FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7241A-01-13	2016	35	36

GEOLABS, INC.

Geotechnical Engineering

Soil Log Legend

UNIFIED SOIL CLASSIFICATION SYSTEM (USCS)

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

NOTE: DUAL SYMBOLS ARE USED TO INDICATE BORDERLINE SOIL CLASSIFICATIONS

LEGEND

	(2-INCH) O.D. STANDARD PENETRATION TEST	LL	LIQUID LIMIT (NP=NON-PLASTIC)
	(3-INCH) O.D. MODIFIED CALIFORNIA SAMPLE	PI	PLASTICITY INDEX (NP=NON-PLASTIC)
	SHELBY TUBE SAMPLE	TV	TORVANE SHEAR (tsf)
	GRAB SAMPLE	PEN	POCKET PENETROMETER (tsf)
	CORE SAMPLE	UC	UNCONFINED COMPRESSION (psi)
▽	WATER LEVEL OBSERVED IN BORING AT TIME OF DRILLING	UU	UNCONSOLIDATED UNDRAINED TRIAXIAL COMPRESSION (ksf)
▼	WATER LEVEL OBSERVED IN BORING AFTER DRILLING		
▽	WATER LEVEL OBSERVED IN BORING OVERNIGHT		

Plate A

LOG LEGEND FOR SOIL 6794-00.GPJ GEOLABS.GDT 11/21/14

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

GEOTECHNICAL NOTES:

1. A geotechnical engineering report entitled "Geotechnical Engineering Exploration, HDOT ADA Compliance Project, Halawa Heights Road, Halawa, Oahu, Hawaii" dated November 24, 2014 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 Sheet
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.

JOHN Y.L. CHEN LICENSED PROFESSIONAL ENGINEER No. 10029-C HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

John Chen — SIGNATURE — APR 30, 2018 DATE OF LICENSE EXPIRY

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

SOIL LOG LEGEND & NOTES

HALAWA HEIGHTS ROAD
PEDESTRIAN BRIDGE
Proj. No. 7241A-01-13

Date: April 24, 2017

SHEET No. G0.1 OF 2 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7241A-01-13	2016	36	36

GEOLABS, INC.
Geotechnical Engineering

HDOT ADA COMPLIANCE PROJECT
HALAWA HEIGHTS ROAD
HALAWA, OAHU, HAWAII

Log of Boring 1

Approximate Ground Surface Elevation (feet): 469 *

Other Tests	Moisture Content (%)	Dry Unit Weight (pcf)	Core Recovery (%)	RQD (%)	Penetration Resistance (blows/foot)	Pocket Pen. (tsf)	Depth (feet)	USCS	Description
							0		7-inch ASPHALTIC CONCRETE
									5-inch CONCRETE
	33	76			20	3.0		MH	Reddish brown CLAYEY SILT with some sand and gravel (basaltic), very stiff, dry (fill)
	31				7	2.5			grades to medium stiff at 2.5 feet
LL=56 PI=23	17	52			48		5		grades with a little cobbles (basaltic)
								CH	Brown CLAY with a little sand and gravel (basaltic), hard, moist (fill)
LL=70 PI=38	31				36	3.0	10		
	28	102			20	>4.5	15	CH	Reddish brown CLAY, very stiff, dry (residual soil)
	27				17	>4.5	20		
	34	85			40/6" +35/3"	>4.5	25	MH	Brown with multi-color mottling CLAYEY SILT with some sand and decomposed gravel, very hard, damp (residual soil)
									Boring terminated at 26.3 feet
									*Elevations estimated from Topographic Map transmitted by R. M. Towill Corporation on November 2, 2012.
							30		

Date Started:	December 11, 2012	Water Level: ▽	Not Encountered
Date Completed:	December 11, 2012		
Logged By:	D. Gremminger	Drill Rig:	CME-45C TRUCK
Total Depth:	26.3 feet	Drilling Method:	4" Solid Stem Auger
Work Order:	6794-00	Driving Energy:	140 lb. wt., 30 in. drop

GEOLABS, INC.
Geotechnical Engineering

HDOT ADA COMPLIANCE PROJECT
HALAWA HEIGHTS ROAD
HALAWA, OAHU, HAWAII

Log of Boring 2

Approximate Ground Surface Elevation (feet): 464 *

Other Tests	Moisture Content (%)	Dry Unit Weight (pcf)	Core Recovery (%)	RQD (%)	Penetration Resistance (blows/foot)	Pocket Pen. (tsf)	Depth (feet)	USCS	Description
							0		8-inch ASPHALTIC CONCRETE
	8	105			44	>4.5		SW	Tannish gray GRAVELLY SAND (CORALLINE) with some silt, dense, dry (fill)
	25				12	>4.5		CH	Reddish brown CLAY with a little fine sand, very stiff, dry (fill)
								CH	Brown CLAY with some sand and gravel (basaltic), very stiff, dry (fill)
LL=66 PI=37 TXUU	36	88			19		5		
									grades with some cobbles and boulders (basaltic)
	10				52		10		
								GP	Gray COBBLY BOULDERS (BASALTIC) with some clayey silt, very dense, dry (recent alluvium)
					15/1"		15		
								CH	Reddish brown CLAY, very stiff, dry (residual soil)
	22				19	>4.5	20		
	39	74			38	4.0	25	MH	Purplish gray with brown mottling CLAYEY SILT with a little fine sand, very stiff, damp (residual soil)
									Boring terminated at 26.5 feet
							30		

Date Started:	December 11, 2012	Water Level: ▽	Not Encountered
Date Completed:	December 11, 2012		
Logged By:	D. Gremminger	Drill Rig:	CME-45C TRUCK
Total Depth:	26.5 feet	Drilling Method:	4" Solid Stem Auger
Work Order:	6794-00	Driving Energy:	140 lb. wt., 30 in. drop

JOHN Y.L. CHEN
LICENSED PROFESSIONAL ENGINEER
No. 10029-C
HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

John Chen
SIGNATURE

APR 30, 2018
DATE OF LICENSE EXPIRY

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

BORING LOGS

HALAWA HEIGHTS ROAD
PEDESTRIAN BRIDGE
Proj. No. 7241A-01-13

Date: April 24, 2017

SHEET No. G0.2 OF 2 SHEETS

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