FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-0380(9)	2000	256	380

UNIFIED SOIL CLASSIFICATION SYSTEM (USCS)

MAJOR DIVISIONS			USCS	TYPICAL DESCRIPTIONS
COARSE-GRAINED SOILS	GRAVELS	CLEAN GRAVELS LESS THAN 5% FINES	GW	WELL-GRADED GRAVELS, GRAVEL-SAND MIXTURES, LITTLE OR NO FINES
	MORE THAN 50% OF COARSE FRACTION RETAINED ON NO. 4 SIEVE		GP	POORLY-GRADED GRAVELS, GRAVEL-SAND MIXTURES, LITTLE OR NO FINES
		GRAVELS WITH FINES MORE THAN 12% FINES	GM	SILTY GRAVELS, GRAVEL-SAND-SILT MIXTURES
			GC	CLAYEY GRAVELS, GRAVEL-SAND-CLAY MIXTURES
MORE THAN 50% OF MATERIAL RETAINED ON NO. 200 SIEVE	SANDS	CLEAN SANDS LESS THAN 5% FINES	SW	WELL-GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES
			SP	POORLY-GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES
	50% OR MORE OF COARSE FRACTION PASSING THROUGH NO. 4 SIEVE	SANDS WITH FINES MORE THAN 12% FINES	SM	SILTY SANDS, SAND-SILT MIXTURES
			SC	CLAYEY SANDS, SAND-CLAY MIXTURES
FINE-GRAINED SOILS	SILTS AND CLAYS	LIQUID LIMIT LESS THAN 50	ML	INORGANIC SILTS AND VERY FINE SANDS, ROCK FLOUR, SILTY OR CLAYEY FINE SANDS OR CLAYEY SILTS WITH SLIGHT PLASTICITY
			CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS
			OL	ORGANIC SILTS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY
50% OR MORE OF MATERIAL PASSING THROUGH NO. 200 SIEVE	SILTS AND CLAYS	LIQUID LIMIT 50 OR MORE	MH	INORGANIC SILT, MICACEOUS OR DIATOMACEOUS FINE SAND OR SILTY SOILS
			CH	INORGANIC CLAYS OF HIGH PLASTICITY
			OH	ORGANIC CLAYS OF MEDIUM TO HIGH PLASTICITY, ORGANIC SILTS
HIGHLY ORGANIC SOILS			PT	PEAT, HUMUS, SWAMP SOILS WITH HIGH ORGANIC CONTENTS

NOTE: DUAL SYMBOLS ARE USED TO INDICATE BORDERLINE SOIL CLASSIFICATIONS

LEGEND:

◪	2-INCH O.D. STANDARD PENETRATION TEST	LL	LIQUID LIMIT
⧓	3-INCH O.D. MODIFIED CALIFORNIA SAMPLE	PI	PLASTICITY INDEX
S	SHELBY TUBE SAMPLE	TV	TORVANE SHEAR (tsf)
▯	CORE SAMPLE	PEN	POCKET PENETROMETER (tsf)
REC	CORE RECOVERY	▽	WATER LEVEL OBSERVED IN BORING
RQD	ROCK QUALITY DESIGNATION	G	GRAB SAMPLE

GEOTECHNICAL NOTES

1. A geotechnical engineering report entitled "Geotechnical Engineering Exploration, Kuihelani Highway Widening, Honoapiilani Highway to Puunene Avenue, Wailuku, Maui, Hawaii" dated September, 2000 has been prepared by Geolabs, Inc.
2. For boring locations, see Sheet A1 to A33.
3. The information presented in the logs of borings depict the subsurface conditions encountered at that specified location and at the time of the field exploration only. Variations of subsoil conditions from those depicted in the logs of borings may occur between and beyond the borings.
4. The penetration resistance shown on the logs of borings indicate the number of blows required for the specific sampler type used. The blow counts may need to be factored to obtain the Standard Penetration Test (SPT) blow counts.

ORIGINAL PLAN | SURVEY PLOTTED BY | DRAWN BY | TRACED BY | DESIGNED BY | QUANTITIES BY | CHECKED BY | DATE
NOTE BOOK | No.

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GEOLABS, INC.
2006 KALIHI STREET
HONOLULU, HAWAII 96819

CLAYTON S. MIMURA LICENSED PROFESSIONAL ENGINEER No. 4176-C HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

Clayton S. Mimura

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

BORING LOGS LEGEND AND NOTES

KUIHELANI HIGHWAY WIDENING
HONOAPIILANI HIGHWAY TO PUUNENE AVENUE
FEDERAL-AID PROJECT NO. NH-0380(9)

Scale: None Date: Sept. 14, 2001

SHEET No. B1 OF 12 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-0380(9)	2000	257	380

Date Started: May 25, 2000
Date Completed: May 25, 2000
Logged By: E. Shinsato
Total Depth: 6.0 feet
Drill Rig: Mobile B-53
Drilling Method: 4" Auger
Driving Energy: 140 lb. wt., 30 in. drop

Depth, ft	FIELD: Sample	FIELD: Penetra. Resist. Blows/ft	LAB: Dry Density pcf	LAB: Moisture Content %	LAB: Compress. Strength ksf	LAB: Other Data	Pen, tsf	DESCRIPTION
								Approximate Surface Elevation (ft): 174.5*
		35	87	18			>4.5	Brown CLAYEY SILT (MH) with some highly weathered basalt gravel and sand, stiff, dry (older alluvium)
		25		19				grades to very stiff, damp
5		16	88	25			>4.5	Brown CLAYEY SILT (ML) with fine sand, stiff, damp (older alluvium)
								Boring terminated at 6 feet
								Groundwater not encountered
10								*Elevations estimated from Topographic Plan transmitted by Parsons Brinckerhoff on April 24, 2000.
15								
20								
25								
30								

LOG OF BORING 1

Date Started: May 25, 2000
Date Completed: May 25, 2000
Logged By: E. Shinsato
Total Depth: 5.5 feet
Drill Rig: Mobile B-53
Drilling Method: 4" Auger
Driving Energy: 140 lb. wt., 30 in. drop

Depth, ft	FIELD: Sample	FIELD: Penetra. Resist. Blows/ft	LAB: Dry Density pcf	LAB: Moisture Content %	LAB: Compress. Strength ksf	LAB: Other Data	Pen, tsf	DESCRIPTION
								Approximate Surface Elevation (ft): 175.5*
		33	87	24			>4.5	Brown CLAYEY SILT (MH) with some highly weathered basalt gravel and sand, stiff, dry (older alluvium)
		15		23				
5		24	96	17				Boring terminated at 5.5 feet
								Groundwater not encountered
10								
15								
20								
25								
30								

LOG OF BORING 2

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
	DRAWN BY	
NOTE BOOK	TRACED BY	
	DESIGNED BY	
	QUANTITIES BY	
No.	CHECKED BY	

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DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

BORING LOGS

KUIHELANI HIGHWAY WIDENING
HONOAPIILANI HIGHWAY TO PUUNENE AVENUE
FEDERAL-AID PROJECT NO. NH-0380(9)

Scale: None Date: Sept. 14, 2001

SHEET No. B2 OF 12 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-0380(9)	2000	258	380

Date Started: June 5, 2000
Date Completed: June 5, 2000
Logged By: E. Shinsato
Total Depth: 76.5 feet

Drill Rig: Mobile B-53
Drilling Method: H.S. Auger (6.25")
Driving Energy: 140 lb. wt., 30 in. drop

Depth, ft	FIELD: Sample	FIELD: Penetra. Resist. Blows/ft	LAB: Dry Density pcf	LAB: Moisture Content %	LAB: Compress. Strength ksf	LAB: Other Data	Pen, tsf	DESCRIPTION
								Approximate Surface Elevation (ft): 176.5*
								Tan-brown SILTY SAND (SM), loose, dry
		48	84	17			>4.5	Brown CLAYEY SILT (MH) with sand, very stiff, damp (older alluvium)
		58		21				grades to hard
5		56	91	22			>4.5	Brown SANDY SILT (ML) with highly weathered basalt gravel, very stiff, dry (older alluvium)
10		100		19				Brown SILT (ML) with fine sand, hard, damp
15		28	76	25			>4.5	grades to stiff
20		22		30				Brown SILTY CLAY (CL) with fine sand, very stiff, moist (older alluvium)
25		37	89	20	4.62 UU			grades with highly weathered alluvial gravel and sand
30								

LOG OF BORING 3

Depth, ft	FIELD: Sample	FIELD: Penetra. Resist. Blows/ft	LAB: Dry Density pcf	LAB: Moisture Content %	LAB: Compress. Strength ksf	LAB: Other Data	Pen, tsf	DESCRIPTION
								(Continued from previous plate)
		35		29		LL=43 PI=20		Brown SILTY CLAY (CL) with highly weathered alluvial gravel and sand, hard, moist (older alluvium)
35		61/.5'	92	27				
40		53		21				Brown CLAYEY SILT (MH) with basalt sand, gravel and cobbles, hard, moist (older alluvium) hard drilling from 41.5 to 45 feet
45		29						Brown SILT (ML) with some fine sand and traces of clay, very stiff, damp (older alluvium)
50		64	84	25	10.2 UU		>4.5	
55		29		18				
60		99	83	30			>4.5	
65								

LOG OF BORING 3

SURVEY PLOTTED BY ____ DATE
DRAWN BY ____
TRACED BY ____
DESIGNED BY ____
QUANTITIES BY ____
CHECKED BY ____
ORIGINAL PLAN
NOTE BOOK ____ No. ____

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GEOLABS, INC.
2006 KALIHI STREET
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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

BORING LOGS

KUIHELANI HIGHWAY WIDENING
HONOAPIILANI HIGHWAY TO PUUNENE AVENUE
FEDERAL-AID PROJECT NO. NH-0380(9)

Scale: None Date: Sept. 14, 2001

SHEET No. B3 OF 12 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-0380(9)	2000	259	380

Depth, ft	Sample	Penetra. Resist. Blows/ft	Dry Density pcf	Moisture Content %	Compress. Strength ksf	Other Data	Pen, tsf	DESCRIPTION
								(Continued from previous plate)
		28		34				Brown SILT (ML) with some fine sand and traces of clay, very stiff, damp (older alluvium)
70		45	78	32			>4.5	
75		35		28				grades to hard
								Boring terminated at 76 feet
								Groundwater not encountered
80								
85								
90								
95								
100								

LOG OF BORING 3

Date Started: June 6, 2000
Date Completed: June 6, 2000
Logged By: E. Shinsato
Total Depth: 75.0 feet
Drill Rig: Mobile B-53
Drilling Method: H.S. Auger (6.25")
Driving Energy: 140 lb. wt., 30 in. drop

Depth, ft	Sample	Penetra. Resist. Blows/ft	Dry Density pcf	Moisture Content %	Compress. Strength ksf	Other Data	Pen, tsf	DESCRIPTION
								Approximate Surface Elevation (ft): 175*
		55	88	19				Brown SILTY SAND (SM) with some basalt cobbles and gravel, medium dense, dry
		53		17			>4.5	Brown CLAYEY SILT (MH) with some highly weathered basalt gravel and sand, very stiff, damp (older alluvium)
5		56/.5' +30/.2' Ref.	96	20				grades to hard
10		50/.5'		20				Brown SILT (ML) with fine sand, hard, damp (older alluvium)
15		72	88	21				
20		41		28				grades to moist
25		27	79	33			3.3	
30								

LOG OF BORING 4

ORIGINAL PLAN
SURVEY PLOTTED BY _____ DATE
DRAWN BY _____
TRACED BY _____
DESIGNED BY _____
QUANTITIES BY _____
CHECKED BY _____
NOTE BOOK _____
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HIGHWAYS DIVISION

BORING LOGS

KUIHELANI HIGHWAY WIDENING
HONOAPIILANI HIGHWAY TO PUUNENE AVENUE
FEDERAL-AID PROJECT NO. NH-0380(9)

Scale: None Date: Sept. 14, 2001

SHEET No. B4 OF 12 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-0380(9)	2000	260	380

Depth, ft	Sample	Penetra. Resist. Blows/ft	Dry Density pcf	Moisture Content %	Compress. Strength ksf	Other Data	Pen, tsf	DESCRIPTION
								(Continued from previous plate)
		50		31				Brown SILT (ML) with fine sand, hard, moist (older alluvium)
35		76	90	29				
40		70		28				Brown CLAYEY SILT (MH) with traces of fine basalt sand, hard, moist (older alluvium)
45		86	94	26				
50		77		23				Brown SILT (ML) with some highly weathered basalt gravel, hard, moist (older alluvium)
55		47/.5' +35/.3' Ref.	74	31				
60		68		26				
65								

LOG OF BORING 4

Depth, ft	Sample	Penetra. Resist. Blows/ft	Dry Density pcf	Moisture Content %	Compress. Strength ksf	Other Data	Pen, tsf	DESCRIPTION
								(Continued from previous plate)
		64/.5'	79	28				Brown SILT (ML) with some highly weathered basalt gravel, hard, moist (older alluvium)
70		50/.0' Ref.						Brown SILTY SAND AND GRAVEL (SM) with highly weathered cobbles, very dense, moist (older alluvium)
75		40/.0' Ref.						Boring terminated at 75 feet Groundwater not encountered
80								
85								
90								
95								
100								

LOG OF BORING 4

ORIGINAL PLAN | SURVEY PLOTTED BY | DRAWN BY | TRACED BY | DESIGNED BY | QUANTITIES BY | CHECKED BY | DATE | NOTE BOOK | No.

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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

BORING LOGS

KUIHELANI HIGHWAY WIDENING
HONOAPIILANI HIGHWAY TO PUUNENE AVENUE
FEDERAL-AID PROJECT NO. NH-0380(9)

Scale: None Date: Sept. 14, 2001

SHEET No. B5 OF 12 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-0380(9)	2000	261	380

Date Started: May 25, 2000
Date Completed: May 25, 2000
Logged By: E. Shinsato
Total Depth: 5.5 feet
Drill Rig: Mobile B-53
Drilling Method: 4" Auger
Driving Energy: 140 lb. wt., 30 in. drop

Depth, ft	Sample	Penetra. Resist. Blows/ft	Dry Density pcf	Moisture Content %	Compress. Strength ksf	Other Data	Pen, tsf	DESCRIPTION
								Approximate Surface Elevation (ft): 178*
		37	87	9				Brown SILTY SAND (SM) with basalt gravel, medium dense, dry
		12		14				
5		32	78	16				Brown CLAYEY SILT (ML) with fine sand, stiff, damp (older alluvium)
								Boring terminated at 5.5 feet
								Groundwater not encountered
10								
15								
20								
25								
30								

LOG OF BORING 5

Date Started: May 25, 2000
Date Completed: May 25, 2000
Logged By: E. Shinsato
Total Depth: 11.5 feet
Drill Rig: Mobile B-53
Drilling Method: 4" Auger
Driving Energy: 140 lb. wt., 30 in. drop

Depth, ft	Sample	Penetra. Resist. Blows/ft	Dry Density pcf	Moisture Content %	Compress. Strength ksf	Other Data	Pen, tsf	DESCRIPTION
								Approximate Surface Elevation (ft): 168*
		30/.0' Ref.	71	19				Brown SILTY BASALT SAND (SM) with some highly weathered alluvial gravel, dense to very dense, dry
		87		23				grades without alluvial gravel
5		71	77	24				Brown mottled white SILT (ML) with some fine basalt sand, very stiff, dry
10		25		18				Boring terminated at 11.5 feet
								Groundwater not encountered
15								
20								
25								
30								

LOG OF BORING 6

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
NOTE BOOK	DRAWN BY	
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2006 KALIHI STREET
HONOLULU, HAWAII 96819

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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

BORING LOGS

KUIHELANI HIGHWAY WIDENING
HONOAPIILANI HIGHWAY TO PUUNENE AVENUE
FEDERAL-AID PROJECT NO. NH-0380(9)

Scale: None Date: Sept. 14, 2001

SHEET No. B6 OF 12 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-0380(9)	2000	262	380

Date Started: May 25, 2000
Date Completed: May 25, 2000
Logged By: E. Shinsato
Total Depth: 11.5 feet
Drill Rig: Mobile B-53
Drilling Method: 4" Auger
Driving Energy: 140 lb. wt., 30 in. drop

Depth, ft	Sample	Penetra. Resist. Blows/ft	Dry Density pcf	Moisture Content %	Compress. Strength ksf	Other Data	Pen, tsf	DESCRIPTION
								Approximate Surface Elevation (ft): 183*
		81	83	19				Brown SILTY BASALT SAND (SM), medium dense, dry grades to dense
		40		17			>4.5	Brown SILT (ML) with fine basalt sand, very stiff, dry
5		72	71	15				grades with more sand
10		19		25				grades with more silt
								Boring terminated at 11.5 feet Groundwater not encountered
15								
20								
25								
30								

LOG OF BORING 7

Date Started: June 6, 2000
Date Completed: June 7, 2000
Logged By: E. Shinsato
Total Depth: 76.5 feet
Drill Rig: Mobile B-53
Drilling Method: H.S. Auger (6.25")
Driving Energy: 140 lb. wt., 30 in. drop

Depth, ft	Sample	Penetra. Resist. Blows/ft	Dry Density pcf	Moisture Content %	Compress. Strength ksf	Other Data	Pen, tsf	DESCRIPTION
								Approximate Surface Elevation (ft): 194*
		50	94	2				Tan-brown FINE CALCAREOUS SAND (SP/SM) with some silt and roots, medium dense, dry (consolidated dunes)
		21		5				
5		80		14				Tan-brown SILT (ML) with fine sand and traces of clay, hard, dry
10		58/.5' Ref.		78				grades to moist
15		55/.5' +34/.3'	88	16				
20		15/.0' Ref.		11				Brown SILTY SAND (SM) with cobbles and gravel, dense, damp (older alluvium)
25		53	80	28			>4.5	Brown CLAYEY SILT (ML) with fine sand, very stiff, damp to moist (older alluvium)
30								

LOG OF BORING 8

ORIGINAL PLAN
SURVEY PLOTTED BY
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DESIGNED BY
QUANTITIES BY
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NOTE BOOK
No.

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2006 KALIHI STREET
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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

BORING LOGS

KUIHELANI HIGHWAY WIDENING
HONOAPIILANI HIGHWAY TO PUUNENE AVENUE
FEDERAL-AID PROJECT NO. NH-0380(9)

Scale: None
Date: Sept. 14, 2001

SHEET No. B7 OF 12 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-0380(9)	2000	263	380

Depth, ft	FIELD: Sample	FIELD: Penetra. Resist. Blows/ft	LABORATORY: Dry Density pcf	LABORATORY: Moisture Content %	LABORATORY: Compress. Strength ksf	LABORATORY: Other Data	Pen, tsf	DESCRIPTION
								(Continued from previous plate)
		29		26		LL=35 PI=7		Brown CLAYEY SILT (ML) with fine sand, very stiff, damp to moist (older alluvium)
35		37	77	22			3.0	grades to moist
40		46		32				grades to hard
45		41	81	36			2.0	grades to very stiff
50		50/.3' Ref.		19				Brown CLAYEY SILT (ML) with sand, gravel and cobbles, hard, moist (older alluvium)
								Brown SILT AND FINE SAND (ML/SM), very stiff, moist
55		47	81	31			4.3	
60		45/.3' Ref.		23				Brown SILTY SAND (SM) with highly weathered gravel (older alluvium)
								Brown SILT (ML) with some fine sand, very stiff, moist
65								

LOG OF BORING 8

Depth, ft	FIELD: Sample	FIELD: Penetra. Resist. Blows/ft	LABORATORY: Dry Density pcf	LABORATORY: Moisture Content %	LABORATORY: Compress. Strength ksf	LABORATORY: Other Data	Pen, tsf	DESCRIPTION
								(Continued from previous plate)
		44	73	34	7.6 UU		3.3	Brown SILT (ML) with some fine sand, very stiff, moist
70		49		30				Brown SILTY FINE SAND (SM) with some highly weathered gravel, dense, moist (older alluvium)
75		44	74	30				Brown SILT (ML) with some fine basalt sand, very stiff, moist
								Boring terminated at 76.5 feet
								Groundwater not encountered
80								
85								
90								
95								
100								

LOG OF BORING 8

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2006 KALIHI STREET
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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

BORING LOGS

KUIHELANI HIGHWAY WIDENING
HONOAPIILANI HIGHWAY TO PUUNENE AVENUE
FEDERAL-AID PROJECT NO. NH-0380(9)

Scale: None Date: Sept. 14, 2001

SHEET No. B8 OF 12 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-0380(9)	2000	264	380

Date Started: June 7, 2000
Date Completed: June 7, 2000
Logged By: E. Shinsato
Total Depth: 76.5 feet
Drill Rig: Mobile B-53
Drilling Method: H.S. Auger (6.25")
Driving Energy: 140 lb. wt., 30 in. drop

Depth, ft	Sample	Penetra. Resist. Blows/ft	Dry Density pcf	Moisture Content %	Compress. Strength ksf	Other Data	Pen, tsf	DESCRIPTION
								Approximate Surface Elevation (ft): 185*
		59	89	4				Tan-brown FINE SILTY SAND (SP-SM) with some roots, medium dense, dry (consolidated dunes)
		44		10				grades to dense
5		58/.5'		14			>4.5	Tan-brown SILT (ML) with fine sand and highly weathered basalt gravel, hard, dry
10		52		19				
15		92	86	18				Brown SILTY SAND (SM) with some highly weathered gravel, dense, dry (older alluvium)
20		32		28				Brown SILT (ML) with traces of clay, hard, damp to moist
25		71/.5'	85	27				grades with some highly weathered basalt gravel and sand
30								

LOG OF BORING 9

Depth, ft	Sample	Penetra. Resist. Blows/ft	Dry Density pcf	Moisture Content %	Compress. Strength ksf	Other Data	Pen, tsf	DESCRIPTION
								(Continued from previous plate)
		50/.3' Ref.		8				Brown SILTY BASALT SAND (SM) with some gravel and cobbles, dense, damp (older alluvium)
35		69/.4'						
40		52/.5' Ref.		7				grades to very dense
45		65	81	35			>4.5	Brown CLAYEY SILT (ML-MH) with some fine basalt sand, very stiff, moist (older alluvium)
50		53		27				grades with some highly weathered gravel, hard
55		62/.5' Ref.	83	30				grades with highly weathered cobbles and gravel
60		40/.3 Ref.		11				Brown SILTY SAND (SM) with highly weathered gravel, dense to very dense, damp (older alluvium)
65								Brown CLAYEY SILT (ML-MH) with some fine basalt sand, very stiff, moist (older alluvium)

LOG OF BORING 9

ORIGINAL PLAN | SURVEY PLOTTED BY | DRAWN BY | TRACED BY | DESIGNED BY | QUANTITIES BY | CHECKED BY | DATE | NOTE BOOK | No.

J:\KUIHELANI\MISC\BL-09.dgn

GEOLABS, INC.
2006 KALIHI STREET
HONOLULU, HAWAII 96819

CLAYTON S. MIMURA
LICENSED PROFESSIONAL ENGINEER
No. 4176-C
HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

Clayton S. Mimura

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

BORING LOGS

KUIHELANI HIGHWAY WIDENING
HONOAPIILANI HIGHWAY TO PUUNENE AVENUE
FEDERAL-AID PROJECT NO. NH-0380(9)

Scale: None Date: Sept. 14, 2001

SHEET No. B9 OF 12 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-0380(9)	2000	265	380

Depth, ft	FIELD: Sample	FIELD: Penetra. Resist. Blows/ft	LAB: Dry Density pcf	LAB: Moisture Content %	LAB: Compress. Strength ksf	LAB: Other Data	Pen, tsf	DESCRIPTION
								(Continued from previous plate)
		44	75	42			>4.5	Brown CLAYEY SILT (ML–MH) with some fine basalt sand, very stiff, moist (older alluvium)
70		37/.5′ +30/.2′ Ref.		35				grades with some highly weathered gravel, hard
75		49	74	42			>4.5	Brown SILT (ML), very stiff, moist
								Boring terminated at 76.5 feet Groundwater not encountered
80								
85								
90								
95								
100								

LOG OF BORING 9

Date Started: May 25, 2000
Date Completed: May 25, 2000
Logged By: E. Shinsato
Total Depth: 5.5 feet
Drill Rig: Mobile B–53
Drilling Method: H.S. Auger (6.25")
Driving Energy: 140 lb. wt., 30 in. drop

Depth, ft	FIELD: Sample	FIELD: Penetra. Resist. Blows/ft	LAB: Dry Density pcf	LAB: Moisture Content %	LAB: Compress. Strength ksf	LAB: Other Data	Pen, tsf	DESCRIPTION
								Approximate Surface Elevation (ft): 200*
		36	93	3				Tannish brown FINE CALCAREOUS SAND (SP/SM) with traces of basalt gravel and silt, medium dense, dry (consolidated dunes)
		30		3				
5		25	101	3				grades with cemented areas
								Boring terminated at 5.5 feet Groundwater not encountered
10								
15								
20								
25								
30								

LOG OF BORING 10

SURVEY PLOTTED BY ____ DATE ____
DRAWN BY ____
TRACED BY ____
DESIGNED BY ____
QUANTITIES BY ____
CHECKED BY ____
ORIGINAL PLAN
NOTE BOOK ____ No. ____

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2006 KALIHI STREET
HONOLULU, HAWAII 96819

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HIGHWAYS DIVISION

BORING LOGS

KUIHELANI HIGHWAY WIDENING
HONOAPIILANI HIGHWAY TO PUUNENE AVENUE
FEDERAL-AID PROJECT NO. NH-0380(9)

Scale: None Date: Sept. 14, 2001

SHEET No. B10 OF 12 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-0380(9)	2000	266	380

Date Started: May 26, 2000
Date Completed: May 26, 2000
Logged By: E. Shinsato
Total Depth: 6.5 feet
Drill Rig: Mobile B-53
Drilling Method: H.S. Auger (6.25")
Driving Energy: 140 lb. wt., 30 in. drop

Depth, ft	FIELD: Sample	FIELD: Penetra. Resist. Blows/ft	LAB: Dry Density pcf	LAB: Moisture Content %	LAB: Compress. Strength ksf	LAB: Other Data	Pen, tsf	DESCRIPTION
								Approximate Surface Elevation (ft): 192*
		47	91	5				Tannish brown FINE CALCAREOUS SAND (SP/SM) with some silt, medium dense, dry (consolidated dunes)
		24		4				
5		58	94	4				grades with some cemented areas
								Boring terminated at 6.5 feet
								Groundwater not encountered
10								
15								
20								
25								
30								

LOG OF BORING 11

Date Started: May 25, 2000
Date Completed: May 25, 2000
Logged By: E. Shinsato
Total Depth: 20.0 feet
Drill Rig: Mobile B-53
Drilling Method: H.S. Auger (6.25")
Driving Energy: 140 lb. wt., 30 in. drop

Depth, ft	FIELD: Sample	FIELD: Penetra. Resist. Blows/ft	LAB: Dry Density pcf	LAB: Moisture Content %	LAB: Compress. Strength ksf	LAB: Other Data	Pen, tsf	DESCRIPTION
								Approximate Surface Elevation (ft): 182*
		52		4				Tannish brown FINE CALCAREOUS SAND (SP/SM) with some silt, medium dense, dry (consolidated dunes)
		24		4				
5		49	105	4				grades with traces of cemented sand
10		25		20				Brown CLAYEY SILT (ML) with fine sand, very stiff, damp to moist (alluvium)
								BOULDER AND COBBLE from 12.5 to 14 feet
15		59		7				Dark brown SILTY BASALT GRAVEL (GM) with sand, dense, dry to damp (alluvium)
								grades with cobbles
20		30/.0' Ref.						Boring terminated at 20 feet
								Groundwater not encountered
25								
30								

LOG OF BORING 12

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
	DRAWN BY	
	TRACED BY	
NOTE BOOK	DESIGNED BY	
No.	QUANTITIES BY	
	CHECKED BY	

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GEOLABS, INC.
2006 KALIHI STREET
HONOLULU, HAWAII 96819

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Clayton S. Mimura

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

BORING LOGS

KUIHELANI HIGHWAY WIDENING
HONOAPIILANI HIGHWAY TO PUUNENE AVENUE
FEDERAL-AID PROJECT NO. NH-0380(9)

Scale: None Date: Sept. 14, 2001

SHEET No. B11 OF 12 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-0380(9)	2000	267	380

Date Started: May 26, 2000
Date Completed: May 26, 2000
Logged By: E. Shinsato
Total Depth: 5.5 feet
Drill Rig: Mobile B-53
Drilling Method: H.S. Auger (6.25")
Driving Energy: 140 lb. wt., 30 in. drop

Depth, ft	FIELD: Sample	FIELD: Penetra. Resist. Blows/ft	LABORATORY: Dry Density pcf	LABORATORY: Moisture Content %	LABORATORY: Compress. Strength ksf	LABORATORY: Other Data	Pen, tsf	DESCRIPTION
								Approximate Surface Elevation (ft): 111*
		48	74	15				Brown CALCAREOUS FINE SAND (SP) with some silt and traces of basalt gravel, medium dense, dry (consolidated dunes)
		28		5				
5		41	94	6				
								Boring terminated at 5.5 feet
								Groundwater not encountered
10								
15								
20								
25								
30								

LOG OF BORING 13

Date Started: May 26, 2000
Date Completed: May 26, 2000
Logged By: E. Shinsato
Total Depth: 5.5 feet
Drill Rig: Mobile B-53
Drilling Method: H.S. Auger (6.25")
Driving Energy: 140 lb. wt., 30 in. drop

Depth, ft	FIELD: Sample	FIELD: Penetra. Resist. Blows/ft	LABORATORY: Dry Density pcf	LABORATORY: Moisture Content %	LABORATORY: Compress. Strength ksf	LABORATORY: Other Data	Pen, tsf	DESCRIPTION
								Approximate Surface Elevation (ft): 48*
		55	74	13				Brown CALCAREOUS FINE SAND (SM) with some silt and traces of basalt gravel, medium dense, dry (consolidated dunes)
		27		16				
5		74	106	11				Light brown SILT (ML) with some fine sand, very stiff, dry
								Boring terminated at 5.5 feet
								Groundwater not encountered
10								
15								
20								
25								
30								

LOG OF BORING 14

ORIGINAL PLAN | SURVEY PLOTTED BY | DRAWN BY | TRACED BY | DESIGNED BY | QUANTITIES BY | CHECKED BY | DATE
NOTE BOOK | No.

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GEOLABS, INC.
2006 KALIHI STREET
HONOLULU, HAWAII 96819

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Clayton S. Mimura

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

BORING LOGS

KUIHELANI HIGHWAY WIDENING
HONOAPIILANI HIGHWAY TO PUUNENE AVENUE
FEDERAL-AID PROJECT NO. NH-0380(9)

Scale: None Date: Sept. 14, 2001

SHEET No. B12 OF 12 SHEETS