


FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HWY-O-01-18	2018	39	65

MAJOR DIVISIONS		GROUP DIVISIONS	TYPICAL NAMES
COARSE GRAINED SOILS (More than 50% of the material is larger than No. 200 sieve size.)	GRAVELS (More than 50% of coarse fraction is larger than the No. 4 sieve size.)	CLEAN GRAVELS (Little or no fines.)	GW Well graded gravels, gravel-sand mixtures, little or no fines.
		GRAVELS WITH FINES (Appreciable amt. of fines.)	GP Poorly graded gravels or gravel-sand mixtures, little or no fines.
			GM Silty gravels, gravel-sand-silt mixtures.
		SANDS (More than 50% of coarse fraction is smaller than the No. 4 sieve size.)	CLEAN SANDS (Little or no fines.)
	SANDS WITH FINES (Appreciable amt. of fines.)		SW Well graded sands, gravelly sands, little or no fines.
		SANDS WITH FINES (Appreciable amt. of fines.)	SP Poorly graded sands or gravelly sands, little or no fines.
	SANDS WITH FINES (Appreciable amt. of fines.)		SM Silty sands, sand-silt mixtures.
		SANDS WITH FINES (Appreciable amt. of fines.)	SC Clayey sands, sand-clay mixtures.
	FINE GRAINED SOILS (More than 50% of the material is smaller than No. 200 sieve size.)		SILTS AND CLAYS (Liquid limit LESS than 50.)
		CL Inorganic clays of high plasticity, lean clays.	
OL Organic silts and organic silty clays of low plasticity.			
SILTS AND CLAYS (Liquid limit GREATER than 50.)		MH Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts.	
		CH Inorganic clays of high plasticity, fat clays.	
		OH Organic clays of medium to high plasticity, organic silts.	
HIGHLY ORGANIC SOILS		PT Peat and other highly organic silts.	
FORMATIONS		FRESH TO MODERATELY WEATHERED BASALT	
		VOLCANIC TUFF / HIGHLY TO COMPLETELY WEATHERED BASALT	
		CORAL	

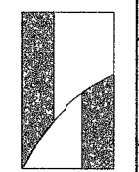
SAMPLE DEFINITION		
<input checked="" type="checkbox"/> 2" O.D. Standard Split Spoon Sampler	<input checked="" type="checkbox"/> Shelby Tube	RQD: Rock Quality Designation
<input type="checkbox"/> 3" O.D. Split Tube Sampler	<input type="checkbox"/> Core Sample	<input type="checkbox"/> Water Table


HDOT Storm Water Management Program - Phase 8	
 <b>HIRATA &amp; ASSOCIATES, INC.</b> Geotechnical Engineering W.O. 17-6155	<b>BORING LOG LEGEND</b> Plate A3.1

PLASTICITY CHART	
PLASTICITY INDEX	LIQUID LIMIT

GRADATION CHART	
COMPONENT	SIZE RANGE

COMPONENT DEFINITIONS BY GRADATION	
Boulders	Above 12 in.
Cobbles	3 in. to 12 in.
Gravel	3 in. to No. 4 (4.76 mm)
Coarse	3 in. to 3/4 in.
Fine Gravel	3/4 in. to No. 4 (4.76 mm)
Sand	No. 4 (4.76 mm) to No. 200 (0.074mm)
Coarse Sand	No. 4 (4.76 mm) to No. 10 (2.0 mm)
Medium Sand	No. 10 (2.0 mm) to No. 40 (0.42 mm)
Fine Sand	No. 40 (0.42 mm) to No. 200 (0.074 mm)
Silt and Clay	Smaller than No. 200 (0.074 mm)

HDOT Storm Water Management Program - Phase 8	
 <b>HIRATA &amp; ASSOCIATES, INC.</b> Geotechnical Engineering W.O. 17-6155	<b>UNIFIED SOIL CLASSIFICATION SYSTEM</b> Plate A3.2

 <b>Hirata &amp; Associates, Inc.</b> GEOTECHNICAL ENGINEERING		<b>Boring No. B1</b>	
<b>BORING LOG</b>			
PROJECT NAME HDOT Storm Water Management Program - Phase 8			
WORK ORDER NO. 17-6155		DRIVING WT. 140 lb.	
SURFACE ELEV. 5 ±'		DROP 30 in.	
		START DATE 12/28/17	
		END DATE 12/28/17	

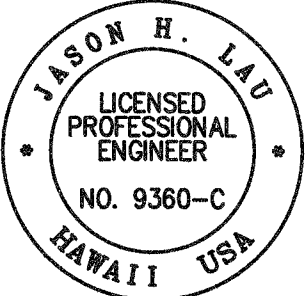
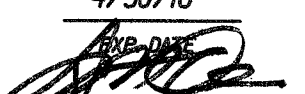
REMARKS/ SAMPLE NO.	CORE RECOVERY (%)	RQD (%)	BLOWS PER FOOT	DRY DENSITY (pcf)	MOISTURE CONTENT (%)	DEPTH (ft)	GRAPHIC LOG	SAMPLE	MATERIAL DESCRIPTION
			28	95	18				Silty SAND (SM) - Brown, moist, medium dense, with clay and coralline gravel.
			10/No. 10 Penetration	94	9				Silty Coralline GRAVEL (GM) - Tan, slightly moist, dense, with sand. (Coral Rubblestone)
			19/No. 10 Penetration	4	4				Groundwater encountered at 4.75 feet on 12/28/17 at 9:39 am.
			42	88	31				
			48/6" 50/4"	76	20				
			28/6" 50/3"	92	17				End boring at 15.0 feet.
									* Elevation based on topographic survey provided by The Limtiaco Consulting Group.

Plate A4.1

Note:  
Boring log data included for information only.

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
PLAN	DRAWN BY	
NOTE BOOK	TRACED BY	
QUANTITIES BY	CHECKED BY	
NO.		

BORING LOGS: 3/28/2018 5:44:42 PM

 4/30/18  This work was prepared by me or under my supervision.	STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION <b>BORING LOGS</b> SLOPE IMPROVEMENTS FOR EROSION CONTROL AT VARIOUS SITES ON OAHU, PHASE 8 Project No. HWY-O-01-18 Scale: None Date: April 2018
	SHEET No. EC-25 OF 25 SHEETS