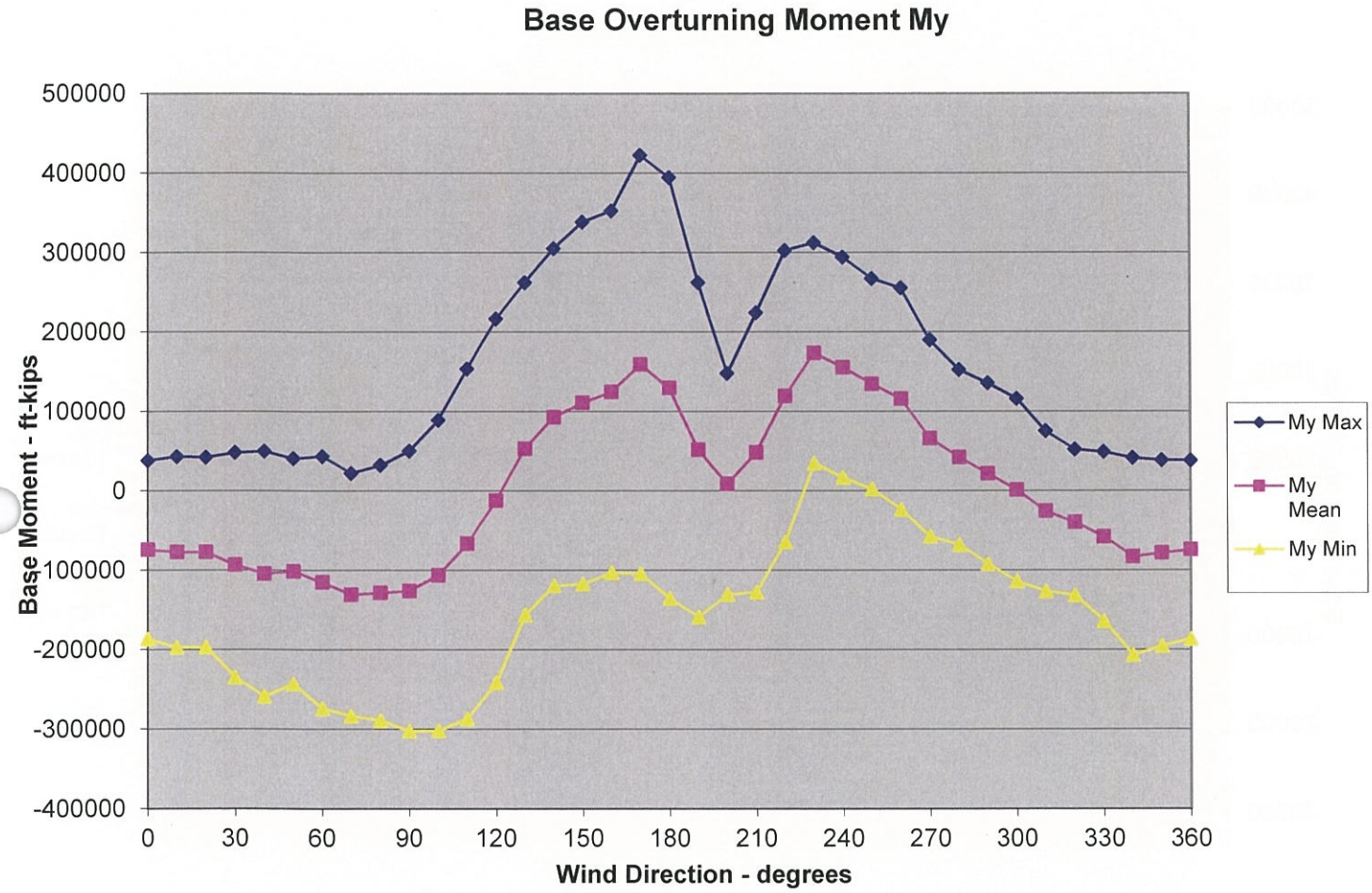

Figure 6.3: M_y Overturning Moment vs. Direction

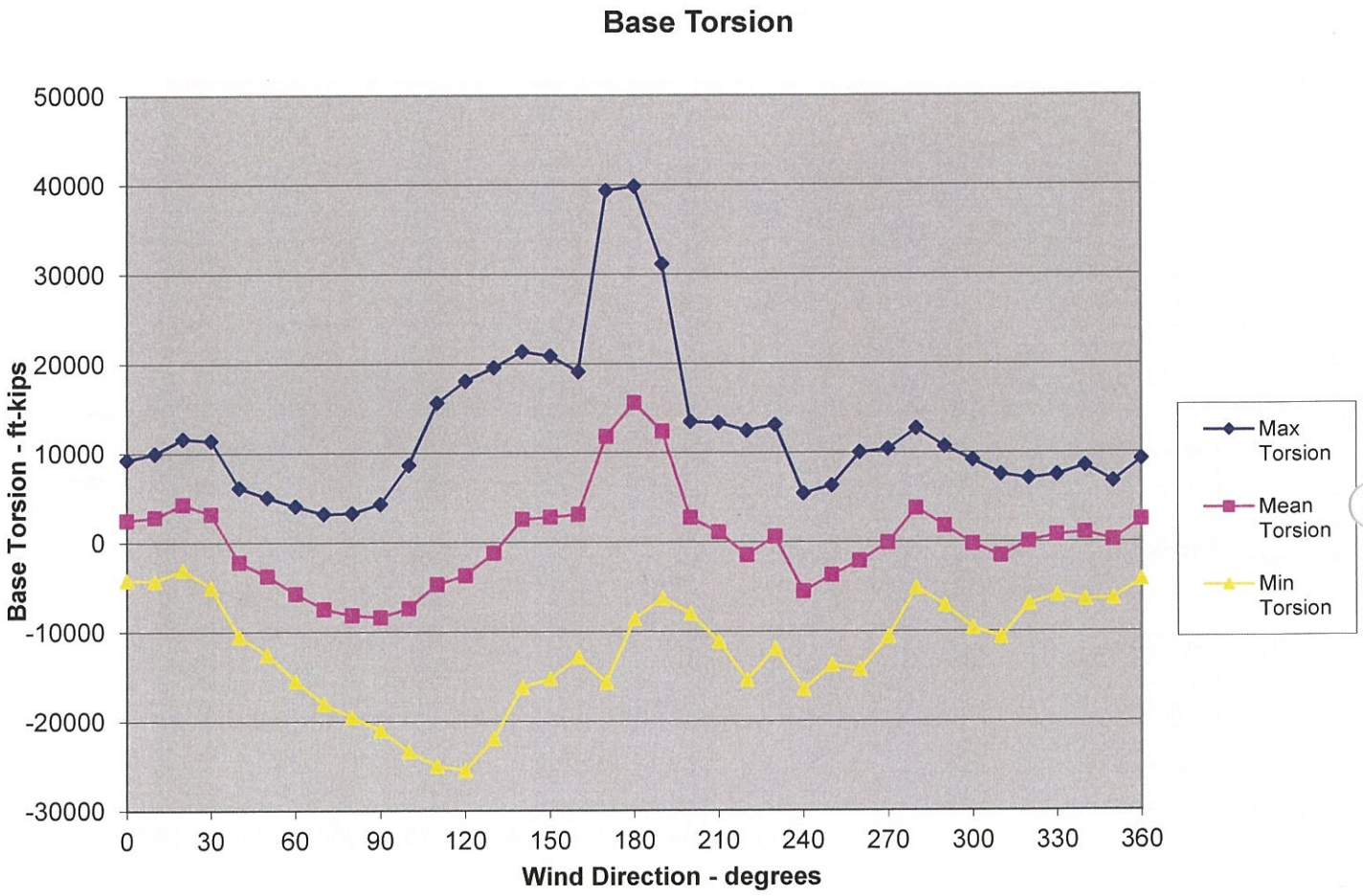

Figure 6.4: M_z Torsional Moment vs. Direction

Table 6.1
Floor-by-Floor Lateral Loads and Torsional Moments
for Wind Direction 90 Degrees[1]

Loads for Use in load Combinations						
Floor Height	Fy_{peak} kips	Fy_{mean} + 1/2 Fy_{dyn} kips	Fx_{peak} kips	Fx_{mean} + 1/2 Fx_{dyn} kips	Mz_{peak} ft-kips	Mz_{mean} + 1/2 Mz_{dyn} ft-kips
0	0.00	0.00	-9.48	-9.48	0.30	0.30
19.33	1.20	0.63	-17.96	-16.96	259.36	131.15
27.91	1.84	0.97	-13.35	-11.91	267.59	137.60
36.49	2.52	1.34	-14.59	-12.70	352.35	182.40
45.07	3.20	1.71	-15.74	-13.42	438.17	228.25
53.65	3.87	2.09	-16.79	-14.06	525.00	275.12
62.23	4.53	2.47	-17.79	-14.67	612.82	322.98
70.81	5.19	2.86	-18.75	-15.24	701.61	371.80
79.39	5.83	3.24	-19.67	-15.79	793.29	422.55
87.97	6.46	3.63	-20.54	-16.30	885.52	474.03
96.55	7.08	4.01	-21.38	-16.79	977.43	525.81
105.13	7.68	4.39	-22.20	-17.26	1070.25	578.49
113.71	8.28	4.77	-22.98	-17.71	1163.95	632.06
122.29	8.87	5.16	-23.73	-18.15	1258.52	686.50
130.87	9.45	5.54	-24.46	-18.56	1353.96	741.80
139.45	10.02	5.93	-25.16	-18.96	1450.25	797.96
148.03	10.59	6.32	-25.84	-19.35	1547.39	854.97
156.61	11.16	6.72	-26.50	-19.72	1645.37	912.81
165.19	11.72	7.12	-27.13	-20.08	1744.17	971.48
173.77	12.27	7.51	-27.74	-20.43	1843.80	1030.97
182.35	12.82	7.92	-28.33	-20.76	1897.02	1067.67
190.93	13.36	8.32	-28.92	-21.10	1946.58	1102.94
199.51	13.91	8.73	-29.49	-21.42	2044.19	1162.64
208.09	14.45	9.15	-30.04	-21.73	2142.59	1223.13
216.67	15.00	9.57	-30.58	-22.03	2241.79	1284.42
225.25	15.54	9.99	-31.11	-22.33	2341.78	1346.49
233.83	16.08	10.42	-31.62	-22.62	2442.54	1409.35
242.41	16.61	10.85	-32.12	-22.90	2544.08	1472.98
250.99	17.14	11.28	-32.60	-23.17	2646.40	1537.38
259.57	17.67	11.72	-33.06	-23.43	2749.48	1602.55
268.15	18.19	12.16	-33.51	-23.68	2853.32	1668.48
276.73	18.71	12.60	-33.94	-23.92	2957.92	1735.17
285.31	19.23	13.05	-34.36	-24.15	3063.28	1802.62
293.89	19.75	13.49	-34.76	-24.38	3169.39	1870.82
302.47	20.26	13.95	-35.14	-24.59	3276.25	1939.77

Loads for Use in load Combinations						
Floor Height	Fy_{peak} kips	Fy_{mean} + 1/2 Fy_{dyn} kips	Fx_{peak} kips	Fx_{mean} + 1/2 Fx_{dyn} kips	Mz_{peak} ft-kips	Mz_{mean} + 1/2 Mz_{dyn} ft-kips
311.05	20.76	14.40	-35.50	-24.80	3383.85	2009.46
319.63	21.27	14.86	-35.86	-25.00	3492.19	2079.89
328.21	21.77	15.32	-36.19	-25.19	3601.27	2151.06
336.79	22.28	15.79	-36.51	-25.38	3711.09	2222.96
345.37	22.77	16.26	-36.82	-25.55	3821.63	2295.59
353.95	23.27	16.73	-37.11	-25.72	3932.91	2368.96
362.53	23.77	17.21	-37.39	-25.88	4044.91	2443.04
371.11	24.27	17.69	-37.66	-26.04	4157.63	2517.85
379.69	24.76	18.18	-37.92	-26.18	4271.07	2593.38
388.27	25.98	19.39	-39.02	-27.18	4476.62	2715.89
397.85	20.14	13.56	-32.10	-20.11	4734.79	2860.74

[1] For use in strength design, these loads need to be factored using the 1.6 load factor on the wind load as specified in ASCE 7.

Table 6.2
Floor-by-Floor Lateral Loads and Torsional Moments
for Wind Direction 120 Degrees[1]

Loads for Use in load Combinations						
Floor Height	Fy_{peak} kips	$Fy_{mean} + 1/2\ Fy_{dyn}$ kips	Fx_{peak} kips	$Fx_{mean} + 1/2\ Fx_{dyn}$ kips	Mz_{peak} ft-kips	$Mz_{mean} + 1/2\ Mz_{dyn}$ ft-kips
0	0.49	0.49	0.00	0.00	-5.86	-5.86
19.33	2.81	2.26	-2.61	-1.30	-80.46	-47.30
27.91	3.20	2.36	-3.76	-1.88	-87.67	-54.05
36.49	4.12	2.98	-4.92	-2.46	-112.64	-68.68
45.07	5.00	3.57	-6.03	-3.02	-137.33	-83.03
53.65	5.84	4.13	-7.09	-3.55	-161.80	-97.16
62.23	6.66	4.67	-8.12	-4.07	-186.09	-111.12
70.81	7.44	5.20	-9.13	-4.58	-210.25	-124.94
79.39	8.19	5.69	-10.12	-5.08	-234.79	-138.90
87.97	8.91	6.18	-11.07	-5.55	-259.13	-152.69
96.55	9.60	6.64	-11.99	-6.02	-283.06	-166.24
105.13	10.25	7.08	-12.90	-6.48	-306.91	-179.72
113.71	10.89	7.51	-13.77	-6.93	-330.69	-193.11
122.29	11.50	7.93	-14.63	-7.36	-354.41	-206.45
130.87	12.10	8.33	-15.46	-7.79	-378.06	-219.72
139.45	12.67	8.72	-16.26	-8.21	-401.66	-232.94
148.03	13.22	9.10	-17.05	-8.62	-425.21	-246.11
156.61	13.75	9.47	-17.82	-9.02	-448.72	-259.24
165.19	14.26	9.83	-18.57	-9.41	-472.18	-272.32
173.77	14.76	10.17	-19.30	-9.79	-495.60	-285.36
182.35	15.23	10.51	-20.01	-10.17	-506.77	-292.25
190.93	15.70	10.84	-20.73	-10.56	-516.75	-298.54
199.51	16.15	11.16	-21.42	-10.93	-538.92	-310.90
208.09	16.59	11.47	-22.11	-11.31	-561.05	-323.23
216.67	17.01	11.78	-22.79	-11.68	-583.16	-335.52
225.25	17.42	12.07	-23.46	-12.05	-605.23	-347.79
233.83	17.82	12.36	-24.12	-12.41	-627.28	-360.04
242.41	18.20	12.64	-24.77	-12.78	-649.31	-372.26
250.99	18.57	12.92	-25.40	-13.14	-671.30	-384.45
259.57	18.92	13.18	-26.02	-13.49	-693.28	-396.62
268.15	19.26	13.44	-26.63	-13.84	-715.23	-408.77
276.73	19.58	13.68	-27.23	-14.19	-737.17	-420.89
285.31	19.89	13.92	-27.81	-14.54	-759.08	-433.00
293.89	20.19	14.16	-28.37	-14.88	-780.97	-445.09
302.47	20.47	14.38	-28.93	-15.22	-802.84	-457.15

Loads for Use in load Combinations						
Floor Height	**Fy_{peak} kips**	**Fy_{mean} + 1/2 Fy_{dyn} kips**	**Fx_{peak} kips**	**Fx_{mean} + 1/2 Fx_{dyn} kips**	**Mz_{peak} ft-kips**	**Mz_{mean} + 1/2 Mz_{dyn} ft-kips**
311.05	20.73	14.60	-29.47	-15.56	-824.70	-469.20
319.63	20.99	14.81	-30.01	-15.90	-846.53	-481.23
328.21	21.23	15.01	-30.53	-16.23	-868.35	-493.24
336.79	21.47	15.21	-31.04	-16.56	-890.16	-505.24
345.37	21.69	15.40	-31.54	-16.90	-911.94	-517.22
353.95	21.89	15.59	-32.04	-17.23	-933.72	-529.19
362.53	22.09	15.77	-32.53	-17.56	-955.47	-541.14
371.11	22.28	15.94	-33.01	-17.90	-977.21	-553.07
379.69	22.46	16.11	-33.48	-18.23	-998.94	-565.00
388.27	23.21	16.85	-34.16	-18.77	-1044.07	-588.64
397.85	18.31	11.96	-33.07	-17.47	-1104.38	-619.64

[1] For use in strength design, these loads need to be factored using the 1.6 load factor on the wind load as specified in ASCE 7.

Table 6.3
Floor-by-Floor Lateral Loads and Torsional Moments
for Wind Direction 170-180 Degrees[1]

Loads for Use in load Combinations						
Floor Height	Fy_{peak} kips	$Fy_{mean} + 1/2\ Fy_{dyn}$ kips	Fx_{peak} kips	$Fx_{mean} + 1/2\ Fx_{dyn}$ kips	Mz_{peak} ft-kips	$Mz_{mean} + 1/2\ Mz_{dyn}$ ft-kips
0	0.97	0.97	5.73	5.73	77.49	77.49
19.33	4.40	3.37	15.12	13.62	202.32	165.45
27.91	4.93	3.35	13.07	10.91	233.67	196.28
36.49	6.25	4.12	15.15	12.33	275.08	226.21
45.07	7.52	4.84	17.07	13.61	314.09	253.72
53.65	8.74	5.53	18.84	14.77	351.37	279.51
62.23	9.90	6.18	20.53	15.87	387.36	304.01
70.81	11.02	6.81	22.14	16.90	422.33	327.49
79.39	12.08	7.40	23.69	17.88	457.03	350.42
87.97	13.09	7.96	25.15	18.81	490.93	372.60
96.55	14.05	8.50	26.56	19.70	523.89	394.01
105.13	14.95	9.00	27.93	20.55	556.34	414.93
113.71	15.83	9.49	29.24	21.37	588.35	435.40
122.29	16.66	9.96	30.50	22.15	619.97	455.48
130.87	17.46	10.40	31.73	22.91	651.25	475.21
139.45	18.22	10.83	32.91	23.64	682.21	494.64
148.03	18.95	11.23	34.05	24.35	712.90	513.78
156.61	19.64	11.62	35.15	25.03	743.32	532.66
165.19	20.31	11.99	36.22	25.68	773.51	551.31
173.77	20.94	12.35	37.24	26.31	803.49	569.75
182.35	21.55	12.69	38.24	26.93	819.69	581.20
190.93	22.13	13.01	39.23	27.54	834.42	591.82
199.51	22.69	13.33	40.19	28.12	862.57	609.07
208.09	23.23	13.63	41.13	28.70	890.56	626.15
216.67	23.74	13.93	42.04	29.26	918.40	643.09
225.25	24.24	14.20	42.93	29.80	946.10	659.89
233.83	24.70	14.47	43.80	30.33	973.66	676.55
242.41	25.14	14.72	44.64	30.85	1001.11	693.10
250.99	25.56	14.96	45.45	31.35	1028.44	709.52
259.57	25.95	15.19	46.24	31.83	1055.65	725.84
268.15	26.32	15.40	47.00	32.30	1082.77	742.05
276.73	26.66	15.60	47.74	32.75	1109.78	758.16
285.31	26.97	15.78	48.45	33.19	1136.70	774.18
293.89	27.27	15.96	49.13	33.61	1163.53	790.10
302.47	27.53	16.12	49.78	34.02	1190.27	805.94

Loads for Use in load Combinations						
Floor Height	Fy_{peak} kips	Fy_{mean} + 1/2 Fy_{dyn} kips	Fx_{peak} kips	Fx_{mean} + 1/2 Fx_{dyn} kips	Mz_{peak} ft-kips	Mz_{mean} + 1/2 Mz_{dyn} ft-kips
311.05	27.78	16.27	50.42	34.42	1216.93	821.70
319.63	28.00	16.41	51.03	34.80	1243.52	837.38
328.21	28.20	16.54	51.61	35.17	1270.02	852.99
336.79	28.38	16.65	52.18	35.53	1296.46	868.52
345.37	28.54	16.76	52.71	35.87	1322.83	883.99
353.95	28.68	16.85	53.23	36.20	1349.12	899.38
362.53	28.80	16.94	53.73	36.52	1375.36	914.72
371.11	28.91	17.01	54.21	36.83	1401.53	929.99
379.69	28.99	17.08	54.67	37.13	1427.65	945.20
388.27	29.36	17.44	56.28	38.58	1479.79	973.46
397.85	26.75	14.84	46.94	29.01	1548.36	1009.45

[1] For use in strength design, these loads need to be factored using the 1.6 load factor on the wind load as specified in ASCE 7.

Table 6.4
Floor-by-Floor Lateral Loads and Torsional Moments
for Wind Direction 260 Degrees[1]

Loads for Use in load Combinations						
Floor Height	Fy_{peak} kips	Fy_{mean} + 1/2 Fy_{dyn} kips	Fx_{peak} kips	Fx_{mean} + 1/2 Fx_{dyn} kips	Mz_{peak} ft-kips	Mz_{mean} + 1/2 Mz_{dyn} ft-kips
0	-0.08	-0.08	4.05	4.05	-0.50	-0.50
19.33	-1.56	-1.02	10.24	9.45	-39.13	-20.67
27.91	-2.20	-1.37	8.56	7.41	-41.53	-22.81
36.49	-2.99	-1.87	9.82	8.32	-54.59	-30.11
45.07	-3.77	-2.37	10.96	9.13	-67.72	-37.49
53.65	-4.55	-2.87	12.02	9.86	-80.91	-44.92
62.23	-5.31	-3.37	13.02	10.55	-94.16	-52.42
70.81	-6.07	-3.87	13.96	11.19	-107.46	-59.95
79.39	-6.80	-4.36	14.87	11.80	-121.07	-67.68
87.97	-7.52	-4.84	15.73	12.37	-134.68	-75.41
96.55	-8.21	-5.32	16.55	12.92	-148.14	-83.09
105.13	-8.89	-5.79	17.35	13.44	-161.63	-90.81
113.71	-9.56	-6.25	18.11	13.94	-175.16	-98.56
122.29	-10.21	-6.71	18.85	14.42	-188.72	-106.33
130.87	-10.85	-7.17	19.56	14.89	-202.30	-114.14
139.45	-11.48	-7.62	20.24	15.33	-215.91	-121.97
148.03	-12.09	-8.06	20.90	15.76	-229.55	-129.82
156.61	-12.70	-8.50	21.54	16.18	-243.21	-137.70
165.19	-13.29	-8.94	22.16	16.58	-256.89	-145.60
173.77	-13.87	-9.38	22.75	16.96	-270.60	-153.53
182.35	-14.43	-9.80	23.33	17.34	-277.52	-158.07
190.93	-14.99	-10.23	23.90	17.71	-283.82	-162.31
199.51	-15.54	-10.65	24.45	18.07	-296.94	-169.98
208.09	-16.08	-11.07	25.00	18.42	-310.09	-177.66
216.67	-16.62	-11.49	25.52	18.76	-323.25	-185.36
225.25	-17.14	-11.90	26.04	19.09	-336.43	-193.08
233.83	-17.66	-12.31	26.54	19.41	-349.62	-200.82
242.41	-18.16	-12.72	27.03	19.72	-362.83	-208.57
250.99	-18.66	-13.12	27.50	20.03	-376.06	-216.34
259.57	-19.14	-13.52	27.95	20.32	-389.31	-224.12
268.15	-19.61	-13.91	28.39	20.61	-402.56	-231.92
276.73	-20.08	-14.30	28.82	20.89	-415.84	-239.73
285.31	-20.53	-14.69	29.23	21.15	-429.13	-247.56
293.89	-20.97	-15.07	29.63	21.42	-442.43	-255.40
302.47	-21.40	-15.44	30.01	21.67	-455.74	-263.26

Loads for Use in load Combinations						
Floor Height	Fy_{peak} kips	Fy_{mean} + 1/2 Fy_{dyn} kips	Fx_{peak} kips	Fx_{mean} + 1/2 Fx_{dyn} kips	Mz_{peak} ft-kips	Mz_{mean} + 1/2 Mz_{dyn} ft-kips
311.05	-21.83	-15.82	30.38	21.91	-469.07	-271.12
319.63	-22.24	-16.18	30.74	22.15	-482.41	-279.01
328.21	-22.64	-16.55	31.08	22.38	-495.77	-286.90
336.79	-23.04	-16.91	31.41	22.60	-509.14	-294.81
345.37	-23.42	-17.27	31.73	22.81	-522.52	-302.73
353.95	-23.80	-17.62	32.03	23.02	-535.91	-310.66
362.53	-24.17	-17.97	32.33	23.22	-549.31	-318.60
371.11	-24.54	-18.32	32.61	23.41	-562.73	-326.56
379.69	-24.89	-18.67	32.89	23.60	-576.15	-334.52
388.27	-25.99	-19.77	34.00	24.63	-602.67	-349.08
397.85	-19.74	-13.52	27.08	17.59	-637.35	-367.44

[1] For use in strength design, these loads need to be factored using the 1.6 load factor on the wind load as specified in ASCE 7.

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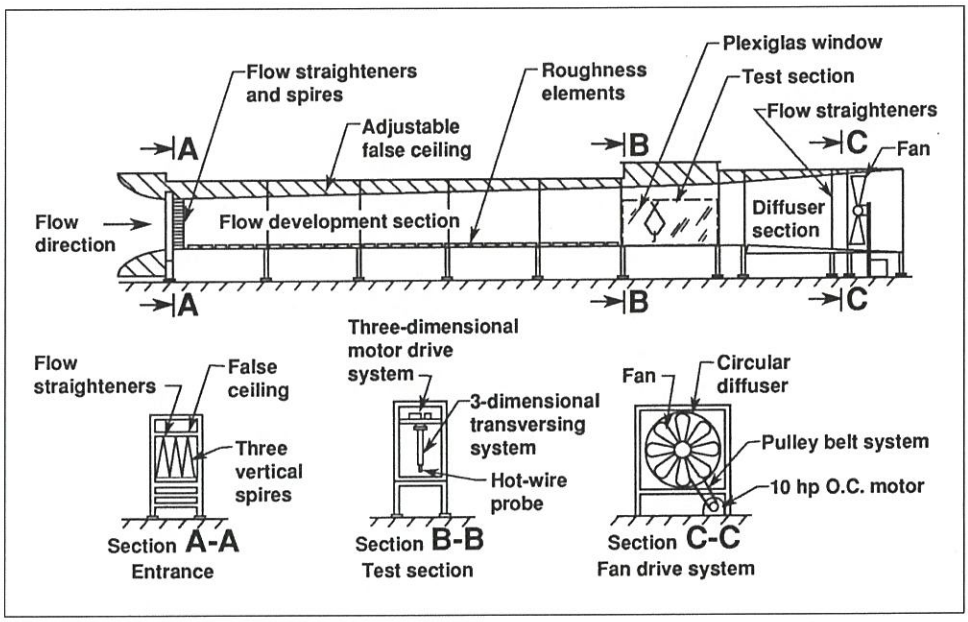
APPENDIX A

The Atmospheric Boundary Layer Wind Tunnel at Clemson University

APPENDIX A
Atmospheric Boundary Wind Tunnel at Clemson University

The boundary layer wind tunnel at Clemson University was used to conduct the wind study of the building in this project. Simulation of the Atmospheric Boundary Layer was done in two stages. First, representative approach flows were developed over a relatively long fetch of aerodynamically scaled roughness. These flows were defined in terms of the mean and turbulence property profiles of the longitudinal velocity component. Second, site-specific flows were recreated by modeling significant terrain features and buildings within a specified foot radius of the site. Horizontal variations in the flow properties at the site and the wake effects of neighboring structures were produced in this manner.

The Clemson wind tunnel has successfully simulated wind flow over a variety of terrain types and exposures, including winds over open water. Uniformity of the approach across the central eight feet of the ten foot wide tunnel has been demonstrated, as has the equilibrium of the flow throughout the turntable region. The approach flow is developed over a distance of approximately 50 feet and the initial thickness of the boundary layer is augmented by spires located at the entrance of the working section. The adjustable roof of the test section is used to allow natural development of the flow by removing pressure gradients along the length of the tunnel.



Schematic Diagram of Atmospheric Boundary Layer Wind Tunnel

APPENDIX B

Wind-Tunnel
Atmospheric Flow
Similarity
Parameters

APPENDIX B
Wind-Tunnel Atmospheric Flow Similarity Parameters

Wind-tunnel models of a particular test site are typically several orders of magnitude smaller than the full-scale size. In order to appropriately simulate atmospheric winds in a Boundary Layer Wind Tunnel (BLWT), certain flow parameters must be satisfied between a model and its corresponding full-scale equivalent. Similitude parameters can be obtained by non-dimensionalizing the equations of motion, which build the starting point for the similarity analysis. Fluid motion can be described by the following time-averaged equations.

Conservation of mass:

$$\frac{\partial \bar{U}_i}{\partial t_i} = 0 \text{ and } \frac{\partial \rho}{\partial t} + \frac{\partial(\rho \bar{U}_i)}{\partial x_i} = 0$$

Conservation of momentum:

$$\frac{\partial \bar{U}_i}{\partial t} + \bar{U}_j \frac{\partial \bar{U}_i}{\partial x_j} + 2\varepsilon_{ijk}\Omega_j \bar{U}_k = -\frac{1}{\rho_0}\frac{\partial \overline{\delta P}}{\partial x_i} - \frac{\overline{\delta T}}{T_0} g\delta_{i3} + \nu_0 \frac{\partial^2 \bar{U}_i}{\partial x_j} + \frac{\partial(\overline{-u_j u_i})}{\partial x_j}$$

Conservation of energy:

$$\frac{\partial \overline{\delta T}}{\partial t} + \bar{U}_i \frac{\partial \overline{\delta T}}{\partial x_i} = \left[\frac{\kappa_0}{\rho_0 c_{p_0}}\right] \frac{\partial^2 \overline{\delta T}}{\partial x_k \partial x_k} + \frac{\partial(-\overline{\theta u_i})}{\partial x_i} + \frac{\overline{\varphi}}{\rho_0 c_{p_0}}$$

Here, the mean quantities are represented by capital letters while the fluctuating values by small letters. δP is the deviation of pressure in a neutral atmosphere. ρ_0 and T_0 are the density and temperature of a neutral atmosphere and ν_0 is the kinematic viscosity. In the equation for the conservation of energy, ϕ is the dissipation function, $\overline{\delta T}$ is the deviation of temperature from the temperature of a neutral atmosphere, κ_0 is the thermal diffusivity, and c_{p_0} is the heat capacity.

Applying the Boussinesq density approximation, application of the equations is then restricted to fluid flows where $\overline{\delta T} << T_0$. Defining the following non-dimensional quantities and then substituting into the above equations.

$$\overline{U}_i' = \overline{U}_i / U_0 \; ; \; u_i' = u_i / U_0 \; ; \; x_i' = x_i / L_0 \; ; \; t' = tU_0 / L_0 \; ; \; \Omega_j' = \Omega_j / \Omega_0 \; ; \; \overline{\delta P}' = \overline{\delta P} / \rho_0 U_0^2 \; ;$$

$$\overline{\delta T}' = \overline{\delta T} / \delta T_0 \; ; \; g' = g / g_0 \; ; \; \overline{\varphi}' = \overline{\varphi} / \varphi_0$$

The equations of motion can be presented in the following dimensionless forms.

Continuity Equation:

$$\frac{\partial u_i'}{\partial k_i'} = 0 \text{ and } \frac{\partial \rho'}{\partial t'} + \frac{\partial (\rho' u_i')}{\partial x_i'} = 0$$

Momentum Equation:

$$\frac{\partial \overline{U}_i'}{\partial t'} + \overline{U}_j' \frac{\partial \overline{U}_i'}{\partial x_j'} + \frac{2}{Ro} \varepsilon_{ijk} \overline{U}_k' \Omega_j' = -\frac{\partial \overline{\delta P}'}{\partial x_i'} + \frac{1}{Fr^2} \overline{T}' \delta_{3i} + \frac{1}{\mathrm{Re}} \frac{\partial^2 \overline{U}_i'}{\partial x_j' \partial x_j'} + \frac{\partial (\overline{-u_j' u_i'})}{\partial x_j'}$$

Turbulent Energy Equation:

$$\frac{\partial \overline{\delta T}'}{\partial t'} + \overline{U}_i' \frac{\partial \overline{\delta T}'}{\partial x_i'} = \mathrm{Pr} \cdot \frac{1}{\mathrm{Re}} \frac{\partial^2 \overline{\delta T}'}{\partial x_k' \partial x_k'} + \frac{\partial (\overline{-\theta' u_i'})}{\partial x_i'} + \frac{1}{\mathrm{Re}} \cdot Ec \overline{\varphi}'$$

Although the continuity equation gives no similarity parameters, coefficients from both other equations do provide the following desired similarity parameters.

1. Rossby number: $R_0 \equiv U_0 / L_0 \Omega_0$
2. Densimetric Froude number: $Fr \equiv U_0 / (g L_0 \delta T_0 / T_0)^{1/2}$
3. Prandtl number: $\mathrm{Pr} \equiv \rho_0 c_{p_0} v_0 / K_0$
4. Eckert number: $Ec \equiv U_0^2 / c_{p_0} \delta T_0$
5. Reynolds number: $\mathrm{Re} \equiv U_0 L_0 / v_0$

In the dimensionless momentum equation, the Rossby number is extracted from the denominator of the third term on the left hand side. The Rossby number represents the ratio of advective acceleration to Coriolis acceleration due to the rotation of the earth. If the Rossby number is large, Coriolis accelerations are small. Since BLWTs do not rotate, the Rossby number is infinite allowing the corresponding term in

the dimensionless momentum equation to approach zero. In nature, however, the rotation of the earth influences the upper layers of the atmosphere; thus, the Rossby number is small and becomes important to match, and the corresponding term in the momentum equation is sustained.

Most modelers have assumed the Rossby number to be large, thus, neglecting the respective term in the equations of motion and ignoring the Rossby number as a criterion for modeling. Snyder (1981) showed that the characteristic length scale, L_0, must be smaller than 5 km in order to simulate diffusion under neutral or stable conditions in relatively flat terrain. Other researchers discovered similar findings. The Clemson University BLWT produces a boundary layer with a height of about two meters and the velocity spectrum is accurately modeled in the bottom meter. The Rossby number can then be ignored in this region.

Derived from the denominator of the second term on the right hand side of the dimensionless momentum equation, the square of the Froude number represents the ratio of inertial forces to buoyancy forces. High values of the Froude number infer that the inertial forces are dominant. For values equal or less than unity, thermal effects become important. Since the conditions inside the BLWT are inherently isothermal, the wind tunnel generates a neutrally stable boundary layer; hence, the Froude number is infinitely large allowing the respective term in the momentum equation to approach zero.

The third parameter is the Prandtl number, which is automatically matched between the wind-tunnel flow and full-scale winds if the same fluid is been used. The Eckert number criterion is important only in compressible flow, which is not of interest for a low-speed wind tunnel.

Reynolds number represents the ratio of inertial to viscous forces. The reduced scale of a wind tunnel model results in a Reynolds number several orders of magnitude smaller than in full scale. Thus, viscous forces are more dominant in the model than in nature. No atmospheric flow could be modeled, if strict adherence to the Reynolds number criterion was required. However, several arguments have been made to justify the use of a smaller Reynolds number in a model. These arguments include laminar flow analogy, Reynolds number independence, and dissipation scaling. With the absence of thermal and Coriolis effects, several test results have shown that the scaled model flow will be dynamically similar to the full-scale case if a critical Reynolds number is larger than a minimum independence value. The gross structure of turbulence is similar over a wide range of Reynolds numbers. The sharp edges of building models generally fix the separation points for flow around the object and consequently Reynolds number independence occurs for a wide range of values. The wind tunnel was operated at a high enough speed to be well within the range of Reynolds number independence, except for possibly the flow between the layers of the parking garage. Nearly all modelers use this approach today.

APPENDIX C

Wind-Tunnel
Atmospheric
Boundary-Layer
Similarity

APPENDIX C
Wind-Tunnel Atmospheric Boundary-Layer Similarity

Wind-tunnel simulation of the atmospheric boundary layer under neutrally stable conditions must also meet non-dimensional boundary-layer similarity parameters between the scaled-model flow and its full-scale counterpart. The most important conditions are:

1. The normalized mean velocity, turbulence intensity, and turbulent energy profiles.
2. The roughness Reynolds number, $\mathrm{Re}_z = z_0 u_* / \nu$.
3. Jensen's length-scale criterion of z_0/H.
4. The ratio of H/δ for H greater than $H/\delta > 0.2$.

In the turbulent core of a neutrally stable atmospheric boundary layer, the relationship between the local flow velocity, U, versus its corresponding height, z, may be represented by the following velocity-profile equation.

$$\frac{U}{U_\infty} = \left(\frac{z}{\delta}\right)^{\alpha}$$

Here, U_∞ is the mean velocity of the inviscid flow above the boundary layer, δ is the height of the boundary layer, and α is the power-law exponent, which represents the upwind surface conditions. Wind-tunnel flow can be shaped such that the exponent α will closely match its corresponding full-scale value, which can be determined from field measurements of the local winds. The required power-law exponent, α, can then be obtained by choosing the appropriate type and distribution of roughness elements over the wind tunnel flow-development section.

The expected wind profile at the site is expected to follow an alpha of about 0.3 for the suburban exposure wind directions and 0.15 for the open exposure wind directions. These conditions were closely modeled in the wind tunnel. A typical velocity profile is presented in Figure C1, where the simulated power-law exponent is alpha = 0.33.

In the lower 20% of the boundary layer height, the flow is then governed by a rough-wall or "law-of-the-wall" logarithmic velocity profile.

$$\frac{U}{u_*} = \frac{1}{\kappa}\ln\left(\frac{z}{z_0}\right)$$

Here, u_* is the surface friction velocity, κ is von Karman's constant, and z_o is the roughness height. This region of the atmospheric boundary layer is relatively unaffected by the Coriolis force, the only region that can be modeled accurately by the wind tunnel (i.e., the lowest 100 m of the atmospheric boundary layer under neutral stability conditions). Thus, it is desirable to have the scaled-model buildings and its surroundings contained within this layer.

The geometric scale of the model should be determined by the size of the wind tunnel, the roughness height, z_o, and the power-law index, α. With a boundary-layer height of 1 m in the test section, the surface layer would be 0.2 m deep for the wind tunnel. For the current study, this boundary layer corresponds to a full-scale height of the order of 800 m. Since the highest elevation of the modeled site investigated in this study is less than this full-scale, a majority of the model is contained in this region of full-scale similarity.

Due to scaling effects, full-scale agreement of simulated boundary-layer profiles can only be attained in wind tunnels with long flow-development sections. For full-scale matching of the normalized mean velocity profile, an upwind fetch of approximately 10 to 25 boundary-layer heights can be easily constructed. To fully simulate the normalized turbulence intensity and energy spectra profiles, the flow-development section needs to be extended to about 50 and 100 to 500 times the boundary-layer height, respectively. These profiles must at least meet full-scale similarities in the surface layer region. However, with the addition of spires and other flow tripping devices, the flow development length can be reduced to less than 20 boundary layer heights for most engineering applications.

In the wind tunnel, the maximum values of turbulence intensity near the surface range from 35% to 40%, similar to that in full scale. Thus, the turbulent intensity profile, u'/u versus z , should agree reasonably with the full-scale, particularly in the region where testing is performed. Figure C2 displays a typical turbulence intensity profile of the boundary layer in the test section.

The second boundary-layer condition involves the roughness Reynolds number, Re_z. According to the criterion given by Sutton (1949), Reynolds number independence is attained when the roughness Reynolds number is defined as follows.

$$Re_z = \frac{u_* z_0}{\nu} \geq 2.5$$

Here, u_* is the friction speed, z_0 is the surface roughness length and ν is the kinematic viscosity. Re_z larger than 2.5 ensures that the flow is aerodynamically rough. Therefore, wind tunnels with a high

enough roughness Reynolds numbers simulate full-scale aerodynamically rough flows exactly. To generate a rough surface in the wind tunnel, roughness elements are placed on the wind tunnel floor. The height of the elements must be larger than the height of the viscous sub-layer in order to trip the flow. The wind tunnel satisfies this condition, since the roughness Reynolds number is about 40, when the wind tunnel free stream velocity, U_{∞}, is equal 3.8 m/s, the friction speed, u_* is 0.24 m/s, and the roughness height, z_o, is 0.0025m. Thus, the flow setting satisfies the Re number independence criterion and dynamically simulates the flow.

To simulate the pressure distribution on objects in the atmospheric wind, Jensen (1958) found that the surface roughness to object-height ratio in the wind tunnel must be equal to that of the atmospheric boundary layer, i.e., z_o/H in the wind tunnel must match the full-scale value. Thus, the geometric scaling should be accurately modeled.

The last condition for the boundary layer is the characteristic scale height to boundary layer ratio, H/δ. There are two possibilities for the value of the ratio. If $H/\delta \geq 0.2$, then the ratios must be matched. If $(H/\delta)_{F.S.} < 0.2$, then only the general inequality of $(H/\delta)_{W.T.} < 0.2$ must be met (F.S. stands for full-scale and W.T. stands for wind tunnel). Using the law-of-the-wall logarithmic profile equation, instead of the power law velocity profile, this principle would constrain the physical model to the 10% to 15% of the wind tunnel boundary layer height.

Along with these conditions, two other constraints have to be met. First, the mean stream wise pressure gradient in the wind tunnel must be zero. Even if high- and low-pressure systems drive atmospheric boundary layer flows, the magnitude of the pressure gradient in the flow direction is negligible compared to the dynamic pressure variation caused by the boundary layer. The other constraint is that the model should not take up more than 5% to 15% of the cross-sectional area at any downwind location. This assures that local flow acceleration affecting the stream wise pressure gradient will not distort the simulation flow.

Simulations in the wind tunnel were not capable of producing stable or unstable boundary layer flows. In fact, proper simulation of unstable boundary layer flows could be a disadvantage in any wind tunnel due to the artificial secondary flows generated by the heating that dominate and distort the longitudinal mean-flow properties, thus, invalidating the similitude criteria. However, this is not considered as a major constraint, since the winds that produce annual an average dispersion are sufficiently strong, such that for flow over a complex terrain, the primary source of turbulence is due to mechanical shear and not due to diurnal or heating and cooling effects in the atmosphere.

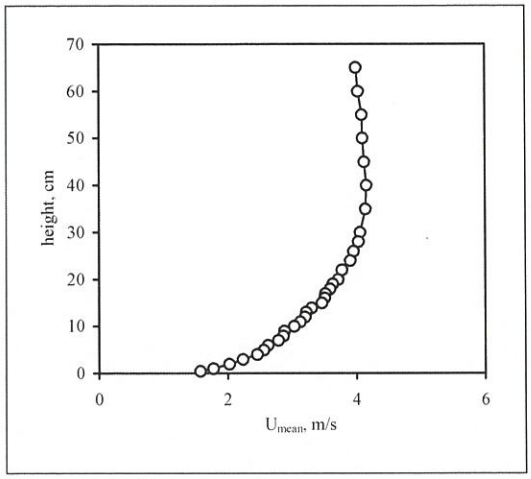


Figure C1. Mean velocity profile for a typical wind direction in the wind tunnel. The power law exponent α is 0.33. The reference velocity at 65 cm height is 3.55 m/s.

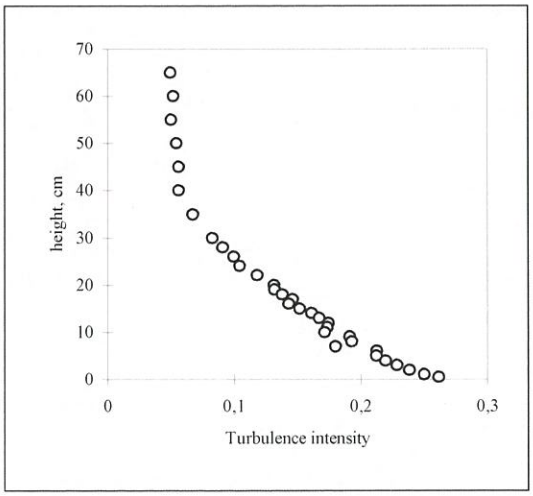
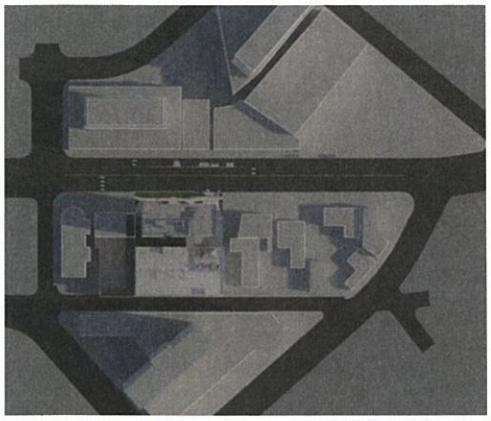


Figure C2. Turbulence intensity profile for a typical wind direction in the wind tunnel.

K. SHADOW STUDIES

KAPIOLANI RESIDENCE

1631 KAPIOLANI BOULEVARD, HONOLULU HAWAII



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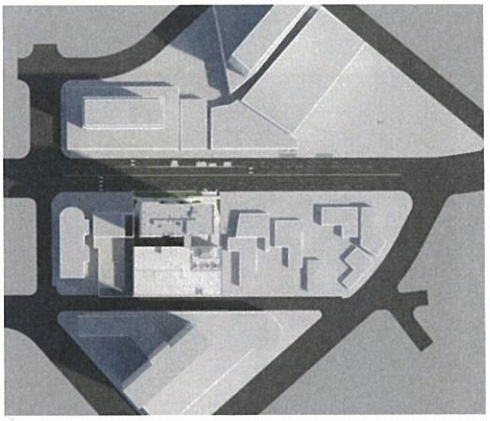

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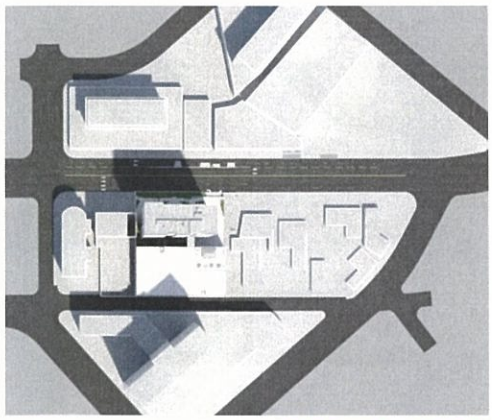

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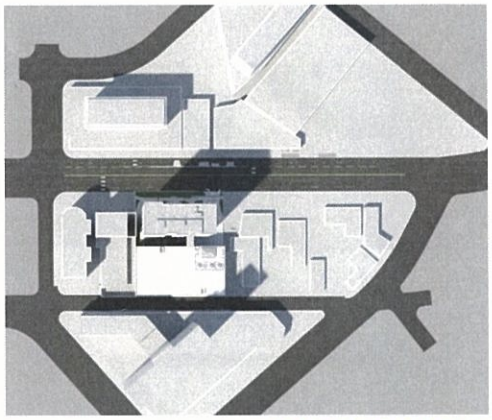

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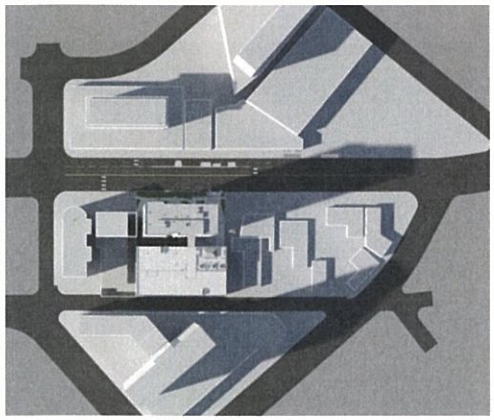

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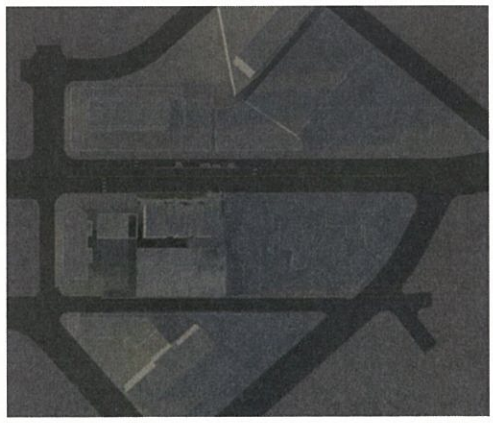

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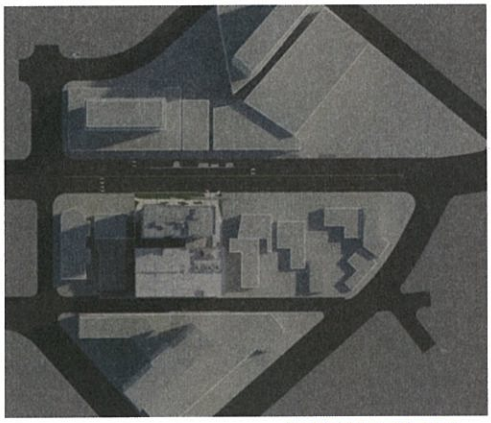

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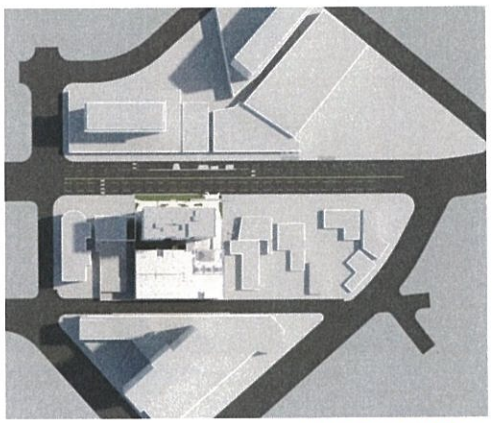

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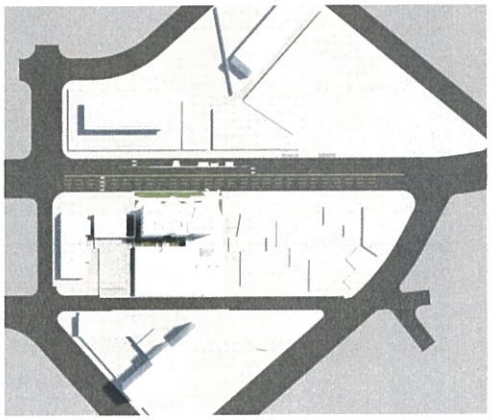

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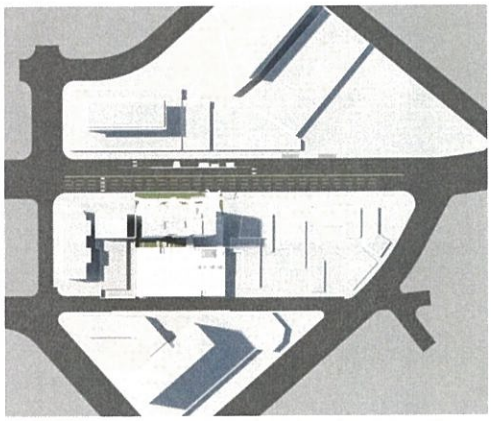

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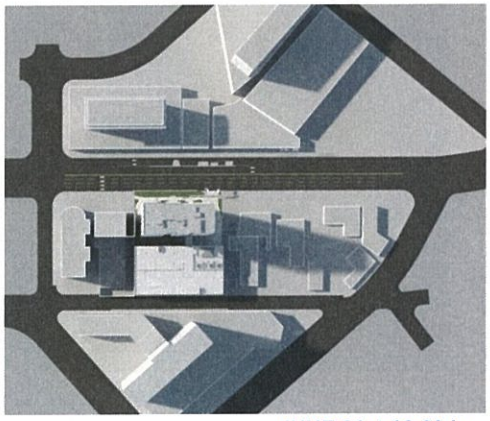

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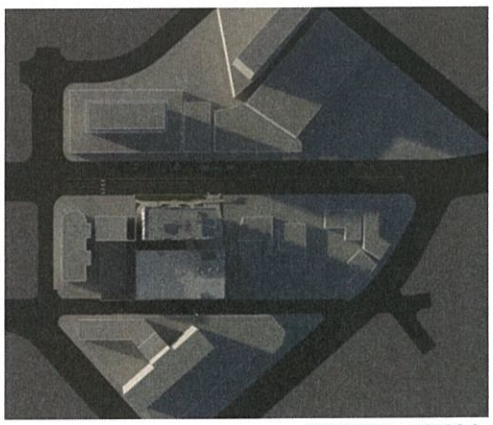

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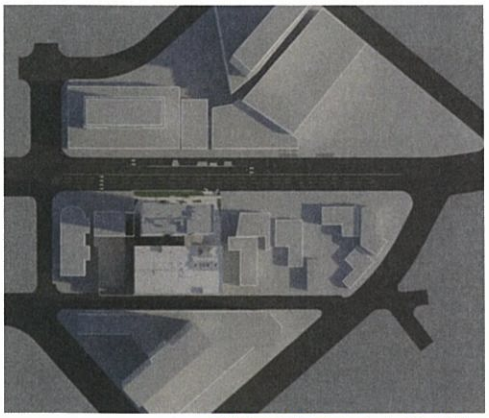
KAPIOLANI RESIDENCE

1631 KAPIOLANI BOULEVARD, HONOLULU HAWAII



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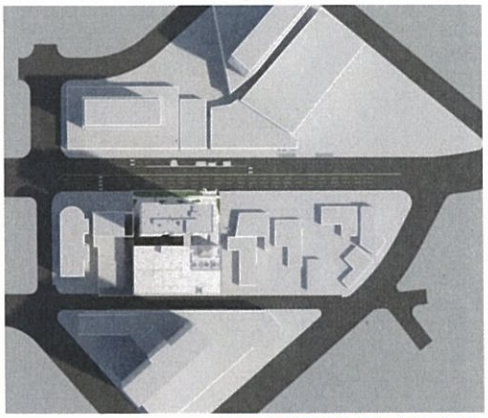

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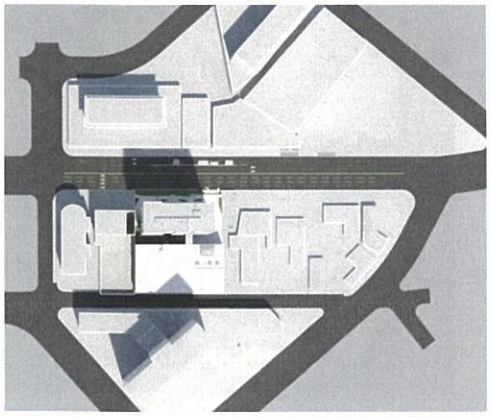

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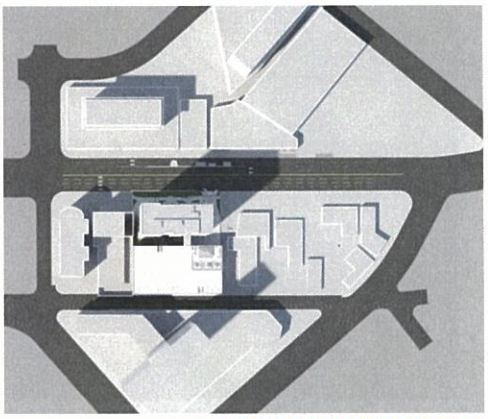

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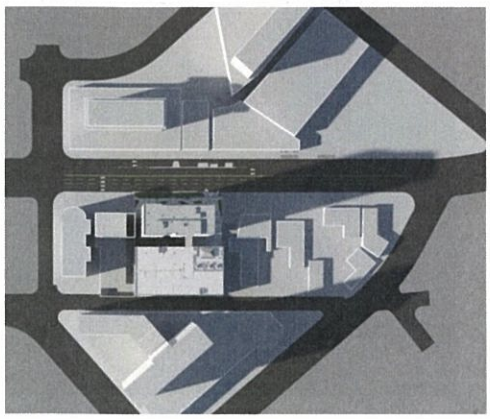

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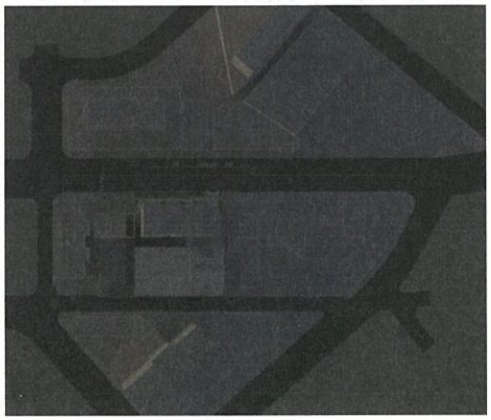

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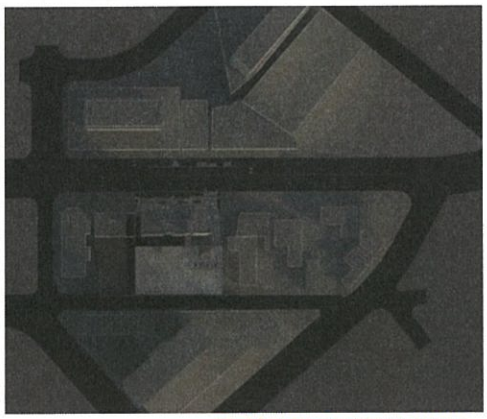

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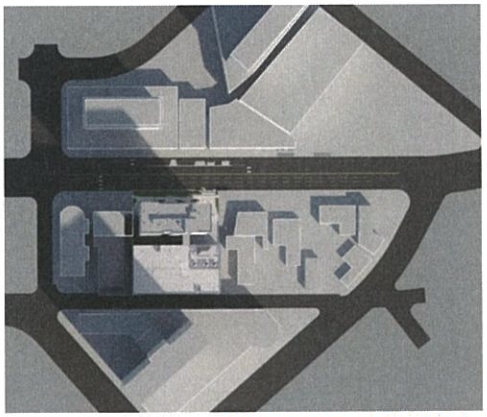

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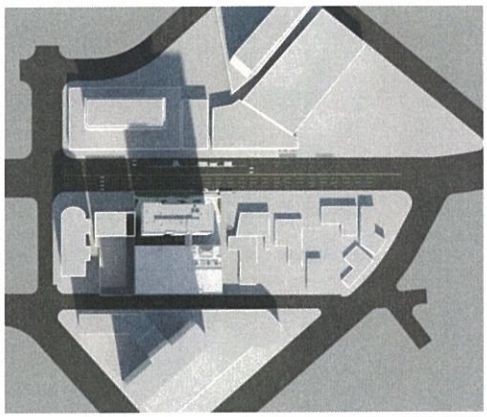

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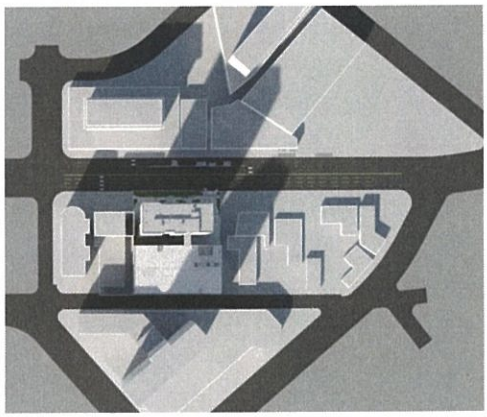

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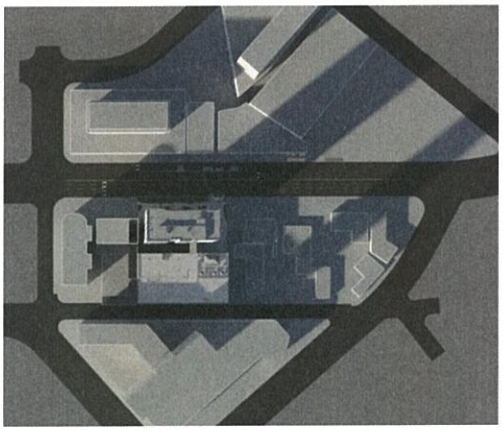

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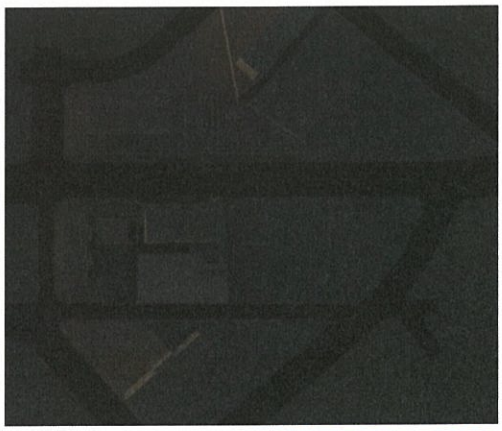

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L. COMMENT LETTERS AND RESPONSES

Appendix L: Comment Letters and Responses

Introduction

Twenty responses to the project DEA were received as of August 8, 2015. Nineteen were from State and City public agencies and one was from the Hawaiian Electric Company, Inc. Two agencies, the Honolulu Board of Water Supply and the Honolulu Authority for Rapid Transportation, referenced previous letters sent in response to the announcement of the preparation of this document. This Appendix presents the DEA responses and project replies in the following order:

State Agencies

- Office of Planning
- Hawaii Department of Defense
- Hawaii Community Development Authority
- Department of Land and Natural Resources
  - Land Division
  - Division of Forestry and Wildlife
- Department of Education
- Department of Health
- Department of Transportation
- Disability and Communication Access Board

City and County of Honolulu

- Department of Planning and Permitting
- Department of Design and Construction
- Department of Transportation Services
- Honolulu Authority for Rapid Transportation
- Department of Community Services
- Department of Facility Maintenance
- Honolulu Board of Water Supply
- Honolulu Police Department
- Honolulu Fire Department

Private Entities

- Hawaiian Electric Company, Inc.

OFFICE OF PLANNING
STATE OF HAWAII

DAVID Y. IGE
GOVERNOR

LEO R. ASUNCION
ACTING DIRECTOR
OFFICE OF PLANNING

235 South Beretania Street, 6th Floor, Honolulu, Hawaii 96813
Mailing Address: P.O. Box 2359, Honolulu, Hawaii 96804

Telephone: (808) 587-2846
Fax: (808) 587-2824
Web: http://planning.hawaii.gov/

Ref. No. P-14807

July 8, 2015

Mr. Lowell K.W. Chun
Pacific Catalyst, LLC
1296 Kapiolani Boulevard, Suite 1907
Honolulu, Hawaii 96814

Dear Mr. Chun:

Subject: Draft Environmental Assessment
Kapiolani Residence Affordable Housing Project, Honolulu, Oahu
Tax Map Keys (1) 2-3-041: 006 and: 009

Thank you for the opportunity to provide comments on the Draft Environmental Assessment (DEA) transmitted by letter dated June 2, 2015, for the Kapiolani Residence Affordable Housing Project, located at 1631 Kapiolani Boulevard, Honolulu, Oahu.

The Kapiolani Residence project, which is being processed as an affordable housing project under Hawaii Revised Statutes (HRS) Chapter 201H, is designed as a 485-unit residential condominium tower on a 1.291-acre site situated between Kapiolani Boulevard and Kona Street east of Kaheka Street near the Ala Moana Center. The project will provide a mix of affordable and market units centrally located in the Ala Moana neighborhood. Sixty percent (60%) of the units are intended for households earning eighty (80) to one hundred twenty (120) percent of U.S. Department of Housing and Urban Development's (HUD) Area Median Income. The units will be housed in a 399-foot tower fronting Kapiolani Boulevard, with commercial space on the ground floor. A separate parking structure will be located along the Kona Street frontage.

The Office of Planning (OP) has reviewed the DEA and offers the following comments related to OP program responsibilities and priorities under HRS Chapter 205A, the Coastal Zone Management Act and HRS Chapter 226, the Hawaii State Plan, and its current involvement in State agency transit-oriented development (TOD) planning.

1. General consistency with HRS Chapter 205A. The DEA does not address the project's conformity with the Hawaii Coastal Zone Management (CZM) objectives and policies found in HRS § 205A-2. HRS § 205A-1 defines the entire state as being within the coastal zone management (CZM) area. The project lies within the CZM area and must comply with CZM objectives and policies related to recreational resources, historic resources, scenic and open space resources, coastal ecosystems, economic uses, coastal hazards, managing development,

public participation, beach protection, and marine resources. The final Environmental Assessment (FEA) should include an assessment as to how the proposed project conforms to the CZM objectives and policies set forth in HRS § 205A-2.

2. Consistency with HRS Chapter 226, Hawaii State Plan. Section 4.1.1, pages 71-72 of the DEA, includes a satisfactory analysis of how the project conforms to the Hawaii State Plan objectives and policies for socio-cultural advancement – housing contained in HRS § 226-19. However, the DEA does not adequately address HRS § 226-108(2), priority guideline on sustainability to promote "living within the natural resources and limits of the State." The FEA should discuss generally in this section how the project will address this priority guideline, and also discuss in relevant parts of Chapter 3 how resource conservation and efficiency in terms of water, energy, and materials will be integrated in the project design, construction, and operation, and to what extent alternative or renewable energy technologies will be integrated into the project to reduce electricity costs for building tenants.

3. Soils and sea level rise. Section 3.3, Soils, page 40, states that groundwater is found at 4.9 - 6.0 feet below grade and the site is characterized with a surface fill layer that extends to about 4 - 6 feet below the site surface. The FEA should clarify whether the potential for groundwater level rise associated with anticipated sea level rise was considered in the environmental review process, and what impact, if any, this might have on project design, construction, and maintenance over time.

4. Stormwater management. Section 3.13.3, Drainage, pages 62-63, discusses drainage infrastructure currently in place, potential impacts, and possible mitigation measures being considered to manage stormwater runoff from the site, which is collected into the existing storm drain system that discharges into the Ala Wai Canal and thus to the ocean. Since the applicant seeks an exemption from the storm drain connection fee under HRS § 201H-38, OP recommends that the applicant demonstrate a stronger commitment in the FEA to the design and use of low impact development measures, including landscape and engineered features, to retain and treat stormwater onsite prior to discharge into offsite drainage systems.

5. Solid waste. The FEA should confirm in Section 3.13.4, Solid Waste, whether refuse collection will be done by the City, and discuss how recycling of solid wastes will be facilitated for building tenants.

6. Transit-oriented development and pedestrian-friendly urban communities. The project is within walking distance of the City's planned Ala Moana transit station, and lies within the draft Ala Moana Neighborhood Transit-Oriented Development Plan area. TOD shifts public planning emphasis to mixing uses, increasing density, and creating a public realm of public gathering places and safe and pleasant streetscapes that promote pedestrian and alternative modes of transportation to the automobile. The DEA discusses the provision of open space fronting Kapiolani Boulevard and bike racks for non-tenant use, which both complement TOD objectives.

   Consideration should be given to improving pedestrian access to the project along Kona Street since the Ala Moana transit station and transportation hub that serves the Ala Moana Center are on the Kona Street side of the project. Special treatment for street-facing sides of the parking structure should be considered to create visual interest and improve the public realm within the planned TOD area.

7. Incorporation of data in the body of the FEA. Summary data on existing conditions and anticipated demand generated by the project from the individual studies in the appendices should be incorporated into the body of the FEA to improve the discussion and analysis for the reader. The sections that would benefit from data extracted from the appendices include housing, existing school capacity, solid waste generation, and water demand. For example, the existing section on water demand provides an incomplete picture of demand, in that the maximum daily demand and peak hour demand stated in the Preliminary Engineering Report are not included in the narrative of the body of the draft.

8. Requested exemptions from statutes, ordinance, and rules. The DEA discusses a range of exemptions sought by the applicant pursuant to HRS § 201H-38. OP offers the following comments related to the discussion of exemptions from height limitations, maximum density floor area ratio (FAR) for zoning, park dedication requirements, and back- and side-yard setback requirements. Current zoning limits building heights to 350 feet and FARs to 3.5. Under the proposed zoning recommendations in the draft Ala Moana Neighborhood Transit-Oriented Development Plan, the FAR for the project area is 7.0 with bonuses for community benefits. The proposed residential/commercial tower is approximately 399 feet, and has an FAR of 9.32 inclusive of the parking structure and recreational facilities. In light of the recommendations contained in the draft TOD plan, these requests should be discussed in terms of community benefits the project will provide in addition to affordable housing, such as: a strong

commitment to the design and provision of onsite green space/open space/multi-use public space fronting Kapiolani Boulevard that could serve as a community parklet; commitment to maintenance of the tree canopy along Kapiolani Boulevard; provision of improved pedestrian access along Kona Street to promote connectivity to the Ala Moana transit station and transportation hub; and design treatments for the public-facing walls of the parking structure to create a more lively streetscape and more pedestrian-friendly environment.

9. Miscellaneous comments.

   a. Page 37, paragraph 3. The proposed Ala Moana transit station will be located on Kona Street, not Kapiolani Boulevard.

   b. Page 45, paragraph 3. The discussion of visual impacts and infrastructure concerns are out of place here.

Thank you for the opportunity to comment. If you have any questions regarding this comment letter, please contact Josh Hekekia at (808) 587-2845 or Ruby Edwards at (808) 587-2817.

Sincerely,

Leo R. Asuncion
Acting Director

c: Mr. Craig Hirai, Hawaii Housing Finance and Development Corporation

July 24, 2015

Mr. Leo Asuncion
Acting Director
Office of Planning
State of Hawaii
235 South Beretania Street
6th Floor
Honolulu, Hawaii 96813

Re: Response to State Office of Planning Comments on DEA for:
Kapiolani Residence Affordable 201H Affordable Housing Project
1631 Kapiolani Boulevard, Honolulu, Hawaii 96814
TMK: (1)2-3-041: 006 & 009

Dear Mr. Asuncion:

Thank you for your July 8, 2015 comments on the above-referenced DEA. We appreciate the thought and attention committed to its examination. Our responses generally follow the sequence in which your comments have been offered.

1. **General Consistency with HRS Chapter 205A:** The FEA will assess conformance with CZM objectives and policies.

2. **Consistency with HRS Chapter 26, Hawaii State Plan:** The FEA will address its relationship to the HRS, Chapter 226-108(2) guideline on sustainability and applicable sustainability and resource conservation measures incorporated into the project to date.

3. **Soils and Sea Level Rise:** The FEA will address this issue. Since Kapiolani Residence is a major high-rise structure, groundwater and its influence on soil behavior has already been assumed as a factor to which foundation design must respond.

   The project site existing ground elevation ranges between 5.1 – 7.1 mean sea level (msl). The School of Ocean and Earth Science Technology ("SOEST", at the University of Hawaii at Manoa), in its opening Summary, states that

   > *Research currently indicates that global mean sea level may reach approximately 1 ft by mid-century and 2.5 to 6.2 ft by the end of the century, but there are significant unknowns in predicting future sea level. It is recommended that local decision-makers implement sea level rise adaptation programs. Based on present understanding, an appropriate planning target would include a sea level benchmark of 1 ft by mid-century and into the lower end (about 3ft) of 2.5 to 6.2 ft by the end of the century.*

   Given a potential 3-foot rise in sea level by the year 2100, the potential rise in groundwater is not likely to reach the elevation of existing grade and certainly not the elevation of final design grades, which will be set in compliance with City standards. Mapped estimates of sea level rise presented on the SOEST website show no inundation of the project site given a possible year 2100 three-foot sea level rise.

Evaluation by the project civil engineering consultant has generated the following additional findings on this subject:

The project site is located approximately 2,700 feet from the shore, and the topography of the site ranges from 5-7 feet above mean sea level. Based on the proximity to the shore and the distance from the ocean, it is anticipated that sea-level rise will not impact the development for the foreseeable future. Furthermore, between the project site and the ocean are various structures and features that serve as buffers to the effects of sea level change.

Detailed design of the site will take into consideration the groundwater level and the potential for its rise. It is anticipated that the new underground wet utility systems (water, sewer, and drainage) will not be impacted by sea level rise, due to the design of finished grades and topography, and the inland location of the project site.

4. **Stormwater Management:** As you have cited, we have identified stormwater mitigation measures being considered for the project. As we have stated, they include landscaped areas to reduce the amount of onsite impervious surface and where possible, mitigation measures using natural runoff control such as bio-infiltration areas in addition to the planned landscaping treatment. Additional measures will include treatment systems and site design that will reduce the amount of current runoff volumes.

   Detailed civil engineering design will incorporate principles of low impact design. Treatment systems will be used to capture sediments from entering the adjacent City system. Final design grades and site topography will be such that the design storm will be contained onsite as required by City and County of Honolulu rules and regulations. The design of the site will feature grassed or permeable areas that will reduce runoff to lower quantities than that produced by existing conditions, in keeping with the requirements of stormwater management and principles of low impact design.

   Given the potential for sea level rise and the accompanying potential rise in groundwater elevation, the optimum long-term method of stormwater management may be a combination of the above methodologies and the structured municipal drainage system rather than principal reliance on stormwater interception, detention, filtration, and percolation, since a rise in groundwater would probably eventually impede effective percolation of stormwaters detained onsite.

5. **Solid Waste:** We are currently assuming municipal trash collection services for this project, although this is an operational issue that in the long-term will be decided by the project's future AOAO. In a for-sale project, solid waste management and recycling programs are issues customarily addressed and decided by the AOAO formed by project unit owners. Therefore, while project design can provide for the means and space for collection of solid waste and proper access to solid waste containers, how the waste is collected, whether and how it is separated into recyclable and non-recyclable wastes, or whether any of it is recycled onsite for conversion to project needs remains the decision and action of the future project unit owners.

6. **Transit-Oriented development and pedestrian-friendly urban communities:** *Consideration for improving pedestrian access to the project along Kona Street for connections to the Kona Street transportation hub and the Ala Moana transit station:* In studying the attributes of Kona Street and consulting with General Growth Properties, the

owner of Ala Moana Center and Kona Street, we have concluded that whatever improvements the project might implement along its own Kona Street frontage for pedestrian use, the street as a whole is hazardous to pedestrian use, and that such usage should not be encouraged.

Kona Street is currently narrow and heavily travelled by a mixture of personal automobiles and large service vehicles, including City buses, private Tour buses, and large delivery and service trucks. Many of the larger vehicles have limited visibility. In addition, the mauka side of Kona Street between Kapiolani Residence and the bus and HART station locations is interrupted by the intersection of two heavily travelled streets: Mahukona and Keeaumoku, numerous service driveways, and a large private bus terminal with a frontage dominated by driveway width. On Kona Street's makai side near the Keeaumoku Street intersection, a ramp descending from the upper floors of the Ala Moana Center parking garage feeding toward Keeaumoku Street adds to the aforementioned set of pedestrian hazards. With these attributes, Kona Street is clearly hazardous to pedestrian use.

Kapiolani Boulevard, with its current and projected improvements for pedestrian circulation and amenities, is a far safer route between Kapiolani Residence and the two transportation nodes in question. Pedestrians walking along Kapiolani Boulevard toward the Kona Street transportation hub could turn makai on the Diamond Head side of Keeauomoku Street as it enters Ala Moana Center toward the transportation hub. They could turn makai on the Diamond Head side of Konaiki Street to the future Ala Moana transit station when it is operational.

Given its current pedestrian orientation and City intent to enhance its pedestrian accommodation capabilities, Kapiolani Boulevard would be a more pleasant and much safer route to these two transportation facilities.

Further design treatment of the Kona Street-facing surfaces of the project parking structure, including screening and surface texturing or patterning will be studied, selected, and undertaken as project design proceeds to more detailed and technical levels.

7. **Incorporation of Data in the Body of the FEA:** In response to your request, we will incorporate data from technical studies as appropriate into the body of the FEA.

8. **Requested Exemptions from Statutes, Ordinance, and Rules:** Kapiolani Residence is a 201H Affordable Housing project. It is not a TOD project being developed in accordance with the City's draft Ala Moana TOD Plan, although it reflects aspects of the Plan's intent in terms of building height, enhancement of the pedestrian environment, emphasis on pedestrian circulation at the street level, support for alternative modes of transportation, and most importantly, the contribution of a significant, predominantly affordably targeted residential component (60% of its units are intended to be made available to households earning 80% - 120% of Area Median Income [AMI]) to the City's intended mixed-use TOD district.

   The decision to create a predominantly affordable housing rather than a market project at this central location on a high-value site with access to a wide selection of urban lifestyle support services and facilities highlights the value of this project as a community contribution. In addition to its presence as an affordable housing project, Kapiolani Residence worked with the HHFDC to provide as many family-accommodating units as economically feasible and with its internal design team to configure its units to satisfy more

than minimum standards, but rather, to adequately accommodate actual functional needs of its future occupants. As a result, nearly half of its affordable and nearly half of total project units consist of 2- and 3- bedroom units, with spaces sized and configured to accommodate lifestyle functions where opportunity allowed for such provisions. Such accommodations include layout and storage space for domestic laundry activities through the provision of utility rooms rather than washer/dryer closets, the provision of frequently neglected household utility storage spaces, and the design of unit entries to provide unit residents with a measure of privacy when receiving callers. In addition, the exterior walls of all habitable spaces have been equipped with window openings except where structural walls were required in order to maximize opportunities for visual exposure to the outdoors and for natural ventilation through operable windows and lanais. These provisions can be seen in the schematic plans for over half the units on each project residential floor.

The project FAR is 9.32, a result of project economic needs, but this FAR has been absorbed into a single slim tower 399.5 feet tall (comparable to draft TOD prescriptions and the height of the long-standing, adjacent Ala Moana Hotel) set back from Kapiolani Boulevard to reduce its streetside visual presence and to enable effective screening, when viewed at street level, by the broad canopies of the existing monkeypod trees which line the project frontage.

In addition, this FAR has enabled the provision of approximately 64% more affordable units or 63.3% more total units than might have been achievable under the standard BMX-3 zoning regulations. A preliminary site capacity study of BMX-3 capabilities suggests that the project as proposed: 485 total units, of which 292 units are affordable, can provide as many as 188 more total units of which there are 114 more affordable units than would be achievable under current BMX-3 standards.

In addition to the accommodation of affordable housing units, the design of Kapiolani Residence emphasizes the pedestrian environment along its Kapiolani Boulevard frontage by providing widened sidewalks and a public plaza separated from the circulation zone by landscaping that will allow passersby the opportunity for interludes of leisure and relief from future intensities of pedestrian traffic, facilities for sitting and relaxing, and opportunities for interaction with the commercial enterprises along the project's frontage. With these attributes, this public plaza could become the first of a fine-textured network of small open spaces which not offer not only opportunities for leisure, contemplation, and passive forms of recreation, but elements of relief from the imposing masses of the emerging district's built environment.

The design of the facilities and grounds of Kapiolani Residence makes use of both the existing monkeypods and the creation of new landscaping as part of its total palette of design elements to shape the quality of the urban setting it intends. While project drawings as presented show only a schematic indication of these elements and how they are intended to interrelate, further definition of the project will elaborate on these currently diagrammatic representations.

Creating a project with the above attributes results in a project with very tight financial constraints for which the requested exemptions and deferrals are needed. For this reason, we continue to respectfully request that the project be granted the exemption and deferral requests as presented.

9. **Miscellaneous Comments:**

   a. Page 37, paragraph 3: Location of the Ala Moana transit station: Thank you for pointing this out. "Kapiolani Boulevard" which was intended to be a modifier for the location of the bank, was misplaced in the sentence. This will be corrected.

   b. Page 45, paragraph 3: Discussion of visual impacts and infrastructure out of place: Because its "Area of Probable Impact" covered the location and environs of the Kapiolani Residence site, the *Cultural Impact Assessment for the Kakaako Community Development District Mauka Area Plan, Waikiki Ahupuaa, Honolulu (Kona) District, Oahu Island* was consulted for this DEA.

      It recommended that *"proposed development plans not impinge on view corridors and green spaces*" (p.1985, item 3.) and that "*project proponents address infrastructure concerns".*

We hope the foregoing material adequately addresses your concerns. If you have questions about any of this, please feel free to contact me via the contact information below. Thank you again, for your time and attention to the Kapiolani Residence Draft Environmental Assessment.

Sincerely yours,

Lowell K.W. Chun
President, Pacific Catalyst LLC
1296 Kapiolani Blvd., #1907
Honolulu, Hawaii 96813

DAVID Y. IGE
GOVERNOR

ARTHUR J. LOGAN
BRIGADIER GENERAL
ADJUTANT GENERAL

KENNETH S. HARA
COLONEL
DEPUTY ADJUTANT GENERAL

STATE OF HAWAII
DEPARTMENT OF DEFENSE
OFFICE OF THE ADJUTANT GENERAL
3949 DIAMOND HEAD ROAD
HONOLULU, HAWAII 96816-4495

June 25, 2015

Mr. Lowell K.W. Chun
Pacific Catalyst LLC
1296 Kapiolani Blouvard
Honolulu, Hawai'i 96814

Attn: Mr. Chun

Subject: Kapiolani Residence Affordable Housing Project
1631 Kapiolani Boulevard
TMK: 2-3-041:009 and 2-3-041:006, 201H & DURF Project
Draft Environmental Assessment

Dear Mr. Chun,

Thank you for the opportunity to comment on the above project. The State of Hawaii Department of Defense has no comments to offer relative to the project.

If you have any questions or concerns please have your staff contact Mr. Lloyd Maki, Assistant Chief Engineering Officer at (808) 733-4250.

Sincerely,

ARTHUR J. LOGAN
Brigadier General
Hawaii National Guard
Adjutant General

c: Ms. Havinne Okamura, Hawaii Emergency Management Agency

July 27, 2015

Arthur Logan
Brigadier General
Hawaii National Guard
Adjutant General
Department of Defense
Office of the Adjutant General
3949 Diamond Head Road
Honolulu, Hawaii 96816-4495

Re: Response to Hawaii Department of Defense Review of DEA for:
Kapiolani Residence Affordable 201H Affordable Housing Project
1631 Kapiolani Boulevard, Honolulu, Hawaii 96814
TMK: (1)2-3-041: 006 & 009

Dear General Logan:

Thank you for your organization's review of the above-referenced DEA. We have noted that your Department has no comments on it at this time. Should you have further thoughts or insights on the subject project in the future, please feel free to contact me via the contact information below.

Sincerely yours,

Lowell K.W. Chun
President, Pacific Catalyst LLC
1296 Kapiolani Blvd., #1907
Honolulu, Hawaii 96813

HAWAII COMMUNITY
DEVELOPMENT AUTHORITY

KAKAAKO
KALAELOA

David Y. Ige
Governor

John Whalen
Chairperson

Anthony J. H. Ching
Executive Director

547 Queen Street
Honolulu, Hawaii
96813

Telephone
(808) 594-0300

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E-Mail
contact@hcdaweb.org

Web site
www.hcdaweb.org

Ref. No.: PL GEN 1.19.3

June 30, 2015

Mr. Lowell K. W. Chun
Pacific Catalyst LLC
1296 Kapiolani Boulevard, Suite 1907
Honolulu, Hawaii 96814

Dear Mr. Chun:

Re: Draft Environmental Assessment for the Proposed
Kapiolani Residence Project, 1631 Kapiolani Boulevard,
Tax Map Keys ("TMKs"): (1)2-3-041: 006 and 009

The Hawaii Community Development Authority ("HCDA") has received a letter from Pacific Catalyst LLC, dated June 2, 2015, requesting comment on the Draft Environmental Assessment ("EA") published on June 8, 2015 for the proposed residential development at Kapiolani Boulevard ("Project") located at 1631 Kapiolani Boulevard (TMKs: (1)2-3-041: 006 and 009).

As stated in the EA, the Project is 417.5-foot high rise, 45-story residential tower with ground floor commercial spaces and a 695 stall, 9-story detached parking garaged fronting Kona Street. It is noted that the Project density is 9.32 floor area ratio ("FAR"). The Project appears to exceed the height and density as provided in the City and County of Honolulu ("City") Land Use Ordinance and is seeking variance for height and density.

The EA identifies that the Project will nearly triple the allowed density of 3.5 FAR to 9.32 FAR. The implication of such a sizeable increase in floor area is that the building footprint inflates to a substantial and imposing structure on the site, with clear impact to adjacent sites and shared local infrastructure.

The EA raises the issue of preserving views of natural features and landmarks, as referenced in the City's Primary Urban Core Development Plan. The Project tower orientation parallel to Kapiolani Boulevard (Ewa-Diamond Head direction) appears to be in contradiction with Sections 3.1.2 and 3.1.3.3 of the PUC Development Plan which state policies for preserving Mauka-Makai views. The view impact is worsened by the proposed increase in height to 417.5 feet beyond what is allowed at 350 feet.

It is noted that the Project site will be approximately ¼ mile from the planned Ala Moana rail station. Also, the EA addresses the fact the Project is equally proximal to an existing hub for buses at Ala Moana Center, including routes C, 6, 8, 23, 40, 52, 53, 55, 56, 57, 57A, 62, 65 and 88A. As a Project that purports benefits from proximity to planned rail site and is touted as a Transit-Oriented Development ("TOD") Project, it is questionable how providing 695 parking stall garage – or approximately 1.5 stalls per unit – will encourage ridership among residents of an affordable housing project to use public transit options such as rail or bus. The proposed amount of parking for the affordable housing Project appears comparable if not greater than other market projects that are farther away than ¼ mile from planned rail station. Providing 1 to 2 parking stalls per unit in an affordable housing project, when there is multitude of existing and planned transit options immediately nearby, adds unnecessary costs to each unit and reduces affordability. Also, the Project contends that increased FAR and height is needed to make the Project financially feasible – yet, a substantial amount of the site is dedicated to detached parking garage. The draft July 2014 Ala Moana Neighborhood TOD Plan elaborates on parking standards to reduce parking requirements by at least 50%, therefore, the Project which proposes about 20% reduction from the otherwise 851 required off-street parking stalls appeaars to be inconsistent with the City's TOD plan .

It is noted that the Project will provide a mix of unit types, including studio, one-, two-, and three-bedroom units. It is noted that the affordability of 60% or 292 units will be priced between 80% and 120% area median income (AMI), and the remaining 193 units will be offered for sale at market prices.

It is acknowledged that the Project will utilize the Hawaii Revised Statutes §201H-38 provision granted to affordable housing projects to request exemptions from zoning requirements. The EA references some 201H application information and requested Project exemptions. The general basis for the requested exemptions seem to relate to the prohibitive land cost for the Project. The Final EA should clearly weigh the requested exemptions and how they would contribute specifically to resulting impacts.

While the EA describes the Project as having a "front" to Kapiolani Boulevard and a "back" to Kona Street, it is unclear how pedestrian access is planned between the Project and the nearby Ala Moana rail station site and existing

bus routes on Kona Street – since the most direct walking route will be along Kona Street. The EA explains that "project physical requirements have precluded sidewalk along its Kona Street edge". Furthermore, the EA and the Traffic Impact Analysis Report both note that the Project site is located in the middle of a large city "superblock" with few to no midblock crossings. To this regard, there is an apparent disregard for pedestrian frontage and access along Kona Street, which creates clear safety impacts that should be addressed.

The Project plans show interior ground floor bicycle parking being provided by access of the parking garage driveway which poses possible safety issue as a conflict point for vehicles and cyclists. The EA states that the Project intends to provide publically accessible bicycle storage racks for public use; however, it is not clearly indicated on Project plans. As a TOD Project, it would be beneficial to provide visible and accessible visitor bicycle parking exterior of the building. It may be prudent to consider locating bike share station on Project site.

The EA does not address if the Project proposes to meet any green building standards. Failing to consider basic best practices for sustainable design, including passive strategies that afford natural daylight and ventilation, can be reasonably assumed to result in clear environmental impacts as well as affordability impacts. The Final EA should clearly describe how the Project considers sustainable design as well as low impact design (LID).

It is our understanding that the City is in the process of adopting Ala Moana Neighborhood TOD plan and the City Ordinance number 14-10 provides for interim planned development projects. Based on our review of the draft Ala Moana Neighborhood TOD Plan the proposed Project appears to be inconsistent with many of the planning and design concepts championed by the TOD Plan. It appears that purpose of Ordinance 14-10 is to define a regulatory path for catalytic TOD projects prior to the adoption and implementation of the individual neighborhood TOD plans and TOD development regulations. Ordinance 14-10 provides a new, interim permit process to facilitate creative development and redevelopment in transit enhanced neighborhoods within close proximity to future rail stations. The proposed Project is located within the Ala Moana Neighborhood TOD district and adjacent to the transit station but does not appear to have taken advantage of Ordinance 14-10.

Should you have any additional questions regarding this matter, please contact Mr. Daniel Simonich by phone at 594-0300.

Sincerely,

Anthony J. H. Ching
Executive Director

AJHC/DN/DS:ak

July 21, 2015

Mr. Anthony J.H. Ching
Executive Director
Hawaii Community Development Authority
547 Queen Street
Honolulu, Hawaii 96813

Re: Response to HCDA Comments on DEA for:
Kapiolani Residence Affordable 201H Affordable Housing Project
1631 Kapiolani Boulevard, Honolulu, Hawaii 96814
TMK: (1)2-3-041: 006 & 009

Dear Mr. Ching:

Thank you for your June 30, 2015 comments on the above-referenced DEA. We appreciate the consideration evident in their content. Our responses generally follow the sequence in which your agency's comments have been offered.

1. **Project Physical Characteristics:** Kapiolani Residence is a project developed in accordance with the Hawaii Revised Statutes (HRS) Section 201H-38, expedited housing development process which allows eligible 201H projects to seek exemptions from all statutes, ordinances, and rules of any governmental agency relating to planning, zoning, and construction standards that do not negatively affect the health and safety of the general public in exchange for providing affordable housing.

   In recognition that it would be a predominantly affordable housing project located within the City's projected "Ala Moana Transit-Oriented Development (TOD) Neighborhood", Kapiolani Residence was consciously configured to reflect the *general intent* of the City's draft "Ala Moana Neighborhood TOD Plan" (TOD Plan) with adjustments to accommodate the economic demands of a predominantly affordable housing project on a prime, centrally-located, high-value site, and to respond to urban design considerations of its immediate context.

   It responds to TOD Plan intentions to increase building scale and land use intensity to accommodate higher levels of urban activity, by contributing a significant residential component to the mixture of compatible uses envisioned for the intended TOD district, and by shaping its streetscape frontage to accommodate and emphasize pedestrian usage of its circulation and public plaza spaces.

   It also intends the major portion (60%) of its residential units to be affordable, in support of State and City affordable housing objectives and City TOD objectives. Its affordable units are currently intended for households earning 80% - 120% of Area Median Income. In addition and through dialogue with HHFDC, the project also attempts to accommodate, as much as possible, family households. Nearly one-half of its units consist of two- and three-bedroom units intended to accommodate the needs of active families. As with all projects, it must do this in a way that achieves project economic feasibility.

   The project shaped by these intentions reflects the general intent of the Ala Moana TOD Plan in terms of building scale, the creation of pedestrian emphasis in its design of the

streetscape environment, and the accommodation of other modes of transportation, including bicycle and proximity to public transit in addition to the automobile while offering the project's future residents the ability to choose among the alternatives. It achieves this while remaining primarily a 201H affordable housing project.

Results of these efforts are reflected in the residential tower's height. The height of the main tower is proposed at 399.5 feet, which, with the addition of its 18-foot tall elevator housing, gives it to a total height of 417.5 feet, approximately the same height of the directly adjacent and long-standing Ala Moana Hotel. The project's tower height is also consistent with the proposed Ala Moana TOD Plan building height limit for this portion of the Ala Moana TOD, which has been set at 400 feet exclusive of the height of appurtenant mechanical equipment.

Project economic demands required sufficient density to accommodate the unit count needed for project economic feasibility, resulting in a proposed Floor Area Ratio (FAR) of 9.32, a density ratio about 2.7 times greater than the underlying and soon to be superceded BMX-3 zoning but only about 33% greater than the proposed TOD FAR of 7.0.

The siting of the tower departs from the proposed TOD Plan in response to urban design considerations. Instead of being oriented mauka-makai, which would have resulted in future project residents having an adjacent tower end wall or face as the primary near-view element (a result of the parcelization characteristics of the project's context), the Kapiolani Residence tower has been oriented parallel to Kapiolani Boulevard and set back from the street. This not only replaces the tower-facing near views with mauka and makai views, but also allows the tower to recede visually from the street and to use Kapiolani Boulevard's existing monkeypods with their uniquely lush, wide-spreading canopies as both a foreground and a visual screen for the tower's presence. It is our belief that siting the tower in this way renders it less intrusive than it would have been if oriented mauka-makai. The orientation also improves the customer appeal of the units and provides an opportunity to create a landscaped public plaza designed as a respite from the frenetic pace of urban activity and one element of a potential fine-textured fabric of small open spaces that could serve, both individually and collectively, to balance and soften the predominantly hard lines of the built environment.

Finally, as stated in the project's Preliminary Engineering Report, presented as Appendix H of the DEA, water, sewer, and electrical utilities have been found present and adequate for proposed project requirements.

2. **The City PUC Development Plan:** *Preserving Views of Natural Features and Landmarks*: As you are, we are also cognizant of the need to preserve views of natural features, and of the guidance provided in Sections 3.1.2 and 3.1.3.3 of the City's PUC Development Plan (PUC DP), which addresses the need to preserve important panoramic views from significant public vantage points. Important views and their vantage points are illustrated in Figure 3.1 of the PUC DP. The view and public vantage point relevant to the Kapiolani Residence location as shown in the PUC DP is the view of the Koolau Mountains from Aina Moana Park (the "Magic Island" portion of Ala Moana Park).

   As previously mentioned, the directly adjacent (and directly makai) Ala Moana Hotel is approximately the same height as the proposed Kapiolani Residence, and has a broader horizontal profile than Kapiolani Residence. As cited in Section 3.7: *Visual Resources* of the draft Environmental Assessment, with its position relative to the subject project, the

hotel effectively blocks any view of Kapiolani Residence from the Aina Moana Park vantage point. Given this condition, Kapiolani Residence does not block this important view.

In addition, by being positioned parallel to and set back from Kapiolani Boulevard, Kapiolani Residence not only minimizes its visual presence: it avoids intruding on any view from a vantage point along Kapiolani Boulevard toward any distant landmarks or panoramas that might be of interest.

3. **Kapiolani Residence Proposed Parking Provisions:** The Kapiolani Residence project is a predominantly affordable housing project developed and to be processed as such under Chapter 201H, Hawaii Revised Statutes. While the draft Environmental Assessment has cited its location in an area intended by the City and County of Honolulu as a future Transit-Oriented Development neighborhood and while aspects of the project itself have been configured to generally support the intent of the City's draft TOD plan for Ala Moana, it is not and has not been presented as a Transit-Oriented Development project.

   One aspect in which the project intends to support the draft Ala Moana TOD plan is in the reduction of offstreet parking stalls. However, during the development of the project, it was recognized that preferences with regard to conveniences like offstreet parking do not change overnight, but rather, over time, and that Kapiolani Residence's potential market will probably consist of individuals with a range of attitudes toward urban living, a range of preferences toward modes of transportation, and consequently a range of preferences with regard to parking spaces available for personal automobiles. Given this, parking as proposed by Kapiolani Residence appears to be the wisest course of action for satisfying this range of customer preferences and facilitating project viability.

   Therefore, to maintain the project's marketability to its potential target markets, the project proposes parking in lower quantities than specified by the City's existing Land Use Ordinance (LUO) but higher than proposed by the draft Ala Moana TOD Plan to allow for this range of customer preferences. Evidence of the apparent range of preferences with regard to parking is the fact that a project currently being developed with reduced parking provisions for affordable units experienced challenges with the sale of those units for a number of reasons, one of them apparently being a perceived lack of choices in the number of parking stalls available to certain affordable units. Finally, it is probably unlikely that Kapiolani Residence parking provisions would match or exceed the parking provisions of market-oriented projects developed and compliant with the provisions of the City's Land Use Ordinance, regardless of location, since those projects would have had to comply with LUO offstreet parking requirements.

4. **Estimated Impacts of Project Exemptions:** Although not explicitly stated, the basis for requested exemptions is not solely the high land costs, although that is one very important factor. Other factors include the provision of larger unit types adequately sized and configured to accommodate the needs of families as well as individuals, and onsite amenities intended to meet resident needs and the needs of the larger community. As a result, the financial feasibility of Kapiolani Residence, as an affordable housing project which intends to accomplish the aforementioned objectives as well, would be greatly facilitated by the elimination of customary development standards and required development and plan review fees.

   As proposed, Kapiolani Residence, with its total of 485 units, 292 of which would be affordable, has the potential of supplying the Ala Moana area with an estimated 63% or 188

more total units and approximately 64% or 114 more affordable units than developing under the provisions of the City's existing BMX-3 development standards for the site. This is outlined in the EA in Section 6.2: *Development in Accordance with LUO and Park Dedication Standards and Requirements.*

As previously mentioned, water, sewer, and electrical utilities are currently available and adequate for the project as proposed. Estimated impacts of fee exemptions are as stated in Table 5.3: *Summary Table of Requested Exemptions and Deferrals.*

5. **Separate Residential Tower and Parking Garage:** It has been observed that while we have stated that the project requires increased height and FAR to achieve financial feasibility, we have also used substantial site area by separating the residential tower and parking garage. There seems to be a perception that these may be conflicting actions.

   As a predominantly affordable project on a high value site, it is necessary to achieve a volume of return sufficient to cover project costs while maintaining the maximum cost efficiencies consistent with the achievement of the product quality we intend. Separating the residential tower and parking garage is one of the most effective ways to do this. Residential and parking facility structural systems have very different requirements that are directly reflected in the design and spacing of their supporting structural components: principally their beams and columns. Commingling the two very different and often incompatible structural systems by combining the tower and garage would require compromises and accommodations between the two systems which would typically increase project cost, reduce unit count, and may result in a larger garage footprint.

   Therefore, keeping the tower and parking garage as two separate, freestanding elements is not only the best way to achieve product quality while maintaining its intended affordability, it is an effective use of resources at the site.

6. **Pedestrian Access to the Future Hart Station and the Existing Kona Street Bus Transfer Point**: Although both the future HART station and the existing bus stop and transfer point are located on Kona Street, the safest direct pedestrian access to both these facilities is along Kapiolani Boulevard, not Kona Street. Kapiolani Boulevard has been designed for and currently accommodates pedestrian traffic of varying volumes, depending on location, and is intended by the draft TOD plan to be further enhanced to emphasize pedestrian use.

   Kona Street is currently narrow and heavily travelled by a mixture of personal automobiles and large service vehicles, including City buses, private Tour buses, and large delivery and service trucks. Many of the larger vehicles have limited visibility. In addition, the mauka side of Kona Street between Kapiolani Residence and the bus and HART station locations is interrupted with the intersection of two heavily travelled streets: Mahukona and Keeaumoku, numerous service driveways, and a large bus terminal with a frontage dominated by driveway width. On Kona Street's makai side near the Keeaumoku Street intersection, a ramp descending from the upper floors of the Ala Moana Center parking garage feeding toward Keeaumoku Street adds to the aforementioned set of pedestrian hazards. With these attributes, Kona Street is hazardous to pedestrian use.

   Kapiolani Boulevard, with its current and projected improvements for pedestrian circulation and amenities, is a far safer route between Kapiolani Residence and the two transportation nodes in question.

7. **Bicycle Storage Provisions:** Thank you for your observations regarding the potential for conflicts between the secured bicycle storage room and motorized vehicles in the ground floor of the parking garage. We are still in preliminary phases of design, and while the functional distribution of spaces has been largely defined, details such as the particulars of how the storage room space is to be accessed have yet to be worked out. It is expected that the positioning of the secured bicycle storage room will allow for adequate fields of vision during bicycle extraction and return and that further study during continued design development may reveal refined methods of access to this space.

   With regard to the provision of public bicycle storage, please refer to *Architectural Drawing 01,* which shows the ground floor organization of the project. Public bicycle racks are indicated near the upper left corner of this drawing, near the Ewa commercial space, just off the public plaza.

8. **Provisions for Low-Impact and Sustainable Design Measures:** While the draft EA does not provide a specific section addressing sustainable or low-impact design, such elements have been discussed and included in the planning and preliminary design of project facilities and are embedded in anticipated construction practices.

   In Section 3.13.3: *Drainage*, under *Potential Impacts and Mitigative Measures*, the draft EA states:

   > *There will be drainage improvements within the project site to accommodate the proposed development. However, storm water runoff is not expected to increase due to construction of the Kapiolani Residence condominium. The project's planned landscaped areas are anticipated to reduce the amount of impervious surface at the project site. Where possible, mitigation measures using natural runoff control such as bio-infiltration areas in addition to the planned landscaping treatment will be considered. Storm water quality features will be finalized as necessary during the design phase to comply with agency requirements.*
   >
   > *It is anticipated that wherever possible, the project will continue to sheet flow into the Kapiolani Boulevard and Kona Street existing catch basins. There is an existing 10' wide storm drain easement adjacent to property TMK: 3-2-41:06 on the east side, where a 60" storm drain line is located. Drainage structures, such as drain inlets will be placed in areas within the property where runoff flows will not be able to sheet flow following existing patterns. These inlets will be a network that will connect and discharge to the existing storm drainage system, with proper provisions to satisfy storm water quality requirements. Storm water from roofs will be conveyed to the inlet network.*
   >
   > *There will not be any drainage improvements outside of the project site as the proposed improvements should not alter or impact the downstream system flows. A drainage analysis based on City and County of Honolulu standards will be developed during the design phase of the project. During construction, appropriate erosion control Best Management Practices will be used to minimize the amount of soil transported in stormwater runoff during construction activities. All construction activities will comply with applicable Federal, State, and County regulations and rules for erosion control.*

Furthermore, detailed design will more specifically account for LID (low-impact development). Treatment systems will be used to capture sediments from entering the adjacent City system. Final grades and topography of the site will be such that the design storm will be contained onsite as required by City and County regulations. The design of the site will feature grassed or permeable areas, thus reducing the amount of runoff produced as compared to existing conditions, in keeping with storm water management and low impact development strategies.

While sustainable design measures will be further defined during more detailed phases of project development, a number of provisions and concepts have been adopted or provisionally defined by the developer and architectural design team, pending more detailed project definition. They include:

1. Maximizing individual residential unit exposure to the outdoors: *Architectural drawing 04*, which shows a typical building floor plan illustrates the project's intent to maximize exposure to natural light and opportunities for natural ventilation. Window openings to maximize visual exposure to the outside and opportunities for natural lighting are shown occupying all or most of the exterior walls of all habitable spaces in the residential units except where solid walls are needed for structural integrity. Most of these openings consist of operable windows to enable the entry of fresh air into the units. In addition, every unit has a balcony with sliding doors to increase ventilation and natural lighting opportunities. All glazing will employ a high-performance glazing system with low emissivity (Low-E) insulated glass windows.

2. Where artificial lighting is needed, LED lighting will be used where appropriate to reduce energy consumption.

3. Appliances that will be supplied with units will be Energy Star-rated to reduce energy consumption.

4. Low-flow flush toilets will be selected for installation.

5. Low VOC materials and finishes will receive priority during materials and finishes selection.

6. Material with recycled content will be incorporated where appropriate.

7. The project developer will work with the general contractor to develop a construction waste program to reduce the amount of building material to be deposited in a landfill.

These are some of the sustainable design provisions included or being considered for inclusion in the project. More detail on these efforts will evolve as the project enters advanced stages of design and the development of construction documents.

9. **Consistency with the City's Proposed Ala Moana TOD Plan and Use of Ordinance 14-10:** As a predominantly affordable housing project with typically very pronounced financial constraints, expeditious permitting through a process that carried a degree of certainty was considered essential for the financial feasibility and ultimate success of this project. The draft Ala Moana Neighborhood TOD Plan had not been finalized at the start of the Kapiolani Residence effort and Ordinance 14-10, although it provided an interim process

through which TOD projects could be permitted, appeared to be based on discretionary decisionmaking through a process of negotiation.

As it was originally configured, the project was considered ineligible for 201H processing by the City (See Environmental Assessment Appendix B: *Department of Planning and Permitting Correspondence*). However, the 201H program as processed by HHFDC was an available processing route which also carried the greatest degree of certainty. As a result, it was selected as the permitting route for Kapiolani Residence.

As has been previously stated, Kapiolani Residence has been consciously configured to reflect the *general intent* of the City's draft "Ala Moana Neighborhood TOD Plan" (TOD Plan) with adjustments to accommodate the economic demands of a predominantly affordable housing project on a prime, centrally-located, high-value site, and to respond to urban design considerations of its immediate context.

We hope that our responses to your comments have provided you with the information you need. If you have questions about any of the foregoing, please feel free to contact me via the contact information below. Thank you for your time and attention to this proposal.

Sincerely yours,

Lowell K.W. Chun
President, Pacific Catalyst LLC
1296 Kapiolani Blvd., #1907
Honolulu, Hawaii 96813

DAVID Y. IGE
GOVERNOR OF HAWAII

SUZANNE D. CASE
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

July 6, 2015

Mr. Lowell K. W. Chun
Pacific Catalyst LLC
1296 Kapiolani Blvd., S. 1907
Honolulu, HI 96814

via email: pacificcatalyst@gmail.com

Dear Mr. Chun,

SUBJECT: Kapiolani Residence Affordable Housing Project, Draft Environmental Assessment

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

At this time, enclosed are comments from the (1) Land Division - Oahu District; and (2) Engineering Division. No other comments were received as of our suspense date. Should you have any questions, please feel free to call Supervising Land Agent Steve Molmen at 587-0439. Thank you.

Sincerely,

Russell Y. Tsuji
Land Administrator

Enclosure(s)

DAVID Y. IGE
GOVERNOR OF HAWAII

SUZANNE D. CASE
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

June 15, 2015

MEMORANDUM

TO: **DLNR Agencies:**
___Div. of Aquatic Resources
___Div. of Boating & Ocean Recreation
_X_Engineering Division
_X_Div. of Forestry & Wildlife
___Div. of State Parks
_X_Commission on Water Resource Management
_X_Office of Conservation & Coastal Lands
_X_Land Division – Oahu District
_X_Historic Preservation

FROM: Russell Y. Tsuji, Land Administrator
SUBJECT: Kapiolani Residence Affordable Housing Project, Draft Environmental Assessment
LOCATION: 1631 Kapiolani Boulevard, TMK: 2-3-041:009 and 2-3-041:006
APPLICANT: SamKoo Pacific, LLC by its consultant Pacific Catalyst, LLC

Transmitted for your review and comment on the above-referenced document. We would appreciate your comments on this document which can be found here:

1. Go to: https://sp01.ld.dlnr.hawaii.gov/LD
2. Login: Username: LD\Visitor Password: 0pa$$word0 (first and last characters are zeros)
3. Click on: Requests for Comments
4. Click on the subject file "Kapiolani Residence Affordable Housing Project, Draft Environmental Assessment", then click on "Files" and "Download a copy". (Any issues accessing the document should be directed to Linda Kawakami at (808) 587-0371 or Linda.Kawakami@hawaii.gov)

Please submit any comments by July 6, 2015. If no response is received by this date, we will assume your agency has no comments. If you have any questions about this request, please contact Supervising Land Agent Steve Molmen at (808) 587-0439. Thank you.

Attachments

( ) We have no objections.
(✓) We have no comments.
( ) Comments are attached.

Signed: _____
Print Name: Tommy Chee
Date: 6/17/15

DAVID Y. IGE
GOVERNOR OF HAWAII

SUZANNE D. CASE
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

'15 JUN 16 AM 08:37 ENGINEERING
RECEIVED
LAND DIVISION

2015 JUL -6 PM 2:27
DEPT. OF LAND & NATURAL RESOURCES
STATE OF HAWAII

June 15, 2015

MEMORANDUM

TO: FYI:

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

FROM: TO:
SUBJECT: Russell Y. Tsuji, Land Administrator
LOCATION: Kapiolani Residence Affordable Housing Project, Draft Environmental Assessment
APPLICANT: 1631 Kapiolani Boulevard, TMK: 2-3-041:009 and 2-3-041:006
SamKoo Pacific, LLC by its consultant Pacific Catalyst, LLC

Transmitted for your review and comment on the above-referenced document. We would appreciate your comments on this document which can be found here:

1. Go to: https://sp01.ld.dlnr.hawaii.gov/LD
2. Login: Username: LD\Visitor Password: 0pa$$word0 (first and last characters are zeros)
3. Click on: Requests for Comments
4. Click on the subject file "Kapiolani Residence Affordable Housing Project, Draft Environmental Assessment", then click on "Files" and "Download a copy". (Any issues accessing the document should be directed to Linda Kawakami at (808) 587-0371 or Linda.Kawakami@hawaii.gov)

Please submit any comments by July 6, 2015. If no response is received by this date, we will assume your agency has no comments. If you have any questions about this request, please contact Supervising Land Agent Steve Molmen at (808) 587-0439. Thank you.

Attachments

( ) We have no objections.
( ) We have no comments.
(✓) Comments are attached.

Signed: _____
Print Name: Carty S. Chang, Chief Engineer
Date: 7/2/15

DEPARTMENT OF LAND AND NATURAL RESOURCES
ENGINEERING DIVISION

LD/Russell Y. Tsuji
REF: DEA for Kapiolani Residence Affordable Housing Project
Oahu.041

COMMENTS

(X) **We confirm that the project site, according to the Flood Insurance Rate Map (FIRM), is located in Zone X. The National Flood Insurance Program (NFIP) does not regulate developments within Zone X.**

( ) Please take note that the project site according to the Flood Insurance Rate Map (FIRM), is located in Zone ___.

( ) 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. Mario Siu Li at (808) 768-8098 of the City and County of Honolulu, Department of Planning and Permitting.
- ( ) Mr. Carter Romero (Acting) at (808) 961-8943 of the County of Hawaii, Department of Public Works.
- ( ) Mr. Carolyn Cortez at (808) 270-7253 of the County of Maui, Department of Planning.
- ( ) Mr. Stanford Iwamoto at (808) 241-4896 of the County of Kauai, Department of Public Works.

( ) The applicant should include project water demands and infrastructure required to meet water demands. Please note that the implementation of any State-sponsored projects requiring water service from the Honolulu Board of Water Supply system must first obtain water allocation credits from the Engineering Division before it can receive a building permit and/or water meter.

( ) The applicant should provide the water demands and calculations to the Engineering Division so it can be included in the State Water Projects Plan Update.

( ) Additional Comments: _____

_____

( ) Other: _____

_____

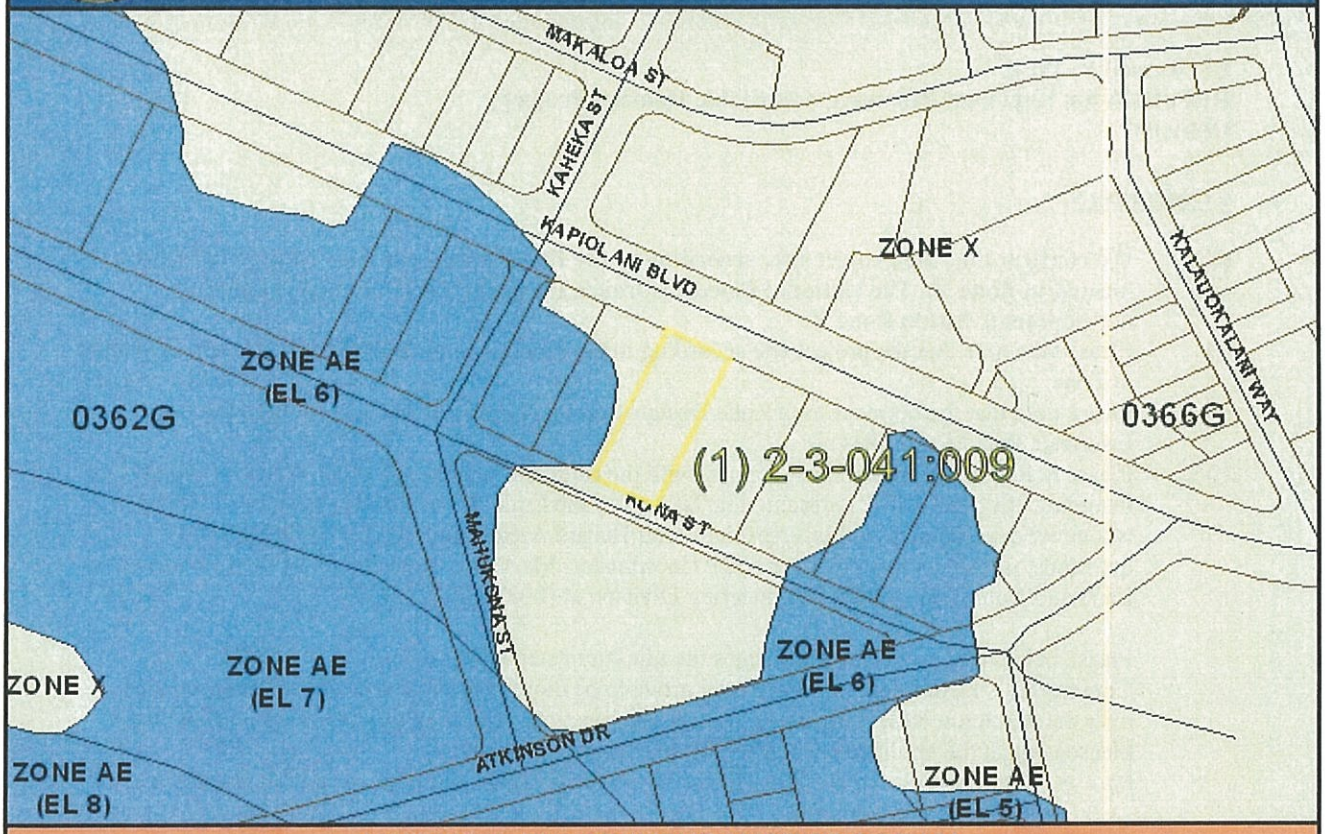
Should you have any questions, please call Mr. Dennis Imada of the Planning Branch at 587-0257.

Signed: _____
CARTY S. CHANG, CHIEF ENGINEER

Date: 7/2/15

State of Hawaii

FLOOD HAZARD ASSESSMENT REPORT



NATIONAL FLOOD INSURANCE PROGRAM

FLOOD ZONE DEFINITIONS

SPECIAL FLOOD HAZARD AREAS SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD – The 1% annual chance flood (100-year flood), also known as the base flood, is the flood that has a 1% chance of being equaled or exceeded in any given year. The Special Flood Hazard is the area subject to flooding by the 1% annual chance flood. Areas of Special Flood Hazard include Zone A, AE, AH, AO, V, and VE. The Base Flood Elevation (BFE) is the water-surface elevation of the 1% annual chance flood. Mandatory flood insurance purchase applies in these zones:

- **Zone A:** No BFE determined.
- **Zone AE:** BFE determined.
- **Zone AH:** Flood depths of 1 to 3 feet (usually areas of ponding); BFE determined.
- **Zone AO:** Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined.
- **Zone V:** Coastal flood zone with velocity hazard (wave action); no BFE determined.
- **Zone VE:** Coastal flood zone with velocity hazard (wave action); BFE determined.
- **Zone AEF:** Floodway areas in Zone AE. The floodway is the channel of stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without increasing the BFE.

NON-SPECIAL FLOOD HAZARD AREA – An area in a low-to-moderate risk flood zone. No mandatory flood insurance purchase requirements apply, but coverage is available in participating communities.

- **Zone XS (X shaded):** Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.
- **Zone X:** Areas determined to be outside the 0.2% annual chance floodplain.

OTHER FLOOD AREAS

- **Zone D:** Unstudied areas where flood hazards are undetermined, but flooding is possible. No mandatory flood insurance purchase requirements apply, but coverage is available in participating communities.

PROPERTY INFORMATION

COUNTY:	HONOLULU
TMK NO:	(1) 2-3-041-009
PARCEL ADDRESS:	1630 KONA ST HONOLULU, HI 96814
FIRM INDEX DATE:	NOVEMBER 05, 2014
LETTER OF MAP CHANGE(S):	NONE
FEMA FIRM PANEL(S):	15003C0362G
PANEL EFFECTIVE DATE:	JANUARY 19, 2011

PARCEL DATA FROM:	APRIL 2014
IMAGERY DATA FROM:	MAY 2006

IMPORTANT PHONE NUMBERS

County NFIP Coordinator	
City and County of Honolulu	
Mario Siu-Li, CFM	(808) 768-8098
State NFIP Coordinator	
Carol Tyau-Beam, P.E., CFM	(808) 587-0267

Disclaimer: The Department of Land and Natural Resources (DLNR) assumes no responsibility arising from the use of the information contained in this report. Viewers/Users are responsible for verifying the accuracy of the information and agree to indemnify the DLNR from any liability, which may arise from its use.

If this map has been identified as 'PRELIMINARY' or 'UNOFFICIAL', please note that it is being provided for informational purposes and is not to be used for official/legal decisions, regulatory compliance, or flood insurance rating. Contact your county NFIP coordinator for flood zone determinations to be used for compliance with local floodplain management regulations.

DAVID Y. IGE
GOVERNOR OF HAWAII

SUZANNE D. CASE
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

August 6, 2015

Mr. Lowell K. W. Chun
Pacific Catalyst LLC
1296 Kapiolani Blvd., S. 1907
Honolulu, HI 96814

via email: pacificcatalyst@gmail.com

Dear Mr. Chun,

SUBJECT: Kapiolani Residence Affordable Housing Project, Draft Environmental Assessment

Thank you for the opportunity to review and comment on the subject matter. In addition to the comments sent to you dated July 6, 2015, enclosed are additional comments from the Division of Forestry & Wildlife on the subject matter. Should you have any questions, please feel free to call Supervising Land Agent Steve Molmen at (808) 587-0439. Thank you.

Sincerely,

Russell Y. Tsuji
Land Administrator

Enclosure(s)

DAVID Y. IGE
GOVERNOR OF HAWAII

SUZANNE D. CASE
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

KEKOA KALUHIWA
FIRST DEPUTY

W. ROY HARDY
ACTING DEPUTY DIRECTOR - WATER

AQUATIC RESOURCES
BOATING AND OCEAN RECREATION
BUREAU OF CONVEYANCES
COMMISSION ON WATER RESOURCE MANAGEMENT
CONSERVATION AND COASTAL LANDS
CONSERVATION AND RESOURCES ENFORCEMENT
ENGINEERING
FORESTRY AND WILDLIFE
HISTORIC PRESERVATION
KAHOOLAWE ISLAND RESERVE COMMISSION
LAND

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
DIVISION OF FORESTRY AND WILDLIFE
1151 PUNCHBOWL STREET, ROOM 325
HONOLULU, HAWAII 96813

RECEIVED
LAND DIVISION
2015 AUG -5 PM 3:02
DEPT OF LAND & NATURAL RESOURCES
STATE OF HAWAII

August 3, 2015

MEMORANDUM

To: Russell Y. Tsuji, Land Administrator
DLNR, Land Division

From: David Smith, Acting Administrator DGS
DLNR, Division of Forestry and Wildlife (DOFAW)

Subject: Comments on Kapiolani Residence Affordable Housing Project

Thank you for the memo received on June 15, 2015 and the opportunity to comment on the proposed Kapiolani Residence Affordable Housing Project located at 1631 Kapiolani Boulevard, Honolulu County. The proposed action includes the construction of 485 housing units on 1.291 acres of land in in Honolulu, Island of O`ahu. The project is proposed by SamKoo Pacific, LLC.

The project consists of a 45-story residential tower, currently restricted by building envelope limits to a height of 350 feet, fronting Kapiolani Boulevard. A 695 stall parking structure is proposed for the area behind the tower with access from both Kapiolani Blvd and Kona St.

The monkeypod trees (*Albizia saman* or *Pithecellobium saman*) that line that section of Kapiolani Boulevard could provide breeding habitat for the white tern (*Gygis alba*). White terns pairs lay their single egg in a branch fork with no nest. The eggs and chicks can be easily dislodged by construction equipment that nudges the trees. DOFAW strongly recommends surveying for the presence of white terns prior to any action that could disturb the trees. Aside from the potential presence of terns, DOFAW does not anticipate impacts to threatened or endangered species as a result of the project. Should the scope of the project change significantly, or should it become apparent that threatened or endangered species may be impacted, please contact our staff as soon as possible.

DOFAW appreciates the opportunity to provide comments on this project and requests that Land Division continue to seek input from DOFAW on impacts to wildlife.

If you have any questions, please contact James Cogswell, Wildlife Program Manager, at 808-587-4187.

July 27, 2015

Mr. Russell Y. Tsuji
Land Administrator
Land Division
Department of Land and Natural Resources
State of Hawaii
Post Office Box 621
Honolulu, Hawaii 96809

Re: Response to Department of Land and Natural Resources Comments on DEA for:
Kapiolani Residence Affordable 201H Affordable Housing Project
1631 Kapiolani Boulevard, Honolulu, Hawaii 96814
TMK: (1)2-3-041: 006 & 009

Dear Mr. Tsuji:

Thank you for circulating the Kapiolani Residence DEA among your Divisions for comment and for your July 6, 2015 comments on the above-referenced DEA. We have noted the confirmation made by your Chief Engineer, Engineering Division that the project site is in Zone X as indicated by the Flood Insurance Rate Map, and that the National Flood Insurance Program (NFIP) does not regulate developments within that zone.

We are also receipt of your subsequent August 6, 2015 letter transmitting comments from your department's Division of Forestry and Wildlife, dated August 3, 2015, citing the potential presence of white terns or their eggs in onsite trees. As you have requested, we will survey for the presence of the terns or their eggs prior to commencement of construction activity to ensure that proper actions for their safety are taken if either are found.

Thank you again for your attention to this project. Should you have further insights, suggestions, or comments, please feel free to contact me via the contact information below.

Sincerely yours,

Lowell K.W. Chun
President, Pacific Catalyst LLC
1296 Kapiolani Blvd., #1907
Honolulu, Hawaii 96813

DAVID Y. IGE
GOVERNOR

KATHRYN S. MATAYOSHI
SUPERINTENDENT

STATE OF HAWAI`I
DEPARTMENT OF EDUCATION
P.O. BOX 2360
HONOLULU, HAWAI`I 96804

OFFICE OF SCHOOL FACILITIES AND SUPPORT SERVICES

June 26, 2015

Mr. Lowell K.W. Chun
Pacific Catalyst, LLC
1296 Kapiolani Boulevard, Suite 1907
Honolulu, Hawaii 96814

Re: Draft Environmental Assessment (DEA) for Proposed Kapiolani Residence Affordable Housing Project, Honolulu, Oahu, Hawaii, TMK: (1)2-3-041:009 and (1)2-3-041:006

Dear Mr. Chun:

The Department of Education (DOE) has reviewed the Draft Environmental Assessment (DEA) for the proposed Kapiolani Residence Affordable Housing.

The DOE would like to clarify information in section 3.2.1 regarding Potential Impacts and Mitigative Measures. The section reads: "DOE stated that it does not expect the Kapiolani Residence project to impact existing school classroom capacity." The DOE needs to clarify that there is a project impact, the project will generate 29 elementary school students, 15 middle school students and 15 high school students.

Currently, Kaahumanu Elementary, Washington Middle and McKinley High schools would have sufficient classroom capacity to service the increase in students. However, the projected 2019-2020 school year enrollment for Kaahumanu Elementary school will exceed the schools capacity of 623 students. There would be sufficient classroom capacity for the projected 2019-2020 school year enrollment for Washington Middle and McKinley High school to accommodate students that reside in this project.

The DOE must make the distinction between the student enrollment impact of one project and the impact of all anticipated growth in the area. The number of additional students generated by the proposed project, by itself, would not strain school facilities today or in the next five years. However, the DOE anticipates that up to 7,000 additional residential units would be permitted in the one-fourth to one-half mile area surrounding the Ala Moana transit station in the next 25 to 30 years. Such growth will generate school enrollment impacts far beyond what existing schools are capable of handling. The DOE is considering the establishment of a school impact fee district for

new residential development in the area around the Ala Moana station. Once a district is created, all new residential projects in the district would be required to participate.

We appreciate the opportunity to provide comments. If you have any questions, please call Heidi Meeker, Land Use Planner of the Planning Section, Facilities Development Branch at 377-8301.

Respectfully,

Kenneth G. Masden II
Public Works Manager
Planning Section

KGM:jmb

July 27, 2015

Mr. Kenneth Masden II
Public Works Manager
Planning Section
State of Hawaii
Department of Education
P.O. Box 2360
Honolulu, Hawaii 96804

Re: Response to Hawaii Department of Education Comments on DEA for:
Kapiolani Residence Affordable 201H Affordable Housing Project
1631 Kapiolani Boulevard, Honolulu, Hawaii 96814
TMK: (1)2-3-041: 006 & 009

Dear Mr. Masden:

Thank you for your June 26, 2015 comments on the above-referenced DEA. We appreciate the clarifications regarding Kapiolani Residence's impacts on existing school capacities in the present and the near future, and on the more general and far-reaching impacts of overall growth in the general area surrounding the Ala Moana transit station. We will incorporate this information into our FEA section on Schools.

Thank you again for your attention to this project. Should you have further insights, suggestions, or requests, please feel free to contact me via the contact information below.

Sincerely yours,

Lowell K.W. Chun
President, Pacific Catalyst LLC
1296 Kapiolani Blvd., #1907
Honolulu, Hawaii 96813

DAVID Y. IGE
GOVERNOR OF HAWAII

VIRGINIA PRESSLER, M.D.
DIRECTOR OF HEALTH

STATE OF HAWAII
DEPARTMENT OF HEALTH
P. O. BOX 3378
HONOLULU, HI 96801-3378

In reply, please refer to:
File:

EPO 15-131

July 16, 2015

Mr. Lowell Chun
Pacific Catalyst, LLC
1296 Kapiolani Boulevard, S. 1907
Honolulu, Hawaii 96814
Via email: pacificcatlyst@gmail.com

Dear Mr. Chun:

SUBJECT: Draft Environmental Assessment (DEA) for Kapiolani Residence, Oahu, Honolulu
TMK: (1)2-3-041: 006 & 009

The Department of Health (DOH), Environmental Planning Office (EPO), acknowledges receipt of your DEA via the OEQC website at:
http://oeqc.doh.hawaii.gov/Shared%20Documents/EA_and_EIS_Online_Library/Oahu/2010s/2015-06-08-OA-5E-DEA-Kapiolani-Residence.pdf

The DEA was routed to various branches. The various branches will provide specific comments to you if necessary. EPO recommends that you review the standard comments and available strategies to support sustainable and healthy design provided at: http://health.hawaii.gov/epo/home/landuse-planning-review-program/. Projects are required to adhere to all applicable standard comments.

We encourage you to examine and utilize the Hawaii Environmental Health Portal. The portal provides links to our e-Permitting Portal, Environmental Health Warehouse, Groundwater Contamination Viewer, Hawaii Emergency Response Exchange, Hawaii State and Local Emission Inventory System, Water Pollution Control Viewer, Water Quality Data, Warnings, Advisories and Postings. The Portal is continually updated. Please visit it regularly at:
https://eha-cloud.doh.hawaii.gov

You may also wish to review the revised Water Quality Standards Maps that have been updated for all islands. The Water Quality Standards Maps can be found at:
http://health.hawaii.gov/cwb/site-map/clean-water-branch-home-page/water-quality-standards/.

We request that you utilize all of this information on your proposed project to increase sustainable, innovative, inspirational, transparent and healthy design.

Mahalo nui loa,

Laura Leialoha Phillips McIntyre, AICP
Program Manager, Environmental Planning Office

c: Hawaii Housing Finance & Development Corporation (HHFDC)
SamKoo Pacific, LLC
CWB, IRHB {via email only}

July 27, 2015

Ms. Laura Leialoha Phillips McIntyre, AICP
Program Manager
Environmental Planning Office
Department of Health
State of Hawaii
P.O. Box 3378
Honolulu, Hawaii 96801-3378

Re: Response to Department of Health Comments on DEA for:
Kapiolani Residence Affordable 201H Affordable Housing Project
1631 Kapiolani Boulevard, Honolulu, Hawaii 96814
TMK: (1)2-3-041: 006 & 009

Dear Ms. McIntyre:

Thank you for routing the Kapiolani Residence DEA among your Branches for comment and for referring us to your websites addressing sustainable and healthy design, the Environmental Health Portal, and the DOH Water Quality Maps. Our teams shall consult them as needed as the project progresses through further stages of definition. We will comply with all applicable statutory requirements.

Thank you again for your attention to this project. Should you have further insights, suggestions, or comments, please feel free to contact me via the contact information below.

Sincerely yours,

Lowell K.W. Chun
President, Pacific Catalyst LLC
1296 Kapiolani Blvd., #1907
Honolulu, Hawaii 96813

DAVID Y. IGE
GOVERNOR

FORD N. FUCHIGAMI
DIRECTOR

DEPUTY DIRECTORS
JADE T. BUTAY
ROSS M. HIGASHI
EDWIN H. SNIFFEN
DARRELL T. YOUNG

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

IN REPLY REFER TO:
DIR 0707
HWY-PS 2.0135

July 6, 2015

Mr. Lowell Chun
Pacific Catalyst LLC
1296 Kapiolani Boulevard, Suite 1907
Honolulu, Hawaii 96814

Dear Mr. Chun:

Subject: Draft Environmental Assessment for Kapiolani Residence Affordable Housing
1631 Kapiolani Boulevard, Honolulu, Oahu
TMK: (1) 2-3-041:006 and 009

Thank you for consulting with us regarding the draft environmental assessment (DEA) required by Chapter 343, Hawaii Revised Statutes for the subject project. The proposed work will involve the construction of a high rise condominium consisting of 485 units of both, affordable and market priced sale units. The property includes 695 parking stalls with the primary access on Kapiolani Boulevard and a secondary access off of Kona Street. The 1.29-acre site is in the Commercial Business Mixed Use Zoning District within the Transit-Oriented Development Plan of the City and County of Honolulu for the Ala Moana neighborhood.

Based on the information provided, the proposed project does not appear to significantly impact the State highway system. Therefore, we have no comments on the DEA.

If you have any questions, please contact Nami Wong, Systems Planning Engineer, Highways Division, Planning Branch, at (808) 587-1832. Please reference file review number PS 2015-111 in all contacts and correspondence regarding these comments.

Sincerely,

FORD N. FUCHIGAMI
Director of Transportation

c: Office of Environmental Quality Control

July 27, 2015

Mr. Ford N. Fuchigami
Director of Transportation
State of Hawaii
Department of Transportation
869 Punchbowl Street
Honolulu, Hawaii 96813-5097

Re: Response to Department of Transportation Review of DEA for:
Kapiolani Residence Affordable 201H Affordable Housing Project
1631 Kapiolani Boulevard, Honolulu, Hawaii 96814
TMK: (1)2-3-041: 006 & 009

Dear Mr. Fuchigami:

Thank you for your organization's review of the above-referenced DEA. We have noted that your Department has no comments on it at this time. Since its issue, design enhancements to improve the project's onsite recreation facilities offering have resulted in a minor increase of onsite parking stalls by 6 spaces, from 695 parking stalls to 701 parking stalls.

While we do not believe this changes the project's relationship with or likelihood of affecting elements of State transportation facilities, should you have further thoughts or insights on the subject project in the future, please feel free to contact me via the contact information below.

Sincerely yours,

Lowell K.W. Chun
President, Pacific Catalyst LLC
1296 Kapiolani Blvd., #1907
Honolulu, Hawaii 96813

UNIVERSITY of HAWAI'I®
MĀNOA

July 20, 2015

Pacific Catalyst LLC
Attn: Lowell K.W. Chun
1296 Kapiolani Blvd., S1907
Honolulu, HI 96814

Mr. Chun:

This is to acknowledge receipt of your letter for review of an Environmental Assessment.

Unfortunately, the Water Resources Research Center does not have the capacity to review the environmental impact statement at this time due to the faculty position vacancy.

While we continue to explore filling the current vacancy, the Center will exclude itself from commentary on this specific environmental assessment study.

Sincerely,

Darren T. Lerner, PhD
Interim Director

2540 Dole Street, Holmes Hall 283
Honolulu, Hawai'i [illegible]2
Telephone: (808) 95[illegible]7
Fax: (808) 956-5044
An Equal Opportunity/Affirmative Action Institution

July 30, 2015

Dr. Darren T. Lerner, PhD.
Interim Director
University of Hawaii
Water Resources Research Center
2540 Dole Street
Homes Hall 283
Honolulu, Hawaii 96822

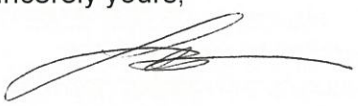
Re: Response to UH/Water Resources Research Center Review of DEA
for: Kapiolani Residence Affordable 201H Affordable Housing
Project 1631 Kapiolani Boulevard, Honolulu, Hawaii 96814
TMK: (1)2-3-041: 006 & 009

Dear Dr. Lerner:

Thank you for your acknowledgement of receipt of the above-referenced DEA. We have noted that your exclusion of your organization from comment at this time.

We look forward to the timely staffing of your cited vacancy and wish you the best of luck in acquiring the best person for its intended function.

Sincerely yours,



Lowell K.W. Chun
President, Pacific Catalyst LLC
1296 Kapiolani Blvd., #1907
Honolulu, Hawaii 96813

DISABILITY AND COMMUNICATION ACCESS BOARD

919 Ala Moana Boulevard, Room 101 • Honolulu, Hawaii 96814
Ph. (808) 586-8121 (V/TDD) • Fax (808) 586-8129

June 19, 2015

Mr. Ken Takahashi
State of Hawaii
Hawaii Housing Finance and
Development Corporation
677 Queen Street
Suite 300
Honolulu, HI 96813

Regarding: Kapiolani Residence Affordable Housing Project – Draft Environmental Assessment

Dear Mr. Takahashi,

The Disability and Communication Access Board (DCAB) would like to thank you for the opportunity to review and provide comment to the Kapiolani Residence Affordable Housing Project, Draft Environmental Assessment (EA). This review will help to ensure that this project will take into account accessibility design requirements for persons with disabilities.

Should this project receive funding through your agency's Dwelling Unit Revolving Fund (DURF) program, the project will be required to be reviewed by DCAB per Hawaii Revised Statutes (HRS), §103-50. Should the project not receive funding, but will receive state tax credits for providing affordable housing, the project is required to be submitted to DCAB for review per our memorandum of agreement with Hawaii Housing Finance and Development Corporation (HHFDC).

The EA lists DCAB as a "permit" or "approval agency" (page 82). However, DCAB does not have the authority to "approve" projects for compliance with accessibility guidelines or standards. DCAB is also not part of the City and County of Honolulu's permitting process. We provide technical assistance to State and county agencies and their design consultants by identifying those areas, features or elements that do not appear consistent with the applicable accessibility guidelines. Final responsibility to comply with HRS §103-50 rests with the State or county agency overseeing the project.

New construction and alterations are required to comply with the Department of Justice's (DOJ) 2010 ADA Standards for Accessible Design (2010 Standards). The standards can be viewed or downloaded at: http://www.ada.gov/2010ADAstandards_index.htm. To be consistent with the DOJ's standard, DCAB adopted the 2004 Americans with Disabilities Act Accessibility Guidelines (ADAAG) as of January 1, 2011 and passed interpretive opinions consistent with the 2010 ADA Standards. All new interpretive opinions can be viewed or downloaded at http://health.hawaii.gov/dcab/facility-access/interpretive-opinions/. As a newly constructed, multi-family residential project consisting of four (4) or more dwelling

units, the project is also required to comply with the Federal Fair Housing Act Accessibility Guidelines (FHAG).

In addition we encourage the use of the following accessibility guideline, published by the U.S. Access Board for any design affecting areas in the public rights-of-way (page 16, 48). This accessibility guideline is not yet enforceable by the DOJ under the Americans with Disabilities Act (ADA), nor have they been adopted by state rules under HRS §103-50. However, this accessibility guideline provides guidance for a minimal level of accessibility for those elements not addressed by the enforceable ADA Accessibility Guidelines:

- Proposed Guidelines for Pedestrian Facilities in the Public Right-of-Way

A copy of this accessibility guideline can be found at: http://www.access-board.gov/guidelines-and-standards/streets-sidewalks/public-rights-of-way/proposed-rights-of-way-guidelines.

In reviewing the EA, if the project should be required to comply with ADAAG and DCAB's Interpretive Opinions, a few items appear to conflict with the 2010 Standards and FHAG:

- The preliminary drawings do not indicate any units that appear to be designed with mobility features. Of the 485 condominium units provided, 5% will be required to be designed with mobility features complying with the ADAAG. (Page 31, Drawings 01 through 04)

- In the units designed with mobility features, the washers and dryers are required to comply with the technical provisions of the ADAAG; the controls and operating mechanisms will be required to be accessible and the height of top loading machines cannot exceed 36 inches maximum. (Page 31, Drawings 01 through 04)

- In addition, of the 485 condominium units provided, 2% will be required to be designed with communication features complying with the ADAAG. (Page 31, Drawings 01 through 04)

- Accessible units designed with mobility and communication features are required to be dispersed throughout the various types of units provided in the project. This includes studio, one-bedroom, two-bedroom, three-bedroom, and manager's units. Accessible units must also be dispersed between "affordable units" and "market priced" units. (Page 31, Drawings 01 through 04)

- Where parking is provided for residents, visitors and the commercial spaces, the number of accessible parking to be provided shall comply with DCAB's Interpretive Opinion *DCAB 2014-05 Definition of 'Parking Facility'*. (Page 33, 35, Drawings 01 through 03)

- Where electric vehicle charging station is provided, an accessible vehicle parking is required per DCAB's Interpretive Opinion *DCAB 2012-01 Electric Vehicle (EV) Charging Station*. (Page 35)

- Signage at accessible public parking serving the commercial spaces will be required to comply with Hawaii Administrative Rules, Title 11, Chapter 219. (Page 33, Drawings 01 through 03)

Should you have any further questions, feel free to contact Mona Higa, Facility Access Coordinator at (808) 586-8121.

Sincerely,

Francine Wai

FRANCINE WAI
Executive Director

c: ✓ Lowell K.W. Chun
Pacific Catalyst LLC

July 29, 2015

Ms. Francine Wai
Executive Director
Disability and Communications Access Board
919 Ala Moana Boulevard
Room 101
Honolulu, Hawaii 96814

Re: Response to the Disability and Communications Access Board (DCAB)
Review of DEA for:
Kapiolani Residence Affordable 201H Affordable Housing Project
1631 Kapiolani Boulevard, Honolulu, Hawaii 96814
TMK: (1)2-3-041: 006 & 009

Dear Ms. Wai:

Thank you for your organization's review of the above-referenced DEA, dated June 19, 2015. We are still in the preliminary stages of project definition and will include your comments as a part of the set of criteria we will use in defining the project for implementation.

Kapiolani Residence project will consist of new construction and will apply for Dwelling Unit Revolving Fund (DURF) assistance and G.E.T. exemptions. As such, it intends to comply with HRS 103-50 and will be submitted to your agency for compliance review. Five percent (5%) of all project units will be designed with mobility features, 2% of total units will be designed with communications features, and both these types of units will be distributed among the project's various unit types (i.e.: studio, 1-bedroom, 2-bedroom, 3-bedroom, and manager's units) and market groups. The remainder of the project's units will be designed to comply with Federal ADA and Fair Housing Act Accessibility Guidelines. Parking stall provisions, including signage, will also comply with DCAB and ADA requirements.

We have also noted that DCAB is not a permitting or approval agency. The appropriate referencing adjustments will be made in the project Final Environmental Assessment (FEA).

Should you have further thoughts or insights on the subject project in the future, please feel free to contact me via the contact information below.

Sincerely yours,

Lowell K.W. Chun
President, Pacific Catalyst LLC
1296 Kapiolani Blvd., #1907
Honolulu, Hawaii 96813

DEPARTMENT OF PLANNING AND PERMITTING
CITY AND COUNTY OF HONOLULU
650 SOUTH KING STREET, 7TH FLOOR • HONOLULU, HAWAII 96813
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KIRK CALDWELL
MAYOR

GEORGE I. ATTA, FAICP
DIRECTOR

ARTHUR D. CHALLACOMBE
DEPUTY DIRECTOR

2015/ELOG-1149 (EK)

July 8, 2015

Mr. Lowell K.W. Chun
Pacific Catalyst LLC
1296 Kapiolani Boulevard, Suite 1907
Honolulu, Hawaii 96814

Dear Mr. Chun:

SUBJECT: Draft Environmental Assessment
Kapiolani Residence Affordable Housing Project
1631 Kapiolani Boulevard – Waikiki
Tax Map Keys 2-3-41: 6 and 9

This responds to your request, received June 5, 2015, for comments on the Draft Environmental Assessment (EA) for the subject project.

A. Community Planning Branch (CPB) Comments: Although the Hawaii Revised Statutes Chapter 201H process allows exemptions from planning and zoning requirements, consistency with transit-oriented development (TOD) and complete streets policy goals will contribute toward an urban environment that will benefit the public and larger neighborhood. As such, the CPB has the following comments:

1. The Final EA should have a concise summation of the exemptions being requested, compared to the amount/degree of affordable housing and other community benefits being provided.

2. The proposal to provide a range of affordable units (60 percent) as well as market rate units is consistent with the Primary Urban Center Development Plan (PUC DP) policy to provide residential choices that are affordable. The affordability and range of unit sizes from studio to three bedrooms in a high density mixed-use project within half a mile of the Ala Moana transit station is also consistent with the development goals of the Ala Moana Neighborhood TOD Plan (TOD Plan) principle of maintaining residential diversity and compact development. However, we strongly advocate that the affordability of the units be maintained for a minimum of 30 years, as opposed to the proposed 10 years. This would be consistent with the City's proposed Housing Policy.

3. The project is within the proposed Convention Center sub-district of the TOD Plan, which calls for activating the Convention Center area with a mix of

complimentary uses, such as restaurants and retail. While the proposed street level commercial spaces and open space may help to activate the street area, the storefront facade and commercial spaces are set back quite far from the Kapiolani Boulevard sidewalk. The project should consider bringing the commercial uses closer to the sidewalk, as recommended by the TOD Plan. The development may contribute more to the streetscape and generate more street-level interaction if the ground-floor façade is located closer to the property line. The TOD Plan recommends a "build-to line" located 12-feet from the front property line.

4. Pedestrian circulation. The TOD Plan calls for the improvement of pedestrian facilities and amenities to improve the quality and safety of the walking environment and circulation. The Applicant should identify any proposed enhancements to Kona Street, pedestrian paths through the site connecting Kapiolani Boulevard and Kona Street, and nearby pedestrian crosswalks in the Final EA. The Kapiolani Residence project offers a great opportunity to improve pedestrian and bicycle circulation, provide sidewalks and a convenient connection to Ala Moana Shopping Center and the beach, street-level convenience retail, public artwork and lighting, planting areas, bicycle storage, and safer pedestrian crossings at an improved Mahukona/Kona Street intersection, in accordance with the guidelines of the TOD Plan.

5. Street trees. Kapiolani Boulevard is lined with mature monkeypod trees that contribute to a desirable environment for pedestrians. To preserve as many trees as possible, the project should minimize or eliminate the Kapiolani Boulevard curb cut and utilize Kona Street as the primary access. We strongly discourage any proposal to remove (and not relocate) a large healthy mature tree along Kapiolani Boulevard.

6. Density. The proposed floor area ratio (FAR) of 9.32 is not consistent with the TOD-proposed FAR. High-density, mixed-use development is envisioned in both the PUC DP and the TOD Plan. Although the two plans set different height and density limits, the TOD Plan expresses the current recommended development standards for the Ala Moana area. The Applicant's proposal includes 485 units on the 1.29-acre site with an FAR 9.32 and building height of 400 feet. While the BMX-3 Community Business Mixed Use District currently allows a maximum FAR of 3.5 and height of 350 feet, the TOD Plan envisions a much higher density pattern and allows development to reach an FAR of 7.0 with a maximum height of 400 feet where "community benefits" are provided. Affordable housing is one type of community benefit.

7. Height. The Draft EA plans show a straight, vertical building tower without a podium at the bottom. The TOD Plan advocates a building envelope with a setback of at least 15 feet above 60 feet in height. The Applicant should consider redesigning the project to bring the lower levels toward the street and setting the tower back at this rate to comply with the proposed height setback.

8. Park Dedication. The requested full exemption from park dedication requirements should be reconsidered. The residents of the 485 dwelling units deserve open space where they can seek some form of respite and recreation in this high-density area. The rationale that the residents of affordable units can hold memberships at area fitness clubs is weak. By siting the tower closer to Kapiolani Blvd, as recommended in the TOD Plan, the "lawn" space between the tower and the parking garages would be significantly increased and made more usable and pleasant.

9. The project may conflict with HART's plans for an extension of the rail transit line guideway beyond the Ala Moana Station going through the subject property. The completion of the Kapiolani Residence tower may preclude an alignment through this site.

Please contact Franz Kraintz at 768-8046, if you have any questions concerning the CPB comments.

B. Land Use Permits Division (LUPD) Comments:

1. Parking. The Draft EA calculations for the parking requirement for the proposed structure based on current Land Use Ordinance (LUO), Revised Ordinances of Honolulu Chapter 21, and requirements are correct on page 85, but incorrect on the building summary table on page 182. The LUO would ordinarily require that the proposed project provide a total of 851 parking stalls: 794 resident stalls, 8 commercial stalls, and 49 guest stalls.

   The draft bill developed by the DPP for the future TOD special district (SD), which will be transmitted to City Council via the Planning Commission shortly, proposes different (reduced) parking requirements. Under the proposed regulations, parking will not be required for commercial uses, and parking requirements for dwelling units is proposed to be reduced as follows:

Floor Area of Dwelling Units	Number of Spaces Required per Unit	Number of Units in Development	Total Spaces Required
600 square feet (s.f.) or less	0.5	88	44
601 – 799 s.f.	0.75	176	132
800 s.f. or more	1	221	221
Guest parking	1 space per 10 units	485	48.5
Total:			**446** (445.5)

According to the Draft EA, the proposed parking structure has 695 parking spaces. This is 156 spaces less than the LUO requires today, but 249 spaces more than would be required under the proposed TOD SD regulations. We also note that the application states that 38 unassigned spaces will be available for

other uses, including "possible additional resident acquisition." We recommend that the total number of parking spaces be reduced; or, if parking is provided at the rate currently proposed, the majority of the parking be unbundled from the residential units so that the spaces can be made available for other uses such as car sharing, or managed in such a way that the parking garage is optimally utilized throughout the day. This would both provide a community benefit and potentially increase the affordability of the dwelling units.

2. Density. The lot area of the subject site is 56,250 square feet. In the BMX-3 District, the Applicant would ordinarily be allowed to develop up to 140,625 square feet of floor area (FAR of 2.5) or up to 196,875 square feet (FAR of 3.5) if open space bonuses are provided. The TOD Plan recommends a maximum FAR of 7.0, which would result in up to 393,750 square feet of floor area, but only where community benefits are provided as part of the project. The Applicant proposes to develop 524,489 square feet (FAR of 9.32), which is 33 percent greater than the maximum allowance under the TOD Plan, and 2.7 times the maximum density permitted under the LUO today. We maintain that where such a significant increase in the allowable FAR is proposed, significant community benefits should be provided beyond just affordable housing. At the subject site, we recommend improved multi-modal transportation options, including more bicycle parking, space for a bicycle-share station, vehicle parking spaces dedicated to car sharing, pedestrian access from Kapiolani Boulevard to Kona Street, and unbundled parking. Also, additional design elements should be incorporated, particularly on the ground floor, to create an interesting building façade and engaging spaces fronting the commercial establishments.

3. The Final EA should explore environmentally-friendly amenities, including a recycling program for the residents, solar power generation, the use of reclaimed water for landscaping, water-efficient fixtures, and indoor air quality improvements.

4. Bicycle parking. According to the Draft EA, the proposed public bicycle racks will accommodate only 25 bicycle parking spaces. To promote biking and transit usage, and to reduce dependence on the automobile, we recommend that the project meet the bicycle parking standards, developed in consultation with the Department of Transportation Services (DTS), that is included in the TOD SD draft bill. The proposed standards will require short- and long-term bicycle parking spaces, as summarized in the following table:

Use	Short-Term Bicycle Parking	Long-Term Bicycle Parking
Non-Residential	1 space per 2,000 square feet of floor area or 1 space per 10 vehicle spaces, whichever is greater	1 space per 12,000 square feet of floor area or 1 space per 30 vehicle spaces, whichever is greater
Residential	1 space for every 10 units or 10 spaces, whichever is greater	1 space for every 2 dwellings or lodging units

Short-term bicycle parking is designed for customers and visitors of an establishment and should be convenient, publically accessible, and located as close as possible to a building's main entrances. Long-term bicycle parking is secure, weather-protected bicycle parking intended for employees, residents, commuters and other visitors who generally stay at a site for several hours, or over night. Based on the plan in the Draft EA, and assuming that of the 695 proposed parking spaces, 657 will be dedicated to the residential use and 38 will be dedicated to the commercial uses, we have estimated the bicycle parking requirement to be 52 short-term spaces and 244 long-term spaces, as shown in the following table:

Use	Calculator	Short-term Bicycle parking	Long-Term Bicycle Parking
Non-residential	38 vehicle spaces	3.8	1
Residential	485 dwelling units	48.5	242.5
Total		**52**	**244** (243.5)

We have provided this information to help the Applicant and the Hawaii Housing Finance and Development Corporation determine what would be the appropriate level of bicycle parking for the proposed development based on research performed by the DPP and DTS. In addition, the Applicant should consider providing space for a bikeshare station on the property.

Please contact Elizabeth Krueger of our Land Use Approvals Branch at 768-8017 if you have any questions concerning LUPD comments.

C. Traffic Review Branch (TRB) Comments:

1. A time line or phasing plan of the anticipated dates to obtain major building permits for demolition and construction work, including the projected date of occupancy or opening, should be prepared and included in the Final EA. The time line should identify when the construction management plan (CMP), the traffic management plan (TMP) will be submitted for review, when updates and/or validation to the findings of the initial traffic impact analysis report (TIAR), dated

January 26, 2015, will be submitted, and when approvals for construction plans, building and occupancy permits will be necessary. Typically, the CMP should be submitted for review and approval prior to the issuance of demolition and building permits for major construction work. The TMP or subsequent updates should be submitted and approved prior to the issuance of a temporary certificate of occupancy. A new TIAR may be required if there is a significant change to the scope or timing of the major work items contained in the initial report.

2. Every effort must be made to minimize the impacts of construction vehicles and related activities to the safety of motorists and pedestrians traversing the area. Therefore, at a minimum, the CMP should:

   - Identify the type, frequency and routing of heavy trucks and construction related vehicles;
   - Limit the time periods for construction vehicle travel to minimize the impacts at peak periods;
   - Identify alternate routes for heavy trucks;
   - Provide either on-site or off-site staging areas for construction related workers and vehicles to limit the use of on-street parking around the project site;
   - Identify other mitigation measures related to traffic and potential neighborhood impacts;
   - Include preliminary or conceptual traffic control plans for lane closures and detours, as needed; and
   - Document the condition of roadways prior to the start of construction activities and provide remedial measures, as necessary, such as restriping, road resurfacing and/or reconstruction if the condition of the roadways has deteriorated as a result of the related construction activities.

3. A TMP should include traffic demand management (TDM) strategies to minimize the amount of vehicular trips for daily activities. TDM strategies could include carpooling and ride sharing programs, transit, bicycle and pedestrian incentives, and other similar TDM measures. A pedestrian circulation plan should also be included to provide accessibility and connectivity to and along the surrounding public sidewalks and at street intersections. In particular, the plan should identify safe routes to access the planned transit station and surrounding activities. Effective sidewalk widths should be determined by taking into account complete streets initiatives. A bicycle plan should be included to identify the location and amount of bicycle racks being provided. A post TMP will be required approximately one year after the issuance of the certificate of occupancy to confirm the effectiveness of the various TDM strategies with regard to pedestrian and bicycle circulation, and vehicular-trip reduction. If the post TMP concludes there is excess demand for bicycle parking, additional racks should be provided.

4. Approximately one year after the issuance of the certificate of occupancy, a post TIAR will be required to validate or augment the projections of the initial TIAR related to traffic, distribution, and assignment of vehicles, bicycles, and pedestrians. If the post TIAR identifies unanticipated impacts to the health and safety of residents, customers, the general public, or traffic operations that are attributable to this development, additional mitigation measures will have to be identified and implemented.

5. Construction plans for all work within or affecting public streets should be submitted to the TRB for review and approval. Traffic control plans during construction should also be submitted for review and approval, as required. Vehicular access points shall be constructed as standard City dropped driveways. Adequate vehicular sight distance must be provided and maintained at all driveways. Driveway grades shall not exceed five percent for a minimum distance of 25 feet from the back of the designated pedestrian walkway. Entry gates and ticket dispensers should be recessed as far into the driveway as necessary to avoid any queuing onto public streets. All loading and parking areas must be designed such that vehicles enter and exit in a forward-facing manner. Vehicular access from Kapiolani Boulevard will be limited to right in and out, and the driveway access will need be constructed with a channelized island to effectuate this design condition.

6. The developer should meet with the DPP-TRB and DTS to discuss traffic related issues for off-site work prior to the submittal of construction plans at their earliest convenience to minimize review comments and expedite the time for plan review.

Please contact Mel Hirayama at mhirayama@honolulu.gov if you have any questions concerning the TRB comments.

D. Wastewater Branch (WWB) Comments: Section 3.13.2 states the incorrect sewer connection application (SCA) number. The correct application number is 2014/SCA-0720. The project's SCA was approved on December 4, 2014 and will expire on December 4, 2016. The SCA was approved for 484 units, but the Draft EA states the project involves 485 units. A new sewer connection application will be required to account for the additional unit.

Please contact Keith Miyashiro at 768-8209 if you have any questions concerning the WWB comments.

E. Subdivision Branch Comments: A consolidation or joint development of the two parcels is required. The Subdivision Branch recommends that exemption from park dedication requirements not be granted for the proposed 193 market-priced units.

Please contact Mario Siu Li at 768-8098 if you have any questions concerning the Subdivision Branch comments.

Thank you for the opportunity to review and comment on the subject Draft EA.

Very truly yours,

for George I. Atta, FAICP
Director

cc: Office of Environmental Quality Control
Hawaii Housing Finance and Development Corporation

July 22, 2015

Mr. George I. Atta, FAICP
Director
Department of Planning and Permitting
City and County of Honolulu
650 South King Street
7th Floor
Honolulu, Hawaii 96813

Re: Department of Planning and Permitting Comments:
Kapiolani Residence Draft Environmental Assessment (DEA)
1631 Kapiolani Boulevard, Honolulu, Hawaii 96814
TMK: 2-3-41: 6 & 9

Dear Mr. Atta:

Thank you for your department's comments on the above-referenced DEA for the subject project. We appreciate the attention given to this document. To facilitate referencing, our responses generally follow the sequence of the comments presented in your letter.

Community Planning Branch Comments:

1. ***The Final EA should have a concise summation of the exemptions being requested compared to the amount/degree of affordable hosing and other community benefits being provided.***

   A concise summation of the exemptions being requested is presented in the DEA on pages 88 – 89 in Table 10: *Requested Exemptions and Deferrals.*

   It is important to point out at the onset that the decision to pursue development of a project with a predominantly affordable housing profile at this very central and high-value site was a significant decision and a significant contribution that not many others would be likely to have the opportunity, or having the opportunity, the inclination to do. Therefore, it is our belief that this project represents a significant commitment to the public good and an important contribution of a significant residential component for the future Ala Moana TOD Neighborhood, particularly and uniquely valuable because the housing being proposed would be predominantly affordable: 60% of the total unit count is planned to be affordable to households earning 80% - 120% of Area Median Income (AMI).

   From this location, the project's future residents would not only enjoy proximity to most of the lifestyle support services they would need or desire, but choice as well. They would be able to choose from among the types of desired services available. Within less than a mile of Kapiolani Residence, future residents would have access to:

   - Five financial institutions,
   - Six supermarkets,

- Five concentrations of medical services,
- Eight public parks and playgrounds,
- Five personal training facilities,
- The complete range of needed pre-university public education facilities,
- Three major retail shopping centers,
- A variety of locations or centers for employment, and
- Nearby public transportation for getting to jobs and other Oahu destinations.

Attached is a table itemizing these lifestyle support opportunities.

Providing an affordable housing project at this location and in programming its unit types in partnership with Hawaii Housing and Finance Corporation to create units capable of accommodating active families (nearly 50% of all units and nearly 50% of affordable units are two- and three-bedroom units), we have created a project with very tight financial constraints. For this reason, instead of itemizing each requested exemption with an increment of project provision, we view the exemptions in terms of their cumulative ability to enable us to implement this project.

However, one example of the degree to which *LUO exemptions* could increase benefits to the community has been presented in the DEA in Chapter 6: *Alternatives to the Proposed Action*, Section 6.2: *Development in Accordance with LUO and Park Dedication Standards and Requirements*. Although, a number of different solutions could be developed using the existing zoning provisions, a study of development possibilities under BMX-3 assuming the use of a similar building type to that proposed is demonstrated in this section. Assuming that the residential tower could start at the ground level, and using the same residential floor plan as proposed, 297 residential units or 60% of the currently proposed total unit count (485 units) could be developed at the site under BMX-3. If the BMX-3 alternative were to be similarly 60% affordable, that BMX-3 solution would yield 178 affordable units as compared to the 292 affordable units proposed by Kapiolani Residence.

Alternatively, developing Kapiolani Residence as proposed would yield 188 more total units or an increase of 63.3% total units and 114 more affordable units or an increase of 64% affordable units available to future residents of the pending Ala Moana TOD neighborhood.

Other community benefits in addition to proximity to choices among lifestyle support facilities and an increase in the size of the contributed residential component include widened sidewalk facilities, a public plaza that, as a planted, hardscaped minipark can become part of the future fabric of a fine-textured system of open spaces for the district, and a public bicycle storage facility for 26 bicycles that could become part of a district-wide bike-share program.

2. **Extending the affordability of Kapiolani Residence from 10 years to 30 years.** The length of affordable unit affordability stated in the DEA corresponds to the buy-back and shared appreciation equity program restrictions as set forth in Section 201H-47, Hawaii Revised Statutes.

3. **Bringing Commercial Uses Closer to the Sidewalk, Possibly to the 12-foot Setback Line.** We fully agree with activating the Convention Center area with a mix of complementary uses. We suggest that at this specific location, the method we propose by which to do this: with a public plaza appointed with tables, seating, and potentially additional

amenities directly connected to a broad public sidewalk on one side and to the project's streetlevel commercial facilities on the other is the best way to achieve the desired activation at this location. The plaza, attractively appointed and with commercial establishments of interest behind it, will be able to draw passersby into proximity and interaction with those commercial establishments. Given the organization of Kapiolani Residence facilities, this is the most appropriate response to the site's immediate context.

As currently designed, the tower and commercial spaces are a single unit. At present, the tower is set back from the street to reduce the acoustical influences of Kapiolani Boulevard traffic and to enable the creation of the public plaza just described.

Moving the building toward the street, especially to the recommended 12-foot "build-to" line would reduce or eliminate the public plaza and impact the existing monkeypod trees along the Kapiolani Boulevard frontage. The monkeypods fronting the project have canopies ranging from 50 to 60 feet in diameter. The inboard or makai edges of their canopies would have to be trimmed, not only to accommodate the finished building, but to accommodate the construction activities necessary to build it. This is likely to result in considerable "lateral pruning" of the monkeypods, an activity which would have to continue around the entire circumference of each affected canopy to maintain the viability of each tree, changing the size and character of the tree cover along the site's 200-foot frontage.

With their ability to produce wide-spreading canopies, the monkeypod trees lining both sides of the length of Kapiolani Boulevard through most of its length through Central Honolulu gives this urban arterial the distinctive ambience perceived and felt by motorists and pedestrians alike, making Kapiolani a signature Honolulu thoroughfare and the only one of its kind on Oahu. As just explained, building to the 12-foot build-to line has the potential to interrupt the visual theme presented by these canopies by diminishing their presence.

If the building were to simply extend its ground floor area, thus moving its commercial face to the 12-foot build-to line, disruption of the tree canopies may still occur to enable construction of this extension. If the ground floor could be extended without disrupting the existing canopies, the result would be the presence of a portion of the project under the mature branches of existing trees, creating a situation of potential liability for the city should a branch fall on the building beneath it.

Given these considerations, we respectfully suggest that the building remain where it is presently sited. It provides acoustical buffering for its residents and a pleasant public plaza. This position also allows the existing monkeypods to provide a significant foreground and visual screen for the project standing behind them.

4. **Pedestrian Circulation:** We agree with the intent to improve pedestrian facilities and amenities, and to improve the quality and safety of the walking environment and circulation in the future TOD district. At the present time, we believe that Kapiolani Boulevard, toward which existing buildings now face, which already accommodates substantial daily volumes of pedestrian traffic, and which already possesses commercial frontages and the ability to establish a continuity of such frontages and compatible activities, is the best street on which to focus these efforts. Pursuant to

   In contrast, Kona Street is primarily a narrow, 32-foot wide service street for buildings fronting Kapiolani Boulevard. It is heavily travelled by a mixture of personal automobiles and large service vehicles, including City buses, private Tour buses, and large delivery and

service trucks. Many of the larger vehicles have limited visibility. The mauka side of Kona Street is interrupted with numerous service driveways and a large private bus terminal with a frontage dominated by driveway width. On Kona Street's makai side near the Keeaumoku Street intersection, a ramp descending from the upper floors of the Ala Moana Center parking garage feeding toward Keeaumoku Street adds to the aforementioned set of pedestrian hazards. With these attributes, Kona Street is hazardous to pedestrian use. Given these conditions, it would also be difficult to establish commercial frontage continuity.

With these considerations in mind, we believe that focusing on the Kapiolani Boulevard frontage for pedestrian and commercial activity would provide the greatest returns for the Convention Center Subdistrict.

Along its own frontage, Kapiolani Residence has provided for pedestrian and commercial improvements with its broadened sidewalks and public plaza. It accommodates bicycle circulation by providing public bicycle storage.

Given the presence of the Ala Moana Hotel directly across Kona Street, the best and safest route to Ala Moana Center and the beach is through the raised sidewalks along the Atkinson Boulevard side of the Ala Moana Hotel. Using this route, pedestrian shortcuts to the Center are possible through the hotel lobby, while beachgoers can continue down Atkinson Boulevard to the Ala Moana Boulevard, crossing at the park's Roosevelt Gate.

Finally, it should be noted that while we support safer pedestrian crossings at the Kona/ Mahukona Street intersection, the Kapiolani Residence is separated by two properties from that intersection and has no control over that area.

Before we leave this subject, it may be useful to return attention to Kona Street, since if it were possible and if it made commercial and functional sense, efforts to assess the improvement potential of Kona Street, although longer term than improvements to Kapiolani Boulevard, may be both possible and fruitful.

If Kona Street were to be improved or made a route of choice for pedestrian traffic, we believe that an inclusive strategic and action planning effort would be needed. Because General Growth owns Kona Street while the parcels along the street are held by multiple owners and the properties themselves are of various ages with differing life expectancies and states of repair, we believe that all Kona Street property owners should be involved.

It may be possible that, depending on their interests and long-term goals, General Growth might be key in conducting the improvements within the roadway right-of-way as the property owners improve or redevelop their own parcels. It could work much like a shopping center would, with General Growth undertaking and coordinating "landlord improvements" with the work of the property owners, which would be similar to the conducting of "tenant improvements".

This operation could work similarly with the way other American cities have promoted and conducted neighborhood revitalization projects within their own municipalities.

5. **Street Trees; the Kapiolani Boulevard Vehicular Entry:** We wholeheartedly agree that Kapiolani Boulevard's mature monkeypod trees contribute to a desirable environment for pedestrians, and would like to take this opportunity to add that they contribute to the

uniquely lush Kapiolani Boulevard center-city driving experience as well. We would be reluctant to allow the unnecessary alteration or elimination of any healthy monkeypods. In Section 2.1.2: *Onsite and Vicinital Conditions*, the DEA recognizes the value of the monkeypods along Kapiolani and cites their qualities as both assets and potential liabilities. The DEA states, on page 22, that

> *while the distinctive visual qualities of Kapiolani's monkeypods should be respected and utilized wherever possible, these trees may best be treated as design elements in the development of properties along the street: maintained and preserved where they provide amenity, and edited to signify important entry conditions or to eliminate unavoidable hazard.*

Therefore, we value the amenity that the Kapiolani Boulevard monkeypods bring and support all efforts to maintain and nurture that amenity. At the same time, we recognize that tree health and safety issues may necessarily govern how this amenity is managed.

Both Kapiolani Boulevard and Kona Street experience high traffic volumes. However, given the narrow width and congested nature of Kona Street, and its heavy use by service as well as passenger vehicles it became clear that Kapiolani Boulevard was the safer and therefore preferred primary vehicular entry and exit point for the project, while Kona Street was identified as a secondary egress point, primarily for service vehicles.

This finding was presented for discussion with the DPP's Traffic Review and Urban Design Branches, the Department of Parks and Recreation Division of Urban Forestry, and the Outdoor Circle. All parties supported the choice of Kapiolani Boulevard as the project's primary ingress and egress point, and the removal of its most Diamond Head monkeypod tree to facilitate safe vehicular circulation and adequate driver sight lines at the project's primary driveway. This specimen would be replaced by another tree to be planted at a suitable location along Kapiolani Boulevard. The Division of Urban Forestry also recommended the removal and replacement of the site's Ewa-most monkeypod tree, which is currently near an existing light pole and which leans toward the street, shows signs of having been hit by automobiles, and thus appears a potential traffic hazard. A replacement monkeypod tree would be planted in another location along the project's Kapiolani frontage. The Outdoor Circle noted that the trees to be removed were presently growing in restricted planter space, showed evidence of being hit by cars, and as a result were not in good condition. The resultant tree frontage after improvements would consist of three monkeypod trees: two existing monkeypod trees and one replacement monkeypod, all in enlarged planting beds to facilitate their continued health.

Finally, General Growth has approved Kapiolani Residence access to Kona Street as a secondary point of egress but has declined our inquiry regarding the possible use of Kona Street as a primary ingress and egress point for the project. In view of the considerations presented above and the observations presented in the foregoing *Item 4.*, we view General Growth's decision as consistent with the function of Kona Street and the purpose it serves, the physical conditions along its alignment, and the daily characteristics of its use.

6. **Density:** As previously cited, Kapiolani Residence is a 201H Affordable Housing project. It is not a TOD project. As such, it consciously reflects the general intent of the Ala Moana TOD program but does not conform to all the proposed provisions of the draft Ala Moana TOD Plan. It reflects the TOD Plan's building height proposal of 400 feet.

However, project programming (including the provision of 2- and 3- bedroom units, developed in response to conversations with HHFDC), the conscious effort to provide more than bare minimum requirements, but rather, to design spaces which consciously accommodate functional living requirements wherever possible, and resultant project economic feasibility requirements have resulted in its 9.32 FAR. The decision to create a predominantly affordable housing project with the ability to accommodate families as well as individuals at this very central location on a significant, high-value site both requires and merits the density and building envelope proposed.

When deciding to target the affordable market, the project team was aware that they were "going against the grain" of traditional development logic. The team has since been reminded of this repeatedly by other members of Honolulu's development and business community. Given this, we believe that this project represents a significant civic contribution meriting the allowances and exemptions needed to achieve economic feasibility.

7. **Height:** Creating an affordable housing project requires the careful management of often severe economic constraints and the selection of strategies that will facilitate economic feasibility. One of these strategies is the use of geometrically repetitive floor plans and simplicity of overall building form. The resultant tower and its ground floor reflect this. Together they form a simple prismatic rectangle which is ideally suited to the repetitive residential floors which begin at the tower's second story. Broadening the building's exterior envelope at and below its 60-foot height would not be compatible with its internal organization, which consists of repetitive double-loaded residential floors within a simple prismatic shape. Functional and economic concerns preclude the suggested building massing strategy.

8. **Park Dedication:** Creating a large, predominantly affordable housing project at this very central location on a high value site is a significant contribution to the community, to State and City housing objectives, and to TOD objectives for affordable housing within the TOD area. Doing so involves tight financial constraints and substantial risk in an environment of rising construction costs and uncertainties with respect to interest rates or the cost of money.

   To cite the volatile economic environment with which the project must contend, it is useful to note, as relayed by the July 24, 2015 issue of *Pacific Business News,* that Glenn Kaneshige, president of Nordic PCL Construction, recently stated in a presentation to the National Association of Industrial and Office Park (NAIOP) Hawaii members that

   > *construction costs increased 1 percent a month between 2013 and 2014, and the trend is continuing.*

   Because of this, we are asking for relief from customary zoning constraints and fees, including Park Dedication requirements and fees.

   The DEA does not base the rationale for assistance in this solely on the availability of fitness club memberships to affordable unit owners. While the rationale column for the Park Dedication Ordinance Exemption mentions health clubs, it cites that:

   > *...there are numerous public parks and health clubs in the area available for use by project residents, and proposed onsite recreational and leisure facilities intended to meet resident recreation and leisure time needs.*

In addition, the DEA, in Section 3.2.5: *Recreation Resources*, cites the presence of numerous parks, outdoor recreation areas, fitness facilities, and yoga studios in the general project area. These facilities and recreation areas have been cited to illustrate the existence of available recreation resources available for helping to meet the recreation needs and preferences of future project residents.

Since the completion of the DEA, we have revised our proposal for recreation facilities to enhance our onsite recreation offerings. We have replaced our first floor party room and fitness center with a rooftop recreation deck on a portion of the top level of the parking garage, enhancing the context of some of our facilities by placing them in an outdoor, rooftop setting with direct access to natural light and air. This recreation deck is configured to feature a large general purpose pavilion and cabanas equipped with barbeque grills. This has increased the project's onsite recreation and leisure facilities offering from 9,872 square feet to 11, 879 square feet.

The project's park dedication liability in terms of in-lieu fees based on 110sf/unit x 485 total units calculated on an estimated current market value of the site (based on the 2014 purchase of immediately adjacent parcels by another party for an average of $345.74/square foot) would be 53,350 sf – 11,879 sf of onsite recreation space = 41,471 sf x $345.74/sf = $14,338,183.54. If only the 193 market units were subject to this fee, the project's park dedication liability would be 110sf/unit x 193 units = 21,230 sf x $345.74/sf = $7,340,060.20. Both fee amounts are prohibitive to project economic feasibility based on project cost and estimated anticipated project revenues.

For this reason, we respectfully request full exemption from the Park Dedication fee. We believe the project's significant community benefits in the form of much needed affordable housing in a premium Central Honolulu location and the presence of multiple existing recreation and leisure facilities in the area, including eight public parks, five of which are within or a little over ½ mile of the project site is more than adequate justification for this exemption request.

9. **Potential Conflict With HART Plans For A Rail Line Extension**: While the HART FEIS shows a rail line extension traversing the property, we feel it safe to proceed with the project. The HART preconsultation response included in the Kapiolani Residence DEA states:

> *Please note that the Honolulu Rail Transit Project (HRTP) extension as documented in the Final Environmental Impact Statement (FEIS) runs through the above-mentioned property. The Locally Preferred Alternative identified in the HART FEIS includes an extension that "would connect to the current Project at Ala Moana Center and then veer mauka to follow Kapiolani Boulevard to University Avenue" (FESI 2-49). HART has not conducted planning or environmental assessments of the of the rail extensions, so the exact location of the future guideway is subject to change. HART has also not yet determined a schedule for rail extensions.*

Land Use Permits Division (LUPD) Comments:

1. **Parking:**

   a. Varying parking tabulations in the DEA document: We apologize for the varying statements of parking supply in the project. In working to achieve project feasibility and to improve project offerings to future residents, refinements to Kapiolani Residence continued after the completion of the DEA. In view of this, we would like to present you with updated project characteristics which will also be incorporated into the FEA. Project Floor Area and Parking distribution tables reflecting the final project status as proposed follow immediately:

USAGE TYPE	APPROXIMATE AREA ALLOCATIONS		
	FAR-Subject Area (sf)	Non-FAR Area (sf)	Total Area (sf)
Residential Units	388,280		
Residential Balconies	21,565	7,172	
Residential Floor Circulation	94,543		
Residential Common Area & Circulation	8,429		
Resident Manager's Unit	972		
Staff Spaces	861		
Total Residential	**514,650**	**7,172**	**521,822**
Commercial Spaces	3,353		
Total Commercial	**3,353**		**3,353**
Recreation and Leisure			
Resident Accommodations			
Lawn and Adjacent Gathering Plaza		2,942	
Covered Entry	317		
Recreation Deck & Facilities	1,252	3,440	
Public Plaza & Leisure Space		3,928	
Total Recreation and Leisure	**1,569**	**10,310**	**11,879**
Building Support (Utility) Spaces			
Tower Utility Spaces	774		
Parking Garage Utility Spaces	3,739		
Total Building Support	**4,513**		
Parking Facilities: 701 Stalls		233,554	233,554
Space Totals	**524,085 (FAR = 9.32)**	**251,036**	**775,121**

Table 5: Preliminary Space Program Summary

The number and distribution of parking stalls at the project site will be as shown below:

PROPOSED DISTRIBUTION OF PARKING STALLS BY USAGE TYPE		
USAGE TYPE	**Stalls by Unit Type**	**Stalls by Usage Type**
RESIDENTIAL TOTAL		**617**
STUDIO (1 Stall/Unit x 88 Units)	88	
1- BEDROOM/1 BATH (1 Stall/Unit x 176 Units)	176	
2 – BEDROOM/2 BATH (1.5 Stalls/Unit x 177 Units)	265	
3 – BEDROOM/2 BATH (2 Stalls/Unit x 44 Units)	88	
COMMERCIAL (1 stall/400 sf of commercial space)		**8**
GUEST PARKING (5% of unit count, or 1 stall/20 units)		**24**
ELECTRIC CAR PARKING		**8**
HANDICAP ACCESSIBLE STALLS (2% of total parking count)		**15**
ADDITIONAL STALLS FOR OTHER PROJECT USES		**29**
TOTALS	**N/A**	**701**

Table 6: Distribution of Parking Stalls by Usage Type

Residential unit owners will not be charged separately for parking stalls assigned to their unit. Parking stalls will be included in a residential unit purchase as follows: 1 parking stall/unit for studio, 1-bedroom, and 2-bedroom units. 2 parking stalls will be provided for each 3-bedroom unit. 2-bedroom unit purchasers will have the option of purchasing an additional parking stall, if available, on a first-come, first-served basis. Unit pricing is based only on the actual residential unit and the number of stalls already assigned to it.

For commercial uses, 1 parking stall will be provided for every 400 square feet of commercial space. The additional stalls that will be kept in reserve for other project uses have been held in reserve to serve other needs that may arise in the future. Possible future uses that could be considered for these stalls include the accommodation of a car sharing program, the conversion of stalls to accommodate bicycles in response to increases in bicycle usage and need, and the integration of a bike share program into the project.

b. Parking Supply: While Kapiolani Residence supports the intent of TOD, its advocacy of multiple transportation alternatives, and its thrust toward increased usage of modes of transport other than the private automobile, we realize that actual personal preferences do not change overnight, but rather, over time, and that Kapiolani Residence's potential market will probably consist of individuals with a range of attitudes toward urban living, a

range of preferences toward modes of transportation, and consequently a range of preferences with regard to parking spaces available for personal automobiles. Given this, parking as proposed by Kapiolani Residence appears to be the wisest course of action for satisfying this range of customer preferences and facilitating project viability.

Therefore, to maintain the project's marketability to its intended target markets, the project proposes parking in lower quantities than specified by the City's existing Land Use Ordinance (LUO) but higher than proposed by the Ala Moana TOD Plan to allow for this range of customer preferences. Evidence of the apparent range of preferences with regard to parking is the fact that a project currently being developed with reduced parking provisions for affordable units experienced challenges with the sale of those units for a number of reasons, one of them apparently being a perceived lack of choices in the number of parking stalls available to certain affordable units. In the future, as preferences change, parking stalls not already assigned or otherwise irrevocably committed can be converted to other necessary or desired uses.

2. **Density:** As previously cited, Kapiolani Residence is a 201H Affordable Housing project. It is not a TOD project. As such, it consciously reflects the general intent of the Ala Moana TOD program but does not conform to the proposed provisions of the draft Ala Moana TOD Plan. Therefore, its FAR results from a combination of the project's requirements for financial feasibility and considerations of appropriate scale and massing at the site, both of which we believe we have successfully addressed.

   In addition, we believe that the decision to create a predominantly affordable housing project at this location, where future project residents will have not only proximity to but choices among the high-quality, vital lifestyle support facilities available to them, on a very high-value site where such a project is financially difficult to do successfully is a significant community contribution that not many others with similar opportunity would have the inclination to do. In addition to providing affordable housing, we worked with HHFDC to provide, to the extent of project financial capability, units capable of accommodating families. As a result, nearly half the affordable and nearly half the total number of Kapiolani Residence units are 2- and 3-bedroom units. Finally, the units themselves have not been designed to minimum standards, but have been designed and sized to adequately accommodate the functional living requirements of its intended occupants.

   In summary, the community benefits provided by Kapiolani Residence include not only the decision to provide affordable housing, but the way it intends to provide it.

   As we cited in our reply to Community Planning Branch on this topic, when we decided to target the affordable market at this site, the project team was aware that they were "going against the grain" of traditional development logic. The team has since been reminded of this repeatedly by other members of Honolulu's development and business community. Given this, we believe that this project represents a significant civic contribution meriting the allowances and exemptions needed to achieve its economic feasibility.

   In addition to provision of affordable housing, Kapiolani Residence's public plaza adds a dimension of leisure to the streetscape environment, opportunities for passersby to inspect and interact with the convenience commercial establishments lining the building's frontage away from the high volumes of potentially frenetic pedestrian traffic intended for the Kapiolani Boulevard sidewalks, and the first of what could become a fine-textured system of small open spaces that can be created throughout the Ala Moana Neighborhood and even

extended throughout the Central Honolulu area. A further contributed community benefit is the project's intent to integrate car share and bike share programs into its offerings.

3. **Environmentally-friendly Amenities:** The final EA will include material on environmentally-friendly amenities. Provisions which the project will incorporate include:

    - Maximizing individual residential unit exposure to the outdoors: *Architectural drawing 04*, in Appendix D of the DEA, which shows a typical building floor plan illustrates the project's intent to maximize exposure to natural light and opportunities for natural ventilation. Window openings to maximize visual exposure to the outside and opportunities for natural lighting are shown occupying all or most of the exterior walls of all habitable spaces in the residential units except where solid walls are needed for structural integrity. Most of these openings consist of operable windows to enable the entry of fresh air into the units. In addition, every unit will be furnished with a balcony with sliding doors to increase ventilation and natural lighting opportunities.

    - Where artificial lighting is needed, LED lighting will be installed where appropriate to reduce energy consumption.

    - Appliances that will be supplied with units will be Energy Star-rated to reduce energy consumption.

    - Low-flow flush toilets will be selected for installation.

    - Low VOC materials and finishes will receive priority during materials and finishes selection.

    Other environmentally friendly amenities may be added as project definition continues. In addition to the measures listed above, provisions such as recycling programs are usually part of ongoing project operations, and are often the decision of project AOAO's such as occurs in other for-sale condominium projects.

4. **Bicycle Parking:** Thank you for referencing the bicycle standards included in the Ala Moana TOD SD bill. As with the project's parking provisions, we support the intent of the TOD but realize as well that preferences, including those for modes of transportation change over time. Kapiolani Residence does include public bicycle storage, as you have observed, and has incorporated a secured resident bicycle storage facility within the parking garage as shown in *Architectural Drawing 01* in Appendix D of the DEA. As cited in Item 1. above, the project will be able to respond to increases in both public and private bicycle demand by converting surplus parking stalls into bicycle storage facilities. The project also intends to incorporate a bike share program into its offerings.

Traffic Review Branch

1. **A Detailed Project Timeline:** We have developed an overall project timeline which incorporates some of the items you have requested. We will incorporate that timeline into the FEA. However, since we have not yet formally contracted with a general contractor for construction, we cannot yet accurately estimate dates of all the items you have requested.

Once we have secured a project general contractor and have had the opportunity to work with that entity to estimate realistically all of the dates you have requested, we will fill in the missing elements and forward a copy of that timeline directly to your office.

2. **Construction Management Plan (CMP):** The CMP we develop with the general contractor will include all of the elements you have listed. That CMP will be forwarded to your office once completed.

3. **Traffic Management Plan (TMP):** The TMP you requested will be developed when the general contractor has been secured and forwarded to your office when completed.

4. **Post TIAR:** A post TIAR will be developed as requested. If unanticipated impacts are discovered, appropriate mitigation measures will be identified and implemented.

5. **Construction Plans for Work Within or Affecting Public Streets:** Construction and traffic control plans will be submitted to your office as requested. Design and construction shall comply with applicable City standards and in accordance with TRB requests. Vehicular access from Kapiolani Boulevard will be restricted as defined.

6. **Preconstruction Consultation with DPP-TRB and DTS:** The developer shall meet with DPP-TRB and DTS prior to submittal of construction plans to discuss traffic-related issues as requested.

Wastewater Branch

1. **SCA Application Number and Sewer Connection Application:** The current number will be corrected and the FEA will cite the new application in process for the additional unit, for a total of 485 units.

Subdivision Branch

1. **Consolidation or Joint Development of the Project's Two Parcels:** The developer will consolidate the parcels.

2. **Park Dedication: Non-Exemption of Project Market Units:** As outlined in Item 9. of our responses to Community Planning Branch, given the probable market value of the land at about $345.74/sf based on the 2014 sale of immediately adjacent parcels on the Diamond Head side of the project site, the project's park dedication fee would be 110sf x 193 units x $345.74/sf = $7,340,060. Given the very thin margin which resulted from the decision to do a predominantly affordable housing project at this site, the efforts made to create larger units to accommodate, as much as feasible, families within the project, a climate of rising construction costs and uncertainty in the direction of interest rates, this is not an economically feasible thing for the developer to do. While we appreciate the proposal to reduce the number of units subject to Park Dedication requirements, it is economically infeasible, given the project's financial constraints.

We hope our responses provided you with the explanations you need. If you have questions about any of these responses, please feel free to contact me via the contact information below. Thank you for the time and attention directed to this proposal.

Sincerely yours,

Lowell K.W. Chun
President, Pacific Catalyst LLC
1296 Kapiolani Blvd., #1907
Honolulu, Hawaii 96813

enc.:

- Proximity to Services, Schools, Shopping, and Recreational Opportunities (table)
- Minutes: Meeting with DPP/TRB
- Minutes: Meeting wieth DPP/Urban Design Branch
- Minutes: Meeting with Department of Parks and Recreation, Division of Urban Forestry
- Minutes: Meeting with The Outdoor Circle
- The Outdoor Circle Newsletter Article Re: Consultation with SamKoo
- Arborist Report on Trees Fronting the Project Site

Facility Type		Facility Name	Distance
Supermarket/Grocery Store		Don Quixote	0.20 mi.
		Palama Market	0.20 mi.
		Safeway Supermarket	0.71 mi.
		Times Supermarket	0.68 mi.
		Foodland Supermarket	0.58 mi.
		Sam's Club	0.26 mi.
Major Retail Shopping		Ala Moana Center	0.10 mi.
		The Ward Centres	0.88 mi.
		Walmart	0.26 mi.
Schools	Elementary	Kaahumanu Elementary School	1.50 mi.
	Middle	Washington Middle School	0.70 mi.
	High	McKinley High School	0.90 mi.
Child Care		First Chinese Church of Christ	1.20 mi.
Public Library		Makiki Library	0.79 mi.
Healthcare		Kapiolani Medical Center for Women & Children	0.90 mi.
		Straub Clinic and Hospital	1.06 mi.
		Kaiser Permanente Honolulu Clinic	0.75 mi.
		Private Medical Offices and Clinics (in Ala Moana Building)	0.23 mi.
Park/Playground		Ala Moana Regional Park	0.70 mi.
		McCully District Park	0.86 mi.
		Cartwright Park	0.66 mi.
		Makiki District Park	0.79 mi.
		Queen Park	0.70 mi.
		Sheridan Community Park	0.56 mi.
		Pawaa Park	0.45 mi.
		Lunalilo Elementary School Field	0.38 mi.
Personal Training		RomGym 8 Minute Fitness	0.91 mi.
		Island Club and Spa	0.67 mi.
		24-Hour Fitness Kapiolani	0.03 mi.
		Honolulu Body & Brain Yoga	0.81 mi.
		Power Yoga Hawaii	0.52 mi.
Bank/Financial Institution		First Hawaiian Bank	380 ft.
		Bank of Hawaii (Ala Moana Building)	0.23 mi.
		Territorial Savings Bank (Ala Moana Center)	0.21 mi.
		American Savings Bank (Ala Moana Center)	0.20 mi.
		American Savings Bank (at Kona Iki Street)	0.36 mi.
Public Transportation		Bus Stop: Kapiolani Blvd. & Mahukona St.	400 ft.
		Bus Transfer and Distribution Center (Ala Moana Center at Kona and Keeaumoku Sts.)	0.23 mi.
		Planned HART Ala Moana Station	0.36 mi.
Employment Centers		Kakaako	0.88 mi.
		Ala Moana Center	0.10 mi.

Proximity to Services, Schools, Shopping and Recreational Opportunities

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February 17, 2015

Meeting Minutes

PROJECT: Samkoo Pacific Condominium
DPI Project No. 14030

SUBJECT: Project overview with traffic branch
17 February 2015, 2:00 pm, @ FMB 8th FL. Conference room

ATTENDEES: Mel Hirayama, Bonnie Arakawa, Don Kimura, Ren, Rika Uechi, Kawana (DPP)
Harrison Rue (TOD)
Vernon I, Johnny W, Jason K (DPI)
Blaine Onishi (PBR)
Victor Valdez (SSFM)

Following issues have been discussed:

Johnny Wu gave an overview of the project, overall project program and traffic flow into and out of the project site.

The project is designed to be an affordable project type process through HHFDC. Project will provide 60% affordable units and 40% market units.

Johnny Wu stated initial design is to retain the existing driveway for project access, however, traffic flow study result in safety concern and inadequate traffic flow, therefore a new driveway location is proposed and the design team seek the city's traffic branch review and input.

The new driveway location provides a straight ingress and egress into the project. This proposal will require the removal of one existing monkey pod tree.

The project team has retained an arborist, who stated it's not feasible to relocate the existing tree due to its size. The tree will need to be removed. The existing tree is not part of the exceptional tree list.

1. Combine driveway with adjacent lot
    - Mel mentioned that combining driveway is probably not a good idea.
    - Mel also suggested DPI team to propose on proper driveway width on Kapiolani Blvd. Suggested to follow the similar type of driveway on recent projects along Kapiolani. There is no set width, the design team need to show the minimum width so it's safe for vehicle ingress and egress.

2. Johnny Wu state the need for the fire department access lane for HFD, which is 20' minimum width connecting between Kapiolani Blvd. and Kona Street
    - Bonnie Arakawa suggested if the design team could provide pedestrian walkway that connects Kapiolani Blvd. and Kona Street. (Bonnie speculated once the rail is completed, residence of the project may want to exit directly to Kona Street, and public may even cut through the project site). Johnny Wu stated that most likely

people will utilize existing Kaheka Street to access between Kapiolani Blvd. and Kona Street. Other option was to create stripping on the fire access lane as pedestrian walk way so public can visually see the walkway through the site.

- Bonnie suggested if we could flip current driveway from Kapiolani Blvd. (that serves as fire access route), and ramp location so the fire access route may be on the exterior side and be able to utilize by public as walkway. However, Johnny Wu stated if we flip the driveway, will create a cross-over between ingress and egress vehicles that will introduce an unsafe and hazardous condition for the residence.

3. City's intent is to make Kona Street a more pedestrian friendly street.
    - City's comment on current 5-feet setback seemed discouraging to pedestrian movement on Kona Street.
    - Bonny commented that she feels that we may need to increase Kona Street walk-way to promote pedestrian friendly environment.
        - Current condition (existing adjacent buildings are butt up to the property line and there is no sidewalk on-site). Should we promote pedestrian to walk within the roadway, will create a dangerous situation to the public.
        - Kona Street as now is mainly for service purposes.
        - Kona Street is privately owned, and will need to work with GGP to develop a long term plan if a sidewalk is required by the city.

4. Pedestrian walk-way along Kapiolani Blvd.
    - From current 4-feet walkway, recommend increase to 12-feet wide to facilitate anticipated increase in pedestrian and bicycles. Bonnie suggested a straight sidewalk for busy people to walk across, no meandering paths.

5. T.O.D suggestions:
    - Bike-share program and car-share program in our site.
    - Seating area facing Kapiolani Blvd.
    - Pulling back landscape along the façade of the building.

Action Items as follow:

1. Option study for driveway
    - Separate the driveways
    - Vehicle control signs and curves from Kapiolani Blvd.
    - Stripping on fire access route for pedestrian walk-way
2. Create bike storage for residence
    - Locate private bike storage for project residence (near entry is preferred)
3. Option study for front public plaza
    - Widen the side walk and incorporate plaza and sidewalk for better pedestrian experiences.

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March 9, 2015

Meeting Minutes

PROJECT: Samkoo Pacific Condominium
DPI Project No.14030

SUBJECT: SamKoo Pacific Condo – Street Trees

ATTENDEES: Anthony Ching (Urban Design Branch)
Ryan Nakamura, Johnny Wu (DPI)
Benjamin Rasa (SSFM)
Blaine Onishi (PBR)

Following issues have been discussed:

1. JW stated the reason for the meeting as noted by Mel Hirayama of Traffic Review Branch at DPP. The design team had met with Mr. Hirayama to go over the project and the proposed ingress and egress of traffic along Kapiolani Blvd. The preferred location of the new driveway will require the removal of one existing monkeypod tree on the site. TRB along with civil department representatives from DPP are in support of the proposed driveway location. All other alternatives are considered and discarded due to safety concerns. Mr. Hirayama requested that the design team meet with UDB to receive their feedback on the removal of the existing tree.
2. JW presented to Mr. Ching the overall project scope, design intent and current project status. The original design concept was to retain one of the two driveways to access the property, however, further traffic patter study concluded this layout is unfeasible due to it creates a hazardous condition for ingress and egress of vehicles. On top of this, vehicle exiting the property will require to make a shape "U" turn on to Kapiolani Blvd., which is difficult to do without taking up more than one lane.
3. A Tree Assessment Report (draft), dated March 2, 2015, was completed for the noted trees on the property by Steve Nimz and Associates. A copy of the report was presented in the meeting.
4. Mr. Ching noted that the current proposed layout will require the removal of an existing tree, and a replacement tree will be provided fronting the project. Mr. Ching studied and discussed other site layout possibilities that may be able to retain all the existing trees. The design team provided feedback, reasoning and history of how the design evolved.
5. Mr. Ching expressed that although he prefer not to remove any trees, he noted should the tree be removed, the design team need to meet with Department of Urban Forestry, Mr. Stan Oka. Mr. Ching would like to receive DUF's feedback on their opinion on the project.
6. Design team noted this, and will meet with Mr. Stan Oka, and report back to Mr. Ching of the outcome. The design team also mentioned that a meeting with Outdoor Circle will be setup in the near future to update them on the project and request their feedback.

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March 13, 2015

Meeting Minutes

PROJECT: Samkoo Pacific Condominium
DPI Project No.14030

SUBJECT: SamKoo Pacific Condo – Street Tree Removal Site Visit

ATTENDEES: Stan Oka, Terri Koike, Clark Leavitt, Brandon Au, David Kumasaka (DUF)
Timothy Yi, Alex Yoon (SamKoo)
Ryan Nakamura, Johnny Wu (DPI)
Blaine Onishi (PBR)
Victor Valdez (SSFM)

Following issues have been discussed:

1. The design team presented the site plan and noted the existing monkeypod tree to be removed / replaced. The two existing driveways will convert to planting strip and the Ewa existing driveway will be the location of the replacement tree.
2. A visual survey was conducted and noted the following:
    a. The existing street light pole in proximity of the new driveway may need to be relocated.
    b. Existing tree root damage conditions were noted.
    c. Existing tree most Ewa of the site is in close proximity of an existing street light pole and the tree trunk is leaning at an angle that could post a hazardous condition in the future.
3. After the site visual survey, DUF noted the following :
    a. The replacement monkeypod tree for the monkeypod tree (diamond side of the property) to be removed for the new driveway, will be planted in Kapiolani Blvd. Potential locations to be provided by DUF. *[3/18/2015 email from DUF provided three potential locations along Kapiolani. DUF prefers the Pan Am Building planting strip for the replacement monkeypod tree. Design team to study this option for any potential utility line conflicts]*
    b. If the street light pole at the new driveway location needs to be relocated, the new location will have to be clear of all the other tree canopies. Shifting the location a few feet from existing location should not be an issue.
    c. Ok to increase the planting area so all the monkeypod trees will have more root space.
    d. DUF concurs with the monkeypod tree (ewa side of the property) removal due to it's close proximity to the street light. However, the replacement monkeypod tree would still be planted in the planting strip fronting your affordable housing project. As such, the project will have 1 new replacement monkeypod tree and 2 existing monkeypod trees .

e. Adequately place the new monkeypod tree such that it's equally spaced fronting the property, and allow enough spacing for tree growth. The end result will have three monkey pod trees at this property and the fourth to be located off-site.

f. Cost of the removal and replacement of the two trees to be by the developer.

g. Remove existing Brassaia tree that is currently located on-site.

4. Design team will inform Mr. Antony Ching of the meeting outcome.

5. Design team will setup a meeting with Outdoor Circle and inform them of the project.

Design Partners Incorporated • Architecture • Planning • Interior Architecture
1580 Makaloa Street • Suite 1100 • Honolulu HI 96814
Telephone (808) 949-0044 • Facsimile (808) 946-9663 • web www.designpartnersinc.com

March 20, 2015

Meeting Minutes

PROJECT: Samkoo Pacific Condominium
DPI Project No.14030

SUBJECT: SamKoo Pacific Condo – Street Tree Replacement Site Visit

ATTENDEES: Marti Townsend, Stephen Mechler (The Outdoor Circle)
Timothy Yi, Alex Yoon (SamKoo)
Johnny Wu (DPI)
Blaine Onishi (PBR)

Following issues have been discussed:

1. The design team presented an overall project scope and project intent. JW noted that the design team already met with Traffic Review Branch, Urban Design Branch, Department of Urban Forestry. TRB is in support of the new driveway location. DUF came to the site, and is fine with the tree removal, with the understanding that a replacement tree will be provided.
2. JW noted further dialog with DUF past week included the discussion of potential locations off-site to place one of the two replacement tree. The design team will defer to the city for the final location, and the developer will support the planting of that tree.
3. A visual survey was conducted and noted the following:
    a. The existing tree Ewa of the site is leaning toward the road. Portion of a major branch show signs of damage from passing vehicles. The tree is very close to an existing street light pole.
    b. The existing tree Diamond Head of the site is fairly heathy but has dry rot at the base of the trunk.
4. After the site visual survey, items noted as follows:
    a. The tree most Ewa of the property is not a good tree specimen. The current condition creates a potential hazardous condition for the pubic and vehicle traveling down Kapiolani Blvd. A replacement tree should be provided to replace this tree.
    b. The tree most Diamond Head of the property can be replaced. The understanding is that a new tree will be provided in place of this one, and the final location be determined by the City.
    c. Noted positive comments to the design team for providing extra planting area around the monkeypod trees to give more space to the tree roots.
    d. The design team noted the new tree will be adequately placed, such that it's equally spaced fronting the property, and allow enough spacing for tree growth. The end result will have three monkey pod trees at this property and the fourth to be located off-site.
    e. Project will remove the existing Brassaia tree that is currently located on-site.

f. TOC requested the design team to keep TOC in the loop as the project progress, and that if opportunity is right, that the project to be featured in TOC's news letter that goes out to the public.

5. Design team will inform Mr. Antony Ching of the meeting outcome.

TOC consults with Samkoo on new condo (http://www.outdoorcircle.org/the-greenleaf/toc-consults-with-samkoo-on-new-condo)

4/17/2015

Kapi`olani Boulevard is expecting a new building this summer. Korean condo developer, Samkoo, is constructing a 45-story condo to provide affordable housing in downtown Honolulu. Mahalo to Board member, Steve Mechler, for meeting with developers, architect and landscape architect on March 20th to go over their plans for landscaping and area trees.

A representative of the project said that this is Samkoo's first building in Hawaii and they wanted to be sure to make a good first impression.

The building will provide all affordable housing (1-3 bedrooms) and is designed within the existing zoning limitations. Their proposal calls for widening the public sidewalk and enlarging the planting wells for street trees. This is good because the current planting wells are too narrow, forcing tree roots to bunch up in the planting space and push up surrounding concrete. In the process of constructing the building, two monkeypod trees will be removed. These trees have been hit by cars and restricted by the small planting space, so they are not in good condition. When construction is complete, Samkoo will install two new comparable monkeypod trees nearby -- one immediately across the street and the other in place of the current driveway. They expect to breakdown this summer.

Like 0 Tweet 0

Comments are closed.

Welina!

The Greenleaf is the online newsletter and blog of The Outdoor Circle. Here you will find updates on the projects and accomplishments of our many branches throughout the state, as well as programs with statewide impact.

Like what you see?!
Become a member (/membership.html)and help keep this 100-year-old organization going strong.

Support this work now and for generations to come with a donation -- online by clicking here (/https://co.clickandpledge.com/?wid=75822) or in the mail to 1314 S. King St. #306 Honolulu 96814. Your donation supports the work of all our branches, as well as our statewide office.

Archives

April 2015 (/the-greenleaf/archives/04-2015)
March 2015 (/the-greenleaf/archives/03-2015)
February 2015 (/the-greenleaf/archives/02-2015)
January 2015 (/the-greenleaf/archives/01-2015)

Steve Nimz and Associates Inc.
Consulting Arborist Services
PO BOX 10026 Honolulu, Hawaii 96816
Office # (808) 734-5963 Fax # (808) 732-4433
Email: Steve@stevenimz.com

March 2, 2015

Timothy Yi
Samkoo Pacific, LLC
1631 Kapiolani Boulevard # 200
Honolulu, Hawaii 96814

Re: Samkoo Pacific LLC

Dear Mr. Yi:

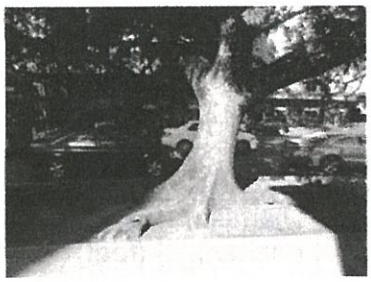
The following Tree Assessment and Tree Protection Plan was requested by Samkoo Pacific LLC regarding four (4) Monkeypod (Samanea saman) trees impacted by proposed development at 1631 Kapiolani Boulevard. The trees are located in the City and County of Honolulu eleven-foot wide planter strip on the makai side of Kapiolani Boulevard between the roadway and sidewalk. The trees are historic plantings but are not on the Exceptional Tree Listing.

A meeting was conducted with the design team to discuss the proposed development project. I conducted a site inspection to assess tree health and structural stability. The four (4) Monkeypod trees are mature health sound trees. The numbered site map provides the location of the trees assessed starting south to north along with existing utilities and driveways.

Monkeypod tree # 1: has a twenty-seven inch trunk diameter, forty-foot height and forty-foot crown spread. The tree has a curved asymmetric trunk with exposed surface roots, there are minimal signs of decay. The tree is being dominated by the larger adjacent Monkeypod tree # 2.

Monkeypod tree # 2: has a thirty-five inch trunk diameter, forty-foot height and sixty-foot crown spread. The tree has large exposed surface root structure. The roots have past surface wounds and were pruned back in the past for sidewalk repair.

Monkeypod tree # 3: has a thirty-one inch trunk diameter, forty-foot height and sixty-foot crown spread. Surface root wounds were observed.



Monkeypod tree # 4: has twenty-two inch trunk diameter, forty-foot height and fifty-foot crown spread. The trunk is curved with exposed damaged surface roots.

Inside the property is one (1) Brassaia tree # 5 with a twelve-inch trunk diameter, twenty-five foot height and twenty-foot crown spread with exposed roots. The tree is in fair condition. In the adjacent property is one (1) Shower tree with a twenty-inch trunk diameter, thirty-five foot height, thirty-foot crown spread is good condition. Select branches may require pruning off 1631 Kapiolani Boulevard property during construction.

During further discussion with design team the parking garage is located on the south end of the project fronting Monkeypod tree # 1. Ingress and Egress was proposed between Monkeypod tree # 2 and # 3 which would require a sharp "S" driveway and severely impact the two trees root structure. Line of site would be negatively impacted. There is insufficient room between trees # 1 and # 2 and line of site is blocked.

To provide the safest ingress and egress would require removal of Monkeypod tree # 1. The tree is too large to relocate. I recommend removal of Monkeypod tree # 1 and planting a new field stock Monkeypod between trees # 2 and # 3. If City and County of Honolulu, Department of Planning and Permitting and Department of Urban Forestry do not approve the new tree could be planted in a more appropriate location on Kapiolani Boulevard.

The new building is set back sufficient distance that minimizes crown pruning. The new landscape plan proposed by PBR Hawaii increases the side of the planter adjacent to the trees providing more space for surface roots. The existing driveway between trees # 3 and # 4 would be removed and replace with landscape. The planter island will be slightly mounded to cover surface roots with irrigation and ground cover to improve the health and appearance of the planter strip. The above recommendation will provide sufficient growing space for Monkeypod trees # 2, # 3 and # 4 with better growing conditions.

TREE ASSESSMENT SPREADSHEET:

#	Species	Diameter (inches)	Height (feet)	Crown spread (feet)	Health condition	Structural condition	Comments
1	Monkeypod	27	40	50	Good	Fair	Asymmetric, curved trunk, exposed surface roots
2	Monkeypod	35	40	60	Good	Good	Exposed surface roots, past root pruning against sidewalk, raise high above ground 25'X10'
3	Monkeypod	31	40	60	Good	Good	Exposed surface roots, root wounds
4	Monkeypod	22	40	50	Good	Fair	Curved trunk, exposed surface roots
5	Brassaia	12	25	20	Fair	Fair	Exposed surface roots
6	Shower	20	35	30	Good	Good	Extending into Samkoo property

The following Tree Protection Plan provides guidelines to reduce negative impacts to the existing trees. The special provisions section may change slightly based on final plans for utilities and driveway.

If you have any questions, please contact my office at 808-734-5963.

Respectfully yours,

Steve Nimz,
ASCA Consulting Arborist

ISA Certified Arborist # WE- 0314AM
ISA PNW Certified Tree Risk Assessor # 419

DEPARTMENT OF DESIGN AND CONSTRUCTION
CITY AND COUNTY OF HONOLULU
650 SOUTH KING STREET, 11TH FLOOR
HONOLULU, HAWAII 96813
Phone: (808) 768-8480 • Fax: (808) 768-4567
Web site: www.honolulu.gov

KIRK CALDWELL
MAYOR

ROBERT J. KRONING, P.E.
DIRECTOR

MARK YONAMINE, P.E.
DEPUTY DIRECTOR

June 23, 2015

Pacific Catalyst, LLC
1296 Kapiolani Boulevard, Suite 1907
Honolulu, Hawaii 96814

Attn: Lowell K.W. Chun

Dear Mr. Chun:

Subject: Kapiolani Residence Affordable Housing Project
1631 Kapiolani Boulevard
TMK: 2-3-047:009 and 2-3-047:006, 201H & DURF Project
Draft Environmental Assessment (EA)

The Department of Design and Construction does not have comments to offer on the draft environmental assessment.

Thank you for the opportunity to review and comment. Should there be any questions, please contact me at 768-8480.

Sincerely,

Robert J. Kroning, P.E.
Director

RJK: cf (612418)

July 27, 2015

Mr. Robert J. Kroning, P.E.
Director
Department of Design and Construction
City and County of Honolulu
650 South King Street
11th Floor
Honolulu, Hawaii 96813

Re: Response to Department of Design and Construction Review of DEA for:
Kapiolani Residence Affordable 201H Affordable Housing Project
1631 Kapiolani Boulevard, Honolulu, Hawaii 96814
TMK: (1)2-3-041: 006 & 009

Dear Mr. Kroning:

Thank you for your Department's review of the above-referenced DEA. We have noted that your department has no comments to offer on this DEA at this time.

Should you have further thoughts or insights on the subject project in the future, please feel free to contact me via the contact information below.

Sincerely yours,

Lowell K.W. Chun
President, Pacific Catalyst LLC
1296 Kapiolani Blvd., #1907
Honolulu, Hawaii 96813

DEPARTMENT OF TRANSPORTATION SERVICES
CITY AND COUNTY OF HONOLULU

650 SOUTH KING STREET, 3RD FLOOR
HONOLULU, HAWAII 96813
Phone: (808) 768-8305 • Fax: (808) 768-4730 • Internet: www.honolulu.gov

KIRK CALDWELL
MAYOR

MICHAEL D. FORMBY
DIRECTOR

MARK N. GARRITY, AICP
DEPUTY DIRECTOR

TP6/15-612859R

July 7, 2015

Mr. Lowell K.W. Chun
Pacific Catalyst LLC
1296 Kapiolani Boulevard, Suite 1907
Honolulu, Hawaii 96814

Dear Mr. Chun:

SUBJECT: Draft Environmental Assessment (DEA) Kapiolani Residence Affordable Housing Project, 1631 Kapiolani Boulevard, Tax Map Keys: 2-3-041:009 and 2-3-041:006, 201H and Dwelling Unit Revolving Fund Project

In response to your letter dated June 2, 2015, we have the following comments:

1. The locations of the primary driveway on Figure 14 of the DEA (page 32) and Appendix G, Figure 2 in the Traffic Impact Analysis Report (TIAR), are not consistent (see attached figures). Please reconcile these differences and include those changes in the Final Environmental Assessment (FEA). We would like the TIAR to address the potential traffic and safety conflict between the driveway on Kapiolani Boulevard and the high pedestrian traffic along the sidewalk on that side of Kapiolani.

2. DEA Section 3.8 Roads and Traffic, Table 8 (page 52): the "Existing Conditions" column lists a PM Level of Service (LOS) for Atkinson Drive and Kakakai Drive of "A." However, Table 8 of the TIAR (Appendix G, page 23) lists a PM LOS for these streets as "D." Please reconcile these differences and include those changes in the FEA.

3. Appendix G, TIAR, Section IV. Future (2017) Conditions, B. Transportation Network, 3. Bicycle Facilities (Appendix G, page 27): In conjunction with the Department of Design and Construction's Rehabilitation of the Streets, Unit 77 Project, a bikeway will be installed on Pensacola Street in the near future and should be mentioned in the TIAR.

4. The 485-unit affordable housing condominium may attract senior citizens, which raises mobility concerns the FEA should address. The developer should ensure that design features required to accommodate the City's public transit vehicles, including TheHandi-Van paratransit vehicles, are incorporated into project plans and design. TheHandi-Vans require a minimum 31-foot turning radius and a 10-foot, 6-inch height clearance. It is also recommended that the developer consult with the State Disability and Communication Access Board to ensure that the project plans (interior and exterior layouts) fully comply with the requirements of the Americans with Disabilities Act.

5. The FEA should describe any impacts the project may have on the City bus stops near the project depicted on Figure 7 of the TIAR comprising Appendix G (Appendix G, page 10), including during construction, and propose mitigating measures.

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

7. Any construction materials and equipment should be transferred to and from the project site during off-peak traffic hours (8:30 a.m. to 3:30 p.m.) to minimize any possible disruption to traffic on the local streets.

Thank you for the opportunity to review this matter. Should you have any further questions, please contact Michael Murphy of my staff at 768-8359.

Very truly yours,

Michael D. Formby
Director

Attachments

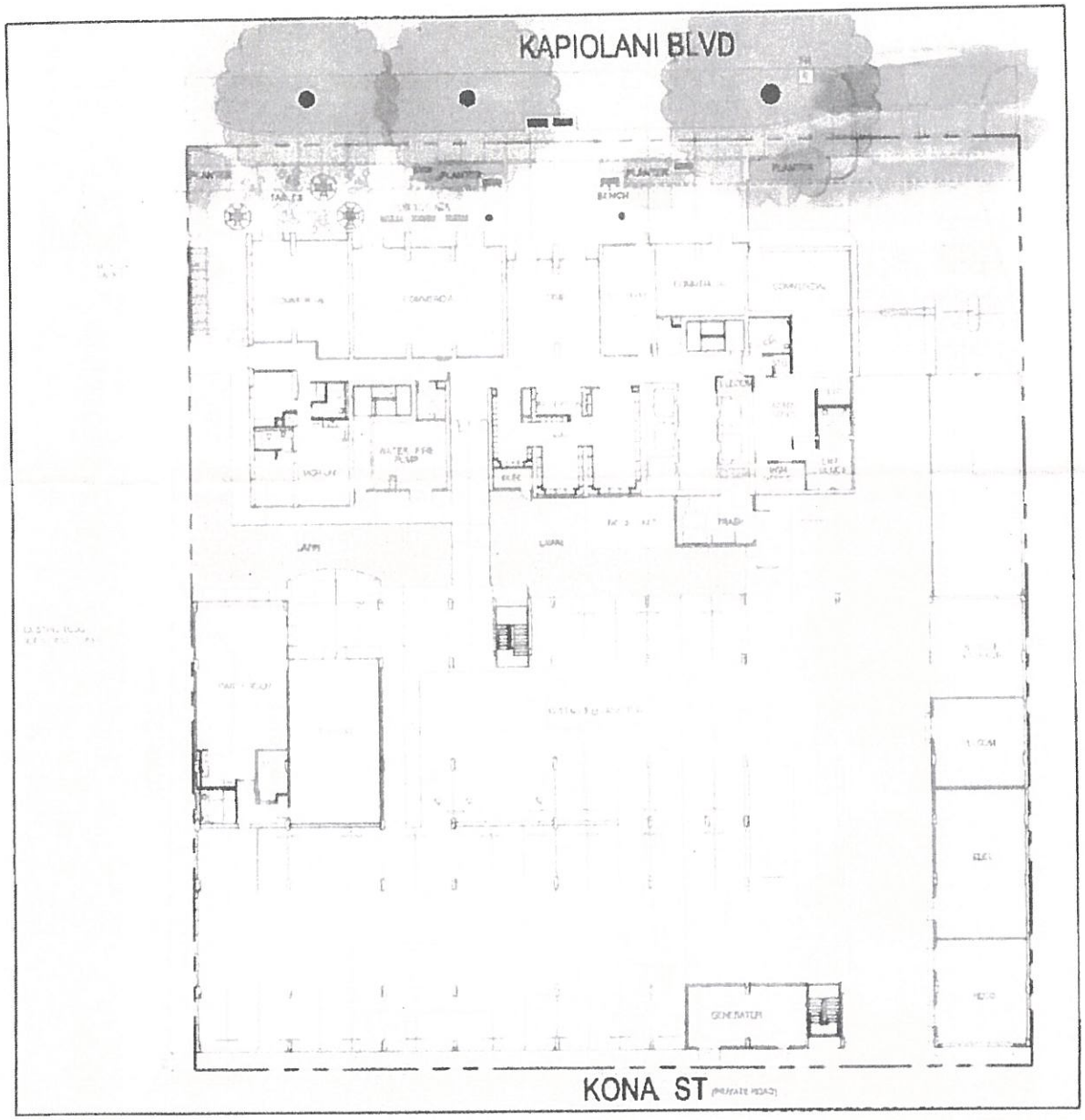


Figure 14: Kapiolani Residence Site Plan

The tower presents the project's "front" or public face while the parking structure's primary purpose is to house the project's necessary parking, loading, and utility facilities. Kapiolani Boulevard provides primary access and egress for the project while secondary egress and service access will be from Kona Street. Both the tower and parking garage run parallel to their respectively fronting streets. Figure 1 is a conceptual view of the project as it will be seen from its Kapiolani face. Figure 14 displays the project conceptual site plan, which illustrates the organization of facilities on the project site. Project drawings with appropriate notations illustrating other aspects of the proposed facility may be found in Appendix D.

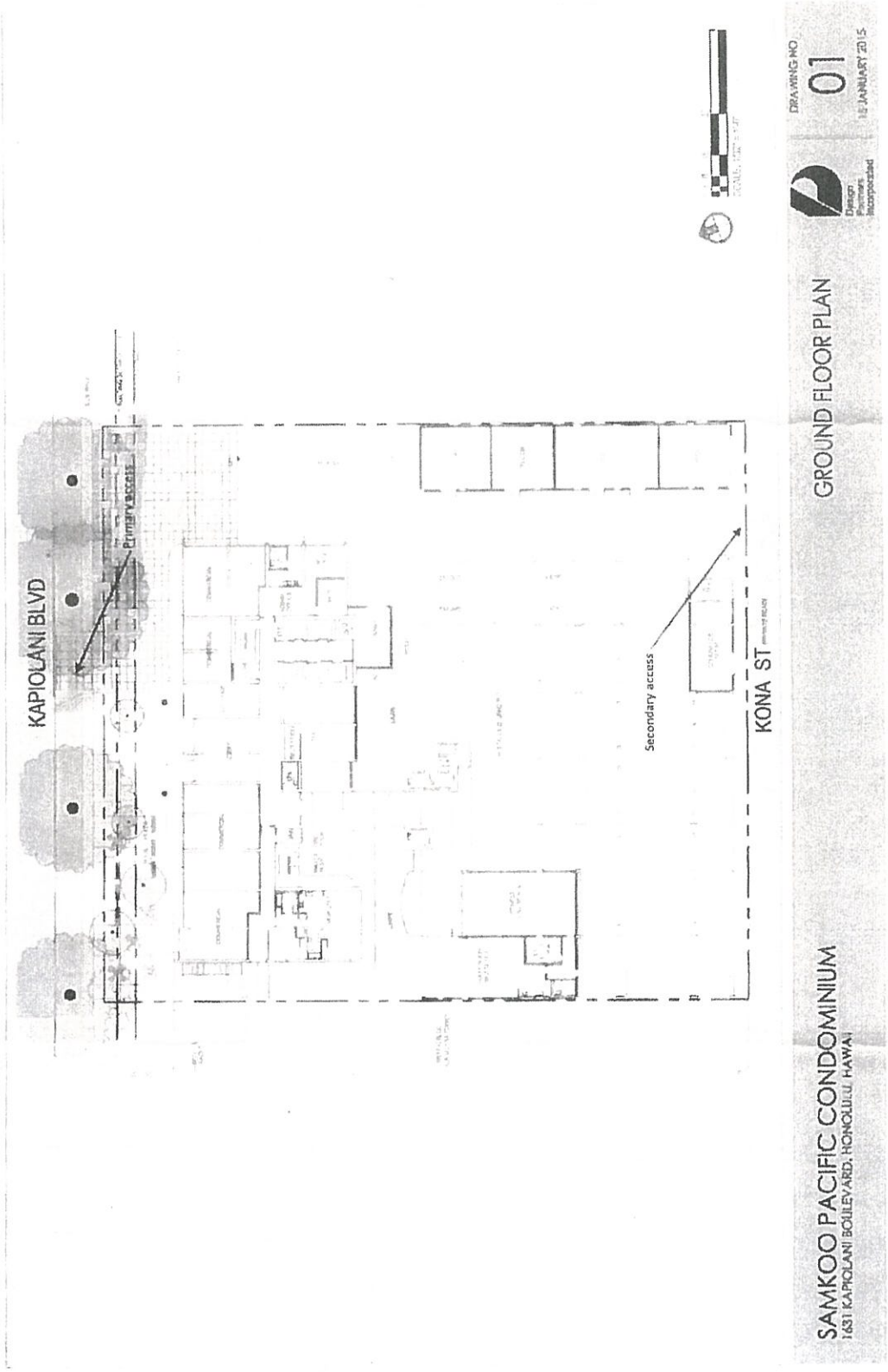


Figure 2: Kapi'olani Residence Site Plan

July 28, 2015

Mr. Michael D. Formby
Director
Department of Transportation Services
City and County of Honolulu
650 South King Street
3rd Floor
Honolulu, Hawaii 96813

Re: Response to Department of Transportation Services Review of DEA for:
Kapiolani Residence Affordable 201H Affordable Housing Project
1631 Kapiolani Boulevard, Honolulu, Hawaii 96814
TMK: (1)2-3-041: 006 & 009

Dear Mr. Formby:

Thank you for your department's comments, dated July 7, 2015, on the above-referenced DEA. We have noted your comments and will incorporate then into our Final Environmental Assessment and its TIAR as appropriate. In addition, we have taken note of the following comments and offer our responses, as follows:

1. A TIAR addendum will be prepared to update information as needed. The addendum will address the new primary driveway location and the vehicular/pedestrian interface at that driveway as part of these updates.

2. The noted LOS inconsistencies will be corrected.

3. The TIAR addendum will note the planned Pensacola bikeway.

4. Design of project circulation will accommodate Handivan vehicles and will satisfy Disability and Communications Access Board (DCAB) requirements. The project review process will include consultation with DCAB.

5. The FEA will address the potential for bus impacts. In summary there will be no impacts to any existing bus stops. Bus stops # 848 and #1000 are outside the work area and the bus stop across Kapiolani Boulevard (#3053) will not be impacted.

   If traffic controls are implemented for driveway, sidewalk, or utility construction, buses will be routed around the construction area. Bus stop locations will not be affected.

6. A street usage permit will be obtained from your department for any construction-related work that may require temporary lane closures.

7. The transport of construction materials will be scheduled for off-peak hours, as requested.

Thank you again for your thoughtful review of our document. Should you have further thoughts or insights on the subject project in the future, please feel free to contact me via the contact information below.

Sincerely yours,

Lowell K.W. Chun
President, Pacific Catalyst LLC
1296 Kapiolani Blvd., #1907
Honolulu, Hawaii 96813

HART

HONOLULU AUTHORITY for RAPID TRANSPORTATION

IN REPLY REFER TO:
CMS-AP00ENV-00555

Daniel A. Grabauskas
EXECUTIVE DIRECTOR AND CEO

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July 8, 2015

Mr. Lowell K.W. Chun, President
Pacific Catalyst, LLC
1296 Kapiolani Boulevard, Suite 1907
Honolulu, Hawaii 96814

Dear Mr. Chun:

Subject: Kapiolani Residence Affordable Housing Project
1631 Kapiolani Boulevard
Tax Map Keys: 2-3-041: 009 and 2-3-041: 006, 201H
Dwelling Unit Revolving Fund Project
Draft Environmental Assessment (EA)

Thank you for providing the Honolulu Authority for Rapid Transportation (HART) with the opportunity to comment on the subject draft EA. The draft EA includes comments made in the enclosed letter dated January 9, 2015. New comments specifically related to the draft EA are as follows:

1. The draft EA states that the Honolulu Rail Transit Project (HRTP) is a high-speed train. While the HRTP can reach speeds up to 60 miles per hour (mph), high-speed rail can typically surpass 120 mph. Please identify the HRTP as a high-capacity light metro system instead of "high speed."
2. The draft EA identifies Parsons Brinckerhoff as the authors of the *Honolulu High-Capacity Transit Corridor Project, Final Environmental Impact Statement, Honolulu High-Capacity Transit Corridor Project, Transportation Technical Report* and subsequent addenda. While Parsons Brinckerhoff was the consultant who authored the above-stated documents, please reflect that the author of the documents is the City and County of Honolulu.
3. Please note that the abbreviation for Honolulu High Capacity Transit Corridor Project is HHCTCP, not HHCTC. This is the original name of the HRTP.
4. Please note that the expected daily bike/pedestrian access is 3,680, not 3,860.

If you have any questions regarding this matter, please do not hesitate to contact Ms. Aki Marceau, Land Use and Sustainability Manager, at amarceau@honolulu.gov or 768-6177.

Sincerely,

Daniel A. Grabauskas
Executive Director and CEO

Enclosure

cc: Mr. Craig Hirai, Executive Director, HHFDC
Ms. Janice Takahashi, Chief Planner, HHFDC

HART

HONOLULU AUTHORITY for RAPID TRANSPORTATION

IN REPLY REFER TO:
CMS-AP00ENV-00474

Daniel A. Grabauskas
EXECUTIVE DIRECTOR AND CEO

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Carrie K.S. Okinaga, Esq.

January 9, 2015

Mr. Lowell K. W. Chun, President
Pacific Catalyst LLC
1296 Kapiolani Boulevard
Suite 1907
Honolulu, Hawaii 96814

Dear Mr. Chun:

Subject: Pre-Assessment Consultation for Draft Environmental Assessment
Kapiolani Residence – 1631 Kapiolani Boulevard
Honolulu, Hawaii 96814
Tax Map Keys: 2-3-041: 009 Por. and 2-3-041: 006 Por.
Honolulu, Oahu, Hawaii

Thank you for providing the Honolulu Authority for Rapid Transportation (HART) with the opportunity to comment on the proposed 485-unit multi-family housing project at the above-stated location.

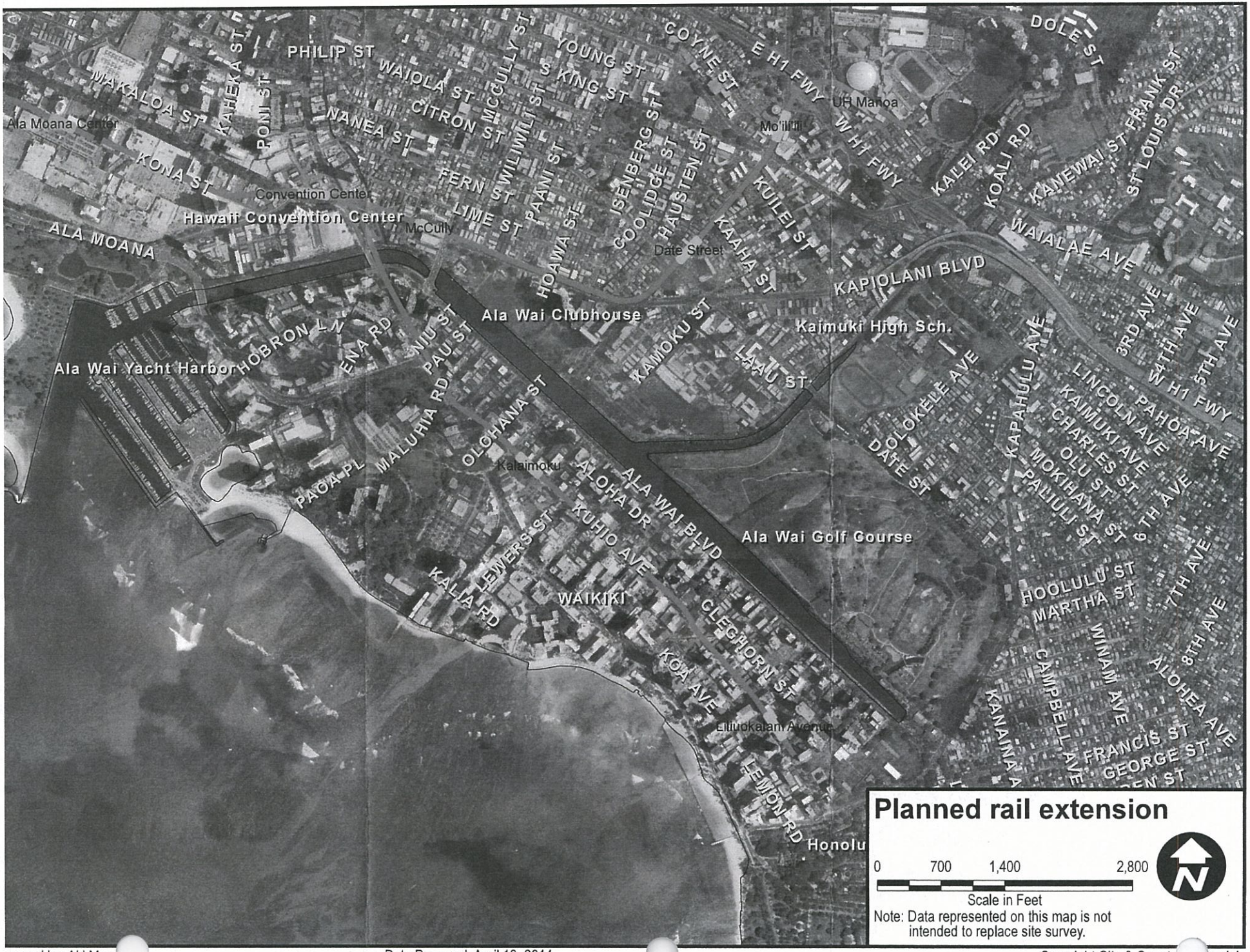
Please note that the Honolulu Rail Transit Project (HRTP) extension as documented in the Final Environmental Impact Statement (FEIS) runs through the above-stated property. The Locally Preferred Alternative identified in HART's FEIS includes an extension that "would connect to the current Project at Ala Moana Center and then veer mauka to follow Kapiolani Boulevard to University Avenue" (FEIS 2-49). HART has not conducted planning or environmental assessments of the rail extensions, so the exact location of the future guideway is subject to change. HART has also not yet determined a schedule for rail extensions.

Please contact Ms. Aki Marceau, Land Use and Sustainability Manager, at amarceau@honolulu.gov or 768-6177, for any questions or concerns.

Sincerely,

Daniel A. Grabauskas
Executive Director and CEO

Attachment: HART Planned Rail Extension FEIS



epared by: Aki Marc

Date Prepared: April 10, 2014

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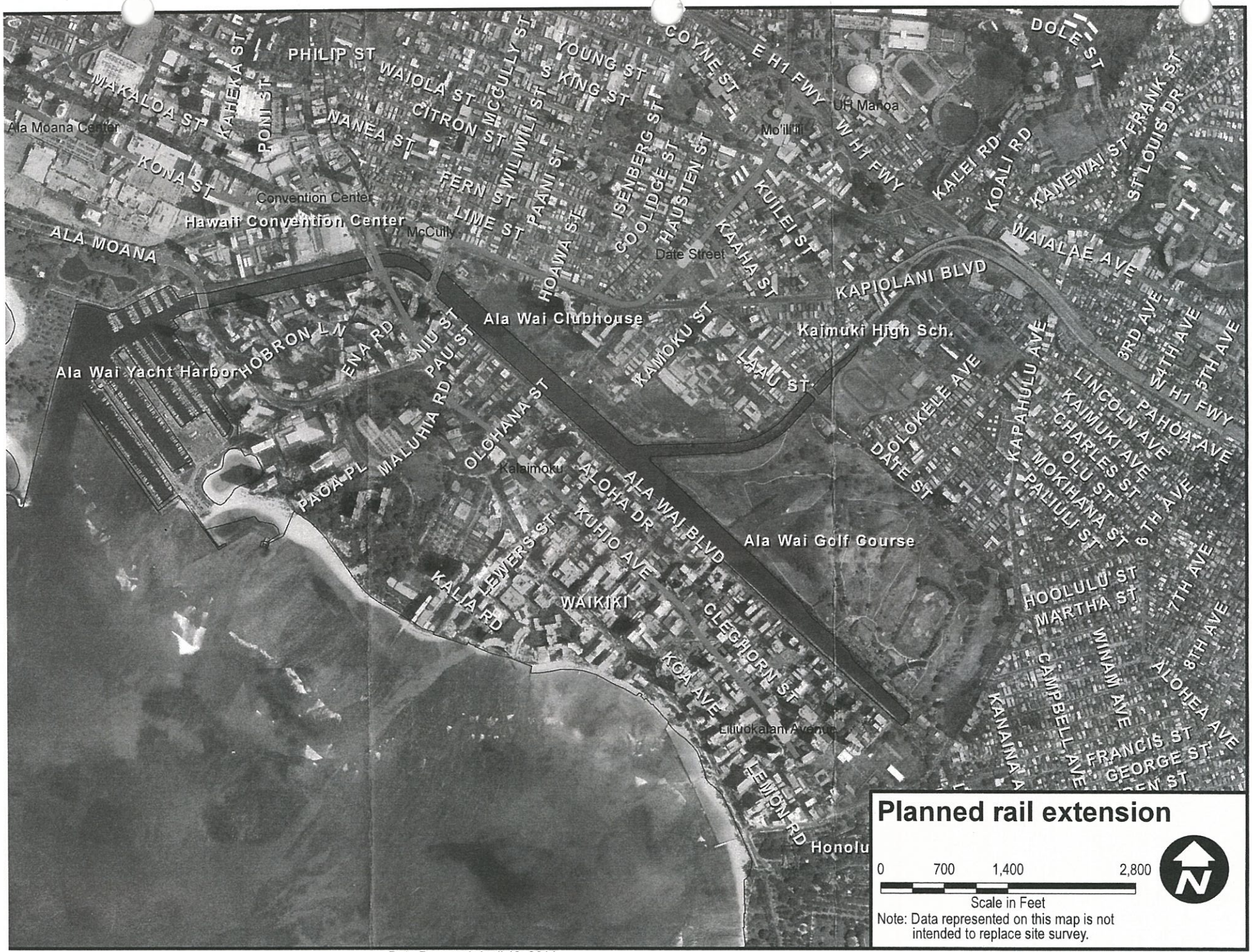

epared by: Aki Marceau

Date Prepared: April 10, 2014

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July 27, 2015

Mr. Daniel A. Grabauskas
Executive Director and CEO
Honolulu Authority for Rapid Transportation
City and County of Honolulu
Alii Place
Suite 1700
1099 Alakea Street
Honolulu, Hawaii 96813

Re: Response to Honolulu Authority for Rapid Transportation Comments on DEA for:
Kapiolani Residence Affordable 201H Affordable Housing Project
1631 Kapiolani Boulevard, Honolulu, Hawaii 96814
TMK: (1)2-3-041: 006 & 009

Dear Mr. Grabauskas:

Thank you for reviewing the above DEA and providing us with your comments and clarifications dated July 8, 2015. We will incorporate them into the FEA.

If you have further comments or suggestions, please feel free to contact me via the contact information below.

Sincerely yours,

Lowell K.W. Chun
President, Pacific Catalyst LLC
1296 Kapiolani Blvd., #1907
Honolulu, Hawaii 96813

DEPARTMENT OF COMMUNITY SERVICES
CITY AND COUNTY OF HONOLULU
715 SOUTH KING STREET, SUITE 311 ● HONOLULU, HAWAII 96813 ● AREA CODE 808 ● PHONE: 768-7762 ● FAX: 768-7792

KIRK CALDWELL
MAYOR

GARY K. NAKATA
DIRECTOR DESIGNATE

BARBARA YAMASHITA
DEPUTY DIRECTOR

July 1, 2015

Mr. Lowell K.W. Chun
Pacific Catalyst LLC
1296 Kapiolani Boulevard, Suite 1907
Honolulu, Hawaii 96814

Dear Mr. Chun:

SUBJECT: Kapiolani Residence Affordable Housing Project
1631 Kapiolani Boulevard
Tax Map Key: 2-3-041:009 and 2-3-041:006, 201H & DURF Project
Draft Environmental Assessment

We have reviewed your letter dated June 2, 2015, and the enclosed Draft Environmental Assessment for the Kapiolani Residence Affordable Housing Project.

Our review of the documents provided indicates the proposed project will have no adverse impacts on any Department of Community Services' activities or projects at this time.

Thank you for providing us with the opportunity to comment on this matter.

Sincerely,

Gary K. Nakata
Director Designate

GKN:jc

July 27, 2015

Mr. Gary K. Nakata
Director
Department of Community Services
City and County of Honolulu
715 South King Street
Suite 311
Honolulu, Hawaii 96813

Re: Response to Department of Community Services Review of DEA for:
Kapiolani Residence Affordable 201H Affordable Housing Project
1631 Kapiolani Boulevard, Honolulu, Hawaii 96814
TMK: (1)2-3-041: 006 & 009

Dear Mr.Nakata:

Thank you for your organization's review of the above-referenced DEA. We have noted that your review has concluded that the Kapiolani Residence project will have no adverse impacts on any Department of Community Services activities or projects at this time.

Should you have further thoughts or insights on the subject project in the future, please feel free to contact me via the contact information below.

Sincerely yours,

Lowell K.W. Chun
President, Pacific Catalyst LLC
1296 Kapiolani Blvd., #1907
Honolulu, Hawaii 96813

DEPARTMENT OF FACILITY MAINTENANCE

CITY AND COUNTY OF HONOLULU

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

KIRK CALDWELL
MAYOR

ROSS S. SASAMURA, P.E.
DIRECTOR AND CHIEF ENGINEER

EDUARDO P. MANGLALLAN
DEPUTY DIRECTOR

IN REPLY REFER TO:
DRM 15-476

July 10, 2015

Mr. Lowell K. W. Chun
Pacific Catalyst, LLC
1296 Kapiolani Boulevard, S. 1907
Honolulu, Hawaii 96814

Dear Mr. Chun:

SUBJECT: Draft Environmental Assessment
Kapiolani Residence Affordable Housing Project
TMK: 2-3-041:009 and 2-3-041:006, 201H & DURF Project

Thank you for the opportunity to review and provide our input regarding your letter dated June 2, 2015, on the above subject project.

Our comments are as follows:

- Once construction phase commence, install approved Best Management Practices fronting all drainage facilities along Kapiolani Boulevard.
- During construction and upon completion of project, any damages/deficiencies to Kapiolani Boulevard right-of-way shall be corrected to City standards and accepted by the City.

If you have any questions, please call Mr. Kyle Oyasato of the Division of Road Maintenance at 768-3697.

Sincerely,

Ross S. Sasamura, P.E.
Director and Chief Engineer

July 28, 2015

Mr. Ross S. Sasamura, P.E.
Director and Chief Engineer
Department of Facility Maintenance
City and County of Honolulu
1000 Uluohia Street
Suite 215

Honolulu, Hawaii 96813

Re: Response to Department of Facility Maintenance Review of DEA for:
Kapiolani Residence Affordable 201H Affordable Housing Project
1631 Kapiolani Boulevard, Honolulu, Hawaii 96814
TMK: (1)2-3-041: 006 & 009

Dear Mr. Sasamura:

Thank you for your department's July 10, 2015 review of the above-referenced DEA. We have noted your comments and will incorporate then into our construction procedures. Please note that our project team has already made Best Management Practices standard for all projects.

Should you have further thoughts or insights on the subject project in the future, please feel free to contact me via the contact information below.

Sincerely yours,

Lowell K.W. Chun
President, Pacific Catalyst LLC
1296 Kapiolani Blvd., #1907
Honolulu, Hawaii 96813

BOARD OF WATER SUPPLY

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

July 23, 2015

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ERNEST Y. W. LAU, P.E.
Manager and Chief Engineer

ELLEN E. KITAMURA, P.E.
Deputy Manager and Chief Engineer

Mr. Lowell K.W. Chun
Pacific Catalyst LLC
1296 Kapiolani Boulevard, Suite 1907
Honolulu, Hawaii 96814

Dear Mr. Chun:

Subject: Your Letter Dated June 2, 2015 Requesting Comments on the Environmental Assessment for Kapiolani Residence Affordable Housing Project, 1631 Kapiolani Boulevard – Tax Map Key: 2-3-041: 006, 009

Thank you for the opportunity to comment on the proposed affordable housing project.

The comments in our letter dated December 19, 2014, which is included in the document, are still applicable.

If you have any questions, please contact Robert Chun, Project Review Branch of our Water Resources Division at 748-5443.

Very truly yours,

for ERNEST Y. W. LAU, P.E.
Manager and Chief Engineer

BOARD OF WATER SUPPLY

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

December 19, 2014

KIRK CALDWELL, MAYOR

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Manager and Chief Engineer

ELLEN E. KITAMURA, P.E.
Deputy Manager and Chief Engineer

Mr. Lowell K.W. Chun
1296 Kapiolani Boulevard, Suite 1907
Honolulu, Hawaii 96817

Dear Mr. Chun:

Subject: Your Letter Dated November 25, 2014 Requesting Comments on the Draft Environmental Assessment Pre-Consultation for Kapiolani Residence
1631 Kapiolani Boulevard - Tax Map Key: 2-3-041: 009, 006

Thank you for your letter regarding the proposed 485-unit residential high-rise development.

The existing water system is adequate to accommodate the proposed residential high-rise development. However, please be advised that this information is based upon current data, and therefore, the Board of Water Supply reserves the right to change any position or information stated herein up until the final approval of the building permit application. The final decision on the availability of water will be confirmed when the building permit application is submitted for approval.

When water is made available, the applicant will be required to pay our Water System Facilities Charges for resource development, transmission and daily storage.

Water conservation measures are required for all proposed developments. These measures include low flow plumbing fixtures, utilization of nonpotable water for irrigation using rain catchment and chiller/air handler condensate, cooling tower conductivity meters and water softening recycling systems, drought tolerant plants, xeriscape landscaping, efficient irrigation systems and the use of Water Sense labeled ultra-low-flow water fixtures and toilets.

High-rise buildings with booster pumps will be required to install water hammer arrestors or expansion tanks to reduce pressure spikes and potential main breaks in our water system.

The on-site fire protection requirements should be coordinated with the Fire Prevention Bureau of the Honolulu Fire Department.

If you have any questions, please contact Robert Chun, Project Review Branch of our Water Resources Division at 748-5443.

Very truly yours,

ERNEST Y. W. LAU, P.E.
Manager and Chief Engineer

July 28, 2015

Mr. Ernest Y. W. Lau, P.E.
Manager and Chief Engineer
Board of Water Supply
City and County of Honolulu
630 South Beretania Street
Honolulu, Hawaii 96813

Re: Response to Board of Water Supply Review of DEA for:
Kapiolani Residence Affordable 201H Affordable Housing Project
1631 Kapiolani Boulevard, Honolulu, Hawaii 96814
TMK: (1)2-3-041: 006 & 009

Dear Mr. Lau:

Thank you for your Department's review of the above-referenced DEA. We have noted that your department's comments which were incorporated into that document are still applicable to this effort.

Should you have further thoughts or insights on the subject project in the future, please feel free to contact me via the contact information below.

Sincerely yours,

Lowell K.W. Chun
President, Pacific Catalyst LLC
1296 Kapiolani Blvd., #1907
Honolulu, Hawaii 96813

CITY AND COUNTY OF HONOLULU
801 SOUTH BERETANIA STREET · HONOLULU, HAWAII 96813
TELEPHONE: (808) 529-3111 · INTERNET: www.honolulupd.org

KIRK CALDWELL
MAYOR

LOUIS M. KEALOHA
CHIEF

DAVE M. KAJIHIRO
MARIE A. McCAULEY
DEPUTY CHIEFS

OUR REFERENCE MT-DK

June 18, 2015

Mr. Lowell K. W. Chun, President
Pacific Catalyst, LLC
1296 Kapiolani Boulevard, Suite 1907
Honolulu, Hawaii 96814

Dear Mr. Chun:

This is in response to your letter dated June 2, 2015, requesting comments on a Draft Environmental Assessment for the Kapiolani Residence Affordable Housing project at 1631 Kapiolani Boulevard.

The Honolulu Police Department has reviewed this project and has concerns regarding the safe flow of vehicular traffic, parking in the project area, and the security of the building.

The limited width and tight turns and curves on Kona Street will not accommodate large construction vehicles to access this thoroughfare. Another concern is the use of Kapiolani Boulevard for large construction vehicles moving material to and from the construction site. Kapiolani Boulevard is a major thoroughfare and traffic remains heavy during both the day and night hours. The use of Kapiolani Boulevard will require a sufficient amount of traffic control devices (e.g., cones, flag persons, special duty officers, etc.) to accommodate the large construction vehicles driving east to west when leaving the construction site and for the delivery of material that will take place during the hours of 8 a.m. and 3 p.m. to avoid peak-hour traffic. These traffic control devices will ensure a safe means of ingress/egress for the large construction vehicles, motorists, and pedestrians in the vicinity.

The developer should also consider providing parking for the tenants who are expected to reside in the project area and also allow for an accessible area designated for large delivery trucks and emergency responders' oversized vehicles (e.g., ambulance and Honolulu Fire Department trucks). Additionally, the property should include safety measures, such as a private security service and a surveillance system, to monitor the site.

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NEA

If there are any questions, please call Major Roy Sugimoto of District 1 (Central Honolulu) at 723-3327.

Thank you for the opportunity to review this project.

Sincerely,

LOUIS M. KEALOHA
Chief of Police

By Mark Tsuyemura
MARK TSUYEMURA
Management Analyst VI
Office of the Chief

Serving and Protecting With Aloha

July 26, 2015

Chief Louis M. Kealoha
Chief of Police
801 South Beretania Street
Honolulu, Hawaii 96813

Re: Response to Honolulu Police Department Comments on DEA for:
Kapiolani Residence Affordable 201H Affordable Housing Project
1631 Kapiolani Boulevard, Honolulu, Hawaii 96814
TMK: (1)2-3-041: 006 & 009

Dear Chief Kealoha:

Thank you for your June 18, 2015 comments on the above-referenced DEA. We appreciate your department's attention to our request. In response to your comments, we have carried out further studies of potential traffic impacts and appropriate mitigating measures and security provisions. The following narratives summarize the results of these investigations. They will be integrated into the FEA in the section addressing Police Department services, as follows:

Police Department concerns during construction will center on modifications to traffic as a result of construction activity and the transport of materials to and from the site. The Police Department has noted the need for maintaining a safe flow of vehicular traffic, parking in the project area, and security. They have recommended effective traffic control devices to enable a safe means of ingress/egress for large construction vehicles, motorists, and pedestrians, and adequate site security measures during and after construction. Such measures will be developed and implemented to address both the construction and post-construction periods. In addition, HPD will be notified when construction begins so that they may prepare for increased traffic-related calls for service created by possible construction-related traffic pattern alterations.

Kona Street:

Based on previous projects in the project vicinity and review by the project civil engineer, the approximately 32-foot wide Kona Street will accommodate the turning radius of typical construction vehicles. Use of larger construction vehicles, such as those used for hauling crane equipment, will be restricted to off-peak hours and weekends. Such vehicles may need to use the entire edge-to-edge width of the street to make their turns. During such times, proper traffic controls, such as additional flag men and spotters to allow such vehicles to enter the site safely with minimum impact to traffic would be planned for and implemented by the contractor

To facilitate continued operation of adjacent businesses, project principals and contractors will coordinate with adjacent business and property owners and the City to minimize disruptions. Street parking may need to be prohibited during construction hours along Kona Street near the project site. In addition, proper traffic control devices such as cones and signage, along with flaggers and police officers will be used to facilitate safe driving conditions in the vicinity of the site.

Kapiolani Boulevard:

Because Kapiolani Boulevard is heavily used as a major thoroughfare during both day and night hours, traffic will be impacted if lane closures are implemented. The contractor will manage the work to minimize lane closures and will use Kona Street instead of Kapiolani Boulevard for site access and egress whenever possible. In the event that either Kapiolani Boulevard or Kona Street is needed for site access, proper flag personnel and police officers will be placed in both directions of traffic to inform drivers of the upcoming work. Lane closures will avoid peak hour traffic. They will be scheduled between the hours of 8am and 3pm and/or on less busy night time hours. Traffic control devices will address pedestrian and vehicular access and circulation in the vicinity of the site.

The existing sidewalk fronting the project site will remain open but will be closed as needed during construction. Proper construction walkways and alternative detours will be provided for the safe passage of pedestrians in front of and around the site. There is no sidewalk fronting the project site along Kona Street. Proper signage and access control fencing will be in place along Kona Street for security purposes. The existing sidewalk on the makai side of Kona Street will remain accessible to pedestrians during the construction period.

It is anticipated that one lane of Kapiolani Boulevard will be closed during the construction of improvements to the existing driveway and sidewalk. During this time, traffic control devices, advance warning signs, and pedestrian detours away from the project frontage will be put in place. Detour signage will be placed at the Kapiolani Boulevard/Makaloa/Kaheka Street intersection and the Kapiolani/Atkinson Drive intersection to allow pedestrians to cross those points safely to the opposite (mauka) side of Kapiolani Boulevard.

After construction has been completed, onsite parking will be provided for building tenants and residents, with access to the parking facility provided from Kapiolani Boulevard and Kona Street. A City-approved fire department access area with a minimum height clearance of 13'-6" will be provided within the parking facility, connecting Kapiolani Boulevard with Kona Street. This area will also be available for use by large delivery and service trucks.

All vehicular access to the project site will be controlled. Power-assisted gate arm systems will be installed at all parking garage entrances. An electronic surveillance system will be installed in all project public areas, with surveillance monitors located in the project security office.

We hope the foregoing material addresses your expressed concerns. If you have questions about any of this material, please feel free to contact me via the contact information below. Thank you again, for your time and attention to the Kapiolani Residence Draft Environmental Assessment.

Sincerely yours,

Lowell K.W. Chun
President, Pacific Catalyst LLC
1296 Kapiolani Blvd., #1907
Honolulu, Hawaii 96814

HONOLULU FIRE DEPARTMENT

CITY AND COUNTY OF HONOLULU

636 South Street
Honolulu, Hawaii 96813-5007
Phone: 808-723-7139 Fax: 808-723-7111 Internet: www.honolulu.gov/hfd

KIRK CALDWELL
MAYOR

MANUEL P. NEVES
FIRE CHIEF

LIONEL CAMARA JR.
DEPUTY FIRE CHIEF

June 22, 2015

Mr. Lowell Chun
Pacific Catalyst LLC
1296 Kapiolani Boulevard, Suite 1907
Honolulu, Hawaii 96814

Dear Mr. Chun:

Subject: Draft Environmental Assessment
Kapiolani Residence Affordable Housing Project
1631 Kapiolani Boulevard
Tax Map Keys: 2-3-041: 006 and 009

In response to your letter dated June 2, 2015, regarding the above-mentioned subject, the Honolulu Fire Department (HFD) reviewed the material provided and requires that the following be complied with:

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

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

2. A water supply approved by the county, capable of supplying the required fire flow for fire protection, shall be provided to all premises upon which facilities or buildings, or portions thereof, are hereafter constructed, or moved into or within the county. When any portion of the facility or building is in excess of 150 feet from a water supply on a

fire apparatus access road, as measured by an approved route around the exterior of the facility or building, on-site fire hydrants and mains capable of supplying the required fire flow shall be provided when required by the AHJ [Authority Having Jurisdiction]. (NFPA 1, UFC™, 2006 Edition, Section 18.3.1, as amended.)

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

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

Should you have questions, please contact Acting Battalion Chief Terio Bumanglag Jr. of our Fire Prevention Bureau at 723-7151 or tbumanglag@honolulu.gov.

Sincerely,

Socrates D. Bratakos

SOCRATES D. BRATAKOS
Assistant Chief

SDB/SY:bh

July 26, 2015

Socrates D. Bratakos
Assistant Chief
Honolulu Fire Department
City and County of Honolulu
636 South Street
Honolulu, Hawaii 96813

Re: Response to Honolulu Fire Department Comments on DEA for:
Kapiolani Residence Affordable 201H Affordable Housing Project
1631 Kapiolani Boulevard, Honolulu, Hawaii 96814
TMK: (1)2-3-041: 006 & 009

Dear Assistant Chief Bratakos:

Thank you for your June 22, 2015 comments on the above-referenced DEA. We appreciate your department's attention to our request. Our design teams have been meeting with your staff during the definition of project facilities and have incorporated all suggestions, requests, and requirements received from them to date. We will check our current project design documents to ensure that they incorporate the criteria and requirements in your comment letter and will submit civil drawings of our construction document set when they have been prepared.

Thank you again for your attention to this project. We look forward to continuing to work with you throughout the development, permitting, and implementation of this project.

Sincerely yours,

Lowell K.W. Chun
President, Pacific Catalyst LLC
1296 Kapiolani Blvd., #1907
Honolulu, Hawaii 96813

July 7, 2015

From: Kristen Kuwaye
on behalf of Rouen Liu (by email)

Dear Mr. Lowell K.W. Chun,

Thank you for the opportunity to comment on the subject project. Hawaiian Electric Company has one comment, please be aware that there are two existing Company-owned fiber cables that run along Kapiolani Blvd, adjacent to the project location. Should HECO have existing easements and facilities on the subject property, we will need continued access for maintenance of our facilities.

We appreciate your efforts to keep us apprised of the subject project in the planning process. As the proposed Kapiolani Residence Project comes to fruition, please continue to keep us informed. Further along in the design, we will be better able to evaluate the effects on our system facilities.
If you have any questions, please call me at 543-7245.

Sincerely,
Rouen Q. W. Liu
Permits Engineer
Tel: (808) 543-7245
Email: Rouen.liu@hawaiianelectric.com

July 27, 2015

Mr. Rouen Q.W. Liu
Permits Engineer
Hawaiian Electric Company, Inc.
Phone: 808.543.7245
Email: Rouen.liu@hawaiianelectric.com

Re: Response to Hawaiian Electric Company Comments on DEA for:
Kapiolani Residence Affordable 201H Affordable Housing Project
1631 Kapiolani Boulevard, Honolulu, Hawaii 96814
TMK: (1)2-3-041: 006 & 009

Dear Mr. Liu:

Thank you for your July 7, 2015 comments on the above-referenced DEA. We are aware of the HECO-owned fiber-optic cables in Kapiolani Boulevard adjacent to the project location. Our project engineers have preliminarily consulted with HECO regarding future service to this project. We will remain in contact with HECO throughout the project implementation process to be able to best coordinate our needs with your requirements.

Thank you again for your attention to this project. Should you have further comments, please feel free to contact me via the contact information below.

Sincerely yours,

Lowell K.W. Chun
President, Pacific Catalyst LLC
1296 Kapiolani Blvd., #1907
Honolulu, Hawaii 96813