DOCKETED	
Docket Number:	24-OPT-02
Project Title:	Compass Energy Storage Project
TN #:	264554
Document Title:	Geotechnical Evaluation Report (TN #255561-6) References Part 2_3 of 9
Description:	N/A
Filer:	Erin Phillips
Organization:	Dudek
Submitter Role:	Applicant Consultant
Submission Date:	7/2/2025 6:58:42 PM
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EXPLORATORY BORING: LH-11

DRILL RIG: D&D CONSTRUCTION
BORING TYPE: HOLLOW STEM 8-INCH
LOGGED BY: BAF
START DATE: 2-21-01 FINISH DATE: 2-23-01

PROJECT NO: 1651-4
PROJECT: JUNIPERO SERRA HIGH SCHOOL
LOCATION: SAN JUAN CAPISTRANO, CALIFORNIA
COMPLETION DEPTH: 21.0 FT.

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Undrained Shear Strength (ksf): ○ Pocket Penetrometer; △ Torvane; ● Unconfined Compression; ▲ U-U Triaxial Compression (1.0, 2.0, 3.0, 4.0)

ELEVATION (FT)	DEPTH (FT)	MATERIAL DESCRIPTION AND REMARKS	SOIL TYPE	PENETRATION RESISTANCE (BLOWS/FT.)	SAMPLER	MOISTURE CONTENT (%)	DRY DENSITY (PCF)	PERCENT PASSING NO. 200 SIEVE
		SURFACE ELEVATION: 209 FT. (+/-)						
209.0	0	**FILL: SILTY CLAY (CL),** fine with trace medium sands, stiff, moderate plasticity, moist, dark brown-brown mottled, occasional gravel to ¾-inch	CL	23	☒	8	118	
		***ALLUVIUM*: SILTY CLAY (CL),** increased fine sands and silt, no gravel						
	5			17	☒	23	97	
		- trace fine sand, medium stiff, moderate plasticity, moist, dark brown, occasional gypsum streaking						
	10		CL	10	☒	30		
	15	- soft to medium stiff		6	☒	34		
		- medium stiff						
	20			12	☒	30		
		BOTTOM OF BORING AT 21 FEET						
	25							

GROUND WATER OBSERVATIONS:
NO FREE GROUNDWATER ENCOUNTERED

Northing: 3,200
Easting: 781

LA CORP.GDT 7/31/01 Fullerton* ALM

LOWNEY ASSOCIATES
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EXPLORATORY BORING: LH-13

DRILL RIG: D&D CONSTRUCTION
BORING TYPE: HOLLOW STEM 8-INCH
LOGGED BY: BAF
START DATE: 2-21-01 FINISH DATE: 2-23-01

PROJECT NO: 1651-4
PROJECT: JUNIPERO SERRA HIGH SCHOOL
LOCATION: SAN JUAN CAPISTRANO, CALIFORNIA
COMPLETION DEPTH: 26.0 FT.

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Undrained Shear Strength (ksf): ○ Pocket Penetrometer; △ Torvane; ● Unconfined Compression; ▲ U-U Triaxial Compression (1.0, 2.0, 3.0, 4.0)

ELEVATION (FT)	DEPTH (FT)	MATERIAL DESCRIPTION AND REMARKS	SOIL TYPE	PENETRATION RESISTANCE (BLOWS/FT.)	SAMPLER	MOISTURE CONTENT (%)	DRY DENSITY (PCF)	PERCENT PASSING NO. 200 SIEVE
230.0		SURFACE ELEVATION: 230 FT. (+/-)						
	0	**FILL: SILTY CLAY-CLAYEY SILT (CL-ML),** fine to medium sands, low plasticity, moist, brown-dark brown, numerous pores, occasional twig rootlets	CL-ML	19		14	105	
	5	- silty clay, no twigs		27		23 20	104 108	
		FILL: SANDY CLAY (CL), fine sand, medium stiff, low to moderate plasticity, brown						
	10		CL	8		29		
		***ALLUVIUM*: SILTY CLAY (CL),** minor fine sand, soft to medium stiff, moderate plasticity, moist, brown						
	15			12		31 27	90 68	
			CL					
	20	**GROUNDWATER AT 20 FEET**		13		31	92	
		WATER SEEPAGE AT 23 FEET						
205.0	25	*Continued Next Page*						

GROUND WATER OBSERVATIONS:
∇: FREE GROUND WATER MEASURED DURING DRILLING AT 20.0 FEET

Northing: 3,625
Easting: 536

EXPLORATORY BORING: LH-13 Cont'd

DRILL RIG: D&D CONSTRUCTION
BORING TYPE: HOLLOW STEM 8-INCH
LOGGED BY: BAF
START DATE: 2-21-01 FINISH DATE: 2-23-01

PROJECT NO: 1651-4
PROJECT: JUNIPERO SERRA HIGH SCHOOL
LOCATION: SAN JUAN CAPISTRANO, CALIFORNIA
COMPLETION DEPTH: 26.0 FT.

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Undrained Shear Strength (ksf): ○ Pocket Penetrometer; △ Torvane; ● Unconfined Compression; ▲ U-U Triaxial Compression (1.0, 2.0, 3.0, 4.0)

ELEVATION (FT)	DEPTH (FT)	SOIL LEGEND	MATERIAL DESCRIPTION AND REMARKS	SOIL TYPE	PENETRATION RESISTANCE (BLOWS/FT.)	SAMPLER	MOISTURE CONTENT (%)	DRY DENSITY (PCF)	PERCENT PASSING NO. 200 SIEVE
205.0	25		- increased stiffness, wet fractures	CL	12	☒	23		
			BOTTOM OF BORING AT 26 FEET						
			PULLED AUGER, HOLE BLOCKED						
			NO WATER MEASUREMENTS DUE TO CAVING						
	30								
	35								
	40								
	45								
	50								

GROUND WATER OBSERVATIONS:
∇: FREE GROUND WATER MEASURED DURING DRILLING AT 20.0 FEET

Northing: 3,625
Easting: 536

EXPLORATORY BORING: LH-17

DRILL RIG: D&D CONSTRUCTION
BORING TYPE: HOLLOW STEM 8-INCH
LOGGED BY: BAF
START DATE: 2-21-01 FINISH DATE: 2-23-01

PROJECT NO: 1651-4
PROJECT: JUNIPERO SERRA HIGH SCHOOL
LOCATION: SAN JUAN CAPISTRANO, CALIFORNIA
COMPLETION DEPTH: 11.0 FT.

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Undrained Shear Strength (ksf): ○ Pocket Penetrometer △ Torvane ● Unconfined Compression ▲ U-U Triaxial Compression (1.0, 2.0, 3.0, 4.0)

ELEVATION (FT)	DEPTH (FT)	SOIL LEGEND	MATERIAL DESCRIPTION AND REMARKS	SOIL TYPE	PENETRATION RESISTANCE (BLOWS/FT.)	SAMPLER	MOISTURE CONTENT (%)	DRY DENSITY (PCF)	PERCENT PASSING NO. 200 SIEVE
			SURFACE ELEVATION: 240 FT. (+/-)						
240.0	0		***ALLUVIUM*: SILTY CLAY-CLAYEY SILT (CL-ML), fine sand, stiff, no plasticity, slightly moist to moist, dark gray brown, numerous fine pores and fine rootlets**		22	☒	11	98	
	5		- dark brown	CL-ML	17	☒	13	104	
	10		- increased moisture, some white cementatious lines, mottling		8	☒	16		
			BOTTOM OF BORING AT 11 FEET						
	15								
	20								
	25								

GROUND WATER OBSERVATIONS:
NO FREE GROUNDWATER ENCOUNTERED

Northing: 2,254
Easting: 410

EXPLORATORY BORING: MW-1

DRILL RIG: BC2
BORING TYPE: HOLLOW STEM 8-INCH
LOGGED BY: BAF
START DATE: 4-4-01 FINISH DATE: 4-4-01

PROJECT NO: 1651-4
PROJECT: JUNIPERO SERRA HIGH SCHOOL
LOCATION: SAN JUAN CAPISTRANO, CALIFORNIA
COMPLETION DEPTH: 51.0 FT.

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Undrained Shear Strength (ksf): ○ Pocket Penetrometer; △ Torvane; ● Unconfined Compression; ▲ U-U Triaxial Compression (1.0, 2.0, 3.0, 4.0)

ELEVATION (FT)	DEPTH (FT)	SOIL LEGEND	MATERIAL DESCRIPTION AND REMARKS	SOIL TYPE	PENETRATION RESISTANCE (BLOWS/FT.)	SAMPLER	MOISTURE CONTENT (%)	DRY DENSITY (PCF)	PERCENT PASSING NO. 200 SIEVE
			SURFACE ELEVATION:						
	0		**FILL: SILTY SAND (SM),** fine to medium sand, medium dense, moist, brown, visqueen sheeting at 1¼-foot	SM					
			FILL: SAND (SP), fine to medium sand, medium dense, moist, light brown						
	5		- medium grained		26	☒			
				SP					
	10		- medium with occasional coarse sand		48	☒			
			SANDY CLAY (CL), fine to medium sand, medium stiff, moderate plasticity, moist, dark brown						
	15		-1-inch lense of saturated medium sand at 15 feet	CL	38	☒			
	20		**CLAYEY SAND (SC),** fine to medium sand, medium dense, brown		20	☒			49
			- water on rods	SC					
	25		*Continued Next Page*						

GROUND WATER OBSERVATIONS:
▽: FREE GROUND WATER MEASURED DURING DRILLING AT 18.5 FEET

EXPLORATORY BORING: MW-1 Cont'd

DRILL RIG: BC2
BORING TYPE: HOLLOW STEM 8-INCH
LOGGED BY: BAF
START DATE: 4-4-01 FINISH DATE: 4-4-01

PROJECT NO: 1651-4
PROJECT: JUNIPERO SERRA HIGH SCHOOL
LOCATION: SAN JUAN CAPISTRANO, CALIFORNIA
COMPLETION DEPTH: 51.0 FT.

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ELEVATION (FT)	DEPTH (FT)	SOIL LEGEND	MATERIAL DESCRIPTION AND REMARKS	SOIL TYPE	PENETRATION RESISTANCE (BLOWS/FT.)	SAMPLER	MOISTURE CONTENT (%)	DRY DENSITY (PCF)	PERCENT PASSING NO. 200 SIEVE	Undrained Shear Strength (ksf) ○ Pocket Penetrometer △ Torvane ● Unconfined Compression ▲ U-U Triaxial Compression (1.0, 2.0, 3.0, 4.0)
	25		SANDY CLAY-CLAYEY SAND (CL-SC), fine to medium sand, medium stiff, brown, occasional gypsum pockets		21	☒			57	
	30			CL-SC	21	☒			22	
	35		SILTY CLAY (CL), trace fine to medium sand, medium stiff, moderate plasticity, dark brown, minor gypsum streaking	CL	28	☒			84	
	40		CLAYEY SAND (SC), fine to medium sand, brown	SC-CL	52	☒			15 16	
			SAND (SP), fine to medium grained, trace silt, brown	SP						
	45		SANDY CLAY-CLAYEY SAND (CL-SC), soft to medium stiff, low to moderate plasticity, dark brown to black, trace gypsum pockets	CL-SC	33	☒			49	
	50									

Continued Next Page

GROUND WATER OBSERVATIONS:
▽: FREE GROUND WATER MEASURED DURING DRILLING AT 18.5 FEET

EXPLORATORY BORING: MW-1 Cont'd

DRILL RIG: BC2
BORING TYPE: HOLLOW STEM 8-INCH
LOGGED BY: BAF
START DATE: 4-4-01 FINISH DATE: 4-4-01

PROJECT NO: 1651-4
PROJECT: JUNIPERO SERRA HIGH SCHOOL
LOCATION: SAN JUAN CAPISTRANO, CALIFORNIA
COMPLETION DEPTH: 51.0 FT.

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ELEVATION (FT)	DEPTH (FT)	SOIL LEGEND	MATERIAL DESCRIPTION AND REMARKS	SOIL TYPE	PENETRATION RESISTANCE (BLOWS/FT.)	SAMPLER	MOISTURE CONTENT (%)	DRY DENSITY (PCF)	PERCENT PASSING NO. 200 SIEVE	Undrained Shear Strength (ksf) ○ Pocket Penetrometer △ Torvane ● Unconfined Compression ▲ U-U Triaxial Compression (1.0 2.0 3.0 4.0)
	50		- sandy clay	CL-SC	35	☒			44	
			BOTTOM OF BORING AT 51 FEET							
	55									
	60									
	65									
	70									
	75									

GROUND WATER OBSERVATIONS:
▽: FREE GROUND WATER MEASURED DURING DRILLING AT 18.5 FEET

PRIMARY DIVISIONS			SOIL TYPE	LEGEND	SECONDARY DIVISIONS
COARSE GRAINED SOILS (MORE THAN HALF OF MATERIAL IS LARGER THAN NO. 200 SIEVE SIZE)	GRAVELS (MORE THAN HALF OF COARSE FRACTION IS LARGER THAN NO. 4 SIEVE)	CLEAN GRAVELS (Less than 5% Fines)	GW		Well graded gravels, gravel–sand mixtures, little or no fines
			GP		Poorly graded gravels or gravel–sand mixtures, little or no fines
		GRAVEL WITH FINES	GM		Silty gravels, gravel–sand–silt mixtures, plastic fines
			GC		Clayey gravels, gravel–sand–clay mixtures, plastic fines
	SANDS (MORE THAN HALF OF COARSE FRACTION IS SMALLER THAN NO. 4 SIEVE)	CLEAN SANDS (Less than 5% Fines)	SW		Well graded sands, gravelly sands, little or no fines
			SP		Poorly graded sands or gravelly sands, little or no fines
		SANDS WITH FINES	SM		Silty sands, sand–silt–mixtures, non–plastic fines
			SC		Clayey sands, sand–clay mixtures, plastic fines
FINE GRAINED SOILS (MORE THAN HALF OF MATERIAL IS SMALLER THAN NO. 200 SIEVE SIZE)	SILTS AND CLAYS (LIQUID LIMIT IS 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 IS 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 soils

DEFINITION OF TERMS

U.S. STANDARD SIEVE SIZE: 200, 40, 10, 4

CLEAR SQUARE SIEVE OPENINGS: 3/4", 3", 12"

SILTS AND CLAY	SAND			GRAVEL		COBBLES	BOULDERS
	FINE	MEDIUM	COARSE	FINE	COARSE		

GRAIN SIZES

TERZAGHI SPLIT SPOON, STANDARD PENETRATION TEST (SPT)

MODIFIED CALIFORNIA

D & M UNDERWATER SAMPLER

PISTON SAMPLER

SAMPLERS

AT TIME OF DRILLING

MEASURED FOLLOWING DRILLING

GROUND WATER

SAND AND GRAVEL	BLOWS/FOOT*
VERY LOOSE	0–4
LOOSE	4–10
MEDIUM DENSE	10–30
DENSE	30–50
VERY DENSE	OVER 50

RELATIVE DENSITY

SILTS AND CLAYS	STRENGTH+	BLOWS/FOOT*
VERY SOFT	0–1/4	0–2
SOFT	1/4–1/2	2–4
MEDIUM STIFF	1/2–1	4–8
STIFF	1–2	8–16
VERY STIFF	2–4	16–32
HARD	OVER 4	OVER 32

CONSISTENCY

*Applicable only for Standard Penetration Tests (ASTM D–1586).
+Unconfined compressive strength in tons/sq.ft. as determined by laboratory testing or approximated by the standard penetration test (ASTM D–1586), pocket penetrometer, torvane, or visual observation.

KEY TO EXPLORATORY BORING LOGS

Unified Soil Classification System (ASTM D–2487)

LOWNEY ASSOCIATES
Environmental/Geotechnical/Engineering Services

FIGURE A–1

LOCATION OF BORING	JOB NO.	CLIENT	LOCATION
	1651-4	RANCHO CAPISTRANO	SAN JUAN CAPISTRANO

DRILLING METHOD: BUCKET AUGER

BORING NO. LB-2

SHEET 1 OF 3

SAMPLING METHOD:

DRILLING

					START	FINISH
WATER LEVEL					TIME	TIME
TIME					9:00 AM	11:15
DATE					DATE	DATE
CASING DEPTH					3/21/01	3/21/0

DRIVING WT.:

DATUM

ELEVATION 250'±

DRILLING CONTR.

BY

DATE

CHK'D BY

SAMPLER TYPE	INCHES DRIVEN / BLOWS	DEPTH OF CASING	SAMPLE NO. / SAMPLE DEPTH	BLOWS/FT. SAMPLER	NUMBER OF RINGS	DEPTH IN FEET	SOIL GRAPH

SURFACE CONDITIONS.

0 TOPSOIL

SILTY CLAY

VERY DK. BROWN, SOFT, SLIGHTLY MOIST TO MOIST, POROUS AND NUMEROUS ROOTS TO 1/4" THICK. TO MOTTLED

3 VERY WEATHERED BEDROCK (TC) (LANDSLIDE MATERIAL)

SILTY CLAY

LIGHT OLIVE BROWN TO MOTTLED, SOFT, MOIST, POROUS AND ROOTLETS

SCATTERED WHITE CARBONATE (?) "PELLETS" TO 1/2" AND SCATTERED KROTOVINA TO 6.5' DEPTH

7 CLAYEY SILT(STONE)

LIGHT OLIVE BROWN TO MOTTLED, SOFT, MOIST, SLI. POROU VERY WEATHERED, TRACE VERY FINE SAND - % INCREAS W/DEPTH, GYPSUM XLS; NO VISIBLE STRUCTURE

9 GRADATIONAL

10 SILTY CLAY(STONE)

OLIVE GREY, SOFT, MOIST ← RELIC BEDDING(?): N30E 27°-38°N.

ABUNDANT ORANGE OXIDE STAINING

11 CLAYEY SILT(STONE) W/ VERY FINE SAND

MOTTLED, SOFT, SLI. MOIST TO MOIST, SLI. POROUS, W/ NUM. WHITE $CaCO_3$? STREAKS & FE OXIDES, DK. BRN. ORGANIC LAYERS

13 OLIVE COLOR BANDS, RELIC BEDDING? - N30E, 28-22°NW →

FRACTURE (FAULT?) N5, 85E, V. THIN, "TIGHT", W/ SCATTERED ROOTLETS TO 1/8" DIAM.

16 NESTED COBBLES - GRAVEL, CARBONATE? NODULES? AT NE SIDE OF BOREHOLE IN CLAY MATRIX, PLASTIC, LOCALIZED, DISCONTINUOUS

17 GRADES TO:

SILTY CLAY(STONE) & CLAY(STONE)

18 CLAY(STONE)

PLASTIC ← SHARP CONTACT, WAVY, DISCONTINUOUS

19 CLAYEY SILT(STONE) W/ VERY FINE SAND

MOTTLED, SOFT, MOIST; WITH FE OXIDES AS DISCONTIN. SEAMS AND STREAKS

20

LOCATION OF BORING	JOB NO.	CLIENT	LOCATION
	1651-4	RANCHO CAPISTRANO	SAN JUAN CAPISTRANO

DRILLING METHOD: BUCKET AUGER

BORING NO. LB-2

SHEET 2 OF 3

SAMPLING METHOD.

DRILLING

					START	FINISH
WATER LEVEL					TIME	TIME
TIME						
DATE					DATE	DATE
CASING DEPTH						

DRIVING WT.:

DATUM ELEVATION 250'±

SURFACE CONDITIONS.

DRILLING CONTR.

SAMPLER TYPE	INCHES DRIVEN / BLOWS	DEPTH OF CASING	SAMPLE NO. / SAMPLE DEPTH	BLOWS/FT. SAMPLER	NUMBER OF RINGS	DEPTH IN FEET	SOIL GRAPH	
								(CONT'D)
						20		WEATHERED BEDROCK (Tc) (LANDSLIDE MATERIAL) CLAYEY SILT(STONE)
						21		MOTTLED, SOFT, MOIST, W/ ABUNDANT FE OXIDES
						22		Fe OXIDE COLOR BANDING - N-S 30°W
						23		SILTY CLAY & CLAY(STONE)
						24		MOTTLED, VERY SOFT, MOIST TO WET, PLASTIC W/HEAVY OXIDES AND MINERAL STAINING, SLIGHT SEEP BELOW 23'
						25		SCATTERED ORGANICS, TWIGS(?), ROOTS, TO 1/4" DIAM. AND POCKETS OF SOFT CLAY
								COLOR BANDING - N80W, 30-32°S
								FeOXIDE COATED PLANE
						26		CLAYEY SILTSTONE INTERBED - N60W 15NE
								CLAYEY SILT(STONE)
						27		NUMEROUS FRACTURES, FE STAINED TYPICAL FRACT. - N-S, 65E
						28		MOTTLED, SOFT TO VERY SOFT
						29		CHARCOAL (CARBON) "FLECKS", FRAGMENTS AND NUM. FE OXIDE - STAINS IN FRACTURES
						30		
						31		FRACTURE - N20E, 55SE (TYPICAL)
						32		
						33		ORANGE OXIDE STAIND, SCATTERED ORGANICS - TWIGS(?) ROOTS, & CaCO3 nodules
						34		BEDDING(?) N30E, 30SE, CONTINUOUS, OXIDE STAINED W/THIN CLAY POCKETS : LENSES PARALLEL W/PLANE
								CLAY SEAM, 1/8" THICK, MOIST, PLASTIC, CONTINUOUS N70W, 18NE
						35		SOFT, LESS FRACTURED, LESS CLAY CONTENT
						36		SILICEOUS NODULES, SLIGHT SEEP
								COLOR BANDING N54W, 24NE RELIC BED(?)
						37		SUBPARALLEL COLOR BANDS FRACTURES(?) W/ORGANICS ALIGNED W/ PLANES N9W, 50-55W
						38		ORANGE OXIDE STAINED ROOTS 1/4" DIAM.
						39		
						40		SLIGHT SEEPAGE FROM FRACTURES

CHK'D BY

BY DATE

LOCATION OF BORING	JOB NO. 1651-4	CLIENT RANCHO CAPISTRANO	LOCATION SAN JUAN CAPISTRANO
	DRILLING METHOD: BUCKET AUGER		BORING NO. LB-2
			SHEET 3 OF 3
	SAMPLING METHOD:		DRILLING
			START / FINISH
	WATER LEVEL		TIME / TIME
	TIME		
DRIVING WT.:	DATE		DATE / DATE
DATUM	CASING DEPTH	ELEVATION 250'±	

DRILLING CONTR.

SAMPLER TYPE	INCHES DRIVEN / BLOWS	DEPTH OF CASING	SAMPLE NO. / SAMPLE DEPTH	BLOWS/FT SAMPLER	NUMBER OF RINGS	DEPTH IN FEET	SOIL GRAPH	SURFACE CONDITIONS.
								(CONT'D)
						40		"GRADATIONAL" CHANGE TO:
								CLAYEY SILT(STONE) [LANDSLIDE MATERIAL]
						41		DARK OLIVE GREY TO OLIVE GREY, SOFT, MOIST, MASSIVE ~~TO THICKLY BEDDED~~
						42		DISCONTINUOUS, ALIGNED SAND LENSES N8W, 35-40W
						43		SOFT TO MODERATELY HARD (GRADUAL INCREASE IN HARDNESS W/DEPTH)
						44		SUBPARALLEL FE-OXIDE STAINED BANDS 1/8-1/2" THICK
						45		FRACTURES (?) N5W, 33E (TYPICAL)
								IRREGULAR CONTACT, WEATHERING
						46		DARK GREY (LESS OXIDIZED)
						47		1/8" THK. ROOT AND SCATTERED GYPSUM CRYSTALS
						48		HIGH ORGANIC CONTENT ALONG PLANAR FEATURE, 3"-6" N40W 47SW, THIS PLANE IS OFFSET ALONG CLAYEY SHEAR-THIN, TIGHT N30W 47E, 1/8-1/4" PLANE
						49		CLAYEY SHEAR, LOW ∠, THIN, LIGHT BRN. SILICEO MATERIAL N83E, 14N
						50		
						51		MODERATELY HARD (HARDNESS INCREASES W/DEPTH
								CLAY SEAM 1/16" THICK, N80W, 40NE
								CLAYSEAM 1/16" THICK, N8W, 10-16E
						52		SCATTERED CARBONATE FRAGMENTS TO 2" DIAM. SUBROUNDED.
								CLAY INTERBED, THIN, BEDDING? N80W 17NE
						53		GRADATIONAL
								DARK GREY BROWN (LESS OXIDIZED), MOD. HARD, MASSIVE
						54		POTENTIAL SLIDE PLANE? SHARP, CLAYEY, LOCALLY LT. GREY, STRONG STRIAE, N10-20W, 4W
						55		CLAYEY SILTSTONE TO SILTSTONE (TC)
						6		VERY DARK GREY, MOD. HARD TO HARD, MASSIVE, NO OBVIOUS STRUCTURE
						7		STRUCTURE NOT OBVIOUS
						8		HARD BELOW 58-60', STRUCTURELESS (Massive)
						9		END DOWNHOLE LOG @ 87'±
						90		END BORING @ 91'

CHK'D BY

BY DATE

LOCATION OF BORING	JOB NO. 1651-4	CLIENT Junipero Serra High School	LOCATION SAN JUAN CAPISTRANO
	DRILLING METHOD: BUCKET AUGER		BORING NO. LB-5
			SHEET 1 OF 4
	SAMPLING METHOD:		DRILLING
			START / FINISH
	WATER LEVEL		TIME / TIME
	TIME		
DRIVING WT.:	DATE		DATE / DATE
	CASING DEPTH		

DATUM ELEVATION

DRILLING CONTR.

CHK'D BY

DATE

BY

SAMPLER TYPE	INCHES DRIVEN / BLOWS	DEPTH OF CASING	SAMPLE NO. / SAMPLE DEPTH	BLOWS/FT. SAMPLER	NUMBER OF RINGS	DEPTH IN FEET	SOIL GRAPH	SURFACE CONDITIONS.
						0		SOIL ZONE / WEATHERED BEDROCK (LANDSLIDE AFFECTED)
								SILTY CLAY
						1		DARK GREYISH BROWN, SOFT, MOIST TO V. MOIST,
								ABUNDANT OXIDE MOTTLING, POROUS, W/NUMEROUS
						2		ROOTS TO 1/8" DIAM.
						3		
								CONCRETION W/GYPSUM (4×8"), WITH ABUNDANT
						4		GYPSUM X'TALS AND SEAMS
R			1 / 5'	1B=6" 1B=6" 1B=6"		5		FRACTURE N40E, 30NW, - OXIDE STAINED, 1/4" THICK W/GYPSUM XTALS, IRREG., DISCONTINUOUS
						6		NUMEROUS WAVY, DISCONT. FRACTURE PLANES AND
						7		OXIDES W/ABUNDANT ROOT HAIRS
								SCATTERED GYPSUM XTALS — GRADATIONAL, SUBTLE CHANGE
						8		CLAYEY SILT
								DARK BROWN, SOFT TO FIRM, SLIGHTLY MOIST, GYPSUM XTALS,
						9		WAVY, 1/4" INFILLINGS, ABUNDANT FE OXIDE STAINING
R			2 / 10'	1B=6" 2B=6"		10		DARK GREY, FIRM, SLIGHTY MOIST
						11		GREY
						12		
						13		
								1/2" CLAY SEAM, MOIST, PLASTIC, PLANAR, SHARP,
						14		N-S, 15-18E (PROBABLE SLIDE SURFACE)
R			3 / 15'	1B=6" 2B=6"		15		DARK BRN & DK GREY, FIRM, MOIST, W/ABUNDANT, ANGULAR ROCK FRAGMENTS, SLI. POROUS, ROOT HAIR (SOIL-LIKE TEXTURE)
						16		GRADATIONAL CONTACT
						17		BROWNISH GREY, FIRM, LESS CLAY % (PALEOSOL(?))
						18		FRACTURE, PLANAR, N40E, 55 SE, ROOTHAIRS, SLIGHTLY OPEN W/1/8" THICK, PLASTIC CLAY INFILLING, ABRUPT CONTACT (UNCONFORMITY - SLIP SURFACE)
						19		LIGHT BROWNISH GREY, FIRM TO STIFF, MOIST, WITH ABUNDANT ROOT HAIRS & SMALL ROCK FRAGMENTS
			4 / 20'	1B=6" 2B=6" 3B=6"		20		

LOCATION OF BORING	JOB NO	CLIENT	LOCATION
	1651-4	JUNIPERO SERRA HIGH SCHOOL	SAN. JUAN CAPISTRA

DRILLING METHOD: BUCKET AUGER

BORING NO. LB-5 (cont.)

SHEET 2 OF 4

SAMPLING METHOD:

DRILLING

					START	FINISH
WATER LEVEL					TIME	TIME
TIME						
DATE					DATE	DATE
CASING DEPTH						

DRIVING WT.:

DATUM ELEVATION

DRILLING CONTR.

SAMPLER TYPE	INCHES DRIVEN / BLOWS	DEPTH OF CASING	SAMPLE NO. / SAMPLE DEPTH	BLOWS/FT. SAMPLER	NUMBER OF RINGS	DEPTH IN FEET	SOIL GRAPH	SURFACE CONDITIONS.
						20		(CONT'D) CLAYEY SILT & SILTST. (WEATHERED BEDROCK—SLIDE AFFECTE LIGHT BROWNISH GREY, FIRM TO STIFF (MOD. HARD), MOIST WITH ABUNDANT OXIDE STAINS & SCATTERED ROOT
						21		HAIRS TO 1/16" THICK IN OPEN FRACTURES.
						22		BASE OF EXPOSED FRACTURE, WITH KNOT OF LIVE ROOTS, 1" THICK
						23		BEDDING INDISTINCT
								FRACTURE, N35E, 55-57SE, TIGHT, PLANAR, NO CLAY, SLIGHTLY WAVY
						24		CLAYEY SLTST + VERY FINE SANDY SILT (STONE)
R			5 / 25'	3B=6" 8B=6"		25		GREY, MOD. HARD (STIFF), MOIST, V. FRACTURED
								FRACTURES, SUBPARALLEL: N20W, 70-75NE, Fe OXIDES, ROOTS
						26		BEDDING INDISTINCT
						27		FRACTURED ZONE, STEEPLY DIPPING (>70° TYPICALLY), CLOSELY-SPACED, OXIDE STAINED, w/ ROOT HAIRS, DISCONTINUOUS, INTERSECTIN
						28		
						29		
						30		
						31		VERY TO MODERATELY FRACTURED, Fe OXIDE STAINING
						32		FEW SCATTERED ROOT HAIRS IN FRACTURES
						33		GRADUAL CHANGE
						34		DARKER COLOR & INCREASE IN HARDNESS w/ DEPTH
R			6 / 35	3B=6" 5B=6"		35		BEDDING INDISTINCT
						36		GRADATIONAL 37'-39'
						37		CHANGE TO —
						38		DARK OLIVE GREY, MOD. HARD TO HARD, MOIST, LESS OXIDIZED THAN ABOVE, BEDDING INDISTINC
						39		VERY FRACTURED, GYPSUM & OXIDE FILLED FRACTS
						40		FRACTURE: N10E, 45SE, TYPICAL TIGHT FRACTURE

CHK'D BY

DATE

BY

LOCATION OF BORING	JOB NO. 1651-4	CLIENT JUNIPERO SERRA HIGH SCHOOL	LOCATION SAN JUAN CAPISTRANO
	DRILLING METHOD: BUCKET AUGER		BORING NO. LB-5 (CONT.)
			SHEET 3 OF 4
	SAMPLING METHOD:		DRILLING
			START TIME / FINISH TIME
	WATER LEVEL		
	TIME		
DRIVING WT.:	DATE		DATE / DATE
	CASING DEPTH		

DRILLING CONTR.

DATUM ELEVATION

SURFACE CONDITIONS.

SAMPLER TYPE	INCHES DRIVEN / BLOWS	DEPTH OF CASING	SAMPLE NO. / SAMPLE DEPTH	BLOWS/FT. SAMPLER	NUMBER OF RINGS	DEPTH IN FEET	SOIL GRAPH	
								(CONT'D)
						40		CLAYEY SILT(STONE) (LANDSLIDE AFFECTED) BEDROCK
								DARK OLIVE GREY, MOD. HARD TO HARD, MOIST TO SLI.
						41		MOIST, W/ GYPSUM AND Fe OXIDE STAINING
								DARK GREY, HARD, SLI. MOIST, GRADATIONAL
						42		MODERATELY FRACTURED, SLIGHTLY WEATHERED
								← CLAY SEAM: N45E, 52SE, 1/4" THICK, TIGHT, INTERSECTS GYPSUM
						43		← FRACTURE: N80W, 75S GYPSUM FILLED, DR. OXIDE STAINED,
								CLAYEY SILTSTONE, NUMEROUS, HIGHLY POLISHED,
						44		TIGHT SHEARS, SOFT - MOD. HARD,
								← SLIDE PLANE, N87W, 15-25N, EW TREND. STRIAT., WAVY, CONT.
R			7 / 45'	16B=6" 40B=3"		45		BEDROCK (TC) - CLAYEY SILTSTONE
								DK. OLIVE GREY, HARD, SLI. MOIST, MOD. FRACT., SLI. WEATHRD., DISC.
						46		← WAVY, BEDDING(?) EW, 18N, SEVERAL TIGHT, THIN, NEAR-
								VERTICAL, VERY DK GREY, FRACTURES (?) INFILLING(?)
						47		W/ SCATTERED, SMALL (<3") SILICEOUS SILTSTONE NODULES
								— CLAY SEAM, N55E, 25-35SE, WAVY, VARYING THICKN
						48		UP TO 1/4" THICK,
								— BEDDING (INDISTINCT) N25W, 10-20SW
						49		LESS FRACTURED
						50		← CLAY SEAM, THIN, V. DARK GREY, NO MINERALIZATION,
						51		B. N70W, 19S BEDDING(?)
						52		
						53		← CLAY SEAM, N58W, 17S BEDDING(?), THIN, V. DARK GREY
								← FRACTURE, N8E, 53E, DISCONTINUOUS, SOFTER
						54		ALONG FRACTURE
R			8 / 55'	20B=6" 20B=4"		55		] — SLIGHT SEEP AND SOME SILICEOUS SILTSTONE NODULE
						56		
						57		
						58		SILTSTONE W/CLAY
						59		DARK OLIVE GREY TO DARK GREY, HARD, SLI. MOIST,
								THICKLY BEDDED TO MASSIVE, SLIGHTLY FRACT.
						60		— CLAY SEAM: N48W 15NE, TIGHT, THIN

CHK'D BY

DATE

BY

LOCATION OF BORING	JOB NO. 1651-4	CLIENT JUNIPERO SERRA HIGH SCHOOL	LOCATION SAN JUAN CAPISTRANO
	DRILLING METHOD: BUCKET AUGER		BORING NO. LB-5
			SHEET 4 OF 4
	SAMPLING METHOD:		DRILLING

					START	FINISH
WATER LEVEL					TIME	TIME
TIME						
DATE					DATE	DATE
CASING DEPTH						

DRIVING WT.: _____

DATUM ELEVATION

DRILLING CONTR. _____

BY _____ DATE _____ CHK'D BY _____

SAMPLER TYPE	INCHES DRIVEN / BLOWS	DEPTH OF CASING	SAMPLE NO. / SAMPLE DEPTH	BLOWS/FT. SAMPLER	NUMBER OF RINGS	DEPTH IN FEET	SOIL GRAPH	SURFACE CONDITIONS. (CONT'D)
						60		SILTSTONE WITH CLAY DARK OLIVE GREY TO DARK GREY, HARD, SLI. MOIST,
						61		
						62		↙ GRADATIONAL CONTACT
						63		CLAYEY SILTSTONE DARK OLIVE GREY, HARD, SLI. MOIST, THICKLY
						64		BEDDED TO MASSIVE, NO OBSERVABLE FRACTURES SMALL OXIDE STAINED NODULES, SCATTERED SILIC.
						65		SILTSTONE NODULES
						66		
						67		← CLAY SEAM: N26E 30E, THIN, CONTINUOU ZONE OF SUBPARALLEL, THIN CLAY SEAMS,
						68		BEDDING?
						69		
						70		ZONE OF THIN, TIGHT, CONTINUOUS, SUBPARALLEL CLAY SEAMS: N40E 15E (TYPICAL)
						71		NO OBSERVABLE BEDDING, OR OTHER SIGNIF.
						72		CHANGE, TO DEPTH.
						73		
						74		
						75		
						76		
						77		
						78		
						79		
						80		END OF BORING @ 80'

LOCATION OF BORING	JOB NO. 1651-4	CLIENT JUNIPERO SERRA HIGH SCHOOL	LOCATION SAN JUAN CAPISTRANO
	DRILLING METHOD: BUCKET AUGER		BORING NO. LB-6
			SHEET 1 OF 3
	SAMPLING METHOD:		DRILLING START / FINISH
	WATER LEVEL		TIME / TIME
	TIME		8 AM
DRIVING WT.:	DATE		DATE / DATE
	CASING DEPTH		3/30/01

DATUM ELEVATION

SURFACE CONDITIONS: GRASSY HILL NEAR SWIMMING POOL

DRILLING CONTR.

CHK'D BY

DATE

BY

SAMPLER TYPE	INCHES DRIVEN / BLOWS	DEPTH OF CASING	SAMPLE NO. / SAMPLE DEPTH	BLOWS/FT. SAMPLER	NUMBER OF RINGS	DEPTH IN FEET	SOIL GRAPH	
						0		MAN-MADE FILL (IN TRENCH) // SOIL ZONE CLAYEY SILT
						1		VERY DARK GREY, SOFT, SLI. MOIST, (MOTTLED IN TRENCH)
						2		
						3		
						4		PLASTIC WATER PIPE
						5		BASE OF FILL (IN TRENCH)
R			1 / 6'	1P=11" 2B=7"	6	6		HIGHLY WEATHERED BEDROCK (Tc) - "SOIL LIKE" CLAYEY SILT; DK GREY, SOFT, MOIST
						7		LESS CLAYEY, SLIGHTLY LESS POROUS, LIGHTER COLOR, SCATTERED ROOTS TO 1/8" THICK, SOFT TO STIFF, Fe OXIDE STAINING
						8		
						9		
R			2 / 10'	1B=6" 2B=6" 4B=6"	6	10		TRACE OF VERY FINE SILTY SAND, COLOR CHANGE
						11		GRADATIONAL CHANGE TO LESS WEATHERED BEDROCK (Tc) CLAYEY SILT (STONE)
						12		OLIVE GREY, SOFT TO MOD. HARD, MOIST, SLI. POROUS, SOME ROOT HAIRS
						13		
						14		
R			3 / 15'	1B=6" 1B=6" 3B=6"	6	15		CLAYEY SILT (STONE) TO MOD. HARD OLIVE BROWN, SOFT, MOIST, SLI. POROUS, WITH SCATTERED ROOT HAIRS, Fe OXIDE STAINING
						16		
						17		
						18		
						19		
						20		

LOCATION OF BORING	JOB NO. 1651-4	CLIENT JUNIPERO SERRA HIGH SCHOOL	LOCATION SAN JUAN CAPISTRANO
	DRILLING METHOD: BUCKET AUGER		BORING NO. LB-6
			SHEET 2 OF 3
	SAMPLING METHOD:		DRILLING
			START / FINISH
	WATER LEVEL		TIME / TIME
	TIME		
DRIVING WT.:	DATE		DATE / DATE
DATUM	CASING DEPTH	ELEVATION	

DRILLING CONTR.

SAMPLER TYPE	INCHES DRIVEN / BLOWS	DEPTH OF CASING	SAMPLE NO. / SAMPLE DEPTH	BLOWS/FT SAMPLER	NUMBER OF RINGS	DEPTH IN FEET	SOIL GRAPH	SURFACE CONDITIONS
						20		CLAYEY SILTSTONE (cont.)
						21		FRACTURE / PARTING SURFACE, IRREGULAR SURFAC 75°N
R			4 / 22'	1B=6" 1B=6" 2B=6"	6	22		CLAYEY SILTSTONE WITH VERY FINE SAND OLIVE BROWN, FIRM, MOIST TO VERY MOIST W/SEEPAGE
						23		ALONG PARTING SURFACES OF VARYING ORIENTATIONS, SLI. POROUS, NUM. OLD ROOT BURROWS
						24		SMOOTH, SUBROUNDED ROCK FRAGMENT, 3/4" DIA
						25		FINE TO COARSE SANDY LENSES
						26		ORANGE-BROWN MOTTLED, SOFT TO MOD. HARD WET, BLOCKY
						27		NUMEROUS, WELL-DEFINED PARTING SURFACES / FRACTURES, HEAVY SEEPAGE, CAVING
						28		DARK OLIVE BROWN, MOD. HARD, W/SUBROUNDED, ROCK FRAGMENTS, NUMEROUS
						29		NARROW, WHITE MINERAL INCLUSIONS, HIGHLY FRACTURED
R			5 / 30'	1B=6" 2B=6" 4B=6"	6	30		CLAYEY SILTSTONE GREY, MOD. HARD, MOIST, W/THIN Fe OXIDE BAND
						31		W/FINE CRYSTALS
						32		CASED HOLE TO 40'; SEEPS, CAVING
						33		PARTING SURFACES
						34		
						35		
						36		
						37		
						38		
						39		
						40		BOTTOM OF CASING

CHK'D BY

BY DATE

LOCATION OF BORING	JOB NO. 1651-4	CLIENT JUNIPERO SERRA HIGH SCHOOL	LOCATION SAN JUAN CAPISTRAN
	DRILLING METHOD: BUCKET AUGER		BORING NO. LB-6
			SHEET 3 OF 3
	SAMPLING METHOD:		DRILLING
			START TIME / FINISH TIME
	WATER LEVEL		
	TIME		
DRIVING WT.:	DATE		DATE / DATE
	CASING DEPTH		

DRILLING CONTR.

DATUM ELEVATION

SURFACE CONDITIONS:

SAMPLER TYPE	INCHES DRIVEN / BLOWS	DEPTH OF CASING	SAMPLE NO. / SAMPLE DEPTH	BLOWS/FT SAMPLER	NUMBER OF RINGS	DEPTH IN FEET	SOIL GRAPH	
						40		CLAYEY SILTSTONE (CONT.) GRAY, SOFT TO MOD HARD, MOIST + PARTING SURFACES w "SLABS OFF" WALLS.
						41		[NO DOWNHOLE LOGGING BELOW 41' DUE TO EXCESSIVE CAVING]
						42		
						43		
						44		
						45		
						46		NO DOWNHOLE LOG
						47		
						8		
						9		
						60		DARK GRAYISH BROWN, SOFT, MOIST LOCALLY MOTTLED + OXIDE STAINS
						1		
						2		
						3		
						4		
						65		
						6		
						7		
						8		
						9		
						0		

CHK'D BY

DATE

BY

LOCATION OF BORING	JOB NO. 1651-4	CLIENT JUNIPERO SERRA HIGH SCHOOL	LOCATION SAN JUAN CAPISTRANO
	DRILLING METHOD: BUCKET AUGER		BORING NO. LB-7
			SHEET 1 OF 3
	SAMPLING METHOD:		DRILLING
			START / FINISH
	WATER LEVEL		TIME / TIME
	TIME		
DRIVING WT.:	DATE		DATE / DATE
	CASING DEPTH		

DATUM ELEVATION

SURFACE CONDITIONS: NOTE: ±25' OF CUT AT BORING LOCATION

SAMPLER TYPE	INCHES DRIVEN / BLOWS	DEPTH OF CASING	SAMPLE NO. / SAMPLE DEPTH	BLOWS/FT. SAMPLER	NUMBER OF RINGS	DEPTH IN FEET	SOIL GRAPH	
						0		✓STREET SURFACE
								FILL — AC — AC — AC
						1		STREET BASE: SANDY GRAVELS
								WEATHERED BEDROCK (TC) (SLIDE AFFECTED TO 12')
						2		CLAYEY SILT(STONE) - V. DK GREY TO GREY, SOFT, MOIST
								← TWO SUBPARALLEL FRACTURES, WELL-DEFINED
						3		CLAY SEAMS, OXIDES, SOME STRAIE,
								SLIGHTLY OPEN WITH GYPSUM, N20W, 40E
						4		← FRACTURES CONTINUE, STEEPEN LOCALLY,
R			1/5'	1=6" 2=6" 2=6"		5		W/CLAY INFILLING - VERY FRACTURED.
						6		MOD. HARD, VERY FRACTURED
								ABUNDANT GYPSUM & OXIDE STAIN. ALONG FRACTURE
						7		← SLIGHT SEEP FROM FRACTURE: N35W, 18-25 SE
								← WAVY, CLAY FILLING, PARTLY OPEN, SHINY SURF., STEEPEN LOCALLY TO 45°
						8		← TWO SUBPARALLEL FRACTS. ∠ N25E, 35-45SE, SEEPS
								DARK GREY, MOD. HARD, VERY MOIST, SEEPAGE IN
						9		FRACTURES, VERY FRACTURED
								← SEVERAL FRACTURES WITH SEEPS GYPSUM-LINED
						10		OXIDES, SLI. OPEN, W/CLAY INFILLING
								N30E, 70°SE + 17° SE
						11		← HEAVY SEEPAGE
								← FRACTURE, PLANAR, SMOOTH, SEEPAGE N20E, 23-25 SE
						12		← POTENTIAL SLIP SURFACE
								BEDROCK, VERY DARK GREY, MOD. HARD, V. MOIST W/SEEPS,
						13		MOD. FRACTURED, LESS WEATHERED — GRADATIONAL CONTACT
						14		MICACEOUS
						15		✓GRADES TO:
								MOD. HARD TO HARD, SLI. FRACTURED, MOIST,
						16		SLI. WEATHERED, MASSIVE, MICACEOUS, NUMER
								MICRO-FOSSILS
						17		
						18		NO OBVIOUS STRUCTURE
						19		"MASSIVE"
						20		

DRILLING CONTR.

CHK'D BY

BY DATE

LOCATION OF BORING	JOB NO. 1651-4	CLIENT JUNIPERO SERRA HIGH SCHOOL	LOCATION SAN JUAN CAPISTRANO
	DRILLING METHOD:		BORING NO. LB-7
			SHEET 2 OF 3
	SAMPLING METHOD:		DRILLING
			START TIME / FINISH TIME
	WATER LEVEL		
	TIME		
	DATE		DATE / DATE
	CASING DEPTH		

DRIVING WT.: _____

DATUM _____ ELEVATION _____

SURFACE CONDITIONS.

SAMPLER TYPE	INCHES DRIVEN / BLOWS	DEPTH OF CASING	SAMPLE NO. / SAMPLE DEPTH	BLOWS/FT SAMPLER	NUMBER OF RINGS	DEPTH IN FEET	SOIL GRAPH	
			2 / 20'	4B=6" 6B=6"		20		WEATHERED BEDROCK (TO) CLAYEY SILT STONE
						21		VERY DARK GREY, MOD. HARD TO HARD, MOIST, SLI. WEATHERED, SLI. FRACTURED
						22		
						23		"MASSIVE" NO OBVIOUS STRUCTURES
						24		
						25		
						26		
						27		SCATTERED, DISCONTINUOUS, SMOOTH PARTING SURFACES, WITH CLAYEY FILMS (NOT CONTINUOUS AROUND THE HOLE
						28		MODERATELY TO VERY FRACTURED
						29		STEEPLY-DIPPING FRACTURES: N65E, 62°NW & 55°NW
						30		(SUBPARALLEL PLANES), WITH STRIAE DIPPING 10°-15°, SEMI-CONTINUOUS AROUND HOLE, POORLY DEFINED
						31		FRACTURE: N50E, 30°NW, DISCONTINUOUS
						32		NUMEROUS FRACTURES - DISCONTINUOUS
						33		N20E, 25°-30°NW
						34		
						35		CONCRETION, VERY HARD, INTENSELY FRACTURED 16" MAX. DIAM., FRAGMENTED, CALCAREOUS(?)
						36		
						37		FRACTURE, PLANAR, SMOOTH, N-S, 55°E
						38		FRACTURE, PLANAR, SMOOTH, N-S, 70°E
						39		DARK OLIVE GREY TO VERY DARK GREY
						40		

DRILLING CONTR _____

CHK'D BY _____

BY _____ DATE _____

LOCATION OF BORING	JOB NO. 1651-4	CLIENT JUNIPERO SERRA HIGH SCHOOL	LOCATION SAN JUAN CAPISTRAI

DRILLING METHOD:

BORING NO. LB-7

SHEET 3 OF 3

SAMPLING METHOD:

DRILLING START TIME / FINISH TIME

WATER LEVEL						
TIME						
DATE						
CASING DEPTH						

DATE / DATE

DRIVING WT.:

DATUM ELEVATION

DRILLING CONTR.

SAMPLER TYPE	INCHES DRIVEN / BLOWS	DEPTH OF CASING	SAMPLE NO. / SAMPLE DEPTH	BLOWS/FT SAMPLER	NUMBER OF RINGS	DEPTH IN FEET	SOIL GRAPH	SURFACE CONDITIONS.
						40		WEATHERED BEDROCK (Tc)
								CLAYEY SILT STONE
						41		VERY DARK GREY TO DARK OLIVE GREY, MOD. HARD TO HARD, MOIST, MOD. FRACTURED
						42		PARALLEL PAIR OF FRACTURES (FAULT?) PLASTIC CLAY-FILLED NS, 42°-50°E, FRACTURE STEEPENS TO 60°-75° @ 44'±
						43		
						44		VERY DARK GREY, HARD, MASSIVE, SLIGHTLY FRACTR
						45		
						46		STEEPLY-DIPPING, 1" WIDE X 14" LONG SAND-INFILLING OF FINE TO MEDIUM SAND, FOSSILIFEROU (SHELL FRAGS(?))
						47		
						48		
						49		
						50		VERY HARD, MASSIVE, NUMEROUS MICROFOSSILS
						1		
						2		
						3		
						4		
						55		NO OBSERVABLE STRUCTURE, MASSIVE
						6		
						7		
						8		
						9		5" X 2" LIGHT GREY CLAYEY SILT NODULE
								END DOWNHOLE LOG 73' ±
						60		CONTINUES TO 80' - MASSIVE, NO CHANGE

CHK'D BY

DATE

BY

BORING LOG

Logged By: PD/AOM	Date Drilled: 4-11-01	Drill Rig:	Boring Diameter:	Boring Number: LB-8
Descriptions on this boring log apply only at the specific boring location and at the time the boring was made. The descriptions on this log are not warranted to be representative of subsurface conditions at other locations or times.			Boring Elevation:	

DEPTH, FT	SAMPLES	BLOWS/FOOT	GROUND WATER	DESCRIPTION	MOISTURE CONTENT, %	DRY DENSITY pcf	OTHER TESTS
				SOIL ZONE / SLOPEWASH (QSW) SILTY CLAY TO CLAYEY SILT (ML) DARK BROWN, SOFT, MOIST, VERY POROUS WITH NUMEROUS ROOT HAIRS			
5							
				SILTY CLAY (CL) DARK BROWN, FIRM, MOIST, POROUS W/LIGHT BROWN MOTTLING IN IRREGULAR SHAPED ZONES			
10				GRADATIONAL CONTACT			
				OLD ALLUVIUM (Qalo) CLAYEY SILT (ML) LIGHT OLIVE BROWN, FIRM, MOIST, W/ NUMEROUS ROOT HAIRS AND ABANDONED ROOT HOLES			
15				MOTTLED, WITH FE OXIDE STAINS AND DARK MINERAL POCKETS, SCATTERED DECOMPOSED ANGULAR ROCK FRAGMENTS, WITH IRREGULAR DARK MOTTLING ZONES, MULTI-COLORED, WITH SILTY CLAY POCKETS AND LENSES			
20				SLIP SURFACE ? DARK BROWN "BAND" OF SILTY CLAY, FINELY LAMINATED, 1/2" TO 3" THICK, CONTINUOUS, N35W, 15SW (DEPOSITIONAL) - UNCONFORMITY(?) W/ V. THIN FILM OF PLASTIC CLAY ON UPPER SURFACE. LESS MOTTLED, WITH SCATTERED GYPSUM, CRYSTALS, AND COLOR "BANDS", SLUMP STRUCTURES, (SOFT SEDIMENT DEFORMATION ?)			
25				SILTY CLAY MOTTLED, PLASTIC, MOIST, IN POCKETS AND LENSES, W/ ANGULAR, DECOMPOSED ROCK FRAGMENTS			

HAMMER	WEIGHT:	PROJECT NO.:	FIGURE NO.:
	DROP:	1651-4	LB-8-1

BORING LOG

gged By:	Date Drilled:	Drill Rig:	Boring Diameter:	Boring Number:
Descriptions on this boring log apply only at the specific boring location and at the time the boring was made. The descriptions on this log are not warranted to be representative of subsurface conditions at other locations or times.			Boring Elevation:	LB-8 (CONT.)

DEPTH, FT	SAMPLES	BLOWS/FOOT	GROUND WATER	DESCRIPTION	MOISTURE CONTENT, %	DRY DENSITY pcf	OTHER TESTS
5				OLD ALLUVIUM (Qolo) CONT.			
				SILTY CLAY (CONT.)			
				CLAYEY SILT (ML) TO SILTY CLAY (CL)			
				DARK GREY - BROWN, FIRM, MOIST, MICACEOUS, (ABRUPT COLOR CHANGE), UPPER CONTACT IS IRREGULAR AND SLOPES 10° TO 15° TO THE WEST			
				GREY-BROWN, FIRM MOIST WITH NUMEROUS SLUMP, DEPOSITIONAL FEATURES SUCH AS RIP-UP CLASTS, BANDING, ANGULAR ROCK FRAGMENTS, FLOW STRUCTURES (RAPID DEPOSITION)?			
10							
				WITH SCATTERED GYPSUM CRYSTALS TO 4" LONG			
15				SILTY CLAY (CL) — CONTACT NEAR-HORIZONTAL, PLASTIC CLAY FILM DISCONTINUOUS, DEPOSITIONAL,			
				DARK GREY BROWN, FIRM, MOIST			
				SCATTERED CONCRETIONS TO 3" DIAM.			
				NUMEROUS ROCK FRAGMENTS, ANGULAR TO SUBROUNDED, W/SCHIST FRAGMENTS			
20							
				WHITE MINERAL MOTTLING			
				NEAR HORIZONTAL BEDDING — COLOR BANDS			
				STEEPLY-DIPPING COLOR BAND (FLOW-DEFORM. DURING DEPOSITION?)			
				VERY MOIST			
25				COARSE SAND POCKET, SLIGHT SEEPAGE			
				WITH IRREGULAR POCKETS OF DARK MINERAL CONCENTRATIONS, ORGANICS,			
				ORGANIC-RICH LENSES, SOME DIPPING 20° TO THE EAST			
				SAND LENSES, THIN, LIGHT GREY, DISCONTINUOUS			
50							

HAMMER	WEIGHT:	PROJECT NO.:	FIGURE NO.:
	DROP:	1651-4	LB-8-2

BORING LOG

gged By:	Date Drilled:	Drill Rig:	Boring Diameter:	Boring Number:
Descriptions on this boring log apply only at the specific boring location and at the time the boring was made. The descriptions on this log are not warranted to be representative of subsurface conditions at other locations or times.			Boring Elevation:	LB-8 (Cont.)

DEPTH, FT	SAMPLES	BLOWS/FOOT	GROUND WATER	DESCRIPTION	MOISTURE CONTENT, %	DRY DENSITY pcf	OTHER TESTS
50				OLD ALLUVIUM (Qolo) (cont.) SILTY CLAY (CL) (cont.) ← SAND BED 1/3"-1" THICK, DIPS 18-20° TO NORTH, SLIGHT SEEPAGE, LT. BROWN, V. FINE SAND, FOLLOWS JOINTING N40W, 18-20°N ← SHEAR (POSSIBLE SLIP SURFACE) N65W, 17-19NE PLANAR, SHINY, CLAY FILM, STRIATIONS, — MODERATELY FRACTURED ZONE			
55	are fracts cont. across contact is contact about gradual			BEDROCK (Tc) CONTACT-N30W, 40°NE, CLAYEY, DISCONTIN CLAYEY SILTSTONE DARK GREY, MOD. HARD TO HARD, SLIGHTLY MOIST, MICACEOUS, THICKLY BEDDED TO MASSIVE, MOD. TO VERY FRACTURED, OXIDE STAINED FRACTURES W/ SLIGHT SEEPAGE, DIPPING 38-42° NE			
60		Shale?		← CONCRETION, 12" DIAM, INTENS. FRACTURED, SEEPAGE ← CLAY SEAM, N40E 26SE, VERY THIN, CONTINUOUS, SLICK SURFACE, SLIGHTLY FRACTURED ← CLAY SEAM (BEDDING?) N-S, 31E, TIGHT, SOMEWHAT IRREGULAR HARD, MASSIVE, NO FRACTURES (SLOWLY INCREASED HARDNESS W/ DEPTH) MOIST,			
65							
70				VERY HARD			
75							

HAMMER	WEIGHT:	PROJECT NO.:	FIGURE NO.:
	DROP:	1651-4	LB-8-3

BORING LOG

Logged By:	Date Drilled:	Drill Rig:	Boring Diameter:	Boring Number:
				LB-8 (cont.)

Descriptions on this boring log apply only at the specific boring location and at the time the boring was made. The descriptions on this log are not warranted to be representative of subsurface conditions at other locations or times.

Boring Elevation:

DEPTH, FT	SAMPLES	BLOWS/FOOT	GROUND WATER	DESCRIPTION	MOISTURE CONTENT, %	DRY DENSITY pcf	OTHER TESTS
75				BEDROCK (Tc) (cont.) SILTSTONE TO CLAYEY SILTSTONE DARK OLIVE GREY, HARD, MOIST, THICKLY BEDDED TO MASSIVE W/ FINE, WHITE, DISCONTINUOUS LENTICULAR STREAKS (RELICT BEDDING(?)) BEDDG(?) N 9W, 16-25W? INDISTINCT, NO OBSERVABLE FRACTURES MODERATELY FRACTURED, W/SCATTERED MICROFOSSILS FRACTURE, TIGHT, SLIGHTLY CLAYEY, NO STRAIE, NS, 23E W/SUBPARALLEL FRACTURES			
80				FRACTURE, TIGHT, NO MINERALIZATION, SLICKENSIDES, SLIGHTLY CLAYEY, N10W, 55°-60° NE, CONTINUOUS, WITH SUBPARALLEL SURFACES 30°-60° NE, IN A ZONE APPROX. 1' THICK, MOD. HARD, MOIST			
85				FRACTURE ZONE, MOD. HARD, NUM. SLICKS, MOIST TO VERY MOIST, FRACTURES, TIGHT, LOCALLY CLAYEY W/SLICKENSIDES, N23W, 45° NE W/SUBPARALLEL FRACTURES 23°-45° NE, INTERSECTING THE MOST CONTINUOUS FRACTURE, NO MINERALIZATION ALONG FRACTURES SLIGHT SEEP			
90				FRACTURE, TIGHT, CLAYEY, SLICKENSIDES, N50W, 40° NE W/ ZONE OF SUBPARALLEL FRACTS. DIPPING 27°-40° NE, ZONE OF FRACTURES MOD. HARD, MOST FRACTURES DISCONTINUOUS OR INTERSECTING			
95				FRACTURE, TIGHT, SLIGHTLY CLAYEY, NO MINERALIZATION, CONTINUOUS AROUND HOLE, N31W, 32 NE SLICKENSIDES			
100				FRACTURE, TIGHT, SLIGHT SEEPAGE, N10W, 50NE, W/ DISCONTIN., INTERSECTING FRACTURE DIPPING 24° NE SLI. TO MOD. FRACT., UPPR. FRACT. N-S, 19E,			

HAMMER	WEIGHT:	PROJECT NO.:	FIGURE NO.:
	DROP:	1651-4	LB-8-4

BORING LOG

Logged By:	Date Drilled:	Drill Rig:	Boring Diameter:	Boring Number:
				LB-8 (cont.)

Descriptions on this boring log apply only at the specific boring location and at the time the boring was made. The descriptions on this log are not warranted to be representative of subsurface conditions at other locations or times.

Boring Elevation:

DEPTH FT	SAMPLES	BLOWS/FOOT	GROUND WATER	DESCRIPTION	MOISTURE CONTENT, %	DRY DENSITY pcf	OTHER TESTS
100				BEDROCK (Tc) cont.			
				SILTSTONE TO CLAYEY SILTSTONE			
				DARK OLIVE GREY, HARD, MOIST, THICKLY BEDDED TO MASSIVE, MOD. FRACTURED, FRACTURES THIN, DISCONTINUOUS, SLIGHT SEEPAGE ALONG FRACTURES, DIP EASTERLY 19°-25°			
				SLIGHTLY FRACTURED			
				VERY HARD, SLI. MOIST			
105							
				V. DARK GREY, very hard, moist, thickly bed-MASSIVE, SLI. -"NON" FRACTURED			
				ZONE OF V. HARD, FRACTURED SCATTERED, SILIC. SILTSTONE NODULES TO 3" DIAM., SLIGHT SEEP			
110							
				SLIGHT SEEP			
115							
120				HOLE LOGGED TO 114'. SLIGHT CAVING @ 35-45'. HOLE BACKFILLED.			

HAMMER	WEIGHT:	PROJECT NO.:	FIGURE NO.:
	DROP:		LB-8-5

BORING LOG

Logged By:	Date Drilled:	Drill Rig: BUCKET AUGER	Boring Diameter:	Boring Number: LB-9
Descriptions on this boring log apply only at the specific boring location and at the time the boring was made. The descriptions on this log are not warranted to be representative of subsurface conditions at other locations or times.			Boring Elevation:	

DEPTH, FT	SAMPLES	BLOWS/FOOT	GROUND WATER	DESCRIPTION 7 245	MOISTURE CONTENT, %	DRY DENSITY pcf	OTHER TESTS
1				VERY WEATHERED BEDROCK (Qls) (LANDSLIDE MATERIAL) SILTY CLAY (STONE) DARK GREYISH BROWN, SOFT, MOIST, FE OXIDE MOTTLING W/WHITE MINERAL STAINS			
2							
3							
4				GRADES TO SILTY CLAY TO CLAYEY SILT GREY, SOFT, SLI. MOIST W/FE OXIDE AND WHITE MINERAL STAINING			
5							
10				NUMEROUS STEEP FRACTURES W/OXIDE STAIN. AND GYPSUM INFILLING, SCATTERED LENSES OF MOTTLED, DARK BROWN SOIL-LIKE MATERIAL; CLAYEY SLIP SURFACE - N-S, 35°W; CHARCOAL FRAGMENTS < 1/2" DIAMETER; FRACTURE - N40W, 70NE; CLAYSEAM - N40E, 12SE, CONTINUOUS			
				SANDSTONE CONCRETION; VERY HARD, ORANGE, 8" DIAM, FE OXIDE STAINING, GYPSUM, LENSES OF V.F. SAND			
15				SHEAR - N35W, 55°SW, CLAYEY, VERY MOIST, PLASTIC, TO 1/2" THICK, W/GYPSUM AND FE OXIDE STAINING			
				CLAYEY SILT TO CLAY (STONE) DARK GREY TO DARK GREYISH BROWN, SOFT, MOIST-VERY MOIST, MICACEOUS			
20				ABUNDANT ORANGE OXIDE STAINING, NEAR VERTICAL FRACTURES - N30W, NEAR VERT.; CLAY LENSE, ORANGE, PLASTIC, MOIST			
				COBBLES, FRACTURED 4"-6" DIAM. FRAGMENTS			
				SHEAR, N50E, 37°NW, CLAYEY, SHARP, PLANAR, 1/8" THICK, SLICKENSIDES			
				JOINTING, NUMEROUS NEAR-VERTICAL FRACT.S NS TRENDING W/FE OXIDE STAINING, SLIGHT SEEP, SCATTERED ORGANIC + SMALL ROCK FRAGMNTS.			
25				CLAYEY SAND, CONTINUOUS FRACT.S N70W, 77S			

HAMMER	WEIGHT:	PROJECT NO.: 1651-5	FIGURE NO.: 1
	DROP:		

BORING LOG

Logged By:	Date Drilled:	Drill Rig:	Boring Diameter:	Boring Number:
			Boring Elevation:	LB-9 cont.

Descriptions on this boring log apply only at the specific boring location and at the time the boring was made. The descriptions on this log are not warranted to be representative of subsurface conditions at other locations or times.

DEPTH FT	SAMPLES	BLOWS/FOOT	GROUND WATER	DESCRIPTION	MOISTURE CONTENT, %	DRY DENSITY pcf	OTHER TESTS
25				VERY WEATHERED BEDROCK (Qls) (LANDSLIDE MATERIAL) (cont) CLAYEY SILT (STONE) DARK GREYISH BROWN, SOFT, MOIST, SOME FE OXIDE STAINING			
30				SOIL-LIKE INFILLING, DARK GREY TO BROWN, IRREGULAR, FLOW STRUCTURES, OLD SOIL(?), SOME ORGANIC MATERIAL, EW, 45°S			
				MOIST TO WET - SEEPAGE, INTENSELY FRACTURED			
				SLIDE PLANE - N70W 6SW W/ STRIATIONS-N55W			
35				BEDROCK (Tc) SILTSTONE VERY DARK GREY, MOD. HARD, SLI. MOIST, UNOXID, SCATTERED MICROFOSSILS			
40							
	Scale break						
50				DARK OLIVE GREY, MOD. HARD TO HARD, SLI. MOIST, MICROFOSSILS			
60							

HAMMER	WEIGHT:	PROJECT NO.:	FIGURE NO.:
	DROP:	1651-4	2

BORING LOG

Logged By:	Date Drilled:	Drill Rig:	Boring Diameter:	Boring Number:
				LB-9 cont.

Descriptions on this boring log apply only at the specific boring location and at the time the boring was made. The descriptions on this log are not warranted to be representative of subsurface conditions at other locations or times.

Boring Elevation:

DEPTH, FT	SAMPLES	BLOWS/FOOT	GROUND WATER	DESCRIPTION	MOISTURE CONTENT, %	DRY DENSITY pcf	OTHER TESTS
60				BEDROCK (Tc) cont. SILTSTONE DARK OLIVE GREY, MOD. HARD TO HARD, SLI. MOIST, MICRO FOSSILS			
70							
				END OF BORING @ 80'. HOLE BACKFILLED.			
80							

HAMMER	WEIGHT:	PROJECT NO.:	FIGURE NO.:
	DROP:	1651-4	3

BORING LOG

Logged By:	Date Drilled:	Drill Rig:	Boring Diameter:	Boring Number:
				LB-10

Descriptions on this boring log apply only at the specific boring location and at the time the boring was made. The descriptions on this log are not warranted to be representative of subsurface conditions at other locations or times.

Boring Elevation:

DEPTH, FT	SAMPLES	BLOWS/FOOT	GROUND WATER	DESCRIPTION	MOISTURE CONTENT, %	DRY DENSITY pcf	OTHER TESTS
				WEATHERED BEDROCK (Q/S) (LANDSLIDE MATERIAL) CLAYEY SILT (STONE) TO SILTY CLAY (STONE) DARK BROWN, SOFT, SLI. MOIST, FE OXIDE STAIN. NO OBVIOUS BEDDING			
5				WHITE MINERAL STAINING			
				SOIL-LIKE LENSE, DK. BRN, IRREG, DISCONTIN., FE OXIDE STAIN., FRACTURES W/GYPSUM, NS 40°W, SOFT			
				FRACTURE: EW, 65°S, CONTINUOUS, FE OXIDE STAIN, POSSIBLE STRIATIONS			
				MODERATELY TO VERY FRACTURED, CLOSELY SPACED FRACTURES, INTERSECTING, DISCONTINUOUS, STEEPLY DIPPING - VERTICAL TO 70° (TYPICALLY) MOIST			
10							
15				STRIATED SURFACE, WAVY, DISCONTIN. E-W, 55S			
				CONCRETION, SOFT, ORANGE, VERY WEATHERD.			
				CLAY SEAM, OLIVE GREY, SOFT, V. MOIST, SMOOTH, SHINY, PLASTIC, WELL-DEVELOPED STRIATIONS DOWN-DIP N65W, 38°NW			
20				ZONE OF SMOOTH SHEARS, SOME CLAY, WET, INTENSELY FRACTRD, SOFT, ABUNDANT GYPSUM, N70E 55-70N			
				ZONE OF HEAVY OXIDE STAINING AND WET FRACTURES			
				SHEAR, CLAYEY, SMOOTH, SLICKS, CONTINUOUS, WET, N15W, 50°SW, WITH SUBPARALLEL SHEARS TO 70° DIPS			
25							

HAMMER	WEIGHT:	PROJECT NO.:	FIGURE NO.:
	DROP:	1651-4	1

BORING LOG

Logged By:	Date Drilled:	Drill Rig:	Boring Diameter:	Boring Number:
				LB-10 cont.

Descriptions on this boring log apply only at the specific boring location and at the time the boring was made. The descriptions on this log are not warranted to be representative of subsurface conditions at other locations or times.

Boring Elevation:

DEPTH, FT	SAMPLES	BLOWS/FOOT	GROUND WATER	DESCRIPTION	MOISTURE CONTENT, %	DRY DENSITY pcf	OTHER TESTS
25				WEATHERED BEDROCK (Qls) (LANDSLIDE MATERIAL) (cont.) CLAYEY SILT (STONE) TO SILTY CLAY (STONE) DARK, SOFT, MOIST, HIGHLY FRACTURED, NO OBVIOUS BEDDING, ← SHEAR, PLANAR, SMOOTH, SLICKS, SEEPAGE, N20W, 53°SW,			
				IRREGULAR CONTACT			
30				CLAYEY SILT (STONE) DARK GREY, LESS OXIDIZED, SOFT, MOIST, SAND LENSES			
				SHEARS, N70W, 47°N WITH STRIATIONS TRENDING N30E, WELL DEVELOPED SURFACE, CUT OFF BY:			
				← SHEAR: N35W, 45°SW, VERY SOFT DARK GREY; CAVING			
35				LIVE ROOTS, 1/4" THICK			
				GREY, SOFT, MOIST, WITH SAND POCKETS, W/ NUMEROUS, NEAR VERTICAL FRACTURES, DISCONTIN. MOTTLED WITH WHITE MIN. AND Fe OXIDE STAINING WITH BLACK ORGANIC MATERIAL.			
				FRACTURE ZONE, N45W, 45°SW (TYPICAL)			
40				DARK GREY BROWN, MOD. HARD, MOIST, MOD. FRACTURED W/ SOME LIGHT COLORED ZONES, LOCALLY SANDY			
				← LIGHT TO MEDIUM GREY COLOR BANDING, VERY FRACTURED WITH DISCONTINUOUS SHEARS,			
45				← NUMEROUS DISCONTINUOUS SHEARS, SOFT TO MOD. HARD, SLIGHT TO MOD. FRACTURED COLOR-BANDING: N40W, 15NE (B?)			

HAMMER	WEIGHT:	PROJECT NO.:	FIGURE NO.:
	DROP:	1651-4	2

BORING LOG

Logged By:	Date Drilled:	Drill Rig:	Boring Diameter:	Boring Number:
				LB-10 cont.

Descriptions on this boring log apply only at the specific boring location and at the time the boring was made. The descriptions on this log are not warranted to be representative of subsurface conditions at other locations or times.

Boring Elevation:

DEPTH, FT	SAMPLES	BLOWS/FOOT	GROUND WATER	DESCRIPTION	MOISTURE CONTENT, %	DRY DENSITY pcf	OTHER TESTS
0				WEATHERED BEDROCK (QLS) LANDSLIDE MATERIAL (QLS) (CONT.) CLAYEY SILT(STONE) DARK GREY BROWN, MOD. HARD, MOIST, FRACTURED NO OBSERVED BEDDING, TRACE ORANGE OXIDE STAINING			
				FRACTURES, IRREGULAR, NEAR VERTICAL, DISCONTINUOUS			
5				CLAYEY SILT(STONE) GREY, SOFT, V. MOIST - WET W/SLIGHT SEEPAGE ALONG FRACTURES, MOD. FRACTURED			
10				VERY FRACTURED, DISCONTINUOUS SLICKED SURFACES			
				CONCRETIONS, FRACTURED, WELL-CEMENTED			
15				NUMEROUS, STEEP FRACTURES			
				SLIDE PLANE N-S, 10°E, PLANAR, SMOOTH, CLAYEY, SLICKS; SHINY; (ANCIENT LANDSLIDE PLANE)			
				BEDROCK (TC) CLAYEY SILTSTONE DARK GREY, MOD. HARD TO HARD, SLIGHTLY MOIST TO MOIST, MICACEOUS, MASSIVE TO THICKLY BEDDED, UNFRACTURED, MICROFOSSILS			
20				HARD			
25							

HAMMER	WEIGHT:	PROJECT NO.:	FIGURE NO.:
	DROP:	1651-4	3

BORING LOG

gged By:	Date Drilled:	Drill Rig:	Boring Diameter:	Boring Number:
				LB-10 (cont.)

Descriptions on this boring log apply only at the specific boring location and at the time the boring was made. The descriptions on this log are not warranted to be representative of subsurface conditions at other locations or times.

Boring Elevation:

DEPTH, FT	SAMPLES	BLOWS/FOOT	GROUND WATER	DESCRIPTION	MOISTURE CONTENT, %	DRY DENSITY pcf	OTHER TESTS
75				BEDROCK (Tc) (cont.) CLAYEY SILTSTONE DARK GREY, HARD, SLIGHTLY MOIST - MOIST, MICACEOUS, MASSIVE, UNFRACTURED, MICROFOSSILS			
85				DARK OLIVE GREY			
90							
95				HARD CONCRETION			
100				END OF BORING @ 100'			

HAMMER	WEIGHT:	PROJECT NO.:	FIGURE NO.:
	DROP:	1651-4	5

BORING LOG

Logged By: RF/RD	Date Drilled: 4-23-01	Drill Rig:	Boring Diameter:	Boring Number: LB-11
Descriptions on this boring log apply only at the specific boring location and at the time the boring was made. The descriptions on this log are not warranted to be representative of subsurface conditions at other locations or times.			Boring Elevation:	

DEPTH, FT	SAMPLES	BLOWS/FOOT	GROUND WATER	DESCRIPTION	MOISTURE CONTENT, %	DRY DENSITY PCF	OTHER TESTS
0				OLD ALLUVIUM (Qalo) CLAYEY SILT VERY DARK GREYISH BROWN, SOFT, MOIST, (TOPSOIL)			
				DARK BROWN, VERY SOFT, MOIST, VERY POROUS, WITH NUMEROUS ROOT HAIRS			
				LIGHT BROWN, SLIGHTLY SANDY, NUMEROUS RODENT HOLES			
5				DARK BROWN, VERY SOFT, MOIST, WITH FE OXIDES			
				BROWN, SOFT, SLI. MOIST, SCATTERED ROOT HAIRS, FE OXIDE STAINING, WHITE MINERAL STAINING, VERY POROUS			
				ROCK LAYER, ANGULAR TO SUBANGULAR CLASTS TO 8" DIAMETER, $CaCO_3$ RICH, HORIZONTAL			
10				DARK BROWN, VERY SOFT, SLI. MOIST, VERY POROUS,			
				SOFT, MOD. POROUS, ROOTS TO 1/4" DIAM, NUM. ROOT HAIRS, LESS FE OXIDE STAINING W/LARGE NODULE 14X8X5CM. SOME WHITE MIN. STAINING			
				SAND LENSES, LIGHT BRN., IRREG. SHAPED, 1/2" THCK, 6-8" LONG, SUBHORIZONTAL			
15				BROWN, FIRM, SLI. MOIST, FE OXIDE STAINING, POROUS TO SLIGHTLY POROUS, SCATTERED ROOTS TO 1/8" DIAM.			
				← COLOR BANDING (SUBTLE), CLAYEY, NEAR HORIZ.			
				← DARK BROWN (PALEOSOL)			
				MOTTLED, FIRM, SLI. MOIST, SLI. POROUS, SCATTERED ROOT HAIRS WITH ROCK FRAGMENTS TO 2" DIAM. FE OXIDE STAINING			
20				CLAYIER, YELLOW & WHITE MIN. STAINING			
25							

HAMMER	WEIGHT:	PROJECT NO.:	FIGURE NO.:
	DROP:	1651-4	1

BORING LOG

Logged By:	Date Drilled:	Drill Rig:	Boring Diameter:	Boring Number:
				LB-11 cont

Descriptions on this boring log apply only at the specific boring location and at the time the boring was made. The descriptions on this log are not warranted to be representative of subsurface conditions at other locations or times.

Boring Elevation:

DEPTH, FT	SAMPLES	BLOWS/FOOT	GROUND WATER	DESCRIPTION	MOISTURE CONTENT, %	DRY DENSITY pcf	OTHER TESTS
25				OLD ALLUVIUM (Qa/o)(cont.)			
				CLAYEY SILT BROWN MOTTLED, FIRM, SLI. MOIST, SLI. POROUS, W/ORANGE, YELLOW & WHITE MINERAL STAINING			
				CLAYEY SILT TO SILTY CLAY OLIVE BROWN TO DARK YELLOWISH BROWN MOTTLED, SOFT; VERY MOIST, WHITE MINERAL STAINING, SCATTRD ROOTLETS,			
30				SLIGHT SEEP SCATTERED SUBROUNDED-ROUNDED COBBLES TO 4" DIAM., NEAR VERTICAL FRACTURES (PART. SURFACES)			
				ANGULAR ROCK FRAGMENTS			
35				HEAVY SEEPAGE UNDER ROCKS, SOFT, NUM. NEAR VERT. PARTING SURF. (FRACTURES), WHICH PULL APART EASILY, DIPS 70° TO VERT TO NW IN GENERAL			
				SILTY CLAY DARK YELLOWISH BROWN, SOFT, VERY MOIST, W/ POCKETS OF WEATHERED ROCK UP TO 3cm. DIAM. FE OXIDE STAINING, SANDY LENSE, SOME WHITE STREAKING, GRADES TO LIGHT OLIVE BROWN, W/ BLACK & WHITE MIN. STAINING.			
40				[END DOWNHOLE LOG]			
45				ABUNDANT WHITE MIN. STAINING			
				DARK GREYISH BROWN, SOFT, MOIST, SOME MIN STAINING - BLACK, WHITE & FE OXIDE			
50							

HAMMER	WEIGHT:	PROJECT NO.:	FIGURE NO.:
	DROP:	1651-4	2

BORING LOG

Logged By:	Date Drilled:	Drill Rig:	Boring Diameter:	Boring Number:
				LB-11(cont.)

Descriptions on this boring log apply only at the specific boring location and at the time the boring was made. The descriptions on this log are not warranted to be representative of subsurface conditions at other locations or times.

Boring Elevation:

DEPTH, FT	SAMPLES	BLOWS/FOOT	GROUND WATER	DESCRIPTION	MOISTURE CONTENT, %	DRY DENSITY pcf	OTHER TESTS
50				OLD ALLUVIUM (Qalo)(Cont.) SILTY CLAY GREY BROWN TO DARK BROWN MOTTLED, SOFT, MOIST, SCATTERED ROCKS, WHITE, BLACK AND Fe OXIDE MINERAL STAINING.			
55							
60				TOTAL DEPTH = 60' LB-11 DRILLED TO 31' – CAVING REQUIRED REDRILLING OF LB-11 6' TO NORTH. FIRST HOLE DOWN HOLE LOGGED TO 31. SECOND HOLE LOGGED FROM 25'–43'. TOO HAZARDOUS TO LOG BELOW 43.			

HAMMER	WEIGHT:	PROJECT NO.:	FIGURE NO.:
	DROP:	1651-4	3

BORING LOG

Logged By: RF/PD	Date Drilled: 4-26-01	Drill Rig:	Boring Diameter:	Boring Number: LB-12
Descriptions on this boring log apply only at the specific boring location and at the time the boring was made. The descriptions on this log are not warranted to be representative of subsurface conditions at other locations or times.			Boring Elevation:	

DEPTH, FT	SAMPLES	BLOWS/FOOT	GROUND WATER	DESCRIPTION	MOISTURE CONTENT, %	DRY DENSITY pcf	OTHER TESTS
				SLOPEWASH / LANDSLIDE MATERIAL -(QSW/QLS) SILTY CLAY DARK BROWN, FIRM TO STIFF, SLI. MOIST, SCATTERED SMALL ROCK FRAGMENTS (POSSIBLY OLD FILL), ROOTS,			
5				MOIST, SLIGHTLY POROUS, WHITE MINERAL STAINING FE OXIDE STAINING			
10				CLAYEY SILT LIGHT OLIVE BROWN, FRIM, SLI. MOIST, ABUNDANT WHITE MINERAL STAINING, SOME FE STAINING SCATTERED ROCK FRAGMENTS TO 2" DIAM., ABUNDANT WHITE MIN. STAINING, NETWORK OF STAINING MAY BE INFILLED ROOTS, UNIFORM-LOOKING SOIL (ALLUVIUM?)			
15				MORE MOTTLED, FE OXIDE STAINING SCATTERED DECOMPOSED ROCK FRAGMENTS MOIST			
20				INCREASED MOTTLING, GRAVEL IN A CLAYEY SILT MATRIX, FIRM, VERY MOIST, MOTTLED SUB ANG. TO SUBROUND. WASH DEBRIS., DISTURBED(?) GREY-OR. BRN., THINLY COLOR BANDED: N80W 36NE GRADATIONAL BEDROCK (Ttc) CLAYEY SILT(STONE) GREYISH BROWN, SOFT, SLI. MOIST, ABUNDANT WHITE MINERAL AND FE OXIDE STAINING, VERY WEATHERED BEDROCK, INTERSECTING NEAR VERTICAL FRACTURES (JOINTING?) W/ OXIDE + WHITE MIN. STAINING LAMINAR COLOR BANDING WELL DEFIN'D N80W, 45NE			

HAMMER	WEIGHT:	PROJECT NO.:	FIGURE NO.:
	DROP:	1651-4	1

BORING LOG

Logged By:	Date Drilled:	Drill Rig:	Boring Diameter:	Boring Number:
				LB-12(cont.)

Descriptions on this boring log apply only at the specific boring location and at the time the boring was made. The descriptions on this log are not warranted to be representative of subsurface conditions at other locations or times.

Boring Elevation:

DEPTH, FT	SAMPLES	BLOWS/FOOT	GROUND WATER	DESCRIPTION	MOISTURE CONTENT, %	DRY DENSITY pcf	OTHER TESTS
25				BEDROCK (Tc) CLAYEY SILT(STONE) DARK GREYISH BROWN, SOFT, SLI. MOIST, COLOR BANDING DARK REDDISH BROWN, JOINTING: NBOW 45-60NE, NO CLAY SEAMS ← CONCRETION, 1 Ft. DIAM. V. HARD w/ GYPSUM + OXIDE STAINING, VERY FRACTURED ← FRACTURE, GYPSUM FILLED ≈ 60° DIP DARK BROWN, MOD. HARD, MOD. FRACTURED, w/ COLOR BANDS (OXIDE STAINING ALONG FRACTURES), UP TO 1/8" THICK, INFILLED WITH GYPSUM ≈ 70° DIP			
30							
35				CLAYEY SILTSTONE DK GREY-DK. BROWN, MOD. HARD, SLI. MOIST, MICRO FOSSILS FRACTURES: EW - 70°N WITH OXIDE STAINING, WELL-DEFINED FRACTURES NROE NEAR VERTICAL, GYPSUM FILLED SLIGHT TO MOD. FRACTURED IRREGULAR PATCHES OF LESS OXIDIZED BEDROCK, INCREASINGLY HARD & DARK w/ DEPTH, LESS FRACTURED, ABUNDANT MICA ← FRACTURE: NBOW, 70N, SLIGHT SEEPAGE			
40				DARK GREY, MOD. HARD, MOIST, SLI. FRACTURED TO NON-FRACTURED, UNOXIDIZED, MASSIVE, MICACEOUS			
45				← INDISTINCT, NEAR HORIZONTAL BEDDING			
50							

HAMMER	WEIGHT:	PROJECT NO.:	FIGURE NO.:
	DROP:	1651-4	2

BORING LOG

Logged By:	Date Drilled:	Drill Rig:	Boring Diameter:	Boring Number:
				LB-12 (cont.)

Descriptions on this boring log apply only at the specific boring location and at the time the boring was made. The descriptions on this log are not warranted to be representative of subsurface conditions at other locations or times.

Boring Elevation:

DEPTH, FT	SAMPLES	BLOWS/FOOT	GROUND WATER	DESCRIPTION	MOISTURE CONTENT, %	DRY DENSITY pcf	OTHER TESTS
50				BEDROCK (Tc) CLAYEY SILTSTONE DARK GREY, MOD. HARD TO HARD, SLI. MOIST, MASSIVE, MICACEOUS, SOME MICROFOSSILS, NON-FRACTURED			
55				← INDISTINCT, NEAR HORIZONTAL BEDDING			
60				← CLAY BED: N50W, 7°SW, SHINY, PLANAR (INTERBED) ← LARGE CONCRETION, SLIGHT SEEP, HARD, CEMENTED, INTENSELY FRACTURED, SOME DISCONTINUOUS, STRIATED SURFACES ALONG EDGES			
65	(SCALE CHANGE)						
75				← CONCRETION, IRREGULAR SHAPED, VERY HARD, VERY FRACTURED, CARB.-RICH SILTSTONE ← CONCRETION, VERY HARD, SLIGHT SEEPAGE AT BASE, SOME FRACTURES, DARK GREY, HARD, SLI. MOIST, MASSIVE, NO FRACTS			
85				END OF BORING @ 85' DOWNHOLE LOG TO 77'.			

HAMMER	WEIGHT:	PROJECT NO.:	FIGURE NO.:
	DROP:	1651-4	3

BORING LOG

Logged By:	Date Drilled:	Drill Rig:	Boring Diameter:	Boring Number:
				LB-13

Descriptions on this boring log apply only at the specific boring location and at the time the boring was made. The descriptions on this log are not warranted to be representative of subsurface conditions at other locations or times.

Boring Elevation:

DEPTH, FT	SAMPLES	BLOWS/FOOT	GROUND WATER	DESCRIPTION	MOISTURE CONTENT, %	DRY DENSITY pcf	OTHER TESTS
				OLDER ALLUVIUM (Qalo) (SLIDE-AFFECTED)			
				SILTY CLAY			
				DARK BROWN, SOFT, MOIST, W/ DARK YELLOW FLECKS AND FE OXIDE STAINING (TOPSOIL)			
				GREYISH BROWN - DARK BROWN - MOTTLED, WHITE MINERAL & FE OXIDE STAINING			
5				GREY W/ NUMEROUS FE OXIDE STAINS			
				VERY MOTTLED, DISCONTINUOUS COLOR-BANDED LAMINATIONS, ABUNDANT GYPSUM CRYSTALS			
10				← CHARCOAL FLECKS, SOME GYPSUM			
15				THINLY LAMINATED, PLASTIC CLAY & CLAYEY SILTS; POTENTIAL SLIP SURFACES N80E, 18S AND N70W, 23S			
				VERY THIN, FINE SAND LAMINATIONS,			
				← CLAY INTERBED, 1/8 - 1/4" THICK, PLASTIC, N55E, 17SE, CONTINUOUS			
20				CLAY LAMINATIONS, INTERBEDS, SMOOTH SURFACES, SLICKENSIDES, PLASTIC, UP TO 1/2" THICK, CONTINUOUS, N20W, 15 SW, (TYPICAL) W/ SILT INTERBEDS			
				← SLIGHT SEEPAGE, SLOW, ALONG FRACTURES			
				← SHEAR: N65W, 50 SW, WET, PLANAR, SHINY, CLAYEY			
				CLAYIER BELOW SHEAR			
				STEEPLY DIPPING OXIDE STAINED FRACTURES, CONTINUOUS FOR 2-3', WITH DISCONTINUOUS LAMS, PODS OR LENSES OF V. FINE SAND & SILTY CLAY, 6-12" THICK, SLIGHT SEEP			
25							

HAMMER	WEIGHT:	PROJECT NO.:	FIGURE NO.:
	DROP:	1651-4	1

BORING LOG

Logged By:	Date Drilled:	Drill Rig:	Boring Diameter:	Boring Number:
			Boring Elevation:	LB-13

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DEPTH, FT	SAMPLES	BLOWS/FOOT	GROUND WATER	DESCRIPTION	MOISTURE CONTENT, %	DRY DENSITY pcf	OTHER TESTS
				(CONT'D)			
25				ALLUVIUM (Qalo) (SLIDE-AFFECTED?)			
				SILTY CLAY			
				GREY, SOFT, MOIST, WITH FE OXIDE STAINING w/ SCATTERED FINE SAND & SILT LENSES, MICACEOUS			
				FRACTURES, OXIDE STAINED WITH SLIGHT SEEPAGE, SOME CLAY ALONG FRACTURES, NS, 45-50°E			
30				← HIGHER ORGANIC CONTENT, CHARCOAL FRAGMENTS, ROOT FRAGMENTS ~3" LONG, ANGULAR BEDROCK FRAGMENT, UP TO 4" DIAM.			
				← ORGANICS, ROOT FRAGMENT ½" THICK, 2" LONG, NUMEROUS CHARCOAL FRAGMENTS TO ½" THICK, OLIVE GREY			
				← CHARCOAL (WOOD), 6" DIAM. ON EAST SIDE, TO 1-2" ON WEST SIDE			
35				← LIVE ROOTS			
				← ROOT-LIKE STRUCTURES - CHARCOAL			
				← END OF ABUNDANT CHARCOAL			
40				← CONCRETION			
				SLIGHTLY MOIST, MOTTLED DARK AND LIGHT GREY WITH FE & WHITE MIN. STAINING			
				LARGE, ANGULAR BEDROCK FRAGMENT			
				CONTACT - THIN, WAVY, CLAYEY, SMOOTH, E.W., 25°S			
45				BEDROCK (Tc) (SLIDE-AFFECTED?)			
				CLAYEY SILTSTONE			
				DARK GREY, MOD. HARD, SLI. MOIST, MICA-RICH, NO FRACT., NO OBSERVED STRUCTURE			
				2 CONCRETIONS, 4-6" DIAM., SUBROUNDED, CHERTY			
				BEDROCK — CLAY BED, ¼" THK, SLICKNSIDES, N-S, 8-10°E, POTENT. SLIP SURFACE; FEW OBSERV. STRIAE (?)			
				MOD. HARD TO HARD			
50				(CONT'D)			

HAMMER	WEIGHT:	PROJECT NO.:	FIGURE NO.:
	DROP:	1651-4	2

BORING LOG

Logged By:	Date Drilled:	Drill Rig:	Boring Diameter:	Boring Number:
				LB-13

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Boring Elevation:

DEPTH, FT	SAMPLES	BLOWS/FOOT	GROUND WATER	DESCRIPTION	MOISTURE CONTENT, %	DRY DENSITY pcf	OTHER TESTS
50				BEDROCK (TC) CLAYEY SILTSTONE (UNOXIDIZED) DARK GREY, MOD. HARD.-HARD, SLI. MOIST, MICACEOUS, NO OBSERV. FRACTURES OR BEDDING			
55				MASSIVE, SOME DISCONT. FRACTURES, STEEPLY DIPPING FRACTURES			
60				← SLIGHT SEEPAGE ALONG FRACTURES ← INCREASED SEEPAGE ZONE OF FRACTURES, SPACING 1-2", STEEP, E-W, 70°-80°S			
65				← FRACTURES, N20W NEAR VERTICAL ZONE OF FRACTURES, ← JOINT: N20E, 60°E, PLANAR, CONTIN., CLAYEY, GRADES TO VERY HARD			
70				NO OBSERVED FRACTURES, MASSIVE			
75							

HAMMER	WEIGHT:	PROJECT NO.:	FIGURE NO.:
	DROP:	1651-4	3

BORING LOG

Logged By:	Date Drilled:	Drill Rig:	Boring Diameter:	Boring Number:
				LB-13

Descriptions on this boring log apply only at the specific boring location and at the time the boring was made. The descriptions on this log are not warranted to be representative of subsurface conditions at other locations or times.

Boring Elevation:

DEPTH, FT	SAMPLES	BLOWS/FOOT	GROUND WATER	DESCRIPTION	MOISTURE CONTENT, %	DRY DENSITY pcf	OTHER TESTS
75				BEDROCK (Tc) CLAYEY SILTSTONE DARK GREY, HARD, SLI. MOIST, MICACEOUS, NO OBSERVED FRACTURES OR BEDDING,			
85							
95				END DOWNHOLE LOG			
105							
				END OF BORING @ 110'. DOWNHOLE TO 97'. HOLE BACKFILLED			
115							

HAMMER	WEIGHT:	PROJECT NO.:	FIGURE NO.:
	DROP:	1651-4	4

BORING LOG

Logged By:	Date Drilled:	Drill Rig:	Boring Diameter:	Boring Number:
				LB-14

Descriptions on this boring log apply only at the specific boring location and at the time the boring was made. The descriptions on this log are not warranted to be representative of subsurface conditions at other locations or times.

Boring Elevation:

DEPTH, FT	SAMPLES	BLOWS/FOOT	GROUND WATER	DESCRIPTION	MOISTURE CONTENT, %	DRY DENSITY pcf	OTHER TESTS
0				OLDER ALLUVIUM (Qa10) (SLIDE-AFFECTED?)			
				SILTY CLAY			
				VERY DARK GREY, STIFF, SLI. MOIST, ROOTLETS, PLANT DEBRIS - (TOPSOIL)			
				VERY DARK GREY-BROWN, SOFT, SLI. MOIST, ABUND. WHITE MIN. STAINING, LIVE ROOTS, MOTTLED			
5				DARK BROWN, SOFT, SLI. MOIST, MOTTLED, OXIDE STAINED, LESS CLAY, RODENT BURROWS (SLOPEWASH ?)			
				NUMEROUS ROCK FRAGMENTS TO 8" DIAM.			
10				SANDY SILT - SANDY CLAY			
				← COLOR BANDING, ALLUVIAL STRUCTURE(?)			
				MOTTLED, FIRM, MOIST			
15				SCATTERED CONCRETIONS TO 8" DIAM., "NESTED"			
				CONCRETIONS, SUB-HORIZONTAL LAYER, CHANNEL FILL(?), CLASTS TO 8" DIAM., SOIL MIXED W.			
20				CLAYEY SILT TO SILTY CLAY			
				OLIVE GREY, FIRM TO STIFF, MOIST W/ WHITE TO FE OXIDE STAINING,			
				← SCATTERED GRAVEL - COBBLE SIZED FRAGMENTS TO 1" DIAM.			
25							

HAMMER	WEIGHT:	PROJECT NO.:	FIGURE NO.:
	DROP:	16514	1

BORING LOG

Logged By:	Date Drilled:	Drill Rig:	Boring Diameter:	Boring Number:
				LB-14

Descriptions on this boring log apply only at the specific boring location and at the time the boring was made. The descriptions on this log are not warranted to be representative of subsurface conditions at other locations or times.

Boring Elevation:

DEPTH, FT	SAMPLES	BLOWS/FOOT	GROUND WATER	DESCRIPTION	MOISTURE CONTENT, %	DRY DENSITY pcf	OTHER TESTS
25				OLDER ALLUVIUM (Qalo) (cont.) (SLIDE-AFFECTED?)			
				CLAYEY SILT			
				VERY DARK GREY, FIRM TO STIFF, SL. MOIST, MICAC. w/ SOME FE OXIDE STAINING			
				PALEOSOL, DARK SOIL, SUB-HORIZONTAL			
30				GYPSUM CRYSTALS, VERY MOTTLED, SOME ORGAN. TRACES.			
				ORGANIC LAYER, 2-4" THICK, N-S 10°E DEPOSITIONAL, NO CLAY, WITH WEATHERED ROCK FRAGMENTS (≈ 50%)			
				SANDY SILT-SILTY SAND			
				OLIVE GREY, SOFT TO FIRM, VERY MOIST, MICACEOUS, PARTIALLY LAMINATED w/ SOME DK. MINERAL STAINING, (FLOODPLAIN?)			
35				CLAYEY SILT TO SILTY CLAY			
				GREY, SOFT, VERY MOIST, FE OXIDE STAINING,			
40				CASED SECTION DUE TO CAVING			
45							
				SILTY CLAY			
				VERY DARK GREY, SOFT, MOIST TO V. MOIST, MICAC., LOCALLY OXIDE STAINED, MICACEOUS, MASSIVE			
50							

HAMMER	WEIGHT:	PROJECT NO.:	FIGURE NO.:
	DROP:	1651-4	2