

DOCKETED	
Docket Number:	24-OPT-02
Project Title:	Compass Battery Energy Storage
TN #:	255561-7
Document Title:	Appendix 4-4A_Geotechnical Evaluation Report Part 2
Description:	Evaluates the site geotechnical conditions in the context of the proposed grading and development to provide appropriate geotechnical design parameters and recommendations for the proposed Project.
Filer:	Erin Phillips
Organization:	Dudek
Submitter Role:	Applicant Consultant
Submission Date:	4/5/2024 6:28:35 PM
Docketed Date:	4/8/2024

Geotechnical Bucket Auger Log B-3

Date : 8/03/2022	Page 4 of 4	Drilling Company : Roy Brothers	
Project Name : Compass BESS - San Juan Capistrano		Type of Rig : EZ Bore	
Project Number : 22011-01		Drop : 12"	Hole Diameter : 24"
Elevation of Top of Hole : ~ 255' MSL		Drive Weight : 0' - 25' = 4900 lbs. 50' - 75' = 2200 lbs.	
Hole Location : See Geotechnical Map		25' - 50' = 3400 lbs. 75' - 100' = 1200 lbs.	

Elevation (ft)	Depth (ft)	Graphic Log	Attitudes	Sample Number	Blow Count	Dry Density(pcf)	Moisture (%)	USCS Symbol	Logged by MJG/KTM Sampled by MJG/KTM DESCRIPTION	Type of Test
90				R-9	20	91.5	22.6	ML	@ 90' - Sandy SILTSTONE: dark grayish brown, wet, hard to very hard	
161									Trace fossils, sand-lined burrows	
95				R-10	20	89.9	26.9	ML	@ 97' - SILTSTONE: dark grayish brown, wet, hard to very hard	
156									Total Depth = 98' No Ground Water Encountered Backfilled & Tamped with native soil and bentonite layers on 8/1/2022	
100										
151										
105										
146										
110										
141										
115										
136										



THIS SUMMARY APPLIES ONLY AT THE LOCATION OF THIS BORING AND AT THE TIME OF DRILLING. SUBSURFACE CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH THE PASSAGE OF TIME. THE DATA PRESENTED IS A SIMPLIFICATION OF THE ACTUAL CONDITIONS ENCOUNTERED.

SAMPLE TYPES:
B BULK SAMPLE
R RING SAMPLE
G GRAB SAMPLE

TEST TYPES:
DS DIRECT SHEAR
MD MAXIMUM DENSITY
SA SIEVE ANALYSIS
S&H SIEVE AND HYDROMETER
EI EXPANSION INDEX
CN CONSOLIDATION
CR CORROSION
AL ATTERBERG LIMITS
CO COLLAPSE/SWELL
RV R-VALUE

Geotechnical Bucket Auger Log B-4

Date : 8/02/2022	Page 1 of 4	Drilling Company : Roy Brothers	
Project Name : Compass BESS - San Juan Capistrano		Type of Rig : EZ Bore	
Project Number : 22011-01		Drop : 12"	Hole Diameter : 24"
Elevation of Top of Hole : ~ 256' MSL		Drive Weight : 0' - 25' = 4900 lbs. 50' - 75' = 2200 lbs.	
Hole Location : See Geotechnical Map		25' - 50' = 3400 lbs. 75' - 100' = 1200 lbs.	

Elevation (ft)	Depth (ft)	Graphic Log	Attitudes	Sample Number	Blow Count	Dry Density(pcf)	Moisture (%)	USCS Symbol	Logged by MJG/KTM Sampled by MJG/KTM DESCRIPTION	Type of Test
253	0		Sh: N45E, 27W to 60E	R-1	1	95.3	20.9	ML	@ 0' to 55.5' - <u>Quaternary Landslide (Qls)</u> @ 0' to 2' - Silty CLAY topsoil, brown, dry @ 2' to 4' - Dark Brown SILT with trace of fine sand: slightly moist, very stiff, colluvium, pods, rootlets @ 4' - Silt and Clay, light gray, mottled, iron oxide, gypsum pods over topsoil layer @ 7' - Remnant block, pulverized Siltstone, Silty SAND, moist, stiff, fine grained @ 10' - SILT: light yellowish brown mottled, wet, stiff, some iron oxide @ 12' - Abundant gypsum crystals and stringers, iron oxide/powder, increase in clay, increase in moisture @ 15' - Internal rupture, shear attitude @ 17' - Shear exits boring	
248	5								@ 20' - SILT: mottled gray with iron oxide, some gypsum, slightly moist, medium stiff @ 21' - Zone of medium to high plasticity CLAY, abundant oxidation. Continues to 24'	
243	10								@ 24' - Shear attitude, gray plastic clay 1-inch thick, oxidation stains, heavy oxidation. Grab sample taken @ 25' - Grades into clay rich matrix	
238	15								@ 28' - Oxidized vertical feature, 1-2" wide iron oxide-lined fracture filled with clay and sand	
233	20			R-2	Push					DS
228	25		SH: N60E, 30NW	G-1						AL



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Geotechnical Bucket Auger Log B-4

Date : 8/02/2022	Page 2 of 4	Drilling Company : Roy Brothers	
Project Name : Compass BESS - San Juan Capistrano		Type of Rig : EZ Bore	
Project Number : 22011-01		Drop : 12"	Hole Diameter : 24"
Elevation of Top of Hole : ~ 256' MSL		Drive Weight : 0' - 25' = 4900 lbs. 50' - 75' = 2200 lbs.	
Hole Location : See Geotechnical Map		25' - 50' = 3400 lbs. 75' - 100' = 1200 lbs.	

Elevation (ft)	Depth (ft)	Graphic Log	Attitudes	Sample Number	Blow Count	Dry Density(pcf)	Moisture (%)	USCS Symbol	Logged by MJG/KTM Sampled by MJG/KTM DESCRIPTION	Type of Test
223	30		Sh: N35E, 54NW	R-3	Push	93.2	29.0	ML	@ 30' - SILT with Sand: grayish brown with heavy oxidation staining, wet, medium stiff, mixed with dark gray, well indurated, shattered appearance	AL
	35								@ 36' - Decayed organics, charcoal	
218									@ 37' - Minor seep, concretions, fossil bone with oxidation halo	
	40			R-4	Push	91.2	30.3	CL	@ 40' - Silty CLAY: grayish brown, wet, low plasticity	
213									@ 43' - Shear attitude within slide, highly sheared CLAY and SILTSTONE blocks, slightly stiff to stiff, very moist	
	45		GB: N20E, 10W RS: N52E, 7SE	R-5	4	97.3	25.3	CL	@ 50' - Silty CLAY: dark grayish brown, wet, medium stiff to stiff, charcoal/decayed wood, some tan mottle	AL
208									@ 54' - General bedding attitude, thin, light brown concretion lenses. Grab sample taken	
	55			G-2					@ 55.5' - Rupture Surface attitude, 4" zone of anastomosing clay over rupture surface, indulating subhorizontal (clay seem 1/8" thick), polished olive brown, base, planar @ 55.5' to T.D. - Tertiary Capistrano Formation (Tc) SILTSTONE: dark gray siltstone, moist, hard, massive	
198									@57' - concretion up to 1ft thick, fractured	



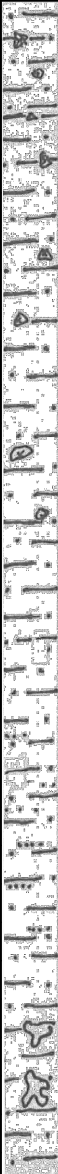
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Geotechnical Bucket Auger Log B-4

Date : 8/02/2022	Page 3 of 4	Drilling Company : Roy Brothers	
Project Name : Compass BESS - San Juan Capistrano		Type of Rig : EZ Bore	
Project Number : 22011-01		Drop : 12"	Hole Diameter : 24"
Elevation of Top of Hole : ~ 256' MSL		Drive Weight : 0' - 25' = 4900 lbs. 50' - 75' = 2200 lbs.	
Hole Location : See Geotechnical Map		25' - 50' = 3400 lbs. 75' - 100' = 1200 lbs.	

Elevation (ft)	Depth (ft)	Graphic Log	Attitudes	Sample Number	Blow Count	Dry Density(pcf)	Moisture (%)	USCS Symbol	Logged by MJG/KTM Sampled by MJG/KTM DESCRIPTION	Type of Test
193	60		GB/CB: N20W, 2W	R-6	7	94.8	26.4	ML	@ 60' - SILT: grayish brown, wet, very stiff. Scattered small concretions (typical 1-3" in diameter) to 75' depth @ 63' - Generalized Bedding/Clay Bed attitude, ultra thin blue-gray CLAY: some signs of minor shearing, massive below	
188	65			R-7	10				@ 70' - SILTSTONE: gray, slightly moist, slightly hard	
183	70									
178	75									
173	80			R-8	18	95.5	24.8	ML	@ 80' - Sandy SILTSTONE: grayish brown, wet, slightly hard to hard @ 82' - Trace fossils, fine sand burrows, subhorizontal	
168	85								@ 87' - Concretions, light gray/buff color fine SAND cemented with diffuse edges and irregular shapes	



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Geotechnical Bucket Auger Log B-4

Date : 8/02/2022	Page 4 of 4	Drilling Company : Roy Brothers
Project Name : Compass BESS - San Juan Capistrano		Type of Rig : EZ Bore
Project Number : 22011-01		Drop : 12" Hole Diameter : 24"
Elevation of Top of Hole : ~ 256' MSL		Drive Weight : 0' - 25' = 4900 lbs. 50' - 75' = 2200 lbs. 25' - 50' = 3400 lbs. 75' - 100' = 1200 lbs.
Hole Location : See Geotechnical Map		

Elevation (ft)	Depth (ft)	Graphic Log	Attitudes	Sample Number	Blow Count	Dry Density(pcf)	Moisture (%)	USCS Symbol	Logged by MJG/KTM Sampled by MJG/KTM DESCRIPTION	Type of Test
90				R-9	20	91.2	27.7	ML	@ 90' - SILTSTONE: dark gray, wet, very stiff, hard	
163										
95									@ 94' - End visual log	
158				R-10	20	96.2	25.3	ML	@ 97' - SILTSTONE: dark gray, wet, hard	
100									Total Depth = 97' No Ground Water Encountered Backfilled & Tamped with native soil and bentonite layers on 8/3/2022	
153										
105										
148										
110										
143										
115										
138										



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Geotechnical Bucket Auger Log B-5

Date : 8/17/2023	Page 1 of 4	Drilling Company : Daves Drilling	
Project Name : Compass BESS - San Juan Capistrano		Type of Rig : EZ Bore	
Project Number : 22011-01		Drop : 12"	Hole Diameter : 36"
Elevation of Top of Hole : ~ 237' MSL		Drive Weight : 0' - 27' = 4500 lbs. 52' - 74' = 2500 lbs. 	

Elevation (ft)	Depth (ft)	Graphic Log	Attitudes	Sample Number	Blow Count	Dry Density(pcf)	Moisture (%)	USCS Symbol	Logged by MJG/KTM Sampled by MJG/KTM DESCRIPTION	Type of Test
234	0			B-1					@ 0 to 49' - Quaternary Landslide (QIs) @ 0' - SILT: light brown, dry, disturbed area from pad creation @ 1.5 to 27.5' - Slope Wash/Colluvium @ 1.5' - Clayey SILT: grayish brown, gypsum stringers, slope wash/colluvium	MD DS
229	5									
224	10			R-1	3/12"	108.5	14.2	CL/ML	@ 10' - SILT: dark brown, slightly moist, trace clay @ 12' - Color Shift to lighter brown, some angular clasts, 1/2" concretion fragments, some slope wash, evidence of debris flows, caliche/weathered in place	
219	15								@ 16' - 5" concretion, rodent bones, clay mottling, sand lenses, iron oxide @ 18' - Banding, debris flow pulses @ 19' - banding	
214	20			R-2	1	101.9	22.7	CL	@ 20' - Clayey SILT: light brown to brownish gray overall with some white and tan mottle, slightly moist, some 1" concretions @ 25' - gypsum stringers persist, along with 1" concretions @ 27.5' to 70' - disturbed capistrano formation block @ 27.5' to 29' - highly indurated caliche zone, altered clay	
209	25								@ 29' - Shift to olive gray, moist silt, some sandy 1/2" fragments, angular & oxidized	



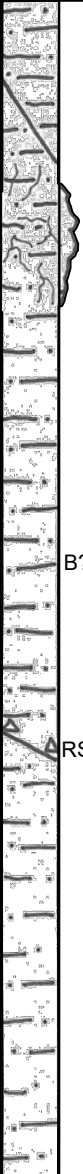
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Geotechnical Bucket Auger Log B-5

Date : 8/17/2023	Page 2 of 4	Drilling Company : Daves Drilling
Project Name : Compass BESS - San Juan Capistrano	Type of Rig : EZ Bore	
Project Number : 22011-01	Drop : 12"	Hole Diameter : 36"
Elevation of Top of Hole : ~ 237' MSL	Drive Weight : 0' - 27' = 4500 lbs. 52' - 74' = 2500 lbs. 27' - 52' = 3500 lbs. 74' - 103' = 1000 lbs.	
Hole Location : See Geotechnical Map		

Elevation (ft)	Depth (ft)	Graphic Log	Attitudes	Sample Number	Blow Count	Dry Density(pcf)	Moisture (%)	USCS Symbol	Logged by MJG/KTM Sampled by MJG/KTM DESCRIPTION	Type of Test
204	30		Sh: N20W, 66NE	R-3	1	97.1	27.1	CL	@ 30' - Clay: Olive gray, moist, iron oxide	DS
199	35								@ 33' - Attitude on steep shear plane, seepage coming out of plane within olive gray moist silt, MnO, Gypsum, minor iron oxide	
194	40			R-4	2	96.2	26.8		@ 36' - Seepage from multiple fractures, area is heavily fractured, active belling	
189	45		B?: N55W 56S						@ 39' - Chaotic, gypsum crystals, increase in iron oxide, fractures and seepage @ 40' - Silt with some clay: slightly moist, iron oxide, gypsum	
184	50		RS: N40W 26N	G-1 R-5	1	91.3	31.4	CH CL	@ 45' - Manganese oxide band @ 49' to 70' - Quaternary Older Landslide (Qols) @ 49' - Rupture surface, very clear slickenlines, $\frac{1}{8}$ " thick, dark gray clay, moist, soft, grab sample taken @ 50' - Siltstone: dark gray, slightly moist, some mottle, manganese oxide, iron oxide and gypsum	AL
179	55								@ 58' - Clayey Silt: dark gray, manganese oxide, gypsum crystals, traces of iron oxide, less abundant than above	



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Geotechnical Bucket Auger Log B-5

Date : 8/17/2023	Page 3 of 4	Drilling Company : Daves Drilling	
Project Name : Compass BESS - San Juan Capistrano		Type of Rig : EZ Bore	
Project Number : 22011-01		Drop : 12"	Hole Diameter : 36"
Elevation of Top of Hole : ~ 237' MSL		Drive Weight : 0' - 27' = 4500 lbs. 52' - 74' = 2500 lbs. 27' - 52' = 3500 lbs. 74' - 103' = 1000 lbs.	
Hole Location : See Geotechnical Map			

Elevation (ft)	Depth (ft)	Graphic Log	Attitudes	Sample Number	Blow Count	Dry Density(pcf)	Moisture (%)	USCS Symbol	Logged by MJG/KTM Sampled by MJG/KTM DESCRIPTION	Type of Test
174	60		Sh/RS: N20E 46E	R-6	4	88.6	31.9	CL	@ 60' - Siltstone: dark gray, very moist, some darker gray mottle @ 61' - Clayey Silt: concretions	DS
169	65			R-7	8	94.8	28.3		@ 63' to 70' - Silt and disturbed siltstone, with abundant mottled clay, gray overall	
164	70								@ 70' to T.D. - Tertiary Capistrano Formation (Tc) @ 70' - Siltstone: dark gray, very stiff to hard, moist @ 70' to 72' - Sharp material change along a possible rupture surface/shear plane, transitions from lighter gray mottled clayey silt to unoxidized dark gray siltstone @ 72' - End visual log due to safety concerns (caving around 36')	
159	80			R-8	12/10"	91.9	29.0	ML	@ 80' - Siltstone, dark gray, very moist	
154	85									
149										



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Geotechnical Bucket Auger Log B-5

Date : 8/17/2023

Page 4 of 4

Drilling Company : Daves Drilling

Project Name : Compass BESS - San Juan Capistrano

Type of Rig : EZ Bore

Project Number : 22011-01

Drop : 12"

Hole Diameter : 36"

Elevation of Top of Hole : ~ 237' MSL

Drive Weight : 0' - 27' = 4500 lbs.
27' - 52' = 3500 lbs.

52' - 74' = 2500 lbs.
74' - 103' = 1000 lbs.

Hole Location : See Geotechnical Map

Logged by MJG/KTM

Sampled by MJG/KTM

DESCRIPTION

Type of Test

Elevation (ft)	Depth (ft)	Graphic Log	Attitudes	Sample Number	Blow Count	Dry Density(pcf)	Moisture (%)	USCS Symbol		
144	90			R-9	15/10"	89.2	30.2	ML	@ 90' - Siltstone: dark gray, very moist	
139	95									
100	100			R-10	20/10"	88.1	31.8		@ 100' - Siltstone: dark gray, very moist, hard	
									Total Depth = 101' Perched Groundwater Encountered @36ft Backfilled & Tamped with native soil and bentonite layers on 8/17/2023	



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Geotechnical Boring Log Borehole HS-1

Date: 7/29/2022	Drilling Company: 2R Drilling
Project Name: Compass BESS - SJC	Type of Rig: Truck Mounted
Project Number: 22011-01	Drop: 30" Hole Diameter: 8"
Elevation of Top of Hole: ~208' MSL	Drive Weight: 140 pounds
Hole Location: See Geotechnical Map	Page 1 of 4

Elevation (ft)	Depth (ft)	Graphic Log	Sample Number	Blow Count	Dry Density (pcf)	Moisture (%)	USCS Symbol	Logged By RNP Sampled By RNP Checked By BTZ DESCRIPTION	Type of Test
205	0	B-1	R-1	10 11 12	99.0	7.2	ML	Quaternary Alluvium (Qal): @0'- Top soil with Vegetation	EI CR
200	5		SPT-1	3 3 4		12.9	CH	@2.5' - Sandy SILT: grayish brown, slightly moist, very stiff, scattered organics/rootlets hairs @5' - CLAY: olive brown, moist, stiff	-#200/ AL
195	10		R-2	13 17 20	117.3	13.4	CL	@7.5' - CLAY: dark olive brown, moist, very stiff, caliche, present	AL CN
190	15		SPT-2	4 5 6		18.6		Quaternary Landslide Deposits (Qls): @10' - CLAY with Sand: Dark gray, very moist, stiff, caliche stringers	-#200
185	20		R-3	6 8 11	103.5	18.3	CL	@15' - CLAY: olive gray, moist, stiff	DS
180	25		SPT-3	3 3 4		23.1	ML	@20' - SILT with caliche: olive brown, very moist, very stiff	-#200
175	30		R-4	4 6 9	100.5	23.3	CL	@25' - CLAY: olive brown, very moist, stiff, caliche stringers	AL CN



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SAMPLE TYPES:
 B BULK SAMPLE
 R RING SAMPLE (CA Modified Sampler)
 G GRAB SAMPLE
 SPT STANDARD PENETRATION TEST SAMPLE

GROUNDWATER TABLE

TEST TYPES:
 DS DIRECT SHEAR
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 -#200 % PASSING # 200 SIEVE

Geotechnical Boring Log Borehole HS-1

Date: 7/29/2022	Drilling Company: 2R Drilling
Project Name: Compass BESS - SJC	Type of Rig: Truck Mounted
Project Number: 22011-01	Drop: 30" Hole Diameter: 8"
Elevation of Top of Hole: ~208' MSL	Drive Weight: 140 pounds
Hole Location: See Geotechnical Map	Page 2 of 4

Elevation (ft)	Depth (ft)	Graphic Log	Sample Number	Blow Count	Dry Density (pcf)	Moisture (%)	USCS Symbol	Logged By RNP Sampled By RNP Checked By AA DESCRIPTION	Type of Test
175	30		SPT-4	2 3 4		27.7	ML	@30' - SILT: light grayish brown, wet, stiff, caliche stringers	
170	35		R-5	6 8 9	89.8	30.2		@35' - SILT: olive brown, wet, stiff, caliche stringers	AL
165	40		SPT-5	2 2 3		32.2	CL	@40' - CLAY: grayish brown, wet, stiff, caliche stringers	
160	45		R-6	6 9 10	98.7	23.6		@45' - CLAY: dark brown, very moist, stiff, caliche stringers	
155	50		SPT-6	4 5 6		23.6		@50' - Sandy CLAY: light olive brown with orange hue, very moist, stiff, caliche stringers	
150	55		R-7	8 13 15	105.9	20.4		@55' - Sandy CLAY: olive gray with orange hue, very moist, very stiff	
60	60								



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 S&H SIEVE AND HYDROMETER
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 CN CONSOLIDATION
 CR CORROSION
 AL ATTERBERG LIMITS
 CO COLLAPSE/SWELL
 RV R-VALUE
 -#200 % PASSING # 200 SIEVE

Geotechnical Boring Log Borehole HS-1

Date: 7/29/2022	Drilling Company: 2R Drilling
Project Name: Compass BESS - SJC	Type of Rig: Truck Mounted
Project Number: 22011-01	Drop: 30" Hole Diameter: 8"
Elevation of Top of Hole: ~208' MSL	Drive Weight: 140 pounds
Hole Location: See Geotechnical Map	Page 3 of 4

Elevation (ft)	Depth (ft)	Graphic Log	Sample Number	Blow Count	Dry Density (pcf)	Moisture (%)	USCS Symbol	Logged By RNP Sampled By RNP Checked By AA DESCRIPTION	Type of Test
60			SPT-7	4 6 9		24.7	CL	@60' - Sandy CLAY: olive brown with dark orange staining, wet, very stiff, trace of caliche	
145									
65			R-8	11 20 24	104.8	19.9		@65' - Sandy CLAY with mica: olive gray with light orange hue, very moist, hard	
140									
70			SPT-8	5 8 10		22.0		@70' - CLAY: dark grayish brown with orange hue, very moist, very stiff, trace of caliche staining	
135									
75			R-9	35 50/5"	88.4	31.1	CL-ML	<u>Tertiary Capistrano Formation (Tc):</u> @75' - Silty CLAY: dark gray, wet, hard, foliated Bedrock	
130									
80			SPT-9	13 20 25		29.4	ML	@80' - SILT: dark grayish brown, wet, hard, trace of caliche staining, foliated	
125									
85			R-10	38 50/4"	89.0	30.4	CL-ML	@85' - Silty CLAY: dark olive brown, wet, hard, foliated, organic/carbon pods, staining of manganese oxide	
120									
90									



THIS SUMMARY APPLIES ONLY AT THE LOCATION OF THIS BORING AND AT THE TIME OF DRILLING. SUBSURFACE CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH THE PASSAGE OF TIME. THE DATA PRESENTED IS A SIMPLIFICATION OF THE ACTUAL CONDITIONS ENCOUNTERED. THE DESCRIPTIONS PROVIDED ARE QUALITATIVE FIELD DESCRIPTIONS AND ARE NOT BASED ON QUANTITATIVE ENGINEERING ANALYSIS.

SAMPLE TYPES:
 B BULK SAMPLE
 R RING SAMPLE (CA Modified Sampler)
 G GRAB SAMPLE
 SPT STANDARD PENETRATION TEST SAMPLE

GROUNDWATER TABLE

TEST TYPES:
 DS DIRECT SHEAR
 MD MAXIMUM DENSITY
 SA SIEVE ANALYSIS
 S&H SIEVE AND HYDROMETER
 EI EXPANSION INDEX
 CN CONSOLIDATION
 CR CORROSION
 AL ATTERBERG LIMITS
 CO COLLAPSE/SWELL
 RV R-VALUE
 -#200 % PASSING # 200 SIEVE

Geotechnical Boring Log Borehole HS-1

Date: 7/29/2022	Drilling Company: 2R Drilling
Project Name: Compass BESS - SJC	Type of Rig: Truck Mounted
Project Number: 22011-01	Drop: 30" Hole Diameter: 8"
Elevation of Top of Hole: ~208' MSL	Drive Weight: 140 pounds
Hole Location: See Geotechnical Map	Page 4 of 4

Elevation (ft)	Depth (ft)	Graphic Log	Sample Number	Blow Count	Dry Density (pcf)	Moisture (%)	USCS Symbol	Logged By RNP Sampled By RNP Checked By AA DESCRIPTION	Type of Test
90			SPT-10	15 22 27		28.1	CL	@90' - CLAY: dark grayish brown, wet, hard, organic/carbon pods, staining of manganese oxide	
115									
95			R-11	37 50/5"	95.2	27.1	ML	@95' - SILT: dark grayish brown, wet, hard	
110									
100			SPT-11	15 22 25		29.7		@100' - SILT: dark gray, wet, hard	
105								Total Depth = 101.5'	
105								Groundwater Encountered @ approximately 41ft	
100								Caving: Hole measured approximately 78 ft after removal of augers	
110								Backfilled with bentonite and cuttings 7/29/2022	
95									
115									
90									
120									



THIS SUMMARY APPLIES ONLY AT THE LOCATION OF THIS BORING AND AT THE TIME OF DRILLING. SUBSURFACE CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH THE PASSAGE OF TIME. THE DATA PRESENTED IS A SIMPLIFICATION OF THE ACTUAL CONDITIONS ENCOUNTERED. THE DESCRIPTIONS PROVIDED ARE QUALITATIVE FIELD DESCRIPTIONS AND ARE NOT BASED ON QUANTITATIVE ENGINEERING ANALYSIS.

SAMPLE TYPES:
 B BULK SAMPLE
 R RING SAMPLE (CA Modified Sampler)
 G GRAB SAMPLE
 SPT STANDARD PENETRATION TEST SAMPLE

GROUNDWATER TABLE

TEST TYPES:
 DS DIRECT SHEAR
 MD MAXIMUM DENSITY
 SA SIEVE ANALYSIS
 S&H SIEVE AND HYDROMETER
 EI EXPANSION INDEX
 CN CONSOLIDATION
 CR CORROSION
 AL ATTERBERG LIMITS
 CO COLLAPSE/SWELL
 RV R-VALUE
 -#200 % PASSING # 200 SIEVE

Geotechnical Boring Log Borehole HS-2

Date: 7/29/2022	Drilling Company: 2R Drilling
Project Name: Compass BESS - SJC	Type of Rig: Truck Mounted
Project Number: 22011-01	Drop: 30" Hole Diameter: 8"
Elevation of Top of Hole: ~208' MSL	Drive Weight: 140 pounds
Hole Location: See Geotechnical Map	Page 1 of 4

Elevation (ft)	Depth (ft)	Graphic Log	Sample Number	Blow Count	Dry Density (pcf)	Moisture (%)	USCS Symbol	Logged By RNP Sampled By RNP Checked By BTZ DESCRIPTION	Type of Test
205	0	B-1	R-1	11 16 14	99.4	11.1	ML	<u>Quaternary Alluvium (Qal):</u> @0'- Top soil with Vegetation	EI CR
200	5		SPT-1	4 6 5		10.0	CL	@2.5' - Sandy SILT: grayish brown, moist, very stiff, scattered roots, trace of gravel @5.0' - Sandy CLAY: grayish brown, slightly moist, stiff	-#200/ AL
195	10		R-2	5 7 7	98.6	11.1	CL-ML	@7.5' - Silty CLAY: light olive brown, slightly moist, stiff	AL CN
190	15		SPT-2	4 6 6		19.5	CL	<u>Quaternary Landslide Deposits (Qls):</u> @10' - Sandy CLAY: brown, very moist, stiff, caliche stringers	
185	20		R-3	6 8 8	99.4	19.6		@15' - CLAY: olive brown, very moist, stiff, caliche stringers	CN
180	25		SPT-3	3 5 6		24.2		@20' - CLAY with Sand: dark grayish brown, very moist, stiff, trace of caliche	-#200/ DS
175	30		R-4	6 8 9	99.7	24.6		@25' - CLAY: olive gray with light orange mottled, very moist, stiff	



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SAMPLE TYPES:

B BULK SAMPLE
R RING SAMPLE (CA Modified Sampler)
G GRAB SAMPLE
SPT STANDARD PENETRATION TEST SAMPLE



GROUNDWATER TABLE

TEST TYPES:

DS DIRECT SHEAR
MD MAXIMUM DENSITY
SA SIEVE ANALYSIS
S&H SIEVE AND HYDROMETER
EI EXPANSION INDEX
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AL ATTERBERG LIMITS
CO COLLAPSE/SWELL
RV R-VALUE
-#200 % PASSING # 200 SIEVE

Geotechnical Boring Log Borehole HS-2

Date: 7/29/2022	Drilling Company: 2R Drilling
Project Name: Compass BESS - SJC	Type of Rig: Truck Mounted
Project Number: 22011-01	Drop: 30" Hole Diameter: 8"
Elevation of Top of Hole: ~208' MSL	Drive Weight: 140 pounds
Hole Location: See Geotechnical Map	Page 2 of 4

Elevation (ft)	Depth (ft)	Graphic Log	Sample Number	Blow Count	Dry Density (pcf)	Moisture (%)	USCS Symbol	Logged By RNP Sampled By RNP Checked By BTZ DESCRIPTION	Type of Test
175	30		SPT-4	4 4 5		35.0	CL-ML	@30' - Silty CLAY: dark grayish brown, wet, stiff, caliche staining	
170	35		R-5	6 9 10	83.0	38.0	CL	@35' - CLAY: grayish brown, wet, stiff, with trace sand @36' - Groundwater encountered	
165	40		SPT-5	5 8 10		41.5		@40' - CLAY: dark gray, wet, very stiff	
160	45		R-6	8 16 22	115.9	14.5	SC	<u>Quaternary Older Alluvium (Qalo):</u> @45' - Clayey SAND: olive brown, very moist, medium dense	
155	50		SPT-6	9 22 32		20.5	SP	@50' - SAND: grayish brown, wet, very dense	
150	55		R-7	33 50/5"	114.7	18.2	SP-SM	@55' - Sand with SILT with trace of fine gravel: yellowish gray, wet, very dense	
60									



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SAMPLE TYPES:
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 SPT STANDARD PENETRATION TEST SAMPLE

 GROUNDWATER TABLE

TEST TYPES:
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 CO COLLAPSE/SWELL
 RV R-VALUE
 -#200 % PASSING # 200 SIEVE

Geotechnical Boring Log Borehole HS-2

Date: 7/29/2022	Drilling Company: 2R Drilling
Project Name: Compass BESS - SJC	Type of Rig: Truck Mounted
Project Number: 22011-01	Drop: 30" Hole Diameter: 8"
Elevation of Top of Hole: ~208' MSL	Drive Weight: 140 pounds
Hole Location: See Geotechnical Map	Page 3 of 4

Elevation (ft)	Depth (ft)	Graphic Log	Sample Number	Blow Count	Dry Density (pcf)	Moisture (%)	USCS Symbol	Logged By RNP Sampled By RNP Checked By BTZ DESCRIPTION	Type of Test
60			SPT-7	4 4 4		21.6	CL	@60' - Sandy CLAY: dark olive, very moist, stiff	
145									
65			R-8	6 13 13	105.0	18.0	SP-SM	@65' - Fine SAND with Silt: olive gray, wet, medium dense	
140									
70			SPT-8	6 7 17		23.5	SC	@70' - Clayey SAND: gray, wet, dense	
135									
75			R-9	10 15 46	117.0	14.0	SP	@75' - SAND: olive brown, wet, dense	
130									
80			SPT-9	4 8 17		15.3	SP	@80' - SAND: olive gray, wet, dense	
125									
85			R-10	14 23 35	119.0	12.0	SP	@85' - SAND: light brown, very moist, dense	
120									
90									



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SAMPLE TYPES:
 B BULK SAMPLE
 R RING SAMPLE (CA Modified Sampler)
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 SPT STANDARD PENETRATION TEST SAMPLE

GROUNDWATER TABLE

TEST TYPES:
 DS DIRECT SHEAR
 MD MAXIMUM DENSITY
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 RV R-VALUE
 -#200 % PASSING # 200 SIEVE

Geotechnical Boring Log Borehole HS-2

Date: 7/29/2022	Drilling Company: 2R Drilling
Project Name: Compass BESS - SJC	Type of Rig: Truck Mounted
Project Number: 22011-01	Drop: 30" Hole Diameter: 8"
Elevation of Top of Hole: ~208' MSL	Drive Weight: 140 pounds
Hole Location: See Geotechnical Map	Page 4 of 4

Elevation (ft)	Depth (ft)	Graphic Log	Sample Number	Blow Count	Dry Density (pcf)	Moisture (%)	USCS Symbol	Logged By RNP Sampled By RNP Checked By BTZ DESCRIPTION	Type of Test
90			SPT-10	6 11 16		24.0	SM	@90' - Silty SAND with trace of gravel: grayish brown, wet, dense,	
115								Total Depth = 91.5'	
95								Groundwater Encountered @36ft	
110								Caving: Hole measured approximately 56 ft after removal of augers	
100								Backfilled with bentonite and cuttings on 7/29/2022	
105									
100									
110									
95									
115									
90									
120									



THIS SUMMARY APPLIES ONLY AT THE LOCATION OF THIS BORING AND AT THE TIME OF DRILLING. SUBSURFACE CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH THE PASSAGE OF TIME. THE DATA PRESENTED IS A SIMPLIFICATION OF THE ACTUAL CONDITIONS ENCOUNTERED. THE DESCRIPTIONS PROVIDED ARE QUALITATIVE FIELD DESCRIPTIONS AND ARE NOT BASED ON QUANTITATIVE ENGINEERING ANALYSIS.

SAMPLE TYPES:
 B BULK SAMPLE
 R RING SAMPLE (CA Modified Sampler)
 G GRAB SAMPLE
 SPT STANDARD PENETRATION TEST SAMPLE

GROUNDWATER TABLE

TEST TYPES:
 DS DIRECT SHEAR
 MD MAXIMUM DENSITY
 SA SIEVE ANALYSIS
 S&H SIEVE AND HYDROMETER
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 CN CONSOLIDATION
 CR CORROSION
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 CO COLLAPSE/SWELL
 RV R-VALUE
 -#200 % PASSING # 200 SIEVE

Geotechnical Boring Log Borehole HS-3

Date: 8/15/23	Drilling Company: 2R Drilling
Project Name: Compass BESS - San Juan Capistrano	Type of Rig: Truck Mounted Rig
Project Number: 22011-01	Drop: 30" Hole Diameter: 6"
Elevation of Top of Hole: ~210' MSL	Drive Weight: 140 pounds
Hole Location: See Geotechnical Map	Page 1 of 4

Elevation (ft)	Depth (ft)	Graphic Log	Sample Number	Blow Count	Dry Density (pcf)	Moisture (%)	USCS Symbol	Logged By JMN Sampled By JMN Checked By BTZ/KBC DESCRIPTION	Type of Test
205	0							Quaternary Alluvium (Qal): @ 0' - Dry grass	EI CR
			R-1	3 5 4	98.4	7.2	SM	@ 2.5' - Silty SAND: brownish gray, slightly moist, loose	
	5		R-2	3 5 11	92.1	13.1	CL	@ 5' - Sandy CLAY: grayish brown, moist, stiff	
			SPT-1	3 4 5		20.6		@ 7.5' - Sandy CLAY: grayish brown, very moist, stiff	
200	10		R-3	4 7 12	94.8	24.3	CH	@ 10' - Sandy FAT CLAY: dark grayish brown, very moist, very stiff	AL CN
195	15		SPT-2	2 4 5		31.5	CL	@ 15' - CLAY: dark brown, wet, stiff	
190	20		R-4	2 4 9	96.2	28.4		Quaternary Landslide (Qls): @ 20' - CLAY: olive gray, wet, stiff	DS
185	25		SPT-3	3 4 5		24.7		@ 25' - CLAY with Sand: dark brown, very moist, stiff	-#200 AL
	30								



THIS SUMMARY APPLIES ONLY AT THE LOCATION OF THIS BORING AND AT THE TIME OF DRILLING. SUBSURFACE CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH THE PASSAGE OF TIME. THE DATA PRESENTED IS A SIMPLIFICATION OF THE ACTUAL CONDITIONS ENCOUNTERED. THE DESCRIPTIONS PROVIDED ARE QUALITATIVE FIELD DESCRIPTIONS AND ARE NOT BASED ON QUANTITATIVE ENGINEERING ANALYSIS.

SAMPLE TYPES:
 B BULK SAMPLE
 R RING SAMPLE (CA Modified Sampler)
 G GRAB SAMPLE
 SPT STANDARD PENETRATION TEST SAMPLE

GROUNDWATER TABLE

TEST TYPES:
 DS DIRECT SHEAR
 MD MAXIMUM DENSITY
 SA SIEVE ANALYSIS
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 CO COLLAPSE/SWELL
 RV R-VALUE
 -#200 % PASSING # 200 SIEVE

Geotechnical Boring Log Borehole HS-3

Date: 8/15/23	Drilling Company: 2R Drilling
Project Name: Compass BESS - San Juan Capistrano	Type of Rig: Truck Mounted Rig
Project Number: 22011-01	Drop: 30" Hole Diameter: 6"
Elevation of Top of Hole: ~210' MSL	Drive Weight: 140 pounds
Hole Location: See Geotechnical Map	Page 2 of 4

Elevation (ft)	Depth (ft)	Graphic Log	Sample Number	Blow Count	Dry Density (pcf)	Moisture (%)	USCS Symbol	Logged By JMN Sampled By JMN Checked By BTZ/KBC DESCRIPTION	Type of Test
175	30		R-5	35 30	91.0	30.9	CL	@ 30' - CLAY: olive gray, wet, stiff	DS
175	35		SPT-4	5 8		24.8	SC	@ 35' - Clayey SAND: olive brown, wet, medium dense	
170	40		R-6	34 7	92.8	30.5	CL	@ 40' - CLAY with Sand: grayish brown, wet, stiff	#200 AL
165	45		SPT-5	33 3		20.2		@ 45' - Sandy CLAY: grayish brown, very moist, stiff	
160	50		R-7	812 16	81.0	39.4		@ 50' - CLAY: olive gray, wet, very stiff	DS
155	55								
150	60								



THIS SUMMARY APPLIES ONLY AT THE LOCATION OF THIS BORING AND AT THE TIME OF DRILLING. SUBSURFACE CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH THE PASSAGE OF TIME. THE DATA PRESENTED IS A SIMPLIFICATION OF THE ACTUAL CONDITIONS ENCOUNTERED. THE DESCRIPTIONS PROVIDED ARE QUALITATIVE FIELD DESCRIPTIONS AND ARE NOT BASED ON QUANTITATIVE ENGINEERING ANALYSIS.

SAMPLE TYPES:	TEST TYPES:
B BULK SAMPLE	DS DIRECT SHEAR
R RING SAMPLE (CA Modified Sampler)	MD MAXIMUM DENSITY
G GRAB SAMPLE	SA SIEVE ANALYSIS
SPT STANDARD PENETRATION TEST SAMPLE	S&H SIEVE AND HYDROMETER
	EI EXPANSION INDEX
	CN CONSOLIDATION
	CR CORROSION
	AL ATTERBERG LIMITS
	CO COLLAPSE/SWELL
	RV R-VALUE
	#200 % PASSING # 200 SIEVE

 GROUNDWATER TABLE

Geotechnical Boring Log Borehole HS-3

Date: 8/15/23	Drilling Company: 2R Drilling
Project Name: Compass BESS - San Juan Capistrano	Type of Rig: Truck Mounted Rig
Project Number: 22011-01	Drop: 30" Hole Diameter: 6"
Elevation of Top of Hole: ~210' MSL	Drive Weight: 140 pounds
Hole Location: See Geotechnical Map	Page 3 of 4

Elevation (ft)	Depth (ft)	Graphic Log	Sample Number	Blow Count	Dry Density (pcf)	Moisture (%)	USCS Symbol	Logged By JMN Sampled By JMN Checked By BTZ/KBC DESCRIPTION	Type of Test
145	60		SPT-6	3		41.1	CL	@ 60' - CLAY: dark olive brown, wet, very stiff	
140	65								
135	70		R-8	14 50/6"	94.1	26.6		Tertiary Capistrano Formation (TC): @ 70' - CLAY: dark grayish brown, wet, hard	
130	75								
125	80		SPT-7	10 14 22		33.9		@ 80' - CLAY: dark brown, wet, hard	
120	85								
115	90								



THIS SUMMARY APPLIES ONLY AT THE LOCATION OF THIS BORING AND AT THE TIME OF DRILLING. SUBSURFACE CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH THE PASSAGE OF TIME. THE DATA PRESENTED IS A SIMPLIFICATION OF THE ACTUAL CONDITIONS ENCOUNTERED. THE DESCRIPTIONS PROVIDED ARE QUALITATIVE FIELD DESCRIPTIONS AND ARE NOT BASED ON QUANTITATIVE ENGINEERING ANALYSIS.

SAMPLE TYPES:
 B BULK SAMPLE
 R RING SAMPLE (CA Modified Sampler)
 G GRAB SAMPLE
 SPT STANDARD PENETRATION TEST SAMPLE

GROUNDWATER TABLE

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 AL ATTERBERG LIMITS
 CO COLLAPSE/SWELL
 RV R-VALUE
 #200 % PASSING # 200 SIEVE

Geotechnical Boring Log Borehole HS-3

Date: 8/15/23	Drilling Company: 2R Drilling
Project Name: Compass BESS - San Juan Capistrano	Type of Rig: Truck Mounted Rig
Project Number: 22011-01	Drop: 30" Hole Diameter: 6"
Elevation of Top of Hole: ~210' MSL	Drive Weight: 140 pounds
Hole Location: See Geotechnical Map	Page 4 of 4

Elevation (ft)	Depth (ft)	Graphic Log	Sample Number	Blow Count	Dry Density (pcf)	Moisture (%)	USCS Symbol	Logged By JMN Sampled By JMN Checked By BTZ/KBC DESCRIPTION	Type of Test
90			R-9	41 50/4.5"	81.7	36.9	ML	@ 90' - SILT: dark grayish brown, wet, hard	
115	95								
110	100		SPT-8	5 14 20		27.5		@ 100' - CLAY: dark brown, wet, hard	
105	105							Total Depth = 101.5' Groundwater Encountered @ Approximately 31' Backfilled with Bentonite and Cement Grout on 8/15/23	
100	110								
95	115								
120									



THIS SUMMARY APPLIES ONLY AT THE LOCATION OF THIS BORING AND AT THE TIME OF DRILLING. SUBSURFACE CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH THE PASSAGE OF TIME. THE DATA PRESENTED IS A SIMPLIFICATION OF THE ACTUAL CONDITIONS ENCOUNTERED. THE DESCRIPTIONS PROVIDED ARE QUALITATIVE FIELD DESCRIPTIONS AND ARE NOT BASED ON QUANTITATIVE ENGINEERING ANALYSIS.

SAMPLE TYPES:	TEST TYPES:
B BULK SAMPLE	DS DIRECT SHEAR
R RING SAMPLE (CA Modified Sampler)	MD MAXIMUM DENSITY
G GRAB SAMPLE	SA SIEVE ANALYSIS
SPT STANDARD PENETRATION TEST SAMPLE	S&H SIEVE AND HYDROMETER
	EI EXPANSION INDEX
	CR CONSOLIDATION
	CR CORROSION
	AL ATTERBERG LIMITS
	CO COLLAPSE/SWELL
	RV R-VALUE
	#200 % PASSING # 200 SIEVE

GROUNDWATER TABLE

Geotechnical Boring Log Borehole HS-4

Date: 8/15/2023	Drilling Company: 2R Drilling
Project Name: Compass BESS - San Juan Capistrano	Type of Rig: Truck Mounted Rig
Project Number: 22011-01	Drop: 30" Hole Diameter: 6"
Elevation of Top of Hole: ~213' MSL	Drive Weight: 140 pounds
Hole Location: See Geotechnical Map	Page 1 of 4

Elevation (ft)	Depth (ft)	Graphic Log	Sample Number	Blow Count	Dry Density (pcf)	Moisture (%)	USCS Symbol	Logged By JMN Sampled By JMN Checked By BTZ/KBC DESCRIPTION	Type of Test
210	0							Quaternary Alluvium (Qal): @ 0' - Dry grass	EI CR
			SPT-1	2 2 2		17.2	SC	@ 2.5' - Clayey SAND: grayish brown, wet, loose	
	5	B-1	R-1	2 5 9	91.2	25.7	CL	@ 5' - CLAY: grayish brown, wet, stiff	
205			SPT-2	2 4 4		16.8		@ 7.5' - Sandy CLAY: grayish brown, moist, stiff	
	10		R-2	4 10 14	101.0	21.4		@ 10' - CLAY: olive gray, very moist, very stiff	DS
200			SPT-3	3 5 5		28.1		@ 15' - Sandy Clay : dark brown, wet, stiff	
195								Quaternary Landslide (Qls): @ 20' - Sandy CLAY: brown, wet, stiff	AL CN
	20		R-3	2 4 8	95.7	25.8			
190			SPT-4	2 3 4		28.1		@ 25' - CLAY: grayish brown, wet, stiff	
	25								
185									
	30								



THIS SUMMARY APPLIES ONLY AT THE LOCATION OF THIS BORING AND AT THE TIME OF DRILLING. SUBSURFACE CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH THE PASSAGE OF TIME. THE DATA PRESENTED IS A SIMPLIFICATION OF THE ACTUAL CONDITIONS ENCOUNTERED. THE DESCRIPTIONS PROVIDED ARE QUALITATIVE FIELD DESCRIPTIONS AND ARE NOT BASED ON QUANTITATIVE ENGINEERING ANALYSIS.

SAMPLE TYPES:
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 R RING SAMPLE (CA Modified Sampler)
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 SPT STANDARD PENETRATION TEST SAMPLE

GROUNDWATER TABLE

TEST TYPES:
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 CO COLLAPSE/SWELL
 RV R-VALUE
 #200 % PASSING # 200 SIEVE

Geotechnical Boring Log Borehole HS-4

Date: 8/15/2023	Drilling Company: 2R Drilling
Project Name: Compass BESS - San Juan Capistrano	Type of Rig: Truck Mounted Rig
Project Number: 22011-01	Drop: 30" Hole Diameter: 6"
Elevation of Top of Hole: ~213' MSL	Drive Weight: 140 pounds
Hole Location: See Geotechnical Map	Page 2 of 4

Elevation (ft)	Depth (ft)	Graphic Log	Sample Number	Blow Count	Dry Density (pcf)	Moisture (%)	USCS Symbol	Logged By JMN Sampled By JMN Checked By BTZ/KBC DESCRIPTION	Type of Test
180	30		SPT-5	333		31.0	CL	@ 30' - CLAY: grayish brown, wet, stiff	#200 AL
175	35		R-4	366	80.7	41.1		@ 35' - CLAY: dark brown, wet, stiff	
170	40		SPT-6	344		27.2	SC	@ 40' - Clayey SAND: grayish brown, wet, medium dense	#200
165	45		R-5	247	91.6	31.8	CL/SM	@ 45' - CLAY transitioning to Silty SAND: grayish brown, wet, stiff/loose	
160	50		SPT-7	234		23.4	SC	<u>Quaternary Older Alluvium (Qalo):</u> @ 50' - Clayey SAND: olive brown, wet, loose	#200 AL
155	55								
150	60								



THIS SUMMARY APPLIES ONLY AT THE LOCATION OF THIS BORING AND AT THE TIME OF DRILLING. SUBSURFACE CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH THE PASSAGE OF TIME. THE DATA PRESENTED IS A SIMPLIFICATION OF THE ACTUAL CONDITIONS ENCOUNTERED. THE DESCRIPTIONS PROVIDED ARE QUALITATIVE FIELD DESCRIPTIONS AND ARE NOT BASED ON QUANTITATIVE ENGINEERING ANALYSIS.

SAMPLE TYPES:	TEST TYPES:
B BULK SAMPLE	DS DIRECT SHEAR
R RING SAMPLE (CA Modified Sampler)	MD MAXIMUM DENSITY
G GRAB SAMPLE	SA SIEVE ANALYSIS
SPT STANDARD PENETRATION TEST SAMPLE	S&H SIEVE AND HYDROMETER
	EI EXPANSION INDEX
	CN CONSOLIDATION
	CR CORROSION
 GROUNDWATER TABLE	AL ATTERBERG LIMITS
	CO COLLAPSE/SWELL
	RV R-VALUE
	#200 % PASSING # 200 SIEVE

Geotechnical Boring Log Borehole HS-4

Date: 8/15/2023	Drilling Company: 2R Drilling
Project Name: Compass BESS - San Juan Capistrano	Type of Rig: Truck Mounted Rig
Project Number: 22011-01	Drop: 30" Hole Diameter: 6"
Elevation of Top of Hole: ~213' MSL	Drive Weight: 140 pounds
Hole Location: See Geotechnical Map	Page 3 of 4

Elevation (ft)	Depth (ft)	Graphic Log	Sample Number	Blow Count	Dry Density (pcf)	Moisture (%)	USCS Symbol	Logged By JMN Sampled By JMN Checked By BTZ/KBC DESCRIPTION	Type of Test
60			R-6	3 88	114.2	12.1	SC	@ 60' - Clayey SAND: grayish brown, very moist, medium dense	
150									
65									
145									
70			SPT-8	6 25		22.7	CL	@ 70' - Sandy CLAY: grayish brown, very moist, hard	
140									
75									
135									
80			R-7	12 14 16	109.4	19.6		@ 80' - Sandy CLAY: grayish brown, very moist, very stiff	
130									
85									
125									
90									



THIS SUMMARY APPLIES ONLY AT THE LOCATION OF THIS BORING AND AT THE TIME OF DRILLING. SUBSURFACE CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH THE PASSAGE OF TIME. THE DATA PRESENTED IS A SIMPLIFICATION OF THE ACTUAL CONDITIONS ENCOUNTERED. THE DESCRIPTIONS PROVIDED ARE QUALITATIVE FIELD DESCRIPTIONS AND ARE NOT BASED ON QUANTITATIVE ENGINEERING ANALYSIS.

SAMPLE TYPES:
 B BULK SAMPLE
 R RING SAMPLE (CA Modified Sampler)
 G GRAB SAMPLE
 SPT STANDARD PENETRATION TEST SAMPLE

GROUNDWATER TABLE

TEST TYPES:
 DS DIRECT SHEAR
 MD MAXIMUM DENSITY
 SA SIEVE ANALYSIS
 S&H SIEVE AND HYDROMETER
 EI EXPANSION INDEX
 CN CONSOLIDATION
 CR CORROSION
 AL ATTERBERG LIMITS
 CO COLLAPSE/SWELL
 RV R-VALUE
 #200 % PASSING # 200 SIEVE

Geotechnical Boring Log Borehole HS-4

Date: 8/15/2023	Drilling Company: 2R Drilling
Project Name: Compass BESS - San Juan Capistrano	Type of Rig: Truck Mounted Rig
Project Number: 22011-01	Drop: 30" Hole Diameter: 6"
Elevation of Top of Hole: ~213' MSL	Drive Weight: 140 pounds
Hole Location: See Geotechnical Map	Page 4 of 4

Elevation (ft)	Depth (ft)	Graphic Log	Sample Number	Blow Count	Dry Density (pcf)	Moisture (%)	USCS Symbol	Logged By JMN Sampled By JMN Checked By BTZ/KBC DESCRIPTION	Type of Test
90			SPT-9	23		29.7	CL	@ 90' - Sandy CLAY: olive brown, wet, stiff	
120									
95									
115									
100			R-8	10 10 11				@ 100' - No Recovery	
110								Total Depth = 101.5' Groundwater Encountered @ Approximately 35.5' Backfilled with Bentonite and Cement Grout on 8/15/2023	
105									
105									
110									
100									
115									
95									
120									



THIS SUMMARY APPLIES ONLY AT THE LOCATION OF THIS BORING AND AT THE TIME OF DRILLING. SUBSURFACE CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH THE PASSAGE OF TIME. THE DATA PRESENTED IS A SIMPLIFICATION OF THE ACTUAL CONDITIONS ENCOUNTERED. THE DESCRIPTIONS PROVIDED ARE QUALITATIVE FIELD DESCRIPTIONS AND ARE NOT BASED ON QUANTITATIVE ENGINEERING ANALYSIS.

SAMPLE TYPES:
 B BULK SAMPLE
 R RING SAMPLE (CA Modified Sampler)
 G GRAB SAMPLE
 SPT STANDARD PENETRATION TEST SAMPLE

GROUNDWATER TABLE

TEST TYPES:
 DS DIRECT SHEAR
 MD MAXIMUM DENSITY
 SA SIEVE ANALYSIS
 S&H SIEVE AND HYDROMETER
 EI EXPANSION INDEX
 CN CONSOLIDATION
 CR CORROSION
 AL ATTERBERG LIMITS
 CO COLLAPSE/SWELL
 RV R-VALUE
 #200 % PASSING # 200 SIEVE

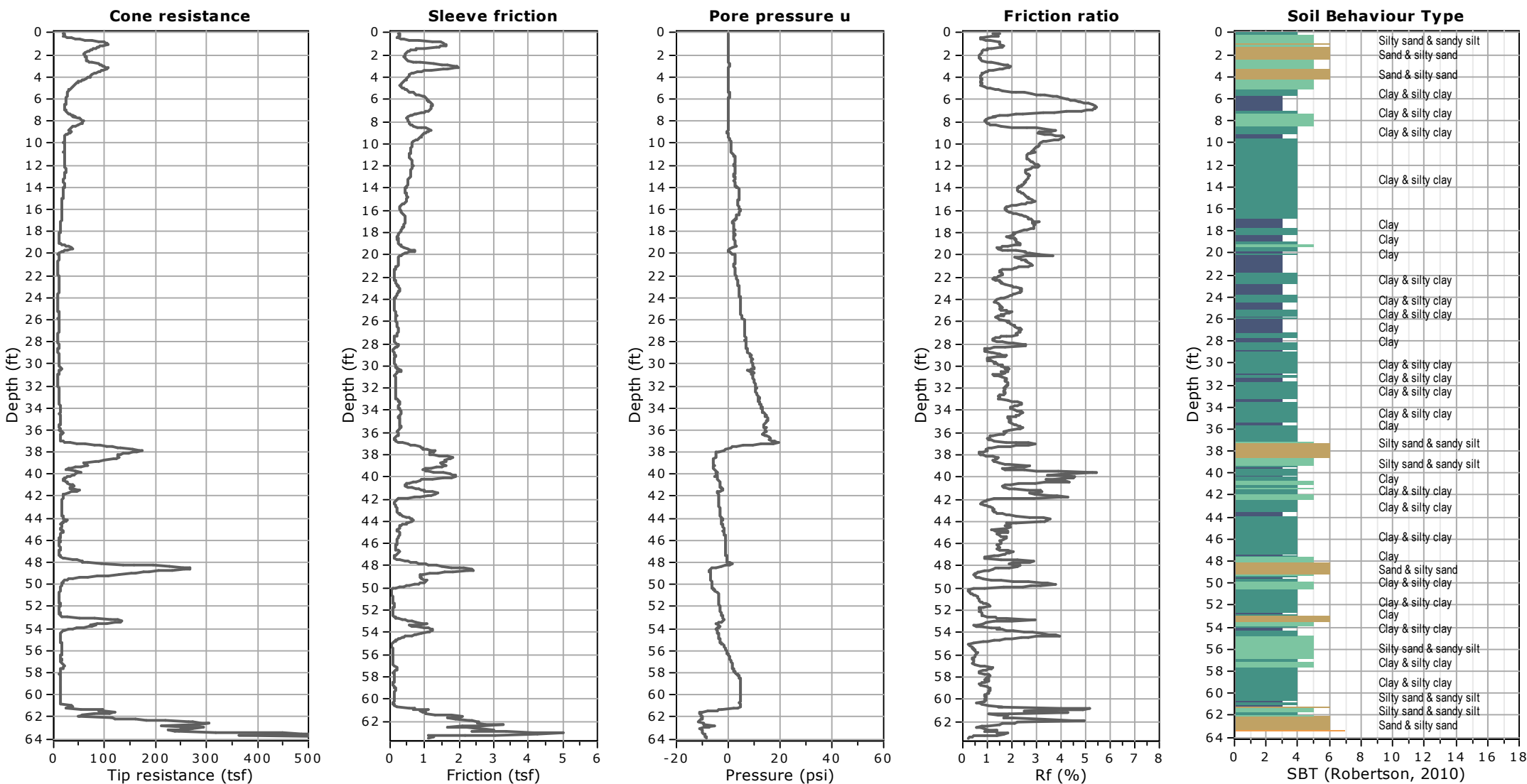


Project: LGC Geotechnical / Compass BESS

Location: 29351 Camino Capistrano, San Juan Capistrano, CA

CPT-1

Total depth: 63.92 ft, Date: 7/28/2022



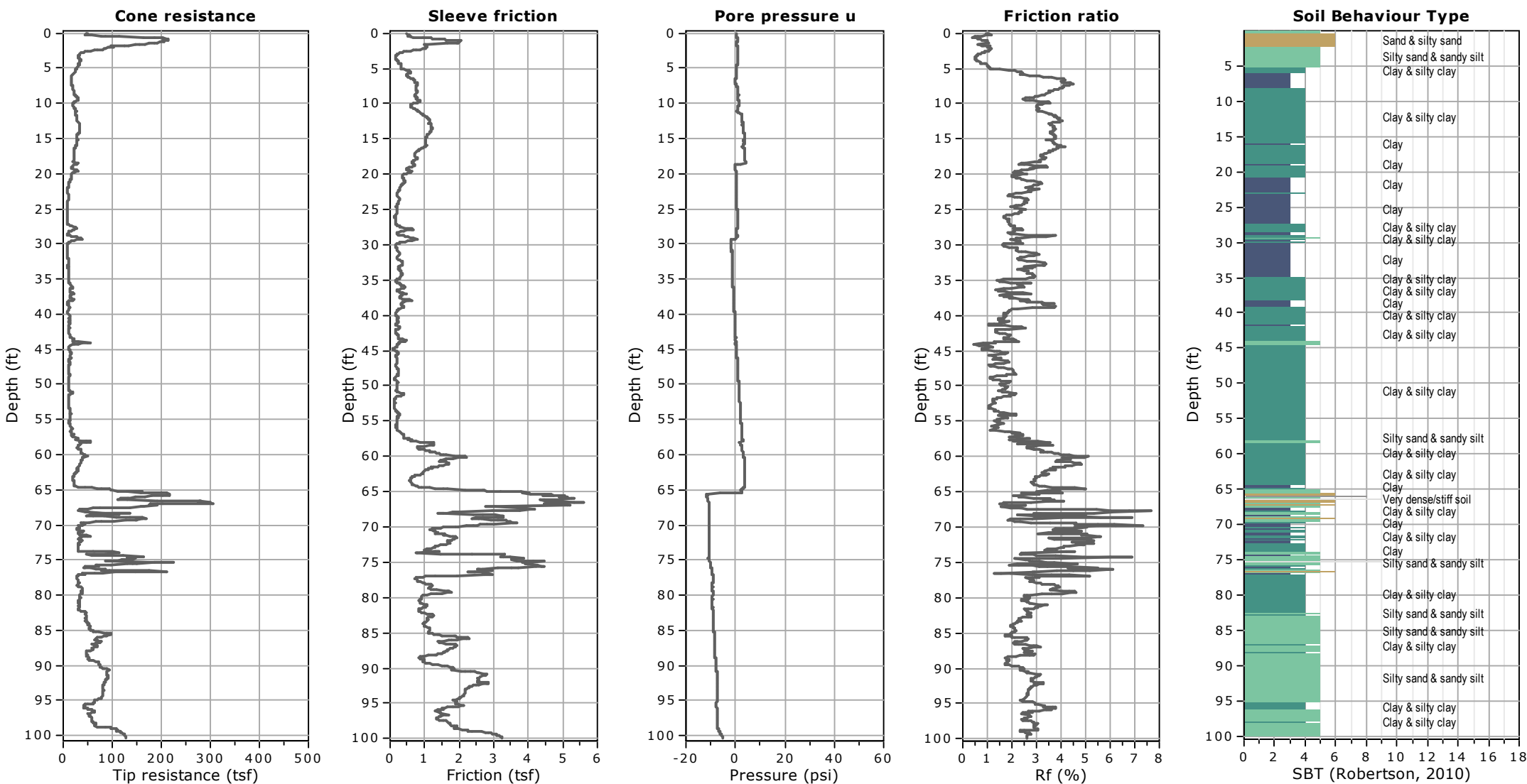


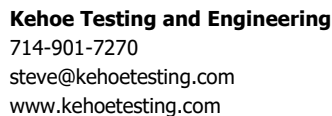
Project: LGC Geotechnical / Compass BESS

Location: 29351 Camino Capistrano, San Juan Capistrano, CA

CPT-2

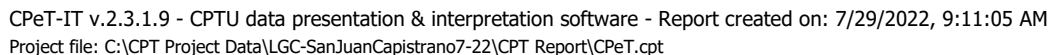
Total depth: 100.33 ft, Date: 7/28/2022





Location: 29351 Camino Capistrano, San Juan Capistrano, CA

Total depth: 100.41 ft, Date: 7/28/2022



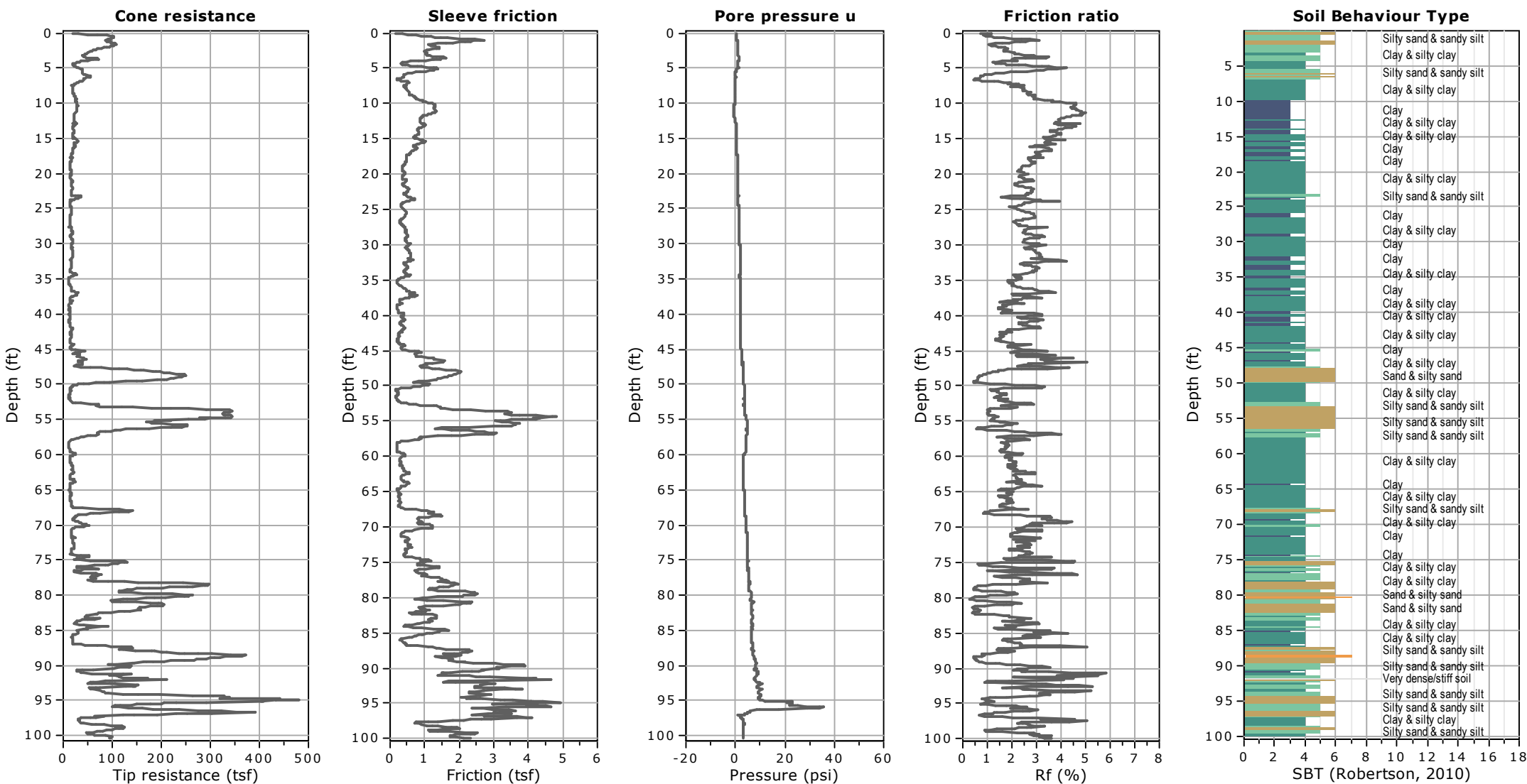


Project: LGC Geotechnical / Compass BESS

Location: 29351 Camino Capistrano, San Juan Capistrano, CA

CPT-4

Total depth: 100.34 ft, Date: 7/28/2022



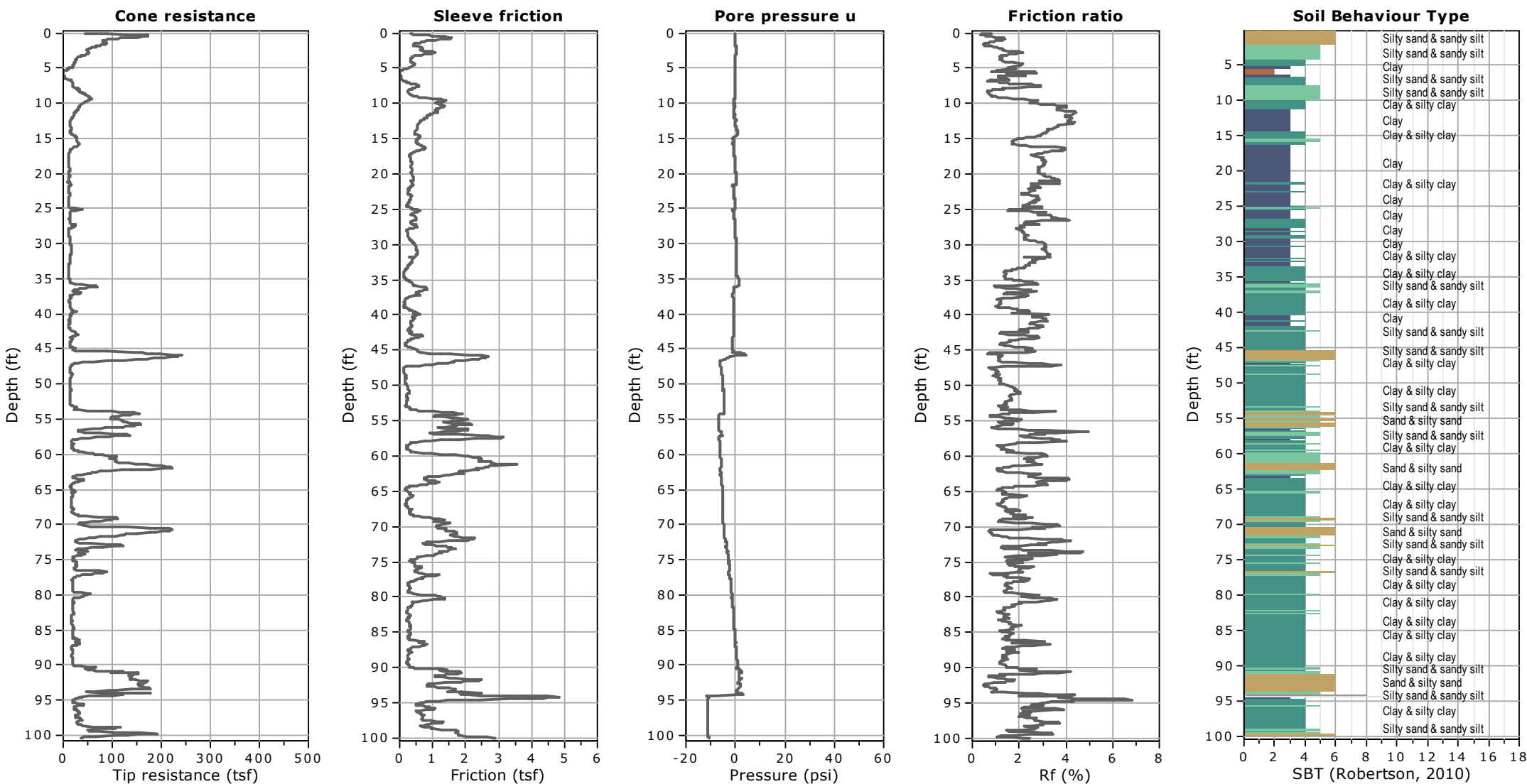


Project: LGC Geotechnical / Compass BESS

Location: 29351 Camino Capistrano, San Juan Capistrano, CA

CPT-5

Total depth: 100.41 ft, Date: 7/28/2022



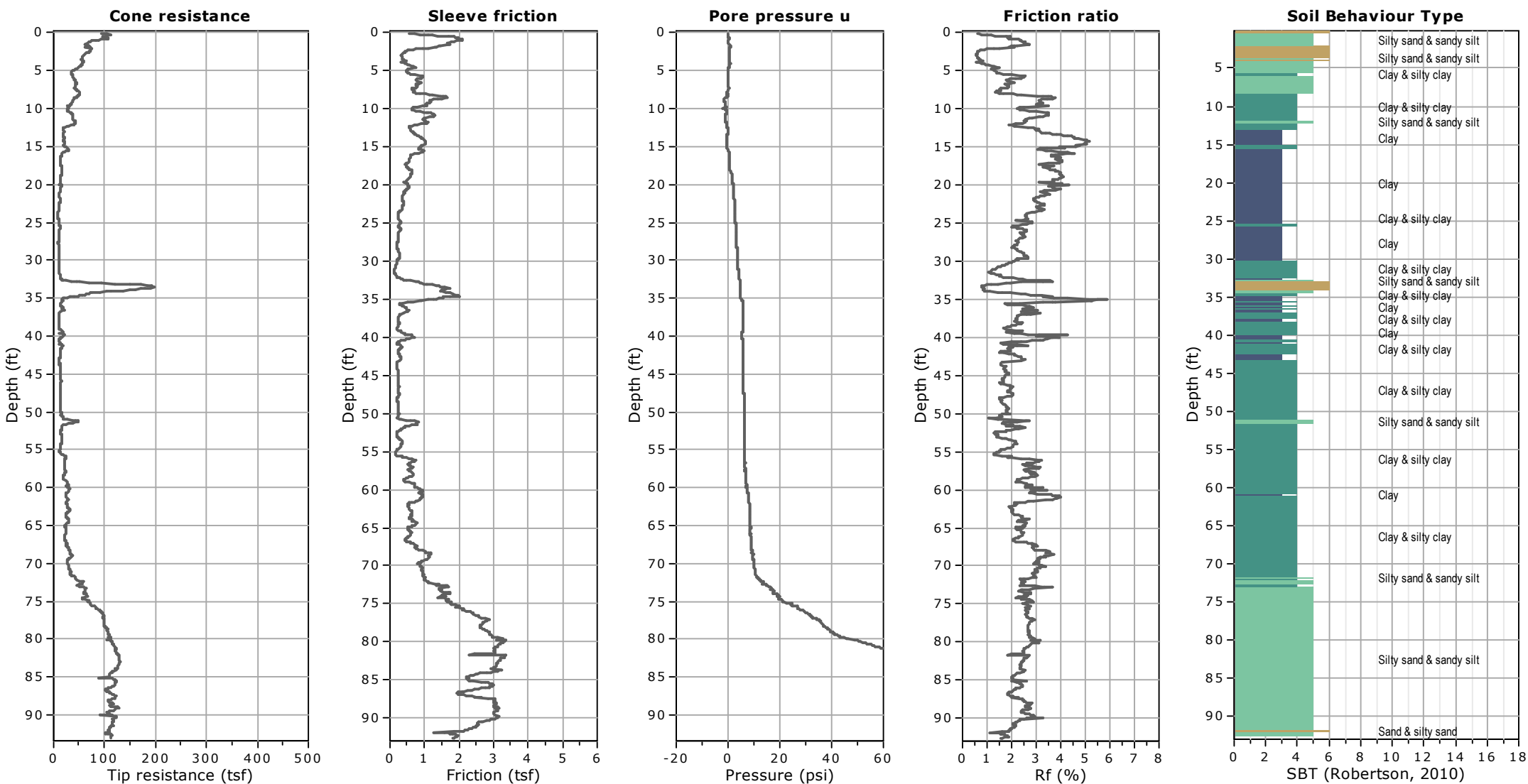


Project: LGC Geotechnical / Compass BESS

Location: 29351 Camino Capistrano, San Juan Capistrano, CA

CPT-6

Total depth: 93.05 ft, Date: 7/28/2022



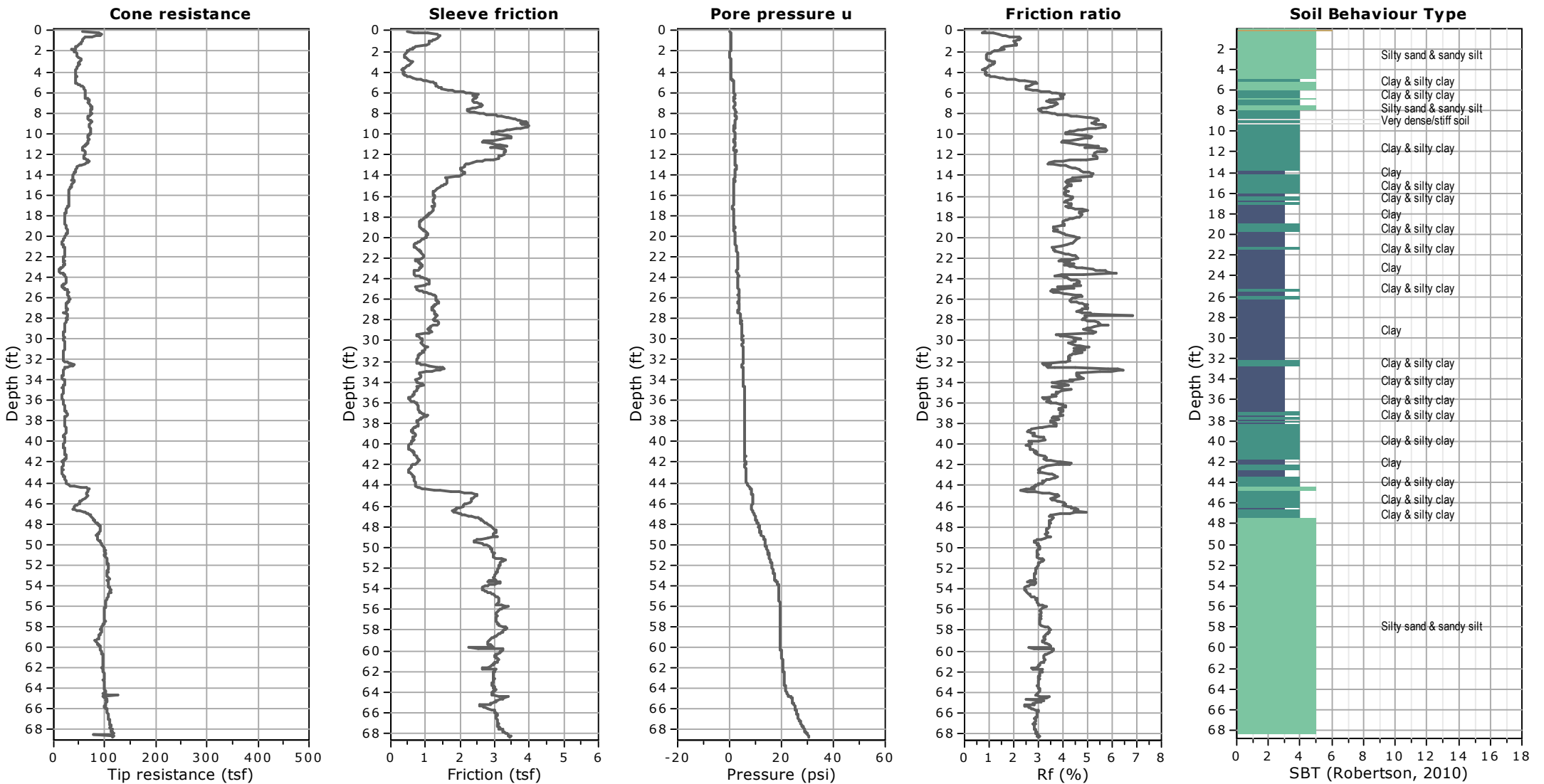


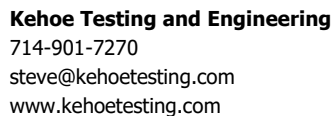
Project: LGC Geotechnical / Compass BESS

Location: 29351 Camino Capistrano, San Juan Capistrano, CA

CPT-7

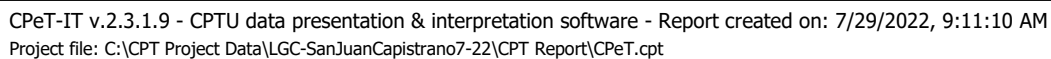
Total depth: 68.78 ft, Date: 7/28/2022





Location: 29351 Camino Capistrano, San Juan Capistrano, CA

Total depth: 90.43 ft, Date: 7/28/2022



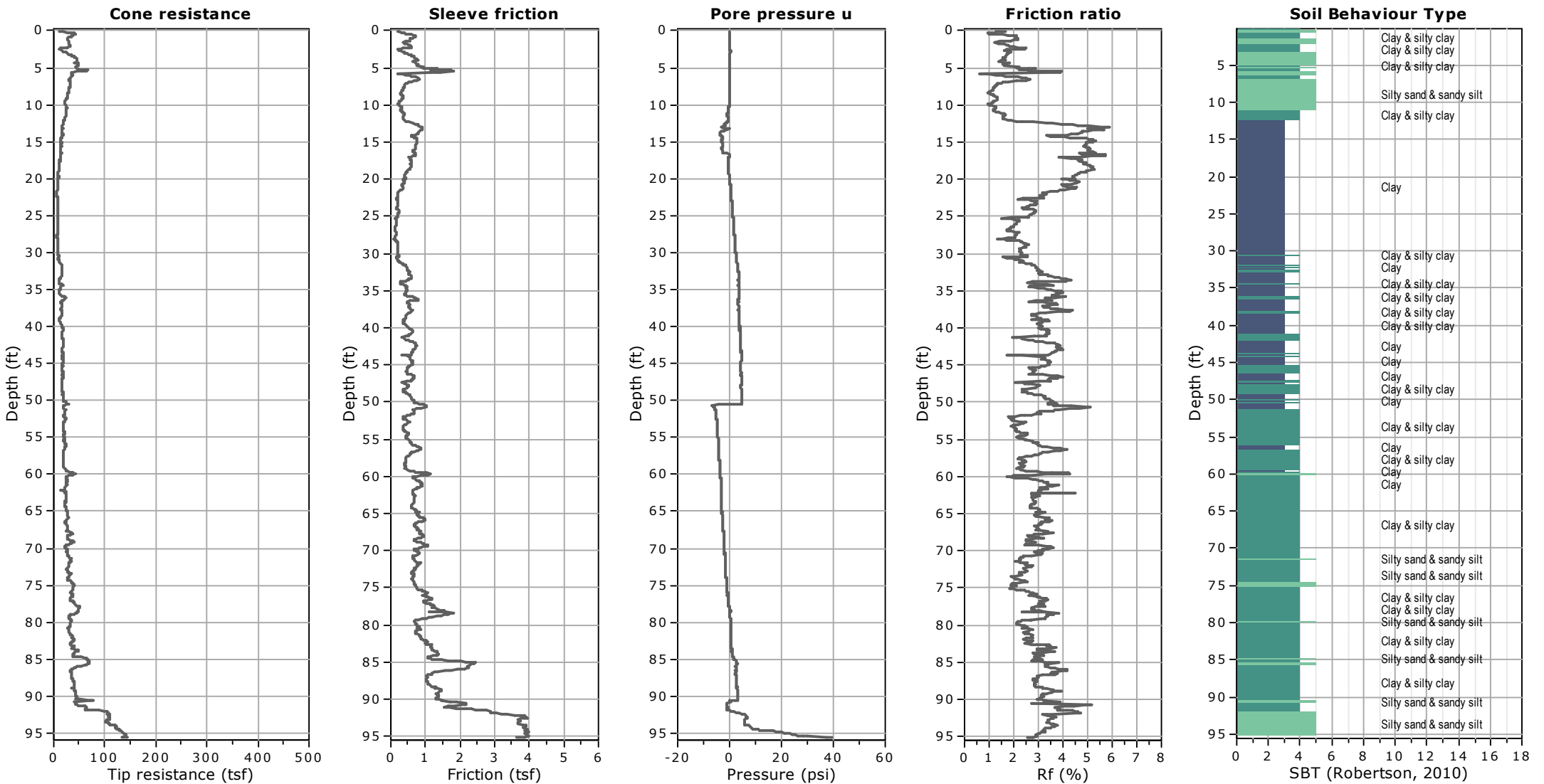


Project: LGC Geotechnical / Compass BESS

Location: 29351 Camino Capistrano, San Juan Capistrano, CA

CPT-9

Total depth: 95.56 ft, Date: 7/28/2022



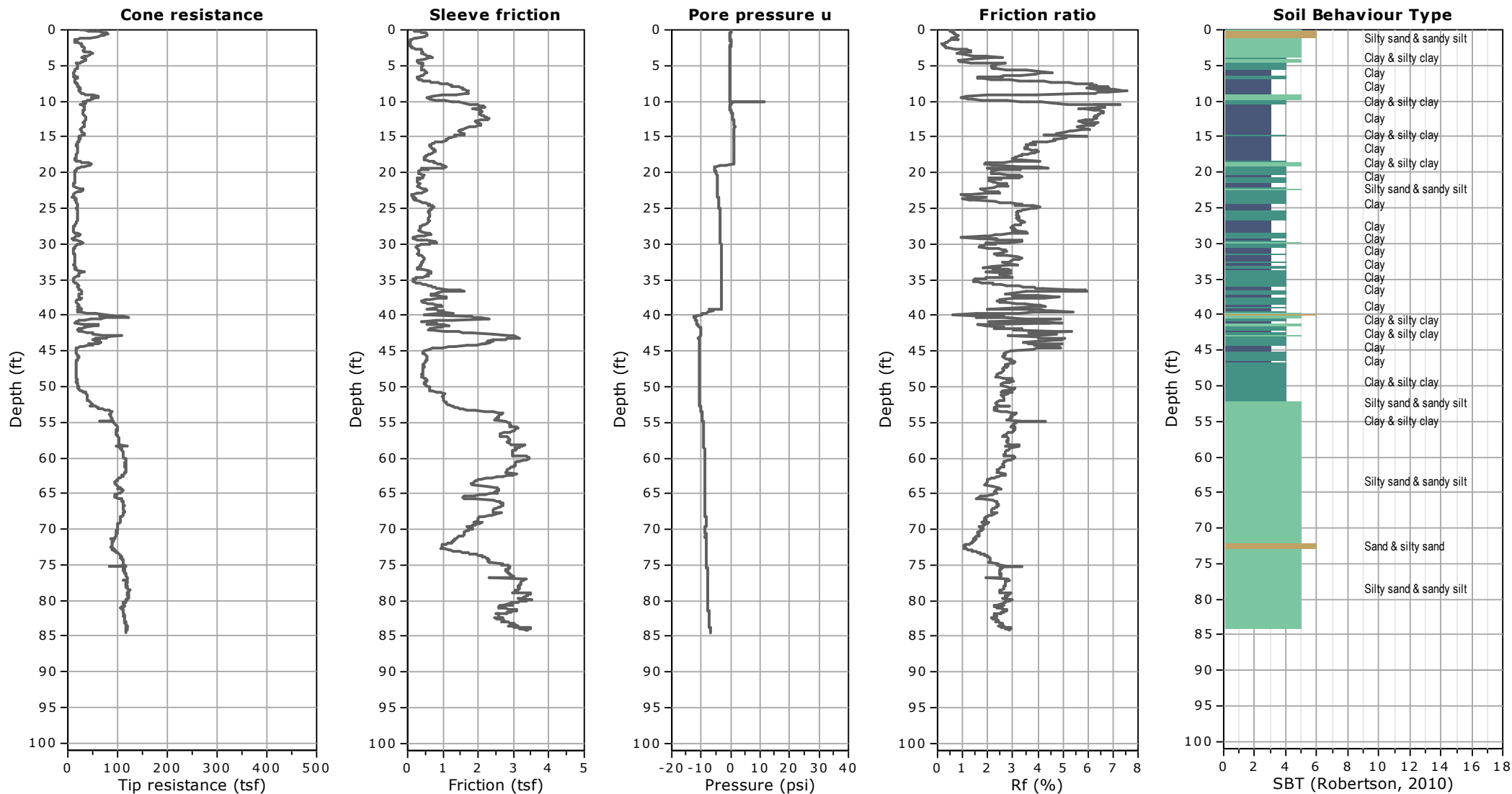


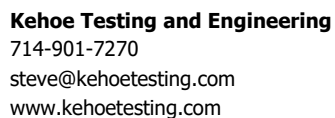
Project: LGC Geotechnical / Compass

Location: 29251 Camino Capistrano, San Juan Capistrano, CA

CPT-10

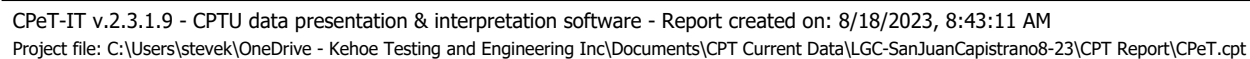
Total depth: 84.48 ft, Date: 8/17/2023





Location: 29251 Camino Capistrano, San Juan Capistrano, CA

Total depth: 97.94 ft, Date: 8/17/2023



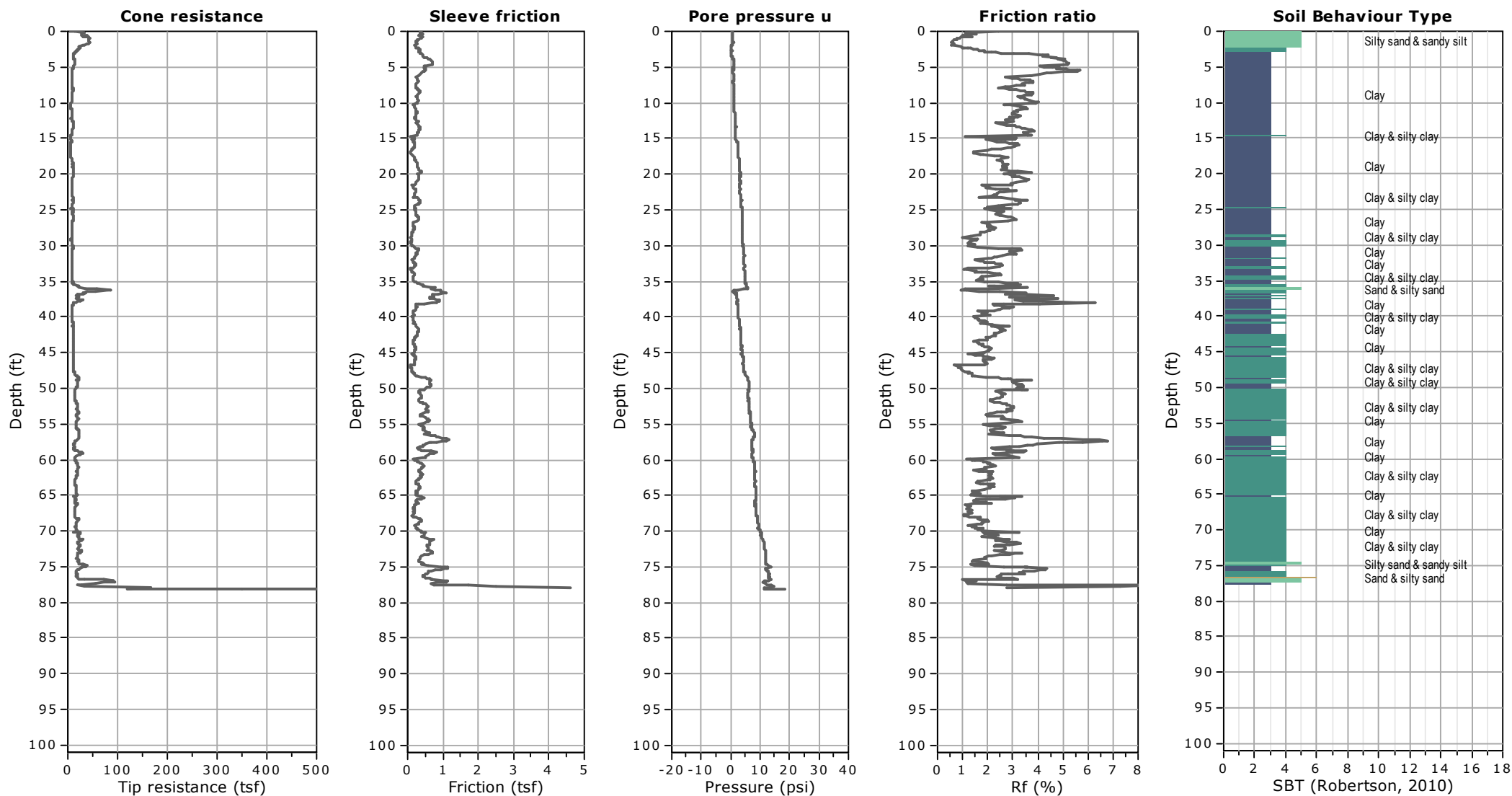


Project: LGC Geotechnical / Compass

Location: 29251 Camino Capistrano, San Juan Capistrano, CA

CPT-12

Total depth: 78.22 ft, Date: 8/17/2023



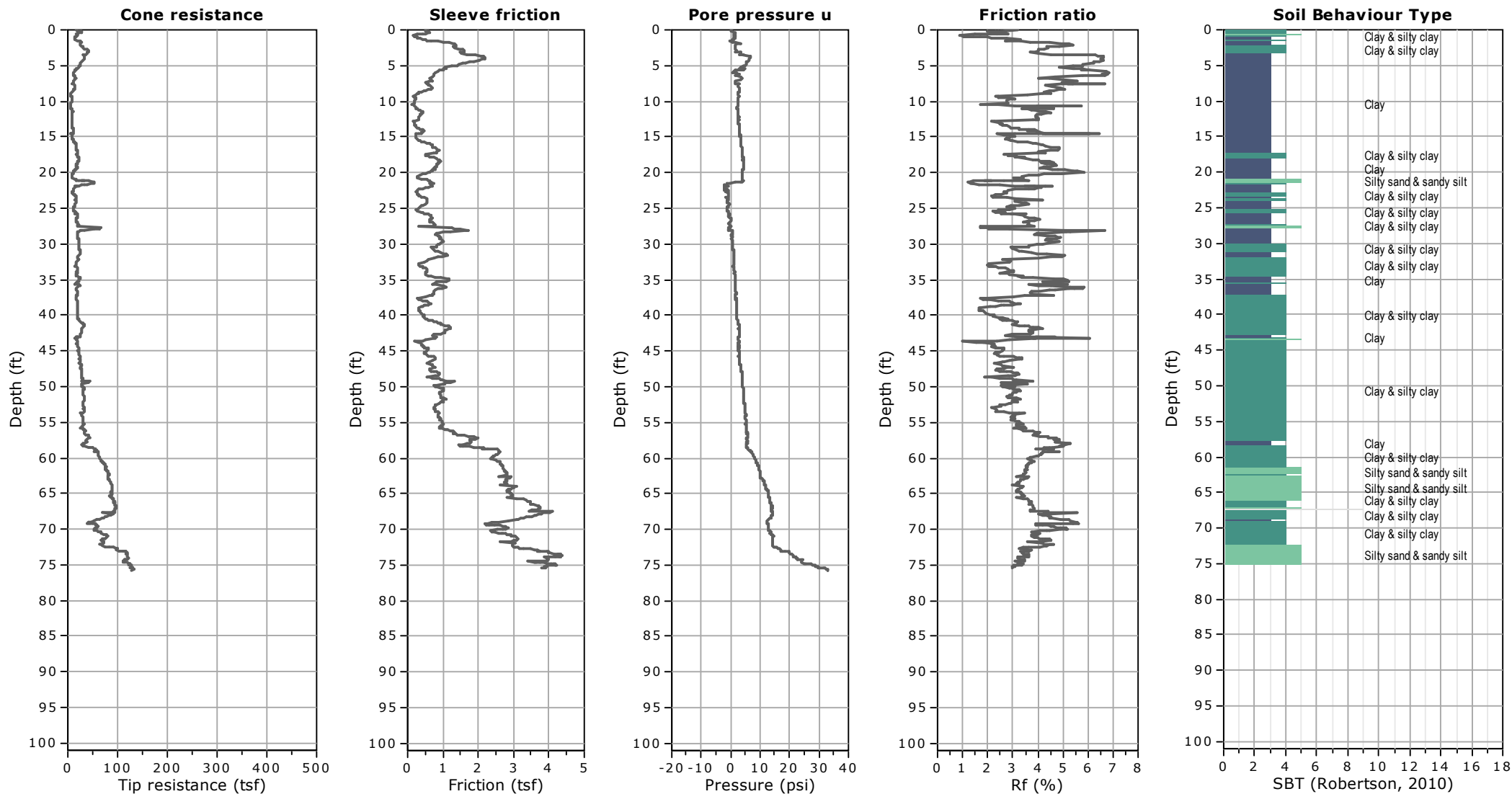


Project: LGC Geotechnical / Compass

Location: 29251 Camino Capistrano, San Juan Capistrano, CA

CPT-13

Total depth: 75.70 ft, Date: 8/17/2023



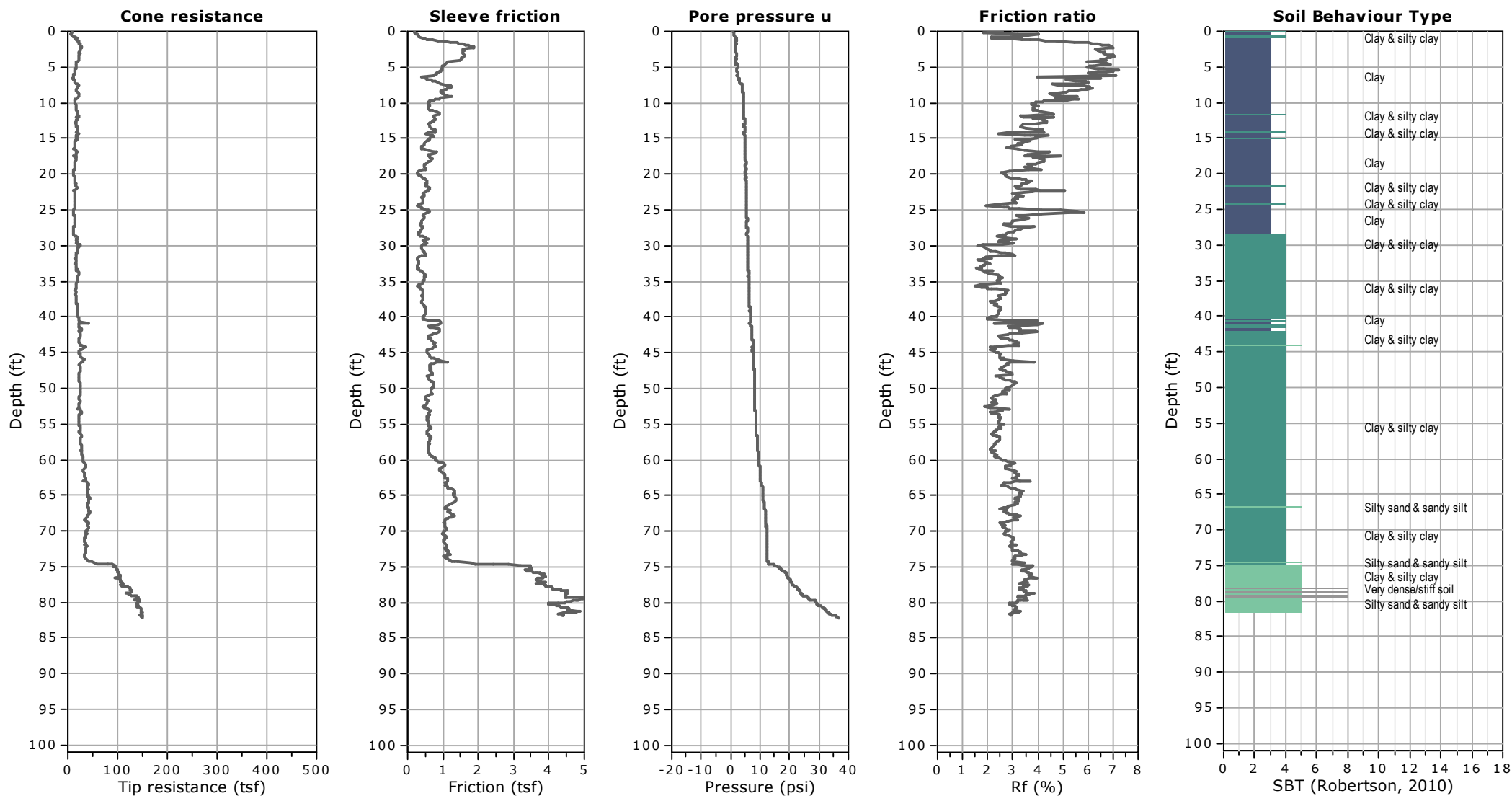


Project: LGC Geotechnical / Compass

Location: 29251 Camino Capistrano, San Juan Capistrano, CA

CPT-14

Total depth: 82.17 ft, Date: 8/17/2023



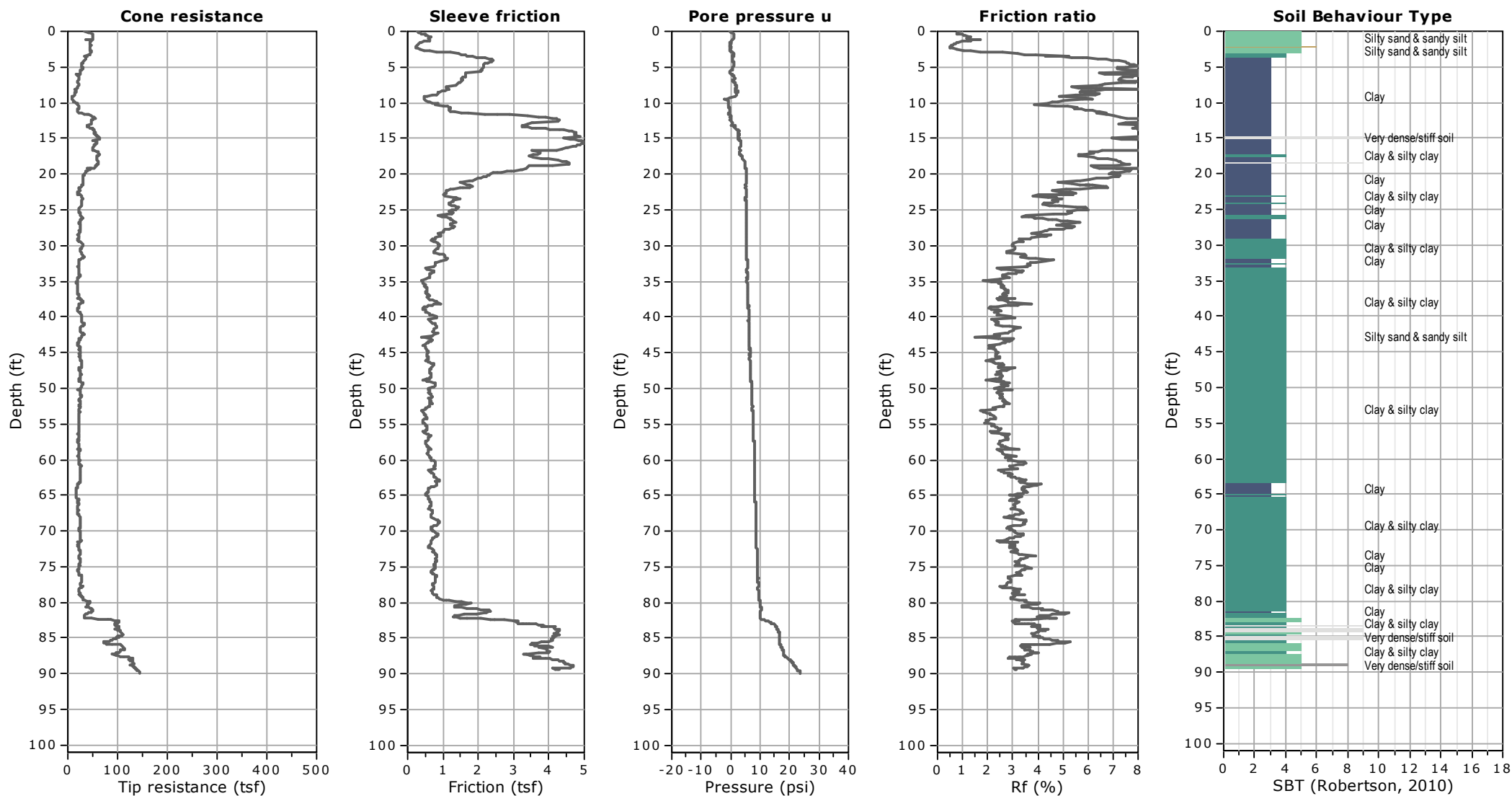


Project: LGC Geotechnical / Compass

Location: 29251 Camino Capistrano, San Juan Capistrano, CA

CPT-15

Total depth: 89.87 ft, Date: 8/17/2023



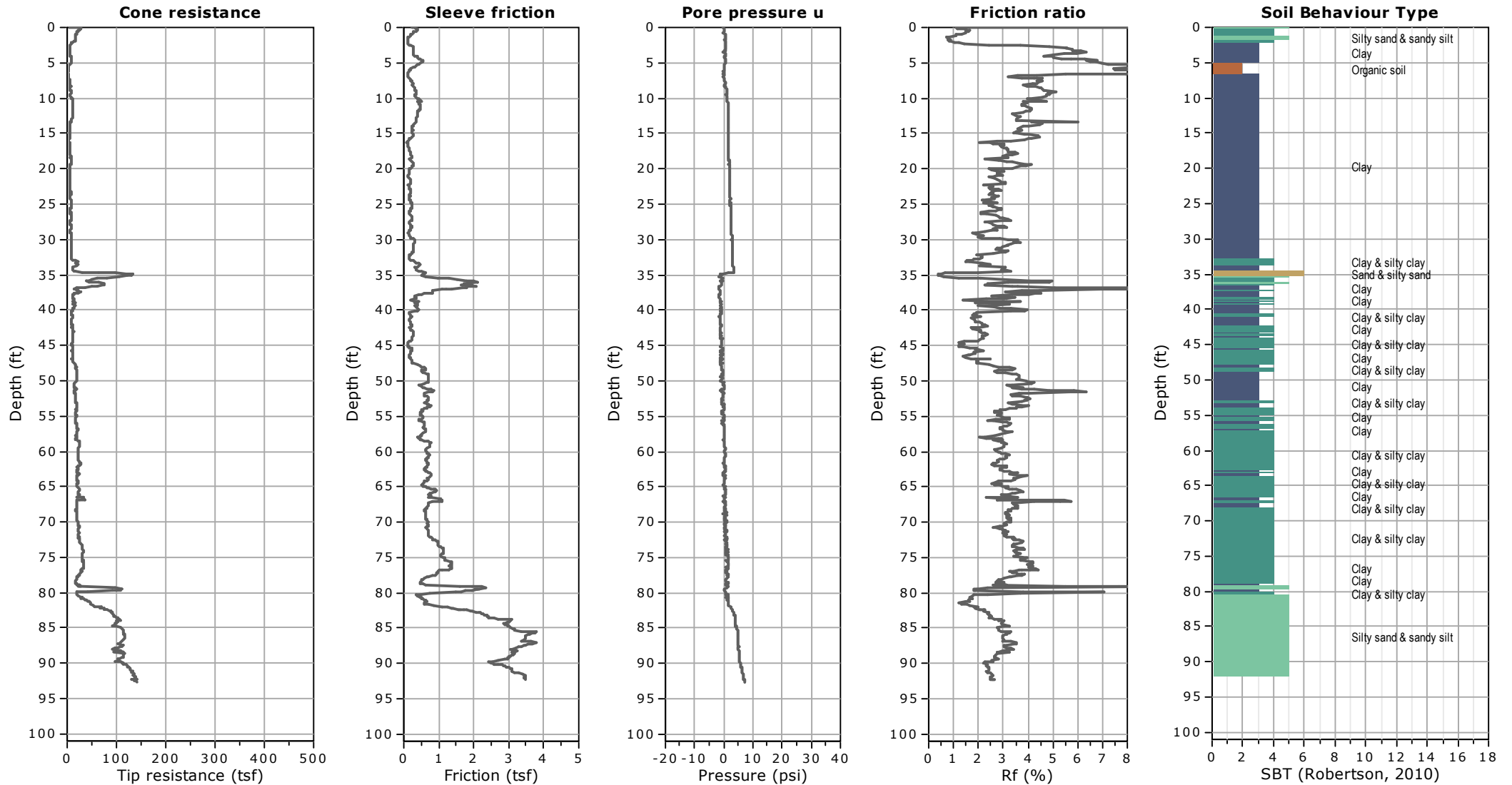


Project: LGC Geotechnical / Compass

Location: 29251 Camino Capistrano, San Juan Capistrano, CA

CPT-16

Total depth: 92.63 ft, Date: 8/17/2023



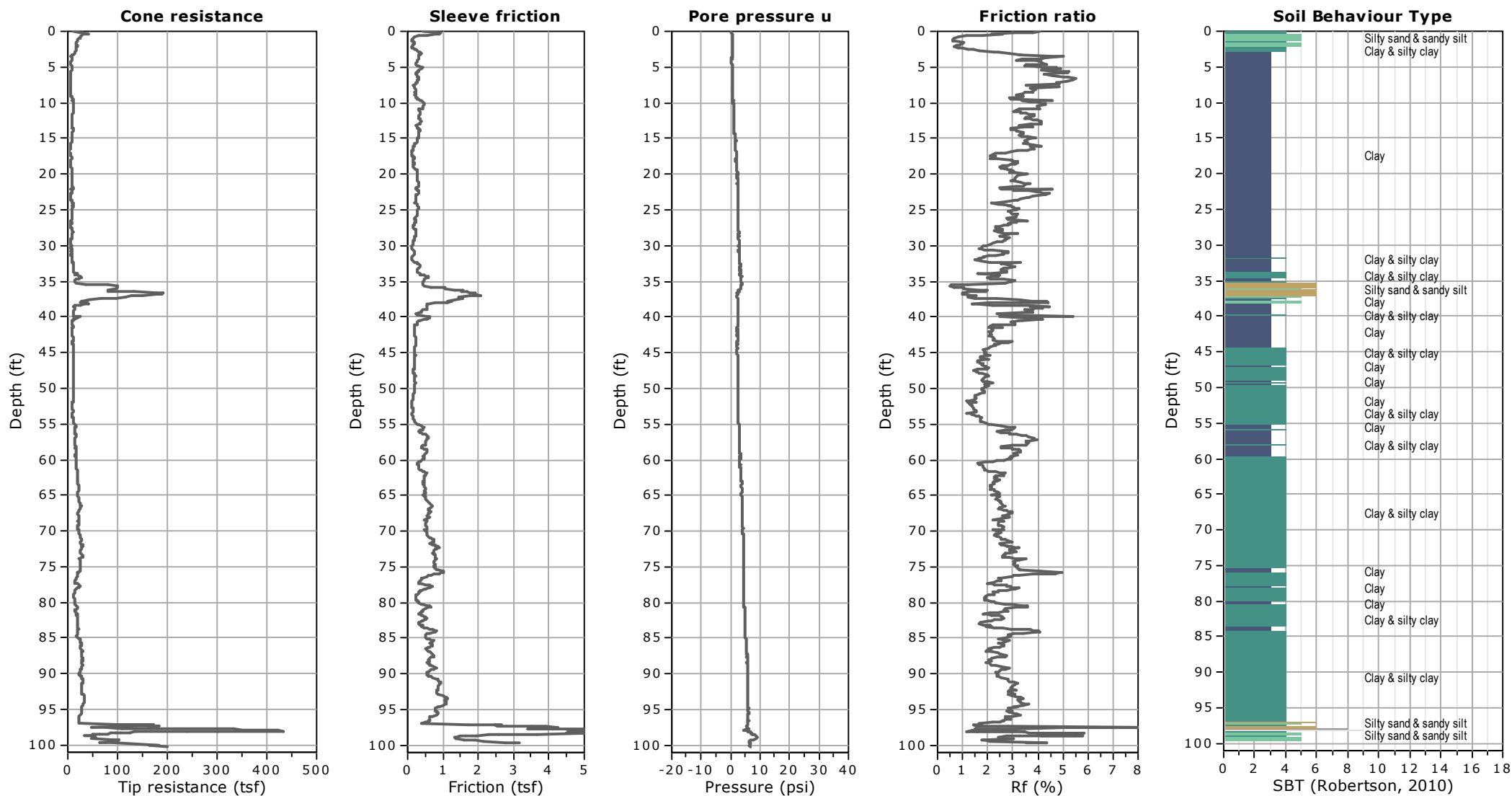


Project: LGC Geotechnical / Compass

Location: 29251 Camino Capistrano, San Juan Capistrano, CA

CPT-17

Total depth: 100.18 ft, Date: 8/17/2023



LGC Geotechnical
Compass BESS
San Juan Capistrano, CA

CPT Shear Wave Measurements

Location	Tip Depth (ft)	Geophone Depth (ft)	Travel Distance (ft)	S-Wave Arrival (msec)	S-Wave Velocity from Surface (ft/sec)	Interval S-Wave Velocity (ft/sec)
CPT-4	5.02	4.02	4.49	5.88	764	
	10.01	9.01	9.23	15.40	599	498
	15.03	14.03	14.17	24.18	586	563
	20.05	19.05	19.15	33.40	573	540
	25.00	24.00	24.08	41.34	583	621
	30.05	29.05	29.12	48.56	600	697
	35.01	34.01	34.07	56.96	598	589
	40.03	39.03	39.08	65.52	596	586
	45.05	44.05	44.10	75.46	584	504
	50.03	49.03	49.07	83.52	588	617
	55.05	54.05	54.09	89.52	604	836
	60.01	59.01	59.04	95.08	621	892
	64.99	63.99	64.02	101.92	628	728
	70.01	69.01	69.04	108.12	639	809
	75.03	74.03	74.06	114.36	648	804
	80.02	79.02	79.05	120.22	658	851
	85.01	84.01	84.03	125.04	672	1035
	90.03	89.03	89.05	129.96	685	1020
	95.05	94.05	94.07	134.48	700	1110
	100.00	99.00	99.02	138.52	715	1225

Shear Wave Source Offset -

2 ft

S-Wave Velocity from Surface = Travel Distance/S-Wave Arrival

Interval S-Wave Velocity = (Travel Dist2-Travel Dist1)/(Time2-Time1)

LGC Geotechnical
Compass BESS
San Juan Capistrano, CA

CPT Shear Wave Measurements

Location	Tip Depth (ft)	Geophone Depth (ft)	Travel Distance (ft)	S-Wave Arrival (msec)	S-Wave Velocity from Surface (ft/sec)	Interval S-Wave Velocity (ft/sec)
CPT-6	5.02	4.02	4.49	6.20	724	
	10.01	9.01	9.23	14.14	653	597
	15.03	14.03	14.17	20.76	683	747
	20.01	19.01	19.11	29.20	655	586
	25.00	24.00	24.08	36.58	658	673
	30.05	29.05	29.12	44.96	648	601
	35.01	34.01	34.07	54.80	622	503
	39.99	38.99	39.04	63.28	617	586
	45.01	44.01	44.06	71.72	614	594
	50.00	49.00	49.04	79.88	614	611
	55.02	54.02	54.06	87.80	616	633
	60.04	59.04	59.07	95.72	617	633
	65.03	64.03	64.06	102.86	623	699
	70.05	69.05	69.08	108.46	637	896
	75.00	74.00	74.03	113.96	650	900
	80.02	79.02	79.05	117.96	670	1255
	85.01	84.01	84.03	122.04	689	1223
	89.99	88.99	89.01	125.92	707	1283
	93.11	92.11	92.13	127.80	721	1659

Shear Wave Source Offset -

2 ft

S-Wave Velocity from Surface = Travel Distance/S-Wave Arrival

Interval S-Wave Velocity = (Travel Dist2-Travel Dist1)/(Time2-Time1)

LGC Geotechnical
Compass
San Juan Capistrano, CA

CPT Shear Wave Measurements

Location	Tip Depth (ft)	Geophone Depth (ft)	Travel Distance (ft)	S-Wave Arrival (msec)	S-Wave Velocity from Surface (ft/sec)	Interval S-Wave Velocity (ft/sec)
CPT-10	5.05	4.05	4.52	6.42	704	
	10.07	9.07	9.29	15.96	582	500
	15.09	14.09	14.23	24.72	576	564
	20.01	19.01	19.11	33.92	564	531
	25.00	24.00	24.08	43.56	553	515
	30.12	29.12	29.19	54.04	540	487
	35.10	34.10	34.16	63.04	542	552
	40.06	39.06	39.11	69.36	564	784
	45.14	44.14	44.19	74.48	593	991
	50.10	49.10	49.14	80.82	608	782
	55.05	54.05	54.09	85.98	629	959
	60.04	59.04	59.07	90.36	654	1139
	65.12	64.12	64.15	94.84	676	1133
	70.01	69.01	69.04	98.58	700	1307
	75.13	74.13	74.16	103.00	720	1158
	80.02	79.02	79.05	106.84	740	1273
	84.38	83.38	83.40	110.48	755	1197
CPT-12	5.09	4.09	4.55	9.00	506	
	10.17	9.17	9.39	17.32	542	581
	15.49	14.49	14.63	28.04	522	489
	20.18	19.18	19.28	36.92	522	524
	25.10	24.10	24.18	45.92	527	544
	30.28	29.28	29.35	54.80	536	582
	35.10	34.10	34.16	63.60	537	547
	40.19	39.19	39.24	71.52	549	642
	45.24	44.24	44.29	80.62	549	554
	50.16	49.16	49.20	87.36	563	729
	55.18	54.18	54.22	94.00	577	755
	60.14	59.14	59.17	100.74	587	735
	65.12	64.12	64.15	106.64	602	844
	70.08	69.08	69.11	112.20	616	892
	75.13	74.13	74.16	118.64	625	784
	78.12	77.12	77.15	121.84	633	934

Shear Wave Source Offset -

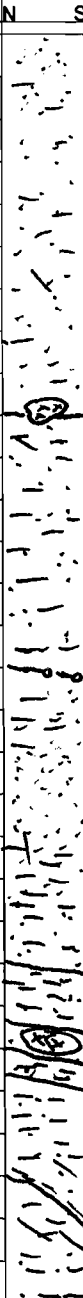
2 ft

S-Wave Velocity from Surface = Travel Distance/S-Wave Arrival
Interval S-Wave Velocity = (Travel Dist2-Travel Dist1)/(Time2-Time1)

Appendix B
Boring Logs By Others

GEOTECHNICAL BORING LOG LAB-2

Project No.	012383-001	Date Drilled	12-28-08
Project	Continuing Life/Orchards	Logged By	MDJ
Drilling Co.	C&L Pacific Drilling	Hole Diameter	30"
Drilling Method	- 12" Drop	Ground Elevation	245'
Location		Sampled By	MDJ

Elevation Feet	Depth Feet	Graphic Log	Attitudes	Sample No.	Blows Per 6 Inches	Dry Density pcf	Moisture Content, %	Soil Class. (U.S.C.S.)	SOIL DESCRIPTION	Type of Tests
<i>The Soil Description applies only to a location of the exploration at the time of drilling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.</i>										
245	0							ML	QUATERNARY ALLUVIUM (Qal)	
									@ 4': Fine sandy SILT: Gray-brown, damp to moist Casing in upper 4'	
240	5									
235	10			B-1 9'-10'				ML	QUATERNARY LANDSLIDE DEPOSITS (Qls)	
									@ 9': Concretion fragments around hole, very fine sandy SILT: Brown to light brown, damp, loose; mottled disturbed, gypsum, calcium-carbonate blebs	
									@ 12'-13': Concretion fragments, calcium-carbonate blebs abundant below 13'	
230	15			R-1	2			SM	@ 15': Fine sandy SILT with clay: Brown, damp to moist, medium stiff, moisture change at 15', clay-lined shear, random shears @ 16'-16.8': Broken concretion with random clay-lined shears	
									@ 17': Silty fine SAND: Light brown and gray-brown, damp, medium dense	
225	20			B-1 20'-22'				ML SM	@ 19': Fine sandy SILT with clay: Gray, moist, medium stiff, high plasticity @ 20': Silty clay with SAND: Medium brown to gray-brown, moist,	
		sh:N50W, 12-16SE					CL	@ 22'-23': High plasticity clay layer, increase iron-oxide staining (orange and yellow)		
220	25	N40W, 6-7°NE					ML	@ 24': Dark gray/black SILT @ 25': Increasing sand content and density, random shear blebs @ 26': Clayey SILT: Gray-brown		
		sh:N60E 30°N						@ 27.5'-28': Highly plasticity clay layer on shear, dark gray below layer (shear)		
215	30									

SAMPLE TYPES:
S SPLIT SPOON
R RING SAMPLE
B BULK SAMPLE
T TUBE SAMPLE

G GRAB SAMPLE
C CORE SAMPLE

TYPE OF TESTS:
DS DIRECT SHEAR
MD MAXIMUM DENSITY
CN CONSOLIDATION
CR CORROSION

SA SIEVE ANALYSIS
SE SAND EQUIVALENT
EI EXPANSION INDEX
RV R VALUE

-200 % FINES PASSING
AL ATTERBERG LIMITS
CO COLLAPSE
PP POCKET PENETROMETER



SAMPLE TYPES:

S SPLIT SPOON	G GRAB SAMPLE
R RING SAMPLE	C CORE SAMPLE
B BULK SAMPLE	
T TUBE SAMPLE	

TYPE OF TESTS:

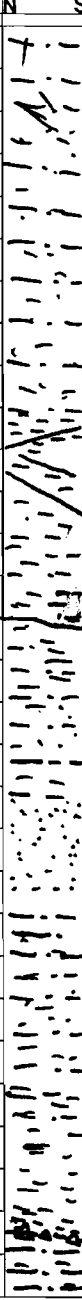
DS DIRECT SHEAR	SA SIEVE ANALYSIS	-200 % FINES PASSING
MD MAXIMUM DENSITY	SE SAND EQUIVALENT	AL ATTERBERG LIMITS
CN CONSOLIDATION	EI EXPANSION INDEX	CO COLLAPSE
CR CORROSION	RV R VALUE	PP POCKET PENETROMETER



*** This log is a part of a report by Leighton and should not be used as a stand-alone document. ***

GEOTECHNICAL BORING LOG LAB-2

Project No.	012383-001	Date Drilled	12-28-08
Project	Continuing Life/Orchards	Logged By	MDJ
Drilling Co.	C&L Pacific Drilling	Hole Diameter	30"
Drilling Method	- 12" Drop	Ground Elevation	245'
Location		Sampled By	MDJ

Elevation Feet	Depth Feet	Graphic Log	Attitudes	Sample No.	Blows Per 6 Inches	Dry Density pcf	Moisture Content, %	Soil Class. (U.S.C.S.)	SOIL DESCRIPTION	Type of Tests	
<i>The Soil Description applies only to a location of the exploration at the time of drilling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.</i>											
215	30			R-2	1			ML	QUATERNARY LANDSLIDE DEPOSITS (Qls) continued @ 30': Fine sandy clayey SILT: Dark gray, moist to very moist, soft to medium stiff; micaceous, plastic, organic odor @ 31.5': Plastic layer 2" thick		
210	35			B-3 36'				CL	@ 36.8'-37': Very moist black and gray SM/ML, organics with plastic layer @ 39': Sandy silty CLAY: Dark gray (charcoal gray), moist, medium stiff, stiffer drilling conditions below 39' @ 41': Higher plasticity CLAY, some black layers (possibly charcoal), shear dipping 30°		
205	40		sh: E-W 50°N								
200	45			R-3	3			ML	@ 44': Changes color from gray and dark gray to gray and orange, becomes damp @ 45': Very fine sandy SILT with clay: Gray to dark gray, moist, medium stiff to stiff @ 47': Stiffer drilling		
								SM	@ 48': Silty fine SAND: Medium gray, moist, dense, abundant calcium carbonate stringers and bleb		
195	50							ML	@ 50.5': Silty very fine sandy SILT: Gray-brown to gray, moist, medium stiff to stiff, iron-oxide staining, calcium-carbonate bleb still common		
190	55			R-4	10			ML/CL	@ 55': Silty CLAY to sandy clayey SILT: Gray to gray, brown, moist, stiff; iron-oxide staining		
185	60	striation: 4° N78E rs: N48W, rs: 4-5°SW N34°W, 4SW							@ 58.5': Rupture surface 1" to 1.5" thick plastic soft clay striated N78E		

SAMPLE TYPES:
S SPLIT SPOON
R RING SAMPLE
B BULK SAMPLE
T TUBE SAMPLE

G GRAB SAMPLE
C CORE SAMPLE

TYPE OF TESTS:
DS DIRECT SHEAR
MD MAXIMUM DENSITY
CN CONSOLIDATION
CR CORROSION

SA SIEVE ANALYSIS
SE SAND EQUIVALENT
EI EXPANSION INDEX
RV R VALUE

-200 % FINES PASSING
AL ATTERBERG LIMITS
CO COLLAPSE
PP POCKET PENETROMETER



SAMPLE TYPES:

S SPLIT SPOON	G GRAB SAMPLE
R RING SAMPLE	C CORE SAMPLE
B BULK SAMPLE	
T TUBE SAMPLE	

TYPE OF TESTS:

DS DIRECT SHEAR	SA SIEVE ANALYSIS	-200 % FINES PASSING
MD MAXIMUM DENSITY	SE SAND EQUIVALENT	AL ATTERBERG LIMITS
CN CONSOLIDATION	EI EXPANSION INDEX	CO COLLAPSE
CR CORROSION	RV R VALUE	PP POCKET PENETROMETER



*** This log is a part of a report by Leighton and should not be used as a stand-alone document. ***

GEOTECHNICAL BORING LOG LAB-2

Project No.	012383-001	Date Drilled	12-28-08
Project	Continuing Life/Orchards	Logged By	MDJ
Drilling Co.	C&L Pacific Drilling	Hole Diameter	30"
Drilling Method	- 12" Drop	Ground Elevation	245'
Location		Sampled By	MDJ

Elevation Feet	Depth Feet	Graphic Log	Attitudes	Sample No.	Blows Per 6 Inches	Dry Density pcf	Moisture Content, %	Soil Class. (U.S.C.S.)	SOIL DESCRIPTION	Type of Tests
<i>The Soil Description applies only to a location of the exploration at the time of drilling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.</i>										
185	60							ML	TERTIARY CAPISTRANO FORMATION (Tc) @ 60': Very fine sandy SILTSTONE: Dark gray-brown to dark gray, damp, very stiff; micaceous, massive, hydrocarbon odor?? slower driller 59-60°	
180	65		R-5 B-6 65'	18				@ 65': Very fine sandy SILTSTONE: Dark gray, damp, very stiff to hard; massive, very fine white blebs (diatomaceous); unoxidized @ 68': Horizontal at 68.4' on light gray SILTSTONE		
175	70									
170	75		R-6	22				@ 74': Some claystone beds @ 75': Very fine sandy SILTSTONE with clay: Dark gray, damp, hard; very fine blebs (diatomaceous); unoxidized, very fine micaceous		
165	80									
160	85			R-7						
155	90									

SAMPLE TYPES:
S SPLIT SPOON
R RING SAMPLE
B BULK SAMPLE
T TUBE SAMPLE

G GRAB SAMPLE
C CORE SAMPLE

TYPE OF TESTS:
DS DIRECT SHEAR
MD MAXIMUM DENSITY
CN CONSOLIDATION
CR CORROSION

SA SIEVE ANALYSIS
SE SAND EQUIVALENT
EI EXPANSION INDEX
RV R VALUE

-200 % FINES PASSING
AL ATTERBERG LIMITS
CO COLLAPSE
PP POCKET PENETROMETER



GEOTECHNICAL BORING LOG LAB-2

Project No. 012383-001
 Project Continuing Life/Orchards
 Drilling Co. C&L Pacific Drilling
 Drilling Method - 12" Drop
 Location

Date Drilled 12-28-08
 Logged By MDJ
 Hole Diameter 30"
 Ground Elevation 245'
 Sampled By MDJ

Elevation Feet	Depth Feet	Graphic Log	Attitudes	Sample No.	Blows Per 6 Inches	Dry Density pcf	Moisture Content, %	Soil Class. (U.S.C.S.)	SOIL DESCRIPTION The Soil Description applies only to a location of the exploration at the time of drilling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.	Type of Tests
155	90							ML	<u>TERTIARY CAPISTRANO FORMATION (Tc) Continued</u>	
150	95			R-8	10				@ 95': Very fine sandy SILTSTONE with clay: Dark gray, damp, hard; unoxidized, hydrocarbon odor, very fine white blebs	
145	100								@ 99': Generally horizontal bed along laminated SILTSTONE layer @ 100': Concretion (well cemented, very dense)	
140	105			R-9	15				@ 105': Very fine sandy SILTSTONE with clay: Dark gray, damp, hard; unoxidized, hydrocarbon odor, very fine white blebs	
135	110			B-7 110'					@ 112': Subround concretion right side of hole, faint generally horizontal bedding	
130	115			R-10	9				@ 115': Very fine sandy SILTSTONE: Dark gray, damp, hard @ 117'-117.5': Black/gray bed over medium gray bed, continuous around hole at approximately same depth	
125	120									

SAMPLE TYPES:

S SPLIT SPOON G GRAB SAMPLE
 R RING SAMPLE C CORE SAMPLE
 B BULK SAMPLE
 T TUBE SAMPLE

TYPE OF TESTS:

DS DIRECT SHEAR SA SIEVE ANALYSIS -200 % FINES PASSING
 MD MAXIMUM DENSITY SE SAND EQUIVALENT AL ATTERBERG LIMITS
 CN CONSOLIDATION EI EXPANSION INDEX CO COLLAPSE
 CR CORROSION RV R VALUE PP POCKET PENETROMETER



GEOTECHNICAL BORING LOG LAB-2

Project No.	012383-001	Date Drilled	12-28-08
Project	Continuing Life/Orchards	Logged By	MDJ
Drilling Co.	C&L Pacific Drilling	Hole Diameter	30"
Drilling Method	- 12" Drop	Ground Elevation	245'
Location		Sampled By	MDJ

Elevation Feet	Depth Feet	Graphic Log	Attitudes	Sample No.	Blows Per 6 Inches	Dry Density pcf	Moisture Content, %	Soil Class. (U.S.C.S.)	SOIL DESCRIPTION	Type of Tests
125	120	N S						ML	<i>The Soil Description applies only to a location of the exploration at the time of drilling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.</i> <u>TERTIARY CAPISTRANO FORMATION (Tc) (Continued)</u>	
120	125			R-11	20				@ 125': Very fine sandy SILTSTONE: Dark gray-brown, damp, hard @ 126': Generally horizontal	
115	130								@ 133'-134': Hit very dense concretion layer, random orientation, polished surfaces at the top of concretion, concretion appears to be intact, but mechanically broken	
110	135			R-12	10				@ 125': Very fine sandy SILTSTONE: Dark gray-brown, damp, hard	
105	140									
100	145			R-13	10				Downhole Logged Hole to 141.5 Feet No ground water encountered at time of drilling Backfilled on 1/5/09 Drive Weights: 0-29-3,615 lbs, 30-57-2,395 lbs, 58-85-1,310 lbs, 86-110-1,800 lbs, 111-136-2,290 lbs, 137-162-2,780 lbs.	
95	150									

SAMPLE TYPES:

S SPLIT SPOON G GRAB SAMPLE

R RING SAMPLE C CORE SAMPLE

B BULK SAMPLE

T TUBE SAMPLE

TYPE OF TESTS:

DS DIRECT SHEAR SA SIEVE ANALYSIS -200 % FINES PASSING

MD MAXIMUM DENSITY SE SAND EQUIVALENT AL ATTERBERG LIMITS

CN CONSOLIDATION EI EXPANSION INDEX CO COLLAPSE

CR CORROSION RV R VALUE PP POCKET PENETROMETER

*** This log is a part of a report by Leighton and should not be used as a stand-alone document. ***

LOCATION OF BORING

JOB NO.

1651-4

CLIENT

RANCHO
CAPISTRANO

LOCATION

SAN JUAN
CAPISTRANO

DRILLING METHOD:

BUCKET AUGER

BORING NO.

LB-2

SHEET

①

OF 3

SAMPLING METHOD:

DRILLING

START

FINISH

TIME

TIME

9:00 AM

11:15 AM

DATE

DATE

3/21/01

3/21/01

DRIVING WT.:

DATUM

ELEVATION 250'±

CASING DEPTH

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
								0	
								1	
								2	
								3	
								4	
								5	
								6	
								7	
								8	
								9	
								10	
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								13	
								14	
								15	
								16	
								17	
								18	
								19	
								20	

TOPSOIL

SILTY CLAY

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

VERY WEATHERED BEDROCK (GLANDSLIDE MATERIAL)

SILTY CLAY

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

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

CLAYEY SILT(STONE)

LIGHT OLIVE BROWN TO MOTTLED, SOFT, MOIST, SLI. POROUS

VERY WEATHERED, TRACE VERY FINE SAND - % INCREASES
W/DEPTH, GYPSUM XLS; NO VISIBLE STRUCTURE

GRADATIONAL

SILTY CLAY(STONE)

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

ABUNDANT ORANGE OXIDE STAINING

CLAYEY SILT(STONE) W/ VERY FINE SAND

MOTTLED, SOFT, SLI. MOIST TO MOIST, SLI. POROUS, W/ NUM.

WHITE CARBONATE? STREAKS OF FE OXIDES, DK. BRN. ORGANIC LAYERS

OLIVE COLOR BANDS, RELIC BEDDING? - N30E 26-22°NW

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

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

GRADES TO:

SILTY CLAY(STONE) & CLAY(STONE)

CLAY(STONE)

PLASTIC

SHARP CONTACT, WAVY, DISCONTINUOUS

CLAYEY SILT(STONE) W/ VERY FINE SAND

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

DRILLING CONTR.

CHKD 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 (2)

OF 3

SAMPLING METHOD.

DRILLING

WATER LEVEL

TIME

DATE

CASING DEPTH

START

TIME

FINISH

TIME

DATE

DATE

DRIVING WT.:

DATUM

ELEVATION 250't

SURFACE CONDITIONS.

(CONT'D)

WEATHERED BEDROCK (TG) (LANDSLIDE MATERIAL)

CLAYEY SILT(STONE)

MOTTLED, SOFT, MOIST, W/ ABUNDANT FE OXIDES

FE OXIDE COLOR BANDING - N-S 30°W

SILTY CLAY & CLAY(STONE)

MOTTLED, VERY SOFT, MOIST TO WET, PLASTIC W/ HEAVY OXIDE

AND MINERAL STAINING, SLIGHT SEEP BELOW 23'
SCATTERED ORGANICS, TWIGS(?), ROOTS, TO 1/4" DIAM. AND POCKETS
OF SOFT CLAY

COLOR BANDING - N80W, 30-32°S

FE OXIDE COATED PLANE

CLAYEY SILT(STONE) INTERBED - N60W 15 NE

CLAYEY SILT(STONE)

NUMEROUS FRACTURES, FE STAINED
TYPICAL FRACT. - N-S, 65E

MOTTLED, SOFT TO VERY SOFT

CHARCOAL (CARBON) "FLECKS", FRAGMENTS AND
NUM. FE OXIDE - STAINS IN FRACTURES

FRACTURE - N20E, 55 SE (TYPICAL)

ORANGE OXIDE STAINING, SCATTERED ORGANICS - TWIGS(?)
ROOTS, & CO₂ NODULESBEDDING(?) N30E, 30SE, CONTINUOUS, OXIDE STAINED
W/ THIN CLAY POCKETS, LENSES PARALLEL W/ PLANECLAY SEAM, 1/8" THICK, MOIST, PLASTIC, N70W, 15 NE
CONTINUOUS

SOFT, LESS FRACTURED, LESS CLAY CONTENT

SILICEOUS NODULES, SLIGHT SEEP

COLOR BANDING N54W, 24 NE REVEALED(?)

SUBPARALLEL COLOR BANDS FRACTURES(?)

W/ ORGANICS ALIGNED W/ PLANES N9W, 50-55W
ORANGE OXIDE STAINED ROOTS 1/4" DIAM.

SLIGHT SEEPAGE FROM FRACTURES

DRILLING CONTR.

CHK'D BY

DATE

BY

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

DRILLING

WATER LEVEL

TIME

DATE

CASING DEPTH

START

TIME

FINISH

TIME

DATE

DATE

DRIVING WT.:

DATUM

ELEVATION 250±

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	
								41	
								42	
								43	
								44	
								45	
								46	
								47	
								48	
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								50	
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								62	
								63	
								64	
								65	
								66	
								67	
								68	
								69	
								70	

(CONT'D)

"GRADATIONAL" CHANGE TO:

CLAYEY SILTSTONE) [LANDSLIDE MATERIAL]

DARK OLIVE GREY TO OLIVE GREY, SOFT, MOIST, MASSIVE TO THICK BEDDED

DISCONTINUOUS, ALIGNED SAND LENSES N8W, 35-40°

SOFT TO MODERATELY HARD (GRADUAL INCREASE IN HARDNESS W/DEPTH)

SUBPARALLEL FE-OXIDE STAINED BANDS 1/8-1/2" THICK FRACTURES (?) NSW, 33E (TYPICAL)

IRREGULAR CONTACT, WEATHERING

DARK GREY (LESS OXIDIZED)

1/8" THK. ROOT AND SCATTERED GYPSUM CRYSTALS

HIGH ORGANIC CONTENT ALONG PLANAR FEATURE, 3'-6' N40W 47SW, THIS PLANE IS OFFSET ALONG

CLAYEY SHEAR-TIN, TIGHT N30W 47E, 1/8-1/4" PLANE

CLAYEY SHEAR, LOW 4, THIN, LIGHT BRN. SILICEO MATERIAL N83E, 14N

MODERATELY HARD (HARDNESS INCREASES W/DEPTH)

CLAY SEAM, 1/4" THICK, N80W, 40NE

CLAY SEAM, 1/4" THICK, N80W, 40NE

SCATTERED CARBONATE FRAGMENTS TO 2" DIAM.

SUBROUNDED CLAY INTERBED, THIN, BEDDING? N80W 17NE

GRADATIONAL

DARK GREY BROWN (LESS OXIDIZED), MOD. HARD, MASSIVE

POTENTIAL

SLIDE PLANE? SHARP, CLAYEY, LOCALLY LT. GREY,

STRONG STRIAE, N10-20W, 4W

CLAYEY SILTSTONE TO SILTSTONE (TC)

VERY DARK GREY, MOD. HARD TO HARD, MASSIVE, NO OBVIOUS STRUCTURE

STRUCTURE NOT OBVIOUS

HARD BELOW 58'-60', STRUCTURELESS (massive)

END DOWNHOLE LOG @ 87'±

END BORING @ 91'

DRILLING CONTR.

CHK'D 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

DRILLING

SAMPLING METHOD:

WATER LEVEL

TIME

DATE

CASING DEPTH

START

TIME

FINISH

TIME

DATE

DATE

DRIVING WT.:

DATUM

ELEVATION

SURFACE CONDITIONS.

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.
R								0		SOIL ZONE / WEATHERED BEDROCK (LANDSLIDE AFFECTED)
								1		SILTY CLAY
								2		DARK GREYISH BROWN, SOFT, MOIST TO V. MOIST, ABUNDANT OXIDE MOTTLING, POROUS, W/ NUMEROUS ROOTS TO 1/8" DIAM.
								3		
								4		CONCRETION W/ GYPSUM (4x8"), WITH ABUNDANT GYPSUM XTALS AND SEAMS
R				1	5'	1B=6" 1B=6" 1B=6"		5		← FRACTURE N40E, 30NW, - OXIDE STAINED, 1/4" THICK W/ GYPSUM XTALS, IRRREG., DISCONTINUOUS
								6		NUMEROUS WAVY, DISCONT. FRACTURE PLANES AND OXIDES W/ ABUNDANT ROOT HAIRS
								7		← SCATTERED GYPSUM XTALS → GRADATIONAL SUBTLE CHANGE
								8		CLAYEY SILT
								9		DARK BROWN, SOFT TO FIRM, SLIGHTLY MOIST, GYPSUM XTALS, WAVY, 1/4" INFILLINGS, ABUNDANT Fe OXIDE STAINING
R				2	10'	1B=6" 2B=6"		10		DARK GREY, FIRM, SLIGHTLY MOIST
								11		GREY
								12		
								13		
								14		← 1/2" CLAY SEAM, MOIST, PLASTIC, PLANAR, SHARP, NS, 15-18E (PROBABLE SLIDE SURFACE)
R				3	15'	1B=6" 2B=6"		15		DARK BRN & DK GREY, FIRM, MOIST, W/ ABUNDANT, ANGULAR ROCK FRAGMENTS, SLT, POROUS, ROOT HAIR (SOIL-LIKE TEXTURE)
								16		GRADATIONAL CONTACT
								17		BROWNISH GREY, FIRM, LESS CLAY % (PALEDSOIL?)
								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

1651-4

CLIENT

JUNIPERO
SERRA HIGH SCHOOL

LOCATION SAN.

JUAN CAPISTRAN

DRILLING METHOD:

BUCKET AUGER

BORING NO.

LB-5 (cont.)

SHEET

2

SAMPLING METHOD:

OF 4

DRILLING

START

FINISH

TIME

TIME

WATER LEVEL

TIME

DATE

DATE

DATE

CASING DEPTH

DRIVING WT.:

DATUM

ELEVATION

SURFACE CONDITIONS:

(CONT'D)

CLAYEY SILT & SILTST. (WEATHERED BEDROCK - SLIDE AFFECTED)
 LIGHT BROWNISH GREY, FIRM TO STIFF (MOD. HARD), MOIST
 WITH ABUNDANT OXIDE STAINS & SCATTERED ROOT
 HAIRS TO 1/16" THICK IN OPEN FRACTURES.

← BASE OF EXPOSED FRACTURE, WITH KNOT OF
 LIVE ROOTS, 1" THICK
 BEDDING INDISTINCT

— FRACTURE, N35E 55-57SE, TIGHT, PLANAR, NO

— CLAY, SLIGHTLY WAVY —

CLAYEY SILTST + VERY FINE SANDY SILT (STONE)

GREY, MOD. HARD (STIFF), MOIST, FRACTURED

← FRACTURES, SUBPARALLEL: N20W, 70-75NE,
 Fe OXIDES, ROOTS

BEDDING INDISTINCT

— FRACTURED ZONE, STEEPLY DIPPING (70°

TYPICALLY), CLOSELY-SPACED, OXIDE STAINED,

W/ROOT HAIRS, DISCONTINUOUS, INTERSECTING

— VERY TO MODERATELY FRACTURED, Fe OXIDE
 STAINING

FEW SCATTERED ROOT HAIRS IN FRACTURES

— GRADUAL CHANGE —

DARKER COLOR & INCREASE IN HARDNESS w/
 DEPTH

BEDDING INDISTINCT

GRADATIONAL 37'-39'

CHANGE TO -

— DARK OLIVE GREY, MOD. HARD TO HARD, MOIST,
 LESS OXIDIZED THAN ABOVE, BEDDING INDISTINCT
 VERY FRACTURED, GYPSUM & OXIDE FILLED FRACTS

← FRACTURE: N10E, 45E, TYPICAL TIGHT FRACTURE

DRILLING CONTR.

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-5601.	
			SHEET 3	
SAMPLING METHOD:			OF 4	
			DRILLING	
WATER LEVEL			START	FINISH
TIME			TIME	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	SURFACE CONDITIONS
										(CONT'D)
								40		CLAYEY SILT (STONE) (LANDSLIDE AFFECTED) BEDROCK
								41		DARK OLIVE GREY, MOD. HARD TO HARD, MOIST TO SLI.
								42		MOIST, W/ GYPSUM AND FE OXIDE STAINING
								43		DARK GREY, HARD, SLI, MOIST, GRADATIONAL
								44		MODERATELY FRACTURED, SLIGHTLY WEATHERED
								45		CLAY SEAM; N45E, 52SE, 1/4" THICK, TIGHT, INTERSECTS GYPSUM
								46		FRACTURE; NBOW, 75S GYPSUM FILLED, DR. OXIDE STAINED,
								47		
								48		CLAYEY SILTSTONE, NUMEROUS, HIGHLY POLISHED,
								49		TIGHT SHEARS, SOFT - MOD. HARD,
								50		SLIDE PLANE, N87W, 15-25N, EW TREND. STRIAT. WAVY, CONT.
R				7	168=6"	45		51		BEDROCK. (TC) - CLAYEY SILTSTONE
					408=3"			52		DK. OLIVE GREY, HARD, SLI, MOIST, MOD. FRACT, SLI, WEATHRD., DISC.
								53		WAVY, BEDDING(?) EW, 18N, SEVERAL TIGHT, THIN, NEAR-
								54		VERTICAL, VERY DK GREY, FRACTURES(?) IN FILLINGS(?)
								55		W/ SCATTERED, SMALL (2-3") SILICEOUS SILTSTONE NODULES
								56		CLAY SEAM, N55E, 25-35SE, WAVY, VARYING THICK
								57		UP TO 1/4" THICK,
								58		BEDDING (INDISTINCT) N25W, 10-20SW
								59		LESS FRACTURED
								60		
								61		CLAY SEAM, THIN, DARK GREY, NO MINERALIZATION,
								62		B. N70W, 19S BEDDING(?)
								63		
								64		CLAY SEAM, N58W, 17S BEDDING(?), THIN, V. DARK GREY
								65		FRACTURE, N 8E, 53E, DISCONTINUOUS, SOFTER
								66		ALONG FRACTURE
R				8	208=6"	55		67		SLIGHT SEEP AND SOME SILICEOUS SILTSTONE NODULE
					208=4"			68		
								69		
								70		
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LOCATION OF BORING	JOB NO. 1651-4	CLIENT JUNIPERO SERRA HIGH SCHOOL	LOCATION SAN JUANCAPISTRANO
	DRILLING METHOD: BUCKET AUGER		BORING NO. LB-5
	SAMPLING METHOD:		SHEET 4 OF 4
			DRILLING
WATER LEVEL			START TIME
TIME			FINISH TIME
DATE			DATE
CASING DEPTH			

DRIVING WT.: _____

DATUM		ELEVATION		CASING DEPTH						
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
								61		DARK OLIVE GREY TO DARK GREY, HARD, SLI. MOIST,
								62		
								63		✓ GRADATIONAL CONTACT
								64		CLAYEY SILTSTONE
								65		DARK OLIVE GREY, HARD, SLI. MOIST, THICKLY
								66		BEDDED TO MASSIVE, NO OBSERVABLE FRACTURES
								67		SMALL OXIDE STAINED NODULES, SCATTERED SILIC.
								68		SILTSTONE NODULES
								69		
								70		CLAY SEAM: N26E 30E, THIN, CONTINUOUS
								71		ZONE OF SUBPARALLEL, THIN CLAY SEAMS,
								72		BEDDING?
								73		
								74		ZONE OF THIN, TIGHT, CONTINUOUS, SUBPARALLEL
								75		CLAY SEAMS: N40E 15E (TYPICAL)
								76		
								77		NO OBSERVABLE BEDDING, OR OTHER SIGNIF.
								78		CHANGE, TO DEPTH.
								79		
								80		END OF BORING @ 80'

DRILLING CONTR.

BY _____
DATE _____
CHK'D 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:	

DI, PTH, FT	SAMPLES	BLOWS/FOOT	GROUND WATER	DESCRIPTION	MOISTURE CONTENT, %	DRY DENSITY, pcf	OTHER TESTS
5 10 15 20 25				SOIL ZONE / SLOPEWASH (QSW) SILTY CLAY TO CLAYEY SILT (ML) DARK BROWN, SOFT, MOIST, VERY POROUS WITH NUMEROUS ROOT HAIRS SILTY CLAY (CL) DARK BROWN, FIRM, MOIST, POROUS W/LIGHT BROWN MOTTLING IN IRREGULAR SHAPED ZONES GRADATIONAL CONTACT ↓ OLD ALLUVIUM (Qa10) CLAYEY SILT (ML) LIGHT OLIVE BROWN, FIRM, MOIST, W/ NUMEROUS ROOT HAIRS AND ABANDONED ROOT HOLES 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 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 ?) SILTY CLAY MOTTLED, PLASTIC, MOIST, IN POCKETS AND LENSES, W/ ANGULAR, DECOMPOSED ROCK FRAGMENTS			
HAMMER WEIGHT: DROP:				PROJECT NO.: 1651-4	FIGURE NO.: LB-8-1		

BORING LOG

Bored 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 (Qold) cont. SILTY CLAY (cont.) CLAYEY SILT (M) 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)?			
35				WITH SCATTERED GYPSUM CRYSTALS TO 4" LONG 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			
45				WHITE MINERAL MOTTLING ← NEAR HORIZONTAL BEDDING - COLOR BANDS ← STEEPLY-DIPPING COLOR BAND (FLOW-DEFORM. DURING DEPOSITION?) VERY MOIST			
50				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			
WEIGHT: _____ DROP: _____				PROJECT NO.: 1651-4	FIGURE NO.: LB-8-2		

BORING LOG

Depth		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.					
DEPTH FT.	SAMPLES	BLOWS/FOOT	GROUND WATER	DESCRIPTION	MOISTURE CONTENT %
				OLD ALLUVIUM (Q_{a10}) (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 BEDROCK (Tc) CONTACT-N30W, 40°NE, CLAYEY, DISCONTIN CLAYEY SILTSTONE DARK GREY, MOD. HARD TO HARD, SLIGHTLY MOIST, MICACEDUS, THICKLY BEDDED TO MASSIVE, MOD. TO VERY FRACTURED, OXIDE STAINED FRACTURES W/ SLIGHT SEEPAGE, DIPPING 38-42° NE ← 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, VERY HARD.	

BORING LOG

Logged 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
75				<u>BEDROCK (Tc) (cont.)</u> SILTSTONE TO CLAYEY SILTSTONE DARK OLIVE GREY, HARD, MOIST, THICKLY BEDDED TO MASSIVE W/ FINE, WHITE, DISCONTINUOUS LENTICULAR STREAKS (RELICT BEDDING(?) BEDDING) N 9W, 16-25W? INDISTINCT, NO OBSERVABLE FRACTURES MODERATELY FRACTURED, W/ SCATTERED MICRO FISSILE FRACTURE, TIGHT, SLIGHTLY CLAYEY, NO STRAIE, NS, 23E W/ SUBPARALLEL FRACTURES 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 FRACTURE ZONE, MOD. HARD, NUM. SLICKS, MOIST, VERY MOIST, FRACTURES, TIGHT, LOCALLY CLAYEY W/ SLICKENSIDES, N23W, 45° NE W/ SUBPARALLEL SLIGHT SEEP FRACTURES 23°-45° NE, INTERSECTING THE MOST CONTINUOUS FRACTURE, NO MINERALIZATION ALONG FRACTURES 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 FRACTURE, TIGHT, SLIGHTLY CLAYEY, NO MINERALIZATION, CONTINUOUS AROUND HOLE, N31W, 32 NE SLICKENSIDES FRACTURE, TIGHT, SLIGHT SEEPAGE, N10W, 50 NE, W/ DISCONTIN. INTERSECTING FRACTURE DIPPING 24° NE SLT. TO MOD. FRACT., UPPR. FRACT. N-S, 19E,						
80										
85										
90										
95										
100										

HAMMER

 WEIGHT:
DROP:

 PROJECT NO:
1651-4

 FIGURE NO.:
LB-8-4

BORING LOG

Date Drilled:

Drill Rig:

Boring Diameter.

Boring Number.	
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Boring Elevation:

LB-8 (cont.)

DEPTH, FT	SAMPLES	BLOWS/FOOT	GROUND WATER	DESCRIPTION	MOISTURE CONTENT, %	DRY DENSITY pcf	OTHER TESTS
100				<u>BEDROCK (7c) CONT.</u> 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° <u>SLIGHTLY FRACTURED</u> VERY HARD, SLI. MOIST 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 SLIGHT SEEP			
105							
110							
115							
120				HOLE LOGGED TO 114'. SLIGHT CAVING @ 35-45'. HOLE BACK FILLED.			
HAMMER				WEIGHT: DROP:	PROJECT NO.:		FIGURE NO.: 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	MOISTURE CONTENT, %	DRY DENSITY, PCF	OTHER TESTS
				7245			
1				VERY WEATHERED BEDROCK (Q13) (LANDSLIDE MATERIAL)			
2				SILTY CLAY (STONE)			
3				DARK GREYISH BROWN, SOFT, MOIST, FE OXIDE			
4				MOTTLING W/WHITE MINERAL STAINS			
5				GRADES TO SILTY CLAY TO CLAYEY SILT			
10				GREY, SOFT, SLT, MOIST W/FE OXIDE AND WHITE MINERAL STAINING			
15				← 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, 3" DIA., FE OXIDE STAINING, GYPSUM, LENSES OF V.F. SAND ← SHEAR - N35W, 55°SW, CLAYEY, VERY MOIST, PLASTIC, TO 1/2" THICK, W/ GYPSUM AND FE OXIDE STAINING			
20				CLAYEY SILT TO CLAY (STONE)			
25				DARK GREY TO DARK GREYISH BROWN, SOFT, MOIST-VERY MOIST, MICACEDUS			
				← ABUNDANT ORANGE OXIDE STAINING, NEAR VERTICAL FRACTURES - N30W, NEAR VERT. ← CLAY LENSE, ORANGE, PLASTIC, MOIST ← COBBLES, FRACTURED 4"-6" DIA. FRAGMENTS ← SHEAR, N50E, 37°NW, CLAYEY, SHARP, PLANAR, 1/8" THICK, SLICKEN SIDES ← JOINTING, NUMEROUS NEAR-VERTICAL FRACTS NS TRENDING W/FE OXIDE STAINING, SLIGHT SEEP, SCATTERED ORGANIC + SMALL ROCK FRAGMENTS. ← CLAYEY SAND, CONTINUOUS FRACTS N70W, 77S			
25 HAMMER WEIGHT: DROP:				PROJECT NO.: 1651-5		FIGURE NO.: 1	

BORING LOG

Bored 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-9 cont.		
DEPTH FT	SAMPLES	BLOWS/FOOT	GROUND WATER	DESCRIPTION				MOISTURE CONTENT %	DRY DENSITY pcf	OTHER TESTS
15				VERY WEATHERED BEDROCK (Q15) (LANDSLIDE MATERIAL) (cont.) CLAYEY SILT (STONE) DARK GREYISH BROWN, SOFT, MOIST, SOME FE OXIDE STAINING						
20				SOIL-LIKE INFILLING, DARK GREY TO BROWN, IRREGULAR, FLOW STRUCTURES, OLD SOIL(?), SOME ORGANIC MATERIAL, EW, 45%						
25				MOIST TO WET - SEEPAGE, INTENSELY FRACTURED SLIDE PLANE - N70W 65W W/ STRIATIONS N55W						
30				BEDROCK (Tc) SILTSTONE VERY DARK GREY, MOD. HARD, SLI. MOIST, UNOXID, SCATTERED MICROFOSSILS						
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BORING LOG

Logged 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-9 cont.	
DEPTH, FT	SAMPLES	BLOWS/FOOT	GROUND WATER	DESCRIPTION			MOISTURE CONTENT, %	DRY DENSITY pcf	OTHER TESTS
60 70 80				BEDROCK (Tc) cont. SILTSTONE DARK OLIVE GREY, MOD. HARD TO HARD, SLI. MOIST, MICRO FOSSILS					
				END OF BORING @ 80'. HOLE BACKFILLED.					
HAMMER		WEIGHT: DROP:				PROJECT NO: 1651-4		FIGURE NO: 3	

BORING LOG

Logged 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-15

DEPTH, FT	SAMPLES	BLOWS/FOOT	GROUND WATER	DESCRIPTION	MOISTURE C/MINT.	DRY DENSITY pcf	OTHER TESTS
0 5 10 15 20 25				<u>OLDER ALLUVIUM (Goal) (Landslide Affected)</u> SILTY CLAY VERY DARK GREYISH BROWN, FIRM, SLIGHTLY MOIST SLIGHTLY POROUS, SCATTERED CHARCOAL FLECKS, WITH SCATTERED SMALL ROCK FRAGS., IRREGULAR SHAPED, IN-FILLED SEAM OF LT. BROWN SILT (BURROW INFILL / LIQUEFACTION?) CLAYEY SILT, LIGHT BROWN, IRREG.-SHAPE SHARP COLOR CHANGE ALONG SLIGHTLY CLAYEY PLANE N-S, 30°E, LT. BROWN ABOVE, LT. OLIVE GREY BELOW w/ FE OXIDE + WHITE MIN. STAINING SCATTERED CARBON FLECKS, THIN, TIGHT CONTACT MOTTLING, DARK BROWN, THIN BANDING COLOR BANDING, DEPOSITIONAL CONTACT SANDY SILT N-S, 10°E, LESS CLAY BELOW w/ CLAYEY SILT, LIGHT BROWN, SOFT TO FIRM, MOIST CONTACT SHARP, WAVY, POSSIBLY EROSIONAL CLAYEY SILT BROWN TO DARK BROWN, (PALEDSOL?) FIRM, MOIST, SLIGHTLY POROUS GRADATIONAL CONTACT SILT CLAY, OLIVE BROWN, SOFT, MOIST, w/ WHITE MIN. STAINING w/ SOME FE OXIDES INDISTINCT BEDDING, SUBHORIZONTAL, DISCONTIN. ABUNDANT WHITE MIN. STAINING			
HAMMER WEIGHT: DROP:				PROJECT NO.: 1651-4	FIGURE NO.: 1.		

BORING LOG

Bored 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-15 (cont.)

DEPTH, FT	SAMPLES	BLOWS/FOOT	GROUND WATER	DESCRIPTION	MOISTURE CONTENT, %	DRY DENSITY, PCF	OTHER TESTS
5 10 15 20 25 30 35 40 45 50				<u>OLDER ALLUVIUM (Q_{al}o) LANDSLIDE AFFECTED</u> <u>SILTY CLAY</u> LIGHT OLIVE BROWN, SOFT, MOIST, SLI. POROUS, WITH FE AND WHITE MINERAL STAINING, ABUNDANT SMALL & ROCK FRAGMENTS, MOTTLED, NO OBSERV. STRUCTURE ← IRREGULAR, DARK GREY-BROWN CLAY POCKETS ← CONCRETION, SUBANGULAR, CARB. CEMENTED 6" DIAM, SLI. MOISTURE ON DISCONTINUOUS FRACTURES NUMEROUS FRACTURES, SOME CLAY LINED AND STRIATED, DISCONTINUOUS, VERY MOIST TO WET FRACTURES INTERSECTING, SOME CAVING, SOFT-FIRM ZONE OF INTERSECTING CLAY SEAMS, WET, ZONE OF SOIL INFILLING BOUNDED BY SHARP DISCONTINUOUS PLANES, STEEPLY DIPPING, NEAR VERTICAL ← IRREGULAR, ORGANIC-RICH, LENSES, DISCONTIN. SEVERAL DISCONTINUOUS CLAY SEAMS, VAR. ANGLES ← CLAY SEAM E-W, 10-30°S CLAY LINED FRACTURE 1/8 - 1/16" THICK, SHEAR, SMOOTH, PLANAR, W/ STRIATIONS ORIENTED DOWN DIP, SOIL-LIKE MATERIAL ABOVE PLANE, ABRUPT COLOR CHANGE, <u>NSW, 60°E</u> GRADATIONAL CONTACT - OLDER ALLUVIUM TO VERY WEATHERED BEDROCK (T) SLIDE AFFECTED ← CLAY SEAM, WELL DEFINED, PLANAR, DEEPLY STRIATED, <u>N15E, 22°NW</u>, STRIATIONS TREND <u>N75E</u> ← CLAY SEAM, WELL DEFINED, PLANAR, <u>N55E ZONAL</u>, STRIATIONS TRENDING <u>N70W</u> ← CLAYEY PLANE, STRIATED, LESS MOTTLED BELOW PLANE, PLASTIC CLAY, <u>N15W, 55°NE</u> FISH VERTEBRAE, 1" DIAM, 1.5" HIGH, LATE PLIOCENE - EARLY PLEISTOCENE CLAY SEAM, CUT OFF BY STEEPER SEAM, DISCONT. <u>N-S, 35°E</u>, LOCALLY MOTTLED, ORGANICS, CHARCOAL FLECKS, DARK LENSES ~2" DIAM.			
HAMMER WEIGHT: DROP:				PROJECT NO.: 1651-4	FIGURE NO.: 2		

BORING LOG

ged 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-15(cont.)

DEPTH, FT	SAMPLES	BLOWS/FOOT	GROUND WATER	DESCRIPTION	MOISTURE C. IN 1 IN. S	DRY DENSITY lb/cu ft	OTHER TESTS
50				<u>BEDROCK (TC) (HIGHLY WEATHERED) (cont.) (SLIDE AFFECTED)</u> <u>SILTY CLAY (STONE)</u> DARK GREY TO GREY MOTTLED, SOFT TO MOD. HRD, MST, ← SOME FE OXIDE STAINING, MICACEOUS, ORGANIC MATTER, MASSIVE — CLAY SEAM, CONTINUOUS, PLANAR, STRIATIONS POTENTIAL SLIP SURFACE, <u>N10W, 21E</u>, STRIATIONS TREND <u>N65E</u>, PLASTIC CLAY, 1/2" THICK, MOIST			
55				<u>BEDROCK (TC) (SLIDE AFFECTED)</u> <u>CLAYEY SILTSTONE</u> DARK OLIVE GREY, MOD. HARD, MOIST, MOD. FRACTURED, DK. MINERAL & OR. OXIDE STAINING, THICKLY BEDDED TO MASSIVE, MICACEOUS — FRACTURES, STEEP, DISCONTINUOUS, SLIGHT SEEPAGE			
60				— INTENSELY FRACTURED, STEEP, DISCONTIN. FRACTS WET (SEEPAGE) ← SOFT TO MOD. HARD, VERY FRACTURED			
65				— CLAY SEAMS - <u>N30W, 20°NE</u>, VERY PLANAR SLIDE PLANE.			
70				<u>BEDROCK (TC) - CLAYEY SILTSTONE</u> DARK OLIVE GREY, HARD, MOIST, MASSIVE, MICACEOUS, — HARD SILICEOUS SILTSTONE LAYER, SEEPAGE			
75				← SHELL FRAGMENTS — FRACTURES, PARALLEL, <u>N40W, 50°NE</u>			

HAMMER

WEIGHT:
DROP:

PROJECT NO.:
1651-4

FIGURE NO.:
3

BORING LOG

Logged 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-15 (cont.)

LB-15 (cont.)

DEPTH, FT	SAMPLES	BLOWS/FOOT	GROUND WATER	DESCRIPTION	MOISTURE CONTENT, %	DRY DENSITY, PCF	OTHER TESTS
15				<u>BEDROCK (Tc) (cont.)</u> CLAYEY SILTSTONE DARK OLIVE GREY, HARD, MOIST, MASSIVE, MICACEOUS ← FRACTURE / JOINT PLANE, FAIRLY CONTIN., CLAY COATING, THIN, SMOOTH, PLANAR, <u>N-S, 60°E</u>			
0							
5				← SOFTER ZONE, POSSIBLE FRACTURE, 1/2' THICK, DISCONTINUOUS ← POSSIBLE BEDDING, SUBHORIZONTAL, SLIGHTLY CLAYEY, (CONTINUOUS?)			
10							
15				← FRACTURE?, DISCONTINUOUS, SLIGHT SEEP, 2-4" THICK SOFTER ZONE			
20				← FRACTURE, CONTINUOUS, VERY TIGHT, NO CLAY, SLIGHT SEEP, SUBPARALLEL FRACTURES ABOVE + BELOW, <u>N-S, 57°E</u>			
HAMMER WEIGHT: DROP:				PROJECT NO.: 1651-4	FIGURE NO.: 4		

Boring Number		Date Drilled		Drill Rig		Boring Diameter		Boring Elevation		
LB-15(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
0				<u>BEDROCK (Tc) (cont.)</u> CLAYEY SILTSTONE DARK OLIVE GREY, HARD, MOIST, MASSIVE, MICAC., SLIGHTLY FRACTURED, VERY HARD, FEWER MICRO FOSSILS SLIGHTLY MOIST, FEWER SEEPS SANDY SILTSTONE w/ V. FINE SAND. SILTSTONE w/ CLAY TO SILTSTONE DARK OLIVE GREY, HARD, SLI. MOIST, ABUNDANT MICRO FOSSILS, WET FROM SEEP VERY HARD, ABUNDANT MICROFOSSILS, SLI. MOIST] SOFT ZONE AROUND HOLE, <u>HORIZONTAL</u>] SLIGHTLY LESS HARD, 6" THICK LAYER, NO CLAY						
140				END OF BORING @ 147! HOLE BACK FILLED AND TAMPED.						
150										
HAMMER WEIGHT: DROP:				PROJECT NO.: 1651-4				FIGURE NO.: 5		

HAMMER

WEIGHT:
DROP:

PROJECT NO.:
1651-4

FIGURE NO.:
5.

BORING LOG

Logged By: AOM	Date Drilled: 5-25-84	Drill Rig: Bucket Auger	Boring Diameter: 24"	Boring Number: B-6
This log is a representation of subsurface conditions at the time and place of drilling. With the passage of time or at any other location there may be consequential changes in conditions.			Boring Elevation: 475'±	

SAMPLE								GEOLOGICAL/ENGINEERING	
BULK	TUBE	PEN RESIST. BLOWS/FT.	FIELD MOISTURE % DRY WEIGHT	DRY DENSITY LB./CU. FT.	SHEAR RESISTANCE KIPS/SQ. FT.	DEPTH, FEET	SOIL/ROCK TYPE	Description and Remarks	
							CL	<u>TOPSOIL:</u> Silty CLAY - Stiff, dry to sli. mst., dk. brn., w/roots.	
						5	ML	<u>SLOPEWASH (Qsw):</u> Clayey SILT - Stiff, sli. mst., dk. red-brn., porous. w/trace carbonates along roots.	
						10	ML	<u>TERRACE DEPOSITS :</u> SILT & Clayey SILT - Soft to firm, lt.-med. brn., v. porous, "mottled", w/rootlets. w/scattered to rare gravel, rounded, less than 1" diam.	
						15		w/Sandy SILT w/scattered pebbles & clasts of SILTSTONE.	
						20		Slight offset 3" to 4" at contact Irregular Contact. SILT w/Silty CLAY lenses - Soft to firm, lt. brn. to brn. to mottled, sli. porous.	

HAMMER WEIGHT:
DROP:

Medall, Aragon, Worswick & Associates, Inc.
Consulting Engineers and Geologists

LOS ANGELES
SANTA ANA
RIVERSIDE

PROJECT NO.:
S2262 A

FIGURE NO.:
A-6a

BORING LOG

Logged By: AOM	Date Drilled: 5-25-84	Drill Rig: Bucket Auger	Boring Diameter: 24"	Boring Number:
This log is a representation of subsurface conditions at the time and place of drilling. With the passage of time or at any other location there may be consequential changes in conditions.			Boring Elevation:	B-6 (Cont.)

SAMPLE								GEOLOGICAL/ENGINEERING	
BULK	TUBE	PEN. RESIST. BLOWS/FT.	FIELD MOISTURE % DRY WEIGHT	DRY DENSITY LB./CU. FT.	SHEAR RESISTANCE KIPS/SQ. FT.	DEPTH, FEET	SOIL/ROCK TYPE	Description and Remarks	
						25	ML	SILT w/Silty CLAY lenses (Continued) - w/scattered pebbles. w/small soft nodules of dk. brn. SILT & white minerals. ← SILT-filled fract; NS, 76W] — BEDDING Weak at N40E, 9-15W	
						30		Alt. Sandy SILT & SILT - Firm to v. firm, lt. grey to grey-brn., v. thinly bedded to laminated, BEDS: N45E 14N Bedding less distinct. Local "cut-fill" features	
						35		Irregular CONTACT N45W 9N (+)	
						40		BEDROCK: Clayey SILTSTONE w/SANDSTONE clasts - Soft to mod. hard, lt. grey w/orange oxides; scattered SANDSTONE beds & lenses, intensely to v. fract.	

HAMMER | WEIGHT:
DROP:

Medall, Aragon, Worswick & Associates, Inc.
Consulting Engineers and Geologists

LOS ANGELES
SANTA ANA
RIVERSIDE

PROJECT NO.:
S2262 A

FIGURE NO.:
A-6b

BORING LOG

Logged By: AOM	Date Drilled: 5-25-84	Drill Rig: Bucket Auger	Boring Diameter: 24"	Boring Number: B-6 (Cont.)
This log is a representation of subsurface conditions at the time and place of drilling. With the passage of time or at any other location there may be consequential changes in conditions.			Boring Elevation:	

SAMPLE								GEOLOGICAL/ENGINEERING Description and Remarks
BULK	TUBE	PEN. RESIST. BLOWS/FT.	FIELD MOISTURE % DRY WEIGHT	DRY DENSITY LB./CU. FT.	SHEAR RESISTANCE KIPS/SQ. FT.	DEPTH, FEET	SOIL/ROCK TYPE	
						45		Clayey SILTSTONE w/SAND (Continued) - ← SAND lenses, N16W, 39S (+) Less fractured. ← Irregular JOINT: N40E, Vert. Mod. hard.
						50		Clayey SILTSTONE - Nodules of cemented SILTSTONE, heavy oxide staining.
						55		Sandy SILTSTONE & Clayey SILTSTONE - First occurrence of dk. grey unoxidized SILTSTONE. Hard, mst., med. red-brn. to dk. grey, mica-ceous w/gypsum filled joints, oxidized zone.
						60		

HAMMER	WEIGHT: DROP:
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Medall, Aragon, Worswick & Associates, Inc.
Consulting Engineers and Geologists

LOS ANGELES
SANTA ANA
RIVERSIDE

PROJECT NO.:
S2262 A

FIGURE NO.:
A-6c

BORING LOG

Logged By: AOM	Date Drilled: 5-25-84	Drill Rig: Bucket Auger	Boring Diameter: 24"	Boring Number:
This log is a representation of subsurface conditions at the time and place of drilling. With the passage of time or at any other location there may be consequential changes in conditions.			Boring Elevation:	B-6 (Cont.)

SAMPLE								GEOLOGICAL/ENGINEERING	
BULK	TUBE	PEN RESIST. BLOWS/FT.	FIELD MOISTURE % DRY WEIGHT	DRY DENSITY LB/CU. FT.	SHEAR RESISTANCE KIPS/SQ. FT.	DEPTH, FEET	SOIL/ROCK TYPE	Description and Remarks	
						65		Sandy SILTSTONE & Clayey SILTSTONE (Continued) - Hard, med. red-brn. to dk. grey to grey-brn., micaceous, sli. sandy w/gypsum filled fract. Clayey SANDSTONE/SANDSTONE CONTACT w/SHEARS: N60E 45-68N ← Slight seepage along joint.	
						70		Mod. hard to hard, greenish-grey, micaceous, sli. sandy. w/thin fine SAND laminae Thin dk. grey fracture 1/4" thick JOINT: N30E 34S no slicks. FRACTURE: N70E, 45W	
						75		← Thin dk. grey fracture 1/8" thick NS 29E	
						80	Q	Hard. ← SAND lense 1-2" thick w/seepage around hole BEDDING: N20W 40S	

HAMMER WEIGHT:
DROP:

Medall, Aragon, Worswick & Associates, Inc.
Consulting Engineers and Geologists

LOS ANGELES
SANTA ANA
RIVERSIDE

PROJECT NO.:
S2262 A

FIGURE NO.:
A-6d

BORING LOG

Logged By: AOM	Date Drilled: 5-25-84	Drill Rig: Bucket Auger	Boring Diameter: 24"	Boring Number:
This log is a representation of subsurface conditions at the time and place of drilling. With the passage of time or at any other location there may be consequential changes in conditions.			Boring Elevation:	B-6 (Cont.)

GEOLOGICAL/ENGINEERING								Description and Remarks
BULK	TUBE	PEN RESIST. BLOWS/FT.	FIELD MOISTURE % DRY WEIGHT	DRY DENSITY LB./CU. FT.	SHEAR RESISTANCE KIPS/SQ. FT.	DEPTH, FEET	SOIL/ROCK TYPE	
						85	Q	Clayey SILTSTONE (Continued) - Hard, dk. greenish grey, mst., no obvious bedding, sli. fract. ← Slight seep. ← Thin dk. SILT joint 1/8" thick N56E 37E
						90		END OF BORING @ 90'. SLIGHT SEEPAGE @ 77' & 84'. NO CAVING. HOLE BACKFILLED AND TAMPED.
						95		
						100		

HAMMER WEIGHT:
DROP:

Medall, Aragon, Worswick & Associates, Inc.
Consulting Engineers and Geologists

LOS ANGELES
SANTA ANA
RIVERSIDE

PROJECT NO.:
S2262 A

FIGURE NO.:
A-6e

DATE STARTED: 7/31/01 DATE ENDED: 8/3/01

DRILLING COMPANY: Tri Valley

EQUIPMENT USED: Bucket Auger

HOLE DIAMETER (in.) 30"

DRIVE DROP (in.) 12"

DRIVE WEIGHT (lbs.) See Notes

Boring No. B-1

GROUND SURFACE ELEVATION: 290 ft

DATUM: MSL

LOCATION:

COORD/STATION:

DESCRIPTION

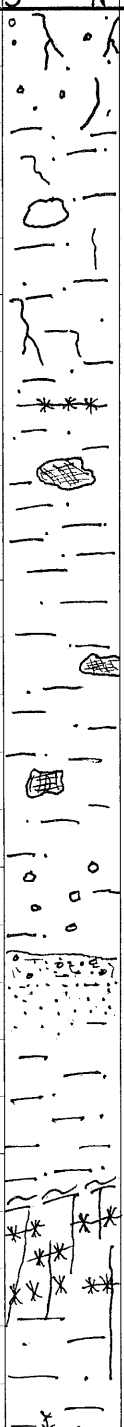
Logged By: KV/WG

Sampled By: KV

Dry Density (pcf)

Moisture Content (%)

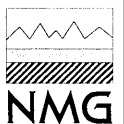
Remarks

Elevation (ft.)	Depth (ft.)	Graphic Log	Altitudes	Sample Method and Number	Blow Count/ Penetration	Soil Class. (U.S.C.S.)	DESCRIPTION	Dry Density (pcf)	Moisture Content (%)	Remarks
280	5						Colluvium (Qcol) Surface: Brown clayey silty fine to medium SAND, dry, loose to 3", abundant roots. @ 2' Dark brown clayey fine to medium SAND, moist, porous, roots. Landslide Materials (Qls) @ 3' Brown, yellow brown, and gray brown fine sandy SILT, moist, caliche nodules and stringers, FeO stain. @ 3.4'-3.8' Krotovina @ 5' Clayey SILT, moist, firm, caliche pods and stringers, roots. @ 7' Scattered gypsum. @ 8' Concretion on west wall, MnO-stained fractures. @ 9' Color changes to light gray, very moist, increase in clay. @ 10' SAMPLE: Brown, yellow brown, and gray brown slightly clayey SILT, very moist, trace charcoal, caliche stringers, massive, scattered FeO stain, slightly plastic. @ 11.5' Concretion @ 12' Light brown gray clayey SILT, caliche stringers. @ 13.5' Concretion @ 15' Trace jarosite staining, scattered subangular to subrounded concretionary 1" pebbles. @ 16.5' Dark brown colluvial lens @ 17.1' Mottled light gray and white fine sand with carbon fragments at base of colluvial lens, fades by 18 ft. @ 20' SAMPLE: Gray silty CLAY/clayey SILT, very moist, massive, plastic, FeO and jarosite staining along joints/fractures. @ 21' Rupture surface. Yellow sand stringers and FeO-stained joints from below 21 ft. terminate at surface. Material above not coherent. Capistrano Formation (Tc) @ 23' Patches of unoxidized material. @ 24' Transitions into dark gray to black unoxidized clayey SILTSTONE, moist, stiff, massive, micaceous, weathered	98.5	27.6	
270	20			D-1	Push					
				SB-2						
				D-2	Push					
			RS: N80E 8SE							
	25							92.3	31.5	

**GEOTECHNICAL
LOG OF BORING**

01012-02

CUSD/Rancho Capistrano



DATE STARTED: 7/31/01 DATE ENDED: 8/3/01

DRILLING COMPANY: Tri Valley

EQUIPMENT USED: Bucket Auger

HOLE DIAMETER (in.) 30"

DRIVE DROP (in.) 12"

DRIVE WEIGHT (lbs.) See Notes

Boring No. B-1

GROUND SURFACE ELEVATION: 290 ft

DATUM: MSL

LOCATION:

COORD/STATION:

DESCRIPTION

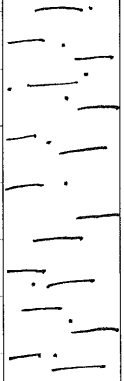
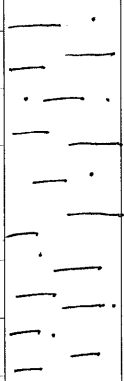
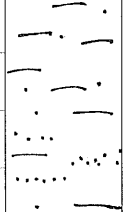
Logged By: KV/WG

Sampled By: KV

Dry Density (pcf)

Moisture Content (%)

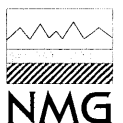
Remarks

Elevation (ft.)	Depth (ft.)	Graphic Log	Attitudes	Sample Method and Number	Blow Count/ Penetration	Soil Class. (U.S.C.S.)	DESCRIPTION	Dry Density (pcf)	Moisture Content (%)	Remarks
		S N								
260	30		J: N15W 85 NE	D-3	8		foraminifera. @ 25' Near vertical fracture filled with gypsum, light gray clay on surface @ 29' Oval-shaped 5" concretion. @ 30' SAMPLE: Green black unoxidized clayey SILTSTONE, massive, micaceous, some partings, weathered foraminifera. @ 32' Shear surface. Below is massive, stiff, slightly clayey SILTSTONE.	95.2	26.5	
			J: N85W 82 SW SH: N15E 31SE							
250	40			D-4	11		@ 40' SAMPLE: Same as at 30 ft.	95.1	27.7	
	45									
							@ 48.5' Occasional sand stringers.			
240	50									

**GEOTECHNICAL
LOG OF BORING**

01012-02

CUSD/Rancho Capistrano



DATE STARTED: 7/31/01 DATE ENDED: 8/3/01

DRILLING COMPANY: Tri Valley

EQUIPMENT USED: Bucket Auger

HOLE DIAMETER (in.) 30"

DRIVE DROP (in.) 12"

DRIVE WEIGHT (lbs.) See Notes

Boring No. B-1

GROUND SURFACE ELEVATION: 290 ft

DATUM: MSL

LOCATION:

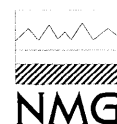
COORD/STATION:

Elevation (ft.)	Depth (ft.)	Graphic Log	Attitudes	Sample Method and Number	Blow Count/ Penetration	Soil Class. (U.S.C.S.)	DESCRIPTION		Dry Density (pcf)	Moisture Content (%)	Remarks
							Logged By: KV/WG	Sampled By: KV			
		S N		D-5	13		@ 50' SAMPLE: Dark green black unoxidized SILTSTONE, massive, micaceous, weathered foraminifera, strongly odoriferous.		98.3	26.4	
	55						@ 54.5' Concretion.				
230	60			D-6	41		@ 60' SAMPLE: Same as at 50 ft. @ 60.4' Concretion.		97.5	26.3	
	65						@ 66.5' Slightly sandy.				
							@ 68.5' Phosphatic nodule.				
220	70			D-7	22		@ 70' SAMPLE: Same as at 60 ft.		95.4	27.5	
	75						@ 73.7' Pocket of sandy siltstone.				

**GEOTECHNICAL
LOG OF BORING**

01012-02

CUSD/Rancho Capistrano



DATE STARTED: 7/31/01 DATE ENDED: 8/3/01

DRILLING COMPANY: Tri Valley

EQUIPMENT USED: Bucket Auger

HOLE DIAMETER (in.) 30"

DRIVE DROP (in.) 12"

DRIVE WEIGHT (lbs.) See Notes

Boring No. B-1

GROUND SURFACE ELEVATION: 290 ft

DATUM: MSL

LOCATION:

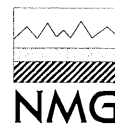
COORD/STATION:

Elevation (ft.)	Depth (ft.)	Graphic Log	Attitudes	Sample Method and Number	Blow Count/ Penetration	Soil Class. (U.S.C.S.)	DESCRIPTION	Dry Density (pcf)	Moisture Content (%)	Remarks
		S N					Logged By: KV/WG Sampled By: KV			
210	80			D-8	44		@ 78.5' Subrounded cobbles, 3" to 5". @ 80' SAMPLE: Dark green black unoxidized SILTSTONE, moist, hard, micaceous, massive, strongly odoriferous, weathered foraminifera. @ 82' Increase in clay content.	97.4	26.4	
	85									
200	90		CS: N15W 38NE	D-9	68/9"		@ 89' Slightly sandy. @ 90' SAMPLE: Same as at 80 ft.	94.2	28.0	
	95						@ 92' Planar surface with paper-thin clay, no disturbance above or below, not visible on down-dip side of boring.			
							@ 96' Slightly sandy.			
190	100						@ 98' Slightly sandy.			

**GEOTECHNICAL
LOG OF BORING**

01012-02

CUSD/Rancho Capistrano



DATE STARTED: 7/31/01 DATE ENDED: 8/3/01
 DRILLING COMPANY: Tri Valley
 EQUIPMENT USED: Bucket Auger
 HOLE DIAMETER (in.) 30"
 DRIVE DROP (in.) 12"
 DRIVE WEIGHT (lbs.) See Notes

Boring No. B-1

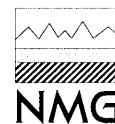
GROUND SURFACE ELEVATION: 290 ft
 DATUM: MSL
 LOCATION:
 COORD/STATION:

Elevation (ft.)	Depth (ft.)	Graphic Log	Attitudes	Sample Method and Number	Blow Count/ Penetration	Soil Class. (U.S.C.S.)	DESCRIPTION	Dry Density (pcf)	Moisture Content (%)	Remarks
		S N					Logged By: KV/WG Sampled By: KV			
	105			D-10	69/10"		@ 100" SAMPLE: Same as at 90 ft., trace of oxidized fish scales.	90.5	32.0	
180	110						@ 105' Black unoxidized SILTSTONE, damp to moist, hard, micaceous, massive, weathered foraminifera.			
	115			D-11 SB-1	36/9"		@ 115' SAMPLE: Same as at 105 ft. Upper rings contain gray green SILTSTONE, dry, caliche-lined joints/fractures, high-angle contact in rings. @ 115.3' Phosphatic nodule.	97.0	26.8	
170	120						@ 120.1' Phosphatic nodule and sand stringers.			
	125									

GEOTECHNICAL LOG OF BORING

01012-02

CUSD/Rancho Capistrano



DATE STARTED: 7/31/01 DATE ENDED: 8/3/01
 DRILLING COMPANY: Tri Valley
 EQUIPMENT USED: Bucket Auger
 HOLE DIAMETER (in.) 30"
 DRIVE DROP (in.) 12"
 DRIVE WEIGHT (lbs.) See Notes

Boring No. B-1

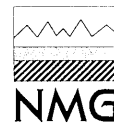
GROUND SURFACE ELEVATION: 290 ft
 DATUM: MSL
 LOCATION:
 COORD/STATION:

Elevation (ft.)	Depth (ft.)	Graphic Log	Attitudes	Sample Method and Number	Blow Count/ Penetration	Soil Class. (U.S.C.S.)	DESCRIPTION	Dry Density (pcf)	Moisture Content (%)	Remarks
							Logged By: KV/WG Sampled By: KV			
160	130			D-12	31/9"		@ 130' SAMPLE: Same as at 115 ft.	94.5	29.0	
	135									
150	140						@ 139' Slightly polished surface around concretion, slight seep.			
	145			D-13	40/8"		@ 142.8' Concretion, 4" to 6", slight seep. @ 145' SAMPLE: Black unoxidized SILTSTONE, damp to moist, hard, micaceous, massive, weathered foraminifera.	99.7	25.3	
140	150						Logged to 148 on 8-2-01, resumed drilling. Resumed downhole logging on 8-3-01.			

GEOTECHNICAL LOG OF BORING

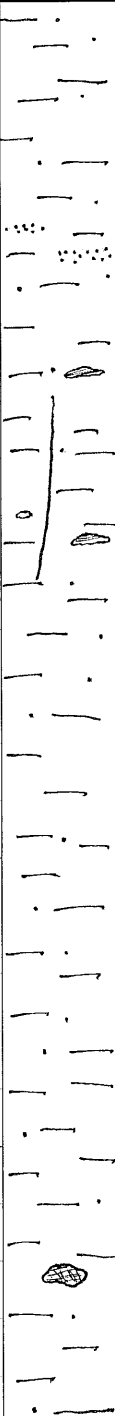
01012-02

CUSD/Rancho Capistrano



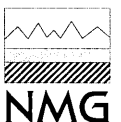
DATE STARTED: 7/31/01 DATE ENDED: 8/3/01
 DRILLING COMPANY: Tri Valley
 EQUIPMENT USED: Bucket Auger
 HOLE DIAMETER (in.) 30"
 DRIVE DROP (in.) 12"
 DRIVE WEIGHT (lbs.) See Notes

Boring No. B-1
 GROUND SURFACE ELEVATION: 290 ft
 DATUM: MSL
 LOCATION:
 COORD/STATION:

Elevation (ft.)	Depth (ft.)	Graphic Log	Altitudes	Sample Method and Number	Blow Count/ Penetration	Soil Class. (U.S.C.S.)	DESCRIPTION	Dry Density (pcf)	Moisture Content (%)	Remarks
		S N					Logged By: KV/WG Sampled By: KV			
155			J: N30W 85SW				@ 154' Discontinuous light gray sand lenses. @ 156.5' Coprolite; 3" long, 1/2" wide. @ 157' Driller began using Crows. @ 159'-160' Coprolite; 1"-3" diameter. @ 160' SAMPLE: Dark green black unoxidized clayey SILTSTONE, damp to moist, hard, massive, micaceous, weathered foraminifera, trace MnO stain.	93.5	29.7	
160				D-14	35/8"					
165										
170										
175							@ 172.5' Small oval-shaped concretion, slight seepage.			

**GEOTECHNICAL
LOG OF BORING**

01012-02
 CUSD/Rancho Capistrano



DATE STARTED: 7/31/01 DATE ENDED: 8/3/01
 DRILLING COMPANY: Tri Valley
 EQUIPMENT USED: Bucket Auger
 HOLE DIAMETER (in.) 30"
 DRIVE DROP (in.) 12"
 DRIVE WEIGHT (lbs.) See Notes

Boring No. B-1

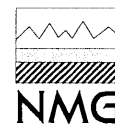
GROUND SURFACE ELEVATION: 290 ft
 DATUM: MSL
 LOCATION:
 COORD/STATION:

Elevation (ft.)	Depth (ft.)	Graphic Log	Attitudes	Sample Method and Number	Blow Count/ Penetration	Soil Class. (U.S.C.S.)	DESCRIPTION		Dry Density (pcf)	Moisture Content (%)	Remarks
							Logged By: KV/WG	Sampled By: KV			
110	180		J: N25W 42NE	D-15	36/9"		@ 175' SAMPLE: Same as at 160 ft.		94.4	28.6	
			J: N15E 70SE				@ 177.2' Polished joint, very planar, continuous, 1" zone above is joint is slightly fractured.				
185							@ 181.6' Polished joint, very planar, continuous, 2 subparallel joints below, 2' thick zone, slight seepage, siltstone below is generally slightly sandy.				
100	190			D-16	31		@ 190' SAMPLE: Dark green gray to green black SILTSTONE, moist, hard, massive, micaceous, weathered foraminifera.		97.4	27.5	
195											
90	200										

GEOTECHNICAL LOG OF BORING

01012-02

CUSD/Rancho Capistrano



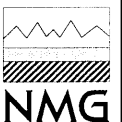
DATE STARTED: 7/31/01 DATE ENDED: 8/3/01
 DRILLING COMPANY: Tri Valley
 EQUIPMENT USED: Bucket Auger
 HOLE DIAMETER (in.) 30"
 DRIVE DROP (in.) 12"
 DRIVE WEIGHT (lbs.) See Notes

Boring No. B-1
 GROUND SURFACE ELEVATION: 290 ft
 DATUM: MSL
 LOCATION:
 COORD/STATION:

Elevation (ft.)	Depth (ft.)	Graphic Log	Altitudes	Sample Method and Number	Blow Count/ Penetration	Soil Class. (U.S.C.S.)	DESCRIPTION	Dry Density (pcf)	Moisture Content (%)	Remarks
		W F					Logged By: KV/WG Sampled By: KV			
205							NOTES Total Depth 202 ft. Downhole Logged to 201 ft. Groundwater Not Encountered Seepage Encountered at 138', 143', 172.5', and 184' Backfilled with Cuttings and Tamped from 110'- surface Drive Weights: 0-28'/5952, 28-55'/3921, 55-84'/2531, 84-110'/1407, 110-168'/1600, 168-195'/2200, 195-215'/2500			
80 210										
215										
70 220										
225										

**GEOTECHNICAL
LOG OF BORING**

01012-02
 CUSD/Rancho Capistrano

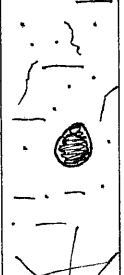
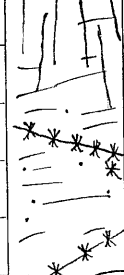
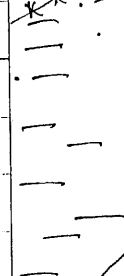


Boring No. B-2

DATE STARTED: 8/6/01 DATE ENDED: 8/8/01
 DRILLING COMPANY: Tri Valley
 EQUIPMENT USED: Bucket Auger
 HOLE DIAMETER (in.) 30"
 DRIVE DROP (in.) 12"
 DRIVE WEIGHT (lbs.) 0-28/5952, 28-55/3921, 55-84/2531

GROUND SURFACE ELEVATION: 287 ft
 DATUM: MSL
 LOCATION:
 COORD/STATION:

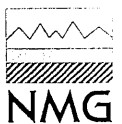
DESCRIPTION

Elevation (ft.)	Depth (ft.)	Graphic Log	Attitudes	Sample Method and Number	Blow Count/ Penetration	Soil Class. (U.S.C.S.)	Logged By: KV/WG Sampled By: KV/WG	Dry Density (pcf)	Moisture Content (%)	Remarks
		E W								
280	5						Colluvium (Qcol) Surface: Brown silty fine to medium SAND, dry, loose to 3", scattered small cobbles. @ 1' Light brown to brown silty fine to medium SAND, moist, medium dense, abundant caliche. @ 3' Krotovina			
							Landslide Materials (Qls) @ 4.5' Transitions into weathered bedrock. @ 5' SAMPLE: Yellow brown to dark yellow brown clayey silty fine to medium SAND, moist, slightly micaceous, abundant caliche stringers, porous, roots to 1/8", abundant FeO mottling. @ 7' Large Krotovina intersected by boring.	101.4	15.8	
	10		J: N24E 68NW RS: N80E 6SE	D-1 Push 1/6"			@ 10' SAMPLE: Gray to gray brown slightly clayey SILT, moist, medium stiff to stiff, micaceous, FeO-lined joints/fractures, massive, root hairs, jarosite staining. Downhole: Sandstone bedding fragment cut off by near vertical joint.	95.6	25.3	
	15			D-2 Push			@ 12.6' Planar rupture surface, highlighted by gypsum; fractures below terminate at rupture surface. Capistrano Formation (Tc)			
270			J: N3W 22SW	D-3 Push			@ 15' SAMPLE: Gray to gray brown slightly clayey SILTSTONE, gypsum, near vertical FeO-stained joint/fracture. @ 16' Color banding above jarosite-stained polished joint surfaces.	99.7	26.1	
	20		J: N9E 40-50SE J: N7E 35SE	D-4 3			@ 18' Abundant FeO stain; scattered gypsum; increase in clay, color change to dark. @ 18.5' Gypsum-lined joint. @ 20' SAMPLE: Dark green black unoxidized clayey SILTSTONE, damp to moist, very stiff, micaceous, massive. @ 22' Odoriferous. @ 23.7' Very tight, planar joint.	97.7	25.9	
	25									

**GEOTECHNICAL
LOG OF BORING**

01012-02

CUSD/Rancho Capistrano



DATE STARTED: 8/6/01 DATE ENDED: 8/8/01

DRILLING COMPANY: Tri Valley

EQUIPMENT USED: Bucket Auger

HOLE DIAMETER (in.) 30"

DRIVE DROP (in.) 12"

DRIVE WEIGHT (lbs.) 0-28/5952, 28-55/3921, 55-84/2531

Boring No. B-2

GROUND SURFACE ELEVATION: 287 ft

DATUM: MSL

LOCATION:

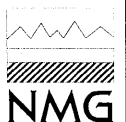
COORD/STATION:

Elevation (ft.)	Depth (ft.)	Graphic Log	Attitudes	Sample Method and Number	Blow Count/ Penetration	Soil Class. (U.S.C.S.)	DESCRIPTION		Dry Density (pcf)	Moisture Content (%)	Remarks
							Logged By: KV/WG	Sampled By: KV			
260	30			D-5	3		@ 25' SAMPLE: Same as at 20 ft., weathered foraminifera.		97.1	26.3	
				D-6	7		@ 30' SAMPLE: Same as at 25 ft.		98.0	26.2	
	35						@ 35.3' Thin wispy sand lenses; bedding is subhorizontal.				
250	40			D-7	8		@ 40' SAMPLE: Dark green black clayey unoxidized SILTSTONE, moist, hard, massive, micaceous, weathered foraminifera, strongly odoriferous.		99.5	24.7	
	45						@ 46.3' Cemented material begins on north wall, no cemented material on south wall. Concentric joints on outside of concretion.				
240							@ 48.7' Joint on west wall.				
50			J: N20W 80SW								

**GEOTECHNICAL
LOG OF BORING**

01012-02

CUSD/Rancho Capistrano



DATE STARTED: 8/6/01 DATE ENDED: 8/8/01
 DRILLING COMPANY: Tri Valley
 EQUIPMENT USED: Bucket Auger
 HOLE DIAMETER (in.) 30"
 DRIVE DROP (in.) 12"
 DRIVE WEIGHT (lbs.) 0-28/5952, 28-55/3921, 55-84/2531

GROUND SURFACE ELEVATION: 287 ft
 DATUM: MSL
 LOCATION:
 COORD/STATION:

NMG Geotechnical, Inc. Page 3 of 3

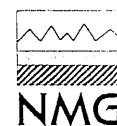
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GEOTECHNICAL LOG OF BORING

01012-02

CUSD/Rancho Capistrano

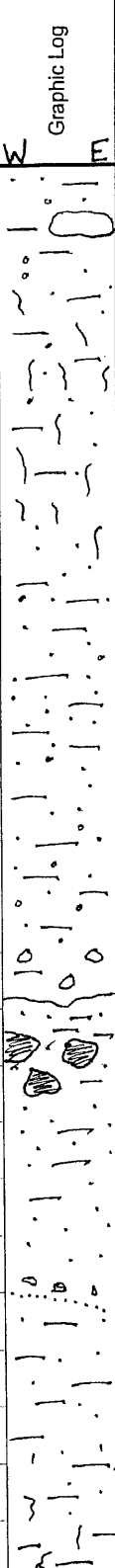


Boring No. B-3

DATE STARTED: 8/8/01 DATE ENDED: 8/9/01
 DRILLING COMPANY: Tri Valley
 EQUIPMENT USED: Bucket Auger
 HOLE DIAMETER (in.) 30"
 DRIVE DROP (in.) 12"
 DRIVE WEIGHT (lbs.) See Notes

GROUND SURFACE ELEVATION: 292 ft
 DATUM: MSL
 LOCATION:
 COORD/STATION:

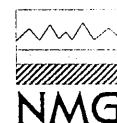
DESCRIPTION

Elevation (ft.)	Depth (ft.)	Graphic Log	Attitudes	Sample Method and Number	Blow Count/ Penetration	Soil Class. (U.S.C.S.)	Logged By: KV/WG Sampled By: KV	Dry Density (pcf)	Moisture Content (%)	Remarks
290	5			D-1	Push		Colluvium (Qcol) Surface: Brown silty fine to medium SAND, dry, loose to 2", scattered cobbles. @ 1' Carbonate silt-lined pores; cobble. @ 5' SAMPLE: Dark gray brown silty fine to medium SAND, dry to damp, pinhole porous, caliche stringers, abundant root hairs. @ 8' Increase in moisture; color change to light gray brown to brown. @ 10' SAMPLE: Yellow brown silty fine SAND, damp, porous, rootlets, minor caliche, 1" subangular siltstone fragments, abundant FeO stain. @ 11' Yellow brown silty fine SAND, moist, mottled with gray silty fine SAND and brown soil-like material, pinhole porous, FeO stain, caliche stringers. @ 14' Subrounded cobbles.	98.4	9.9	
280	10			D-2	1			98.4	10.3	
270	15			D-3	2		Landslide/Terrace (?) Deposits (Qls/Qt?) @ 14.8' Subhorizontal contact between Colluvium and Terrace Deposits. @ 15' SAMPLE: Gray brown silty fine SAND, damp to moist, pinhole porous, caliche stringers, sparse FeO stain, trace charcoal flecks. @ 15.5' Krotovina zone to 16'. @ 17' Increase in silt. @ 19' Increase in sand.	99.6	9.6	
	20		B: N28E 10SE	SB-1 D-4	1		@ 20' SAMPLE: Gray brown to yellow brown silty fine SAND and fine sandy SILT, damp to moist, pinhole porous, trace caliche stringers, charcoal flecks. Downhole: Fine angular fragments of siltstone and organics lined with carbonate silt, mottled. Attitude on 1/2" white sandy layer. @ 24' Increase in clay, roots, and pores lined with carbonate silt.	100.4	9.3	
	25									

**GEOTECHNICAL
LOG OF BORING**

01012-02

CUSD/Rancho Capistrano



Boring No. B- 3

DATE STARTED: 8/8/01 DATE ENDED: 8/9/01
 DRILLING COMPANY: Tri Valley
 EQUIPMENT USED: Bucket Auger
 HOLE DIAMETER (in.) 30"
 DRIVE DROP (in.) 12"
 DRIVE WEIGHT (lbs.) See Notes

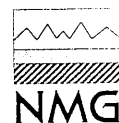
GROUND SURFACE ELEVATION: 292 ft
 DATUM: MSL
 LOCATION:
 COORD/STATION:

Elevation (ft.)	Depth (ft.)	Graphic Log	Attitudes	Sample Method and Number	Blow Count/ Penetration	Soil Class. (U.S.C.S.)	DESCRIPTION		Dry Density (pcf)	Moisture Content (%)	Remarks
							Logged By: KV/WG	Sampled By: KV			
260	30		C/B: N65W 7NE	D-5	3		@ 25' SAMPLE: Mottled dark gray brown, brown, and yellow brown, silty fine SAND, moist, very porous, roots, slightly clayey, sparse FeO stain and caliche.		107.6	15.6	
			RS: N38E 53SE				@ 26.7' Contact between dark gray brown slightly clayey SILT above and medium gray brown below. Transitions to light gray brown and clayey below.				
260			B: N50E 45SE	D-6	4		@ 28.9' Rupture surface.		107.9	18.0	
			B: N20E 15NW				@ 30' SAMPLE: Mottled as above, silty to clayey fine SAND, moist, porous, sparse FeO stain and caliche.				
250	35		SH: N10E 40SE				Terrace Deposits (Qt)				
							@ 34.6' Contact with light brown clayey SILT and dark silty CLAY.				
250	40						@ 36.7' Soil horizon: dark brown silty CLAY, moist, plastic, caliche stringers, trace charcoal.				
							@ 37.8' Base of soil horizon reverse offset 3.5"-4"; shear surface along offset; lose shear surface at 38.4'.				
250	45			D-7	Push		@ 40' SAMPLE: Olive gray silty CLAY, very moist, plastic, abundant charcoal, slightly mottled.		102.1	23.2	
							@ 40.6' Thin organic layer, discontinuous; dip direction N20W				
250							@ 41.5' Abundant carbonate silt to 41.8', fine roots, porous.				
							@ 44' Mottled brown gray, FeO stain, brown organic material lining pores.				
250	50						@ 48.6' Organic horizon; dip is approximately 15NW				

**GEOTECHNICAL
LOG OF BORING**

01012-02

CUSD/Rancho Capistrano



Boring No. B-3

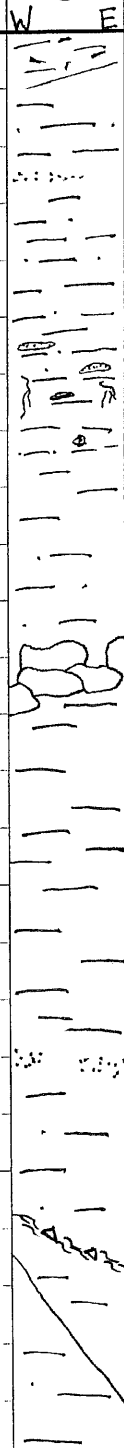
DATE STARTED: 8/8/01 DATE ENDED: 8/9/01
 DRILLING COMPANY: Tri Valley
 EQUIPMENT USED: Bucket Auger
 HOLE DIAMETER (in.) 30"
 DRIVE DROP (in.) 12"
 DRIVE WEIGHT (lbs.) See Notes

GROUND SURFACE ELEVATION: 292 ft

DATUM: MSL

LOCATION:

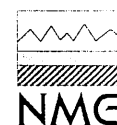
COORD/STATION:

DRIVE WEIGHT (lbs.) See Notes							DESCRIPTION		Dry Density (pcf)	Moisture Content (%)	Remarks	
Elevation (ft.)	Depth (ft.)	Graphic Log	Altitudes	Sample Method and Number	Blow Count/ Penetration	Soil Class. (U.S.C.S.)	Logged By: <u>KV/WG</u>	Sampled By: <u>KV</u>				
240	55			D-8	1		@ 50' SAMPLE: Dark gray CLAY, very moist, medium stiff, abundant FeO and MnO stain, plastic, caliche. @ 50.3' Thin organic horizons, dipping northwest, carbon chips; below is medium gray clay. @ 52' Interbedded gray green SILT and dark gray to olive brown CLAYS, abundant caliche stringers and FeO stain, very plastic. @ 52.5' Discontinuous white SAND, 1/4" thick, west wall.		95.7	28.5		
				SB-2	⊗			@ 56' Green black to black unoxidized silty CLAY/clayey SILT, very moist, medium stiff, plastic, micaceous, trace organics (roots), light brown siltstone and sandstone fragments, strongly odoriferous, carbon chips.				
230	60			D-9	1			@ 60' SAMPLE: Dark green gray to green black unoxidized clayey SILT, moist, slightly plastic, micaceous, trace organics, MnO stain. @ 60.6'-62' Pods and irregularly-shaped light yellow brown concretions.		88.7	33.5	
	65						@ 67' Color changes to dark gray. @ 68.2' White sandy zone, discontinuous.					
	70			D-10	1		@ 70' SAMPLE: Same as at 60 ft.		91.6	31.0		
220			RS: N5E 26SE J: N-S 39E	SB-3	⊗		@ 71.5' Rupture surface: planar surface at base of light gray CLAY, very plastic, possible striations down-dip. Capistrano Formation (Tc) @ 72' Low angle joint.					
	75											

**GEOTECHNICAL
LOG OF BORING**

01012-02

CUSD/Rancho Capistrano



Boring No. B- 3

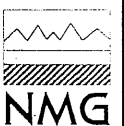
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 DRILLING COMPANY: Tri Valley
 EQUIPMENT USED: Bucket Auger
 HOLE DIAMETER (in.) 30"
 DRIVE DROP (in.) 12"
 DRIVE WEIGHT (lbs.) See Notes

GROUND SURFACE ELEVATION: 292 ft
 DATUM: MSL
 LOCATION:
 COORD/STATION:

Elevation (ft.)	Depth (ft.)	Graphic Log	Attitudes	Sample Method and Number	Blow Count/ Penetration	Soil Class. (U.S.C.S.)	DESCRIPTION		Dry Density (pcf)	Moisture Content (%)	Remarks
							Logged By: KV/WG	Sampled By: KV			
		W E					@ 75' Material changes to hard clayey SILTSTONE.				
210	80			D-11	28		@ 80' SAMPLE: Dark green black slightly clayey unoxidized SILTSTONE, damp to moist, hard, massive, micaceous, weathered foraminifera. @ 80.8' Discontinuous sand lenses.		96.8	27.1	
	85						@ 83.8' Planar partings.				
200	90			D-12	50		@ 90' SAMPLE: Same as at 80 ft.		92.3	29.7	
	95										
100	100						@ 99-101' Concretion, west and south walls, seepage at base.				

**GEOTECHNICAL
LOG OF BORING**

01012-02
 CUSD/Rancho Capistrano



Boring No. B- 3

DATE STARTED: 8/8/01 DATE ENDED: 8/9/01
 DRILLING COMPANY: Tri Vallley
 EQUIPMENT USED: Bucket Auger
 HOLE DIAMETER (in.) 30"
 DRIVE DROP (in.) 12"
 DRIVE WEIGHT (lbs.) See Notes

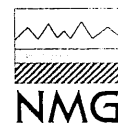
GROUND SURFACE ELEVATION: 292 ft
 DATUM: MSL
 LOCATION:
 COORD/STATION:

Elevation (ft.)	Depth (ft.)	Graphic Log	Attitudes	Sample Method and Number	Blow Count/ Penetration	Soil Class. (U.S.C.S.)	DESCRIPTION		Dry Density (pcf)	Moisture Content (%)	Remarks
							Logged By: KV/WG	Sampled By: KV			
190				D-13	48		@ 101' SAMPLE: Same as at 90 ft., coprolite.		92.7	29.9	
105				D-14	43		@ 107.5' SAMPLE: Same as at 101 ft.		91.0	30.9	
110							@ 112.5' Concretion, slight seepage.				
180				D-15	66		@ 115' SAMPLE: Same as at 107.5 ft.		97.0	26.4	
115							@ 123' SAMPLE: Same as at 115 ft.		100.8	24.1	
120				D-16	53						
170											
125											

**GEOTECHNICAL
LOG OF BORING**

01012-02

CUSD/Rancho Capistrano



DATE STARTED: 8/8/01 DATE ENDED: 8/9/01
 DRILLING COMPANY: Tri Valley
 EQUIPMENT USED: Bucket Auger
 HOLE DIAMETER (in.) 30"
 DRIVE DROP (in.) 12"
 DRIVE WEIGHT (lbs.) See Notes

GROUND SURFACE ELEVATION: 292 ft
 DATUM: MSL
 LOCATION:
 COORD/STATION:

Boring No. B- 3

DESCRIPTION

Logged By: KV/WG
 Sampled By: KV

Dry Density (pcf)
 Moisture Content (%)
 Remarks

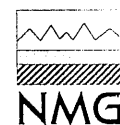
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130		W m								
160										
135										
140										
150										
145										
150										

NOTES
 Total Depth 127 ft.
 Groundwater Not Encountered
 Seepage Encountered at 101.5 ft. and 112 ft.
 Downhole Logged to 126 ft.
 Backfilled and Tamped 0-110 ft.
 Drive Weights: 0-28'/5952, 28-55'/3921, 55-84'/2531,
 84-110/1407, 110-168'/1600

**GEOTECHNICAL
 LOG OF BORING**

01012-02

CUSD/Rancho Capistrano

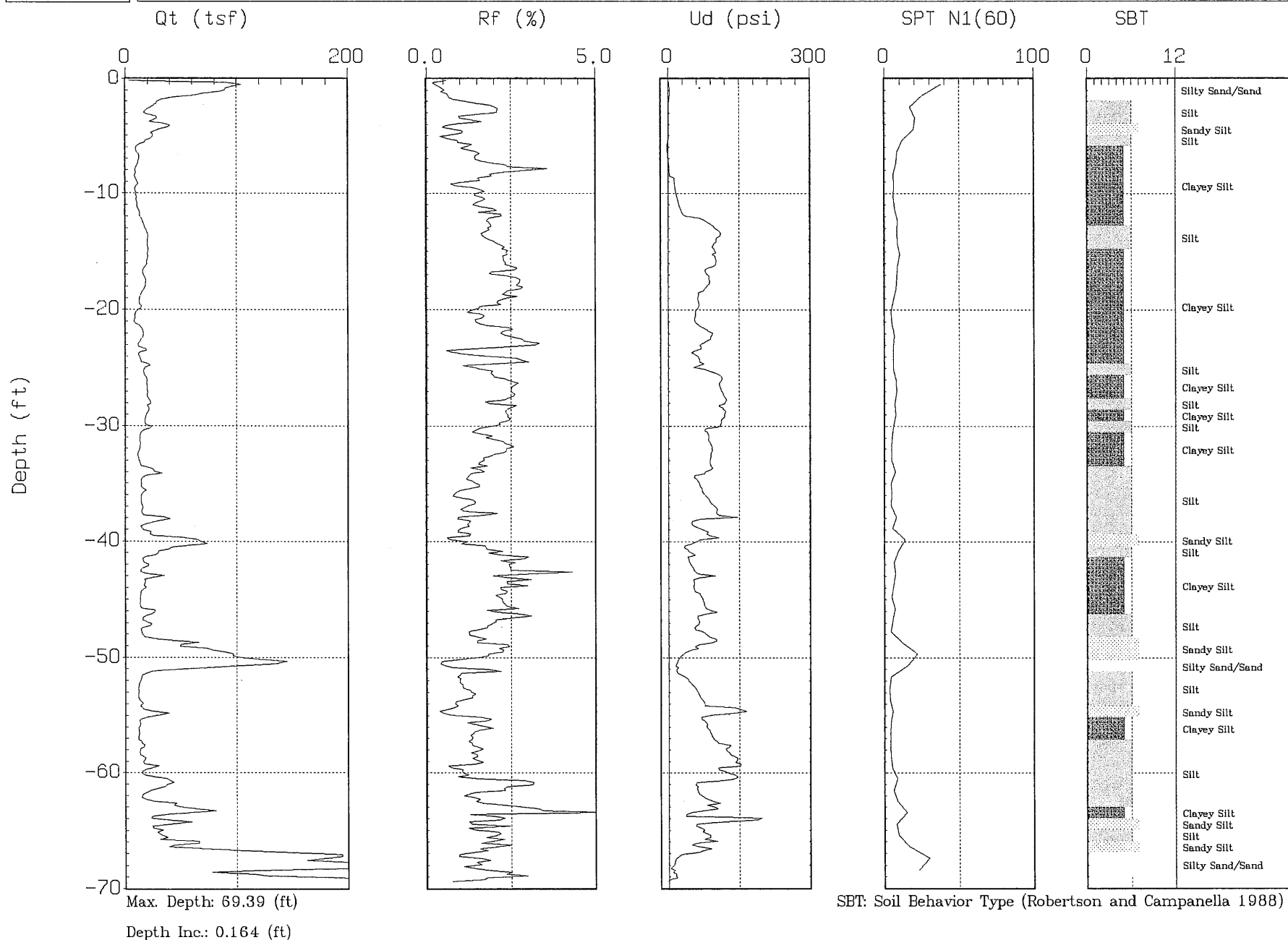




NMG GEOTECHNICAL

Site : CUSD/RANCHO CAPISTRANO
Location : CPT-2

Engineer : L. GOSSETT
Date : 05:21:01 08:12

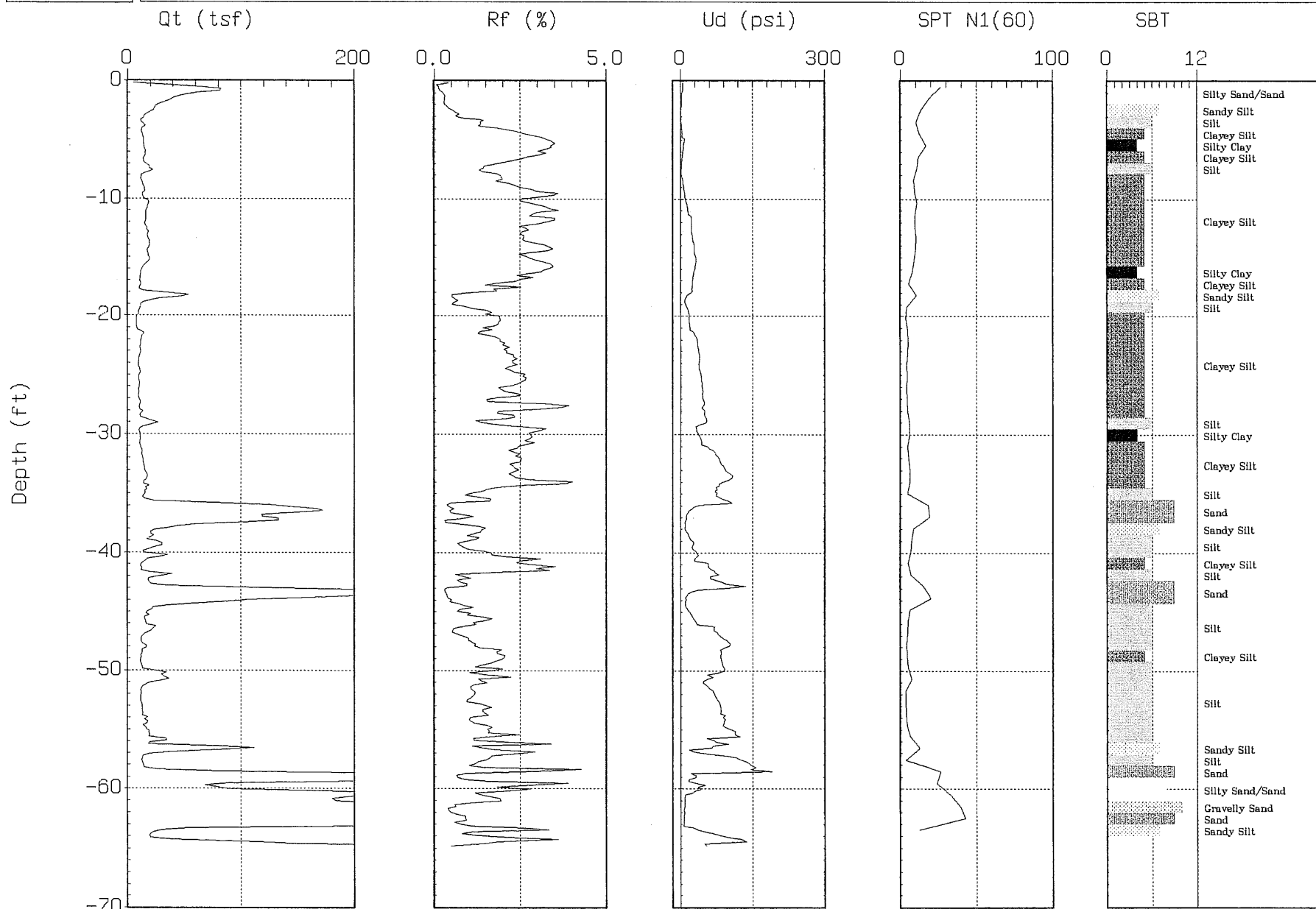




NMG GEOTECHNICAL

Site : CUSD/RANCHO CAPISTRANO
Location : CPT-3

Engineer : L. GOSSETT
Date : 05:21:01 09:04

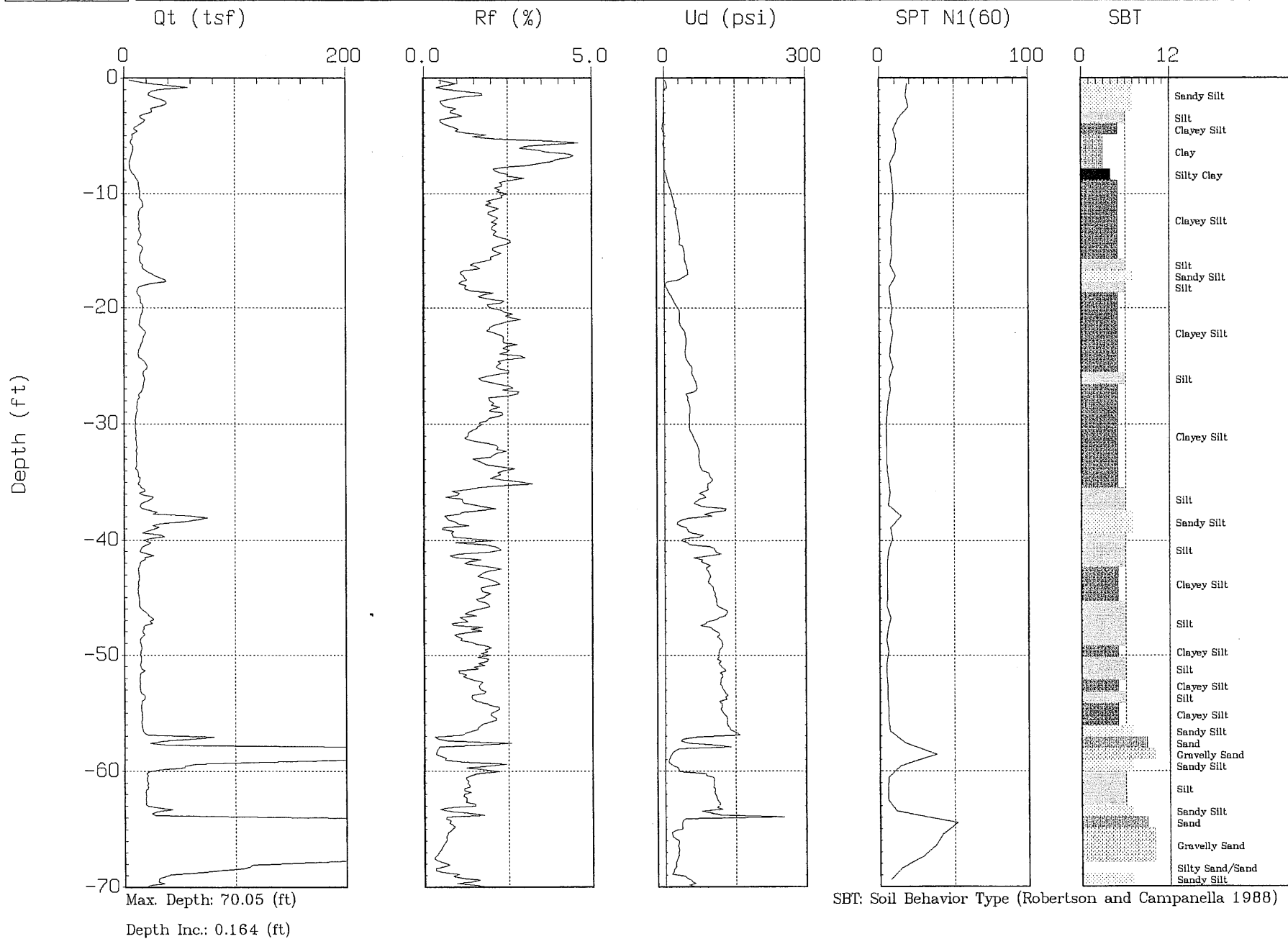




NMG GEOTECHNICAL

Site : CUSD/RANCHO CAPISTRANO
Location : CPT-4

Engineer : L. GOSSETT
Date : 05:21:01 09:49

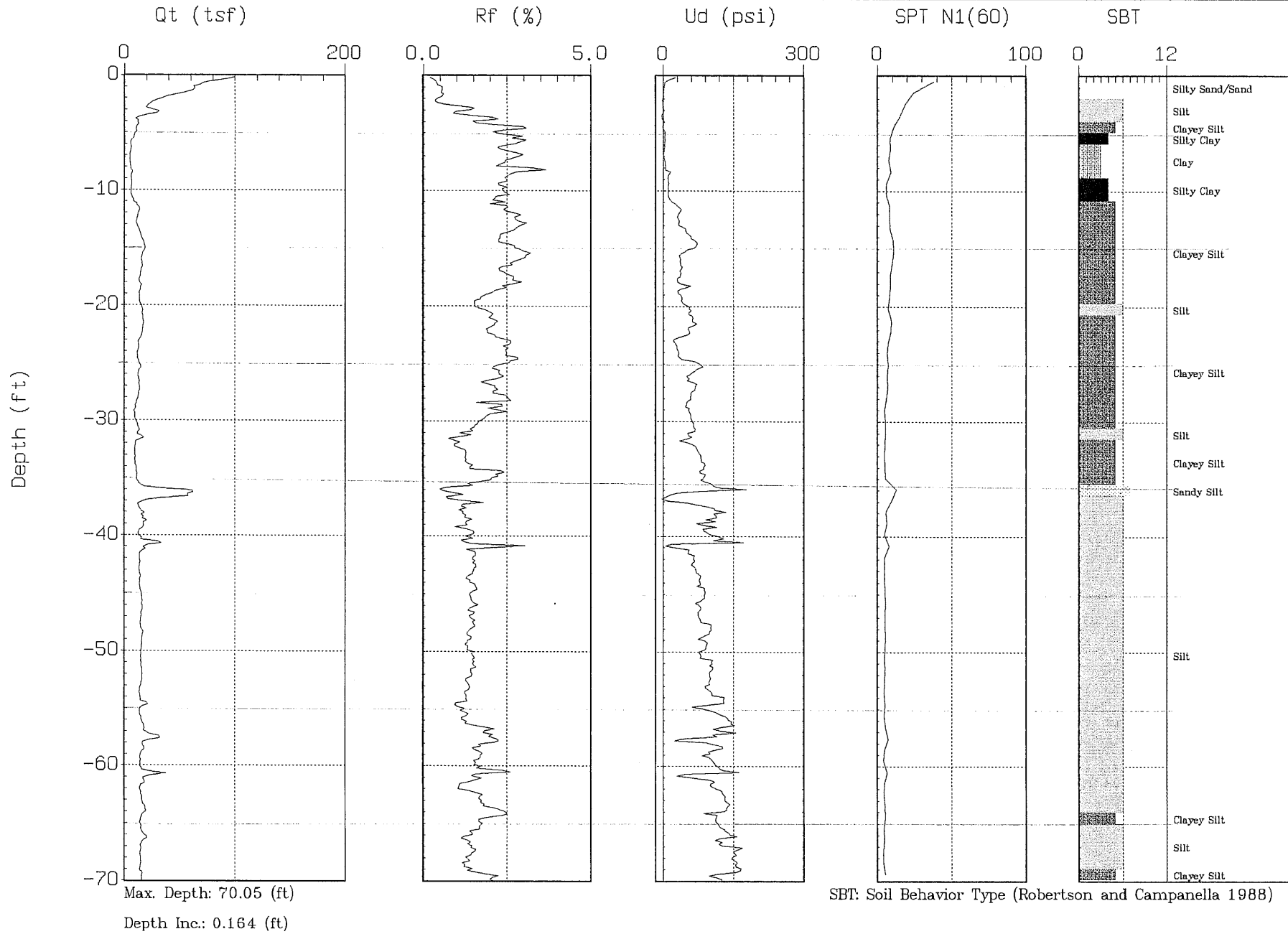




NMG GEOTECHNICAL

Site : CUSD/RANCHO CAPISTRANO
Location : CPT-5

Engineer : L. GOSSETT
Date : 05:21:01 10:44

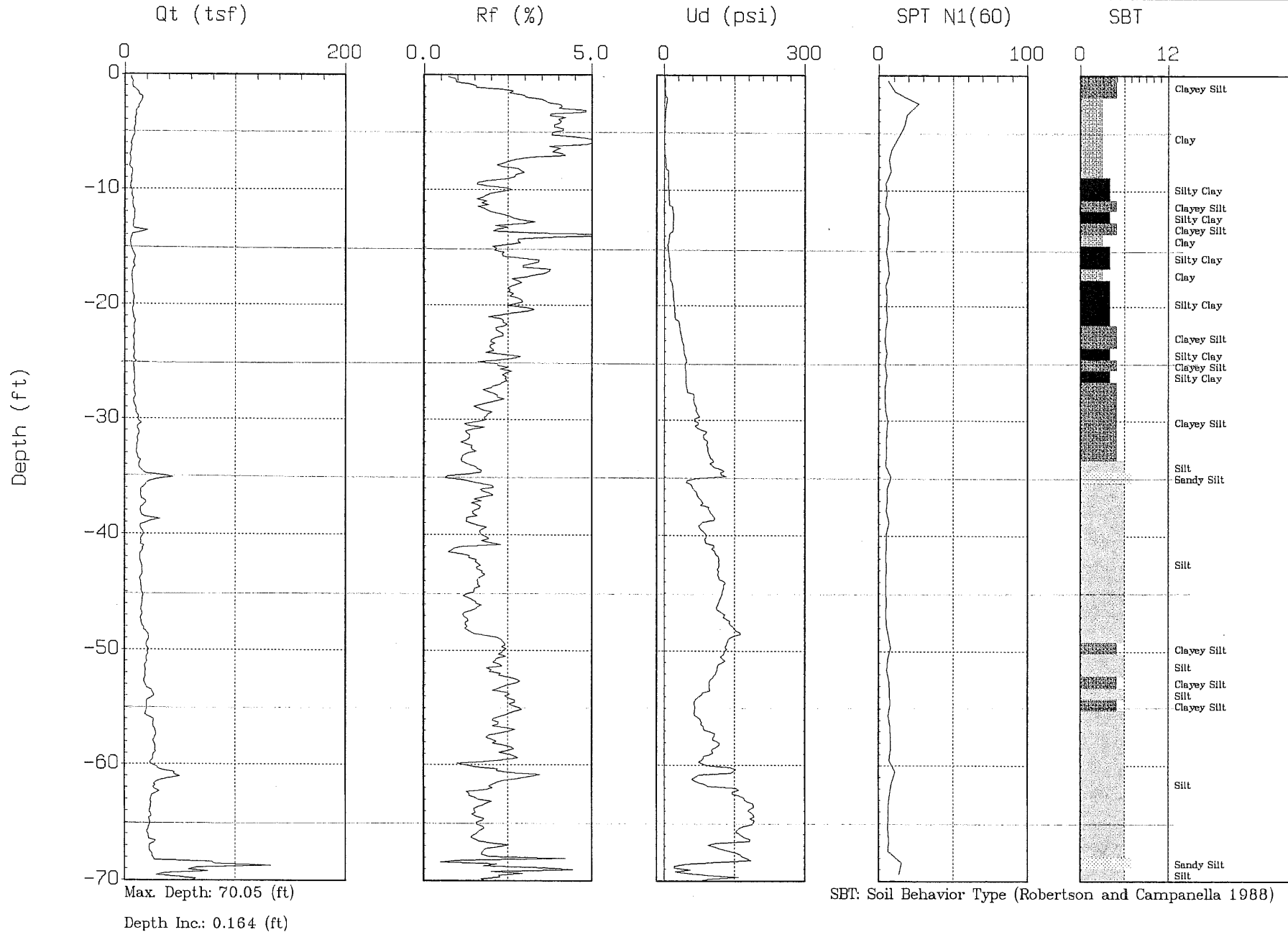




NMG GEOTECHNICAL

Site : CUSD/RANCHO CAPISTRANO
Location : CPT-6

Engineer : L. GOSSETT
Date : 05:21:01 11:40

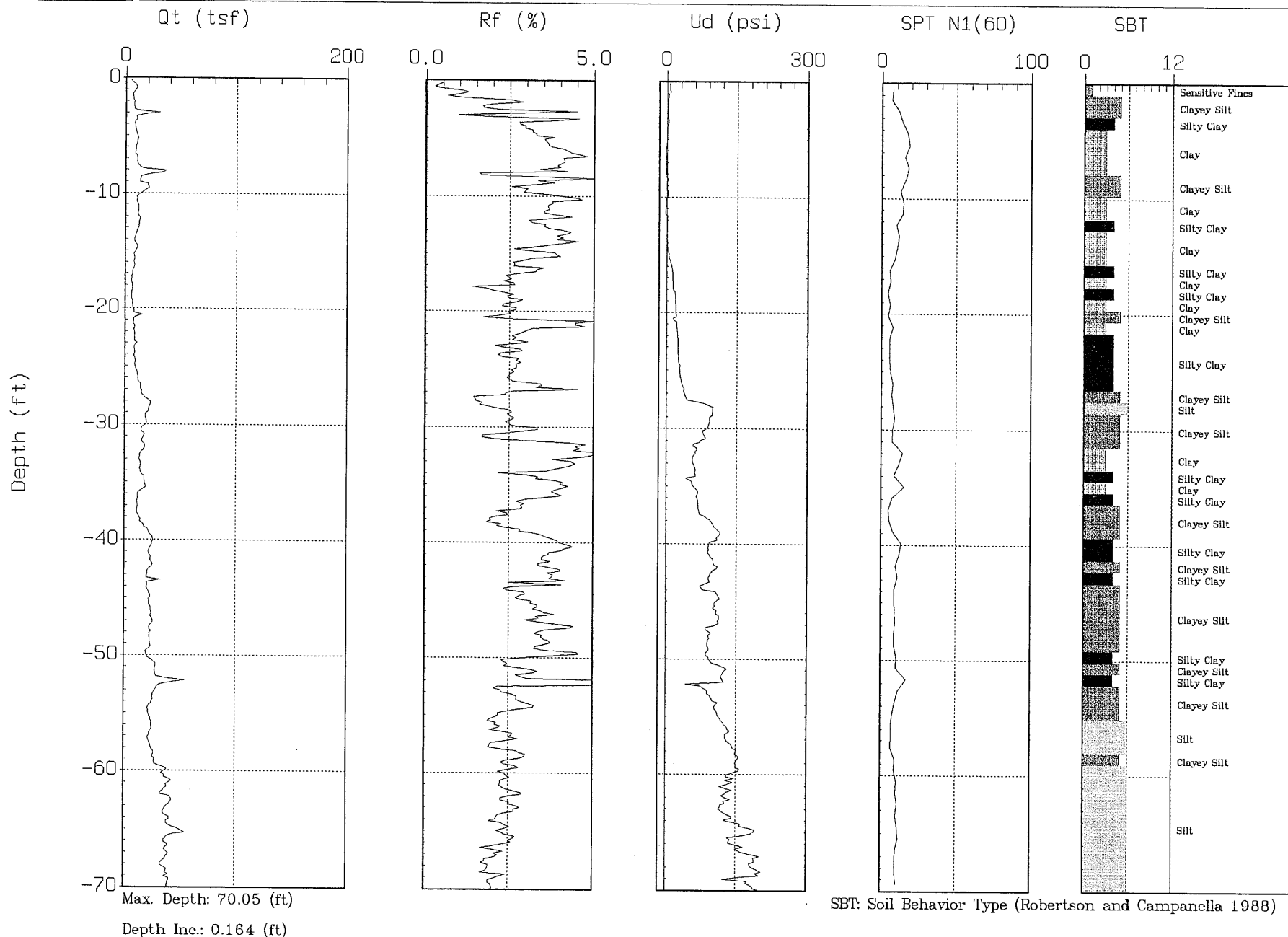




NMG GEOTECHNICAL

Site : CUSD/RANCHO CAPISTRANO
Location : CPT-7

Engineer : L. GOSSETT
Date : 05:21:01 12:39

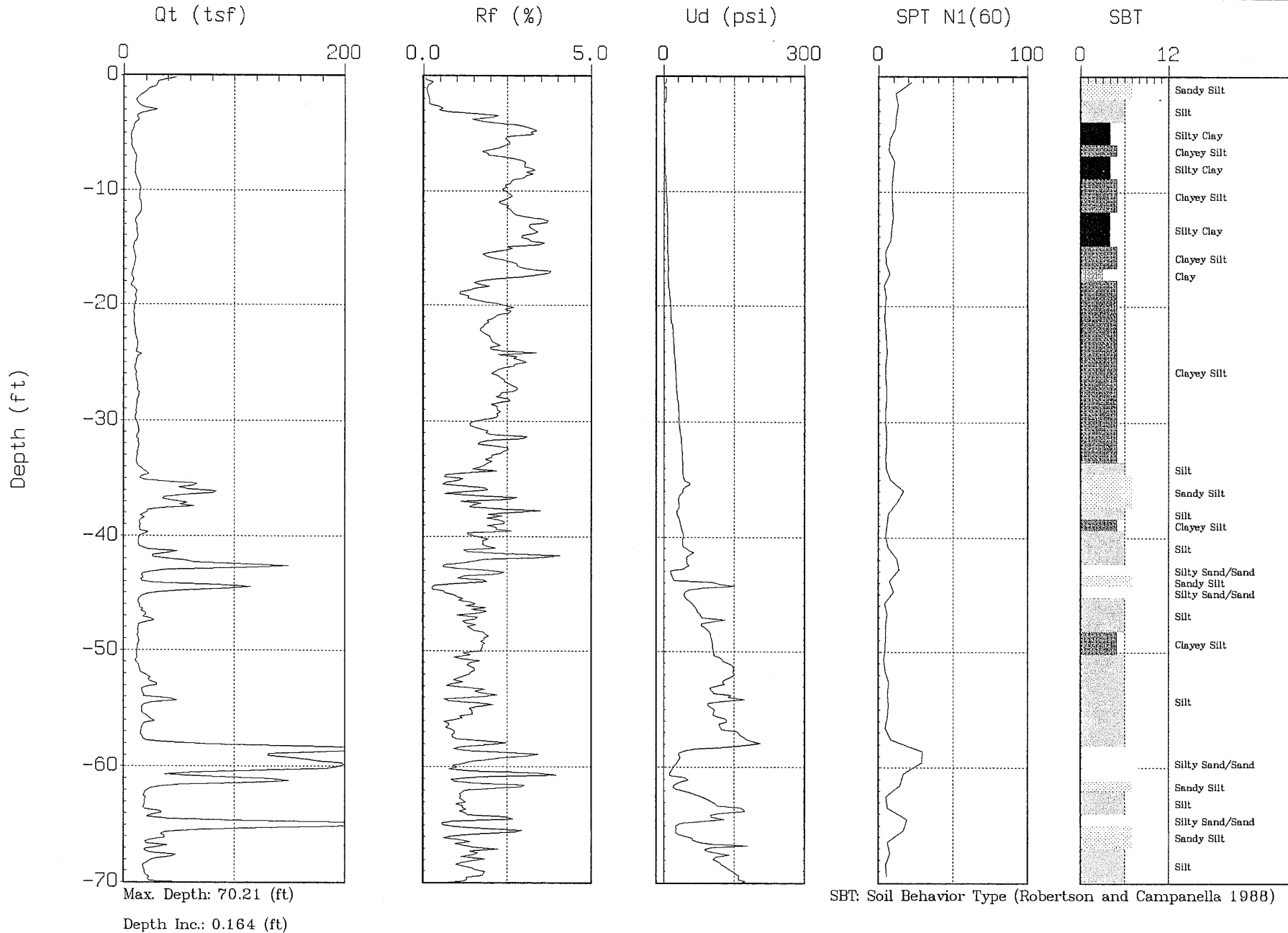




NMG GEOTECHNICAL

Site : CUSD/RANCHO CAPISTRANO
Location : CPT-8

Engineer : L. GOSSETT
Date : 05:21:01 13:25

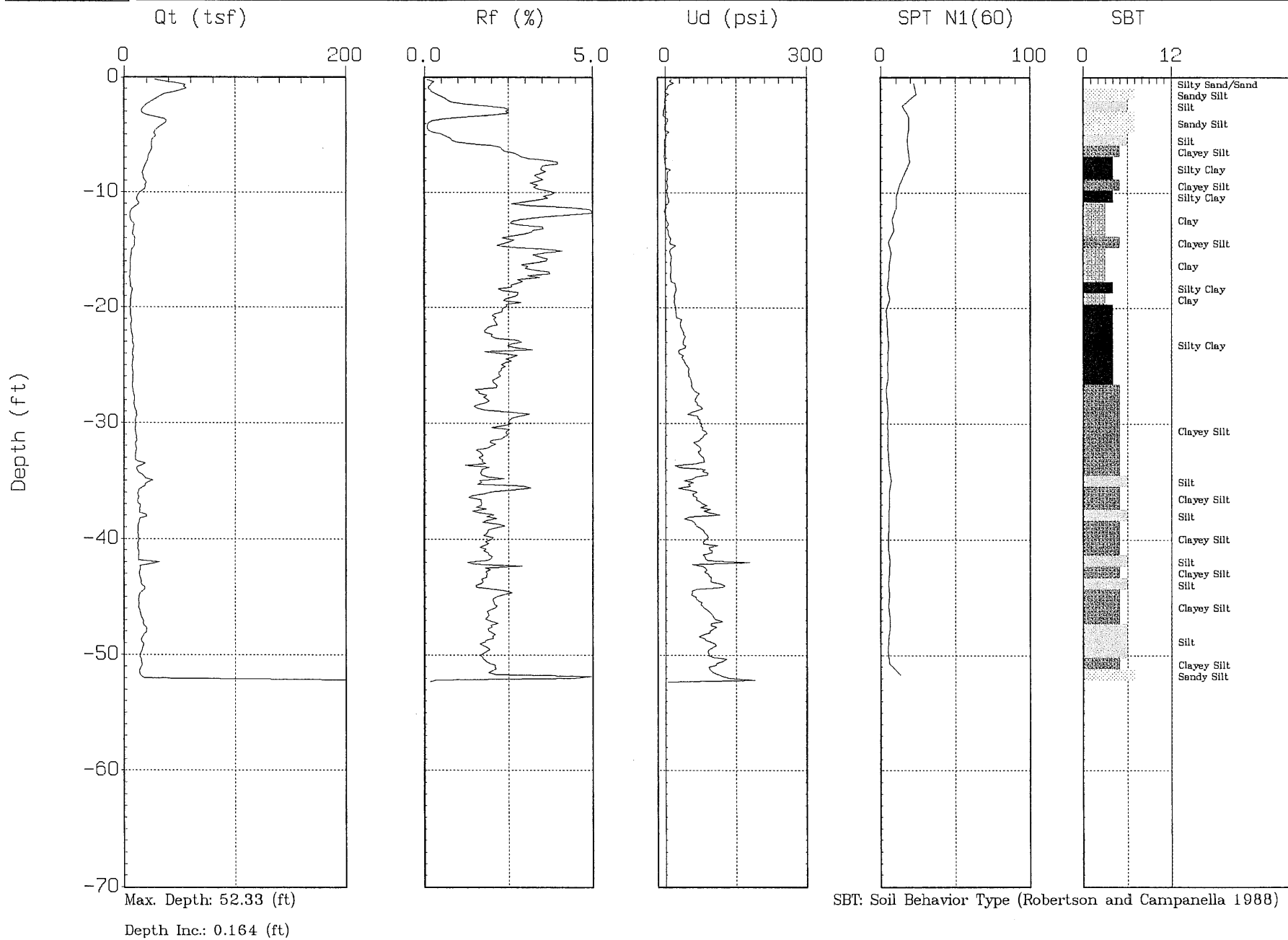




NMG GEOTECHNICAL

Site : CUSD/RANCHO CAPISTRANO
Location : CPT-9

Engineer : L. GOSSETT
Date : 05:21:01 14:29

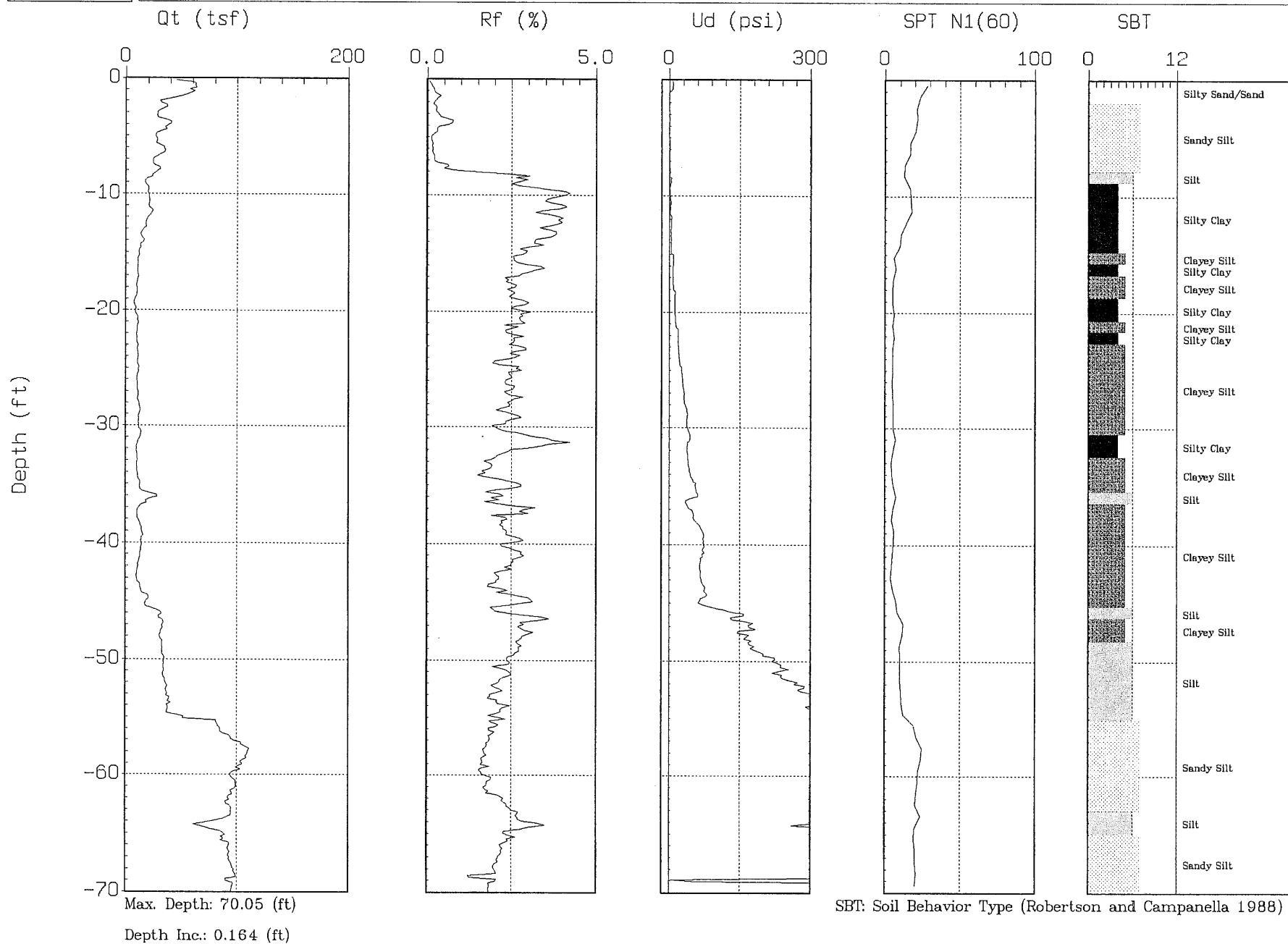




NMG GEOTECHNICAL

Site : CUSD/RANCHO CAPISTRANO
Location : CPT-10

Engineer : L. GOSSETT
Date : 05:21:01 15:00

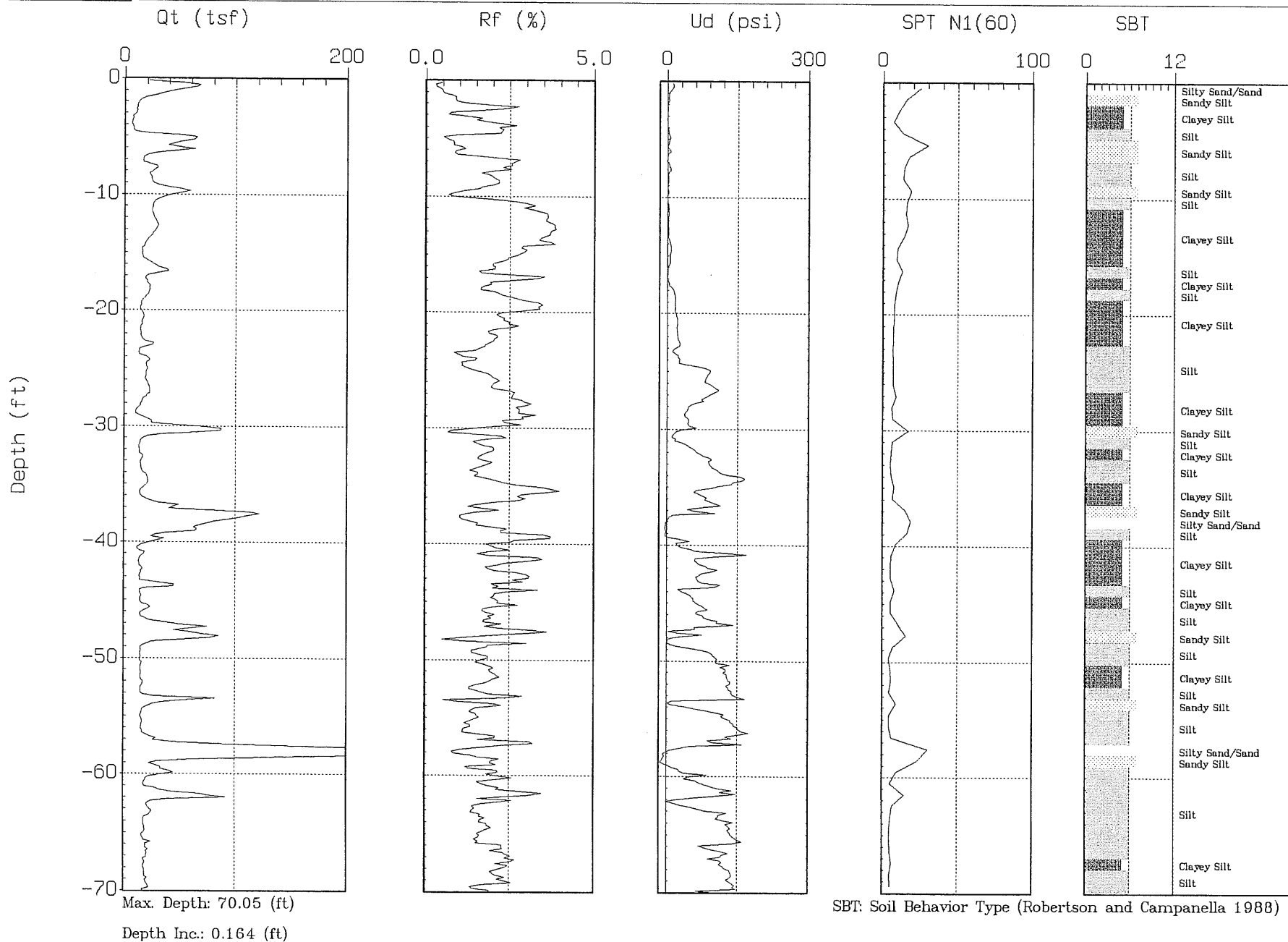




NMG GEOTECHNICAL

Site : CUSD/RANCHO CAPISTRANO
Location : CPT-11

Engineer : L. GOSSETT
Date : 05:22:01 06:13



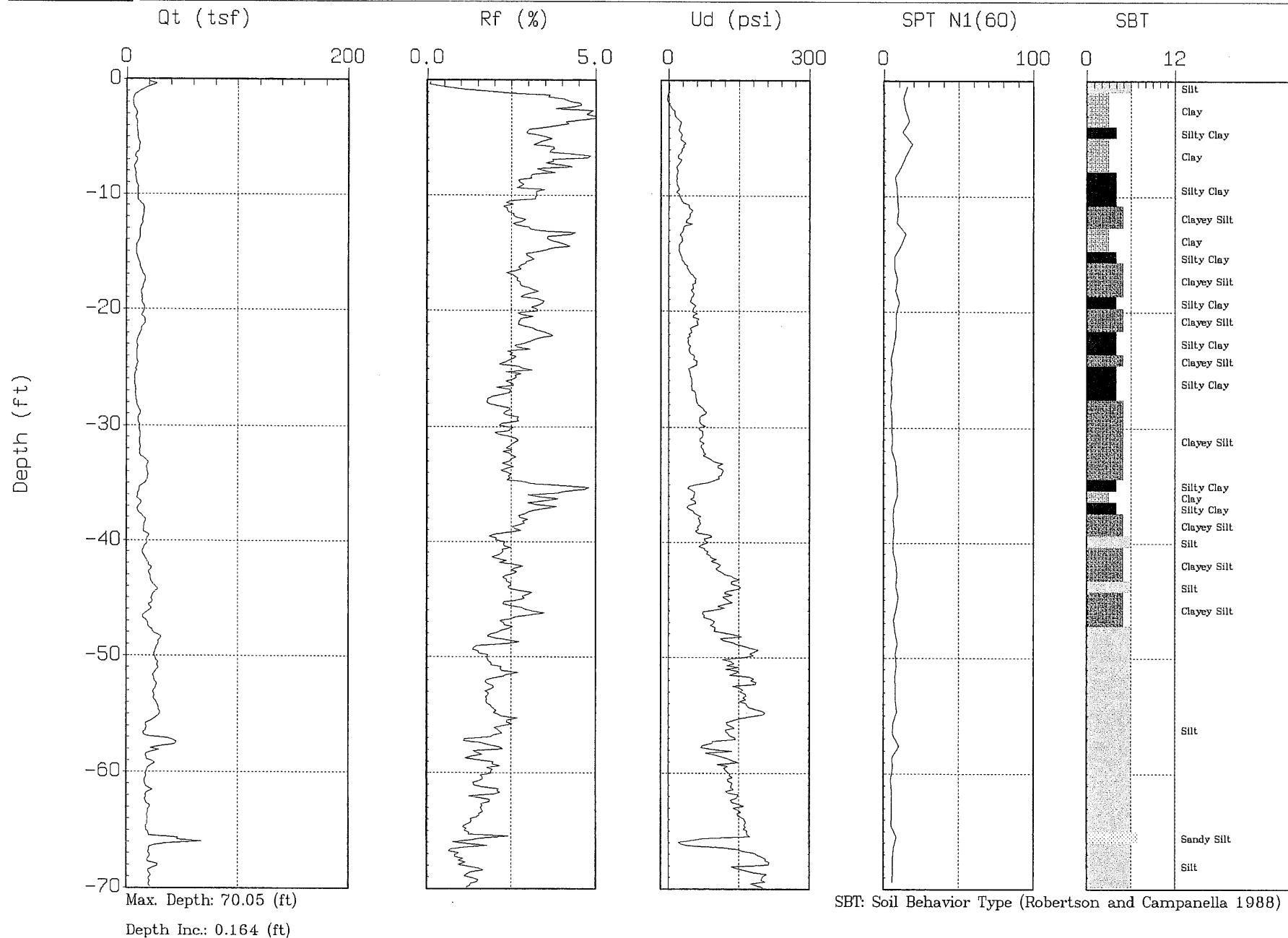
SBT: Soil Behavior Type (Robertson and Campanella 1988)



NMG GEOTECHNICAL

Site : CUSD/RANCHO CAPISTRANO
Location : CPT-12

Engineer : L. GOSSETT
Date : 05:22:01 07:09

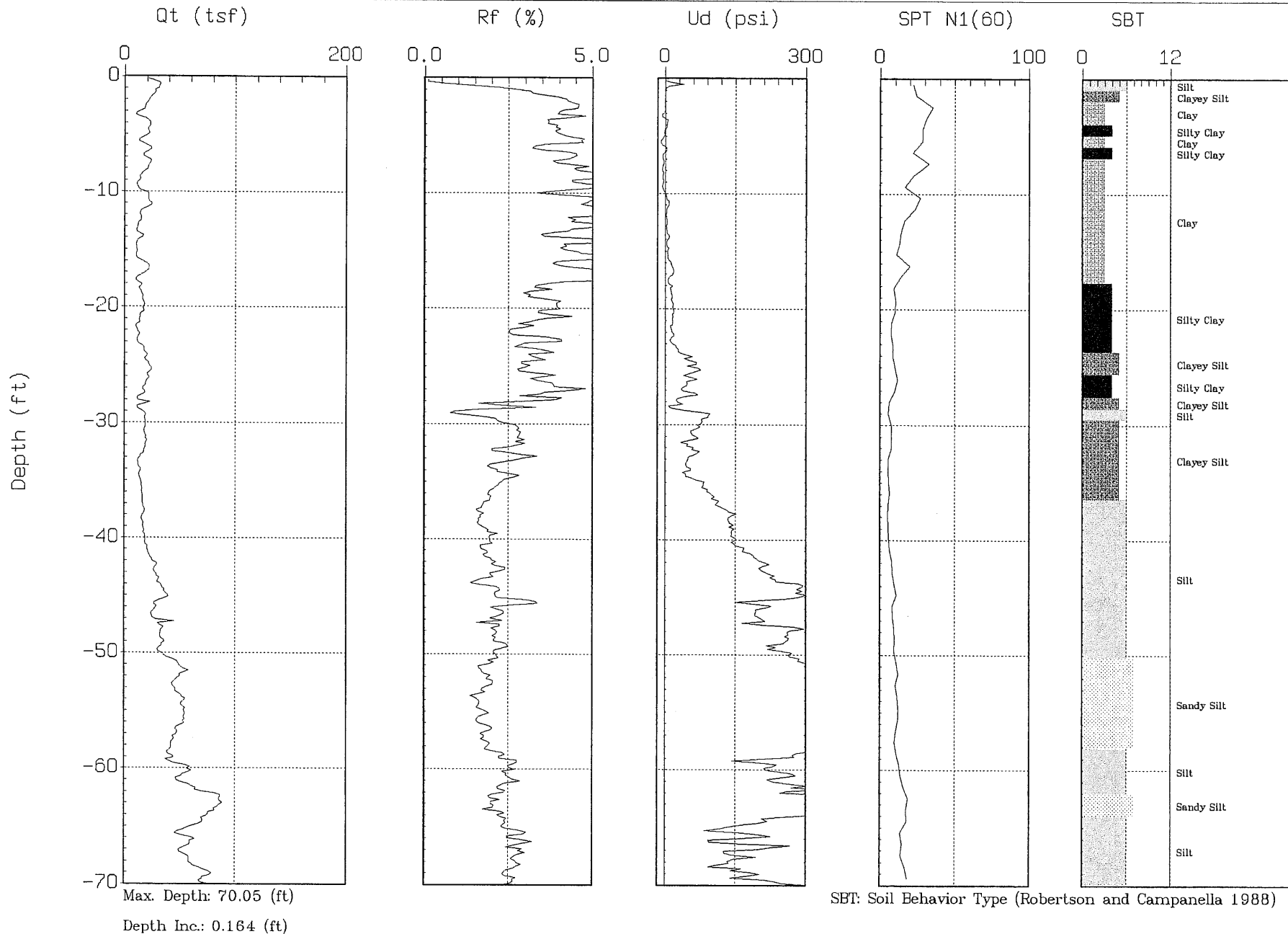




NMG GEOTECHNICAL

Site : CUSD/RANCHO CAPISTRANO
Location : CPT-13

Engineer : L. GOSSETT
Date : 05:22:01 07:53

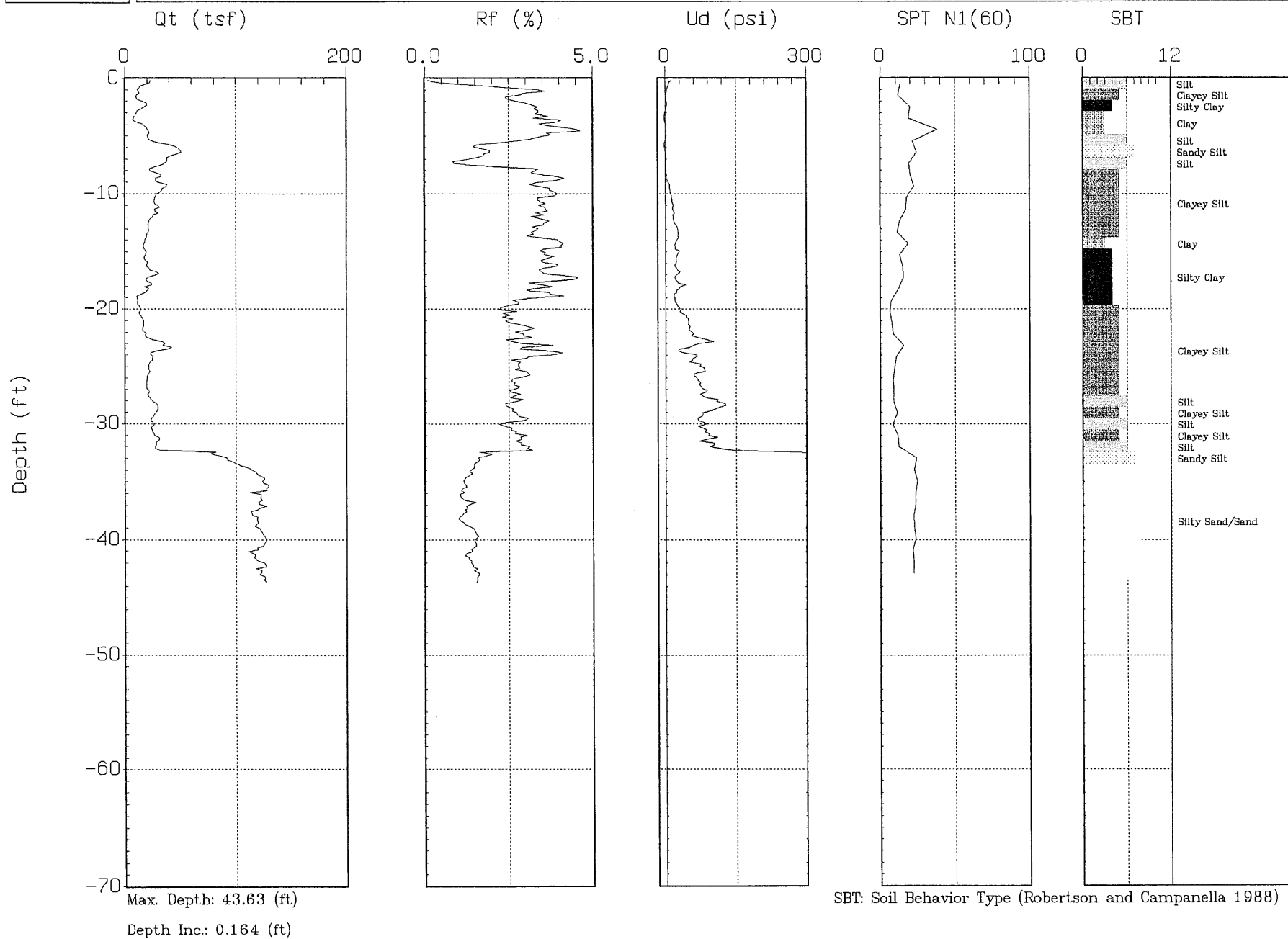




NMG GEOTECHNICAL

Site : CUSD/RANCHO CAPISTRANO
Location : CPT-14

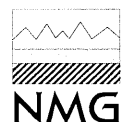
Engineer : L. GOSSETT
Date : 05:22:01 08:44



Date(s) Drilled	5/30/01	Logged By	BO	H- 1 Sheet 1 of 3	
Drilling Company	2R Drilling	Drill Bit Size/Type	8"		
Drill Rig Type	CME 55	Hammer Data	140 lbs. @ 30" Drop		
Sampling Method(s)	Modified California				
Approximate Groundwater Depth: 6 feet				Total Depth Drilled (ft)	95.5
Comments				Approximate Ground Surface Elevation (ft)	205.0 MSL

Elevation (ft)	Depth (ft)	SAMPLES		Graphic Log	USCS	MATERIAL DESCRIPTION	Moisture Content (%)	Dry Density (pcf)	OTHER TESTS and REMARKS
		Type	Number						
0					ML	Alluvium (Qal) @ 0' Yellowish brown silty fine SAND/fine sandy SILT, damp.			
200	5	D-1	9			@ 5' Mottled grayish brown and dark grayish brown clayey SILT, moist, medium stiff, occasional root hairs, plastic, occasional charcoal, sandy silt in upper rings.	24.5	93.9	
	10	D-2	5			@ 10' Dark grayish brown to brown clayey SILT, wet, soft, abundant caliche stringers, plastic; dark gray and grayish brown clay in tip.	31.3	90.5	
190	15	D-3	12		CL	@ 15' Dark grayish brown silty CLAY, moist, medium stiff to stiff, slightly to moderately porous, abundant caliche, plastic; sandy clay in tip.	29.7	93.0	
20	20	D-4	13			@ 20' Dark grayish brown silty CLAY, moist, medium stiff, moderately porous, abundant caliche/gypsum, plastic.	27.2	98.2	
180	25	D-5	13		CL/ML	@ 25' Dark grayish brown silty CLAY/clayey SILT, moist, medium stiff, no visible porosity, abundant caliche veins/stringers, very plastic.	25.0	98.3	
30									

LOG OF BORING
 CUSD/Rancho Capistrano
 San Juan Capistrano
 PROJECT NO. 01012-02

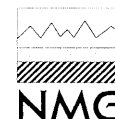


CUSD/Rancho Capistrano		San Juan Capistrano		H- 1 Sheet 2 of 3						
Elevation (ft)	Depth (ft)	SAMPLES			Graphic Log	USCS	MATERIAL DESCRIPTION	Moisture Content (%)	Dry Density (pcf)	OTHER TESTS and REMARKS
		Type	Number	Blows per foot						
30		D-6	9		ML/CL	@ 30' Dark grayish brown clayey SILT/silty CLAY, moist, medium stiff, very plastic; very pale brown sandy silt in tip.	29.2	95.8		
170	35	D-7	14		ML	@ 35' Light brownish gray slightly clayey fine sandy SILT, very moist, stiff; dark gray silty clay/clayey silt in upper rings.	25.0	100.3		
	40	SB-1 D-8	12			@ 40' Top: Dark olive gray clayey SILT, very moist, medium stiff, very plastic, scattered organic fragments. Tip: Olive gray fine sandy SILT, very moist, medium stiff.	30.5	96.0	SB-1 @ 40'	
160	45	D-9	13		CL	@ 45' Olive gray silty CLAY, moist, medium stiff, plastic, some FeO mottling.	29.3	95.7	GS, AL	
	50	D-10	14		CH	@ 50' Dark olive gray silty CLAY, very moist, stiff, plastic, some FeO mottling, occasion gypsum crystals.	29.9	93.3	GS, AL	
150	55	D-11	13			@ 55' Olive gray silty CLAY, very moist, stiff; dark gray clay with rock fragments and FeO mottling in tip.	28.1	95.2		
	60	D-12	17		CL	@ 60' Olive gray CLAY, very moist, stiff.	30.9	93.6	GS, AL	
140	65									

LOG OF BORING
CUSD/Rancho Capistrano
San Juan Capistrano
PROJECT NO. 01012-02

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LOG OF BORING
CUSD/Rancho Capistrano
San Juan Capistrano
PROJECT NO. 01012-02



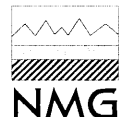
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San Juan Capistrano

H-1
Sheet 3 of 3

Elevation (ft)	Depth (ft)	SAMPLES		Graphic Log	USCS	MATERIAL DESCRIPTION	Moisture Content (%)	Dry Density (pcf)	OTHER TESTS and REMARKS
		Type	Number						
140	65	D-13	16		ML	@ 65' Olive gray clayey SILT, very moist, stiff, scattered pale yellow bedrock fragments, slightly micaceous.	26.5	99.3	
	70	D-14	15			@ 70' Olive gray clayey SILT, very moist, stiff, slightly micaceous, occasional FeO-stained pockets.	30.6	93.1	
130	75	D-15	15		ML/CL	@ 75' Olive gray clayey SILT/silty CLAY, very moist, stiff, abundant siltstone fragments, occasional oxidized root fragment, fine sandy layer (1/8") in tip.	34.5	88.3	
	80	D-16	74		CL	@ 80' Top: Olive gray coarse sandy CLAY, saturated, soft. Tip: Light brownish gray medium to coarse SAND with clay lenses, wet, dense.	22.5	105.4	
		SB-2			SP	Note: Spacer broken in sampler.			SB-2 @ 81.5'
120	85	D-17	25		CL	@ 85' Top: Grayish brown coarse sandy CLAY, saturated, soft.	19.5	109.3	
					SC	Tip: Dark gray and brown clayey coarse SAND with pebbles, moist, medium dense.			
	90	D-18	38		SLST	Capistrano Formation (Tc) @ 90' Dark olive gray to black clayey SILTSTONE, moist, very stiff, weathered foraminifera and fish scales, strong petroliferous odor; clayey coarse sand with pebbles in upper rings.	38.6	84.8	
110	95	D-19	50/6"			@ 95' Same as at 90 ft., very stiff.	29.7	93.4	
						NOTES Total Depth 95.5 ft. Groundwater Encountered at 6 ft. Bedrock (Tc) Encountered at Approximately 90.5 ft. Backfilled with Cuttings			
100									

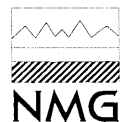
LOG OF BORING
CUSD/Rancho Capistrano
San Juan Capistrano
PROJECT NO. 01012-02



Date(s) Drilled	5/30/01	Logged By	BO	H- 2 Sheet 1 of 3	
Drilling Company	2R Drilling	Drill Bit Size/Type	8"		
Drill Rig Type	CME 55	Hammer Data	140 lbs. @ 30" Drop		
Sampling Method(s)	Modified California				
Approximate Groundwater Depth: 12 feet				Total Depth Drilled (ft)	71.5
Comments				Approximate Ground Surface Elevation (ft)	208.0 MSL

Elevation (ft)	Depth (ft)	SAMPLES		Graphic Log	USCS	MATERIAL DESCRIPTION	Moisture Content (%)	Dry Density (pcf)	OTHER TESTS and REMARKS
		Type	Number						
0					ML	Alluvium (Qal)			
5		D-1	7			@ 5' Dark grayish brown to olive brown slightly clayey SILT, moist, medium stiff, slightly porous, occasional roots, scattered caliche.	25.0	95.1	
10		D-2	8			@ 10' Dark grayish brown slighty clayey SILT, very moist, medium stiff, trace porosity	26.9	98.4	GS, AL
15		D-3	8			@ 15' Same as at 10 ft., slightly porous.	26.4	98.0	GS, AL
20		D-4	13		CL	@ 20' Dark grayish brown silty CLAY, very moist, medium stiff, very plastic, abundant caliche.	28.7	95.1	
25		D-5	11			@ 25' Same as at 20 ft., olive gray.	30.9	93.5	

LOG OF BORING
CUSD/Rancho Capistrano
San Juan Capistrano
PROJECT NO. 01012-02



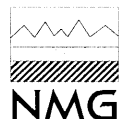
CUSD/Rancho Capistrano

San Juan Capistrano

H- 2
Sheet 2 of 3

Elevation (ft)	Depth (ft)	SAMPLES		Graphic Log	USCS	MATERIAL DESCRIPTION	Moisture Content (%)	Dry Density (pcf)	OTHER TESTS and REMARKS
		Type	Number						
30		D-6	10		ML	@ 30' Olive gray clayey SILT, very moist, medium stiff, abundant caliche, plastic.	27.8	96.4	
35		D-7	13		CL CL/ML	@ 35' Top: Olive gray medium to coarse sandy CLAY, very moist, stiff, FeO mottling, gray silt in upper rings. Tip: Grayish brown silty CLAY/clayey SILT, very moist, medium stiff, occasional silt pockets.	26.2	98.0	
40		D-8	10		ML CH	@ 40' Top: Olive gray clayey SILT, very moist, medium stiff, plastic, FeO mottling. Tip: Very dark gray silty CLAY, very moist, medium stiff, very plastic, scattered caliche.	28.4	96.1	GS, AL
45		D-9	13		CL/ML CL	@ 45' Top: Dark olive gray silty CLAY/clayey SILT, very moist, medium stiff, scattered caliche, FeO mottling. Tip: Dark olive gray silty CLAY, very moist, medium stiff, very plastic, abundant caliche.	25.5	99.4	GS, AL
50		D-10	19			@ 50' Very dark gray CLAY, moist, medium stiff to stiff, scattered caliche, sparse rounded pebbles.	21.5	106.4	
55		D-11	22		ML	@ 55' Dark gray clayey SILT, very moist, medium stiff to stiff, FeO mottling, micaceous, sparse caliche.	25.4	99.8	
60		D-12	23			@ 60' Dark olive gray clayey SILT, moist, stiff, abundant FeO mottling, micaceous, sub-vertical gypsum/caliche-lined fractures, possible weathered bedrock.	30.3	92.8	
65									

LOG OF BORING
CUSD/Rancho Capistrano
San Juan Capistrano
PROJECT NO. 01012-02



CUSD/Rancho Capistrano

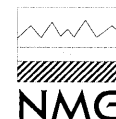
San Juan Capistrano

H-2
Sheet 3 of 3

Elevation (ft)	Depth (ft)	SAMPLES		Graphic Log	USCS	MATERIAL DESCRIPTION	Moisture Content (%)	Dry Density (pcf)	OTHER TESTS and REMARKS
		Type	Number						
65		D-13	20		ML/CL	@ 65' Dark olive gray silty CLAY/clayey SILT, moist, stiff, abundant MnO-stained joints/fractures, micaceous.	37.3	86.9	
140									
70		SB-1 D-14 SB-2	33		ML SM	@ 70' Top: Olive gray fine sandy SILT, moist, stiff, organic-rich silt layer in upper rings. Tip: Dark gray clayey silty fine to medium SAND, moist, medium dense.	24.1	107.4	SB-1 @ 70' SB-2 @ 71.5'
75									
130									
80									
85									
120									
90									
95									
110									
100									

NOTES
Total Depth 71.5 ft.
Groundwater Encountered at 12.5 ft.
Backfilled with Cuttings

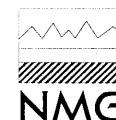
LOG OF BORING
CUSD/Rancho Capistrano
San Juan Capistrano
PROJECT NO. 01012-02



Date(s) Drilled	5/31/01	Logged By	BO	H- 3 Sheet 1 of 4	
Drilling Company	2R Drilling	Drill Bit Size/Type	8"		
Drill Rig Type	CME 55	Hammer Data	140 lbs. @ 30" Drop		
Sampling Method(s)	Modified California				
Approximate Groundwater Depth: 12 feet				Total Depth Drilled (ft)	101.5
Comments				Approximate Ground Surface Elevation (ft)	205.0 MSL

Elevation (ft)	Depth (ft)	SAMPLES		Graphic Log	USCS	MATERIAL DESCRIPTION	Moisture Content (%)	Dry Density (pcf)	OTHER TESTS and REMARKS
		Type	Number						
0					ML	Alluvium (Qal)			
200	5	D-1	6		CL	@ 5' Top: Dark grayish brown clayey SILT, very moist, medium stiff, plastic. Tip: Very dark gray silty CLAY, very moist, medium stiff, very plastic, abundant caliche stringers.	30.2	92.6	
	10	D-2	8			@ 10' Very dark grayish brown silty CLAY, very moist, medium stiff, very plastic, abundant caliche stringers.	27.1	96.6	
190	15	D-3	11			@ 15' Same as at 10 ft.	28.2	95.2	
	20	SB-1 D-4	8		ML CL	@ 20' Dark grayish brown CLAY, very moist, medium stiff, scattered caliche, slightly porous, grades dark gray and stiffer in tip; clayey silt in upper rings.	27.6	95.4	SB-1 @ 20'
180	25	D-5	9			@ 25' Olive gray CLAY, very moist, medium stiff, scattered caliche.	24.5	100.2	
	30								

LOG OF BORING
CUSD/Rancho Capistrano
San Juan Capistrano
PROJECT NO. 01012-02



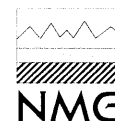
CUSD/Rancho Capistrano

San Juan Capistrano

H- 3
Sheet 2 of 4

Elevation (ft)	Depth (ft)	SAMPLES		Graphic Log	USCS	MATERIAL DESCRIPTION	Moisture Content (%)	Dry Density (pcf)	OTHER TESTS and REMARKS
		Type	Number						
30		D-6	9		CL ML	@ 30' Grayish brown clayey SILT, very moist, medium stiff, plastic, slightly micaceous, clay in upper rings.	28.5	95.3	
170	35	D-7	10			@ 35' Same as at 30 ft., wet, very plastic.	29.4	94.8	
40		SB-2 D-8	12		CL	@ 40' Very dark gray silty CLAY and CLAY, very moist, medium stiff to stiff, scattered charcoal in upper rings; gray silt in upper rings.	36.2	87.7	SB-2 @ 40'
160	45	D-9	10		CL/ML	@ 45' Very dark gray brown silty CLAY/clayey SILT, very moist, medium stiff.	26.9	98.2	
50		D-10	13		CL	@ 50' Dark grayish brown CLAY, very moist, stiff.	31.2	94.7	
150	55	D-11	15		ML	@ 55' Dark grayish brown clayey SILT, very moist, stiff, micaceous.	25.6	102.3	
60		SB-3 D-12 SB-4	13		CL ML	@ 60' Top: Grayish brown slightly clayey SILT, very moist, stiff, micaceous; sandy silt with charcoal in upper rings. Tip: Very dark grayish brown silty CLAY, very moist, stiff, plastic; fine sandy silt in tip of sampler.	28.0	94.8	SB-3 @ 60' SB-4 @ 61.5'
140	65								

LOG OF BORING
CUSD/Rancho Capistrano
San Juan Capistrano
PROJECT NO. 01012-02



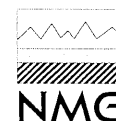
CUSD/Rancho Capistrano

San Juan Capistrano

H- 3
Sheet 3 of 4

Elevation (ft)	Depth (ft)	SAMPLES		Graphic Log	USCS	MATERIAL DESCRIPTION	Moisture Content (%)	Dry Density (pcf)	OTHER TESTS and REMARKS
		Type Number	Blows per foot						
140	65	SB-5 D-13	70		SM	@ 65' Grayish brown silty fine SAND, very moist, dense, micaceous; pale brown fine to medium sand with occasional pebbles in tip.	21.5	108.2	SB-5 @ 65'
	70	SB-6 D-14	30		SC SM	@ 70' Top: Grayish brown slightly clayey medium to very coarse SAND, very moist, medium dense; silty fine to coarse sand in upper rings. Tip: Grayish brown clayey silty fine to medium sand, very moist, medium dense.	14.2	119.1	SB-6 @ 70'
130	75	D-15	43		SC	@ 75' Gray to dark gray clayey medium to very coarse SAND, very moist, dense.	19.0	115.5	
	80	D-16	76		SP	@ 80' Gray to dark gray medium to very coarse SAND with pebbles, wet, very dense; sparse thin clay lenses/pods; clayey sand in upper rings.	10.9	128.6	
120	85	D-17	55/6"		CL	@ 85' Dark gray to dark grayish brown fine to medium sandy CLAY, wet to saturated, medium stiff, abundant pebbles, some cobbles.	19.6	111.6	
	90	D-18	55			@ 90' Dark gray sandy CLAY, wet to saturated, medium stiff, abundant pebbles.	28.1	96.4	
110	95	D-19	33			@ 95' Same as at 90 ft., grayish brown.	34.4	89.0	
	100								

LOG OF BORING
CUSD/Rancho Capistrano
San Juan Capistrano
PROJECT NO. 01012-02



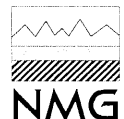
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San Juan Capistrano

H- 3
Sheet 4 of 4

Elevation (ft)	Depth (ft)	SAMPLES		Graphic Log	USCS	MATERIAL DESCRIPTION	Moisture Content (%)	Dry Density (pcf)	OTHER TESTS and REMARKS
		Type	Number						
		D-20	40		SLST	Capistrano Formation (Tc) @ 100' Very dark gray to very dark grayish brown SILTSTONE, moist, very stiff, weathered foraminifera, micaceous, petroliferous odor, massive.	34.5	87.2	
100	105					NOTES Total Depth 101.5 ft. Groundwater Encountered at Approximately 12 ft. Bedrock Encountered at 100 ft. Backfilled with Cuttings			
	110								
90	115								
	120								
80	125								
	130								
70	135								

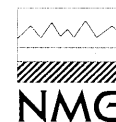
LOG OF BORING
CUSD/Rancho Capistrano
San Juan Capistrano
PROJECT NO. 01012-02



Date(s) Drilled	5/31/01	Logged By	BO	H- 4 Sheet 1 of 3	
Drilling Company	2R Drilling	Drill Bit Size/Type	8"		
Drill Rig Type	CME 55	Hammer Data	140 lbs. @ 30" Drop		
Sampling Method(s)	Modified California				
Approximate Groundwater Depth: 24 feet					
Comments				Total Depth Drilled (ft)	71.5
				Approximate Ground Surface Elevation (ft)	203.0 MSL

Elevation (ft)	Depth (ft)	SAMPLES		Graphic Log	USCS	MATERIAL DESCRIPTION	Moisture Content (%)	Dry Density (pcf)	OTHER TESTS and REMARKS
		Type	Number						
0					SM	Alluvium (Qal) @ 0' Silty fine SAND with pebbles.			
200		B-1							
5		SB-1 D-1	6		ML/CL CL	@ 5' Top: Interlayered light gray SILT and grayish brown CLAY, moist, medium stiff, micaceous, abundant organics, siltier in upper rings. Tip: Black CLAY, moist, medium stiff.	34.6	86.9	SB-1 @ 5'
10		D-2	10			@ 10' Grayish brown silty CLAY, very moist, medium stiff, plastic; tip is dark to very dark gray.	29.1	91.2	
190		D-3	23			@ 14' Very dark gray CLAY, moist, stiff, occasional pebbles stringers.	22.6	102.9	
20		SB-2 D-4	10			@ 20' Dark grayish brown CLAY, very moist, medium stiff; silty clay/clayey silt in upper rings.	26.9	97.9	SB-2 @ 20'
180									
25		D-5	10		SP CL	@ 25' Dark gray to very dark gray CLAY, very moist, medium stiff, scattered caliche; thin sand layer (1") in upper rings.	31.0	93.7	
30									

LOG OF BORING
CUSD/Rancho Capistrano
San Juan Capistrano
PROJECT NO. 01012-02



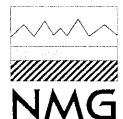
CUSD/Rancho Capistrano

San Juan Capistrano

H- 4
Sheet 2 of 3

Elevation (ft)	Depth (ft)	SAMPLES		Graphic Log	USCS	MATERIAL DESCRIPTION	Moisture Content (%)	Dry Density (pcf)	OTHER TESTS and REMARKS
		Type	Number						
30		D-6	6		ML	@ 30' Dark grayish brown clayey SILT, very moist, soft to medium stiff, occasional gypsum, slightly porous.	29.3	94.8	
170									
35		SB-3 D-7	10		CL ML CL	@ 35' Top: Dark grayish brown SILT, very moist, medium stiff; dark gray clay in upper rings. Tip: Dark gray silty CLAY, very moist, medium stiff.	30.2	90.3	SB-3 @ 35'
40		SB-4 D-8	14		CL/ML ML	@ 40' Top: Grayish brown silty CLAY/clayey SILT, very moist, medium stiff, plastic, scattered gypsum. Tip: Gray clayey SILT, very moist, medium stiff, plastic.	29.1	96.4	SB-4 @ 40'
160									
45		D-9	12		CL SM/ML	@ 45' Top: Dark gray CLAY, very moist, medium stiff to stiff; Tip: Gray to dark gray sandy SILT/silty SAND with clay, very moist, medium stiff to stiff/medium dense.	25.7	98.0	
50		D-10	9			@ 50' No recovery.			
150									
55		SB-5 & 6 D-11	11		SM ML CL	@ 55' Top: Olive brown clayey SILT, very moist, medium stiff, organic fragments in upper rings, silty sand in uppermost rings, dark gray sandy clay in tip.	28.7	95.1	SB-5&6 @ 55'-56.5'
60		D-12	24		SC/CL SM ML	@ 60' Top: Very dark grayish brown silty fine SAND, very moist, medium dense; sandy clay/clayey sand in upper rings; Tip: Dark gray sandy SILT, very moist, stiff.	18.6	138.5	
140									
65									

LOG OF BORING
CUSD/Rancho Capistrano
San Juan Capistrano
PROJECT NO. 01012-02



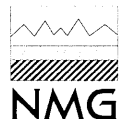
CUSD/Rancho Capistrano

San Juan Capistrano

H- 4
Sheet 3 of 3

Elevation (ft)	Depth (ft)	SAMPLES		Graphic Log	USCS	MATERIAL DESCRIPTION	Moisture Content (%)	Dry Density (pcf)	OTHER TESTS and REMARKS
		Type Number	Blows per foot						
65		D-13 SB-7	20		ML	@ 65' Grayish brown fine sandy SILT, moist, stiff, scattered organics.	22.3	105.0	SB-7 @ 65.5'
70		D-14	41		SM/ML SC	@ 70' Dark gray clayey coarse to very coarse SAND with occasional pebbles, wet, dense; dark gray clayey silty fine sand/fine sandy silt.			
130									
75						NOTES Total Depth 71.5 ft. Groundwater Encountered at 24 ft. Backfilled with Cuttings			
80									
120									
85									
90									
110									
95									
100									

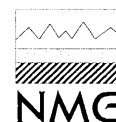
LOG OF BORING
CUSD/Rancho Capistrano
San Juan Capistrano
PROJECT NO. 01012-02



Date(s) Drilled	6/1/01	Logged By	BO	H- 5 Sheet 1 of 2	
Drilling Company	2R Drilling	Drill Bit Size/Type	8"		
Drill Rig Type	CME 55	Hammer Data	140 lbs. @ 30" Drop		
Sampling Method(s)	Modified California				
Approximate Groundwater Depth: 10.3 feet				Total Depth Drilled (ft)	61.5
Comments				Approximate Ground Surface Elevation (ft)	208.0 MSL

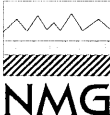
Elevation (ft)	Depth (ft)	SAMPLES		Graphic Log	USCS	MATERIAL DESCRIPTION	Moisture Content (%)	Dry Density (pcf)	OTHER TESTS and REMARKS
		Type	Number						
0					CL	Alluvium (Qal)			
	5	D-1	12			@ 5' Very dark grayish brown silty CLAY, moist, medium stiff to stiff, slightly porous, occasional organics (small charcoals and grass).	24.6	100.5	
200									
	10	D-2	10			@ 10' Dark grayish brown silty CLAY, moist, medium stiff, slightly porous, scattered caliche.	26.5	99.2	
	15								
	16	D-3	11			@ 16' Dark grayish brown silty CLAY, very moist, medium stiff, scattered caliche.	26.7	98.4	
190									
	20	D-4	14			@ 20' Dark grayish brown silty CLAY, very moist, stiff, scattered caliche.	25.3	100.3	
	25								
	25	D-5	8			@ 25' Brown CLAY, very moist to wet, medium stiff, very plastic.	27.0	96.5	
180									
30									

LOG OF BORING
CUSD/Rancho Capistrano
San Juan Capistrano
PROJECT NO. 01012-02

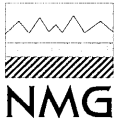


CUSD/Rancho Capistrano		San Juan Capistrano		H- 5 Sheet 2 of 2					
Elevation (ft)	Depth (ft)	SAMPLES		Graphic Log	USCS	MATERIAL DESCRIPTION	Moisture Content (%)	Dry Density (pcf)	OTHER TESTS and REMARKS
		Type	Number						
30		D-6	12		CL	@ 30' Olive brown to yellowish brown CLAY, moist, medium stiff to stiff, slightly porous, scattered caliche.	26.0	99.0	
35		D-7	11			@ 35' Very dark gray CLAY, very moist medium stiff.	26.4	98.5	
170									
40		SB-1 D-8	19		ML CL	@ 40' Top: Light brownish gray and light gray clayey SILT, moist, stiff, organics in upper rings. Tip: Dark grayish brown CLAY, FeO mottling, organics, laminated.	25.4	99.2	SB-1 @ 40'
45		SB-2 D-9	24			@ 45' Grayish brown CLAY, moist, stiff to very stiff, FeO mottled, abundant organics in upper rings.	23.1	103.3	SB-2 @ 45'
160									
50		D-10	16		CL	@ 50' Dark grayish brown CLAY, moist, medium stiff to stiff, FeO and jarosite staining, weathered foraminifera, micaceous, gray in upper rings.	38.9	82.6	
55		D-11	15			@ 55' Same as at 50 ft.	36.4	83.9	
150									
60		SB-3 D-12	17		ML	@ 60' Olive brown clayey SILT, very moist, stiff, charcoal fragments.	28.2	98.2	SB-3 @ 60'
NOTES Total Depth 61.5 ft. Groundwater Encountered at 10.3 ft. Backfilled with Cuttings									
65									

LOG OF BORING
CUSD/Rancho Capistrano
San Juan Capistrano
PROJECT NO. 01012-02



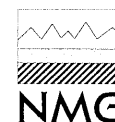
LOG OF BORING
CUSD/Rancho Capistrano
San Juan Capistrano
PROJECT NO. 01012-02



Date(s) Drilled	6/1/01	Logged By	BO	H-6 Sheet 1 of 3	
Drilling Company	2R Drilling	Drill Bit Size/Type	8"		
Drill Rig Type	CME 55	Hammer Data	140 lbs. @ 30" Drop		
Sampling Method(s)	Modified California				
Approximate Groundwater Depth: 17 feet				Total Depth Drilled (ft)	71.5
Comments				Approximate Ground Surface Elevation (ft)	209.0 MSL

Elevation (ft)	Depth (ft)	SAMPLES		Graphic Log	USCS	MATERIAL DESCRIPTION	Moisture Content (%)	Dry Density (pcf)	OTHER TESTS and REMARKS
		Type	Number						
0					CL	Alluvium (Qal) @ 0' Dark brown silty CLAY, dry, scattered small gravel, dead grass and weeds.			Bag Sample from 0'-5'
		B-1							
5		D-1	9			@ 5' Very dark grayish brown silty CLAY, wet, medium stiff, plastic, slightly porous, sparse charcoal, root hairs.	28.3	93.0	
200									
10		D-2	13			@ 10' Mottled dark grayish brown, very dark brown, and dark yellowish brown silty CLAY, moist, stiff, plastic, slightly porous, caliche veins.	21.8	106.6	
15		D-3	8			@ 15' Mottled yellowish brown, grayish brown, and dark brown silty CLAY, moist to wet, medium stiff, plastic, sparse caliche nodules, trace pinhole porosity, abundant FeO stain, charcoal.	25.6	99.2	
190									
20		D-4	11		ML/CL	@ 20' Mottled grayish brown, dark yellowish brown, and dark brown interlayered SILT and silty CLAY, very moist, medium stiff, FeO stained, clay layers are plastic, FeO stained, scattered charcoal.	25.2	98.9	
25		D-5	17		ML	@ 25' Mottled olive brown, olive gray, yellowish brown, and brown clayey SILT, very moist, stiff, slightly plastic, FeO stained, caliche stringers and sand-sized nodules.	22.3	106.3	
180									
30									

LOG OF BORING
CUSD/Rancho Capistrano
San Juan Capistrano
PROJECT NO. 01012-02



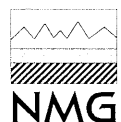
CUSD/Rancho Capistrano

San Juan Capistrano

H- 6
Sheet 2 of 3

Elevation (ft)	Depth (ft)	SAMPLES		Graphic Log	USCS	MATERIAL DESCRIPTION	Moisture Content (%)	Dry Density (pcf)	OTHER TESTS and REMARKS
		Type	Number						
30		D-6	21		CL	@ 30' Olive brown silty CLAY, very moist, stiff, plastic, caliche, charcoal, rock fragments in upper 2 rings.	24.6	101.5	
35		SB-1 D-7	25		CL/ML	@ 35' Greenish black silty CLAY/clayey SILT, very moist, very stiff, slightly plastic, sparse caliche, moderate charcoal, sparse organics.	23.6	103.8	SB-1 @ 35'
170		SB-2 D-8	23		ML	@ 40' Greenish black clayey SILT, moist to very moist, very stiff, slightly plastic, sparse caliche nodules, charcoal, sparse organics.	26.6	98.2	SB-2 @ 40'
45		SB-3 D-9	19		CL	@ 45' Dark greenish gray to greenish black silty CLAY, very moist, stiff, plastic, sparse charcoal, wood fragment; clayey silty in upper rings.	29.0	94.9	SB-3 @ 45'
160		SB-4 D-10	31		ML	@ 50' Greenish black, grayish green, and black clayey SILT, moist, very stiff, slightly plastic, abundant charcoal, petroliferous (unoxidized), laminated in tip.	28.4	94.4	SB-4 @ 50'
55		D-11	31		CL	@ 55' Dark greenish gray silty CLAY, moist, very stiff, plastic, charcoal, sparse organics, petroliferous odor, caliche.	24.6	100.1	
150		D-12	37			@ 60' Same as at 55 ft., very stiff.	25.2	100.0	
65									

LOG OF BORING
CUSD/Rancho Capistrano
San Juan Capistrano
PROJECT NO. 01012-02



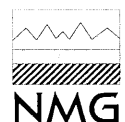
CUSD/Rancho Capistrano

San Juan Capistrano

H- 6
Sheet 3 of 3

Elevation (ft) Depth (ft)	SAMPLES			USCS	MATERIAL DESCRIPTION	Moisture Content (%)	Dry Density (pcf)	OTHER TESTS and REMARKS
	Type	Number	Blows per foot					
65	SB-5 D-13		36		@ 65' Same as at 60 ft.	29.0	97.3	SB-5 @ 65'
140								
70	D-14		44	SLST, CLST	Capistrano Formation (Tc) @ 70' Dark greenish gray clayey SILTSTONE/silty CLAYSTONE, moist, very stiff to hard, massive, very odoriferous, trace caliche.	26.5	98.6	
75					NOTES Total Depth 71.5 ft. Groundwater Encountered at 17 ft. Bedrock Encountered at Approximately 70 ft. Backfilled with Cuttings			
130								
80								
85								
120								
90								
95								
110								
100								

LOG OF BORING
CUSD/Rancho Capistrano
San Juan Capistrano
PROJECT NO. 01012-02



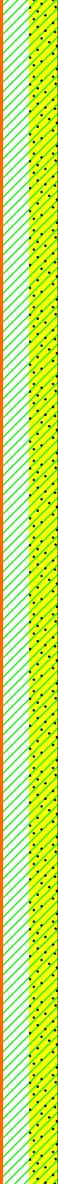
BORING LOG NO. B-1

Page 1 of 2

PROJECT: Broad Reach Power Compass BESS

CLIENT: Sargent & Lundy LLC
Chicago, IL

SITE: San Juan Capistrano, CA

GRAPHIC LOG	LOCATION See Exploration Plan Latitude: 33.5328° Longitude: -117.6781° Surface Elev.: 217 (Ft.) DEPTH ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	EXPANSION INDEX	STRENGTH TEST			WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI	PERCENT FINES
							TEST TYPE	COMPRESSIVE STRENGTH (tsf)	STRAIN (%)				
	LEAN CLAY WITH SAND (CL) , olive-brown to brown stiff trace silt, olive-brown to gray-brown white mottling soft to medium stiff					64						37-22-15	85
					7-5-5								
		5			3-5-6					18.7	100		
					4-6-7								
		10			6-8-8								
		15			4-5-6								
		20			2-2-2 N=4								
		25											

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
Hollow Stem Auger

See [Exploration and Testing Procedures](#) for a description of field and laboratory procedures used and additional data (if any).

Notes:

Abandonment Method:
Boring backfilled with auger cuttings upon completion.

See [Supporting Information](#) for explanation of symbols and abbreviations.

WATER LEVEL OBSERVATIONS

Groundwater not encountered

Terracon
1421 Edinger Ave, Ste C
Tustin, CA

Boring Started: 09-17-2021

Boring Completed: 09-17-2021

Drill Rig: CME-75

Driller: 2R Drilling

Project No.: 60215170

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT: GEO SMART LOG-NO WELL_60215170 COMPASS BESS.GPJ TERRACON_DATATEMPLATE.GDT 10/19/21