


FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-0300(144)	2023	171	175



GEOLABS, INC.
Geotechnical Engineering

Soil Log Legend

UNIFIED SOIL CLASSIFICATION SYSTEM (USCS)

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

NOTE: DUAL SYMBOLS ARE USED TO INDICATE BORDERLINE SOIL CLASSIFICATIONS

LEGEND

(2-INCH) O.D. STANDARD PENETRATION TEST

(3-INCH) O.D. MODIFIED CALIFORNIA SAMPLE

SHELBY TUBE SAMPLE

GRAB SAMPLE

CORE SAMPLE

WATER LEVEL OBSERVED IN BORING AT TIME OF DRILLING

WATER LEVEL OBSERVED IN BORING AFTER DRILLING

WATER LEVEL OBSERVED IN BORING OVERNIGHT

LL LIQUID LIMIT (NP=NON-PLASTIC)

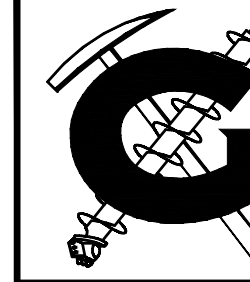
PI PLASTICITY INDEX (NP=NON-PLASTIC)

TV TORVANE SHEAR (tsf)

UC UNCONFINED COMPRESSION OR UNIAXIAL COMPRESSIVE STRENGTH

TXUU UNCONSOLIDATED UNDRAINED TRIAXIAL COMPRESSION (ksf)

Plate
A-0.1



GEOLABS, INC.
Geotechnical Engineering

Soil Classification Log Key
(with deviations from ASTM D2488)

GEOLABS, INC. CLASSIFICATION*

GRANULAR SOIL (- #200 <50%)		COHESIVE SOIL (- #200 ≥ 50%)	
<ul style="list-style-type: none">PRIMARY constituents are composed of the largest percent of the soil mass. Primary constituents are capitalized and bold (i.e., GRAVEL, SAND)SECONDARY constituents are composed of a percentage less than the primary constituent. If the soil mass consists of 12 percent or more fines content, a cohesive constituent is used (SILTY or CLAYEY); otherwise, a granular constituent is used (GRAVELLY or SANDY) provided that the secondary constituent consists of 20 percent or more of the soil mass. Secondary constituents are capitalized and bold (i.e., SANDY GRAVEL, CLAYEY SAND) and precede the primary constituent.accessory descriptions compose of the following:<ul style="list-style-type: none">with some: >12%with a little: 5 - 12%with traces of: <5%accessory descriptions are lower cased and follow the Primary and Secondary Constituents (i.e., SILTY GRAVEL with a little sand)	<ul style="list-style-type: none">PRIMARY constituents are based on plasticity. Primary constituents are capitalized and bold (i.e., CLAY, SILT)SECONDARY constituents are composed of a percentage less than the primary constituent, but more than 20 percent of the soil mass. Secondary constituents are capitalized and bold (i.e., SANDY CLAY, SILTY CLAY, CLAYEY SILT) and precede the primary constituent.accessory descriptions compose of the following:<ul style="list-style-type: none">with some: >12%with a little: 5 - 12%with traces of: <5%accessory descriptions are lower cased and follow the Primary and Secondary Constituents (i.e., SILTY CLAY with some sand)		
EXAMPLE: Soil Containing 60% Gravel, 25% Sand, 15% Fines. Described as: SILTY GRAVEL with some sand			

RELATIVE DENSITY / CONSISTENCY

Granular Soils			Cohesive Soils		
N-Value (Blows/Foot)		Relative Density	N-Value (Blows/Foot)		Consistency
SPT	MCS		SPT	MCS	
0 - 4	0 - 7	Very Loose	0 - 2	0 - 4	Very Soft
4 - 10	7 - 18	Loose	2 - 4	4 - 7	Soft
10 - 30	18 - 55	Medium Dense	4 - 8	7 - 15	Medium Stiff
30 - 50	55 - 91	Dense	8 - 15	15 - 27	Stiff
> 50	> 91	Very Dense	15 - 30	27 - 55	Very Stiff
			> 30	> 55	Hard

MOISTURE CONTENT DEFINITIONS

Dry: Absence of moisture, dry to the touch

Moist: Damp but no visible water

Wet: Visible free water, usually soil is below water table

GRAIN SIZE DEFINITION

Description	Sieve Number and / or Size
Boulders	> 12 inches (305-mm)
Cobbles	3 to 12 inches (75-mm to 305-mm)
Gravel	3-inch to #4 (75-mm to 4.75-mm)
Coarse Gravel	3-inch to 3/4-inch (75-mm to 19-mm)
Fine Gravel	3/4-inch to #4 (19-mm to 4.75-mm)
Sand	#4 to #200 (4.75-mm to 0.075-mm)
Coarse Sand	#4 to #10 (4.75-mm to 2-mm)
Medium Sand	#10 to #40 (2-mm to 0.425-mm)
Fine Sand	#40 to #200 (0.425-mm to 0.075-mm)

Plate
A-0.2

ABBREVIATIONS

WOH: Weight of Hammer

WOR: Weight of Drill Rods

SPT: Standard Penetration Test Split-Spoon Sampler

MCS: Modified California Sampler

PP: Pocket Penetrometer

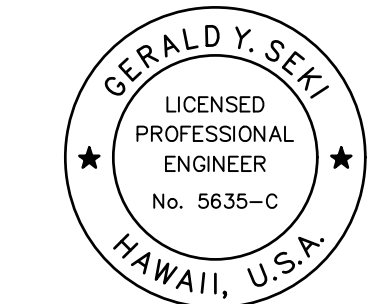
*Soil descriptions are based on ASTM D2488-09a, Visual-Manual Procedure, with the above modifications by Geolabs, Inc. to the Unified Soil Classification System (USCS).

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

DRAWING NAME: A\1\DRAWING\DRAWING\WORKING\7341-00\INTERSTATE_ROUTE_H-1_L_&_H201_SIGN_UPGRADE\7341-00SHEETBORINGLOGS.DWG PLOT TIME: 09-30-22, 8:55 AM

LOG LEGEND FOR SOIL 7341-00.GPJ GEOLABS.GDT 12/19/18

SOIL CLASS LOG KEY 7341-00.GPJ GEOLABS.GDT 12/19/18



THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

SIGNATURE: *Gerald Y. Seki* EXPIRATION DATE: 04/2024 OF THE LICENSE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION


BORING LOG LEGENDS

INTERSTATE ROUTE H-1 AND H-201
DESTINATION SIGN UPGRADE/REPLACEMENT, PHASE 3
FAP NO. NH-0300(144)

Scale: None Date: September 2022

SHEET No. G-1 OF 5 SHEETS




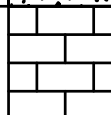

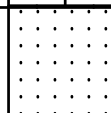
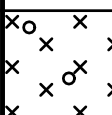
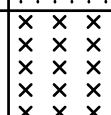

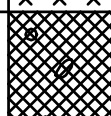

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-0300(144)	2023	172	175



GEOLABS, INC.
Geotechnical Engineering

Rock Log Legend

ROCK DESCRIPTIONS

	BASALT		CONGLOMERATE
	BOULDERS		LIMESTONE
	BRECCIA		SANDSTONE
	CLINKER		SILTSTONE
	COBBLES		TUFF
	CORAL		VOID/CAVITY

ROCK DESCRIPTION SYSTEM

ROCK FRACTURE CHARACTERISTICS

The following terms describe general fracture spacing of a rock:

Massive:

Greater than 24 inches apart

Slightly Fractured:

12 to 24 inches apart

Moderately Fractured:

6 to 12 inches apart

Closely Fractured:

3 to 6 inches apart

Severely Fractured:

Less than 3 inches apart

DEGREE OF WEATHERING

The following terms describe the chemical weathering of a rock:

Unweathered:

Rock shows no sign of discoloration or loss of strength.

Slightly Weathered:

Slight discoloration inwards from open fractures.

Moderately Weathered:

Discoloration throughout and noticeably weakened though not able to break by hand.

Highly Weathered:

Most minerals decomposed with some corestones present in residual soil mass. Can be broken by hand.

Extremely Weathered:

Saprolite. Mineral residue completely decomposed to soil but fabric and structure preserved.

HARDNESS

The following terms describe the resistance of a rock to indentation or scratching:

Very Hard:

Specimen breaks with difficulty after several "pinging" hammer blows.
Example: Dense, fine grain volcanic rock

Hard:

Specimen breaks with some difficulty after several hammer blows.
Example: Vesicular, vugular, coarse-grained rock

Medium Hard:

Specimen can be broke by one hammer blow. Cannot be scraped by knife. SPT may penetrate by ~25 blows per inch with bounce.
Example: Porous rock such as clinker, cinder, and coral reef

Soft:

Can be indented by one hammer blow. Can be scraped or peeled by knife. SPT can penetrate by ~100 blows per foot.
Example: Weathered rock, chalk-like coral reef

Very Soft:

Crumbles under hammer blow. Can be peeled and carved by knife. Can be indented by finger pressure.
Example: Saprolite

Plate
A-0.3

GEOTECHNICAL NOTES:

1. A geotechnical engineering report entitled "Geotechnical Engineering Exploration, Interstate Route H-1 and H-201, Destination Sign Upgrade/Replacement, Phase 3, FAP No. NH-0300 (144), Island Of Oahu, Hawaii" dated February 3, 2022 has been prepared by Geolabs, Inc. A copy of the report is on file at the office of the Engineer for review by the Contractor.

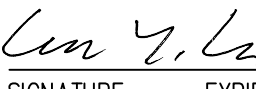
2. For boring locations, see Sheets R-1, R-3, R-5, R-6, R-10, and R-11.

3. The information presented in the logs of borings depict the subsurface conditions encountered at that specified location and at the time of the field exploration only. Variations of subsoil conditions from those depicted in the logs of borings may occur between and beyond the borings.

4. The penetration resistance shown on the logs of borings indicate the number of blows required for the specific sampler type used. The blow counts may need to be factored to obtain the Standard Penetration Test (SPT) blow counts.

5. The data given is for general information only. Bidders shall examine the site and the boring data and draw their own conclusions therefrom as to the character of materials to be encountered. The Engineer will not assume responsibility for variations of subsoil quality or conditions other than at the boring locations shown and at the time the borings were taken.

THIS WORK WAS PREPARED BY ME
OR UNDER MY SUPERVISION.

 04/2024
SIGNATURE EXPIRATION DATE
OF THE LICENSE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

BORING LOG LEGEND & NOTES


INTERSTATE ROUTE H-1 AND H-201
DESTINATION SIGN UPGRADE/REPLACEMENT, PHASE 3
FAP NO. NH-0300(144)

Scale: None Date: September 2022

SHEET No. G-2 OF 5 SHEETS

172

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
<i>HAWAII</i>	<i>HAW.</i>	<i>NH-0300(144)</i>	<i>2023</i>	<i>173</i>	<i>175</i>

		GEOLABS, INC. Geotechnical Engineering					INTERSTATE ROUTE H-1 AND H-201 DESTINATION SIGN UPGRADE/REPLACEMENT, PHASE 3 FAP NO. NH-0300 (144) ISLAND OF 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 Graphic	USCS	Approximate Ground Surface Elevation : N/A			
										Description			
	9								GM	4-inch ASPHALTIC CONCRETE			
	16								ML	Gray SILTY GRAVEL (BASALTIC) with some sand (basaltic), moist (fill)			
	26	70			53/4"		5			Brown SANDY SILT with some gravel (basaltic) (fill)			
	38				22/6" +50/2"		10		ML	Grayish brown TUFF, medium hard (volcanic tuff)			
										Brown SANDY SILT with a little gravel, very stiff, moist (weathered volcanic tuff)			
UC= 2460 psi			100	100			15			Grayish brown TUFF, moderately to closely fractured, slightly weathered, medium hard (volcanic tuff)			
UC= 1810 psi			92	77			20			grades to slightly fractured			
			100	48			25			Grayish brown TUFF, severely fractured, highly weathered, soft (volcanic tuff)			
			92	35			30			Grayish brown TUFF, closely fractured, slightly weathered, medium hard (volcanic tuff)			
							35			Boring terminated at 31 feet			
Date Started: March 27, 2018							Water Level: 11.5 ft. 03/27/2018 1303 HRS						
Date Completed: March 27, 2018													
Logged By: N. Vaiana							Drill Rig: CME-75DG2						
Total Depth: 31 feet							Drilling Method: 4" Solid Stem Auger & PQ Coring						
Work Order: 7341-00							Driving Energy: 140 lb. wt., 30 in. drop						

GEOLABS, INC. Geotechnical Engineering							INTERSTATE ROUTE H-1 AND H-201 DESTINATION SIGN UPGRADE/REPLACEMENT, PHASE 3 FAP NO. NH-0300 (144) ISLAND OF OAHU, HAWAII				Log of Boring 2
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 : N/A	
UC= 1090 psi	12						0	GM	GM	4-inch ASPHALTIC CONCRETE	
	14						0	GM	GM	Brownish gray SILTY GRAVEL (BASALTIC) with some sand (basaltic), moist (fill)	
	31		100	20	10/0" Ref.		5			Brown SILTY GRAVEL (BASALTIC) with some sand (basaltic), moist (fill)	
			100	60			10			Grayish brown TUFF, severely to closely fractured, slightly weathered, medium hard (volcanic tuff)	
			100	48			15			grades to moderately fractured	
UC= 1410 psi			100	5			20			grades to closely fractured	
			100	5			25				
			100	5			30				
							35			Boring terminated at 31 feet	
Date Started: March 28, 2018							Water Level: 11.0 ft. 03/28/2018 1300 HRS				
Date Completed: March 28, 2018											
Logged By: N. Vaiana							Drill Rig: CME-75DG2				
Total Depth: 31 feet							Drilling Method: 4" Solid Stem Auger & PQ Coring				
Work Order: 7341-00							Driving Energy: 140 lb. wt., 30 in. drop				

DRAWING LOG DOT NAME FOR 7341-00.GPJ GEOLABS.GDT 12/18/18

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OR UNDER MY SUPERVISION.

Ken Y. Law 04/2024
SIGNATURE EXPIRATION DATE
 OF THE LICENSE

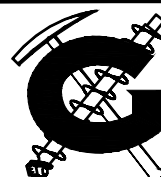
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION



BORING LOGS

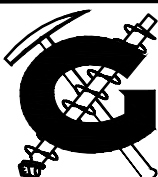


























INTERSTATE ROUTE H-1 AND H-201
DESTINATION SIGN UPGRADE/REPLACEMENT, PHASE 3
FAP NO. NH-0300(144)

Scale: None Date: September 2022

SHEET No. *G-3* OF *5* SHEETS

		GEOLABS, INC.		DESTINATION SIGN UPGRADE/REPLACEMENT, PHASE 3 FAP NO. NH-0300 (144) ISLAND OF OAHU, HAWAII										Log of Boring
Geotechnical Engineering												4		
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 : N/A				
										Description				
Sieve #200 = 11.9%	4	116			61				GW	12-inch ASPHALTIC CONCRETE				
	6				12					Gray angular SANDY GRAVEL (BASALTIC) with traces of clayey silt, dense, moist (fill)				
	7	74			14		5		SP-SM	Brownish gray GRAVELLY SAND (BASALTIC) with a little silt, medium dense, moist (fill) grades to loose				
TXUU Su=5.8 ksf			50		23		10		MH	grades to sandy gravel locally				
	27		28							Reddish brown CLAYEY SILT with a little gravel (basaltic), very stiff, moist (residual soil)				
	35	172	100		82	>4.5	15		CH	Reddish brown SILTY CLAY, very stiff to hard, moist (residual soil)				
							20		MH	Dark brown SILTY CLAY with some decomposed gravel, hard, moist (weathered clinker)				
	37			88	0					Gray CLAYEY SILT with remnant rock structure, hard, moist (saprolite)				
				98	40			25			Gray vugular BASALT, severely to closely fractured, slightly weathered, hard (basalt formation)			
							30			grades to moderately fractured				
							35			Boring terminated at 31.5 feet				
Date Started: April 15, 2018										Water Level: ∇ Not Encountered				
Date Completed: April 16, 2018														
Logged By: S. Latronic										Drill Rig: CME-45C TRUCK				
Total Depth: 31.5 feet										Drilling Method: 4" Solid Stem Auger & PQ Coring				
Work Order: 7341-00										Driving Energy: 140 lb. wt., 30 in. drop				

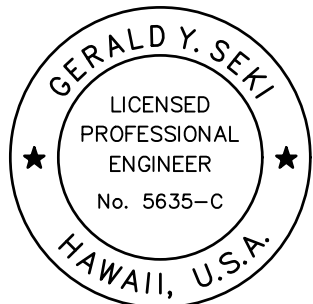
		GEOLABS, INC.		Geotechnical Engineering										INTERSTATE ROUTE H-1 AND H-201 DESTINATION SIGN UPGRADE/REPLACEMENT, PHASE 3 FAP NO. NH-0300 (144) ISLAND OF OAHU, HAWAII										Log of Boring 5	
Other Tests		Moisture Content (%)	Dry Unit Weight (pcf)	Core Recovery (%)	RQD (%)	Penetration Resistance (blows/foot)	Pocket Pen. (tsf)	Depth (feet)	Sample	Graphic	USCS	Approximate Ground Surface Elevation : N/A													
												Description													
LL=52 PI=14	19	99				37					GW	6-inch ASPHALTIC CONCRETE													
	32					48					MH	Gray angular SANDY GRAVEL (BASALTIC), dense, moist (fill)													
	58	64				84		5				Reddish brown CLAYEY SILT with some decomposed gravel, hard, moist (residual soil)													
	42					30		10				grades with remnant rock structure													
UC= 7270 psi	29	95				31/6" +50/5"	>4.5	15																	
			79	29				20				Gray vugular BASALT, closely fractured, slightly weathered, hard (basalt formation)													
			100	17				25				grades to moderately fractured													
			100	72				30				Boring terminated at 31.5 feet													
												35													
Date Started:												April 16, 2018										Water Level: 		Not Encountered	
Date Completed:												April 17, 2018													
Logged By:												S. Latronic										Drill Rig:		CME-45C TRUCK	
Total Depth:												31.5 feet										Drilling Method:		4" Solid Stem Auger & PQ Coring	
Work Order:												7341-00										Driving Energy:		140 lb. wt., 30 in. drop	

 GEOLABS, INC.		Geotechnical Engineering								INTERSTATE ROUTE H-1 AND H-201 DESTINATION SIGN UPGRADE/REPLACEMENT, PHASE 3 FAP NO. NH-0300 (144) ISLAND OF OAHU, HAWAII					Log of Boring 6
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 : N/A					
										Description					
LL=82 PI=46	16	91			50	>4.5			GW	12-inch ASPHALTIC CONCRETE					
	30				19				MH CH	Gray SANDY GRAVEL (BASALTIC), medium dense to dense, moist (fill)					
	42	68			17	>4.5	5			Brown with gray mottling CLAYEY SILT with some gravel (basaltic) and a little sand, very stiff, moist (fill)					
UC= 24170 psi	30		100	72	50/2"		10		SM	Brown SILTY CLAY with some sand and gravel, stiff to very stiff, moist (residual soil)					
			93	15			15			Brownish gray SILTY SAND (BASALTIC) with some gravel, dense to very dense, wet (saprolite)					
UC= 19190 psi			100	70			20			Gray BASALT, slightly to moderately fractured, unweathered to slightly weathered, very hard (basalt formation)					
							25			grades with clayey seams locally, closely fractured					
							30			Boring terminated at 26.5 feet					
															
															
															
															
															
															
															
															
															
															
															
															
															
															
															
															
															
															

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-0300(144)	2023	174	175

DESIGNED BY	DATE
TRACED BY	
DESIGNED BY	
QUANTITIES BY	
CHECKED BY	

DRAWING NAME: A:\DRAWING\DRAWING\WORKING\7341-00\INTERSTATE_ROUTE_H-1_L_&_H201_SIGN_UPGRADE\7341-00SHEETBORINGLOGS.DWG PLOT TIME: 09-30-22, 8:54 AM



THIS WORK WAS PREPARED BY ME
OR UNDER MY SUPERVISION.

SIGNATURE: *Gerald Y. Seki* EXPIRATION DATE: 04/2024
OF THE LICENSE

STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION	
BORING LOGS	
<i>INTERSTATE ROUTE H-1 AND H-201 DESTINATION SIGN UPGRADE/REPLACEMENT, PHASE 3 FAP NO. NH-0300(144)</i>	
Scale: None	Date: September 2022
SHEET No. G-4 OF 5 SHEETS	

DRAWING NAME: A:\DRAFTING\DRAWING\WORKING\7341-00\INTERSTATE_ROUTE_H-1_L_&_H201_SIGN_UPGRADE\7341-00SHEETBORINGLOGS.DWG PLOT TIME: 09-30-22, 8:45 AM

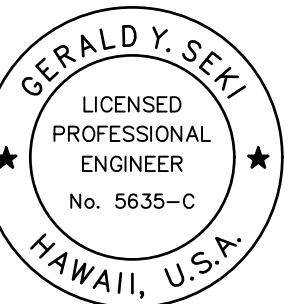
DESIGNED BY	DATE
TRACED BY	
DESIGNED BY	
QUANTITIES BY	
CHECKED BY	

GEOLABS, INC.		INTERSTATE ROUTE H-1 AND H-201 DESTINATION SIGN UPGRADE/REPLACEMENT, PHASE 3 FAP NO. NH-0300 (144) ISLAND OF OAHU, HAWAII										Log of Boring
Geotechnical Engineering												7
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 (feet) : 36 *		
Description												
LL=33 PI=1 TXUU Su=6.0 ksf	11	77			56				ML	8-inch ASPHALTIC CONCRETE		
	36				20				SP	Light brown with multi-color mottling SANDY SILT with a little gravel, very stiff to hard, moist (fill)		
					77/6"		5		ML	Tan GRAVELLY SAND (CORALLINE), medium dense to dense, moist (fill)		
					+25/1"					Brown SANDY SILT with some gravel, hard, moist (alluvium)		
Sieve #200 = 12.4%	36				36		10					
	27	77			37		15		SM	Brown with multi-color mottling rounded SILTY SAND with some gravel (basaltic), medium dense, moist (alluvium)		
	40				10		20					
Sieve #200 = 16.5%	27	104			19		25		GM	Brown SILTY GRAVEL with some sand (basaltic), medium dense (alluvium) grades with some cobbles		
	42				18		30					
	48	82			28		35			grades with a little clay		
	42				16/6"		40			grades with boulders		
32	85				25/1"		45			Boring terminated at 45.6 feet		
										* Elevations estimated from Topographic Survey Map prepared by Controlpoint Surveying, Inc. dated February 20, 2018.		
Date Started: January 4, 2022										Water Level: 23.3 ft. 01/04/2022 1115 HRS		
Date Completed: January 4, 2022												
Logged By: B. Aiu										Drill Rig: CME-75DG2		
Total Depth: 45.6 feet										Drilling Method: 4" Solid-Stem Auger & PQ Coring		
Work Order: 7341-00										Driving Energy: 140 lb. wt., 30 in. drop		

GEOLABS, INC.		INTERSTATE ROUTE H-1 AND H-201 DESTINATION SIGN UPGRADE/REPLACEMENT, PHASE 3 FAP NO. NH-0300 (144) ISLAND OF OAHU, HAWAII										Log of Boring
Geotechnical Engineering												8
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 (feet) : 35.5 *		
Description												
LL=NP PI=NP TXUU Su=4.8 ksf	11	123			99				GM	9-inch ASPHALTIC CONCRETE		
	40				51				ML	Reddish brown with gray angular SILTY GRAVEL (BASALTIC) with some sand, very dense, moist (fill)		
	18	82			121		5			Brown SANDY SILT, hard, moist (alluvium)		
	38				34		10					
Sieve #200 = 10.1%	19	95			25		15		GW-GM	Brown with multi-color mottling SANDY GRAVEL with a little silt, medium dense, moist (alluvium)		
	27				28		20			grades with more silt		
	38	91			33		25			grades with cobbles and boulders		
16					25/1"		30			Boring terminated at 30.1 feet		
										* Elevations estimated from Topographic Survey Map prepared by Controlpoint Surveying, Inc. dated February 20, 2018.		
Date Started: January 3, 2022										Water Level: 22.7 ft. 01/03/2022 1035 HRS		
Date Completed: January 3, 2022												
Logged By: B. Aiu										Drill Rig: CME-75DG2		
Total Depth: 30.1 feet										Drilling Method: 4" Solid-Stem Auger & PQ Coring		
Work Order: 7341-00										Driving Energy: 140 lb. wt., 30 in. drop		

GEOLABS, INC.		INTERSTATE ROUTE H-1 AND H-201 DESTINATION SIGN UPGRADE/REPLACEMENT, PHASE 3 FAP NO. NH-0300 (144) ISLAND OF OAHU, HAWAII										Log of Boring
Geotechnical Engineering												9
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 : N/A		
Description												
LL=38 PI=16 Sieve #200 = 37.7%	25	92			18				GP	3-inch ASPHALTIC CONCRETE		
	11				109				SC	Brownish gray SANDY GRAVEL (BASALTIC), moist (fill)		
	28	83					5		ML	Reddish brown CLAYEY SAND with some angular gravel, medium stiff, moist (fill)		
							10		SM	Reddish brown SANDY SILT with a little clay, medium stiff, moist (residual soil)		
Sieve #200 = 22.1%	27				34/6"		15			Reddish brown and gray SILTY SAND (BASALTIC) with some gravel (basaltic), very dense, moist (saprolite)		
			100	21			20			Brownish gray vugular BASALT, severely fractured, moderately weathered, hard (basalt formation)		
			100	47			25			grades to slightly fractured		
UC= 4340 psi			97	10			30			grades to gray		
							35			grades to closely to severely fractured		
			100	63						grades to moderately fractured		
UC= 2910 psi										Boring terminated at 31 feet		
Date Started: January 5, 2022										Water Level: Not Encountered		
Date Completed: January 6, 2022												
Logged By: B. Aiu										Drill Rig: CME-75DG2		
Total Depth: 31 feet										Drilling Method: 4" Solid-Stem Auger & PQ Coring		
Work Order: 7341-00										Driving Energy: 140 lb. wt., 30 in. drop		

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-0300(144)	2023	175	175



THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

SIGNATURE: *Gerald Y. Seki* 04/2024
EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION	
BORING LOGS	
INTERSTATE ROUTE H-1 AND H-201 DESTINATION SIGN UPGRADE/REPLACEMENT, PHASE 3 FAP NO. NH-0300(144)	
Scale: None	Date: September 2022

SHEET No. G-5 OF 5 SHEETS