FED. ROAD	STATE	FED. AID	FISCAL	SHEET	TOTAL
DIST. NO.		PROJ. NO.	YEAR	NO.	SHEETS
HAWAII	HAW.	STP-8930(2)	2007	158	331

					BS, IN		J		N	ORTH-SOUTH ROAD, PHASE 1B F.A.I. PROJ. NO. STP-8930(2) EWA, OAHU, HAWAII Log of Boring 1
Other Tests	Moisture Content (%)	Dry Unit Weight (pcf)	Core Recovery (%)	RQD (%)	Penetration Resistance (blows/foot)	Pocket Pen. (tsf)	Depth (feet)	Sample	USCS	Approximate Ground Surface Elevation (feet MSL): 52.5 * Description
0	14	101		<u> </u>	59	>4.5	Q	S	O CL	Brown SILTY CLAY, hard, damp to moist (alluvium
LL=48 PI=29	1917	106			26 68	>4.5	5			grades with black mottling
	15	106			82	>4.5	10 ⁻		SW	White CORALLINE GRAVELLY SAND with silt, dense, moist (coral formation)
	15				60		15		0	grades to white and orange
					20/.0' Ref.		20-			Boring terminated at 20 feet * Elevations estimated from Plan and Profile transmitted by R.M. Towill Corporation on September 5, 1997.
							25			
							30-	-		
Date Sta					1997		<u>35</u> -			Water Level: Not Encountered
Date Cor Logged E Total Dep Work Ord	By: oth:		Octok S. Ta 20 fee 3860-	naka et	1997					Drill Rig: CME-75 Drilling Method: 4" Auger Driving Energy: 140 lb. wt., 30 in. drop

					3S, IN Engine					DRTH-SOUTH ROAD, PHASE 1B F.A.I. PROJ. NO. STP-8930(2) EWA. OAHU, HAWAII
Other Tests	- (%)	(Jo	(%)		Penetration Resistance (blows/foot)		eet)	Sample Graphic	nscs	Approximate Ground Surface Elevation (feet MSL): 60.7 * Description
	14 23	92			32 21	4.0		000	SW	1-inch ASPHALTIC CONCRETE Tan GRAVELLY SAND with silt, medium dense to dense, damp (fill) Brown with black mottling SILTY CLAY, very stiff, moist (alluvium)
	21	101			41	>4.5	5	X		grades to hard
	21	96			60	>4.5	10-			
	19				60		15-			
	16				30/.3' Ref.		20-			grades with coralline sand Boring terminated at 20.3 feet
							25 -			
							30-			
Date Sta Date Cor	nplete	ed:	Octob	er 1,	1997 1997		35-			Water Level: ☑ Not Encountered
Logged I Total De Work Ore	pth:		S. Tai 20.3 f 3860-	eet						Drill Rig: CME-75 Drilling Method: 4" Auger Driving Energy: 140 lb. wt., 30 in. drop



STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

BORING LOGS-1

<u>North—South Road</u> <u>Phase 1B</u> F.A.I. Proj. No. STP—8930(2)

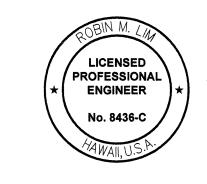
SHEET No. G2.1 OF 27 SHEETS

Date: Feb 21, 2007

FED. ROAD	STATE	FED. AID	FISCAL	SHEET	TOTAL
DIST. NO.		PROJ. NO.	YEAR	NO.	SHEETS
HAWAII	HAW.	STP-8930(2)	2007	159	331

		Geot	echi	nical	BS, IN				NORTH-SOUTH ROAD, PHASE 1B F.A.I. PROJ. NO. STP-8930(2) EWA, OAHU, HAWAII Solventrian Log of Boring Boring						
Other Tests	Moisture Content (%)	Dry Unit Weight (pcf)	Core Recovery (%)	RQD (%)	Penetration Resistance (blows/foot)	Pocket Pen. (tsf)	Depth (feet)	Sample	nscs	Approximate Ground Surface Elevation (feet MSL): 64 * Description					
	14 18	97			43 38	>4.5			CL	Brown SILTY CLAY with coralline sand, hard, damp (alluvium)					
	19	112			59	>4.5	5-			grades to moist					
	19	106			84	>4.5	10-			grades with black mottling					
	10				87		15-		SM	White SILTY CORALLINE SAND with coralline gravel, very dense, damp (coral formation)					
					20/.0' Ref.		20-								
	9				38		25-			Boring terminated at 26.5 feet					
							30-	-							
Date Star	rted.		Octob		1997		35-			Water Level: Not Encountered					
Date Star Date Con Logged E	nplet	ed:		er 1,	1997					Drill Rig: CME-75					
Total Dep			3. Ta 26.5 f				*		***************************************	Drilling Method: 4" Auger					

	ı	Geot	echi	nical	BS, IN Engine	eering				DRTH-SOUTH ROAD, PHASE 1B F.A.I. PROJ. NO. STP-8930(2) EWA, OAHU, HAWAII Log of Boring 4
Other Tests		Dry Unit Weight (pcf)	Core Recovery (%)	RQD (%)	Resistance (blows/foot)		Depth (feet)	Sample	SOSOL	Approximate Ground Surface Elevation (feet MSL): 68.9 * Description Brown SILTY CLAY, hard, damp (alluvium)
	16 15 16	96			37 31 76	>4.5 >4.5	5			grades with black mottling
	21	106			83	>4.5	10			grades to moist
	15				50/.5' Ref.		15			grades with coralline sand
					20/.0' Ref.		20	-	SM	Tan SILTY CORALLINE SAND with coralline gravel, medium dense, damp (coral formation)
	8				24		25	-		Boring terminated at 26.5 feet
							30			
Date Sta					1997 1997		35	-		Water Level: ☑ Not Encountered
Logged I Total De	Зу:	1	S. Ta 26.5 I	naka						Drill Rig: CME-75 Drilling Method: 4" Auger



SIGNATURE EXPIRATION DATE OF THE LICENSIGNORMS.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

BORING LOGS-2

<u>North-South Road</u> <u>Phase 1B</u> F.A.I. Proj. No. STP-8930(2)

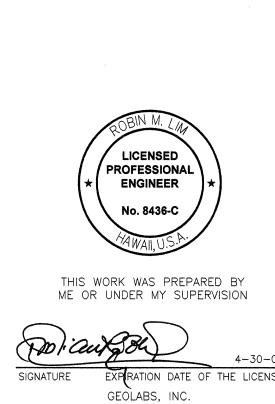
Date: Feb 21, 2007

SHEET No. G2.2 OF 27 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-8930(2)	2007	160	331

			echr	nical	3S, IN Engine					DRTH-SOUTH ROAD, PHASE 1B F.A.I. PROJ. NO. STP-8930(2) EWA, OAHU, HAWAII
Other Tests	Moisture Content (%)	Dry Unit Weight (pcf)	Core Recovery (%)	RQD (%)	Penetration Resistance (blows/foot)	Pocket Pen. (tsf)	Depth (feet)	Sample Graphic	nscs	Approximate Ground Surface Elevation (feet MSL): 75.5 *
	15	<u>รัฐ</u> 87	R Co	RG	66	>4.5	De	Sal	Sn CL	Description Brown SILTY CLAY, hard, damp (alluvium)
	15 15	90			52 50/.3' Ref.	>4.5	5-			grades with black mottling
	20	104			79	>4.5	10-			grades to moist
	14				50/.3' Ref.		15-			grades with coralline sand and gravel
	16				50/.3' Ref.		20-			
	18				50/.5' Ref.		25-			Boring terminated at 25.5 feet
							30-			
Date Start	ted [.]		Octob		1997		35-			Water Level: ☑ Not Encountered
Date Start Date Com Logged By	plete	ed:		er 1,	1997					Drill Rig: CME-75
Total Dep			25.5 f 3860-	eet						Drilling Method: 4" Auger Driving Energy: 140 lb. wt., 30 in. drop

					3S, IN Engine				N	ORTH-SOUTH ROAD, PHASE 1B F.A.I. PROJ. NO. STP-8930(2) EWA, OAHU, HAWAII	Log o Boring
Other Tests	sture Itent (%)	Dry Unit Weight (pcf)	Core Recovery (%)	RQD (%)	Penetration Resistance (blows/foot)	Pocket Pen. (tsf)	Depth (feet)	Sample Graphic	S	Approximate Ground Surface Elevation (feet MSL): 80.4 *	
Oth	So i	Dry Wei	Core	RQI	Pen Res (blo	Poc (tsf)	Dep	San Gra	nscs	Description	
	16	98			46	>4.5			CL	Brown SILTY CLAY, hard, damp (alluvium)	
	7				39					grades with coralline sand	
	16	117			50/.5' +30/.3' Ref.		5				
	22	109			59	>4.5	10			grades to moist	
	20				42		15				
	18				31/.5' +50/.3' Ref.		20	-		Boring terminated at 21.3 feet	
							25	-			
							30	-			
					,		35	-			
Date Star					r 30, 199 r 30, 199					Water Level: □ Not Encountered	
Logged E			S. Ta							Drill Rig: CME-75	
Total Dep			21.3 1	eet						Drilling Method: 4" Auger Driving Energy: 140 lb. wt., 30 in. drop	



STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

BORING LOGS-3

<u>North-South Road</u> <u>Phase 1B</u> F.A.I. Proj. No. STP-8930(2)

Date: Feb 21, 2007

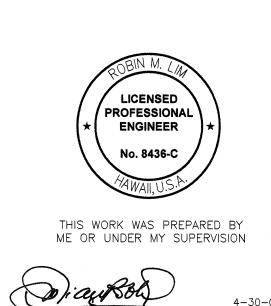
SHEET No. G2.3 OF 27 SHEETS

160

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-8930(2)	2007	161	331

		Geot	techi	nical	BS, IN					DRTH-SOUTH ROAD, PHASE 1B F.A.I. PROJ. NO. STP-8930(2) EWA, OAHU, HAWAII Tog of Boring
Other Tests	Moisture Content (%)	Dry Unit Weight (pcf)	Core Recovery (%)	RQD (%)	Penetration Resistance (blows/foot)	Pocket Pen. (tsf)	Depth (feet)	Sample	nscs	Approximate Ground Surface Elevation (feet MSL): 82 * Description
	16 17	90			55 44	>4.5			CL	Brown SILTY CLAY, hard, damp (alluvium) grades with black mottling
	19	108			84	>4.5	5			grades with coralline sand
LL=46 PI=30	20	104			78	>4.5	10			grades to moist
	20				58		15			
	18				50/.5' Ref.		20			
	17				50/.5' Ref.		25			Boring terminated at 25.5 feet
							30	-		
Date Sta	rted:		Santo	amhe	r 30, 199	7	35	-		Water Level: Not Encountered
Date Cor	mplet	ed:	Septe	embe	r 30, 199					
Logged E Total De			<u>S. Ta</u> 25.5 f				***************************************			Drill Rig: CME-75 Drilling Method: 4" Auger
Work Or			3860-							Driving Energy: 140 lb. wt., 30 in. drop

					3S, IN Engine		,			DRTH-SOUTH ROAD, PHASE 1B F.A.I. PROJ. NO. STP-8930(2) EWA, OAHU, HAWAII
	Moisture Content (%)	Dry Unit Weight (pcf)	Core Recovery (%)	RQD (%)	Penetration Resistance (blows/foot)	Pocket Pen. (tsf)	Depth (feet)	Sample Graphic	nscs	Approximate Ground Surface Elevation (feet MSL): 88.6 * Description
	16	103			92	>4.5			CL	Brown with black mottling SILTY CLAY, hard, damp (alluvium)
	16				48/.5' +50/.3' Ref.					grades with a little coralline sand
	17	107			50/.3' Ref.	>4.5	5			
	17	114			48/.5' +50/.3' Ref.	>4.5	10			grades to moist
	19				66		15			
	20				74		20			Boring terminated at 21.5 feet
	ŕ						25	-		
							30	-		
Data Cr				,	00.400		35	-		
Date Sta Date Cor					r 30, 199 r 30, 199					_ Water Level: ☑ Not Encountered
Logged E	Зу:		S. Ta	naka						Drill Rig: CME-75
Total De Work Or		~	21.5 f 3860-			Maritania de la constitución de la	······································			Drilling Method: 4" Auger Driving Energy: 140 lb. wt., 30 in. drop



GEOLABS, INC.

DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

BORING LOGS-4

<u>North—South Road</u> <u>Phase 1B</u> F.A.I. Proj. No. STP—8930(2)

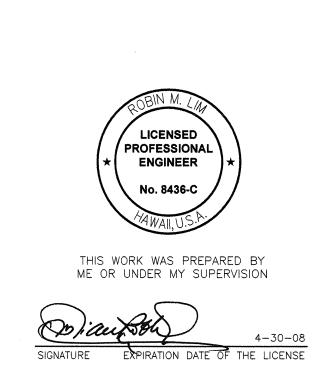
Date: Feb 21, 2007

SHEET No. G2.4 OF 27 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-8930(2)	2007	162	331

		Geot	echr		BS, IN		J			IORTH-SOUTH ROAD, PHASE 1B F.A.I. PROJ. NO. STP-8930(2) EWA, OAHU, HAWAII 9					
Other Tests	Moisture Content (%)	Dry Unit Weight (pcf)	Core Recovery (%)	RQD (%)	Penetration Resistance (blows/foot)	Pocket Pen. (tsf)	Depth (feet)	Sample Graphic	nscs	Approximate Ground Surface Elevation (feet MSL): 101.7 *					
Ó	<u>≥ŏ</u> 17	90	Ŏ X	Ř		>4.5		Š	CL	Description Brown SILTY CLAY, hard, damp (alluvium)					
	16	90			24	74.5									
	20	107			83	>4.5	5			grades with black mottling					
	19	114			99	>4.5	10 ⁻			grades with some coralline sand, moist					
	20				52		15				-				
	18				48/.5' +30/.2' Ref.		20			Boring terminated at 21.2 feet	-				
							25 ⁻	1			-				
							30 ⁻	-			-				
) GPJ GEOLABS.GDT 11/17/06							35·	-			-				
Date Star Date Com	nplete	ed:	Septe	mber	30, 199 ⁻ 30, 199 ⁻					Water Level: ☑ Not Encountered					
Logged B Total Dep			S. Tai 21.2 f			-				Drill Rig: CME-75 Drilling Method: 4" Auger					
Work Ord	er:		3860-	30						Driving Energy: 140 lb. wt., 30 in. drop					

							3		N	DRTH-SOUTH ROAD, PHASE 1B F.A.I. PROJ. NO. STP-8930(2) EWA, OAHU, HAWAII
Other Tests	Moisture Content (%)	Dry Unit Weight (pcf)	Core Recovery (%)	RQD (%)	Penetration Resistance (blows/foot)	Pocket Pen. (tsf)	Depth (feet)	Sample Graphic	တ္ပ	Approximate Ground Surface Elevation (feet MSL): 116.5 *
Othe	Mois	Dry	Core	RQL	Pen Resi (blov	Pock (tsf)	Dep	Sam Grap	nscs	Description
									CL	Brown SILTY CLAY, very stiff, damp (alluvium)
	14				20	>4.5				
	16 17				26 49/.5' +30/.3' Ref.	1	5			grades with black mottling and coral sand, hard
	20				82	>4.5	10			grades to moist
	20				73	>4.5	15			
	18				70		20			Boring terminated at 21.5 feet
							25			
							30			
Date Sta	arted:		Sent	mha	r 30, 100	7	35	-		Water Level: ∀ Not Encountered
Date Co	mplet	ed:	Septe	embe	r 30, 199 r 30, 199					Water Level: ☑ Not Encountered
Logged Total De			S. Ta 21.51			*****	•			Drill Rig: CME-75 Drilling Method: 4" Auger
	der:		3860-							Driving Energy: 140 lb. wt., 30 in. drop



GEOLABS, INC.

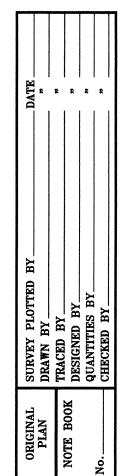
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

BORING LOGS-5

<u>North—South Road</u> <u>Phase 1B</u> F.A.I. Proj. No. STP—8930(2)

Date: Feb 21, 2007

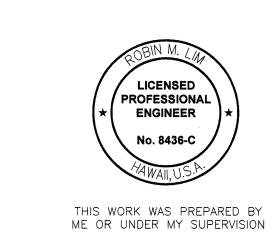
SHEET No. G2.5 OF 27 SHEETS

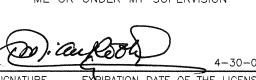


FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-8930(2)	2007	163	331

					3S, IN Engine					DRTH-SOUTH ROAD, PHASE 1B F.A.I. PROJ. NO. STP-8930(2) EWA, OAHU, HAWAII Log of Boring 11
Other Tests	Moisture Content (%)	Dry Unit Weight (pcf)	Core Recovery (%)	RQD (%)	Penetration Resistance (blows/foot)	Pocket Pen. (tsf)	Depth (feet)	Sample Graphic	Sosu	Approximate Ground Surface Elevation (feet MSL): 126.3 * Description Brown SILTY CLAY, hard, damp (alluvium)
	16 17				58 48	>4.5				grades with black mottling
	21				82		5			grades with coral sand, moist
	21				85	>4.5	10-			
	21				83		15-			
	19				25/.5' +20/.2' Ref.		20-			Boring terminated at 21.2 feet
							25			
							30			
Data Star	40 al·		Cont	, pale -	20 400	7	35-	_		Motor Lovely 7 Not Engage to 2
Date Start Date Com Logged By Total Dept	nplete y:	ed:		mbei naka	· 30, 199 · 30, 199					Water Level: Drill Rig: CME-75 Drilling Method: 4" Auger

GEOLABS, INC. Geotechnical Engineering							NORTH-SOUTH ROAD, PHASE 1B F.A.I. PROJ. NO. STP-8930(2) EWA, OAHU, HAWAII Log o Boring 12						
Other Tests	9 10 Moisture (%) Content (%)	Dry Unit Weight (pcf)	Core Recovery (%)		(splows/foot) (blows/foot) (blows/foot) (c) (c) (c) (c) (c) (c) (c) (c) (c) (c	>4.5	Depth (feet)	Sample Graphic	SOSOL	Approximate Ground Surface Elevation (feet MSL): 132.9 * Description Brown with black mottling SILTY CLAY with sand and gravel, hard, damp (alluvium) grades without gravel			
	18				46/.5' +30/.3' Ref.		10 ⁻			grades to moist			
	21				57		15 ⁻						
	23				35		20-						
	18				73		25 30	-		Boring terminated at 26.5 feet			
Date Star Date Com Logged B Total Dep	nplete y:	d:		mbei naka	r 29, 199 r 29, 199		35-	-		Water Level: Not Encountered Drill Rig: CME-75 Drilling Method: 4" Auger			





GEOLABS, INC.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

BORING LOGS-6

<u>North-South Road</u> <u>Phase 1B</u> F.A.I. Proj. No. STP-8930(2)

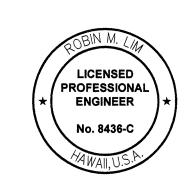
Date: Feb 21, 2007

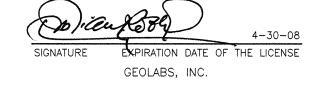
SHEET No. G2.6 OF 27 SHEETS

FED. ROAD	STATE	FED. AID	FISCAL	SHEET	TOTAL
DIST. NO.		PROJ. NO.	YEAR	NO.	SHEETS
HAWAII	HAW.	STP-8930(2)	2007	164	331

	1	Geot	echr	nical	3S, IN		3		N	ORTH-SOUTH ROAD, PHASE 1B F.A.I. PROJ. NO. STP-8930(2) EWA, OAHU, HAWAII Log of Boring 13
Other Tests	isture intent (%)	Dry Unit Weight (pcf)	Core Recovery (%)	RQD (%)	Penetration Resistance (blows/foot)	Pocket Pen. (tsf)	Depth (feet)	Sample Graphic	nscs	Approximate Ground Surface Elevation (feet MSL): 137.8 *
₹ :	ဋိပိ	<u> </u>	လ လ လ	RG	Re (bi	Po (ts)	De	Sa	S) CL	Description Reddish brown SILTY CLAY with some sand, hard,
	18				77	>4.5				damp
	20				34					-
	20				32	>4.5	5			
	19				23/.5' +50/.3' Ref.	>4.5	10			grades with gravel and more sand
	18				50/.3' Ref.	>4.5	15			grades without gravel
	19				90		20			Boring terminated at 21.5 feet
							25	-		
							30	-		
							35	-		
Date Star	plete	ed:	Septe	embe	29, 199 29, 199		<u> </u>			Water Level: ☑ Not Encountered
Logged B Total Dep Work Ord	th:		S. Ta 21.5 f 3860-	eet						Drill Rig: CME-75 Drilling Method: 4" Auger Driving Energy: 140 lb. wt., 30 in. drop

Other Tests	Moisture Content (%)	Weight (pcf) Core Recovery (%)	RQD (%)	ation ance /foot)	en.	\$			•	ORTH-SOUTH ROAD, PHASE 1B F.A.I. PROJ. NO. STP-8930(2) EWA, OAHU, HAWAII Log of Boring 14				
`	17		RG	Penetration Resistance (blows/foot)	Pocket Pen. (tsf)	Depth (feet)	Sample Graphic	Sosu	Approximate Ground Surface Elevation (feet MSL): 157.5 * Description					
	17			50/.5' Ref. 98	>4.5			CL	Brown with black mottling SILTY CLAY, hard, damp (alluvium)					
	19			79	>4.5	5 [.]			grades to damp to moist					
	17			50/.3' Ref.	>4.5	10 ⁻								
	19			50/.5' Ref.	>4.5	15 ⁻								
	21			50/.5' Ref.		20-			Boring terminated at 21 feet					
						25 ⁻	-							
						30								
Date Sta	rted:	Sept	embe	r 29, 199	7	35·	-		Water Level: ♀ Not Encountered					
Date Cor Logged B	······	Sept		r <mark>29</mark> , 199					Drill Rig: CME-75					
Total De Work Or	pth:	21 fe 3860	et						Drilling Method: 4" Auger Driving Energy: 140 lb. wt., 30 in. drop					





STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

BORING LOGS-7

<u>North-South Road</u> <u>Phase 1B</u> F.A.I. Proj. No. STP-8930(2)

Date: Feb 21, 2007

SHEET No. G2.7 OF 27 SHEETS

FED. ROAD	STATE	FED. AID	FISCAL	SHEET	TOTAL
DIST. NO.		PROJ. NO.	YEAR	NO.	SHEETS
HAWAII	HAW.	STP-8930(2)	2007	165	331

					BS, IN			NORTH-SOUTH ROAD, PHASE 1B F.A.I. PROJ. NO. STP-8930(2) EWA, OAHU, HAWAII					
ests	%	(bcf)						a) (,	Approximate Ground Surface			
Other Tests	Moisture Content (Dry Unit Weight	Core Recovery (%)	RQD (%)	Penetration Resistance (blows/foot)	Pocket Pen (tsf)	Depth (feet)	Sample	USCS	Elevation (feet MSL): 82 *			
0	15 16	112		<u> </u>	58 62	>4.5 >4.5	Δ	S	CH	Description Dark brown with black mottling SILTY CLAY with some black sub-rounded coarse sand, very hard, dry to damp (alluvium)			
LL=64 PI=44	18	100			54/.5' +10/.0' Ref.		5	_					
	19		-		31/.5' +30/.3' Ref.	1	10	-	МН				
	20	111			30/.3' Ref.	>4.5	15			very fine sand and black sub-rounded coarse sand, very hard, dry to damp (alluvium)			
	24			,	56	>4.5	20		CH	Dark brown SILTY CLAY with very fine sand, very hard, damp (alluvium)			
UC=11	21	92			40/.3' Ref.	>4.5	25		MH	Brown with black and white mottling CLAYEY SILT with fine sand, very hard, dry (alluvium)			
	21				52	>4.5	30		ML	Dark brown very fine SANDY SILT, very hard, dry to damp (alluvium)			
UC=7	36	63			30/.3' Ref.	>4.5	35		SM	Whitish orange SILTY CORALLINE SAND, very dense, dry (alluvium/coralline detritus) Reddish brown SANDY SILT, very hard, dry to damp (alluvium)			
	25				34/.5' +10/.0'	>4.5	45	7		grades to brown with black mottling			
	23				Ref. 60/.5' +10/.0' Ref.	1 1	50		CH	Dark brown with black mottling SILTY CLAY, very hard, damp (alluvium) Boring terminated at 51 feet			
Date Sta	rted.		July 2	9 20	04		55			Water Level: Not Encountered			
Date Co Date Co Logged I	mplet	ed:	July 2 Y. Ch	9, 20						Drill Rig: CME-75			
Total De Work Or	pth:		51 fee 3860-	et						Drilling Method: 4" Auger Driving Energy: 140 lb. wt., 30 in. drop			

Log of Boring 101						S, IN		1			DRTH-SOUTH ROAD, PHASE 1B F.A.I. PROJ. NO. STP-8930(2) EWA, OAHU, HAWAII Log of Boring 102
ce *	Other Tests	Moisture Content (%)	Dry Unit Weight (pcf)	Core Recovery (%)	RQD (%)	Penetration Resistance (blows/foot)	Pocket Pen. (tsf)	Depth (feet)	Sample	SOSUH	Approximate Ground Surface Elevation (feet MSL): 82 * Description
CLAY with I, very hard,		16	99	OIL		50/.5'	Ш		N C	CH	Light brown and gray SILTY CLAY, very hard, dry (alluvium)
		16				56					
-		19	102			50/.3'		5	-	СН	Brown SILTY CLAY with some fine sand, very hard, dry to damp (alluvium)
EY SILT with		20				44		10	-		grades to hard
coarse		20	108			50/.3'		15			grades to very hard
e sand, very		21				53		20			- -
LAYEY SILT		20	104			30/.1'		25		СН	Reddish brown with gray streaks SILTY CLAY, very hard, dry to damp (alluvium)
ry hard, dry		16				55/.5' +10/.0' Ref.	! :	30		СН	Brown with white mottling SILTY CLAY, very hard, dry (alluvium)
AND, very		24	98			50	>4.5	35		МН	Dark brown CLAYEY SILT with very fine sand, very hard, damp (alluvium)
d, dry to		25				25	>4.5	40			- - -
-		45	66			32	3.0	45		SM	grades to brown, very stiff, dry Whitish gray with multi-color mottling SILTY CORALLINE SAND with traces of clay, medium
CLAY, very	0T 11/17/06	28				35	>4.5	50		ML	dense, moist (coralline detritus) Reddish brown SANDY SILT with traces of clay, very hard, damp (residual soil) Boring terminated at 51.5 feet
-	GEOLABS.G	,						55			
	Date Star Date Cor			July 28 July 29				<u> </u>			Water Level: ☑ Not Encountered
	E Logged E	By:		F. Mey	yer	, T					Drill Rig: CME-75
	Total Der			51.5 fe 3860-3				**************************************			Drilling Method: 4" Auger & T.C. Finger Bit Driving Energy: 140 lb. wt., 30 in. drop





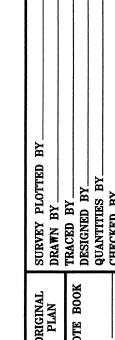
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

BORING LOGS-8

<u>North-South Road</u> <u>Phase 1B</u> F.A.I. Proj. No. STP-8930(2)

Date: Feb 21, 2007

SHEET No. G2.8 OF 27 SHEETS



FED. ROAD	STATE	FED. AID	FISCAL	SHEET	TOTAL
DIST. NO.		PROJ. NO.	YEAR	NO.	SHEETS
HAWAII	HAW.	STP-8930(2)	2007	166	331

					BS, IN				N	ORTH-SOUTH ROAD, PHASE 1B F.A.I. PROJ. NO. STP-8930(2) EWA, OAHU, HAWAII Log of Boring 103			GE Geote
Other Tests	Moisture Content (%)	Dry Unit Weight (pcf)	Core Recovery (%)	RQD (%)	Penetration Resistance (blows/foot)	Pocket Pen. (tsf)	Depth (feet)	Sample	USCS	Approximate Ground Surface Elevation (feet MSL): 82 *	Other Tests	Moisture Content (%)	<i></i>
	≱ິວ 15	<u>៤ ></u> 104		R(රි සී <u>ම</u> 60/.5'	P _C (ts		S	CL	Description Brown SILTY CLAY, very hard, damp (alluvium)	ŏ	<u>≱ິດ</u> 14	ĎŠ
	16				64							16	
	17	107			50/.5'		5		СН	Brown SILTY CLAY with gray clay, very hard, damp (alluvium)	~	20	88
	19				39		10			grades to hard		18	
-	19	94			50/.5'		15		СН	Brown with white mottling SILTY CLAY, very hard, damp (alluvium)		18	107
	19				53/.5'		20					21	
UC=71	19	105			60/.5'		25		СН	Light brown SILTY CLAY, very hard, damp (alluvium)	.~	19	101
	19		`		50/.5'		30					15	
	18	92			50/.5'		35	-	СН	Brown SILTY CLAY, very hard, damp (alluvium)		21	80
	21				54/.5'		40		SM	Brown SILTY SAND with clay, very dense, damp (alluvium)		23	
	23	73			69		45	X				52	
	24				40		50		SM	Reddish tan SILTY SAND, dense, damp (alluvium) Boring terminated at 50 feet		28	
Date Start	ted.		July 2	28. 20	004		55			Water Level: ♀ Not Encountered	Date Sta	rted:	
Date Com Logged B	plete	ed:	July 2 F. Me	28, 20						Drill Rig: CME-75	Date Cor Logged E	nplet	ted: J
Total Dep	th:	·	50 fee 3860-	et						Drilling Method: 4" Auger & T.C. Finger Bit Driving Energy: 140 lb. wt., 30 in. drop	Total Dep	oth:	5 3

					BS, IN Engine					DRTH-SOUTH ROAD, PHASE 1B F.A.I. PROJ. NO. STP-8930(2) EWA, OAHU, HAWAII
Other Tests	Moisture Content (%)	Dry Unit Weight (pcf)	Core Recovery (%)	RQD (%)	Penetration Resistance (blows/foot)	Pocket Pen. (tsf)	Depth (feet)	Sample Graphic	nscs	Approximate Ground Surface Elevation (feet MSL): 82 * Description
	14			- Indian	32				CL	Brown SILTY CLAY with some roots, very stiff, damp (alluvium)
	16 20	88			56 50/.3'		5		CH	Brown SILTY CLAY with some sand, very hard, damp (alluvium)
	18				46/.5' +40/.3'		10			
	18	107			50/.5'		15			
	21				33/.5' +50/.3'		20			
	19	101			55/.5'		25	-	СН	Brown SILTY CLAY, very hard, damp (alluvium)
	15				50/.4'	,	30		SM	Brown fine SILTY SAND with some gravel, very dense, damp (alluvium)
	21	80			50/.5'		35	- - - -		
	23				43/.5' +30/.2'		40			
	52				19		45		МН	Tan-brown CLAYEY SILT with sand and coralline gravel, very stiff, moist (alluvium)
	28				41/.5' +25/.1'		50		MH	Light brown CLAYEY SILT with some sand, very hard, damp (residual soil) Boring terminated at 50.6 feet
Date Sta	mplet	ed:	July 2 July 2	27, 20			55			Water Level: ☑ Not Enountered
Logged I Total De Work Or	pth:		F. Me 50.6 3860	feet						Drill Rig: CME-75 Drilling Method: 4" Auger & T.C. Finger Bit Driving Energy: 140 lb. wt., 30 in. drop



SIGNATURE EXPIRATION DATE OF THE LICENSE GEOLABS, INC.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

BORING LOGS-9

<u>North-South Road</u> <u>Phase 1B</u> F.A.I. Proj. No. STP-8930(2)

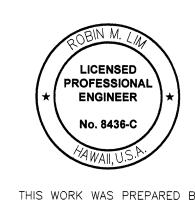
Date: Feb 21, 2007

SHEET No. G2.9 OF 27 SHEETS

FED. ROAD	STATE	FED. AID	FISCAL	SHEET	TOTAL
DIST. NO.		PROJ. NO.	YEAR	NO.	SHEETS
HAWAII	HAW.	STP-8930(2)	2007	167	331

					3S, IN		9		NO	DRTH-SOUTH ROAD, PHASE 1B F.A.I. PROJ. NO. STP-8930(2) EWA, OAHU, HAWAII Log of Boring 105
Other Tests	oisture ontent (%)	Dry Unit Weight (pcf)	ore ecovery (%)	RQD (%)	Penetration Resistance (blows/foot)	Pocket Pen. (tsf)	Depth (feet)	Sample Graphic	nscs	Approximate Ground Surface Elevation (feet MSL): 136.5 *
LL=55	18 18 21	107		<u>x</u>	56 56 45	>4.5 >4.5 >4.5			CH CH	Description Dark brown SILTY CLAY with very fine sand, soft, dry (fill/alluvium) Dark brown SILTY CLAY with some sand, very hard, dry (alluvium) Brown with black mottling SILTY CLAY, hard to
PI=37		110						-	OIT	very hard, damp (alluvium)
	21	113			50/.5' +10/.0' Ref.	1			СН	Brown with black and white mottling SILTY CLAY, very hard, damp (alluvium)
	21				68	>4.5	20			
UC=83	21	111			30/.3' Ref.	>4.5	25	-	СН	Brown with black mottling SILTY CLAY, hard, damp (alluvium)
	22				60	4.0	30		CU	Proven with block and tan mattling SILTY CLAY
	23	109			30/.3' Ref.	>4.5	35	-	СН	Brown with black and tan mottling SILTY CLAY, very hard, damp to moist (alluvium)
	19				45/.3' Ref.		40		SM	Brown with black mottling SILTY SAND, very dense, damp (alluvium)
	17				55/.3' Ref.		45			Brown with black mottling extremely weathered BASALTIC BOULDERS, breaks down to clayey silt with fine sand, very hard, dry to damp (alluvium)
	19				60/.3' Ref.		50		0	Boring terminated at 49.8 feet
Date Sta			July 2 July 2				55			Water Level: Not Enountered
Logged I	Ву:		Y. Ch 49.8 f	iba						Drill Rig: CME-75 Drilling Method: 4" Auger
Work Or	der:		3860-	30						Driving Energy: 140 lb. wt., 30 in. drop

	1				BS, IN				NO	DRTH-SOUTH ROAD, PHASE 1B F.A.I. PROJ. NO. STP-8930(2) EWA, OAHU, HAWAII Log of Boring 106
Other Tests	Moisture Content (%)	Dry Unit Weight (pcf)	Core Recovery (%)	RQD (%)	Penetration Resistance (blows/foot)	Pocket Pen. (tsf)	Depth (feet)	Sample	USCS	Approximate Ground Surface Elevation (feet MSL): 135 * Description
	13 19 19	107			64 51 73	4.5 >4.5	5		MH CH CH	Dark brown CLAYEY SILT with some basaltic gravel and cobbles, hard, damp (fill/alluvium) Dark brown SILTY CLAY with some basaltic gravel very hard, damp (alluvium) Brown with black mottling SILTY CLAY, very hard,
	20				72	>4.5	10	-	СН	Brown with black and white mottling SILTY CLAY with some sand, very hard, damp (alluvium)
	22	106			50/.3' Ref.	>4.5	15			
	22				66	>4.5	20			
	21	106			30/.3' Ref.	>4.5	25			grades with some highly weathered basaltic gravel
	24				74	>4.5	30		СН	Brown with reddish brown mottling SILTY CLAY, very hard, damp (alluvium)
UC=9	18	98			30/.3' Ref.	2.5	35	-	ML	Brown with black mottling fine SANDY SILT, very stiff, damp (alluvium)
	28				10/.0' Ref.		40		SM	Dark brown with black mottling cemented SILTY SAND, very dense, dry (alluvium)
	17				30/.3' Ref.		45	-		grades to brown
	19				40/.3' Ref.	>4.5	50		MH	Reddish brown with black mottling CLAYEY SILT with very fine sand, very hard, damp (residual soil) Boring terminated at 50.3 feet
Date Sta		····	July 2				_55			Water Level: ☑ Not Enountered
Date Cor Logged I Total De Work Or	By: pth:		July 2 Y. Ch 50.3 f 3860-	iba eet	004					Drill Rig: CME-75 Drilling Method: 4" Auger Driving Energy: 140 lb. wt., 30 in. drop



GEOLABS, INC.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

BORING LOGS-10

<u>North-South Road</u> <u>Phase 1B</u> F.A.I. Proj. No. STP-8930(2)

Date: Feb 21, 2007

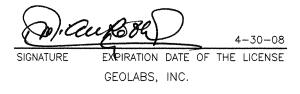
SHEET No. G2.10 OF 27 SHEETS

FED. ROAD	STATE	FED. AID	FISCAL	SHEET	TOTAL
DIST. NO.		PROJ. NO.	YEAR	NO.	SHEETS
HAWAII	HAW.	STP-8930(2)	2007	168	331

		Geot	echi	nical	3S, IN		J		N	ORTH-SOUTH ROAD, PHASE 1B F.A.I. PROJ. NO. STP-8930(2) EWA, OAHU, HAWAII Log of Boring 107
Other Tests	Moisture Content (%)	Dry Unit Weight (pcf)	Core Recovery (%)	RQD (%)	Penetration Resistance (blows/foot)	Pocket Pen. (tsf)	Depth (feet)	Sample	Graphic USCS	Approximate Ground Surface Elevation : Description
	18	96			47			X	СН	Brown SILTY CLAY, hard, damp (alluvium)
	20 22	109	·		37 32		5	X		grades to very stiff
LL=52 PI=35	20				75		10		СН	Brown SILTY CLAY with sand, very hard, damp (alluvium)
	20	110			50/.4'		15	-		
	16				63		20			grades with traces of coralline gravel
UC=85	18	115			50/.4'		25			
	20				50/.5'		30	-	СН	SILTY CLAY with some coralline gravel, hard, damp (alluvium)
	20	74			50/.5'		35	-	SM	Light brown SILTY SAND, very dense, dry (alluvium)
	25				50/.3'		40	-		grades with some gravel
	19				50/.3'		45			
OCCUPATION OF THE PROPERTY OF	20				60/.5'		50	-	MH	Light brown CLAYEY SILT, very hard, damp (alluvium) Boring terminated at 50 feet
Date Sta	rted:		July 2		004		<u>55</u>	-		Water Level: Not Enountered
Date Col	mplet	ed:	July 2 F. Me	26, 20					12	Drill Rig: CME-75
Total De Work Or	pth:		50 fee 3860-	et						Drilling Method: 4" Auger & T.C. Finger Bit Driving Energy: 140 lb. wt., 30 in. drop

					3S, IN Engine				No	ORTH-SOUTH ROAD, PHASE 1B F.A.I. PROJ. NO. STP-8930(2) EWA, OAHU, HAWAII Log of Boring 108
Other Tests	Moisture Content (%)	Dry Unit Weight (pcf)	Sore Recovery (%)	RQD (%)	Penetration Resistance (blows/foot)	Pocket Pen. (tsf)	Depth (feet)	Sample	USCS	Approximate Ground Surface Elevation (feet MSL): 136.5 * Description
	18 19 21	96			66 52 48	>4.5			MH CH	Dark brown CLAYEY SILT with some basaltic gravels, stiff, dry (fill) Dark brown with black mottling SILTY CLAY with some basaltic gravels, very hard, dry to damp
	20				40/.5'	>4.5	10	-		
UC=34	22	106			30/.3' Ref.	>4.5	15	-	MH	Brown with white and black mottling CLAYEY SIL very hard, dry to damp (alluvium)
	20				32/.5' +30/.3' Ref.	1 3	20	-	СН	Brown with black and white mottling SILTY CLAY with some coarse sand, very hard, damp (alluviu
	17	112	`		30/.3' Ref.	>4.5	25	-		
	20				50/.4'		30			
	21	82			50/.5'		35	-	МН	Tannish brown CLAYEY SILT, very hard, damp (alluvium)
	23				50/.5'		40		SM	Light brown SILTY SAND, very dense, damp (alluvium)
	15				50/.2'		45			
	19				50/.3'		50		MH	Reddish brown CLAYEY SILT, very hard, damp (alluvium) Boring terminated at 49.8 feet
Date Sta Date Cor			July 2 July 2				<u>55</u>			Water Level: ☑ Not Enountered
Logged E Total Dep Work Ord	By: oth:		Y. Ch 49.8 f 3860-	iba eet						Drill Rig: CME-75 Drilling Method: 4" Auger Driving Energy: 140 lb. wt., 30 in. drop





STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION

BORING LOGS-11

<u>North-South Road</u> <u>Phase 1B</u> F.A.I. Proj. No. STP-8930(2)

Date: Feb 21, 2007

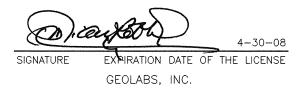
SHEET No. G2.11 OF 27 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-8930(2)	2007	169	331

	ı	Geot	echr	nical	3S, IN		3			DRTH-SOUTH ROAD, PHASE 1B A.I. PROJECT NO. STP-8930(2) EWA, OAHU, HAWAII Log of Boring 109	
Other Tests	Moisture Content (%)	Dry Unit Weight (pcf)	Core Recovery (%)	RQD (%)	Penetration Resistance (blows/foot)	Pocket Pen. (tsf)	Depth (feet)	Sample Graphic	nscs	Approximate Ground Surface Elevation (feet MSL): 79.5 * Description	
UC=101	21 25	99 109			50/.5' +25/.3' Ref. 32 50/.3' Ref.	4.0	5		CL	Dark brown with light tan mottling SILTY CLAY, very hard, damp (alluvium) grades with black mottling grades to hard	
	26				30	3.0	10				
					35/.3' Ref.	4.0	15			grades to very hard	
	15		33	15	56		20		CL	Brown with white mottling SILTY CLAY with some sand (coralline), hard, damp Light grayish white SANDY SILT (CORALLINE), hard, dry Whitish gray with light orange mottling LIMESTONE, closely fractured, highly weathered	
	26		12		30/.3' Ref.		30	-	ML	medium hard (limestone formation) Dark reddish brown fine SANDY SILT, very stiff, damp (alluvium)	,
	23		29	29	52		35	-	SM	Light orange with white mottling SILTY SAND (CORALLINE), dense, dry	
	18		25		45/.5' +10/.0' Ref.		33	-	ML SM	White with brown mottling SANDSTONE (CORALLINE), moderately weathered, hard (sandstone) Reddish brown with white mottling SANDY SILT	
	19		8		18/.5' +10/.0' Ref.		45		GM	with some sand (coralline), hard, dry Whitish brown with white mottling SILTY SAND AND GRAVEL (CORALLINE) with some clay, medium dense, dry Whitish light tan SILTY GRAVEL AND SAND (CORALLINE), medium dense, dry (coralline	
	18		10		11		50		GW	detritus) Whitish tan with brown mottling SANDY (CORALLINE) AND GRAVEL (LIMESTONE) in a	
	11				22		55	000		silt matrix, medium dense, dry (coralline detritus) Boring terminated at 53 feet	-
Date Sta	rted:		Dece	mber	14, 2006	3	၂၁၁			Water Level: ☑ Not Enountered	
Date Cor Logged B			Dece Y. Ch		14, 2006	3				Drill Rig: CME-75	
Total De	pth:		53 fe	et						Drilling Method: 4" Auger & HQ Coring	
Work Or	der:	•	<u> 3860-</u>	-30						Driving Energy: 140 lb. wt., 30 in. drop	

					BS, IN Engine		,			DRTH-SOUTH ROAD, PHASE 1B .A.I. PROJECT NO. STP-8930(2) EWA, OAHU, HAWAII Log of Boring 110
Other Tests	Moisture Content (%)	Dry Unit Weight (pcf)	Core Recovery (%)	RQD (%)	Penetration Resistance (blows/foot)	Pocket Pen. (tsf)	Depth (feet)	Sample Graphic	nscs	Approximate Ground Surface Elevation (feet MSL): 79 * Description
UC=92 LL=49 PI=30 UC=65	19 21 21	111			42/.5' +10/.0' Ref.	4.0			CL	Dark brown with white mottling SILTY CLAY, very hard, damp (alluvium) grades with white and black mottling
	21				28/.5' +20/.3' Ref. 30/.5' +25/.3' Ref.	>4.5	4 -	_	CL	Brown with white mottling SILTY CLAY, very hard, damp (alluvium)
	36		15	7	29/.5' +10/.0' Ref.		20		ML	Whitish gray with light tan and light orange mottling SANDY SILT (CORALLINE) with traces of clay, hard, damp
	27		14		87		25		ML	Whitish tan LIMESTONE (CORALLINE), closely fractured, highly weathered, medium hard (limestone formation) Dark brown fine SANDY SILT, very hard, dry (alluvium)
	21		24		25		30			Light orange with white mottling SILTY GRAVEL AND SAND (CORALLINE), medium dense, dry
	32		48		27	2.0	35		CL	Tan with multi-color mottling SANDY CLAY (CORALLINE), very stiff, dry
	21		29		37		40		SM	Light orangish white SILTY SAND (CORALLINE) AND SOME GRAVEL with traces of clay, medium dense, damp
	14		10		32		45	000	CIM	grades to light grayish white with brown mottling
	15				22		50		GW	Light grayish white SANDY GRAVEL (CORALLINE) with silt, medium dense, dry (coralline detritus) Boring terminated at 52.5 feet
							55			
Date Sta Date Cor Logged E	nplet 3y:	ed:	Decei Y. Ch	mber iba	15, 2006 15, 2006	·				Water Level: ☑ Not Enountered Drill Rig: CME-75 Drilling Method: 4" August % HO Coring
Total Dep Work Ord			<u>52.5 f</u> 3860-							Drilling Method: 4" Auger & HQ Coring Driving Energy: 140 lb. wt., 30 in. drop





STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

BORING LOGS-12

<u>North-South Road</u> <u>Phase 1B</u> F.A.I. Proj. No. STP-8930(2)

Date: Feb 21, 2007

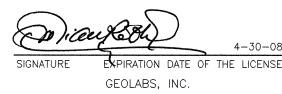
SHEET No. G2.12 OF 27 SHEETS

FED. ROAD	STATE	FED. AID	FISCAL	SHEET	TOTAL
DIST. NO.		PROJ. NO.	YEAR	NO.	SHEETS
HAWAII	HAW.	STP-8930(2)	2007	170	331

					BS, IN		9		NO	DRTH-SOUTH ROAD, PHASE 1B F.A.I. PROJ. NO. STP-8930(2) EWA, OAHU, HAWAII Log of Boring 232
Other Tests	sture ntent (%)	Dry Unit Weight (pcf)	Core Recovery (%)	(%) Q	Penetration Resistance (blows/foot)	Pocket Pen. (tsf)	Depth (feet)	Sample	CS	Approximate Ground Surface Elevation (feet MSL): 158.5 *
Oth	Cor	Me. Ve.	Cor	RQD	Per Res (blo	Poc (tsf)	Deg	Sar		Description
	21	84			33	2.0			СН	Light grayish brown SILTY CLAY, very stiff, damp (alluvium)
	22				18	2.0				grades to brown
LL=42 PI=22	24	100			23	1.5	5	5	CL	Brown SILTY CLAY with fine sand, very stiff, damp (alluvium)
										(anaviarr)
	20				30/.3' Ref.		10		ML	Orangish brown densely cemented SANDY SILT, very hard, dry (alluvium) grades with some gravel and cobbles (basaltic)
	15				10/.0' Ref. 26/.3'		15	5		
					Ref.		20)-		
	21				40/.3' Ref.		25		SM	Brown SILTY SAND, very dense, dry (alluvium)
			57	40			30) - 0		Light gray and reddish brown BOULDERS AND COBBLES (BASALTIC) in a clayey silt matrix, very hard (alluvium)
			28	7			35	- DC	X X	riaru (alluvium)
			62	14	20/.2'		40		ML-	Reddish brown SANDY SILT with highly weathered
									SM	gravel, stiff, moist (alluvium)
			62	0		2.0	45	- - -)- -		
8.GDT 11/1/706					72	2.0	50			grades to very hard Boring terminated at 50 feet
PJ GEOLAB							55	<u> </u>		
Date Sta			April :							Water Level: ☑ Not Encountered
Logged Total De	By:			iba &	D. Sjolu	nd				Drill Rig: MOBILE B-80 Drilling Method: 4" Auger & HQ Coring
Work Or			3860-							Driving Energy: 140 lb. wt., 30 in. drop

					BS, IN		y.		NO	DRTH-SOUTH ROAD, PHASE 1B F.A.I. PROJ. NO. STP-8930(2) EWA. OAHU. HAWAII 233
ests	- 	(Joc	(%)					a C		Approximate Ground Surface
Other Tests	onter	Dry Unit Weight (p	ore	RQD (9	Penetration Resistance (blows/foot)	Pocket Pen. (tsf)	Depth (feet)	Sample	SOSU	Elevation (feet MSL): 157.5 * Description
o JC=115		91	OR	<u>~</u>	75	>4.5		SE	CH	Brown SILTY CLAY with traces of sand (coralline and basaltic) and organics. very hard, moist (fill)
	15				37	>4.5				grades to hard
	16	90			29/.5'	>4.5	5		CH	
	10	90			+25/.3' Ref.				CH	Dark orangish brown with black mottling SILTY CLAY with traces of organics, very hard, moist (alluvium)
	13				30/.4' Ref.	1.8	10	-		
	16	99			50/.5' Ref.	3.8	15		СН	Brown and light purplish gray SILTY CLAY AND BOULDERS (BASALTIC), very hard, moist
	17				19/.2'	1.5	20		ML- SM	(alluvium)
	•				Ref.			-		
	21				27/.3' Ref.		25	- 1	SM	Brown with black mottling SILTY FINE SAND, very dense, moist (alluvium)
	19				37/.5' +28/.3'	2.5	30		MH	Brown CLAYEY SILT with boulders and gravel (basaltic), very hard, moist (alluvium)
	9				23/.2' Ref.		35	- - -		
	18				50/.4' Ref.		40	-	SM	Dark orangish brown SILTY SAND with traces of clay, very dense, moist (alluvium)
	17				28/.3' Ref.		45	-		
	19				79		50			grades with traces of highly to completely weathered gravel (basaltic) Boring terminated at 51.5 feet
							55	,		
Date Sta Date Cor	mplet	ed:	Janua	ary 25	5, 2006 5, 2006					_ Water Level: ☑ Not Encountered
Logged I Total De			D. Sjo 51.5 f							Drill Rig: CME-75 Drilling Method: 4" Solid-Stem Auger
Date Cor Logged I	mplet 3y: pth:	ed:	Janua D. Sjo	ary 25 olund eet	5, 2006		55			





WAII

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

BORING LOGS-13

<u>North-South Road</u> <u>Phase 1B</u> F.A.I. Proj. No. STP-8930(2)

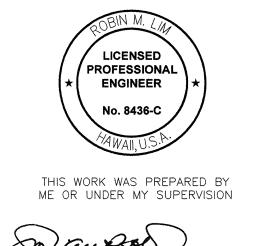
Date: Feb 21, 2007

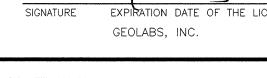
SHEET No. G2.13 OF 27 SHEETS

FED. ROAD	STATE	FED. AID	FISCAL	SHEET	TOTAL
DIST. NO.		PROJ. NO.	YEAR	NO.	SHEETS
HAWAII	HAW.	STP-8930(2)	2007	171	331

					BS, IN	eering	J				DRTH-SOUTH ROAD, PHASE 1B F.A.I. PROJ. NO. STP-8930(2) EWA, OAHU, HAWAII Log of Boring 233A
Other Tests	Moisture Content (%)	Dry Unit Weight (pcf)	Core Recovery (%)	RQD (%)	Penetration Resistance (blows/foot)	Pocket Pen. (tsf)	Depth (feet)	Sample	Graphic	nscs	Approximate Ground Surface Elevation (feet MSL): 155.5 * Description
	15 16	85			40/.3' Ref. 37 48	>4.5 >4.5 >4.5	5			СН	Dark brown with black mottling SILTY CLAY, very hard, dry (alluvium) grades to damp
	19				26	3.5	10			СН	Brown SILTY CLAY with very fine sand, hard, damp (alluvium)
	12	90			25/.3' Ref.		15			SM	grades with rounded gravel (basaltic) Brown with multi-color mottling SILTY SAND with gravel (basaltic), medium dense, damp (alluvium)
	11				40/.3' Ref.		20	-	I	МН	Brown CLAYEY SILT with fine sand and some rounded gravel (basaltic), very hard, dry (alluvium)
	19				53		25			ML	Brown SANDY SILT with gravel and cobbles, very
					20/.3' Ref.		30				hard (alluvium) grades with cobbles (basaltic)
	7			4	30/.5' +10/.0' Ref.		35		000	GM	Brown SILTY GRAVEL with sand, very dense, dry (alluvium)
	17				30/.3' Ref.	>4.5	40			MH	with fine friable sand, very hard, damp (alluvium)
	17				30/.3' Ref.	>4.5	45			ML	Orangish brown with black mottling fine SANDY SILT with traces of clay, very hard, dry (alluvium)
	20				35	>4.5	50			ML	Orangish brown with white mottling fine SANDY SILT with traces of clay, very hard, dry (alluvium) Boring terminated at 51.5 feet
Date Star					2006 2006		<u>55</u>				Water Level: ☑ Not Encountered
Logged B Total Dep Work Ord	By: oth:		Y. Ch 51.5 f 3860-	iba eet							Drill Rig: MOBILE B-80 Drilling Method: 4" Auger Driving Energy: 140 lb. wt., 30 in. drop

					BS, IN Engine		,			DRTH-SOUTH ROAD, PHASE 1B F.A.I. PROJ. NO. STP-8930(2) EWA, OAHU, HAWAII		
Other Tests	Moisture Content (%)	/ Unit sight (pcf)	Core Recovery (%)	RQD (%)	Penetration Resistance (blows/foot)	Pocket Pen. (tsf)	Depth (feet)	Sample	USCS	Approximate Ground Surface Elevation (feet MSL): 154 *		
₹	≗ 8 14	% 94	S & S	RG	호 항 <u>등</u> 40/.5'		De	Sa	SOCH	Description Brown SILTY CLAY, very hard, dry (alluvium)		
	13	0-7		·	+50/.3' Ref.	1						
L=50 PI=31	16	80			75 10/.0' Ref.	>4.5	5					
					,		10	-	СН	Brown with white mottling SILTY CLAY with fine sand, very hard, damp (alluvium)	!	
	18				75	>4.5	10	-				
	14				25/.3' Ref.	>4.5	15		MH	Brown CLAYEY SILT with some gravel (basaltic very hard, damp (alluvium)	;),	
	16	86			30/.3' Ref.	>4.5	20		МН	Brown CLAYEY SILT with fine sand, very hard, damp (alluvium)		
	20				29/.5' +20/.3'	1 1	25 ⁻	-	МН	Orangish brown CLAYEY SILT, very hard, damp (alluvium))	
					Ref.		20	-		grades with some cobbles (basaltic)		
					10/.0' Ref.		30	-		grades with some boulders (basaltic)		
					10/.0' Ref.		35	-				
	19				50/.5' +10/.0'	1 1	40		CH	Orangish brown with black and white mottling SILTY CLAY, very hard, damp (alluvium)		
					Ref.		4	-	МН	Orangish brown CLAYEY SILT, very hard, dry (alluvium)		
·	16				30/.3' Ref.	>4.5	45		ML	Orangish brown fine SANDY SILT with some clavery hard, dry (alluvium)	ay,	
	20				80	>4.5	50	-		Boring terminated at 51.5 feet		
Date Sta	rted:		Janua	arv 10	0, 2006		55·			Water Level: Not Encountered		
Date Cor ₋ogged l	mplete By:	ed:	Janua Y. Ch	ary 10 iba	0, 2006					Drill Rig: MOBILE B-80	-	
Total De Work Or			51.5 f 3860-							Drilling Method: 4" Auger Driving Energy: 140 lb. wt., 30 in. drop		





STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

BORING LOGS-14

<u>North-South Road</u> <u>Phase 1B</u> F.A.I. Proj. No. STP-8930(2)

Date: Feb 21, 2007

SHEET No. G2.14 OF 27 SHEETS

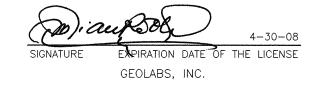
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-8930(2)	2007	172	331

					BS, IN					DRTH-SOUTH ROAD, PHASE 1B F.A.I. PROJ. NO. STP-8930(2) EWA, OAHU, HAWAII
Other Tests	ontent (%)	Dry Unit Weight (pcf)	Core Recovery (%)	RQD (%)	Penetration Resistance (blows/foot)	Pocket Pen. (tsf)	Depth (feet)	Sample	USCS	Approximate Ground Surface Elevation (feet MSL): 136.5 * Description
	20		OR		62 13 43	4.0	5	N N	CH	Orangish brown SILTY CLAY, very hard, dry (alluvium)
					25	>4.5	10-	-	СН	Orangish brown with gray mottling SILTY CLAY with some rounded gravel (basaltic), very hard, damp (alluvium)
					35/.3' Ref.	>4.5	15 ⁻		ML	Orangish brown with black mottling fine SANDY SILT, very hard, dry (alluvium)
					50	3.5	20		CH	Orangish brown SILTY CLAY, hard, damp (alluvium)
	•				35/.3' Ref.	>4.5	25		СН	Orangish brown with black mottling SILTY CLAY, very hard, damp (alluvium)
					10/.0' Ref.	>4.5	30	-		
					20/.3' Ref.		35			
					30/.3' Ref.	>4.5	40		MH	Orangish brown with black mottling CLAYEY SILT with fine sand, very hard, dry (alluvium)
					44/.5' +30/.3' Ref.	1 1	45		СН	Orangish brown SILTY CLAY with fine sand, very hard, damp (alluvium)
706				,	58	>4.5	50 ⁻	-	СН	SILTY CLAY with some gravel (basaltic), very hard, damp (alluvium)
U GEOLABS.GDT 11/17							55·			Boring terminated at 51.5 feet
Date Star Date Con), 2006 , 2006					Water Level: ☑ Not Encountered
Logged B	sy:		Y. Ch	iba	, 2000		-			Drill Rig: MOBILE B-80
Total Dep			51.5 f 3860-							Drilling Method: 4" Auger Driving Energy: 140 lb. wt., 30 in. drop

			_ABS, II nical Engin				DRTH-SOUTH ROAD, PHASE 1B F.A.I. PROJ. NO. STP-8930(2) EWA, OAHU, HAWAII	Log of Boring 236
Other Tests	Content (%) Dry Unit	Weight (pcf) Core Recovery (%)	RQD (%) Penetration Resistance (blows/foot)	Pocket Pen. (tsf)	Depth (feet) Sample	Graphic	Approximate Ground Surface Elevation (feet MSL): 140.5 * Description	
			31 26 36 54	>4.5 >4.5 >4.5	5	MH CH MH	Orangish brown with multi-color mottling CLAY with highly weathered sand (basal hard, dry (alluvium) Orangish brown CLAYEY SILT with very	SILTY tic), very
			10/.0' Ref.		15		very hard, dry (alluvium)	
			30/.3' Ref.	>4.5	20	CH	Orangish brown with white mottling SILT' very hard, damp (alluvium)	Y CLAY,
			15/.0' Ref.	>4.5	25			
			24/.2' Ref.	>4.5	30			
	-		50/.5' Ref.	3.0	35	ML	Reddish brown CLAYEY SILT with traces sand, very hard, moist (alluvium)	s of fine
			30/.2' Ref.	2.0	40			
			53	1.8	45			
			38/.5' +30/.3	1	50		Boring terminated at 51.3 feet	
Date Start	pleted:	Janua	ary 11, 2006 ary 12, 2006		55		Water Level: ☑ Not Encountered	
Logged By Total Dept Work Orde	th:	Y. Ch 51.3 f 3860-		ınd			Drill Rig: MOBILE B-80 Drilling Method: 4" Auger Driving Energy: 140 lb. wt., 30 in. drop	·



THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION



STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

BORING LOGS-15

<u>North-South Road</u> <u>Phase 1B</u> F.A.I. Proj. No. STP-8930(2)

Date: Feb 21, 2007

SHEET No. G2.15 OF 27 SHEETS

FED. ROAD	STATE	FED. AID	FISCAL	SHEET	TOTAL
DIST. NO.		PROJ. NO.	YEAR	NO.	SHEETS
HAWAII	HAW.	STP-8930(2)	2007	173	331

					3S, IN) .			DRTH-SOUTH ROAD, PHASE 1B F.A.I. PROJ. NO. STP-8930(2) EWA, OAHU, HAWAII
Other Tests	Moisture Content (%) Dry Unit	ight (pcf)	Recovery (%)	RQD (%)	Penetration Resistance (blows/foot)	Pocket Pen. (tsf)	Depth (feet)	Sample Graphic	SS	Approximate Ground Surface Elevation (feet MSL): 135 *
Ö	Moistur Content Dry Uni	Co.	Rec	RQ	Per Res (blo	Poc (tsf)	Dep	Sar Gra	SOSOT	Description Dark brown SILTY CLAY with gravel (basaltic) and
					55	>4.5	-	X	OII	traces of sand (coralline and basaltic), hard, moist (fill)
					19	>4.5	-			grades to very stiff
					29	>4.5	5-	X	МН	Brown CLAYEY SILT with traces of sand (coralline), very stiff, moist (fill)
					19	4.0	10-		MH	Dark brown CLAYEY SILT with fine sand, very stiff, moist (alluvium)
					30/.3' Ref.	>4.5	15-			grades to very hard
					41		20-		ML	Dark brown CLAYEY SILT with fine sand, very stiff damp (alluvium)
					15/.1' Ref.		25-			grades to very hard
					45		30-		SM	Dark brown and gray SILTY SAND with traces of highly weathered gravel (basaltic), very dense, moist (alluvium)
	·				25/.2' Ref.	3.0	35-		ML	Dark brown CLAYEY SILT with fine sand and cobbles (basaltic), very stiff, moist (alluvium)
					31/.3' Ref.	>4.5	40-		СН	Dark brown SILTY CLAY, very hard, moist (alluvium)
					25/.2' Ref.	>4.5	45- -			
					22/.3' Ref.	>4.5	50-			Boring terminated at 50.3 feet
				and the second second			55-			
Date Sta					, 2006 , 2006					Water Level: ☑ Not Encountered
Logged I Total De	Зу:	D.	Sjol .3 fe	und						Drill Rig: CME-75 Drilling Method: 4" Solid-Stem Auger
Work Or			.3 1 <u>e</u> 60-3							Driving Energy: 140 lb. wt., 30 in. drop

Other Tests	Moisture Content (%)	y Clill. eight (pcf)	ry (%)		C 40 E					EWA, OAHU, HAWAII 238
0 .		5 >	Core Recovery (%)	RQD (%)	Penetration Resistance (blows/foot)	Pocket Pen. (tsf)	Depth (feet)	Sample Graphic	nscs	Approximate Ground Surface Elevation (feet MSL): 138 * Description
		25	OR	<u> </u>	15/.0' Ref. 29	>4.5 >4.5		S	CH	Dark brown and light gray SILTY CLAY with grave (basaltic) and traces of sand (basaltic), very hard moist (fill) grades to very stiff
					50/.4' Ref.	>4.5	5		СН	Dark brown SILTY CLAY with traces of sand (basaltic) and organics, very hard, moist (fill)
					71	>4.5	10		СН	Dark brown SILTY CLAY with some sand and boulders, very hard, moist (alluvium)
				·	50/.5' Ref.		15 ⁻		SM	Brown SILTY FINE SAND, very dense, damp (alluvium)
					63		20-	-		
					50/.4' Ref.		25	=	MH	Brown and orangish brown with black mottling
					30/.4' Ref.	1.8	30	-		CLAYEY SILT with fine sand, very stiff, moist (alluvium)
					28/.3' Ref.	1.5	35-			
					50/.3' Ref.		40	-		
					32/.2' Ref.		45	-		
					22/.3' Ref.	1.3	50			Boring terminated at 50.3 feet
Date Start	ted:	J	Janua	ary 16	5, 2006		<u>55</u> .			Water Level: ☑ Not Encountered
Date Com Logged By	npleted	l: J		ary 16	, 2006					Drill Rig: CME-75
Total Dep			50.3 f					<u> </u>		Drilling Method: 4" Solid-Stem Auger



SIGNATURE EXPIRATION DATE OF THE LICENS
GEOLABS, INC.

DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

BORING LOGS-16

<u>North-South Road</u> <u>Phase 1B</u> F.A.I. Proj. No. STP-8930(2)

Date: Feb 21, 2007

SHEET No. G2.16 OF 27 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-8930(2)	2007	174	331

			echi	nical	BS, IN		,		N	ORTH-SOUTH ROAD, PHASE 1B F.A.I. PROJ. NO. STP-8930(2) EWA, OAHU, HAWAII Log of Boring 239
Other Tests	Moisture Content (%)		Core Recovery (%)	RQD (%)	Penetration Resistance (blows/foot)	Pocket Pen. (tsf)	Depth (feet)	Sample	USCS	Approximate Ground Surface Elevation (feet MSL): 64 * Description
	15				34	>4.5			СН	Dark brown SILTY CLAY with tan-white sand (coralline) and traces of gravel, hard, moist (fill)
	17	80			78	>4.5				grades to very hard
	18				38	>4.5	5		CL	Brown SILTY CLAY, hard, moist (alluvium)
										,
LL=46 PI=28	15	102			37/.5' +29/.3'	1 1	10			grades to very hard
			40	17	13/.0' Ref.		15		* * * * * *	Light gray, orangish tan and white CORAL, moderately weathered, hard (coral formation)
UC=470			22	18			20	- * * * * * * * * * * * * * * * * * * *	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	
	14		0	0	46		25	- * * * * * * * * * * * * * * * * * * *	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	
	4		0	0	18		30	**	~	Light gray and white CORAL, moderately weathered, medium hard (coral formation)
	8	,	0	0	31		35	- * * * * * * * * * * * * * * * * * * *	*	grades to tan and white, hard
	5		19	10	25		40	***	*	White and tan CORAL, moderately weathered,
			23	13	13/.0' Ref.		45	*	\$\frac{1}{4} \text{ \ \text{ \text{ \text{ \text{ \text{ \text{ \text{ \text{ \text{ \	hard (coral formation)
							50	-	*	Boring terminated at 50 feet
Date Sta	rted:		Janua	ary 17	7, 2006		55			Water Level: ☑ Not Encountered
Date Cor Logged B			Janua D. Sje		7, 2006					Drill Rig: CME-75
Total De	oth:		50 fee	et						Drilling Method: 4" Solid-Stem Auger & HQ Coring Driving Energy: 140 lb. wt., 30 in. drop

		Geot	echr	nical	3S, IN Engine					DRTH-SOUTH ROAD, PHASE 1B F.A.I. PROJ. NO. STP-8930(2) EWA, OAHU, HAWAII Log of Boring 240
Other Tests	Moisture Content (%)	Dry Unit Weight (pcf)	Core Recovery (%)	RQD (%)	Penetration Resistance (blows/foot)	Pocket Pen. (tsf)	Depth (feet)	Sample Graphic	nscs	Approximate Ground Surface Elevation (feet MSL): 64.5 * Description
		107 93			44/.5' +25/.3' 53 25/.3' Ref.	>4.5 >4.5		X	CH	Dark brown SILTY CLAY with gravel (coralline), very hard, moist (fill/alluvium) Dark brown SILTY CLAY, very hard, moist (alluvium)
	18				55	>4.5	10			
	2				18/.1' Ref.		15	* * * * * * * * * * * * * * * * * * * *		White and tan CORAL, moderately weathered, medium hard (coral formation)
					12/.0' Ref.		20-			
	3				28/.3' Ref.	·	25-	*		White CORAL, moderately to highly weathered, medium hard (coral formation)
	6				19		30-	* * * * * * * * * * * * * * * * * * *		
	5				26		35	****		
	5				25		40	***		
	6				18/.3' Ref.		45	***		
	6				25		50	***		Boring terminated at 51.5 feet
						·	55-			
Date Start Date Com Logged By Total Dept	plete y:	ed:		ary 12 olund	2, 2006 2, 2006					Water Level: ☑ Not Encountered Drill Rig: MOBILE B-80 Drilling Method: 4" Solid-Stem Auger



SIGNATURE EXPIRATION DATE OF THE LICEN
GEOLABS, INC.

DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

BORING LOGS-17

<u>North-South Road</u> <u>Phase 1B</u> F.A.I. Proj. No. STP-8930(2)

Date: Feb 21, 2007

SHEET No. G2.17 OF 27 SHEETS

FED. ROAD	STATE	FED. AID	FISCAL	SHEET	TOTAL
DIST. NO.		PROJ. NO.	YEAR	NO.	SHEETS
HAWAII	HAW.	STP-8930(2)	2007	175	331

					BS, IN Engine					NORTH-SOUTH ROAD, PHASE 1B F.A.I. PROJ. NO. STP-8930(2) EWA, OAHU, HAWAII Log of Boring 241		
Other Tests	Moisture Content (%))ct)	у (%)		Penetration Resistance (blows/foot)		Depth (feet)	Sample Graphic	SOSO	Approximate Ground Surface Elevation (feet MSL): 66 *		
<u> </u>	žŏ	٤۵	0 %	Ä			۵	S	MH	Description Brown CLAYEY SILT with traces of sand		
					44	2.5				(coralline), hard, moist (fill)		
		·			16	2.0	5.	-		grades to stiff, damp		
					40	>4.5	J	-	СН	Brown SILTY CLAY with traces of sand, hard, moist (alluvium)		
					19	>4.5	10	-		grades to very stiff		
					0.44.01		15 ⁻		СН	Brown SILTY CLAY, very hard, moist (alluvium)		
			63	18	24/.3' Ref.	>4.5	.0	- * * * * · * · * · * · · · · · · · · ·	*	Light tan and white CORAL, moderately weathered hard (coral formation)		
			60	20			20		* * * * * * * * * * * * * * * * * * * *	grades to white		
			20	8			25 ⁻		* * * * * * *			
					21		30		* * * * * * * * * * * * * * * * * * * *			
			24	10	4.4		35	- * * * * * * * * * * * * * * * * * * *	* *	White CORAL, moderately weathered, hard (coral formation)		
			14	0	44				* * * *			
			0	0	16		40	- * * * * * * * * * * * * * * * * * * *	* * * *			
				•	15/.4'		45 ⁻		* * *			
			22	12	Ref.			- * * * * * * * * * * * * * * * * * * *	* * *			
							50	* * - - -	*	Boring terminated at 50.5 feet		
							55·					
Date Sta					7, 2006 7, 2006					Water Level: ☑ Not Encountered		
Logged I	Зу:		D. Sjo	olund	, 2000					Drill Rig: CME-75		
Total De Work Or		······	50.5 f 3860-	······						Drilling Method: 4" Solid-Stem Auger & HQ Coring Driving Energy: 140 lb. wt., 30 in. drop		

					3S, IN		ı			DRTH-SOUTH ROAD, PHASE 1B F.A.I. PROJ. NO. STP-8930(2) EWA, OAHU, HAWAII Log o Boring 242	g
Other Tests	sture Itent (%)	Dry Unit Weight (pcf)	Core Recovery (%)	RQD (%)	Penetration Resistance (blows/foot)	Pocket Pen. (tsf)	th (feet)	Sample Graphic	SS	Approximate Ground Surface Elevation (feet MSL): 65 *	
Oth	Moi	Dry Wei	Core	RQI	Pen Res (blo	Poc (tsf)	Depth	San	Soso	Description Drawn Cll TV Cl AV with traces of send (senalling	
LL=45	16	89	,		55	>4.5			CL	Brown SILTY CLAY with traces of sand (coralline and basaltic), hard, moist (fill)	3
PI=26	15				45	>4.5					
	17	95			50/.4' Ref.	>4.5	5		СН	Brown SILTY CLAY, very hard, moist (alluvium)	
	19				47	>4.5	10	-			
	13				26/.2' Ref.		15		SM	Brown SILTY FINE AND MEDIUM SAND, very dense, damp (alluvium)	
	6				55		20	- * * * * * * * * * * * * * * * * * * *		Tan and white CORAL, moderately weathered, hard (coral formation)	
			38	0			25				
	8		70	56	10/.0' Ref.			*** ***		Grayish white and yellowish tan CORAL,	
		·	23	8			30	- * * * * * * * * * * * * * * * * * * *		moderately weathered, hard (coral formation)	
	0				24/21		35	- * * * * * * * * * * * * * * * * * * *			
	0		13	0	24/.3' Ref.			- * * * * * * * * * * * * * * * * * * *			
	2		5	0	26		40				
	12				12		45				
			29	0			50·	- * * * * * * * * * * * * * * * * * * *		Grayish tan to light tan CORAL, moderately weathered, hard (coral formation)	
	6				16/.3' Ref.		JU	-		Boring terminated at 50.8 feet	
Data Ota	pto al		lan		2000		55			Wotor Lovely - Not Engage to a	
Date Sta	mplet	ed:	Janua	ary 18	3, 2006 3, 2006					Water Level: ☑ Not Encountered	
Logged I Total De	pth:		D. Sjo 50.8 f	eet						Drill Rig: CME-75 Drilling Method: 4" Solid-Stem Auger & HQ Coring	
Work Or	der:		3860-	30						Driving Energy: 140 lb. wt., 30 in. drop	



SIGNATURE EXPIRATION DATE OF THE LICE

GEOLABS, INC.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

BORING LOGS-18

<u>North-South Road</u> <u>Phase 1B</u> F.A.I. Proj. No. STP-8930(2)

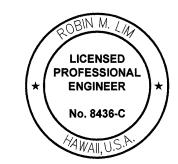
Date: Feb 21, 2007

SHEET No. G2.18 OF 27 SHEETS

FED. ROAD	STATE	FED. AID	FISCAL	SHEET	TOTAL
DIST. NO.		PROJ. NO.	YEAR	NO.	SHEETS
HAWAII	HAW.	STP-8930(2)	2007	176	331

					3S, IN Engine					DRTH-SOUTH ROAD, PHASE 1B F.A.I. PROJ. NO. STP-8930(2) EWA, OAHU, HAWAII
Other Tests	Moisture Content (%)	Dry Unit Weight (pcf)	Core Recovery (%)	RQD (%)	Penetration Resistance (blows/foot)	Pocket Pen. (tsf)	Depth (feet)	Sample	S	Approximate Ground Surface Elevation (feet MSL): 66.5 *
Oth	™	Dry	Cor	RQ	34	>4.5	Dek	Sar	SDSN CH	Description Brown SILTY CLAY with traces of sand (coralline) and organics, very stiff, moist (fill/alluvium)
					29	>4.5				
					50/.5' Ref.	>4.5	5		СН	Dark brown SILTY CLAY with traces of fine sand, very hard, moist (alluvium)
					48	>4.5	10			
					20/.1' Ref.	>4.5	15	***	***	Light tan CORAL, moderately weathered, hard (coral formation)
			25	0	32/.5' +12/.0' Ref.		20-		*	(Coral formation)
			53	27	14/.0' Ref.		25-	- * * * * * * * * * * * * * * * * * * *	\$ \$ \$ \$ \$	White CORAL, slightly to moderately weathered, hard (coral formation)
			12	8			30-	-	* * * * * * * * * * * * * * * * * * *	
			0	0	37		35-		* * * * * * * * * * * * * * * * * * *	
			0	0	19		40-		\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	
			0	0	19		45	- * * * * * * * * * * * * * * * * * * *	*	
					23		50-	***	\$ \$ \$ \$	Grayish tan CORAL, moderately weathered, hard (coral formation) Boring terminated at 51.5 feet
							55	_		
Date Sta Date Cor	nplet	ed:	Janua	ary 20), 2006), 2006					Water Level: ☑ Not Encountered Drill Rig: CME-75
Logged E Total Der			D. Sjo 51.5 f 3860-	eet						Drill Rig: CME-75 Drilling Method: 4" Solid-Stem Auger & HQ Coring Driving Energy: 140 lb. wt., 30 in. drop

				BS, IN Engine					IORTH-SOUTH ROAD, PHASE 1B F.A.I. PROJ. NO. STP-8930(2) EWA, OAHU, HAWAII Log of Boring 244			
Other Tests	Moisture Content (%) Dry Unit Weight (pcf)	Core Recovery (%)	RQD (%)	Penetration Resistance (blows/foot)	Pocket Pen. (tsf)	Depth (feet)	pple ohic	<u> </u>	Approximate Ground Surface Elevation (feet MSL): 68 *			
Oth	Moistur Content Dry Uni Weight	Core	RQI			Dep	Sample Graphic	SOSOH	Description Brown with black mottling SILTY CLAY, very ha	ard		
				79	>4.5	_	X		moist (alluvium)			
				44	>4.5	5-			grades to hard			
				50/.5' Ref.	>4.5	- - -	X		grades to very hard			
				40	>4.5	10-		СН	Brown SILTY CLAY, very stiff, moist (alluvium)			
				50/.4' Ref.	>4.5	15-	* * * * *	-	grades to very hard White and light tan CORAL, moderately weathe hard (coral formation)	ere		
		53	23	14/.0' Ref.		20-	*					
		27	10			25- -	*					
				18		30-	* * * * * * * * * * * *					
		43	17				,		White SILTY GRAVEL (CORALLINE), loose to medium dense, moist (coralline detritus)			
		0	0	10		35-	* * * * * * * * *					
						40-	*					
		0	0	20		T U -	* * * * * * * * * * * * * * * * * * * *		Light tan CORAL, moderately weathered, hard (coral formation)			
				16		45-	*					
,		5	0				*		White CORAL, moderately weathered, hard (co formation)	ra		
				19		50-	* * * * * * * * * * * * * * * * * * * *		Boring terminated at 51.5 feet			
Date Sta	rted:	Janu	ary 18	3, 2006		55-			Water Level: ☑ Not Encountered			
Date Cor Logged B	·····		ary 18 olund	3, 2006					Drill Rig: CME-75			
Total De		51.5 3860	feet						Drilling Method: 4" Solid-Stem Auger & HQ Coring Driving Energy: 140 lb. wt., 30 in. drop			





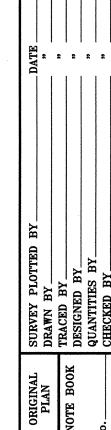
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

BORING LOGS-19

<u>North-South Road</u> <u>Phase 1B</u> F.A.I. Proj. No. STP-8930(2)

Date: Feb 21, 2007

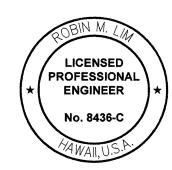
SHEET No. G2.19 OF 27 SHEETS



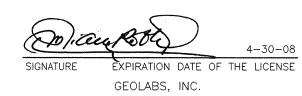
FED. ROAD	STATE	FED. AID	FISCAL	SHEET	TOTAL
DIST. NO.		PROJ. NO.	YEAR	NO.	SHEETS
HAWAII	HAW.	STP-8930(2)	2007	177	331

	ı		echr		3S, IN Engine				N	DRTH-SOUTH ROAD, PHASE 1B F.A.I. PROJ. NO. STP-8930(2) EWA, OAHU, HAWAII Log Bori	ng
Other Tests	Moisture Content (%)	ollit ight (pcf)	Core Recovery (%)	RQD (%)	Penetration Resistance (blows/foot)	Pocket Pen. (tsf)	Depth (feet)	Sample Graphic	nscs	Approximate Ground Surface Elevation (feet MSL): 68 *	
Ö	8 888	בֿ≷	Co	RQ	Pe B Si	Po (tsf	De	Sal	Sh	Description Brown SILTY CLAY with traces of organics, ver	`V
					26	>4.5				stiff, dry to moist (alluvium)	
					18	>4.5	E				
					50/.4' Ref.	>4.5	.5	- -		grades to very hard	
					39	>4.5	10	-	СН	Brown SILTY CLAY, hard, moist (alluvium)	
			·		10/.0' Ref.	>4.5	15			grades to very hard Orangish brown and tan CORAL, moderately	
					39		20			weathered, hard (coral formation)	
					25		25				
					20		30			grades to grayish white	
					35		35	***		Tannish white CORAL, moderately weathered, hard (coral formation)	
					26/.3' Ref.		40	- * * * * * * * * * * * * * * * * * * *		grades to grayish white	
					29		45	****			
					26		50	- * * * * * * * * * * * * * * * * * * *		Boring terminated at 51.5 feet	
							55				
Date Star Date Com), 2006), 2006					Water Level: ☑ Not Encountered	
Logged B	y:		D. Sjo	olund	, 2000					Drill Rig: CME-75	
Total Dep Work Ord			<u>51.5 f</u> 3860-							Drilling Method: 4" Solid-Stem Auger Driving Energy: 140 lb. wt., 30 in. drop	

				BS, IN			NORTH-SOUTH ROAD, PHASE 1B F.A.I. PROJ. NO. STP-8930(2) EWA, OAHU, HAWAII Log o Boring 246					
Other Tests	Moisture Content (%) Dry Unit Weight (pcf)	Core Recovery (%)	(%) Q	Penetration Resistance (blows/foot)	Pocket Pen. (tsf)	Depth (feet)_Sample	Graphic	S	Approximate Ground Surface Elevation (feet MSL): 68 *			
Otto	Moj Wej	Core	RQD	등 등 등 등 등 등 등 등 등 등 등 등 등 등 등 등 등 등 등	>4.5	Dep	Gra	SOSULT H	Description Brown SILTY CLAY with traces organics, moist (alluvium)	very stiff		
	,			36	>4.5				grades to hard			
				35/.3' Ref.	>4.5	5			grades to very hard			
				38	>4.5	10	C	СН	Brown SILTY CLAY, hard, moist (alluvium	٦)		
						15	S	SM	Dark orangish brown SILTY FINE SAND, dense, damp (alluvium)	very		
				35/.5' Ref.		-	* * * * * * * * * * * * * * * * * * *		Tan and white CORAL, moderately weath hard (coral formation)	nered,		
		29	0	22		20	*					
		42	11	34		25	*		Mhite CODAL we ado not a live and the area of the	and (a anal		
		43	14	33		30	\$ \$ \$ \$ \$ \$ \$ \$ \$		White CORAL, moderately weathered, ha formation)	ıra (corai		
		19	10	33		-	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$					
		0	0	14		35	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$					
			•	12		40	,					
		0	0	10/ 11		45	*		aradas to light gravish white			
		11	0	18/.4' Ref.			\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$		grades to light grayish white Grayish white and tan CORAL, moderatel weathered, hard (coral formation)	ly		
				27		50	*		Boring terminated at 51.5 feet			
						55						
Date Start Date Com			E	9, 2006 9, 2006					Water Level: ☑ Not Encountered			
Logged By Total Dep		D. Sjo 51.5 f							Drill Rig: CME-75 Drilling Method: 4" Solid-Stem Auger & HQ Cor	rina		



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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

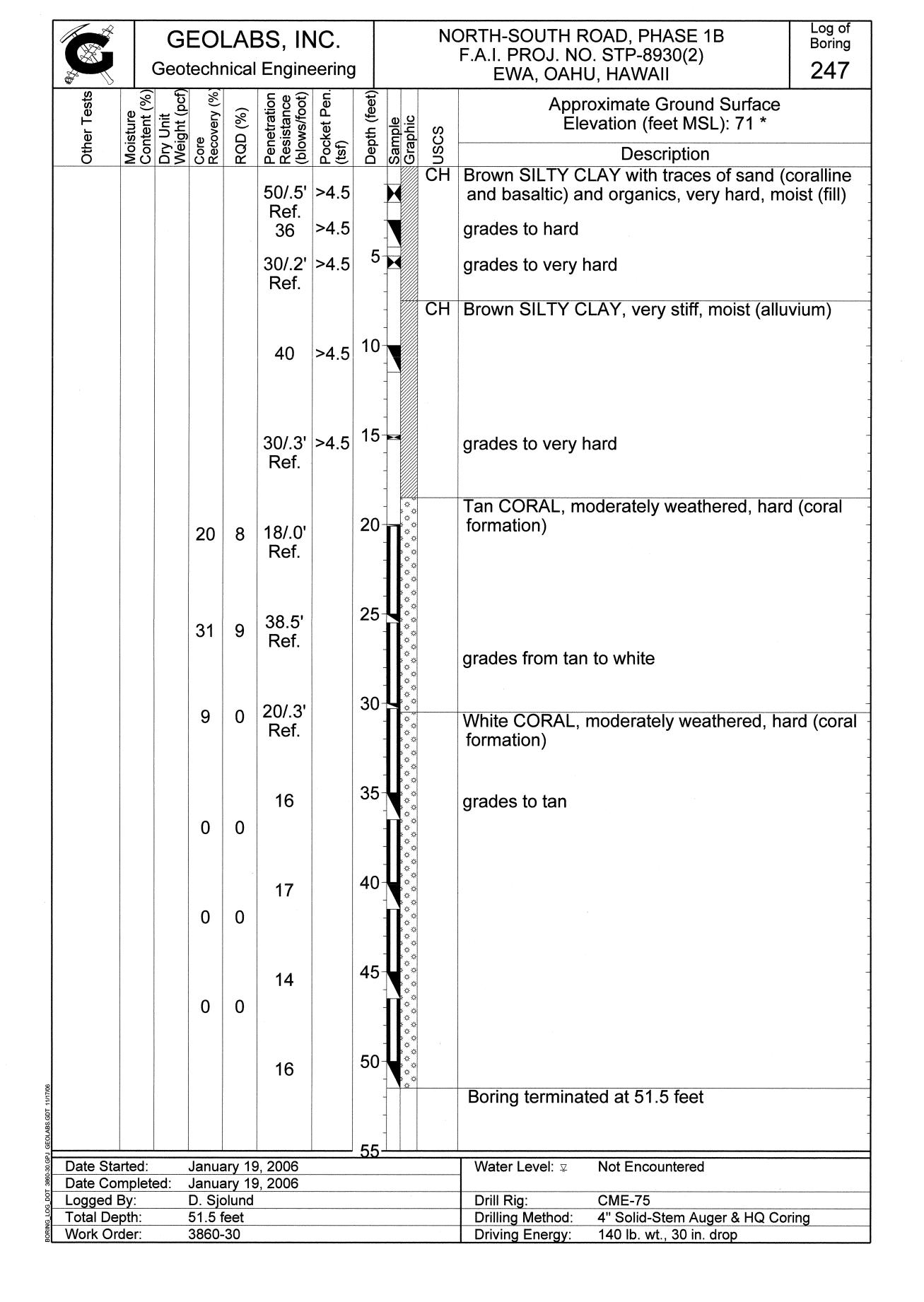
BORING LOGS-20

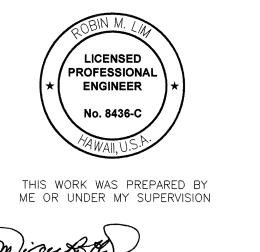
<u>North-South Road</u> <u>Phase 1B</u> F.A.I. Proj. No. STP-8930(2)

Date: Feb 21, 2007

SHEET No. G2.20 OF 27 SHEETS

FED. ROAD	STATE	FED. AID	FISCAL	SHEET	TOTAL
DIST. NO.		PROJ. NO.	YEAR	NO.	SHEETS
HAWAII	HAW.	STP-8930(2)	2007	178	331







BORING LOGS-21

HIGHWAYS DIVISION

<u>North-South Road</u> <u>Phase 1B</u> F.A.I. Proj. No. STP-8930(2)

Date: Feb 21, 2007

SHEET No. G2.21 OF 27 SHEETS