

462

B9904076

APR 20

TA 710.3
H3
H64
No. 462

FOR REFERENCE
not to be taken from this room

SOILS INVESTIGATION
SUNSET LAKEVIEW APARTMENTS
ON ALA ILIMA STREET - SALT LAKE
TMK: 1-1-60-12
for
MR. L. ROBERT ALLEN

July 13, 1972

W.O. 135-A

EH

ERNEST K. HIRATA & ASSOCIATES, INC.

Soils and Foundation Engineering
MUNICIPAL REFERENCE RECORDS CENTER
City & County of Honolulu
City Hall Annex, 558 S. King Street
Honolulu, Hawaii 96813



ERNEST K. HIRATA & ASSOCIATES, INC.

Soils and Foundation Engineering

1157 South King Street • Honolulu, Hawaii 96814 • Phone 531-5733

July 13, 1972
W.O. 135-A

Mr. L. Robert Allen
c/o Mr. Jo Paul Rognstad
Apt. 7G
920 Ward Avenue
Honolulu, Hawaii 96813

Subject: Soils Investigation
Sunset Lakeview Apartments
on Ala Ilima Street - Salt Lake
TMK: 1-1-60-12

Reference: Foundation Investigation
Prepared by Ernest K. Hirata & Associates, Inc.
W.O. 135 dated March 3, 1972

Gentlemen:

This report presents the results of our soils investigation conducted on the subject property. This investigation was authorized to determine if any unusual or adverse conditions might exist which would affect the proposed grading of the site. A previous foundation investigation conducted by us has been reviewed and the results utilized. The exploratory boring locations are shown on the Proposed Grading Plan.

SITE DESCRIPTION

The property is located near the southeast intersection of Ala Ilima and Ala Lilikoi Streets. The site gradually slopes up from Ala Ilima Street towards the rear of the property. The rear of the property is bounded by a 34 feet high cut

slope which fronts Salt Lake Boulevard.

PROPOSED GRADING

Grading will be primarily limited to the existing cut slope found at the rear of the property. The existing cut slope which is at a slope gradient of 1:1 will be recut to a slope gradient of $\frac{1}{2}$:1 (horizontal to vertical). The final cut slope will still be approximately 34 feet high with the elimination of two benches.

FIELD EXPLORATION

The site was explored on February 14th and 15th, 1972 by drilling seven exploratory test borings with a truck mounted drill rig. In addition, the existing cut slopes were carefully inspected on July 11, 1972. The boring locations are shown on the Proposed Grading Plan and the soils encountered are logged on Plates A1 through A7.

SOIL CONDITIONS

Fill was found on the site varying in depth from 6 inches to 4 feet. The deepest fills were encountered at borings 1 and 7. The fills in the front of the property are known to have been engineered fills, and were found to be dense.

Generally, the fills encountered in the other borings were

more of a surface debris. Tuff, commonly called mudrock, was encountered on the surface and extended below the fills down to the depths drilled. The tuff was found to be very hard as indicated by the high blow counts. Visual inspection of the existing cut slopes also indicated that the slope is comprised of mudrock material.

Groundwater was encountered in boring 1 at a depth of 19 feet.

LABORATORY TESTING

Laboratory testing included moisture density relationships, direct shear tests, and swell tests.

The field moisture content and dry unit weight are determined for each of the undisturbed soil samples. The information is useful in providing a gross picture of the soil consistency between borings and any local variations. The dry unit weight is determined in pounds per cubic foot while the moisture content is determined as a percentage of the dry unit weight. These samples are obtained from a 3" O.D. split tube sampler.

Shear tests are performed in the Direct Shear Machine which is of the strain control type. The rate of deformation is approximately 0.03 inches per minute. Each sample is sheared under varying confining loads in order to determine the Coulomb shear strength parameters, cohesion and angle of internal friction. Eighty percent of the ultimate value is taken to

determine the shear strength parameters.

Swell tests were performed to determine the expansiveness of the onsite surface soils. The tests were performed on undisturbed ring samples taking a one inch high specimen under different surcharge loads.

CONCLUSIONS AND RECOMMENDATIONS

I. Cut Slopes

Based upon the shear strength parameters obtained from the direct shear tests, cut slopes should be stable at slope gradients of $\frac{1}{2}$:1 (horizontal to vertical).

II. Groundwater

Groundwater is not anticipated from any of the cut slopes, and the need for subdrains is not anticipated.

III. Expansive Soils

Swell tests run on undisturbed samples indicated a negligible of swelling.

IV. Grading

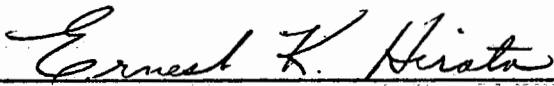
The site area should be stripped of all vegetation and deleterious materials and wasted from the site. The existing grade should then be scarified to a depth of

six inches, moistened as required to obtain optimum moisture content, and recompactd to a minimum of 90% of the maximum dry density as determined by the Modified AASHO Test T-180. Onsite materials may be utilized for fill material.

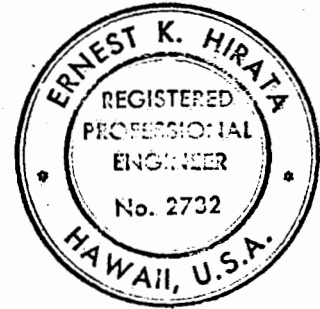
We appreciate this opportunity to be of service. Should you have any questions concerning this report, please call on us.

Respectfully submitted,

Ernest K. Hirata & Associates, Inc.


Ernest K. Hirata P.E. 2732

Enc: Boring Logs Plates A1 through A7
Proposed Grading Plan



ERNEST K. HIRATA & ASSOC.

BORING LOG

BORING NO. B1

DRIVING WT. 140 lb.

DATE OF DRILLING 2-14-

SURFACE ELEV. 24 +

DROP 30 in.

W.O. 135 -A

DEPTH FEET	CORE	BAG	PENE. RESIST. BLOWS/FOOT	DRY DENSITY PCF	MOISTURE CONTENT %	RELATIVE COMPACTION %	DIRECT SHEAR STRENGTH PARAMETERS		CLASSIFICATION (% Sand, % Silt, % Clay)
							ϕ	c	
									FILL - Silty Sand, brown, cobbles and coral fragments.
	x		42	87.7	19.8				
5	x		35 50/4"	89.6	20.9		53.0°	0.23 KSF	TUFF - Light brown to brown, hard
		x			30.7				
10	x		42 50/4"	102.7	31.6		50.5°	0.44 KSF	Grading to gray color from 14 feet
15	x	x	50/5"	No Recovery					
					40.3				
20	x	x	50/4"	No Recovery					Grading to black color from 20 feet.
					33.3				
25	x	x	50/2"	No Recovery					End boring at 25 feet. Water level at 19 feet.
					31.6				
30									

ERNEST K. HIRATA & ASSOC.

BORING LOG

BORING NO. B2

DRIVING WT. 140 lb.

DATE OF DRILLING 2-14-5

SURFACE ELEV. 25 ±

DROP 30 in.

W.O. 135-A

DEPTH FEET	CORE	BAG	PENE. RESIST. BLOWS/FOOT	DRY DENSITY PCF	MOISTURE CONTENT %	RELATIVE COMPACTION %	DIRECT SHEAR STRENGTH PARAMETERS		CLASSIFICATION (% Sand, % Silt, % Clay)
							Ø	C	
0									TUFF - Light brown to brown, hard Grading dark brown to black from 11 feet. Grading gray to black from 20 feet.
	x		33/0"	No Recovery					
		x			20.5				
-5-	x		31/0"	No Recovery					
-10-	x		30/0"	No Recovery					
	x		50/1/2"	No Recovery					
-15-									
	x		50/2 1/2"	No Recovery					
		x			23.8				
-20-									End boring at 28 feet.
	x		40/0"	No Recovery					
-25-									
	x		50/0"	No Recovery					
-30-									

ERNEST K. HIRATA & ASSOC.

BORING LOG

BORING NO. B3

DRIVING WT. 140 lb

DATE OF DRILLING 2-14-7

SURFACE ELEV. 26 ±

DROP 30 in.

W.O. 135 -A

DEPTH FEET	CORE	BAG	PENE. RESIST. BLOWS/FOOT	DRY DENSITY PCF	MOISTURE CONTENT %	RELATIVE COMPACTION %	DIRECT SHEAR STRENGTH PARAMETERS		CLASSIFICATION (% Sand, % Silt, % Clay)
							φ	c	
									TUFF - Light brown, hard Grading to grayish black color from 8 feet.
		x			22.3				
5		x	50/2"	No Recovery					
		x			15.9				
10									
		x			17.0				
15		x			16.6				
		x			15.9				End boring at 20 feet.
20									
25									
30									

ERNEST K. HIRATA & ASSOC.

BORING LOG

BORING NO. B4

DRIVING WT. 140 lb.

DATE OF DRILLING 2-15-7

SURFACE ELEV. 28.5 +

DROP 30 in.

W.O. 135-A

DEPTH FEET	CORE	BAG	PENE. RESIST. BLOWS/FOOT	DRY DENSITY PCF	MOISTURE CONTENT %	RELATIVE COMPACTION %	DIRECT SHEAR STRENGTH PARAMETERS		CLASSIFICATION (% Sand, % Silt, % Clay)
							ø	c	
	x		50/3"	101.9	20.1				FILL - Silty Sand, cobbles in upper foot, black silty clay lense
									TUFF - Brown, hard
5	x		50/2 1/2"	No Recovery	14.3				Grading to grayish black color from 8 feet.
	x				15.9				
10					17.3				
	x								
15									End boring at 20 feet.
20									
25									
30									

ERNEST K. HIRATA & ASSOC.

BORING LOG

BORING NO. B5

DRIVING WT. 140 lb

DATE OF DRILLING 2-15-

SURFACE ELEV. 36 ±

DROP 30 in.

W.O. 135-A

DEPTH FEET	CORE	BAG	PENE. RESIST. BLOWS/FOOT	DRY DENSITY PCF	MOISTURE CONTENT %	RELATIVE COMPACTION %	DIRECT SHEAR STRENGTH PARAMETERS		CLASSIFICATION (% Sand, % Silt, % Clay)
							Ø	C	
									FILL - Silty Sand
		x			18.0				TUFF - Light brown, hard
-5-	x		50/2" No	Recovery					
		x			19.4				
		x			16.6				
-10-									
		x			18.4				
-15-									
		x			19.4				
-20-									
									End boring at 20 feet.
-25-									
-30-									

ERNEST K. HIRATA & ASSOC.

BORING LOG

BORING NO. B6

DRIVING WT. 140 lb.

DATE OF DRILLING 2-15-7

SURFACE ELEV. 40 ±

DROP 30 in.

W.O. 135-A

DEPTH FEET	CORE	BAG	PENE. RESIST. BLOWS/FOOT	DRY DENSITY PCF	MOISTURE CONTENT %	RELATIVE COMPACTION %	DIRECT SHEAR STRENGTH PARAMETERS		CLASSIFICATION (% Sand, % Silt, % Clay)
							φ	c	
0									FILL - Silty Sand
									TUFF - Brown, hard
	x		30/0"		No Recovery				
	x				18.4				
	x				19.8				
-5-									
	x				17.3				
-10-									
	x				17.3				
-15-									End boring at 15 feet.
-20-									
-25-									
-30-									

ERNEST K. HIRATA & ASSOC.

BORING LOG

BORING NO. B7

DRIVING WT. 140 lb.

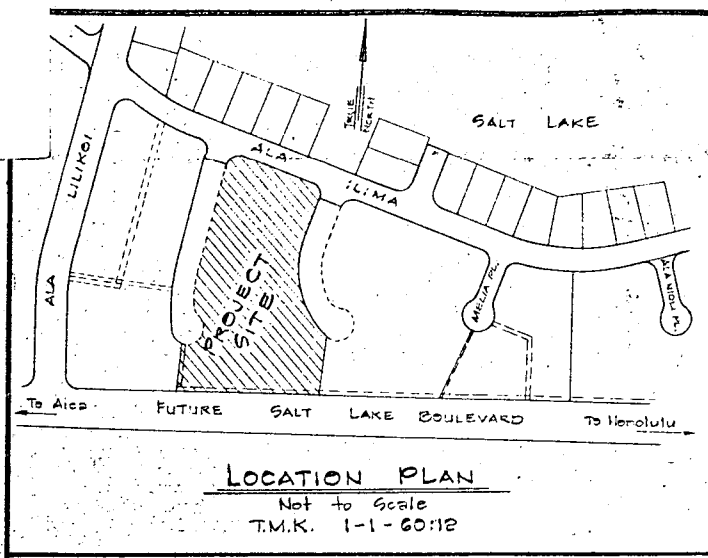
DATE OF DRILLING 2-15-

SURFACE ELEV. 28 +

DROP 30 in.

W.O. 135 -A

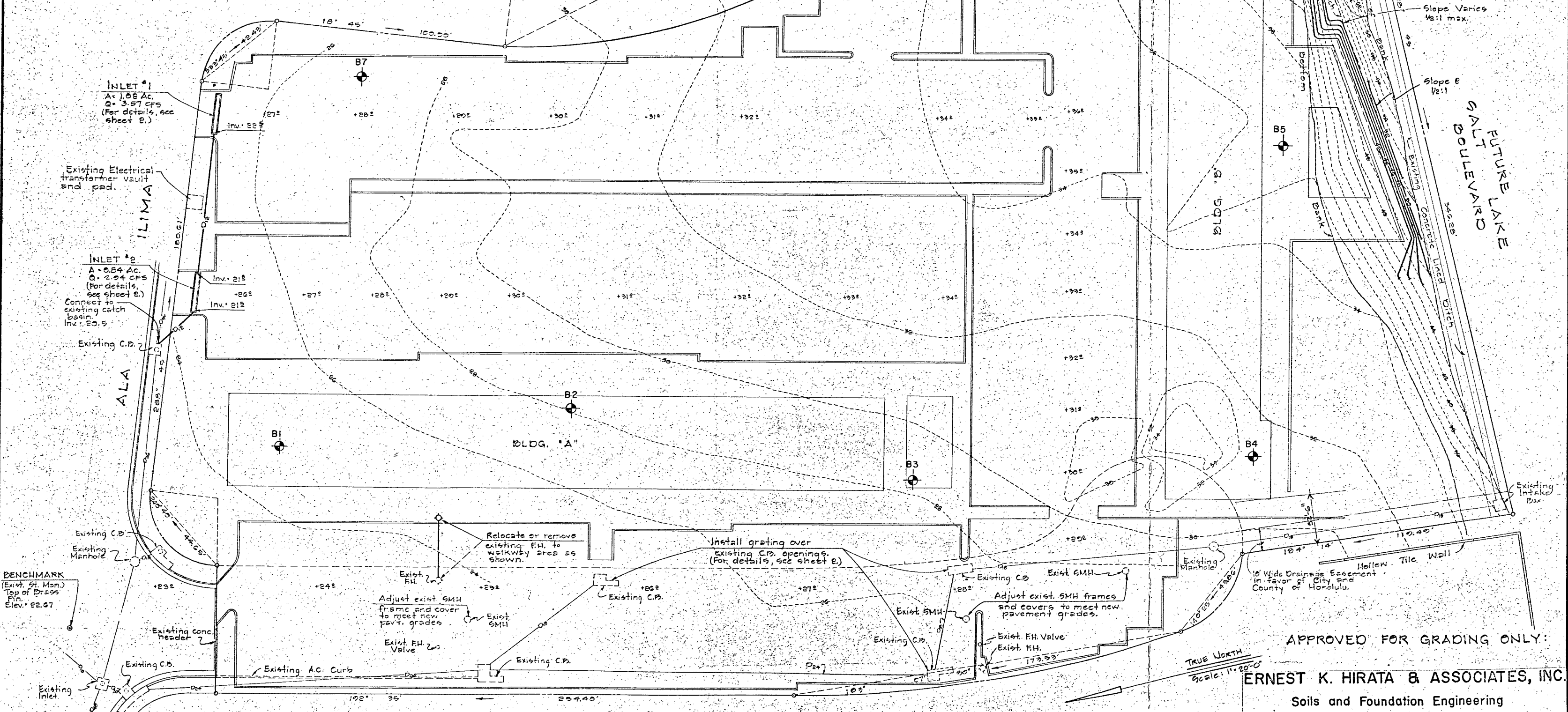
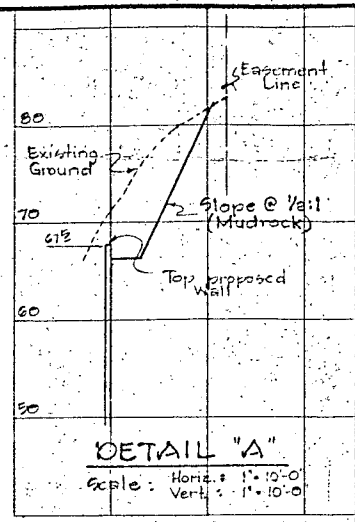
DEPTH FEET	CORE	BAG	PENE. RESIST. BLOWS/FOOT	DRY DENSITY PCF	MOISTURE CONTENT %	RELATIVE COMPACTION %	DIRECT SHEAR STRENGTH PARAMETERS		CLASSIFICATION (% Sand, % Silt, % Clay)
							φ	C	
	x		32		31.1				FILL - Silty Sand and cobbles 6" lense of silty clay
			50/4 1/2"	No Recovery					TUFF - Brown, hard
									End boring at 3 feet.
5									
10									
15									
20									
25									
30									



- ### GRADING NOTES
1. All grading work shall conform to Chapter 89, revised Ordinances of Honolulu, 1961 as amended.
 2. The Contractor shall be responsible for the cleaning and removal of all dirt and debris generated, deposited and accumulated within downstream waterways, ditches, storm pipes, and on public roadways. The Contractor agrees to reimburse the City and County of Honolulu for all costs expended in the performance of the above work if required for public health and safety or made necessary by non-performance by the Contractor.
 3. The Contractor, at his expense, shall keep the project and surrounding area free from dust nuisance. The City shall require supplementary measures as necessary.
 4. All existing utilities, whether or not shown on the plans, shall be protected at all times unless noted otherwise.
 5. All slopes and exposed areas shall be planted with a suitable ground cover. Planting shall commence immediately following the grading work.
 6. Excess material from this project will be disposed at a site provided by the Contractor; and the City shall be informed of the location of the disposal site when the application for a grading permit is made. The disposal site must also fulfill the requirements of the grading ordinance.

ESTIMATED IN-PLACE EARTHWORK QUANTITIES

EXCAVATION : 1040 C.Y.
 EMBANKMENT : 1600 C.Y.
 AREA TO BE GRADED : 190,400 S.F.



GRADING AND DRAINAGE PLAN SUNSET LAKEVIEW APARTMENTS

Approximate Location of Borings

THIS WORK WAS DONE BY ME
 OR UNDER MY SUPERVISION.
 STANLEY YIM & ASSOC., INC.

APPROVED FOR GRADING ONLY:
ERNEST K. HIRATA & ASSOCIATES, INC.
 Soils and Foundation Engineering
 1157 South King Street Honolulu, Hawaii