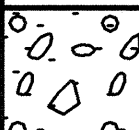
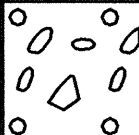
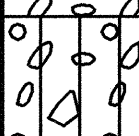
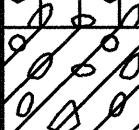
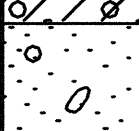
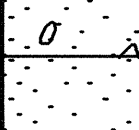
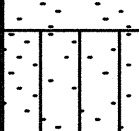
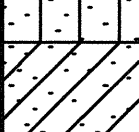
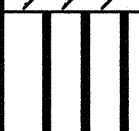
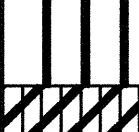

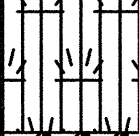
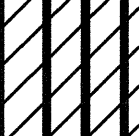
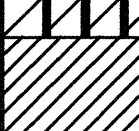
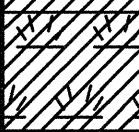


FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-0380(9)	2000	256	380

UNIFIED SOIL CLASSIFICATION SYSTEM (USCS)

MAJOR DIVISIONS			USCS	TYPICAL DESCRIPTIONS
COARSE-GRAINED SOILS MORE THAN 50% OF MATERIAL RETAINED ON NO. 200 SIEVE	GRAVELS MORE THAN 50% OF COARSE FRACTION RETAINED ON NO. 4 SIEVE	CLEAN GRAVELS LESS THAN 5% FINES	 GW	WELL-GRADED GRAVELS, GRAVEL-SAND MIXTURES, LITTLE OR NO FINES
			 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
	SANDS 50% OR MORE OF COARSE FRACTION PASSING THROUGH NO. 4 SIEVE	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
		SANDS WITH FINES MORE THAN 12% FINES	 SM	SILTY SANDS, SAND-SILT MIXTURES
			 SC	CLAYEY SANDS, SAND-CLAY MIXTURES
FINE-GRAINED SOILS 50% OR MORE OF MATERIAL PASSING THROUGH NO. 200 SIEVE	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
		SILTS AND CLAYS LIQUID LIMIT 50 OR MORE		 MH
			 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
	3-INCH O.D. MODIFIED CALIFORNIA SAMPLE
	SHELBY TUBE SAMPLE
	CORE SAMPLE
REC	CORE RECOVERY
RQD	ROCK QUALITY DESIGNATION

LL	LIQUID LIMIT
PI	PLASTICITY INDEX
TV	TORVANE SHEAR (tsf)
PEN	POCKET PENETROMETER (tsf)
	WATER LEVEL OBSERVED IN BORING
	GRAB SAMPLE

GEOTECHNICAL NOTES

- 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.
- For boring locations, see Sheet A1 to A33.
- 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.
- 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.

SURVEY PLOTTED BY	DATE
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TRACED BY	
DESIGNED BY	
CHECKED BY	
NO.	

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GEOLABS, INC.
2006 KALIHISTREET
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OR UNDER MY SUPERVISION.

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. 256 OF 380 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		LABORATORY				Pen, tsf	DESCRIPTION
	Sample	Penetra. Resist. Blows/ft	Dry Density pcf	Moisture Content %	Compress. Strength ksf	Other		
								Approximate Surface Elevation (ft): 174.5*
5	X	35	87	18			>4.5	Brown CLAYEY SILT (MH) with some highly weathered basalt gravel and sand, stiff, dry (older alluvium) grades to very stiff, damp
	X	25		19				
	X	16	88	25			>4.5	Brown CLAYEY SILT (ML) with fine sand, stiff, damp (older alluvium) Boring terminated at 6 feet Groundwater not encountered *Elevations estimated from Topographic Plan transmitted by Parsons Brinckerhoff on April 24, 2000.
10								
15								
20								
25								
30								

LOG OF BORING 1

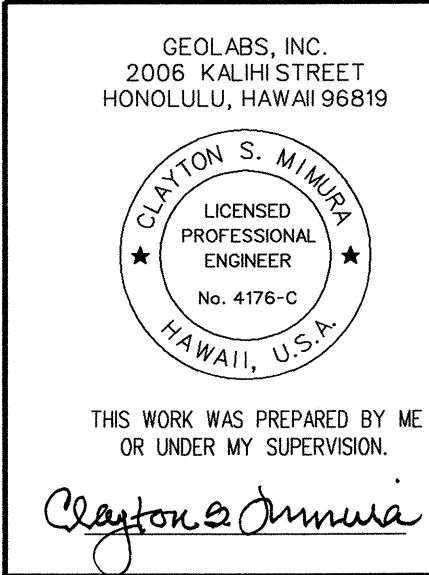
Date Started: May 25, 2000
Date Completed: May 25, 2000
Logged By: E. Shinsato
Total Depth: 5.5 feet
Drill Rig: Mobile B-53
Drilling Method: 4" Auger
Driving Energy: 140 lb. wt., 30 in. drop

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

LOG OF BORING 2

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
NOTE BOOK	DRAWN BY	
	TRACED BY	
	DESIGNED BY	
	CHECKED BY	

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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. B2 OF 12 SHEETS

Date Started: June 5, 2000		Drill Rig: Mobile B-53	
Date Completed: June 5, 2000		Drilling Method: H.S. Auger (6.25")	
Logged By: E. Shinsato			
Total Depth: 76.5 feet		Driving Energy: 140 lb. wt., 30 in. drop	

Depth, ft	FIELD		LABORATORY				Pen, tsf	DESCRIPTION
	Sample	Penetra. Resist. Blows/ft	Dry Density pcf	Moisture Content %	Compress. Strength ksf	Other Data		
								Approximate Surface Elevation (ft): 176.5*
5		48	84	17				Tan-brown SILTY SAND (SM), loose, dry
		58		21				Brown CLAYEY SILT (MH) with sand, very stiff, damp (older alluvium) grades to hard
		56	91	22				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				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		LABORATORY				Pen, tsf	DESCRIPTION
	Sample	Penetra. Resist. Blows/ft	Dry Density pcf	Moisture Content %	Compress. Strength ksf	Other Data		
		35		29		LL = 43 PI = 20		(Continued from previous plate)
35		61/.5'	92	27				Brown SILTY CLAY (CL) with highly weathered alluvial gravel and sand, hard, moist (older alluvium)
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
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NOTE BOOK	
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GEOLABS, INC.
2006 KALIHU STREET
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Clayton S. Minura

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

Depth, ft	FIELD		LABORATORY					Pen, tsf	DESCRIPTION
	Sample	Penetra. Resist. Blows/ft	Dry Density pcf	Moisture Content %	Compress. Strength ksf	Other	Data		
									(Continued from previous plate)
		28		34					Brown SILT (ML) with some fine sand and traces of clay, very stiff, damp (older alluvium)
70	X	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		Drill Rig: Mobile B-53	
Date Completed: June 6, 2000		Drilling Method: H.S. Auger (6.25")	
Logged By: E. Shinsato			
Total Depth: 75.0 feet		Driving Energy: 140 lb. wt., 30 in. drop	

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

LOG OF BORING 4

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
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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. 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	FIELD		LABORATORY					Pen, tsf	DESCRIPTION
	Sample	Penetra. Resist. Blows/ft	Dry Density pcf	Moisture Content %	Compress. Strength ksf	Other	Data		
									(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	FIELD		LABORATORY					Pen, tsf	DESCRIPTION
	Sample	Penetra. Resist. Blows/ft	Dry Density pcf	Moisture Content %	Compress. Strength ksf	Other	Data		
									(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
80									Groundwater not encountered
85									
90									
95									
100									

LOG OF BORING 4

ORIGINAL PLAN

SURVEY PLOTTED BY

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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. B5 OF 12 SHEETS

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

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

LOG OF BORING 5

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

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

LOG OF BORING 6

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

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

LOG OF BORING 7

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

Depth, ft	FIELD		LABORATORY						Pen, tsf	DESCRIPTION	
	Sample	Penetra. Resist. Blows/ft	Dry Density pcf	Moisture Content %	Compress. Strength ksf	Other	Data				
								Approximate Surface Elevation (ft):		194*	
5		50	94	2							Tan-brown FINE CALCAREOUS SAND (SP/SM) with some silt and roots, medium dense, dry (consolidated dunes)
		21		5							
		80		14							
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

NOTED BOOK

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GEOLABS, INC.
2006 KALII STREET
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HAWAII, U.S.A.

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Clayton S. Minura











STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

BORING LOGS




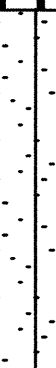


KUIHELANI HIGHWAY WIDENING
HONOAPIILANI HIGHWAY TO PUUNENE AVENUE
FEDERAL-AID PROJECT NO. NH-0380(9)
Scale: None Date: Sept. 14, 2001

SHEET No. 87 OF 12 SHEETS

262

Depth, ft	FIELD		LABORATORY					Pen, tsf	DESCRIPTION	
	Sample	Penetra. Resist. Blows/ft	Dry Density pcf	Moisture Content %	Compress. Strength ksf	Other	Data			
									(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)	
55		47	81	31			4.3		Brown SILT AND FINE SAND (ML/SM), very stiff, moist	
60		45/.3' Ref.		23					Brown SILTY SAND (SM) with highly weathered gravel (older alluvium)	
65									Brown SILT (ML) with some fine sand, very stiff, moist	

LOG OF BORING 8

Depth, ft	FIELD		LABORATORY					Pen, tsf	DESCRIPTION	
	Sample	Penetra. Resist. Blows/ft	Dry Density pcf	Moisture Content %	Compress. Strength ksf	Other	Data			
									(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

SURVEY PLOTTED BY	DATE
DRAWN BY	
DESIGNED BY	
CHECKED BY	
NO. _____	

J:\KUIHELANI\MISC\BL-08.dgn

GEOLABS, INC.
2006 KALII STREET
HONOLULU, HAWAII 96819

CLAYTON S. MINURA

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

THIS WORK WAS PREPARED BY ME
OR UNDER MY SUPERVISION.
Clayton S. Minura

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION







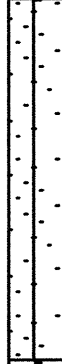



BORING LOGS

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

263

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

Depth, ft	FIELD		LABORATORY				Pen, tsf	DESCRIPTION	
	Sample	Penetra. Resist. Blows/ft	Dry Density pcf	Moisture Content %	Compress. Strength ksf	Other		Data	Approximate Surface Elevation (ft):
5		59	89	4	> 4.5				Tan-brown FINE SILTY SAND (SP-SM) with some roots, medium dense, dry (consolidated dunes)
		44		10					grades to dense
		58/.5'	14	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	FIELD		LABORATORY				Pen, tsf	DESCRIPTION		
	Sample	Penetra. Resist. Blows/ft	Dry Density pcf	Moisture Content %	Compress. Strength ksf	Other		Data		
									(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

SURVEY PLOTTED BY	DATE
DRAWN BY	
DESIGNED BY	
CHECKED BY	
NO.	

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GEOLABS, INC.
2006 KALHI 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. B9 OF 12 SHEETS

264

Depth, ft	FIELD		LABORATORY					Pen, tsf	DESCRIPTION
	Sample	Penetra. Resist. Blows/ft	Dry Density pcf	Moisture Content %	Compress. Strength ksf	Other	Data		
									(Continued from previous plate)
	X	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	X	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		Drill Rig: Mobile B-53	
Date Completed: May 25, 2000		Drilling Method: H.S. Auger (6.25")	
Logged By: E. Shinsato			
Total Depth: 5.5 feet		Driving Energy: 140 lb. wt., 30 in. drop	

Depth, ft	FIELD		LABORATORY					Pen, tsf	DESCRIPTION
	Sample	Penetra. Resist. Blows/ft	Dry Density pcf	Moisture Content %	Compress. Strength ksf	Other	Data		
	X	36	93	3					Tannish brown FINE CALCAREOUS SAND (SP/SM) with traces of basalt gravel and silt, medium dense, dry (consolidated dunes)
	X	30		3					
5	X	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

ORIGINAL PLAN

SURVEY PLOTTED BY

DATE

TRACED BY

DESIGNED BY

NOTED BY

CHECKED BY

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GEOLABS, INC.
2006 KALHI STREET
HONOLULU, HAWAII 96819

CLAYTON S. MINNER

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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. B10 OF 12 SHEETS

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		LABORATORY				Pen, tsf	DESCRIPTION
	Sample	Penetra. Resist. Blows/ft	Dry Density pcf	Moisture Content %	Compress. Strength ksf	Other		
								Approximate Surface Elevation (ft): 192*
5	X	47	91	5				Tannish brown FINE CALCAREOUS SAND (SP/SM) with some silt, medium dense, dry (consolidated dunes)
	X	24		4				
	X	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		LABORATORY				Pen, tsf	DESCRIPTION
	Sample	Penetra. Resist. Blows/ft	Dry Density pcf	Moisture Content %	Compress. Strength ksf	Other		
								Approximate Surface Elevation (ft): 182*
5	X	52		4				Tannish brown FINE CALCAREOUS SAND (SP/SM) with some silt, medium dense, dry (consolidated dunes)
	X	24		4				
	X	49	105	4				grades with traces of cemented sand
10	X	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	X	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
NOTE BOOK	DRAWN BY	
	DESIGNED BY	
	CHECKED BY	

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GEOLABS, INC.
2006 KALHI STREET
HONOLULU, HAWAII 96819

CLAYTON S. MINNER

LICENSED PROFESSIONAL ENGINEER

No. 4176-C

HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.
Clayton S. Minner

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. 266 OF 380 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		LABORATORY				Pen, tsf	DESCRIPTION	
	Sample	Penetra. Resist. Blows/ft	Dry Density pcf	Moisture Content %	Compress. Strength ksf	Other Data		Approximate Surface Elevation (ft): 111*	
5	48	74	15	5				Brown CALCAREOUS FINE SAND (SP) with some silt and traces of basalt gravel, medium dense, dry (consolidated dunes)	
	28								
	41	94	6						
								Boring terminated at 5.5 feet	
								Groundwater not encountered	

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

LOG OF BORING 14

ORIGINAL PLAN

NOTED BOOK

DATE

DESIGNED BY

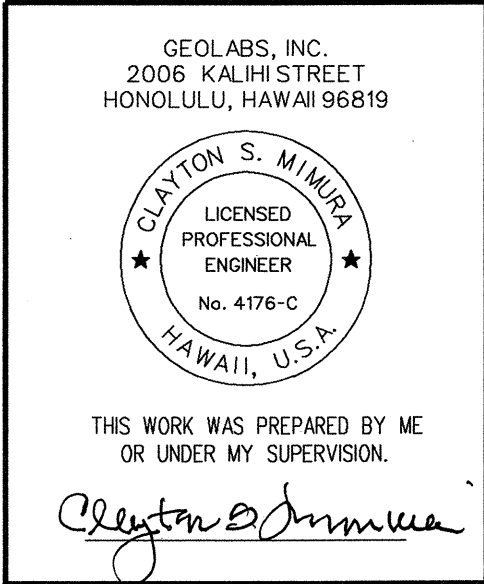
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DATE

DESIGNED BY

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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. B12 OF 12 SHEETS