

Geotechnical Engineering

REHABILITATION OF PALI HIGHWAY WAOKANAKA STREET TO KAMEHAMEHA HIGHWAY HONOLULU TO KANEOHE, OAHU, HAWAII

Log of Boring

T	Labo	ratory			F	ield						
		Moisture Content (%)	nsity	Core Recovery (%)	(%	ation ance /foot)	: Pen.	(feet)	Ф	O		Approximate Ground Surface Elevation (feet MSL): 495 *
	Other Tests	Aoistu Sonter	Dry Density (pcf)	Sore	RQD (%)	Penetration Resistance (blows/foot)	Pocket Pen. (tsf)	Depth (feet)	Sample	Graphic	nscs	Description
t	0	20		OL	ш.			ш_	0)	O	۱	9.5-inch ASPHALTIC CONCRETE
		4						-	G	000	GW	Gray coarse subangular SANDY GRAVEL , very dense, damp (base course)
		20				29/6"		-			GM	Brownish gray coarse subangular SILTY GRAVEL, very dense, damp (subbase course)
		20				+25/0" Ref.		-		ol - / _ /		Gray BASALT , moderately fractured, moderately weathered, hard (a'a basalt)
l										- ; `		Boring terminated at 3.5 feet
								5-				* Elevations estimated from Topographic Survey Map transmitted by Wesley R. Segawa & Associates, Inc. on February 6, 2014.
								-	_			-
								-				-
								-				
								-				-
								10 -				_
								-				-
								-				-
20/14								_				_
.GDT 2/2												
BORING_LOG_6782-00(A).GPJ_GEOLABS.GDT_2/20/14								-				-
GPJ G								15-				
782-00(A		ate Started: Octobate Completed: Octob				ctober 7, 2013				١	lot E	ncountered Plate
.0G 6;	Logged B	•					Drill Riç	g:			DIED	RICH D-25.4
	Total Dep	tal Depth: 3.5 feet					Drilling	olid Stem Auger A - 1				
ğ	Work Ord	er:	6782	2-00(A)			Driving	Ene	rgy	′: 1	40 lk	o. wt., 30 in. drop



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Log of Boring

F	Laba	ratory				ield							⊣	
H	Labo	лаюту				leiu	Ι					Approximate Ground Surface		
ı	sts	(%	ıţ	(%)		5 g S	<u>ا</u> ۔ ا	et)				Elevation (feet MSL): 682.2 *		
ı		ure int (°	ensi	/ery	(%)	ratic tanc s/foc	F Pe	(fee	<u>e</u>	.je				
ı	Other Tests	Moisture Content (%)	Dry Density (pcf)	Core Recovery (%)	RQD (%)	Penetration Resistance (blows/foot)	Pocket Pen. (tsf)	Depth (feet)	Sample	Graphic	nscs	Description		
F	Ö	Σŏ	ے ف	ÖĞ	Ä	<u>~</u> ~~	_ 9 €	ă	Š	Ō	ň	14-inch ASPHALTIC CONCRETE	_	
ı												14-IIICII ASPHALTIC CONCRETE		
ı								_					┧	
ı		8				79				0	SW-	Tan GRAVELLY SAND with a little silt, very		
ı								_		0.	SM	dense, damp (base course)		
ı									١	υ				
ı									I	0.				
ı								-			СН	Brownish gray SILTY CLAY with some cobbles,	\exists	
ı												very stiff, moist (colluvium)		
ı								-	1		N A I		ᅼ	
ı		66	61			43					ML	Orangish brown SANDY SILT with remnant of rock structure, very stiff, moist (saprolite)		
ı								5 -	M			rook of dotalo, vory offin, motor (dapronto)	\exists	
ı									Λ					
ı								_	I				4	
ı														
ı								_					4	
ı														
ı														
ı												grades to stiff, very moist	1	
ı														
ı								-					1	
ı		64	58			13			\Box					
ı								10 –	М				\exists	
ı									Λ					
ı								-	H	11		Boring terminated at 11 feet	\dashv	
ı												Doming terminated at 11 loot		
ı								-					4	
ı														
0/14								_						
7 2/2														
S.GD														
OLAB								-	1				1	
BORING_LOG 6782-00(A).GPJ GEOLABS.GDT 2/20/14														
A).GF	D 1 0:		<u> </u>		2012	<u> </u>	147	15-				. ,	\dashv	
32-00(e Started: October 8, 2013 e Completed: October 8, 2013				Water L	_eve	I:	١	vot E	ncountered			
9/9		te Completed: October 8, 2013 gged By: S. Latronic			-+	Drill Pig:				Plate				
ĬĹ		ged By: S. Latronic al Depth: 11 feet				Drill Rig: Drilling Method:				DIEDRICH D-25.4 od: 4" Solid Stem Auger A - 2				
	Work Ord			et :-00(A)			Drilling Driving					lid Stem Auger A - 2 b. wt., 30 in. drop		
ďL	VVOIR UIU	CI.	0/02	∪∪(A)			אוואווח	ше	ıyy	. !	40 IL	7. Wt., 30 III. 010p		



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Log of Boring

f	Labo	ratory			F	ield						
ŀ	Labo	лаюту				leiu						Approximate Ground Surface
ı	ţ2	(%)	≥	Core Recovery (%)		⊊ o ⊊	<u>.</u>	ੜ				Elevation (feet MSL): 863.8 *
ı	Les	re rt (%	ınsi	ery	(%	atio anc /foo	F Pe	(fee	Ф	ပ		
1	Other Tests	Moisture Content (%)	Dry Density (pcf)	re cov	RQD (%)	Penetration Resistance (blows/foot)	Pocket Pen. (tsf)	Depth (feet)	Sample	Graphic	nscs	Description
L	ð	Š	ر و و	Co Re	RG	Pe B Se Dig	Po (tsf	De	Sal	Ö	NS	Description
I												11.5-inch ASPHALTIC CONCRETE
1												
1								-		000	GW	Gray subangular SANDY GRAVEL , very dense,
1										000	GM	damp (base course)
1		16				97		-		9		Brownish gray medium to coarse SILTY GRAVEL with a little sand and traces of
1		10				37				1/2		cobbles, very dense, moist (subbase course)
1								_	⇃⇃	-,		Gray BASALT , moderately fractured, slightly to
1												moderately weathered, hard (a'a basalt)
1										,',		
1								-	1	-,/-)		
1										<u> </u>		Boring terminated at 4.5 feet
1								5-	-			3
1												
1												
1												
1												
1								-				
1												
1								-				
1												
1								-	-			
1												
1								10 -				
1												
1												
1								-				
1												
								-	$\mid \cdot \mid$			
20/14								-				
2												
3S.GL												
OLA OLA												
BORING_LOG 6782-00(A).GPJ GEOLABS.GDT 2/20/14												
₹ 5	D . C :	e Started: October 8, 2013				<u> </u>		15-				
) [2-00	Date Start					`	Water I	_eve	I:	١	vot E	ncountered
8/9	Date Com				2013		D.:III D:				1155	Plate
<u> </u>	Logged B						Drill Rig					RICH D-25.4
		I Depth: 4.5 feet k Order: 6782-00(A)					Drilling					lid Stem Auger A - 3
	Work Ord	er:	0/82	-uu(A)			Driving	⊏ne	rgy	: 1	4U II	o. wt., 30 in. drop



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REHABILITATION OF PALI HIGHWAY WAOKANAKA STREET TO KAMEHAMEHA HIGHWAY HONOLULU TO KANEOHE, OAHU, HAWAII

Log of Boring

Laboratory Field	
Appro	eximate Ground Surface
g g g g g g g g g g	tion (feet MSL): 1014.1 *
Other Tests Moisture Content (%) Dry Density (pcf) Core Recovery (%) RQD (%) Penetration Resistance (blows/foot) Pocket Pen. (tsf) Depth (feet) Sample Graphic USCS	
ler student	Danadalla
Other Tes Moisture Content (bry Dens (pcf) Core Recovery RQD (%) Penetratis Resistan (blows/fo (blows/fo (tsf) Depth (fe Sample Graphic USCS	Description
8.5-inch ASPHA	LTIC CONCRETE
GRAVEL with to contain the containing of the con	coarse subangular SANDY races of silt and a little cobbles,
very dense, da	mp (base course)
	· ` `
13 71 \ \[\int_{\textit{\vartheta}\cdot\cdot\cdot\cdot\cdot\cdot\cdot\cdot	
Some Single Company	ILTY GRAVEL with a little sand
and some cobb	oles, very dense, moist (fill)
	-
MH Orangish brown	CLAYEY SILT, very stiff, moist
(residual soil)	·
Boring terminate	ad at 7 fact
Doring terminate	eu at 7 leet
	_
	1
	-
	_
	1
_	
	-
ଞ୍ଚି	
	-
Date Started: October 9, 2013 Date Completed: October 9, 2013 Logged By: S. Latronic Total Depth: 7 feet Work Order: 6782-00(A) Date Started: October 9, 2013 Water Level: Not Encountered DIEDRICH D-25.4 Drilling Method: 4" Solid Stem Auger Driving Energy: 140 lb. wt., 30 in. drop	
Date Started: October 9, 2013 Water Level: Not Encountered	1
Date Completed: October 9, 2013	Plate
Logged By: S. Latronic Drill Rig: DIEDRICH D-25.4	
Total Depth: 7 feet Drilling Method: 4" Solid Stem Auger	A - 4
Work Order: 6782-00(A) Driving Energy: 140 lb. wt., 30 in. drop	



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Log of Boring

Labo	ratory			F	ield								
Other Tests	Moisture Content (%)	Dry Density (pcf)	Core Recovery (%)	(%)	Penetration Resistance (blows/foot)	Pocket Pen. (tsf)	Depth (feet)	ole	hic	S	Approximate Ground Surface Elevation (feet MSL): 1054.8 *		
Othe	Mois	Dry [(pcf)	Core Reco	RQD	Pene Resis (blow	Pock (tsf)	Dept	Sam	Grap	nsc	Description		
Other	Moistu Conter Co	90 kJQ 66 61 65 65 65 65 65 65 65 65 65 65 65 65 65	Core Recov	RQD (%)	Penetr Penetr 25 25 25 Resist Resist (blows (blows blows blo	Pocker (tsf)	Depth	Sample	Graphic Graphic	SOSN SG CH CH	Description 10-inch ASPHALTIC CONCRETE Tan SANDY GRAVEL with a little silt, dense, moist (base course) Brown SILTY CLAY with traces of sand, stiff, moist (fill) Brown with multi-color mottling SILTY CLAY, medium stiff to stiff, moist to very moist (older alluvium)		
Date Star Date Com Logged B Total Dep Work Ord	rted: Oc		•		ed: October 9, 2013 Deted: October 9, 2013			Water I	- - - -eve]:	N	Not E	Boring terminated at 11.5 feet ncountered Plate
Logged B			tronic	2013		Drill Rig	 g:			DIED	RICH D-25.4		
Total Dep	tal Depth: 11.5 feet					Drilling	Meth		d: 4	l" So	lid Stem Auger A - 5		
Work Ord	er:		Driving	Ene	p. wt., 30 in. drop								



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Log of Boring

Lab	oratory			F	ield						
Other Tests	Moisture Content (%)	Dry Density (pcf)	Core Recovery (%)	(%)	Penetration Resistance (blows/foot)	Pocket Pen. (tsf)	Depth (feet)	le	ji		Approximate Ground Surface Elevation (feet MSL): 1092.7 *
Other	Moist	Ory D (pcf)	Sore Reco	RQD (%)	Penet Resis (blow)	Pocke (tsf)	Jepth	Sample	Graphic	nscs	Description
	20		0 11					0,			9-inch ASPHALTIC CONCRETE
	14				36		-			GW- GM	Tan SANDY GRAVEL with some silt, dense, moist (base course) Gray SANDY GRAVEL with a little silt, medium dense, moist (fill)
	55				3		5 -			CH	grades to loose Dark grayish brown SILTY CLAY , soft to medium stiff, very moist (older alluvium)
	52	70			7	0.8	-	V		MH	Brown with multi-color mottling CLAYEY SILT , medium stiff, very moist (older alluvium)
	72				3	0.8	- 10 - -				
Date Sta Date Cor Logged E Total Dep							-		A		Boring terminated at 12 feet
Data Ot-	tod.	Os1:	ho: 10	2010		\\/ c+c :: \	15-	 •		let C	necurity T
Date Sta		d: October 10, 2013 eted: October 10, 2013				Water L	ncountered Plate				
Logged E			atronic	, _0.0		Drill Rig	g:			CME-	55GY
Total Der		12 fe				Drilling					lid Stem Auger A - 6
Work Ord	der:	6782	2-00(A)			Driving	Ene	rgy	r: 1	40 lk	o. wt., 30 in. drop



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Log of Boring

Lab	oratory			F	ield						
Other Tests	Moisture Content (%)	Dry Density (pcf)	Core Recovery (%)	(%)	Penetration Resistance	Pocket Pen. (tsf)	Depth (feet)	е	<u>ö</u>		Approximate Ground Surface Elevation (feet MSL): 914.2 *
ther	Noistu Contei	ory De	ore ecov	RQD (%)	eneti lesist	ocke ssf)	epth	Sample	Graphic	nscs	Description
	20	<u> </u>	OIL	Щ	шш			CO	0	ر	6.5-inch ASPHALTIC CONCRETE
							-	1	0 0 0 0 0	GW	Tan SANDY GRAVEL with some silt, dense, moist (base course)
									00	MH	Gray SANDY GRAVEL with traces of silt, very dense, damp (base course)
	45				24		-			MH	Reddish brown CLAYEY SILT with a little sand and gravel, very stiff, moist (fill)
	40	79			80		-	X			
	51				25		5 -				
	43	72			50/5"		- - 10 -	- -	44		Brown TUFF , closely fractured, slightly to moderately weathered, medium hard to hard (volcanic tuff)
Date Star Date Con Logged E Total Dep							-				Boring terminated at 11.4 feet
							15 -			L	<u> </u>
Date Star			october 11, 2013			Water I	_eve	l:	1	Not E	ncountered Plate
Logged E	ogged By: S. Latronic					Drill Rig	g:			CME-	55GY
Total Der	tal Depth: 11.4 feet					Drilling Method: 4" Solid Stem Auger A - 7					
Work Ord	der:	6782	2-00(A)			Driving	Ene	rgy	': 1	140 lk	p. wt., 30 in. drop



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Log of Boring

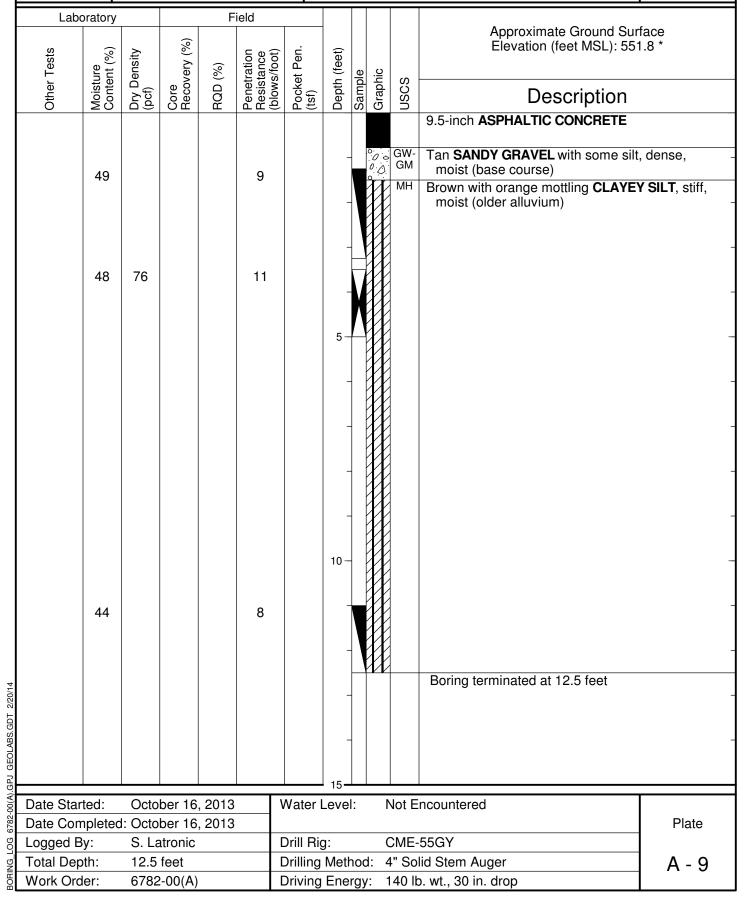
Ī	Labo	oratory			F	ield									
ŀ			ity	(%)			eu.	et)			Approximate Ground Surface Elevation (feet MSL): 748.4 *				
	Other Tests	Moisture Content (%)	Dry Density (pcf)	Core Recovery (%)	RQD (%)	Penetration Resistance (blows/foot)	Pocket Pen. (tsf)	Depth (feet)	Sample	USCS	Description				
╁	O	≥0	۵۶	O H	В	2 2 2			S C		12-inch ASPHALTIC CONCRETE				
		13				31		-	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	GW GM	Grav SANDY GRAVEL with traces of silt_verv				
		12	123			20		- 5 -		CL	Reddish brown to grayish brown GRAVELLY CLAY , stiff, moist (fill)				
		25				18		-							
		24 88	24 88		24 88				22		10 -			- -	
J GEOLABS.GDT 2/20/14								- - -			Boring terminated at 11.5 feet				
A).GPJ	-					<u> </u>		15-			· · · · · · · · · · · · · · · · · · ·				
6782-00(A)	Date Star	pleted	l: Octo				Water Level: Not Encountered								
LOG	Logged B			tronic		Drill Rig: CME-55GY Drilling Method: 4" Solid Stem Auger									
SORING	Total Dep Work Ord		11.5				Drilling Driving				b. wt., 30 in. drop				
Я	VVOIK UIU	CI.	0/02	?-00(A)			אוואווח	ше	ıyy.	140	v. wt., ou iii. urop				



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Log of Boring

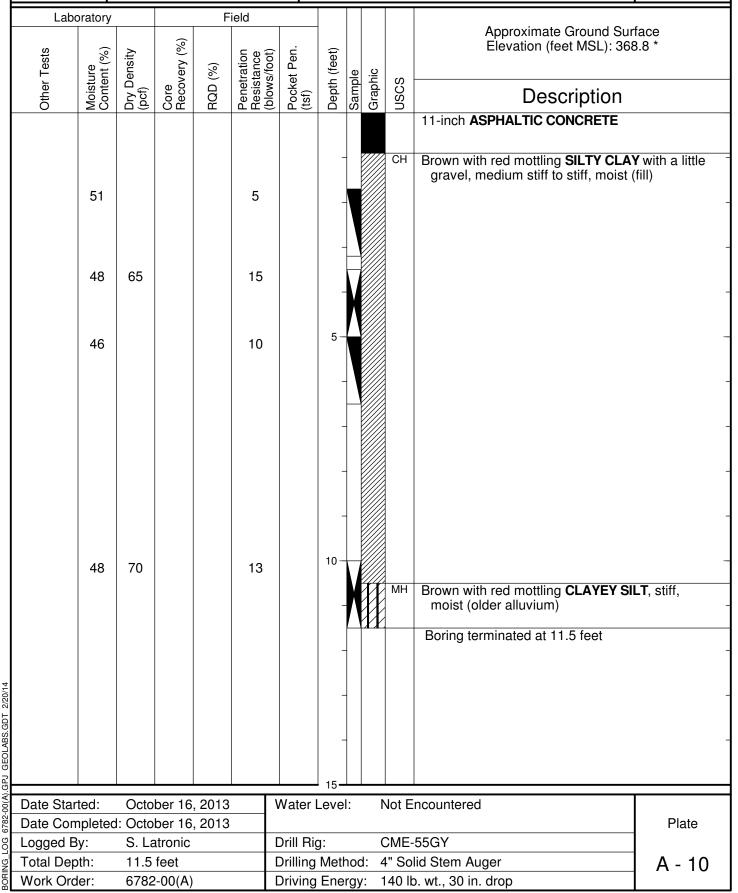




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Log of Boring





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Log of Boring

F	Lobo	ratory				ield							
\vdash	Labo	natory			1	leiu	1					Approximate Ground Surface	
	ts	<u>@</u>	<u>F</u>	(%)		⊊ o ⊋	, <u>.</u> .	Œ.				Elevation (feet MSL): 462.8 *	
	Other Tests	Moisture Content (%)	Dry Density (pcf)	Core Recovery (%)	(%	Penetration Resistance (blows/foot)	Pocket Pen. (tsf)	Depth (feet)	Ф	<u>.</u> 2			
	ē.	istu) De	re	RQD (%)	netr sist	cke.	pth	Sample	Graphic	nscs	Description	
L	₹	≌ိပိ	ر و و	Se Re	RC	P B G	Po (ts)	De	Sa	ؿ	SN	Description	
												9-inch ASPHALTIC CONCRETE	
										0.	GW	Gray subangular SANDY GRAVEL with trace	s of
		21				41		_		00		silt, dense, moist (base course)	5 01 _
										00			
								-	١	0.0			-
									I	00			
								-			СН	Brown with orange mottling SILTY CLAY with little fine gravel, stiff, moist (fill)	ıa _
												illie iiile gravei, siiii, iiioist (iiii)	
		48	73			24	1.8	-					-
		40	13			24	1.0						
								5 -	N				_
								Ü					
								-					_
								-					-
								-	-			grades with more silt	-
												grade with more one	
								-					-
		40	70										
		49	73			14		10 -	M				_
								10	K				
									11				
								_		,,,,		Boring terminated at 11 feet	
								-	1				-
4													
,720/1								-	1				-
ŢĢ.													
ABS.C								-	$ \ $				-
JEOL.													
BORING_LOG 6782-00(A).GPJ GEOLABS.GDT 2/20/14								15 -					
(<u>§</u>	Date Start	ate Started: October 17, 2013				Water L		l:	N	lot E	ncountered		
3782-(ate Completed: October 17, 2013						Pla	te				
g L		ogged By: S. Latronic					Drill Rig	j :			DIED	RICH D-25.3	
ဗူ ၂		otal Depth: 11 feet					Drilling Method: 4" Solid Stem Auger A - 11						
œ .	Vork Ord	er:	6782	2-00(A)			Driving	Ene	rgy	: 1	40 lk	o. wt., 30 in. drop	



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Log of Boring

									1			
Labo	oratory			F	ield					Approximate Ground Surface		
Other Tests	Moisture Content (%)	Dry Density (pcf)	Core Recovery (%)	(%)	Penetration Resistance (blows/foot)	Pocket Pen. (tsf)	Depth (feet)	ole bis	2 0	Elevation (feet MSL): 663.8 *		
Othe	Moist	Dry D (pcf)	Core Reco	RQD (%)	Pene Resis (blow	Pock (tsf)	Dept	Sample	USCS	Description		
										9-inch ASPHALTIC CONCRETE		
							-	0.0	GW GM	Tan SANDY GRAVEL with some silt, dense, moist (base course)		
	17 14				50/5"		_	GA	MH	Brown CLAYEY SILT with a little sand and gravel, very stiff, moist (fill)		
	14				00/0					Gray BASALT, moderately fractured, slightly weathered, hard		
							-	,′		weathered, hard		
							_	,′				
					20/0"			[\'		Boring terminated at 4.5 feet		
					Ref.		5-					
							_					
							-					
							_					
							-					
							10 –					
							-					
							-					
							-					
							-					
Date Star	tod:	Octo	ber 17	2012	<u> </u>	Nater I	15-		Not 5	Encountered		
Date Con						. v a (C)	Plate					
Logged B Total Dep		S. La 4.5 fe	tronic			Drill Rig: DIEDRICH D-25.3 Drilling Method: 4" Solid Stem Auger A -						
		1 L f	oot.			Irillina	N/Inth	· ~ ~ .	7" C'/	olid Stem Auger A - 12		



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Log of Boring

ł	Laba	ratory				ield							┫
l	Labo	лаюту			Г	leiu						Approximate Ground Surface Elevation (feet MSL): 910.1 *	
١	sts	(%)	sity	%) /		g (signature)	en.	et)				Elevation (feet MSL): 910.1 *	
	er Te	sture	Dens	y	(%)	etrati stan vs/fo	(et P	Depth (feet)	ble	hic	ώ		
	Other Tests	Moisture Content (%)	Dry Density (pcf)	Core Recovery (%)	RQD (%)	Penetration Resistance (blows/foot)	Pocket Pen. (tsf)	Dept	Sample	Graphic	nscs	Description	
ı	_											15-inch ASPHALTIC CONCRETE	
-													
-								_		° _h L	GM	Reddish gray angular SILTY GRAVEL , very	\dashv
-		28				20/1"		_				dense, damp (subbase course)	
-												Gray TUFF , moderately fractured, slightly to	٦
-								_				moderately weathered, hard (volcanic tuff)	┧
-		19				50/1"							١
-								-	_				4
-		15				50/1"							
-		15				30/1		5 -	-			Boring terminated at 4.6 feet	\dashv
-													١
-								-	-				+
-													١
-								-					\exists
-													١
-								-					\exists
-													١
-								-					1
-													١
-								10 -					1
-													١
-								-					1
-													١
-								_					1
7/14								_					
T 2/2													١
BS.GE								_					
SEOLA													
BORING_LOG 6782-00(A).GPJ GEOLABS.GDT 2/20/14								15-					_
-00(A)	Date Start				,	Water L	_eve	l:	١	lot E	ncountered	┨	
6782		te Completed: October 18, 2013										Plate	
LOG	Logged B						Drill Rig: DIEDRICH D-25.3 Drilling Method: 4" Solid Stem Auger A						
ORING	Total Dep Work Ord			eet :-00(A)			Drilling Driving					lid Stem Auger A - 13 b. wt., 30 in. drop	
м́		<u> </u>	0,02	. 55(71)			v		97	• '		7. Hu, 00 III. Grop	_



Geotechnical Engineering

REHABILITATION OF PALI HIGHWAY WAOKANAKA STREET TO KAMEHAMEHA HIGHWAY HONOLULU TO KANEOHE, OAHU, HAWAII

Log of Boring

	Labo	ratory			F	ield							
- to ct	5000	Moisture Content (%)	Dry Density (pcf)	Core Recovery (%)	RQD (%)	Penetration Resistance (blows/foot)	Pocket Pen. (tsf)	Depth (feet)	ple	Graphic	S	Approximate Ground Surface Elevation (feet MSL): 1056.6 *	
1		∕lois Sont	Ory [Sore	g	Pene Resis blov	Pock tsf))ept	Sample	Эгар	nscs	Description	
										000000		9-inch ASPHALTIC CONCRETE Tan SANDY GRAVEL with a little silt, dense, moist (base course) Gray angular SANDY GRAVEL with traces of silt,	
		20				38		-			МН	dense, moist (base course) Grayish brown CLAYEY SILT with some gravel, stiff, moist (fill)	
		82				8		5-			MH	Brown with orange mottling CLAYEY SILT with traces of decomposed gravel, stiff, moist (saprolite)	
		83	49			21		-	X				
3S.GDT <i>2/20/</i> 14								-				Boring terminated at 12.5 feet	
Հ.——	Date Started: October 22, 2013 Date Completed: October 22, 2013						Water I	15 - Leve] 	N	lot E	ncountered	
Date		•			, 2013			Plate					
S Log	ged B			atronic			Drill Rig: DIEDRICH D-25.3 Drilling Method: 4" Solid Stem Auger						
S I Ota	l Dep		12.5										
ଳ ∧∧ot	k Ord	er.	0/82	2-00(A)			Driving	⊏ 116	ıgy	. 1	4U I	o. wt., 30 in. drop	



Geotechnical Engineering

REHABILITATION OF PALI HIGHWAY WAOKANAKA STREET TO KAMEHAMEHA HIGHWAY HONOLULU TO KANEOHE, OAHU, HAWAII

Log of Boring

Laboratory Laboratory Moisture Countent (%) BOD (%) BOD (%) Booket Pen. Core (blows/foot) Booket Pen. Core (blows/foot	urface
er Tests er Tests listure intent (%) Density Density Density Sket Pen. Sc. Sc. Sc. Sc. Sc. Sc. Sc. S	200 F *
er Test:	J66.5 "
er T sixtur sixt	
နှုံ မြို့မျှ Description	
10.5-inch ASPHALTIC CONCRET	E
- GW Gray SANDY GRAVEL with traces	of silt.
6 11 medium dense, moist (base cou	rse)
Brownish gray SILTY GRAVEL with modium dance, maint (subbase)	h a little sand,
medium dense, moist (subbase	course)
MH Grayish brown CLAYEY SILT with	some gravel,
stiff, moist (fill)	-
63 63 8	
	-
MH Brown CLAYEY SILT, stiff, moist (older alluvium)
5 Boring terminated at 5 feet	
	-
	-
	-
	-
	-
4	
	-
	-
Date Started: October 21, 2013 Water Level: Not Encountered Date Completed: October 21, 2013	
g <mark> </mark>	
15	
Date Started: October 21, 2013 Water Level: Not Encountered	
	Plate
Logged By: S. Latronic Drill Rig: DIEDRICH D-25.3	
	_ A - 15
Total Depth: 5 feet Drilling Method: 4" Solid Stem Auger Work Order: 6782-00(A) Driving Energy: 140 lb. wt., 30 in. drop	



Geotechnical Engineering

REHABILITATION OF PALI HIGHWAY WAOKANAKA STREET TO KAMEHAMEHA HIGHWAY HONOLULU TO KANEOHE, OAHU, HAWAII

Log of Boring

	Lobo	rotorii	ield										
\vdash	Labo	ratory			Г	leiu						Approximate Ground Surface	
1	σ	(9	>	(%)			ا خ	£				Elevation (feet MSL): 1032.6 *	
	est	e t (%	ısit	<u> </u>	(%)	ation nce	D D	fee					
	F	stur ten	Der	0 ve	6) (etra ista ws/i	ket	th (Jple	ohic	SS		
	Other Tests	Moisture Content (%)	Dry Density (pcf)	Core Recovery (%)	RQD (%)	Penetration Resistance	Pocket Pen. (tsf)	Depth (feet)	Sample	Graphic	nscs	Description	
		20		ОШ	ш	шш			(0)	O		8-inch ASPHALTIC CONCRETE	
								_		000	GW	Gray medium to coarse SANDY GRAVEL with	
										<i>0.</i> ⊘.	GM	traces of silt, dense, moist (base course)	
										0	Civi	Brownish gray SILTY GRAVEL with a little sand, dense, moist (fill)	
		22				29		-		°po		dense, moist (iiii)	-
								-	- \				_
									I	°p o			
								-	1	1			-
										00		grades to medium dense	
		56				7		5 -				9.0000 00	-
		30				_ ′				90			
								_		W	МН	Orangish brown CLAYEY SILT with some decomposed gravel, stiff, moist (saprolite)	_
									N	W		decomposed graver, still, moist (saprolite)	
1									М	W			
								-		\mathcal{M}			-
1										M			
								_		M			_
										M			
										M			
								-		M			_
										M			
								10 -	-	M		grades with more gravel	_
										\mathcal{M}		grades with more gravel	
		55	55			11			M	M			
								_	K	\mathcal{M}			_
									Λ	W			
								-	\vdash	4U		Boring terminated at 12 feet	
												Borning torrimiation at 12 root	
<u>†</u>								_					_
BOHING LOG 6/82-00(A).GPJ GEOLABS.GDJ 2/20/14													
LAB.								-					-
2 1													
5								15 -					
D	ate Star	ted:	Octo	ber 22	, 2013		Water I	eve	l:	١	lot E	ncountered	
D	ate Com							,			_	Plate	
R La	ogged B			atronic	,		Drill Rig	g:		Г	DIED	RICH D-25.3	
	otal Dep		12 fe				Drilling		าดก			lid Stem Auger A - 16	
	Work Order: 6782-00(A)						Driving					o. wt., 30 in. drop	,
	John Old		Dirving	-110	· 9 y	. '	TO IL	7. W., 00 III. GIOP					



Geotechnical Engineering

REHABILITATION OF PALI HIGHWAY WAOKANAKA STREET TO KAMEHAMEHA HIGHWAY HONOLULU TO KANEOHE, OAHU, HAWAII

Log of Boring

									T		
Laborat	tory			FI	eld						Approximate Ground Surface
Other Tests	Content (%)	Dry Density (pcf)	Core Recovery (%)	(%)	Penetration Resistance (blows/foot)	Pocket Pen. (tsf)	Depth (feet)	ole .	JIC	ω.	Elevation (feet MSL): 911.1 *
Other	Conte	(pcf)	Core Reco	RQD (%)	Pene Resis (blow	Pock (tsf)	Deptl	Sample	Grapnic	nscs	Description
											12-inch ASPHALTIC CONCRETE
	21				46		-	000000000000000000000000000000000000000		GP GW- GM	Gray poorly graded medium to coarse subangular GRAVEL with traces of silt, dense, moist (base course) Grayish brown SANDY GRAVEL with a little silt, dense, moist (subbase course)
							_	dash	\\ \\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\		Gray BASALT , moderately fractured, slightly weathered, very hard
											Boring terminated at 4 feet
							5 —				3
							-				
							_				
							_				
							-				
							10 —				
							_				
							_				
							-				
							15 —				
Date Started		Octobe			V	Vater I	_evel	:	N	ot E	ncountered
				2013		= ·					Plate
Logged By: Total Depth: Work Order:		S. Latr 4 feet	onic			Orill Rig Orilling		od.			RICH D-25.3 A - 17
		+ 1661			1 L	מווווזכ	ivietr	iOO:	4	S0	SIGNI ANNOL I /\ 7 /



Geotechnical Engineering

REHABILITATION OF PALI HIGHWAY WAOKANAKA STREET TO KAMEHAMEHA HIGHWAY HONOLULU TO KANEOHE, OAHU, HAWAII

Log of Boring

F	, , ,											
ļ	Labo	oratory			F	ield						Ammunimate Crayand Courfees
1		((%								Approximate Ground Surface Elevation (feet MSL): 815.8 *
١	Other Tests	Moisture Content (%)	Dry Density (pcf)	Core Recovery (%)	(°	Penetration Resistance (blows/foot)	Pocket Pen. (tsf)	Depth (feet)				
1	F	ture	Jen	S e	%) (etra sta vs/f	et	h f	ple	hic	S	
1	the	lois ont	ocf)	Sore	RQD (%)	ene tesi	st)	ept	Sample	Graphic	nscs	Description
ŀ	0	20		ОШ	Ш	ппе			S	0		9.5-inch ASPHALTIC CONCRETE
1												0.0 mon Adi HALIIO GONGILIL
1								_		°/ °	GP	Gray GRAVEL with a little sand and traces of silt,
١										000	GW	very dense, damp (base course)
١		22				29				00	avv	Brownish gray SANDY GRAVEL with traces of
١		22				29		-	1	000		silt, dense, moist (subbase course)
١										00		
١								_	. \	0	N 41 1	Over the bosons OLAVEY OILT with a second
١									١١	\mathcal{M}	MH	Grayish brown CLAYEY SILT with some gravel, very stiff, moist (fill)
١										M	МН	Orangish brown CLAYEY SILT with a little sand,
١								_		M		hard, damp (saprolite)
١										M		
١		30				50/3"		5 –		M		
١		30				30/3				\ \ \ \		Gray BASALT, moderately fractured, slightly to
١								_		\'_		moderately weathered, medium hard to hard
١										-,'-		
١												
١								-				
١										-,/-		
١								_		\ <u>\</u>		<u> </u>
١												Boring terminated at 8 feet
١												
١								_				
١												
١								10 –				
١												
١								_				
١												
								-				
١												
20/14								-				
7 2/2												
S.GL												
ZAB								-				
g E												
BORING_LOG 6782-00(A).GPJ GEOLABS.GDT 2/20/14							<u> </u>	15 -	Ш			
00(A)	Date Start	ted:	Octo	ber 24	, 2013		Water L	eve	l:	١	lot E	ncountered
5782-	Date Com	pleted	: Octo	ber 24	, 2013							Plate
500	Logged B			atronic			Drill Rig	j :			DIED	RICH D-25.3
الح	Total Dep		8 fee	et			Drilling		าดต	d: 4	" So	lid Stem Auger A - 18
ğ	Work Order: 6782-00(A)						Driving					o. wt., 30 in. drop
u [(')					<u> </u>			• •



Geotechnical Engineering

REHABILITATION OF PALI HIGHWAY WAOKANAKA STREET TO KAMEHAMEHA HIGHWAY HONOLULU TO KANEOHE, OAHU, HAWAII

Log of Boring

Laboratory Approximate Ground Surface Elevation (feet MSL): 655.4 *													
Elevation (feet MSL): 655.4 * Elevation (feet MSL): 655.4 * Description Description Below Be	Labo	oratory			F	ield							
B-inch ASPHALTIC CONCRETE 8-inch ASPHALTIC CONCRETE 9	ır Tests	ture ent (%)	Jensity	very (%)	(%)	stration stance vs/foot)	cet Pen.	h (feet)	ple	hic	S	Approximate Ground Surface Elevation (feet MSL): 655.4 *	
B-inch ASPHALTIC CONCRETE 8-inch ASPHALTIC CONCRETE 9	Othe	Mois	Dry [(pcf)	Core	RQD	Pene Resi (blow	Pock (tsf)	Dept	Sam	Grap	nsc	Description	
traces of silt, dense, moist (base course) Brownish gray SANDY GRAVEL with a little silt, very dense, moist (subbase course) 45 70 55 6 6 6 6 7 7 7 7 7 7 7 7 7 7 7 7 7 7													
13 69 69 69 69 69 69 69 6								-	1	0 1		traces of silt, dense, moist (base course)	,
At Started: October 25, 2013 Date Started: October 25, 2013 Logged By: S. Latronic Dirill Rig: DIEDRICH D-25.3 Total Depth: 11.5 feet CH Grayish brown to gray SILTY CLAY with a little cobbles, very stiff, moist to very moist (colluvium) Boring terminated at 11.5 feet Boring terminated at 11.5 feet Not Encountered Plate A - 19		13				69		-			GM	very dense, moist (subbase course)	
At Started: October 25, 2013 Date Started: October 25, 2013 Date Completed: October 25, 2013 Logged By: S. Latronic Drill Rig: DIEDRICH D-25,3 Total Depth: 11.5 feet Drilling Method: 4" Solid Stem Auger Cobbles, very stiff, moist to very moist (colluvium) Boring terminated at 11.5 feet								-		0 0 []]]]]	СН		
Date Started: October 25, 2013 Date Completed: October 25, 2013 Logged By: S. Latronic Drill Rig: DIEDRICH D-25.3 Total Depth: 11.5 feet Drilling Method: 4" Solid Stem Auger A - 19								-				cobbles, very stiff, moist to very moist	
Date Completed: October 25, 2013 Logged By: S. Latronic Drill Rig: DIEDRICH D-25.3 Total Depth: 11.5 feet Drilling Method: 4" Solid Stem Auger A - 19	Date Star Date Com Logged B Total Dep Work Ord							- - 15 -				Boring terminated at 11.5 feet	
Logged By:S. LatronicDrill Rig:DIEDRICH D-25.3Total Depth:11.5 feetDrilling Method:4" Solid Stem AugerA - 19	Date Star	ted:	Octo	ber 25	, 2013		Water I	Leve	l:	١	lot E	ncountered	
Total Depth: 11.5 feet Drilling Method: 4" Solid Stem Auger A - 19					, 2013								
71 10	Logged B												^
	·												9



Geotechnical Engineering

REHABILITATION OF PALI HIGHWAY WAOKANAKA STREET TO KAMEHAMEHA HIGHWAY HONOLULU TO KANEOHE, OAHU, HAWAII

Log of Boring

Γ	Labo	ratory			F	ield						
		Moisture Content (%)	sity	Core Recovery (%)		Penetration Resistance (blows/foot)	Pen.	eet)				Approximate Ground Surface Elevation (feet MSL): 474.8 *
	Other Tests	isture ntent	Dry Density (pcf)	re cove	RQD (%)	netra sista ows/f	Pocket Pen. (tsf)	Depth (feet)	Sample	Graphic	nscs	Description
L	₽	မိုပိ	ر و و	Co Re	RQ	P. B.	Po (tsf	De	Sal	Gri	sn	Description
ı												6-inch ASPHALTIC CONCRETE
								-	_		GP GM	Gray medium to coarse GRAVEL with a little sand and traces of silt, dense, moist (base course) Brownish gray coarse SILTY GRAVEL with a
ı		16				35		-	1	9	SM	little sand, dense, moist (subbase course)
								-			G	Grayish brown SILTY SAND with some gravel and a little cobbles, medium dense to dense, moist (fill)
		37	76			16		5 -	Į.		MH	Dark grayish brown CLAYEY SILT with some gravel, stiff, moist (fill)
								-	Δ		МН	Orangish brown CLAYEY SILT with a little fine
		61	62			12		- 10 - -				gravel, stiff, very moist (older alluvium)
BOHING_LOG 6/82-00(A).GPJ GEOLABS.GDT 2/20/14								-				Boring terminated at 12 feet
2								15 -				
Z-00(A)	Date Star			ber 25			Water L	_eve	l:	١	lot E	ncountered
5/0	Date Com				, 2013		Delli Dia			-	אבר	Plate
	Logged B Total Dep		5. La	tronic			Drill Rig Drilling		200			RICH D-25.3 lid Stem Auger A - 20
	Work Ord		Driving					lid Stem Auger A - 20 b. wt., 30 in. drop				
Ĺ	VVOIR OIU	UI.	0702	:-00(A)			אוואווח	LIIE	·yy	. !	+∪ IL	7. W, 00 III. 010p



Geotechnical Engineering

REHABILITATION OF PALI HIGHWAY WAOKANAKA STREET TO KAMEHAMEHA HIGHWAY HONOLULU TO KANEOHE, OAHU, HAWAII

Log of Boring

t	Laboratory Fie				iold								
ŀ	Labo	лаюту				leiu						Approximate Ground Surface	
١	<u>s</u>	(°)	≥	(%)		⊑ə⊋	<u>-</u>	ĵţ)				Elevation (feet MSL): 475.3 *	
١	Tes	nt (%	ensi	ery	(%	atio anc //foo	t Pe	(fee	Ф	S			
ı	Other Tests	Moisture Content (%)	Dry Density (pcf)	Core Recovery (%)	RQD (%)	Penetration Resistance (blows/foot)	Pocket Pen. (tsf)	Depth (feet)	Sample	Graphic	nscs	Description	
ļ	₫	⊇ိပိ	<u> </u>	Co Re	RC	Pe B G	Po (ts	De	Sa	ğ	SN	•	_
ı												8.5-inch ASPHALTIC CONCRETE	
ı										0.0	GW	Gray coarse subangular SANDY GRAVEL with	
ı										000		traces of silt, very dense, damp (base course)	
ı											GM	Grayish brown coarse subangular SILTY	
ı								-			GIVI	GRAVEL with a little sand, dense, damp	
ı										ol_ I		√ (subbase course)	
ı								-				Boring terminated at 2.5 feet	-
ı													
ı								-	-				-
ı								5 -					_
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ı													
ı								-					
4													
2/20/-								-					-
GDT													
ABS.								-	$\mid \mid$				-
GE01													
BORING_LOG 6782-00(A).GPJ GEOLABS.GDT 2/20/14								15-					
(A)	Date Start	ted:	Octo	ber 7,	2013	١	Nater I	eve	l:	١	lot E	ncountered	
6782-	Date Com	Date Completed: October 7, 2013										Plate	
500	Logged By: S. Latronic]	Drill Rig	j :			DIED	RICH D-25.4		
SN D	Total Depth: 2.5 feet					Drilling					lid Stem Auger A - 21		
S S	Work Ord	er:	6782	2-00(A)] [Driving	Ene	rgy	': 1	40 lk	p. wt., 30 in. drop	



Geotechnical Engineering

REHABILITATION OF PALI HIGHWAY WAOKANAKA STREET TO KAMEHAMEHA HIGHWAY HONOLULU TO KANEOHE, OAHU, HAWAII

Log of Boring

												_
Labo	oratory			F	ield							
Other Tests	Moisture Content (%)	Dry Density (pcf)	Core Recovery (%)	RQD (%)	Penetration Resistance (blows/foot)	Pocket Pen. (tsf)	Depth (feet)	ple	hic	S	Approximate Ground Surface Elevation (feet MSL): 592.2 *	
Othe	Mois	Ory [Sore	שטצ	Pene Resis Iblow	Pock (tsf))ept	Sample	Graphic	nscs	Description	
	20		0 11	ш		Н.)		U)	0		13-inch ASPHALTIC CONCRETE	
	8				59		_		0 0	SW- SM	Tan GRAVELLY SAND with a little silt, very dense, moist (base course)	_
							_		11/2	МН	Grayish brown CLAYEY SILT with a little gravel, very stiff, moist (fill) Boring terminated at 3.1 feet	
							-				boning terminated at 3.1 leet	_
							5 -					
							_					_
							-					-
							_					-
							10 -					_
							_					-
/20/14							_					_
Date Star Date Con Logged B Total Dep Work Ord							_					-
15 Cd							15					
Date Star	ted:	Octo	ber 8,	2013	Ιν	Vater L	15-			lot F	ncountered	=
Date Con					─ ┤ `	valor L	_C v C	•	1	•0ι ∟	Plate	
Logged E	-		tronic			Drill Rig	j:			DIED	RICH D-25.4	
Total Dep		3.1 fe				Drilling					lid Stem Auger A - 22	
Work Orc	Vork Order: 6782-00(A)					Driving	Ene	rgy	: 1	40 lk	o. wt., 30 in. drop	



Geotechnical Engineering

REHABILITATION OF PALI HIGHWAY WAOKANAKA STREET TO KAMEHAMEHA HIGHWAY HONOLULU TO KANEOHE, OAHU, HAWAII

Log of Boring

C - 3

_ T	Lobo	rotori				ield						
ŀ	Labo	ratory			Г	leia						Approximate Ground Surface
1	ω	<u> </u>	>	Core Recovery (%)		C 4. C	<u>۔</u>	<u> </u>				Elevation (feet MSL): 772.7 *
1	est	e %)	ısity	ry (<u></u>	rior nce oot	Per	eet				,
1	F	ture)er	ove	%	etra sta vs/f	et (et	ı) (ı	ple	hic	S	
1	Other Tests	Moisture Content (%)	Dry Density (pcf)	ore	RQD (%)	Penetration Resistance (blows/foot)	Pocket Pen. (tsf)	Depth (feet)	Sample	Graphic	nscs	Description
╁	0	≥0	۵۶	OE	ш	<u> </u>	_ L ⊕		S	9	\supset	11-inch ASPHALTIC CONCRETE
1												THICH ASI HALIIG CONCILIL
1										Ò	0)4/	O III I OANDY
1										000	GW	Gray medium to coarse subangular SANDY GRAVEL, very dense, damp (base course)
1										0	GM	Brownish gray coarse SILTY GRAVEL with a
1		20				30		-				little sand and traces of cobbles, very dense,
1		_0									СН	moist (subbase course)
1								_	\		Сп	Grayish brown SILTY CLAY with some gravel,
1									١			very stiff, moist (fill)
1									١			
1								-				Boring terminated at 4 feet
1								5 –				
1								3				
1												
1								-				
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7,14								_				
6782-00(A).GPJ GEOLABS.GDT 2/20/14												
GDT												
ABS.								-				
EOL												
2								15-				
(₹)	Data Start	end:	Ostal	hor 0	2012		Vater I				lot C	ncountered
25-00	Date Start			ber 8,		—— '	valer l	_eve	١.	ľ	NO(E	
	Date Com				2013		=:					Plate
5 -	Logged B			tronic			Drill Rig					RICH D-25.4
BORING	Total Dep		4 fee				Drilling					lid Stem Auger A - 23
ő	Work Ord	er:	6782	-00(A)			Driving	Ene	rgy	<u>/: 1</u>	40 lk	o. wt., 30 in. drop



Geotechnical Engineering

REHABILITATION OF PALI HIGHWAY WAOKANAKA STREET TO KAMEHAMEHA HIGHWAY HONOLULU TO KANEOHE, OAHU, HAWAII

Log of Boring

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Laboratory Field	I	Labo	ratory				ield							┫
48/6" +40/3" 48/6" +40/3" 48/6" 10- 10- 10- 14-inch ASPHALTIC CONCRETE Gray medium to coarse subangular SANDY GRAVEL with traces of silt, very dense, damp (base course) Brownish gray SILTY GRAVEL with some sand, very dense, moist (subbase course) Gray BASALT, hard (a'a basalt) Boring terminated at 3 feet		Labo	ratory		(leiu						Approximate Ground Surface	
48/6" +40/3" 48/6" +40/3" 48/6" 10- 10- 10- 14-inch ASPHALTIC CONCRETE Gray medium to coarse subangular SANDY GRAVEL with traces of silt, very dense, damp (base course) Brownish gray SILTY GRAVEL with some sand, very dense, moist (subbase course) Gray BASALT, hard (a'a basalt) Boring terminated at 3 feet	١	sts	(%)	sity	%) /		og (se	en.	et)				Elevation (feet MSL): 951.8 *	
48/6" +40/3" 48/6" +40/3" 48/6" 10	١	r Te	ture	Jens	y	(%)	etrati stan vs/fo	et P	h (fe	ble	hic	S		_
48/6" +40/3" 48/6" +40/3" 48/6" 10	-	Othe	Mois Cont	Dry ((pcf)	Core	RQD	Pene Resi (blov	Pock (tsf)	Dept	Sam	Grap	nsc	Description	
48/6" +40/3" Absolution Ab	ı									0,		1	14-inch ASPHALTIC CONCRETE	┪
48/6" +40/3" Absolution Ab	١													
48/6" +40/3" Absolution Ab	١								-		0	GW	Gray medium to coarse subangular SANDY	4
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Very dense, moist (subbase course) Gray BASALT, hard (a'a basalt) Boring terminated at 3 feet	-		20					•	-		00	GM	(base coarse)	Д
Gray BASALT, hard (a'a basalt) Boring terminated at 3 feet	-									I			very dense, moist (subbase course)	١
	١								-		<u> </u>		Gray BASALT, hard (a'a basalt)	7
	١												Boring terminated at 3 feet	
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Date Started: October 9, 2013 Date Completed: October 9, 2013 Logged By: S. Latronic Total Depth: 3 feet Work Order: 6782-00(A) Date Started: October 9, 2013 Plate A - 24	١								10 –					1
Date Started: October 9, 2013 Water Level: Not Encountered Date Completed: October 9, 2013 Logged By: S. Latronic Drill Rig: DIEDRICH D-25.4 Total Depth: 3 feet Drilling Method: 4" Solid Stem Auger Work Order: 6782-00(A) Driving Energy: 140 lb. wt., 30 in. drop	١													
Date Started: October 9, 2013 Date Completed: October 9, 2013 Logged By: S. Latronic Total Depth: 3 feet Work Order: 6782-00(A) Driving Energy: 140 lb. wt., 30 in. drop	١								-					1
Date Started: October 9, 2013 Date Completed: October 9, 2013 Logged By: S. Latronic Total Depth: 3 feet Work Order: 6782-00(A) Date Started: Drilling Method: 4" Solid Stem Auger Work Order: 6782-00(A) Driving Energy: 140 lb. wt., 30 in. drop	١													
Date Started: October 9, 2013 Date Completed: October 9, 2013 Logged By: S. Latronic Total Depth: 3 feet Work Order: 6782-00(A) Date Started: October 9, 2013 Plate A - 24 Drilling Method: 4" Solid Stem Auger Work Order: 6782-00(A) Driving Energy: 140 lb. wt., 30 in. drop	١								-					1
Date Started: October 9, 2013 Date Completed: October 9, 2013 Logged By: S. Latronic Total Depth: 3 feet Work Order: 6782-00(A) Date Started: October 9, 2013 Plate A - 24	4													
Date Started: October 9, 2013 Water Level: Not Encountered Date Completed: October 9, 2013 Logged By: S. Latronic Drill Rig: DIEDRICH D-25.4 Total Depth: 3 feet Drilling Method: 4" Solid Stem Auger Work Order: 6782-00(A) Driving Energy: 140 lb. wt., 30 in. drop	2/20/1								-					\exists
Date Started: October 9, 2013 Water Level: Not Encountered Date Completed: October 9, 2013 Logged By: S. Latronic Drill Rig: DIEDRICH D-25.4 Total Depth: 3 feet Drilling Method: 4" Solid Stem Auger Work Order: 6782-00(A) Driving Energy: 140 lb. wt., 30 in. drop	GDT													
Date Started: October 9, 2013 Water Level: Not Encountered Date Completed: October 9, 2013 Plate Logged By: S. Latronic Drill Rig: DIEDRICH D-25.4 Total Depth: 3 feet Drilling Method: 4" Solid Stem Auger Work Order: 6782-00(A) Driving Energy: 140 lb. wt., 30 in. drop	LABS.								-					+
Date Started: October 9, 2013 Water Level: Not Encountered Date Completed: October 9, 2013 Plate Logged By: S. Latronic Drill Rig: DIEDRICH D-25.4 Total Depth: 3 feet Drilling Method: 4" Solid Stem Auger Work Order: 6782-00(A) Driving Energy: 140 lb. wt., 30 in. drop	GEO													
Date Started: October 9, 2013 Water Level: Not Encountered Date Completed: October 9, 2013 Plate Logged By: S. Latronic Drill Rig: DIEDRICH D-25.4 Total Depth: 3 feet Drilling Method: 4" Solid Stem Auger Work Order: 6782-00(A) Driving Energy: 140 lb. wt., 30 in. drop	4).GPJ													Ⅎ
Logged By: S. Latronic Drill Rig: DIEDRICH D-25.4 Total Depth: 3 feet Drilling Method: 4" Solid Stem Auger Work Order: 6782-00(A) Driving Energy: 140 lb. wt., 30 in. drop	32-00(/						Water I	_eve	l:	١	Not E			
Total Depth: 3 feet Drilling Method: 4" Solid Stem Auger A - 24 Work Order: 6782-00(A) Driving Energy: 140 lb. wt., 30 in. drop	G 678						Drill Dia	۸.		Г	JIED			
Work Order: 6782-00(A) Driving Energy: 140 lb. wt., 30 in. drop	g D								າດຕ					
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Geotechnical Engineering

REHABILITATION OF PALI HIGHWAY WAOKANAKA STREET TO KAMEHAMEHA HIGHWAY HONOLULU TO KANEOHE, OAHU, HAWAII

Log of Boring

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ı	Labo	паюту			Г	leiu						Approximate Ground Surface	
١	ø	<u>.</u>	>	(%)		C 10 1	<u>-</u>	-				Elevation (feet MSL): 1040.9 *	
١	est	t e	nsit	ery ((%	unce fool	Pel	fee	۵	0			
١	er 1	stur	De	e 30V6	6) O	netra sista ws/	ket	Depth (feet)	nple	phi	SS	5	\dashv
١	Other Tests	Moisture Content (%)	Dry Density (pcf)	Core Recovery (%)	RQD (%)	Penetration Resistance (blows/foot)	Pocket Pen. (tsf)	Dep	Sample	Graphic	nscs	Description	
١	_							_				10-inch ASPHALTIC CONCRETE	
١													
١								-	}	000	GW- GM	Tan SANDY GRAVEL with a little silt, dense,	-
١		4				100				000	Givi	moist (base course)	
١								_		000	GW	Gray SANDY GRAVEL with traces of silt, very	
١									I	00		dense, damp (base course)	
١									١	00			
١								-		0 D	МН	Grayish brown CLAYEY SILT with some gravel,	$\overline{}$
١												very stiff, moist (fill)]
١								-	1			Boring terminated at 3.25 feet	\exists
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BORING_LOG 6782-00(A).GPJ GEOLABS.GDT 2/20/14								15-					4
(A)	Date Start	Date Started: October 9, 2013			l l	Water I	eve	l:	١	lot E	ncountered	\dashv	
3782-(Date Completed: October 9, 2013										Plate		
90	Logged By: S. Latronic					Drill Rig	j :			DIED	RICH D-25.4		
ğ	Total Depth: 3.25 feet				 Drilling		100	l: 4	" So	lid Stem Auger A - 25			
30R		Work Order: 6782-00(A)					Driving					o. wt., 30 in. drop	
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Geotechnical Engineering

REHABILITATION OF PALI HIGHWAY WAOKANAKA STREET TO KAMEHAMEHA HIGHWAY HONOLULU TO KANEOHE, OAHU, HAWAII

Log of Boring

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ŀ	Labo	лаюту				leiu						Approximate Ground Surface	
١	ည	(°)	<u>></u> -	(%)		⊑ e ∓	<u>.</u>	÷				Elevation (feet MSL): 1072.9 *	
١	Other Tests	Moisture Content (%)	Dry Density (pcf)	Core Recovery (%)	(%	Penetration Resistance (blows/foot)	Pocket Pen. (tsf)	Depth (feet)	a	ပ			
١	ē	istul	De (.e	RQD (%)	netra sista ws/	ket (t	nple	iphi	SS	D '- 1'	
١	₽	Cool	Dry (pc	Cor Rec	RQ	Per Res (blc	Poc (tsf)	Der	Sample	Graphic	nscs	Description	
Ī												10-inch ASPHALTIC CONCRETE	
١													
١								-		0000	GW- GM	Tan SANDY GRAVEL with a little silt, very	-
١		10				69				000	G.W.	dense, moist (base course)	
١								_	N	00			4
١									١.	00			
١									I	arazi.	МН	Grayish brown CLAYEY SILT with some sand	
١								-	1			and a little gravel, very stiff, moist (fill)	\overline{A}
١												Boring terminated at 3.2 feet	_
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BORING_LOG 6782-00(A).GPJ GEOLABS.GDT 2/20/14	Data Ctard	tod.	Octo	hor 10	2010	Ι,	Motor	15-			lot F	neguntared	=
32-00		Date Started: October 10, 2013 Date Completed: October 10, 2013		— \	Water I	_eve	١.	ľ	וטו ב	ncountered Plate			
G 67	Logged By: S. Latronic				⊃rill D:r				\/ =	55GY			
ĭ					Orill Rig		200						
RING	Total Depth: 3.2 feet				Orilling Oriving					lid Stem Auger A - 26			
မ္တု	vvork Ord	Vork Order: 6782-00(A)					Driving	⊏⊓e	ıyy	. 1	4U II	o. wt., 30 in. drop	



Geotechnical Engineering

REHABILITATION OF PALI HIGHWAY WAOKANAKA STREET TO KAMEHAMEHA HIGHWAY HONOLULU TO KANEOHE, OAHU, HAWAII

Log of Boring

Approximate Ground Surface Elevation (feet MSL): 980.5 * Description 16 Date Started: October 10, 2013 Date Completed: October 10	Ì	Labo	oratory			F	ield							
5.5-inch ASPHALTIC CONCRETE Tan SANDY GRAVEL with traces of silt, very dense, damp (base course) Gray SANDY GRAVEL with traces of silt, very dense, damp (base course) Gray SANDY GRAVEL with traces of silt, very dense, damp (base course) Gray SANDY GRAVEL with traces of silt, very dense, damp (base course) Gray SANDY GRAVEL with traces of silt, very dense, damp (base course) Gray SANDY GRAVEL with traces of silt, very dense, damp (base course) Gray SANDY GRAVEL with traces of silt, very dense, damp (base course) Gray SANDY GRAVEL with traces of silt, very dense, damp (base course) Gray SANDY GRAVEL with traces of silt, very dense, damp (base course) Gray SANDY GRAVEL with traces of silt, very dense, damp (base course) Gray SANDY GRAVEL with traces of silt, very dense, damp (base course) Gray SANDY GRAVEL with traces of silt, very dense, damp (base course) Gray SANDY GRAVEL with traces of silt, very dense, damp (base course) Gray SANDY GRAVEL with traces of silt, very dense, damp (base course) Gray SANDY GRAVEL with traces of silt, very dense, damp (base course) Gray SANDY GRAVEL with traces of silt, very dense, damp (base course) Gray SANDY GRAVEL with traces of silt, very dense, damp (base course) Gray SANDY GRAVEL with traces of silt, very dense, damp (base course) Gray SANDY GRAVEL with traces of silt, very dense, damp (base course) Gray SANDY GRAVEL with traces of silt, very dense, damp (base course) Gray SANDY GRAVEL with traces of silt, very dense, damp (base course) Gray SANDY GRAVEL with traces of silt, very dense, damp (base course) Gray SANDY GRAVEL with traces of silt, very dense, damp (base course) Gray SANDY GRAVEL with traces of silt, very dense, damp (base course) Gray SANDY GRAVEL with traces of silt, very dense, damp (base course) Gray SANDY GRAVEL with traces of silt, very dense, damp (base course) Gray SANDY GRAVEL with traces of silt, very dense, damp (base course) Gray SANDY GRAVEL with traces of silt, very dense, damp (base course) Gray SANDY GRAVEL with traces				ity	(%)		E si (£	en.	et)				Approximate Ground Surface Elevation (feet MSL): 980.5 *	
5.5-inch ASPHALTIC CONCRETE Tan SANDY GRAVEL with traces of silt, very dense, damp (base course) Gray SANDY GRAVEL with traces of silt, very dense, damp (base course) Gray SANDY GRAVEL with traces of silt, very dense, damp (base course) Gray SANDY GRAVEL with traces of silt, very dense, damp (base course) Gray SANDY GRAVEL with traces of silt, very dense, damp (base course) Gray SANDY GRAVEL with traces of silt, very dense, damp (base course) Gray SANDY GRAVEL with traces of silt, very dense, damp (base course) Gray SANDY GRAVEL with traces of silt, very dense, damp (base course) Gray SANDY GRAVEL with traces of silt, very dense, damp (base course) Gray SANDY GRAVEL with traces of silt, very dense, damp (base course) Gray SANDY GRAVEL with traces of silt, very dense, damp (base course) Gray SANDY GRAVEL with traces of silt, very dense, damp (base course) Gray SANDY GRAVEL with traces of silt, very dense, damp (base course) Gray SANDY GRAVEL with traces of silt, very dense, damp (base course) Gray SANDY GRAVEL with traces of silt, very dense, damp (base course) Gray SANDY GRAVEL with traces of silt, very dense, damp (base course) Gray SANDY GRAVEL with traces of silt, very dense, damp (base course) Gray SANDY GRAVEL with traces of silt, very dense, damp (base course) Gray SANDY GRAVEL with traces of silt, very dense, damp (base course) Gray SANDY GRAVEL with traces of silt, very dense, damp (base course) Gray SANDY GRAVEL with traces of silt, very dense, damp (base course) Gray SANDY GRAVEL with traces of silt, very dense, damp (base course) Gray SANDY GRAVEL with traces of silt, very dense, damp (base course) Gray SANDY GRAVEL with traces of silt, very dense, damp (base course) Gray SANDY GRAVEL with traces of silt, very dense, damp (base course) Gray SANDY GRAVEL with traces of silt, very dense, damp (base course) Gray SANDY GRAVEL with traces of silt, very dense, damp (base course) Gray SANDY GRAVEL with traces of silt, very dense, damp (base course) Gray SANDY GRAVEL with traces	١	r Tes	ture ent (')ens	very	(%)	tratic stanc stanc	et Pe	h (fe	ole	hic	S		
5.5-inch ASPHALTIC CONCRETE 3.6 GW 3.0 GW 3.0 GW 3.0 GW 3.0 GW 4.0 GW 3.0 GW 4.0 GW 5.5-inch ASPHALTIC CONCRETE Tan SANDY GRAVEL with traces of silt, very dense, damp (base course) Gray SANDY GRAVEL with traces of silt, very dense, damp (base course) Gray SANDY GRAVEL with traces of silt, very dense, damp (base course) Gray SANDY GRAVEL with traces of silt, very dense, damp (base course) Gray SANDY GRAVEL with traces of silt, very dense, damp (base course) Gray SANDY GRAVEL with traces of silt, very dense, damp (base course) Gray SANDY GRAVEL with traces of silt, very dense, damp (base course) Gray SANDY GRAVEL with traces of silt, very dense, damp (base course) Gray SANDY GRAVEL with traces of silt, very dense, damp (base course) Gray SANDY GRAVEL with traces of silt, very dense, damp (base course) Gray SANDY GRAVEL with traces of silt, very dense, damp (base course) Gray SANDY GRAVEL with traces of silt, very dense, damp (base course) Gray SANDY GRAVEL with traces of silt, very dense, damp (base course) Gray SANDY GRAVEL with traces of silt, very dense, damp (base course) Gray SANDY GRAVEL with traces of silt, very dense, damp (base course) Gray SANDY GRAVEL with traces of silt, very dense, damp (base course) Gray SANDY GRAVEL with traces of silt, very dense, damp (base course) Gray SANDY GRAVEL with traces of silt, very dense, damp (base course) Gray SANDY GRAVEL with traces of silt, very dense, damp (base course) Gray SANDY GRAVEL with traces of silt, very dense, damp (base course) Gray SANDY GRAVEL with traces of silt, very dense, damp (base course) Gray SANDY GRAVEL with traces of silt, very dense, damp (base course) Gray SANDY GRAVEL with traces of silt, very dense, damp (base course) Gray SANDY GRAVEL with traces of silt, very dense, damp (base course) Gray SANDY GRAVEL with traces of silt, very dense, damp (base course) Gray SANDY GRAVEL with traces of silt, very dense, damp (base course) Gray SANDY GRAVEL with traces of silt, very dense, damp (base course) Gray SAN	١	Othe	Moist	Dry [(pcf)	Sore Reco	RQD	Pene Resis (blow	Pock (tsf)	Deptl	Sam	Grap	JSC	Description	
Gray SANDY GRAVEL with traces of silt, very dense, damp (base course) Gray vesicular BASALT, moderately fractured, slightly to moderately weathered, medium hard to hard (pahoehoe basalt) Boring terminated at 3 feet	Ì					_							5.5-inch ASPHALTIC CONCRETE	
Gray SANDY GRAVEL with traces of silt, very dense, damp (base course) Gray vesicular BASALT, moderately fractured, slightly to moderately weathered, medium hard to hard (pahoehoe basalt) Boring terminated at 3 feet	١										000	GW GW		
Gray vesicular BASALT, moderately fractured, slightly to moderately weathered, medium hard to hard (pahoehoe basalt) Boring terminated at 3 feet	١		16				50/5"		-		00		Gray SANDY GRAVEL with traces of silt, very	_/1
slightly to moderately weathered, medium hard to hard (pahoehoe basalt) Boring terminated at 3 feet	١										-,/-			/
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Date Started: October 10, 2013 Date Completed: October 10, 2013 Logged By: S. Latronic Total Depth: 3 feet Work Order: 6782-00(A) Date Started: October 10, 2013 Water Level: Not Encountered Plate Plate A - 27	١								. •					
Date Started: October 10, 2013 Date Completed: October 10, 2013 Logged By: S. Latronic Total Depth: 3 feet Work Order: 6782-00(A) Date Started: October 10, 2013 Plate Plate A - 27	١								-					-
Date Started: October 10, 2013 Water Level: Not Encountered Date Completed: October 10, 2013 Plate Logged By: S. Latronic Drill Rig: CME-55GY Total Depth: 3 feet Drilling Method: 4" Solid Stem Auger Work Order: 6782-00(A) Driving Energy: 140 lb. wt., 30 in. drop	١													
Date Started: October 10, 2013 Date Completed: October 10, 2013 Logged By: S. Latronic Drill Rig: CME-55GY Total Depth: 3 feet Work Order: 6782-00(A) Driving Energy: 140 lb. wt., 30 in. drop	١								-					4
Date Started: October 10, 2013 Water Level: Not Encountered Date Completed: October 10, 2013 Logged By: S. Latronic Drill Rig: CME-55GY Total Depth: 3 feet Drilling Method: 4" Solid Stem Auger Work Order: 6782-00(A) Driving Energy: 140 lb. wt., 30 in. drop	١													
Date Started: October 10, 2013 Water Level: Not Encountered Date Completed: October 10, 2013 Logged By: S. Latronic Drill Rig: CME-55GY Total Depth: 3 feet Drilling Method: 4" Solid Stem Auger Work Order: 6782-00(A) Driving Energy: 140 lb. wt., 30 in. drop	20/14								-					-
Date Started: October 10, 2013 Water Level: Not Encountered Date Completed: October 10, 2013 Logged By: S. Latronic Drill Rig: CME-55GY Total Depth: 3 feet Drilling Method: 4" Solid Stem Auger Work Order: 6782-00(A) Driving Energy: 140 lb. wt., 30 in. drop	DT 2/													
Date Started: October 10, 2013 Water Level: Not Encountered Date Completed: October 10, 2013 Logged By: S. Latronic Drill Rig: CME-55GY Total Depth: 3 feet Drilling Method: 4" Solid Stem Auger Work Order: 6782-00(A) Driving Energy: 140 lb. wt., 30 in. drop	ABS.G								-					-
Date Started: October 10, 2013 Water Level: Not Encountered Date Completed: October 10, 2013 Plate Logged By: S. Latronic Drill Rig: CME-55GY Total Depth: 3 feet Drilling Method: 4" Solid Stem Auger Work Order: 6782-00(A) Driving Energy: 140 lb. wt., 30 in. drop	GEOL													
Date Started: October 10, 2013 Water Level: Not Encountered Date Completed: October 10, 2013 Plate Logged By: S. Latronic Drill Rig: CME-55GY Total Depth: 3 feet Drilling Method: 4" Solid Stem Auger Work Order: 6782-00(A) Driving Energy: 140 lb. wt., 30 in. drop	.GPJ								15-					
Date Completed: October 10, 2013 Logged By: S. Latronic Drill Rig: CME-55GY Total Depth: 3 feet Drilling Method: 4" Solid Stem Auger Work Order: 6782-00(A) Driving Energy: 140 lb. wt., 30 in. drop	2-00(A							Water I	eve	l:	١	lot E		
Total Depth: 3 feet Drilling Method: 4" Solid Stem Auger A - 27 Work Order: 6782-00(A) Driving Energy: 140 lb. wt., 30 in. drop	G 678.						יים ווייך	. .			\			
Work Order: 6782-00(A) Driving Energy: 140 lb. wt., 30 in. drop	ŏ U													
	SORIN													



Geotechnical Engineering

REHABILITATION OF PALI HIGHWAY WAOKANAKA STREET TO KAMEHAMEHA HIGHWAY HONOLULU TO KANEOHE, OAHU, HAWAII

Log of Boring

	Labo	ratory			F	ield						Approximate Ground Surface
	ω			Core Recovery (%)			نے ا	<u></u>				Approximate Ground Surface Elevation (feet MSL): 845.4 *
	est	%) :	ısit)	ry (ʻ	<u>.</u>	tion	Per	eet				,
	<u>ا</u> ۲	ture	Der) ove	%)	etra sta vs/f	ét	ı) (ı	ple	Shic	Ś	
	Other Tests	Moisture Content (%)	Dry Density (pcf)	ore eco	RQD (%)	Penetration Resistance (blows/foot)	Pocket Pen. (tsf)	Depth (feet)	Sample	Graphic	nscs	Description
	0	20		ОП	ш	<u>гт э</u>	Δ. Ξ.		S	O		10-inch ASPHALTIC CONCRETE
												TO MON ACITIZENO CONCILEE
								_		0.0	GW-	Gray SANDY GRAVEL with a little silt, dense,
		4-7								000	GW- GM	moist (base course)
		17					G		GM	Grayish brown SILTY GRAVEL with some sand,		
							-				very dense, moist (fill)	
												Boring terminated at 1.8 feet
								-	$\left\{ \ \right]$			
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								5 –				
								-				
								_				
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								10 -				
								-	1			
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4												
2/20/								-				
TO												
BS.G								_				
OLA												
J GE												
6782-00(A).GPJ GEOLABS.GDT 2/20/14								15-	Ш			<u> </u>
-00(4	Date Start			ber 11		\ \	Vater I	_eve	l:	١	lot E	incountered
6782	Date Com	Date Completed: O										Plate
LOG								g:			ME-	-55GY
	Total Dep	1.8 fe	eet			Drilling		100	l: 4	" So	lid Stem Auger A - 28	
BORING	Work Ord						Driving					o. wt., 30 in. drop
Ш			6782-00(A)				9		J	•		, F



Geotechnical Engineering

REHABILITATION OF PALI HIGHWAY WAOKANAKA STREET TO KAMEHAMEHA HIGHWAY HONOLULU TO KANEOHE, OAHU, HAWAII

Log of Boring

<u>C-9</u>

- 1	Labo	ratory			F	ield						
			_	(%				_				Approximate Ground Surface Elevation (feet MSL): 647.7 *
	Tests	ıre nt (%)	ənsity	ery (9	(%	ation ance (foot)	t Pen	(feet)	Ф	<u>.</u> 2		Elovation (loot Moz). 6 17.7
	Other Tests	Moisture Content (%)	Dry Density (pcf)	Core Recovery (%)	RQD (%)	Penetration Resistance (blows/foot)	Pocket Pen. (tsf)	Depth (feet)	Sample	Graphic	nscs	Description
	0	20)	OE	ш				U)	O	<u> </u>	7.5-inch ASPHALTIC CONCRETE
								-	-	0 0 A	GW- GM	Tan SANDY GRAVEL with a little silt, dense, moist (base course)
		35				14				W	МН	Brown CLAYEY SILT with traces of gravel, stiff,
		00				14		-	1		ML	moist (fill) Brown with gray mottling SANDY SILT with some
								_				clay and a little decomposed gravel, stiff, moist (saprolite)
												Boring terminated at 3.1 feet
								-				
								_				
								5-				
								-	_			
								-				
								-	_			
								-				
								10 -				_
								-				
								-				
/20/14								-				
GDT 2												
OLABS								-				
GPJ GEOLABS.GDT 2/20/14								15 -				
6782-00(A).	Date Start			ber 16		V	Vater I	eve	l:	١	Not E	incountered
LOG 678	Date Com Logged B			ber 16 itronic	, 2013		Drill Rig	j :		(OME-	Plate
BORING_LC	Total Dep	th:	3.1 fe	eet			Drilling	Metl		l: 4	l" So	lid Stem Auger A - 29
BOR	Work Ord	er:	6782	-00(A)			Priving	Ene	rgy	: 1	40 lk	o. wt., 30 in. drop



Geotechnical Engineering

REHABILITATION OF PALI HIGHWAY WAOKANAKA STREET TO KAMEHAMEHA HIGHWAY HONOLULU TO KANEOHE, OAHU, HAWAII

Log of Boring

Labora	Laboratory Fie											
Other Tests	Moisture Content (%)	Dry Density (pcf)	Core Recovery (%)	(%)	Penetration Resistance (blows/foot)	Pocket Pen. (tsf)	Depth (feet)	ple	hic	S	Approximate Ground Surface Elevation (feet MSL): 450.8 *	
Othe	Moisi	Dry [(pcf)	Core Reco	RQD (%)	Pene Resis (blow	Pock (tsf)	Deptl	Sample	Graphic	nscs	Description	
											9-inch ASPHALTIC CONCRETE	
							-		00	GP	Gray GRAVEL with traces of silt, dense, moist (base course)	
	52	65			14		_			СН	Reddish brown SILTY CLAY with a little gravel, very stiff, moist (fill)	
							_	Λ				
									////		Boring terminated at 3.4 feet	
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							5 –					
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							10 —					
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							_					
							_					
							_					
							15-			. =		
Date Starte Date Comp			ber 16. ber 16.		-+	Vater I	_evel	:	Ν	lot E	ncountered Plate	
Logged By:	:	S. La	tronic			Drill Rig					55GY	
Total Depth	n: r:	3.4 fe	eet -00(A)			Orilling Oriving					lid Stem Auger A - 30 o. wt., 30 in. drop)



Geotechnical Engineering

REHABILITATION OF PALI HIGHWAY WAOKANAKA STREET TO KAMEHAMEHA HIGHWAY HONOLULU TO KANEOHE, OAHU, HAWAII

Log of Boring

Approximate Ground Surface Elevation (feet MSL): 372.2 * Approximate Ground Surface Elevation (feet MSL): 372.2 * Description Approximate Ground Surface Elevation (feet MSL): 372.2 * Description B-inch AsphaLTic Concepts Gray poorly graded angular GRAVEL with traces of silt, dense, damp (base course) Reddish brown SILTY CLAY with a little fine gravel, stiff, most stiff) Boring terminated at 1.75 feet Date Started: October 17, 2013 Logged By: S. Latronic Drill Rig: DIEDRICH D-25.3	F	Laho	ratory			F	ield						
Date Started: October 17, 2013 Date Completed: October 17, 2013 Date Completed: October 17, 2013 Logged By: S. Latronic Drill Rig: DIEDRICH D-25.3	ŀ	Labo	ratory				leid						Approximate Ground Surface
Belinch ASPHALTIC CONCRETE Gray poorly graded angular GRAVEL with traces of silt, dense, damp (base course) Reddish brown SILTY CLAY with a little fine gravel, stiff, moist (fill) Boring terminated at 1.75 feet Date Started: October 17, 2013 Date Completed: October 17, 2013 Logged By: S. Latronic Drill Rig: DIEDRICH D-25.3	١	sts	(%	ity	(%)		5 e 3	Ë.	e (te				Elevation (feet MSL): 372.2 *
Belinch ASPHALTIC CONCRETE Gray poorly graded angular GRAVEL with traces of silt, dense, damp (base course) Reddish brown SILTY CLAY with a little fine gravel, stiff, moist (fill) Boring terminated at 1.75 feet Date Started: October 17, 2013 Date Completed: October 17, 2013 Logged By: S. Latronic Drill Rig: DIEDRICH D-25.3	١	Tes	ıre nt (°	ensi	ery	(%)	ratic anc s/foc	Ŧ. B	(fec	<u>o</u>	<u>.</u> 2		
Belinch ASPHALTIC CONCRETE Gray poorly graded angular GRAVEL with traces of silt, dense, damp (base course) Reddish brown SILTY CLAY with a little fine gravel, stiff, moist (fill) Boring terminated at 1.75 feet Date Started: October 17, 2013 Date Completed: October 17, 2013 Logged By: S. Latronic Drill Rig: DIEDRICH D-25.3	١	her	oist. onte	y De	re) Д	neti	Ċ Ĉ	bth	ldm	aph	SCS	Description
Date Started: October 17, 2013 Date Started: October 18, 2013 Date Started: October 19, 2013	ļ	₫	Σိပိ	J. Q.	လူဆ	Ä	요움질	Po (ts	۵	Sa	Ğ	ŝ	<u>-</u>
Date Started: October 17, 2013 Date Started: October 17, 2013 Date Completed: October 17, 2013 Date Started: Died Completed: October 18, 2013 Date Started: Died Completed: October 19, 2013 Date Started: Died Compl	١												8-inch ASPHALTIC CONCRETE
Date Started: October 17, 2013 Date Started: October 17, 2013 Date Completed: October 17, 2013 Date Completed: October 17, 2013 Date Started: October 17, 2										,	000	GP	Gray poorly graded angular GRAVEL with traces
Date Started: October 17, 2013 Date Started: October 17, 2013 Date Completed: October 17, 2013 Date Completed: October 17, 2013 Date Started: October 17, 2013 Date Date Completed: October 17, 2013 Date Started: October 17, 2013	١		46						-		0	СП	of silt, dense, damp (base course)
Date Started: October 17, 2013 Water Level: Not Encountered Plate Department of the completed: October 17, 2013 Date Completed: October 17, 2013 Plate Plate Plate Department of the completed: October 17, 2013 Plate Pl	١		40							Ä		011	Reddish brown SILTY CLAY with a little fine
Date Started: October 17, 2013 Date Started: October 17, 2013 Date Completed: October 17, 2013 Logged By: S. Latronic Drill Rig: DIEDRICH D-25.3	-								-				
Date Started: October 17, 2013 Water Level: Not Encountered Date Completed: October 17, 2013 Plate Logged By: S. Latronic Drill Rig: DIEDRICH D-25.3	١												Borning terminated at 1.70 loct
Date Started: October 17, 2013 Water Level: Not Encountered Date Completed: October 17, 2013 Plate Logged By: S. Latronic Drill Rig: DIEDRICH D-25.3	١								-				
Date Started: October 17, 2013 Water Level: Not Encountered Date Completed: October 17, 2013 Plate Logged By: S. Latronic Drill Rig: DIEDRICH D-25.3	١												
Date Started: October 17, 2013 Water Level: Not Encountered Date Completed: October 17, 2013 Plate Logged By: S. Latronic Drill Rig: DIEDRICH D-25.3	١								_				
Date Started: October 17, 2013 Water Level: Not Encountered Date Completed: October 17, 2013 Plate Logged By: S. Latronic Drill Rig: DIEDRICH D-25.3													
Date Started: October 17, 2013 Water Level: Not Encountered Date Completed: October 17, 2013 Plate Logged By: S. Latronic Drill Rig: DIEDRICH D-25.3	-												
Date Started: October 17, 2013 Water Level: Not Encountered Date Completed: October 17, 2013 Logged By: S. Latronic Drill Rig: DIEDRICH D-25.3	-								5-				-
Date Started: October 17, 2013 Water Level: Not Encountered Date Completed: October 17, 2013 Logged By: S. Latronic Drill Rig: DIEDRICH D-25.3													
Date Started: October 17, 2013 Water Level: Not Encountered Date Completed: October 17, 2013 Logged By: S. Latronic Drill Rig: DIEDRICH D-25.3									-				
Date Started: October 17, 2013 Water Level: Not Encountered Date Completed: October 17, 2013 Logged By: S. Latronic Drill Rig: DIEDRICH D-25.3	١												
Date Started: October 17, 2013 Water Level: Not Encountered Date Completed: October 17, 2013 Logged By: S. Latronic Drill Rig: DIEDRICH D-25.3	١								_				
Date Started: October 17, 2013 Water Level: Not Encountered Date Completed: October 17, 2013 Logged By: S. Latronic Drill Rig: DIEDRICH D-25.3	١												
Date Started: October 17, 2013 Water Level: Not Encountered Date Completed: October 17, 2013 Logged By: S. Latronic Drill Rig: DIEDRICH D-25.3	١												
Date Started: October 17, 2013 Water Level: Not Encountered Date Completed: October 17, 2013 Logged By: S. Latronic Drill Rig: DIEDRICH D-25.3	١												
Date Started: October 17, 2013 Water Level: Not Encountered Date Completed: October 17, 2013 Logged By: S. Latronic Drill Rig: DIEDRICH D-25.3	١												
Date Started: October 17, 2013 Water Level: Not Encountered Date Completed: October 17, 2013 Logged By: S. Latronic Drill Rig: DIEDRICH D-25.3									-				
Date Started: October 17, 2013 Water Level: Not Encountered Date Completed: October 17, 2013 Logged By: S. Latronic Drill Rig: DIEDRICH D-25.3													
Logged By: S. Latronic Drill Rig: DIEDRICH D-25.3	١								10 -				
Logged By: S. Latronic Drill Rig: DIEDRICH D-25.3													
Logged By: S. Latronic Drill Rig: DIEDRICH D-25.3	١								_				
Logged By: S. Latronic Drill Rig: DIEDRICH D-25.3	١												
Logged By: S. Latronic Drill Rig: DIEDRICH D-25.3	١												
Logged By: S. Latronic Drill Rig: DIEDRICH D-25.3									-				
Logged By: S. Latronic Drill Rig: DIEDRICH D-25.3	4												
Logged By: S. Latronic Drill Rig: DIEDRICH D-25.3	/20/1								-				
Logged By: S. Latronic Drill Rig: DIEDRICH D-25.3	DT 2												
Logged By: S. Latronic Drill Rig: DIEDRICH D-25.3	NBS.G								_				
Logged By: S. Latronic Drill Rig: DIEDRICH D-25.3	EOL/												
Logged By: S. Latronic Drill Rig: DIEDRICH D-25.3	PJ G								15_				
Logged By: S. Latronic Drill Rig: DIEDRICH D-25.3	(A).G	Date Start	tod.	Octo	her 17	2012		Vatori			N	lot E	ncountered
Logged By: S. Latronic Drill Rig: DIEDRICH D-25.3	.82-0C							valti l	_676	١.	יו	NOL E	
 						, 2013		rill Riv	n.		Г	JIFD	
Work Order: 6782-00(A) Driving Energy: 140 lb, lat. 20 in drep.										104			
A VICINA A CONTROL OF THE TOTAL OF THE TOTAL CONTROL OT THE TOTAL CONTROL OT THE TOTAL CONTROL OT THE TOTAL CONTRO	BORING												



Geotechnical Engineering

REHABILITATION OF PALI HIGHWAY WAOKANAKA STREET TO KAMEHAMEHA HIGHWAY HONOLULU TO KANEOHE, OAHU, HAWAII

Log of Boring

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þ		sts (%) (%) (%)			_								
-	Labo	oratory			F	ield						Approximate Ground Surface	
	ω	(<u>(</u>	>	(%)		 ⊏ ₩ €:	<u>.</u>	_ ⊋				Elevation (feet MSL): 562 *	
	Test	re ht (%	ənsit	ery ((%	atio ance foot	t Pel	(fee	Ф	.ల			
	;her	oistu	y De cf)	ore ∋cov	RQD (%)	Penetration Resistance (blows/foot)	Pocket Pen. (tsf)	Depth (feet)	Sample	Graphic	nscs	Description	
-	ŏ	ĭŏ	ъĕ	28	R	<u>~~~</u>	Pc (ts	ے	SS	Ğ	ĭ	10.5-inch ASPHALTIC CONCRETE	
												10.0-IIIOII ASFIIALIIC CONGRETE	
								-		000	GW- GM	Tan SANDY GRAVEL with a little silt, dense,	
										۰ ``		moist (base course)	
								-			МН	Brown CLAYEY SILT, stiff, moist (older alluv	rium)
1												Boring terminated at 1.9 feet	
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GDT													
ABS.								-	$\left \cdot \right $				-
GEOI													
BORING_LOG 6782-00(A).GPJ GEOLABS.GDT 2/20/14								15-					
2-00(A	Date Start			ber 17			Nater I	eve	l:	N	lot E	ncountered	
6782	Date Com				, 2013							Pla	ate
LOG	Logged By: S. Latronic				Drill Rig					RICH D-25.3			
RING	Total Depth: 1.9 feet				Orilling Oriving					lid Stem Auger A -	32		
8	Work Order: 6782-00(A)					Driving	⊏ne	ıgy		4U II	o. wt., 30 in. drop		



Geotechnical Engineering

REHABILITATION OF PALI HIGHWAY WAOKANAKA STREET TO KAMEHAMEHA HIGHWAY HONOLULU TO KANEOHE, OAHU, HAWAII

Log of Boring

												
Labo	ratory			F	ield	1					Approximate Ground Surface	
ests	(%)	ısity	ry (%)	<u></u>	tion nce oot)	Pen.	eet)				Elevation (feet MSL): 767.2 *	
Other Tests	Moisture Content (%)	Dry Density (pcf)	Core Recovery (%)	RQD (%)	Penetration Resistance (blows/foot)	Pocket Pen. (tsf)	Depth (feet)	Sample	Graphic	nscs	Description	
	20					ш 🖰		0)			8-inch ASPHALTIC CONCRETE	
									h	0144		
							-		00	GW- GM GW	Tan SANDY GRAVEL with a little silt, dense, moist (base course)	
										GW	Gray SANDY GRAVEL with traces of silt, dense,	
							_				damp (base course)	
										GM	Brownish gray GRAVELLY COBBLES with a little sand and traces of silt, dense, damp (fill)	
	16				54		_		9		Grayish brown SILTY GRAVEL with a little clay,	
									00		dense, moist (fill)	
							-	1				
									ع الم		Boring terminated at 4.5 feet	
							5 –					
							_					
							-					
							-					
							_					
							10 –					
							10					
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							-					
41/0							_					
-												
25												
GEOLABS.GD 2/20/14							-					
					<u></u>		15-					
Date Start	ted:	Octo	ber 18	, 2013	١	Nater I	eve	:	١	lot E	ncountered	
Date Com	pleted	l: Octo	ber 18	, 2013							Plate	
Logged B	y:	S. La	tronic			Orill Riç	g:			DIED	RICH D-25.3	
1	th:	4.5 feet				Drilling Method: 4" Solid Stem Auger A - 3						
Total Dep	er:	6782-00(A)				Driving Energy: 140 lb. wt., 30 in. drop						



Geotechnical Engineering

REHABILITATION OF PALI HIGHWAY WAOKANAKA STREET TO KAMEHAMEHA HIGHWAY HONOLULU TO KANEOHE, OAHU, HAWAII

Log of Boring

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L	Labo	ratory	ield						American to Cround Curtons				
ı	ø	<u></u>	>	(%)		ر ا	ے	(1				Approximate Ground Surface Elevation (feet MSL): 1091.7 *	
ı	Test	re ht (%	ınsit	ery ((%	atior ance /foot	Per	(fee	Ф	ပ			
١	Other Tests	Moisture Content (%)	Dry Density (pcf)	ore	RQD (%)	Penetration Resistance (blows/foot)	Pocket Pen. (tsf)	Depth (feet)	Sample	Graphic	nscs	Description	\exists
ŀ	ŏ	ĭö	<u>p</u> 9	28	Ä	유윤	Pc (ts	Ď	Sa	ģ	Š	7.5-inch ASPHALTIC CONCRETE	_
ı													
								_		000	GW- GM GW	Tan SANDY GRAVEL with some silt, dense,	7
										0000	GW	moist (base course) Gray SANDY GRAVEL with traces of silt, dense,	-/
١								_		000		damp (base course)	\Box
										7 00		Brownish gray GRAVELLY COBBLES with some sand, dense, damp (fill)	
ı		00				_		_			МН	Grayish brown CLAYEY SILT with some gravel,	ᅴ
ı		69				7				44	NAL I	stiff, moist (fill)	
								-	1		МН	Orangish brown CLAYEY SILT , medium stiff to stiff, moist (older alluvium)	-
١									_	XX		Boring terminated at 4.5 feet	\dashv
								5 –					┪
١								-					4
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GDT													
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BORING_LOG 6782-00(A).GPJ GEOLABS.GDT 2/20/14													
J.GPJ								15-					\dashv
2-00(/	Date Start			ber 18		\	Nater I	_eve	l:	١	lot E	ncountered	
G 678		Date Completed: October 18, 2013					عناا النح	۸.		г	JIED	Plate Plate	
ŏ	Logged By: S. Latronic Total Depth: 4.5 feet					Orill Rig Orillina		100					
S P S	Work Order: 4.5 feet 4.5 feet				Drilling Method: 4" Solid Stem Auger Driving Energy: 140 lb. wt., 30 in. drop								
ப 🔼	Work Order: 6762-00(A)						3		<u> </u>				_



Geotechnical Engineering

REHABILITATION OF PALI HIGHWAY WAOKANAKA STREET TO KAMEHAMEHA HIGHWAY HONOLULU TO KANEOHE, OAHU, HAWAII

Log of Boring

Lab					ield						
		sity	ry (%)			Pen.	eet)				Approximate Ground Surface Elevation (feet MSL): 1086.6 *
Other Tests	Moisture Content (%)	Dry Density (pcf)	Core Recove	RQD (%)	Penetration Resistance (blows/foot)	Pocket Pen. (tsf)	Depth (feet)	Sample	Graphic	nscs	Description
Date Star Date Con Logged B Total Dep Work Ord	12			В	5		5-			GP	13-inch ASPHALTIC CONCRETE Gray poorly graded angular GRAVEL with traces of silt, loose to medium dense, damp (base course)
Date Star	Date Started: October 18, 2013			\	Water L	eve	l:	١	lot E	ncountered	
Bate Con	Date Completed: October 18, 2013									Plate	
ଞ୍ଚ Logged E	Logged By: S. Latronic]	Drill Rig	j :			DIED	RICH D-25.3	
ୁ Total Der	Total Depth: 3.9 feet			Drilling Method: 4" Solid Stem Auger A - :						lid Stem Auger A - 35	
წ Work Orc	Work Order: 6782-00(A)				Driving Energy: 140 lb. wt., 30 in. drop						



Geotechnical Engineering

REHABILITATION OF PALI HIGHWAY WAOKANAKA STREET TO KAMEHAMEHA HIGHWAY HONOLULU TO KANEOHE, OAHU, HAWAII

Log of Boring

							,				
Laboratory										Annualizate Occurs d Octob	
Other Tests Moisture Content (%)	Dry Density (pcf)	Core Recovery (%)	RQD (%)	Penetration Resistance (blows/foot)	Pocket Pen. (tsf)	Depth (feet)	ple	hic	S	Approximate Ground Surface Elevation (feet MSL): 1050.5 *	
Othe Mois	Dry [(pcf)	Core Recc	RQD	Pene Resi: (blow	Pock (tsf)	Dept	Sample	Graphic	nscs	Description	
	1	<u> </u>	<u> </u>			_ _)	1	16.5-inch ASPHALTIC CONCRETE	-
19				39		_			SM	Tannish brown SILTY SAND with some grave dense, moist (base course)	l, -
						-			МН	Tannish brown CLAYEY SILT with some grave and a little sand, very stiff, moist (fill)	el
						-		XX		Boring terminated at 3.8 feet	-
						5 –					_
						_					-
						_					-
						_					-
						10-					-
						_					-
						-					-
						_					-
Date Started: Date Completed Logged By: Total Depth: Work Order:						-					-
						15 -					
Date Started:	Date Started: October 22, 2013 Date Completed: October 22, 2013			\ \	Vater I	eve	:	١	lot E	ncountered	e
Logged By:					Drill Rig	j :			DIED	RICH D-25.3	-
Total Depth: 3.8 feet				Drilling Method: 4" Solid Stem Auger A -					36		
Work Order: 6782-00(A)				Driving Energy: 140 lb. wt., 30 in. drop							



Geotechnical Engineering

REHABILITATION OF PALI HIGHWAY WAOKANAKA STREET TO KAMEHAMEHA HIGHWAY HONOLULU TO KANEOHE, OAHU, HAWAII

Log of Boring

Lok	oratory				ield	•						
Lat	latory				leiu						Approximate Ground Surface	
sts	%	ی	(%)		5 g S	L	et)				Elevation (feet MSL): 979.2 *	
T es	ure int (°	ens	/ery	(%)	ratic tanc s/foc	ot Pe	ı (fe	e	jic			
Other Tests	Moisture Content (%)	Dry Density (pcf)	Core Recovery (%)	RQD (%)	Penetration Resistance (blows/foot)	Pocket Pen. (tsf)	Depth (feet)	Sample	Graphic	nscs	Description	
-	≥0	ㅁ요	0 &	ш.	<u> </u>	<u> </u>		S	g		7-inch ASPHALTIC CONCRETE	
									0	GW		
							-		000	GW	damp (base course)	е, -
									0.0	GM	Brownish gray SILTY GRAVEL with traces of	
							-	-			clay, loose to medium dense, moist (fill)	-
	16				8				00			
							-	\setminus	00			-
								N	000			
							-	- \				-
	11				25/1"				94		Gray BASALT hard	
	''				25/1		5 -				Gray BASALT , hard Boring terminated at 4.6 feet	/_
											3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3	
							_					_
							_					_
							_					_
							_					_
							10 -					_
							_					_
							_					=
							_					_
4-												
72/2							_					_
S.G.D.												
OLAB							-					-
<u>5</u>							ر					
Date Sta Date Co Logged I Total De Work Or	rtod:	Octo	ber 21	2012	· I	Water I	15-	 -		lot E	ncountered	
Date Sta						vvaleri	_eve	١.	r	NUL E	Plate	,
Logged I			atronic	, _010		Drill Rig] :			DIED	RICH D-25.3	-
Total Da	,											_
g Total De	pth:	4.6 fe	eet			Drilling	Meth	100	d: 4	" So	lid Stem Auger A - 3	37



Geotechnical Engineering

REHABILITATION OF PALI HIGHWAY WAOKANAKA STREET TO KAMEHAMEHA HIGHWAY HONOLULU TO KANEOHE, OAHU, HAWAII

Log of Boring

F							_						
ŀ	Labo	ratory			F	ield						American to Crown Courts on	
1	ω	<u></u>	,	(%)		5	ć.	<u></u>				Approximate Ground Surface Elevation (feet MSL): 815.7 *	
ı	est	t (%	nsity	ery ((°)	atior ince foot	Per	feet				,	
l	Other Tests	Moisture Content (%)	Dry Density (pcf)	.e 20ve	RQD (%)	netra sista ws/	Pocket Pen. (tsf)	Depth (feet)	Sample	Graphic	nscs	Description	
L	₽	ဗိုဝိ	Dry (pc	Core Recovery (%)	Q.	Penetration Resistance (blows/foot)	Poo (tsf	De	Saı	g	SN	Description	
ı												10.5-inch ASPHALTIC CONCRETE	
									c		GP	One of the last of	
									4	000	GF	Gray coarse GRAVEL with traces of sand, dense, damp (base course)	-
		22				37			Č		GM	Brownish gray SILTY GRAVEL with a little sand	_
l								_	d	00		and traces of clay, dense, moist (subbase course)	
l									6			osaiss)	
								-	1	ΨS	ML	Grayish brown GRAVELLY SILT with a little	
l									1	Ш		sand, very stiff, moist (fill) Boring terminated at 3.7 feet	
l								-				Borning terminated at 3.7 reet	
								5 –					-
l													
l								-					
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2/2								_					
5													
202								-					
GEOLABS.GD1 2/20/14													
2								15 -					
	Date Start			ber 24			Vater I	evel	:	Ν	lot E	ncountered	
200	Date Com				, 2013							Plate	
	Logged B			tronic			Drill Rig					RICH D-25.3	
מל היים מיים	Total Dep		3.7 fe				Orilling					lid Stem Auger A - 38	
	Work Ord	er:	6/82	-00(A)			Driving	⊏nei	gy:	. 1	4U II	o. wt., 30 in. drop	



Geotechnical Engineering

REHABILITATION OF PALI HIGHWAY WAOKANAKA STREET TO KAMEHAMEHA HIGHWAY HONOLULU TO KANEOHE, OAHU, HAWAII

Log of Boring

ŧ		_										•	
ļ	Labo	ratory			F	ield						Approximate Cuevad Confees	
				(%			_	_				Approximate Ground Surface Elevation (feet MSL): 751.8 *	
1	ests	t (%	nsity	ry (°	(%)	ation ince foot)	Pen	feet	4			(
	Other Tests	istur	. Dei	e Sove	RQD (%)	netra sista ws/t	Pocket Pen. (tsf)	Depth (feet)	Sample	Graphic	CS	Description	\dashv
	∯O.	Moisture Content (%)	Dry Density (pcf)	Core Recovery (%)	RQ	Penetration Resistance (blows/foot)	Poc (tsf)	Dep	Sar	Gra	nscs	Description	
												9.5-inch ASPHALTIC CONCRETE	
1										0	GW	Gray coarse SANDY GRAVEL with traces of silt,	
1								-		000		dense, moist (base course)	
1										000	GM	Brownish gray SILTY GRAVEL with a little sand,	
1		25				35		-				dense, moist (subbase course)	1
1													
1								-	1	0			-
1									1	11	МН	Grayish brown CLAYEY SILT with some gravel,	
1								-		444		very stiff, moist (fill)	A
1												Boring terminated at 3.9 feet	
1								5 –					-
1													
1								_	.				-
1													
1								_					4
								_					
								10					
								10 –					
1													
								-					1
								-					- 1
4													
2/20/1								-					-
GDT													
ABS.								-					-
GEOL													
.GPJ								15 -					-
BORING_LOG 6782-00(A).GPJ GEOLABS.GDT 2/20/14	Date Start	ted:	Octo	ber 23	, 2013	١	Water L	eve	l:	١	lot E	ncountered	
6782	Date Com				, 2013							Plate	
, Log	Logged B			tronic			Drill Rig					RICH D-25.3	
RING.	Total Dep		3.9 fe				Drilling					lid Stem Auger A - 39)
<u>R</u>	Work Ord	er:	6782	:-00(A)			Driving	∟ne	rgy	: 1	40 lk	o. wt., 30 in. drop	



Geotechnical Engineering

REHABILITATION OF PALI HIGHWAY WAOKANAKA STREET TO KAMEHAMEHA HIGHWAY HONOLULU TO KANEOHE, OAHU, HAWAII

Log of Boring

Approximate Ground Surface Elevation (feet MSL): 603.8 * Approximate Ground Surface Elevation (feet MSL): 603.8 * Description 10-inch ASPHALTIC CONCRETE Gray coarse GRAVEL with a little sand and traces of silt, dense, moist (base course) Gray from the proving frag SANDY GRAVEL with a little clay, stiff, moist (fill) Date Started: October 25, 2013 Date Completed: October 25, 2013 Date Oc									_			
Elevation (feet MSL): 603.8 * Elevation (feet MSL): 603.8 * Elevation (feet MSL): 603.8 * Description 10-inch ASPHALTIC CONCRETE Gray coarse GRAVEL with a little sand and traces of silt, dense, moist (base course) Formular years and traces of silt, dense, moist (base course) Formular years and years and traces of silt, dense, moist (base course) Formular years and years and traces of silt, dense, moist (base course) Formular years and years and traces of silt, dense, moist (base course) Formular years and years and years and traces of silt, dense, moist (base course) Formular years and ye	Labo	oratory			F	ield						Annuari 1 0 10 1
Date Started: October 25, 2013 Date Completed: October 25, 2013 Date Started: Drilling Method: 4" Solid Stem Auger 10-In-In-ASPHALTIC CONCRETE 11-In-In-In-ASPHALTIC CONCRETE 11-In-In-In-ASPHALTIC CONCRETE 11-In-In-In-In-In-In-In-In-In-In-In-In-In-	эг Tests	sture tent (%)	Density	e overy (%)	(%) (etration stance vs/foot)	ket Pen.	th (feet)	ple	ohic	δ	Elevation (feet MSL): 603.8 *
Date Started: October 25, 2013 Date Completed: October 25, 2013 Date Started: Drilling Method: 4" Solid Stem Auger 10-In-In-ASPHALTIC CONCRETE 11-In-In-In-ASPHALTIC CONCRETE 11-In-In-In-ASPHALTIC CONCRETE 11-In-In-In-In-In-In-In-In-In-In-In-In-In-	Othe	Mois	Ory (pcf)	Core	RQE	Pen Resi blov	Pock (tsf)	Dept	Sam	Grap	USC	Description
Date Started: October 25, 2013 Date Completed: October 25, 2013 Date Date Date Date Date Date Date Date		20		011	<u> </u>			<u> </u>				
Date Started: October 25, 2013 Date Completed: October 25, 2013 Da								-		000		
Date Started: October 25, 2013		26				18		_		00	GM	Brownish gray SANDY GRAVEL with a little silt,
Date Started: October 25, 2013								_			ML	Grayish brown GRAVELLY SILT with a little clay,
Date Started:											СН	Gray SILTY CLAY , stiff, moist (colluvium)
Date Started: October 25, 2013 Water Level: Not Encountered Plate Date Completed: October 25, 2013 Water Level: Not Encountered Plate Logged By: S. Latronic Drill Rig: DIEDRICH D-25.3 A - 40 Total Depth: 3.75 feet Drilling Method: 4" Solid Stem Auger A - 40								-				
Date Started: October 25, 2013 Water Level: Not Encountered Plate Date Completed: October 25, 2013 Water Level: Not Encountered Plate Logged By: S. Latronic Drill Rig: DIEDRICH D-25.3 A - 40 Total Depth: 3.75 feet Drilling Method: 4" Solid Stem Auger A - 40								5-				
Date Started: October 25, 2013 Date Completed: October 25, 2013 Logged By: S. Latronic Total Depth: 3.75 feet Date Started: Not Encountered Plate Plate A - 40												
Date Started: October 25, 2013 Date Completed: October 25, 2013 Logged By: S. Latronic Total Depth: 3.75 feet Date Started: Not Encountered Plate Plate A - 40								-	-			
Date Started: October 25, 2013 Date Completed: October 25, 2013 Logged By: S. Latronic Total Depth: 3.75 feet Date Started: Not Encountered Plate Plate A - 40												
Date Started: October 25, 2013 Date Completed: October 25, 2013 Logged By: S. Latronic Total Depth: 3.75 feet Date Started: Not Encountered Plate Plate A - 40								-				
Date Started: October 25, 2013 Date Completed: October 25, 2013 Logged By: S. Latronic Total Depth: 3.75 feet Date Started: Not Encountered Plate Plate A - 40												
Date Started: October 25, 2013 Date Completed: October 25, 2013 Logged By: S. Latronic Total Depth: 3.75 feet Date Started: Not Encountered Plate Plate A - 40								_				
Date Started: October 25, 2013 Date Completed: October 25, 2013 Logged By: S. Latronic Total Depth: 3.75 feet Date Started: Not Encountered Plate Plate A - 40								_				
Date Started: October 25, 2013 Date Completed: October 25, 2013 Logged By: S. Latronic Total Depth: 3.75 feet Date Started: Not Encountered Plate Plate A - 40												
Date Started:October 25, 2013Water Level:Not EncounteredDate Completed: October 25, 2013PlateLogged By:S. LatronicDrill Rig:DIEDRICH D-25.3Total Depth:3.75 feetDrilling Method:4" Solid Stem AugerA - 40								10 -	-			
Date Started:October 25, 2013Water Level:Not EncounteredDate Completed: October 25, 2013PlateLogged By:S. LatronicDrill Rig:DIEDRICH D-25.3Total Depth:3.75 feetDrilling Method:4" Solid Stem AugerA - 40												
Date Started:October 25, 2013Water Level:Not EncounteredDate Completed: October 25, 2013PlateLogged By:S. LatronicDrill Rig:DIEDRICH D-25.3Total Depth:3.75 feetDrilling Method:4" Solid Stem AugerA - 40								-				
Date Started:October 25, 2013Water Level:Not EncounteredDate Completed: October 25, 2013PlateLogged By:S. LatronicDrill Rig:DIEDRICH D-25.3Total Depth:3.75 feetDrilling Method:4" Solid Stem AugerA - 40												
Date Started:October 25, 2013Water Level:Not EncounteredDate Completed: October 25, 2013PlateLogged By:S. LatronicDrill Rig:DIEDRICH D-25.3Total Depth:3.75 feetDrilling Method:4" Solid Stem AugerA - 40								-				
Date Started:October 25, 2013Water Level:Not EncounteredDate Completed: October 25, 2013PlateLogged By:S. LatronicDrill Rig:DIEDRICH D-25.3Total Depth:3.75 feetDrilling Method:4" Solid Stem AugerA - 40												
Date Started:October 25, 2013Water Level:Not EncounteredDate Completed: October 25, 2013PlateLogged By:S. LatronicDrill Rig:DIEDRICH D-25.3Total Depth:3.75 feetDrilling Method:4" Solid Stem AugerA - 40								_				
Date Started:October 25, 2013Water Level:Not EncounteredDate Completed: October 25, 2013PlateLogged By:S. LatronicDrill Rig:DIEDRICH D-25.3Total Depth:3.75 feetDrilling Method:4" Solid Stem AugerA - 40								_				
Date Started:October 25, 2013Water Level:Not EncounteredDate Completed: October 25, 2013PlateLogged By:S. LatronicDrill Rig:DIEDRICH D-25.3Total Depth:3.75 feetDrilling Method:4" Solid Stem AugerA - 40												
Date Completed: October 25, 2013PlateLogged By:S. LatronicDrill Rig:DIEDRICH D-25.3Total Depth:3.75 feetDrilling Method:4" Solid Stem AugerA - 40	Date Star Date Com Logged B Total Dep Work Ord							15-				
Logged By:S. LatronicDrill Rig:DIEDRICH D-25.3Total Depth:3.75 feetDrilling Method:4" Solid Stem AugerA - 40							Vater I	_eve	l:	١	lot E	
Total Depth: 3.75 feet Drilling Method: 4" Solid Stem Auger A - 40					, 2013						155	
									100			



Geotechnical Engineering

REHABILITATION OF PALI HIGHWAY WAOKANAKA STREET TO KAMEHAMEHA HIGHWAY HONOLULU TO KANEOHE, OAHU, HAWAII

Log of Boring

F	Labo	ratory			F	ield							
ŀ			<u></u>	(%)	Г		Ę.	æ()				Approximate Ground Surface Elevation (feet MSL): 900.7 *)
	Other Tests	Moisture Content (%)	Dry Density (pcf)	Core Recovery (%)	RQD (%)	Penetration Resistance (blows/foot)	Pocket Pen. (tsf)	Depth (feet)	Sample	Graphic	SO	Describer	
١	∯ H	Sol	Dry Pol	Cor Rec	RQ	Per Res (blo	Poc (tsf,	Der	Sar	Gra	nscs	Description	
												7.5-inch ASPHALTIC CONCRETE	
١								_		00 o	GW- GM	Tan SANDY GRAVEL with a little silt, de	nse,
١										0.0	GW- GM	moist (base course) Brownish gray SANDY GRAVEL with sor	me silt.
١		38				29		-		000	Civi	medium dense, moist (fill)	-
١											SM	Grayish brown SILTY SAND with a little of	gravol
								-	1		0.0.	medium dense, moist (saprolite)	graver, -
١												Boring terminated at 3.75 feet	
١								_				Borning terminated at 3.73 feet	-
١								5-					_
١								3					
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١													
20/14								_					-
DT 2/													
ABS.G								-					-
GEOL													
A).GPJ	_							15 -	<u></u>				
BORING_LOG 6782-00(A).GPJ GEOLABS.GDT 2/20/14	Date Start Date Com				, 2013 , 2013		Water I	_eve	l:				Plate
.0G 6;	Logged B			atronic	, _5.5		Drill Rig	j :		(CME-	55GY	,
NG_L	Total Dep	th:	3.75				Drilling						A - 41
ğ	Work Ord	er:	6782	2-00(A)			Driving	Ene	rgy	: 1	40 lk	o. wt., 30 in. drop	



Geotechnical Engineering

REHABILITATION OF PALI HIGHWAY WAOKANAKA STREET TO KAMEHAMEHA HIGHWAY HONOLULU TO KANEOHE, OAHU, HAWAII

Log of Boring

Labo	oratory			F	ield							
Other Tests	Moisture Content (%)	Dry Density (pcf)	Core Recovery (%)	RQD (%)	Penetration Resistance (blows/foot)	Pocket Pen. (tsf)	Depth (feet)	ple	hic	S	Approximate Ground Surface Elevation (feet MSL): 810.5	ce 5 *
Othe	Mois	Ory I	Sore	שצ	Pent Resi blow	Pock (tsf)	Jept	Sample	Graphic	nscs	Description	
		<u> </u>	7 4	ш				0,1			7-inch ASPHALTIC CONCRETE	
	30				29		-		000	GW- GM GW	Tan SANDY GRAVEL with a little silt, of moist (base course) Gray coarse SANDY GRAVEL with a little silt, of moist (base course)	ttle e, damp
							_	\			Reddish brown SILTY SAND , dense, n (saprolite)	noist
									, · I . ¹		Gray BASALT , hard	
							-	$ \ $			Boring terminated at 3.8 feet	
							_					
							5-					-
							_					
							-					
							-					
							_					
							10 -	-				-
							-					
							-					
							_					
							_	$\mid \mid$				
Date Star	tod.	Octo	ber 11	2012		Vater I	15-	<u> </u>		Jot E	ncountered	
Date Star					─ │	valei l	Leve	۱.	ľ	vol ⊑	noountereu	Plate
Logged B	y:	S. La	tronic			Drill Rig					55GY	
Total Dep		3.8 fe				<u>Drilling</u>					lid Stem Auger	A - 42
Work Ord	ler:	6782	2-00(A)			Driving	Ene	rgy	<u>: 1</u>	40 lk	o. wt., 30 in. drop	



Geotechnical Engineering

REHABILITATION OF PALI HIGHWAY WAOKANAKA STREET TO KAMEHAMEHA HIGHWAY HONOLULU TO KANEOHE, OAHU, HAWAII

Log of Boring

Laboratory Completed: October 15, 2013 Date Started: October 15, 2013 Date Started: October 15, 2013 Date Completed: October 15, 2013 Date Comple												
Second S	Lab	oratory			F	ield						
8.5-inch ASPHALTIC CONCRETE Solution So	r Tests	ture ent (%)	Jensity	wery (%)	(%)	tration stance /s/foot)	et Pen.	h (feet)	ole	hic	S	Approximate Ground Surface Elevation (feet MSL): 701.2 *
8.5-inch ASPHALTIC CONCRETE Solution So	Othe	Mois	Dry [(pcf)	Sore	Rab	Pene Resis (blow	Pock (tsf)	Dept	Sam	Grap	USC	Description
of silt, loose, moist (base course) 15 16 17 18 19 19 10 10 10 10 10 10 10 10				0 1								
MH Grayish brown CLAYEY SILT with a little sand and decomposed gravel, stiff, moist (saprolite) Boring terminated at 5.4 feet								-			GP	Gray poorly graded angular GRAVEL with traces of silt, loose, moist (base course)
		42				15		5 –			MH	Grayish brown CLAYEY SILT with a little sand and decomposed gravel, stiff, moist (saprolite)
								-		4 4 2		Boring terminated at 5.4 feet
								-	-			-
								10 –	-			_
Date Started: October 15, 2013 Date Completed: October 15, 2013 Logged By: S. Latronic Total Depth: 5.4 feet Work Order: 6782-00(A) Date Started: October 15, 2013 Plate A - 43								-	-			_
Date Started: October 15, 2013 Water Level: Date Completed: October 15, 2013 Logged By: S. Latronic Drill Rig: CME-55GY Total Depth: 5.4 feet Drilling Method: 4" Solid Stem Auger Work Order: 6782-00(A) Driving Energy: 140 lb. wt., 30 in. drop	41.70							-	-			_
Date Started: October 15, 2013 Water Level: Date Completed: October 15, 2013 Plate Logged By: S. Latronic Drill Rig: CME-55GY Total Depth: 5.4 feet Drilling Method: 4" Solid Stem Auger Work Order: 6782-00(A) Driving Energy: 140 lb. wt., 30 in. drop								_				_
Date Started: October 15, 2013 Water Level: Date Completed: October 15, 2013 Plate Logged By: S. Latronic Drill Rig: CME-55GY Total Depth: 5.4 feet Drilling Method: 4" Solid Stem Auger Work Order: 6782-00(A) Driving Energy: 140 lb. wt., 30 in. drop	7							4-				
Logged By: S. Latronic Drill Rig: CME-55GY Total Depth: 5.4 feet Drilling Method: 4" Solid Stem Auger Work Order: 6782-00(A) Driving Energy: 140 lb. wt., 30 in. drop	Date Star						Water I		l:			Plate
Total Depth: 5.4 feet Drilling Method: 4" Solid Stem Auger A - 43 Work Order: 6782-00(A) Driving Energy: 140 lb. wt., 30 in. drop	Logged F	-			, _ 3 . 3		Orill Ric	1:		(MF-	
Work Order: 6782-00(A) Driving Energy: 140 lb. wt., 30 in. drop	Total Dep								100			
	Work Ord											



Geotechnical Engineering

REHABILITATION OF PALI HIGHWAY WAOKANAKA STREET TO KAMEHAMEHA HIGHWAY HONOLULU TO KANEOHE, OAHU, HAWAII

Log of Boring

								_			I	
Labo	oratory			F	ield							
Other Tests	Moisture Content (%)	Dry Density (pcf)	Core Recovery (%)	(%)	Penetration Resistance (blows/foot)	Pocket Pen. (tsf)	Depth (feet)	ole	hic	S	Approximate Ground Surface Elevation (feet MSL): 685.1 *	
Othe	Moist	Dry E (pcf)	Core Reco	RQD (%)	Pene Resis (blow	Pock (tsf)	Deptl	Sample	Graphic	nscs	Description	
											6.5-inch ASPHALTIC CONCRETE	
							_		000	GW- GM	Tan SANDY GRAVEL with a little silt, de moist (coralline base course)	ense,
	10				43/6" +50/5"		-		-/-//-//		Gray dense BASALT , closely fractured, moderately weathered, hard (dike com	slightly to
									1		Boring terminated at 3.1 feet	
							-					-
							5-					-
							_					
							-					-
							-	_				-
							-					
							10 -					_
							10					
							-					
							-	_				
							_					
Date Star Date Com Logged B Total Dep Work Ord							_					
							15-					
Date Star Date Com				, 2013 , 2013	\	Nater I	Leve	l:	١	Not E	ncountered	Plate
Logged B			tronic			Drill Rig	g:			CME-	55GY	
Total Dep		3.1 fe	eet			Drilling				I" So	lid Stem Auger	A - 44
Work Ord	ler:	6782	-00(A)] [Driving	Ene	rgy	/: 1	40 lk	o. wt., 30 in. drop	



Geotechnical Engineering

REHABILITATION OF PALI HIGHWAY WAOKANAKA STREET TO KAMEHAMEHA HIGHWAY HONOLULU TO KANEOHE, OAHU, HAWAII

Log of Boring

	_										
Labo	oratory			F	ield						
Other Tests	Moisture Content (%)	Dry Density (pcf)	Core Recovery (%)	(%)	Penetration Resistance (blows/foot)	Pocket Pen. (tsf)	Depth (feet)	ole	hic	(O	Approximate Ground Surface Elevation (feet MSL): 465.6 *
Other	Moist Conte	Dry D (pcf)	Core Reco	RQD (%)	Pene Resis (blow	Pock (tsf)	Depth	Sample	Graphic	nscs	Description
											9-inch ASPHALTIC CONCRETE
							_		000	GP	Gray poorly graded angular GRAVEL with traces of silt, medium dense, moist (base course)
	5				5		_		0 0	GP	Gray poorly graded angular GRAVEL with a little silt, loose, moist (fill)
									00		Cint, 10000, moiot (iiii)
							_	1			
							_		0		Boring terminated at 3.7 feet
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							10				
							10 —				
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							_				
							_				
							15-				
Date Star			ber 15			Vater I		:			
Date Con				, 2013							Plate
Logged B Total Dep		S. La 3.7 fe	tronic eet			Orill Rig Orilling		nod			55GY lid Stem Auger A - 45
Work Orc			-00(A)			Driving					o. wt., 30 in. drop



Geotechnical Engineering

REHABILITATION OF PALI HIGHWAY WAOKANAKA STREET TO KAMEHAMEHA HIGHWAY HONOLULU TO KANEOHE, OAHU, HAWAII

Log of Boring

Labar	otory				iald	-					
Labor			(%)	F	ield						Approximate Ground Surface Elevation (feet MSL): 863.4 *
Other Tests	Moisture Content (%)	Dry Density (pcf)	Core Recovery (%)	(%)	Penetration Resistance (blows/foot)	Pocket Pen. (tsf)	Depth (feet)	е	<u>.</u> 2		Liovation (100t MOL). 000.4
Other	Moistu	Ory Do	Sore	RQD (%)	Penet Resist blows	Pocke (tsf)	Depth	Sample	Graphic	nscs	Description
0	20		<u> </u>	ш.							4-inch ASPHALTIC CONCRETE
									P P P		6.5-inch CONCRETE
							_	Ī			Boring terminated at 0.85 feet
							-				
							_				
							-				
							5-				
							-				
							-				
							_				
							-				
							10 –				
							_				
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							-				
							15-				
Date Starte			ber 18			Nater I	Level	:	١	lot E	incountered
Date Comp				, 2013		J.::: D.				\\	Plate
Logged By		S. La 0.85	tronic			Orill Rig					RICH D-25.3
Total Depti Work Orde			теет -00(A)			Drilling Driving					lid Stem Auger D. wt., 30 in. drop



Geotechnical Engineering

REHABILITATION OF PALI HIGHWAY WAOKANAKA STREET TO KAMEHAMEHA HIGHWAY HONOLULU TO KANEOHE, OAHU, HAWAII

Log of Boring

F	Lobo	ratory				ield							\dashv
ŀ	Labo	паюту			Г	leiu						Approximate Ground Surface	
١	w	<u></u>	_	(%		5 (ا ن	$\overline{}$				Elevation (feet MSL): 952.3 *	
١	esta	e	ısity	ry ((9	tior nce oot	Per	eet				,	
١	<u></u>	itur	Der) ove	%) (etra sta vs/f	et	i) Li	ple	hic	Ś		\dashv
١	Other Tests	Moisture Content (%)	Dry Density (pcf)	Core Recovery (%)	RQD (%)	Penetration Resistance (blows/foot)	Pocket Pen. (tsf)	Depth (feet)	Sample	Graphic	nscs	Description	
ł	0	20		ОП	Щ	шш	ше		(O)	O		8-inch ASPHALTIC CONCRETE	\dashv
١													
١								_		000	GP	Gray poorly graded coarse angular GRAVEL	コ
١										000		with traces of sand, dense, damp (base course)	
١		16				43				0 1			
١		10				43		-		000	GW- GM	Brownish gray SANDY GRAVEL with a little silt,	┪
١									I	000000	-	dense, moist (subbase course)	
١								_	1	00			_
١												Gray BASALT, hard (basalt formation)	_/
١												Boring terminated at 3.2 feet	
١								-					-
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BORING_LOG 6782-00(A).GPJ GEOLABS.GDT 2/20/14													
GD)													
LABS								-					+
GEO													
GPJ								15-					4
(<u>F</u>)	Date Start	ted:	Octo	ber 21	, 2013	١	Water L	eve	l:				ヿ
782-C	Date Com							,				Plate	- [
9 90	Logged B			atronic	, .	- 1	Drill Rig]:		Г	DIED	RICH D-25.3	
g L	Total Dep		3.2 fc				Drilling		າດຕ			lid Stem Auger A - 47	
N N	Work Ord			2-00(A)			Driving					o. wt., 30 in. drop	
ń	TT SIN OIG	J	3,02	. 50(A)		<u> </u>	Juving		· 9 y	. '		7. ma, 50 mm drop	



Geotechnical Engineering

REHABILITATION OF PALI HIGHWAY WAOKANAKA STREET TO KAMEHAMEHA HIGHWAY HONOLULU TO KANEOHE, OAHU, HAWAII

Log of Boring

ŧ							_					•
ļ	Labo	ratory			Fi	ield						Assessed to Ossessed Ossessed
	Other Tests	Moisture Content (%)	Dry Density (pcf)	Core Recovery (%)	(%)	Penetration Resistance (blows/foot)	Pocket Pen. (tsf)	Depth (feet)	ole	Jic		Approximate Ground Surface Elevation (feet MSL): 864.2 *
	Other	Moist Conte	Dry D (pcf)	Core Reco	RQD (%)	Penel Resis (blow	Pocke (tsf)	Depth	Sample	Graphic	nscs	Description
												11-inch ASPHALTIC CONCRETE
								-	-	000	GW- GM	moior (bass searce)
		21				36		-		000000	GM	Brownish gray SILTY GRAVEL with a little sand, dense, moist (subbase course)
											МН	Grayish brown CLAYEY SILT with some gravel, stiff, moist (fill)
								-				Boring terminated at 3.8 feet
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								-				
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								-				
								-				
/14												
DT 2/20								_				
JLABS.G								-	$\left \cdot \right $			
BORING_LOG 6782-00(A).GPJ GEOLABS.GDT 2/20/14								15 -				
2-00(A).t	Date Start			ber 23		\	Water I		l:	١	Not E	ncountered
3 678	Date Com	-			, 2013		יים וויים				ובר	Plate
ۆ ق	Logged B		3.8 fe	tronic eet			Drill Rio Drilling		າດຕ			RICH D-25.3 lid Stem Auger A - 48
BORIN	Work Ord			2-00(A)			Driving					b. wt., 30 in. drop
									_			•



Geotechnical Engineering

REHABILITATION OF PALI HIGHWAY WAOKANAKA STREET TO KAMEHAMEHA HIGHWAY HONOLULU TO KANEOHE, OAHU, HAWAII

Log of Boring

												<u> </u>
Laboratory				F	ield							
Other Tests	Moisture Content (%)	Dry Density (pcf)	Core Recovery (%)	RQD (%)	Penetration Resistance (blows/foot)	Pocket Pen. (tsf)	Depth (feet)	ple	hic	S	Approximate Ground Surface Elevation (feet MSL): 844.8 *	
Othe	Mois	Dry [(pcf)	Core Recc	RQD	Pene Resi: (blow	Pock (tsf)	Dept	Sample	Graphic	nscs	Description	
			-) 1	_							8-inch ASPHALTIC CONCRETE	
							_		000	GW	Gray coarse SANDY GRAVEL with traces of silt, dense, moist (base course)	
	26				33		-		000000000000000000000000000000000000000	GM	Brownish gray SILTY GRAVEL with a little sand, dense, moist (subbase course)	-
							_			МН	Grayish brown CLAYEY SILT with some gravel, very stiff, moist (fill)	
											Boring terminated at 4 feet	/
							5 –					_
							_					
							-					
							_					
							_					
							10 –					
							-					
							_					
							-					
							-					
Date Started: October 24, 2013						Nater I	15 -	<u> </u>			I	_
Date Started: October 24, 2013 Date Completed: October 24, 2013						raigi I	_0 v &	Plate				
Logged By: S. Latronic						Drill Rig		RICH D-25.3				
Total Depth: 4 feet Work Order: 6782-00(A)						Drilling Method: 4" Solid Stem Auger A -						
Work Order: 6782-00(A)						Driving Energy: 140 lb. wt., 30 in. drop						



Geotechnical Engineering

REHABILITATION OF PALI HIGHWAY WAOKANAKA STREET TO KAMEHAMEHA HIGHWAY HONOLULU TO KANEOHE, OAHU, HAWAII

Log of Boring

						!		_				—
Laboratory				F	ield						According to Control Conference	
Other Tests	Moisture Content (%)	Dry Density (pcf)	Core Recovery (%)	(%)	Penetration Resistance (blows/foot)	Pocket Pen. (tsf)	Depth (feet)	ple	hic	S	Approximate Ground Surface Elevation (feet MSL): 791.6 *	
Othe	Mois	Dry [(pcf)	Core Recc	RQD (%)	Pene Resis (blow	Pock (tsf)	Dept	Sample	Graphic	nscs	Description	
											8.5-inch ASPHALTIC CONCRETE	
						_		000	GW- GM	Gray medium to coarse SANDY GRAVEL with a little silt, dense, moist (base course)	_	
	22				39		_			GM	Brownish gray SILTY GRAVEL with a little sand, dense, moist (subbase course)	-
							-			CL	Grayish brown GRAVELLY CLAY , very stiff, moist (fill)	
							_				Gray BASALT , closely fractured, moderately to highly weathered, medium hard to hard (basalt formation)	
											Boring terminated at 3.9 feet	
							5-					_
							_	-				-
							_					_
							_					-
							-	.				-
							10-					_
							10					
							-					-
							-					-
							_					-
							_					
Date Star Date Com Logged B Total Dep Work Ord							15-					
Date Started: October 23, 2013 Date Completed: October 23, 2013					V	Water Level: Not Encountered Plate						
Logged By: S. Latronic						Drill Rig: DIEDRICH D-25.3						
Total Depth: 3.9 feet						Drilling Method: 4" Solid Stem Auger A - 50						
Work Order: 6782-00(A)						Driving Energy: 140 lb. wt., 30 in. drop						