

PLOT PLAN
Mile Post 19.36
Hawaii Belt Road Improvements
Hawaii, Hawaii

Legend:
B-1 Approximate PGE Boring Location and Number

Reference:
Site Layout Plan (Preliminary Submittal 60%)
By: Ardalan R. Nikou (Engineer)
Dated: November 2003

Pacific Geotechnical Engineers, Inc.

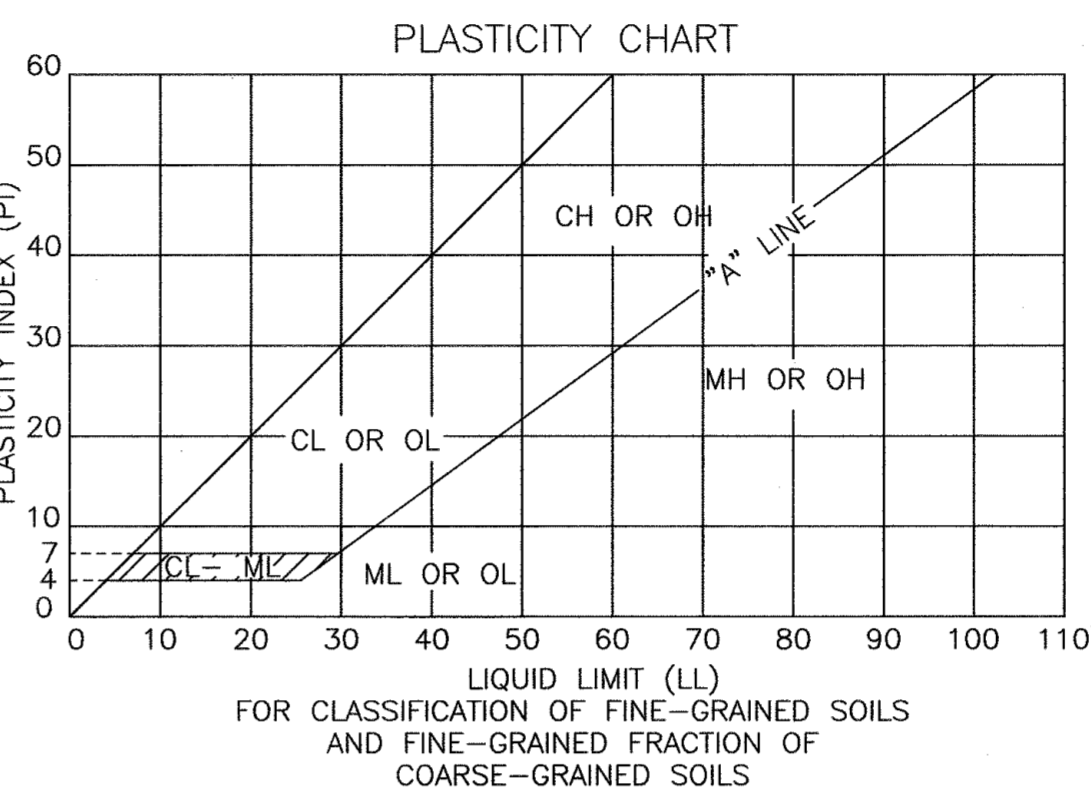
UNIFIED SOIL CLASSIFICATION SYSTEM – (ASTM D2487-00)					
MAJOR DIVISIONS			LETTER SYMBOL	GRAPHIC SYMBOL	GROUP NAMES
COARSE-GRAINED SOILS MORE THAN 50% RETAINED ON NO. 200 SIEVE	GRAVELS MORE THAN 50% OF COARSE FRACTION RETAINED ON NO. 4 SIEVE	CLEAN GRAVELS LESS THAN 5% FINES	GW		WELL-GRADED GRAVEL, WELL-GRADED GRAVEL WITH SAND
			GP		POORLY-GRADED GRAVEL, POORLY-GRADED GRAVEL WITH SAND
		GRAVELS WITH MORE THAN 12% FINES	GM		SILTY GRAVEL, SILTY GRAVEL WITH SAND
			GC		CLAYEY GRAVEL, CLAYEY GRAVEL WITH SAND
	SANDS 50% OR MORE OF COARSE FRACTION PASSES NO. 4 SIEVE	CLEAN SAND LESS THAN 5% FINES	SW		WELL-GRADED SAND, WELL-GRADED SAND WITH GRAVEL
			SP		POORLY-GRADED SAND, POORLY-GRADED SAND WITH GRAVEL
		SANDS WITH MORE THAN 12% FINES	SM		SILTY SAND, SILTY SAND WITH GRAVEL
			SC		CLAYEY SAND, CLAYEY SAND WITH GRAVEL
FINE-GRAINED SOILS 50% OR MORE PASSES NO. 200 SIEVE	SILTS AND CLAYS LIQUID LIMIT LESS THAN 50		ML		SILT, SILT WITH SAND OR GRAVEL, SANDY OR GRAVELLY SILT
			CL		LEAN CLAY, LEAN CLAY WITH SAND OR GRAVEL, SANDY OR GRAVELLY LEAN CLAY
			OL		ORGANIC SILT OR CLAY, ORGANIC SILT OR CLAY WITH SAND OR GRAVEL, SANDY OR GRAVELLY ORGANIC SILT OR CLAY
	SILTS AND CLAYS LIQUID LIMIT 50 OR MORE		MH		ELASTIC SILT, ELASTIC SILT WITH SAND OR GRAVEL, SANDY OR GRAVELLY ELASTIC SILT
			CH		FAT CLAY, FAT CLAY WITH SAND OR GRAVEL, SANDY OR GRAVELLY FAT CLAY
			OH		ORGANIC SILT OR CLAY, ORGANIC SILT OR CLAY WITH SAND OR GRAVEL, SANDY OR GRAVELLY ORGANIC SILT OR CLAY
HIGHLY ORGANIC SOILS		PT		PEAT	

NOTE:
DUAL SYMBOLS ARE USED TO INDICATE BORDERLINE CLASSIFICATIONS.
REFER TO ASTM D2487 FOR BORDERLINE CLASSIFICATIONS GW-GM, GW-GC, GP-GM, GP-GC, SW-SM, SW-SC, SP-SM, AND SP-SC.

UNIFIED SOIL CLASSIFICATION SYSTEM
(SHEET 1 OF 2)

GRADATION CHART					
MATERIAL SIZE	PARTICLE SIZE				
	LOWER LIMIT		UPPER LIMIT		
	MILLIMETERS	SIEVE SIZE **	MILLIMETERS	SIEVE SIZE **	
SAND FINE MEDIUM COARSE	0.075	#200 **	0.425	#40 **	
	0.425	#40 **	2.00	#10 **	
	2.00	#10 **	4.75	#4 **	
GRAVEL FINE COARSE	4.75	#4 **	19.0	3/4" *	
	19.0	3/4" *	75.0	3" *	
COBBLES	75.0	3" *	300	12" *	
BOULDERS	300	12" *	---	---	

** U.S. STANDARD SIEVE * SQUARE OPENINGS



NOTE:
WHEN SHOWN ON THE BORING LOGS, THE FOLLOWING TERMS ARE USED TO DESCRIBE THE CONSISTENCY OF COHESIVE SOILS AND THE RELATIVE COMPACTNESS OF COHESIONLESS SOILS.

COHESIVE SOILS		COHESIONLESS SOILS	
APPROXIMATE SHEAR STRENGTH IN KSF			
VERY SOFT	LESS THAN 0.25	VERY LOOSE	THESE ARE USUALLY BASED ON AN EXAMINATION OF SOIL SAMPLES, PENETRATION RESISTANCE, AND SOIL DENSITY DATA.
SOFT	0.25 TO 0.5	LOOSE	
MEDIUM STIFF	0.5 TO 1.0	MEDIUM DENSE	
STIFF	1.0 TO 2.0	DENSE	
VERY STIFF	2.0 TO 4.0	VERY DENSE	
HARD	GREATER THAN 4.0		

UNIFIED SOIL CLASSIFICATION SYSTEM
(SHEET 2 OF 2)

PROJECT: Culvert Replacement, Hawaii Belt Road		JOB No. 8950-013		BORING 1 (Page 1 of 1)	
LOCATION: Hilo, Hawaii		DRAWN BY: kaf		SURFACE ELEVATION: +245 ± Feet	
				DATUM: Mean Sea Level	
LAB DATA		CORE INFO		DEPT. (feet)	
MOISTURE CONTENT (%)	DENSITY (pcf)	CORE TYPE	RECOVERY (%)	ROD (%)	SOIL CLASS
39	81				MH
85	45				MH
65	62				
70	61				
30					GM

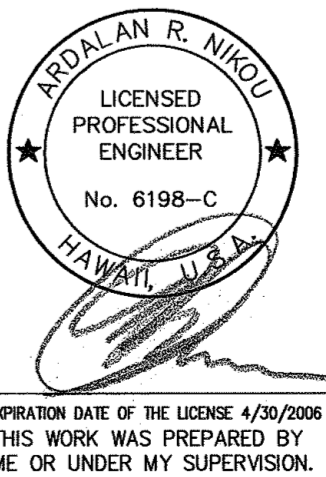
Boring completed at 21.0 feet on 12-29-03.

BORING LOGS LEGEND:

- - Relatively undisturbed sample (3.3-inch diameter)
- - Disturbed sample
- - Sample lost during extraction
- - Standard penetration test sample (2-inch diameter split-spoon sampler)
- I - Core run

DRIVING ENERGY: 140-lb. dropping 30 inches

- NOTES:**
- The logs of borings indicate the subsurface and groundwater conditions encountered only at the locations where the borings were drilled and at the times designated on the logs, and may not represent conditions at other locations or at other times. Subsurface and groundwater conditions may change with the passage of time, improvements constructed at the property, and changes in surface drainage and irrigation patterns.
 - The boring logs are furnished for the convenience of the bidder. No assurance is given that the subsurface or groundwater conditions shown on the boring logs are representative of the conditions to be encountered during construction. The bidder is solely responsible for all assumptions, deductions, or conclusions which he may make or derive from his examination of the subsurface information and data furnished herein.



STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

BORING LOG

HAWAII BELT ROAD DRAINAGE IMPROVEMENTS

Project No. 19GHJ-01-05M

Scale: As Shown Date: Apr 14, 2006

SHEET No. C5.1 OF 39 SHEETS