

Appendix B
Boring Logs and Trench Logs

Geotechnical Boring Log LGC-1

Date : 1/25/2011	Page 1 of 4	Drilling Company : Al-Roy Drilling
Project Name : South Shores Church	Type of Rig : EZ Bore Bucket Auger	
Project Number : 10132-01	Drop : 12"	Hole Diameter : 28"
Elevation of Top of Hole : ~ 253 ' MSL	Drive Weight : Kelly Bar, varies with depth	
Hole Location : See Geotechnical Map		

Elevation (ft)	Depth (ft)	Graphic Log	Attitudes	Sample Number	Blow Count	Dry Density (pcf)	Moisture (%)	USCS Symbol	DESCRIPTION	Type of Test
250	0								Logged by KTM/TJL Sampled by KTM @0' to 3' <u>Artificial Fill (Af)</u> - Brown Clay & Sand & Pebbles, v. moist, v. stiff @3' to 35' <u>Quaternary Landslide (Qls)</u> - Cobble Breccia w/ lt. brown Clayey Sandstone matrix & few boulders, damp to moist, sl. dense to v. dense, variable. Zones of clast supported, clasts typically angular to subangular, bluishist, meta-origin. @3' Rock to 6" dia., rock clasts >60%, highly weathered @5' Sample R-1 - as above @7' Boulder to 18" dia., Material grades to mod. weathered, zones of friable, iron oxide staining @9 to 11' Bulk Bag Sample - as above @15' Sample R-2 - Gravelly Sandstone w/ Clay, lt brown to lt olive green, moist, v. dense, iron oxide, subangular schist gravel @22' Vague general bedding attitude on 2" thick coarse sandstone within lt. brown Cobble Sandstone, sl. moist, v. dense. @25' Boulder 12" dia., abundant iron oxide staining. Zones of clast supported below. @29' Decrease in rock. General bedding attitude on 2" thick coarse sand lens. @29' Sample R-3 lt. orange brown Clayey Sandstone.	
	5			R-1	6					
	10			B1						
	15			R-2	5					
230	20		@22' GB:N76E, 12S							
225	25		@29' GB:N85E, 17S	R-3	5					

Last Edited: 2/17/2011



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 Boring Log LGC-1

Date : 1/25/2011	Page 2 of 4	Drilling Company : Al-Roy Drilling
Project Name : South Shores Church	Type of Rig : EZ Bore Bucket Auger	
Project Number : 10132-01	Drop : 12"	Hole Diameter : 28"
Elevation of Top of Hole : ~ 253' MSL	Drive Weight : Kelly Bar, varies with depth	
Hole Location : See Geotechnical Map		

Elevation (ft)	Depth (ft)	Graphic Log	Attitudes	Sample Number	Blow Count	Dry Density (pcf)	Moisture (%)	USCS Symbol	DESCRIPTION	Type of Test	
30									Logged by KTM/TJL Sampled by KTM		
220									@31' Broken zones of cementation, up to 1' dia. angular, cemented material w/ clayey infill.		
35			@35' RS:N25W 42E						@35' Rupture Surface attitude, well-defined, oxidized, barely clay-lined, faint striations trend E-W. Surface enters at 34' 6", exits hole at 36' 9". Zone splits to 3" wide at exit. @35' to 68' <u>Tertiary San Onofre Breccia (Tso)?</u> (Possible Landslide) - Cobble Breccia & fine to coarse Sandstone w/ Clay, lt. orange brown, dense to v. dense, sl. moist. Cobbles are angular, blueshist common, quartz, meta-origin. @39' Cobble supported zone, 1 ft. thick @40' Generalized Bedding attitude on 2" thick Clayey Sand bed, varies in portion of borewall by up to 1'. Below is coarse Sandstone w/ Gravel, dense, moist.		
215											
40			@40' GB:N80E,13S								
210											
45											
205											
50			@50' J:N25E,85W		R-4	10				@46' Mod. cemented zone, well cemented lens, rock is 2" to 6" dia. in zone @49' Base of cemented zone, becomes Silty Sandstone w/ Gravels, sl. moist,v. dense @50' Joint attitude, iron oxide lined @50' Sample R-4 - Lt. olive green & gray mottled Silty Coarse Sandstone, moist, v. dense, some oxidation. @52' Becomes mod. cemented to 59'	
200											
55											
195									@59' Top of rock-supported zone, rock to 18" dia., subangular, remains sl. moist		



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Date : 1/25/2011	Page 3 of 4	Drilling Company : Al-Roy Drilling
Project Name : South Shores Church	Type of Rig : EZ Bore Bucket Auger	
Project Number : 10132-01	Drop : 12"	Hole Diameter : 28"
Elevation of Top of Hole : ~ 253' MSL		Drive Weight : Kelly Bar, varies with depth
Hole Location : See Geotechnical Map		

Elevation (ft)	Depth (ft)	Graphic Log	Attitudes	Sample Number	Blow Count	Dry Density(pcf)	Moisture (%)	USCS Symbol	DESCRIPTION	Type of Test
60									Logged by KTM/TJL Sampled by KTM	
190										
65			@66' C:N5E,13E	R-5	20/8"				@66' Contact attitude, sub-planar, below is lt. brown Clayey Sandstone, v. dense, wet (no free water visible), sand to 1/8" dia. @66' Sample R-5 - Lt. olive brown Clayey Siltstone, grades to Silty Sandstone, v. dense, v. moist to wet, @68' Base of sandstone, oxidation stained. @68' Clay Seam attitude, possible Rupture Surface. Olive green Clayey Siltstone bed is soft to stiff, v. moist to wet. V. thin (1/16") polished, striated, sl. undulatory clay seam near top of 4" thick bed. Bentonitic clay, small grab sample taken. @68' to TD - Tertiary San Onofre Breccia (Tso) - Cobble Breccia & Sandstone, lt. blue gray, v. dense, moist to wet. Variable, lenses of Siltstone w/ coarse sand. Grades to rock-supported zone, slight belling of borewalls.	
185										
70			@68' CS:N25E,16SE						@68' Clay Seam attitude, possible Rupture Surface. Olive green Clayey Siltstone bed is soft to stiff, v. moist to wet. V. thin (1/16") polished, striated, sl. undulatory clay seam near top of 4" thick bed. Bentonitic clay, small grab sample taken. @68' to TD - Tertiary San Onofre Breccia (Tso) - Cobble Breccia & Sandstone, lt. blue gray, v. dense, moist to wet. Variable, lenses of Siltstone w/ coarse sand. Grades to rock-supported zone, slight belling of borewalls.	
180										
75									@75' Decrease belling, becomes predominantly lt. blue gray Gravelly Sandstone, v. dense, v. moist, unoxidized/fresh, gradual increase cementation, increase moisture w/ depth.	
175										
80										
170										
85									@84' Lens of Siltstone, 2" thick, poorly defined. Increase cementation below. @86' Zone of highly cemented material, 10" thick. @87' Decrease cementation, becomes Siltstone.	
165										



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Geotechnical Boring Log LGC-1

Date : 1/25/2011	Page 4 of 4	Drilling Company : Al-Roy Drilling
Project Name : South Shores Church	Type of Rig : EZ Bore Bucket Auger	
Project Number : 10132-01	Drop : 12"	Hole Diameter : 28"
Elevation of Top of Hole : ~ 253 ' MSL	Drive Weight : Kelly Bar, varies with depth	
Hole Location : See Geotechnical Map		

Elevation (ft)	Depth (ft)	Graphic Log	Attitudes	Sample Number	Blow Count	Dry Density (pcf)	Moisture (%)	USCS Symbol	DESCRIPTION	Type of Test
90		▽							Logged by KTM/TJL Sampled by KTM @90' Groundwater level. Water seeping from walls. Grades to rock-supported zone below.	
160										
95									@97' Base of rock supported zone. Decrease rock size and amount, increase sandstone matrix. Wet, v. dense.	
155										
100									Downhole logged to 104'	
150										
105										
145									Total Depth = 107' Groundwater Encountered at 90' Backfilled with Cuttings and Tamped on 1/25/2011	
110										
140										
115										
135										



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Geotechnical Boring Log LGC-2

Date : 5/14/2012	Page 1 of 2	Drilling Company : Al Roy Drilling
Project Name : South Shores Church	Type of Rig : Bucket Auger	
Project Number : 10132-01	Drop : 30"	Hole Diameter : 26"
Elevation of Top of Hole : ~ 252' MSL	Drive Weight : Between 0' and 30' = 2400 pounds Between 31' and 60' = 1550 pounds	
Hole Location : See Geotechnical Map		

Elevation (ft)	Depth (ft)	Graphic Log	Attitudes	Sample Number	Blow Count	Dry Density(pcf)	Moisture (%)	USCS Symbol	DESCRIPTION	Type of Test
250	0			R-1	2	112.6	15.9	SC	Asphalt 4" over Base @0.5' to 19' - Artificial Fill; Older (Af)	
245	5			R-2 B-1	3	127.4	9.8		@2.5 R-1 Dark & light gray with some bluish gray mottled, CLAYEY fine to coarse SAND with some GRAVELS, very moist, stiff, gravels to 3" dia, angular, metamorphic origin, and rounded (5 rings only, disturbed sample) @5 R-2 Dark gray & brown mottled, CLAYEY SAND with GRAVELS, very moist, stiff, slightly odorous @4' to 7' - Bag Sample B-1, as above	CN
240	10			R-3	3	124.5	15.1	SC-SM	@7.5' R-3 Brown, gray, & greenish brown mottled, CLAY, SILT, & fine to coarse SAND with some GRAVELS, very moist, stiff, gravels subrounded. Slight seepage.	
235	15			R-4	2	110.5	13.8	SC	@10' R-4 As above, (5 rings, disturbed sample)	CN
230	20		B: N40W, 28SW	R-5 B-2	4	116.2	12.2	SC	@13' Fill changes to material at 15' @15' R-5 Light & dark reddish brown mottled, fine to coarse SAND with CLAY & GRAVELS, moist, very stiff. Gravels to 4" typically angular, highly oxidized. @15' to 18' - Bag Sample B-2 Contact with bedrock along undulatory tight contact, lacks topsoil, etc.	
225	25		GB: EW, 24 S	R-6	10/9"	N/A	10.5	[SM]	@19' to TD - Tertiary San Onofre Breccia (Tso) - Light yellowish & reddish brown, SANDSTONE w/ CLAY & GRAVELS & COBBLES and some SILTSTONE, moist, very dense, highly weathered upper portion @20 R-6 Light yellowish & reddish brown mottled, SILTY SANDSTONE with CLAY & GRAVELS, slightly moist, very dense. Gravels to 1" dia, metamorphic. @22' Bedding defined by 1" to 2" thick, non-continuous, subplanar cemented opaque white mineral. Fabric of sandstone similar orientation, highly oxidized, weakly cemented matrix.	
									@26' Generalized Bedding, defined by elongate clasts, increase rocks, bellng. @29' Cemented zone 1' dia., tight	

Last Edited: 5/22/2012




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Geotechnical Boring Log LGC-2

Date : 5/14/2012	Page 2 of 2	Drilling Company : Al Roy Drilling
Project Name : South Shores Church	Type of Rig : Bucket Auger	
Project Number : 10132-01	Drop : 30"	Hole Diameter : 26"
Elevation of Top of Hole : ~ 252 ' MSL	Drive Weight : Between 0' and 30' = 2400 pounds Between 31' and 60' = 1550 pounds	
Hole Location : See Geotechnical Map		

Elevation (ft)	Depth (ft)	Graphic Log	Attitudes	Sample Number	Blow Count	Dry Density(pcf)	Moisture (%)	USCS Symbol	DESCRIPTION	Type of Test
30	30		GB: N40W, 25SW	R-7	30	N/A	5.6	[SM]	Logged by KTM Sampled by KTM	
220	35			R-8	14/6"	N/A	7.9	[GM-GC]		
215	40								@30' R-7 Light yellowish brown, SANDY SILTSTONE/SILTY SANDSTONE with GRAVELS, slightly moist, very dense. Clasts oxidized, meta, angular. @31' Generalized Bedding, well defined by fabric of elongate/flat clasts. Gradual increase in rock content (gravels and cobbles) to about 50%. @35' Becomes clast-supported, up to 1' dia., both angular (elongate & flat) metamorphic & subrounded granitic. Clayey matrix becomes light gray with some white mineral, micaceous. Belling of borehole walls up to 1 foot. @40' R-8 (disturbed) Note drive weight decreased to 1550 pounds. Light brown, GRAVELS with CLAY and SAND, slightly moist, very dense.	
210	45								Total Depth = 40' No Ground Water Encountered Backfilled with Tamped Cuttings and Capped with AC to 4 inches on 5/14/2012	
205	50									
200	55									
195										



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LOG OF BORING

Drill Rig: Al-Roy Hollow Stem Mobile 57	Boring Diameter: 8 inches	Boring Elevation: 275 feet	Boring No. B-1
Date Drilled: 2/17/2006 WGN		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.	

BULK	TUBE	BLOWS/FT.	FIELD MOISTURE % DRY WEIGHT	DRY DENSITY LB./CU. FT.	SHEAR RESISTANCE KIPS/SQ. FT.	DEPTH FEET	SOIL/ROCK SYMBOL	SOIL/ROCK TYPE	Descriptions and Remarks
									@ 3 inches, A.C. / 6 inches A.B.
		43	8.6	119.8					Silty CLAY: stiff, gray-brown, moist, trace of sand and gravel FILL
		21	25.9	95.2		5		BEDROCK	BRECCIA: hard @ 4 feet, hard drilling
		65	11.2	103.0					@ 6 feet, softer with CLAY: stiff
		41	17.8	108.3		10			SAN ONOFRE BRECCIA
						15			Bottom of boring at 11 feet. Note: 1) Hard drilling. 2) No water. 3) No caving. 4) Hole backfilled, tamped and A.C. patched.
						20			5) All 3-inch O/D Ring Samples driven with energy: 140# hammer at 30-inch drop.
						25			



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EARTH SCIENCE CONSULTANTS
Irvine, California

South Shores Church
32712 Crown Valley Parkway
Dana Point, California

Project No.:
6375-04

Figure No.:
B-2

LOG OF BORING

Drill Rig: Al-Roy Hollow Stem Mobile 57	Boring Diameter: 8 inches	Boring Elevation: 270 feet	Boring No. B-2
Date Drilled: 2/17/2006 WGN			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.
SAMPLE			

BULK	TUBE	BLOWS/FT.	FIELD MOISTURE % DRY WEIGHT	DRY DENSITY LB/CU. FT.	SHEAR RESISTANCE KIPS/SQ. FT.	DEPTH FEET	SOIL/ROCK SYMBOL	SOIL/ROCK TYPE	Descriptions and Remarks
									@ 3 inches. A.C. / 4 inches A.B.
		NO SAMPLES							@ 19 inches, very hard rock drilling
									SAN ONOFRE BRECCIA
						5			Bottom of boring at 2 feet.
									Note:
									1) No water.
									2) No caving.
									3) Hole backfilled, tamped and A.C. patched.
						10			
						15			
						20			
						25			



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South Shores Church
 32712 Crown Valley Parkway
 Dana Point, California

Project No.:
 6375-04

Figure No.:
 B-3

LOG OF BORING

Drill Rig: Al-Roy Hollow Stem Mobile 57	Boring Diameter: 8 inches	Boring Elevation: 265 feet	Boring No. B-3
Date Drilled: 2/1706 WGN		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.	

BULK	TUBE	BLOWS/FT.	FIELD MOISTURE % DRY WEIGHT	DRY DENSITY LB/CU. FT.	SHEAR RESISTANCE KIPS/SQ. FT.	DEPTH FEET	SOIL/ROCK SYMBOL	SOIL/ROCK TYPE	Descriptions and Remarks
									@ 3 inches. A.C. / 5 inches A.B.
		60	8.8	121.4				BEDROCK	BRECCIA: very hard drilling
		89	7.2	109.1		5			SAN ONOFRE BRECCIA
						10			Bottom of boring at 6 feet.
						15			Note:
						20			1) No water.
						25			2) No caving.
									3) Hole backfilled, tamped and A.C. patched.



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South Shores Church
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 Dana Point, California

Project No.:
 6375-04

Figure No.:
 B-4

LOG OF BORING

Drill Rig: Al-Roy Hollow Stem Mobile 57	Boring Diameter: 8 inches	Boring Elevation: 265 feet	Boring No. B-4
Date Drilled: 2/17/2006 WGN		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.	

BULK	TUBE	BLOWS/FT.	FIELD MOISTURE % DRY WEIGHT	DRY DENSITY LB./CU. FT.	SHEAR RESISTANCE KIPS/SQ. FT.	DEPTH FEET	SOIL/ROCK SYMBOL	SOIL/ROCK TYPE	Descriptions and Remarks
									@ 3 inches. A.C. / 5 inches A.B.
		51	15.2	105.8				BEDROCK	BRECCIA: very hard drilling
		37	11.4	104.4		5		BEDROCK	
		47	13.0	115.2					
						10			SAN ONOFRE BRECCIA
						15			Bottom of boring at 9 feet.
						20			Note:
						25			1) No water.
									2) No caving.
									3) Hole backfilled, tamped and A.C. patched.



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Dana Point, California

Project No.:
6375-04

Figure No.:
B-5

LOG OF BORING

Drill Rig: Al-Roy Hollow Stem Mobile 57	Boring Diameter: 8 inches	Boring Elevation: 263 feet	Boring No. B-5
Date Drilled: 2/17/2006 WGN		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.	

BULK	TUBE	BLOWS/FT.	FIELD MOISTURE % DRY WEIGHT	DRY DENSITY LB/CU. FT	SHEAR RESISTANCE KIPS/SQ. FT	DEPTH FEET	SOIL/ROCK SYMBOL	SOIL/ROCK TYPE	Descriptions and Remarks
		NO SAMPLES							@ 3 inches A.C. / 4 inches A.B.
						5			BRECCIA: hard / SAN ONOFRE BRECCIA
						10			Bottom of boring at 2 feet.
						15			Note:
						20			1) No water.
						25			2) No caving.
									3) Very hard drilling to 2 feet and sample not possible.
									4) Hole backfilled, tamped and A.C. patched.



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32712 Crown Valley Parkway
Dana Point, California

Project No.: 6375-04	Figure No.: B-6
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LOG OF BORING

Drill Rig: Al-Roy Hollow Stem Mobile 57	Boring Diameter: 8 inches	Boring Elevation: 262 feet	Boring No. B-6
Date Drilled: 2/17/2006 WGN		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.	

BULK	TUBE	BLOWS/FT.	FIELD MOISTURE % DRY WEIGHT	DRY DENSITY LB./CU. FT.	SHEAR RESISTANCE KIPS/SQ. FT.	DEPTH FEET	SOIL/ROCK SYMBOL	SOIL/ROCK TYPE	Descriptions and Remarks
									@ 3 inches A.C. / 5 inches A.B.
		17	9.5	107.9					Silty CLAY with Gravel and Sand: compacted, dark brown-gray, stiff
		17	17.0	108.2		5			FILL
		20	9.7	111.1					Silty CLAY: very stiff, angular rock fragments
		35	15.8	115.2		10		BEDROCK	BEDROCK
		52	9.1	129.8		15			SAN ONOFRE BRECCIA
						20			Bottom of boring at 16 feet.
						25			Note: 1) No water. 2) No caving. 3) Hole backfilled, tamped and AC patched. 4) Blows/ft. on 3" O/D ring sampler 5) Energy used: 140# hammer @ 30" drop



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South Shores Church
 32712 Crown Valley Parkway
 Dana Point, California

Project No.:
 6375-04

Figure No.:
 B-7

LOG OF BORING

Drill Rig: Al-Roy Hollow Stem Mobile 57	Boring Diameter: 8 inches	Boring Elevation: 256 feet	Boring No. B-7
Date Drilled: 2/17/2006 WGN		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.	

BULK	TUBE	BLOWS/FT.	FIELD MOISTURE % DRY WEIGHT	DRY DENSITY LB./CU. FT.	SHEAR RESISTANCE KIPS/SQ. FT.	DEPTH FEET	SOIL/ROCK SYMBOL	SOIL/ROCK TYPE	Descriptions and Remarks
									@ 3 inches. A.C. / 7 inches A.B.
		75	2.5	135.2		5		BEDROCK	BRECCIA: Hard drilling
		50	7.1	113.3					SAN ONOFRE BRECCIA
						10			Bottom of boring at 6 feet.
						15			1) Hole backfilled, tamped and A.C. patched.
						20			
						25			



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Project No.:
 6375-04

Figure No.:
 B-8

LOG OF BORING

Drill Rig: Al-Roy Hollow Stem Mobile 57	Boring Diameter: 8 inches	Boring Elevation: 254 feet	Boring No. B-8
Date Drilled: 2/17/2006 WGN		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.	

BULK	TUBE	BLOWS/FT.	FIELD MOISTURE % DRY WEIGHT	DRY DENSITY LB/CU. FT.	SHEAR RESISTANCE KIPS/SQ. FT.	DEPTH FEET	SOIL/ROCK SYMBOL	SOIL/ROCK TYPE	Descriptions and Remarks
									@ 3 inches. A.C. / 7 inches A.B.
		10	13.7	107.8		5			Silty CLAY with angular Gravel: compacted, gray-brown, soft, wet to medium stiff, very moist
		17	15.8	111.1					
		15	12.8	111.6					
		34	10.6	102.6		10			Stiff dark gray Silty CLAY with Gravel and Asphalt
									FILL
		65	6.2	123.6		15	BEDROCK		Silty SANDSTONE with cobbles: hard
									SAN ONOFRE BRECCIA
						20			Bottom of boring at 16 feet.
									1) No water.
									2) No caving.
									3) Hole backfilled, tamped and A.C. patched.
						25			



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Figure No.:
 B-9

LOG OF BORING

Drill Rig: Al-Roy Hollow Stem Mobile 57	Boring Diameter: 8 inches	Boring Elevation: 254 feet	Boring No. B-9
Date Drilled: 2/17/2006 WGN		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.	

BULK	TUBE	BLOWS/FT.	FIELD MOISTURE % DRY WEIGHT	DRY DENSITY LB/CU. FT.	SHEAR RESISTANCE KIPS/SQ. FT.	DEPTH FEET	SOIL/ROCK SYMBOL	SOIL/ROCK TYPE	Descriptions and Remarks
									@ 3 inches. A.C. / 6 inches A.B.
		9	13.6	106.3		5			Gray-brown Silty CLAY with Gravel: very wet, soft to medium stiff FILL
		43	14.0	114.7					Sandy and Gravelly SILTSTONE: olive-green; hard drilling to 10 feet. SAN ONOFRE BRECCIA
		52	14.8	113.7			BEDROCK		
		78	5.1	126.6		10			
						15			Bottom of boring at 11 feet. Note: 1) No water. 2) No caving. 3) All borings backfilled, tamped, and A.C. capped.
						20			
						25			



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Figure No.:
B-10

LOG OF BORING

Drill Rig: Al-Roy 0-24 2150	Boring Diameter: 24 inches	Boring Elevation:	Boring No. BA-1
Date Drilled: 2/17/2006 TH		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.	

BULK	TUBE	BLOWS/FT.	FIELD MOISTURE % DRY WEIGHT	DRY DENSITY LB./CU. FT.	SHEAR RESISTANCE KIPS/SQ. FT.	DEPTH FEET	SOIL/ROCK SYMBOL	SOIL/ROCK TYPE	Descriptions and Remarks
		2	15.9	112.8		0-5	CL	CL	Silty CLAY with Gravel and Cobbles: mottled brown and gray, very moist, stiff
		3	13.7	116.5		5-10	CL	CL	@ 5 feet, more sand
		2	11.2	117.5		10-15	SC	SC	Clayey SAND with Gravel and Cobbles: yellow-brown, moist, loose
		4	12.6	120.0		15-20	SC	SC	Sandy CLAY: mottled gray and yellow-brown, moist, very stiff with gravel, cobbles, copper pipe fragments, AC chunks, wire
		10	9.4	128.3		20-21	BR	BR	BEDROCK Silty SANDSTONE with some fine Gravel: moist, very dense, clean horizontal contact with fill above
		15	7.6	133.7		21-25	BR	BR	@ 15 to 17 feet, SANDSTONE then hard, cobble BRECCIA, massive
						25	BR	BR	SAN ONOFRE BRECCIA
						21	BR	BR	Bottom of boring at 21 feet. Note: 1) No water or caving. 2) Backfilled with cuttings and tamped.



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Figure No.:
B-11

LOG OF BORING

Drill Rig: Al-Roy 0-24 2150#	Boring Diameter: 18 inches	Boring Elevation:	Boring No.
Date Drilled: 2/17/2006 TH		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.	
SAMPLE			

BULK	TUBE	BLOWS/FT.	FIELD MOISTURE % DRY WEIGHT	DRY DENSITY LB/CU. FT.	SHEAR RESISTANCE KIPS/SQ. FT.	DEPTH FEET	SOIL/ROCK SYMBOL	SOIL/ROCK TYPE	Descriptions and Remarks
		2	14.3	116.1		5	CL	CL	Silty CLAY with Gravel and Cobbles: mottled gray and brown, very moist, stiff @ 5 to 10 feet, few A.C. fragments
		3	11.8	119.7		10			
		3	16.5	109.7		15			
		2	15.2	108.9		20			
		11	11.8	119.0		25	BEDROCK	BEDROCK	Clayey SANDSTONE with Gravel and Cobbles: weathered and Clayey in SPC, yellow-brown, very tight @ 26 feet, refusal on hard BRECCIA
		10	9.1	117.3					Bottom of boring at 26 feet. Note: 1) No water or caving. 2) Boring backfilled and tamped.



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Figure No.:
 B-12

LOG OF BORING

Drill Rig: Al-Roy 0-24 2150#	Boring Diameter: 24 inches	Boring Elevation:	Boring No. BA-3
Date Drilled: 2/17/2006 TH		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.	
SAMPLE			

BULK	TUBE	BLOWS/FT.	FIELD MOISTURE % DRY WEIGHT	DRY DENSITY LB./CU. FT.	SHEAR RESISTANCE KIPS/SQ. FT.	DEPTH FEET	SOIL/ROCK SYMBOL	SOIL/ROCK TYPE	Descriptions and Remarks
		1	18.4	104.7		5	CL	CL	Silty CLAY with Gravel and Cobbles: mottled gray and brown, very moist and firm
		2	24.1	97.5		10	BEDROCK	BEDROCK	Silty SAND with Clay, Gravel & Cobbles: weathered, then hard bedrock, moist, hard
		10	15.8	117.4		15			@ 6 feet, Bedding: 42E,33SE
						20			@ 13 to 15 feet, Gravelly zone, crude Bedding: N10E,15-20SE
						25			@ 16 feet, Clay Shear: N40E,56NW
									continues yellow-brown Silty SANDSTONE with Gravel and Cobbles in beds and lenses
									@ 22.5 refusal
									SAN ONOFRE BRECCIA
									Bottom of boring at 22.5 feet.
									Note:
									1) Refusal on hard BRECCIA at 22.5 feet.
									2) No ground water encountered.
									3) No caving.
									4) Boring backfilled and tamped.



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Figure No.:
B-13

LOG OF BORING

Drill Rig: Bucket Auger EZ Bore	Boring Diameter: 28 inches	Boring Elevation: 253 feet	Boring No. BA-4
Date Drilled: 2/20/2006 GDH		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.	

SAMPLE		BLOWS/FT.	FIELD MOISTURE % DRY WEIGHT	DRY DENSITY LB./CU. FT.	SHEAR RESISTANCE KIPS/SQ. FT.	DEPTH FEET	SOIL/ROCK SYMBOL	SOIL/ROCK TYPE	Descriptions and Remarks
BULK	TUBE								
							ML	Sandy SILT: moist, rock fragments, stiff @ 2 to 3 feet, Sandy CLAY: stiff @ 4 feet, very irregular contact, roughly horizontal FILL	
	4		10.2	126.7		5	BEDROCK	BRECCIA: Gravel and cobble-size clasts of subangular to subrounded dark gray (GLE Y-1-N4) to dark greenish-gray (GLE Y-2-10G4/1) schist with some quartzite and white quartz fragments, some pockets and crude layers and lenses of cobbles and boulders in matrix of greenish-brown Sandy SILT and Silty SAND @ 6 to 8 feet, slightly clayey @ 8.5 feet, 16-inch boulder	
						10		@ 11 to 12 feet, crude layer of gravel and small cobbles, dips roughly 25° south @ 14 feet, 18-inch boulder @ 15 feet, 18-inch boulder	
	3		10.7	116.3		15		@ 18 feet, 12-inch boulder @ 19 to 21 feet, cobble layer	
						20		@ 21 to 23 feet, fewer clasts @ 23 to 28 feet, numerous cobbles and few boulders @ 23 feet, crude contact: approx.: N60W, 15-18SW	
						25		@ 25 feet, hard cobble layer @ 25 to 30 feet, occasional coring required	
								@ 29 to 30 feet, crude layer of cobbles and small boulders, corinb	



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Figure No.:
B-14.1

LOG OF BORING

Drill Rig: Bucket Auger - EZ Bore	Boring Diameter: 28 inches	Boring Elevation: 253 feet	Boring No. BA-4
Date Drilled: 2/20/2006 GDH			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.
SAMPLE			

BULK	TUBE	BLOWS/FT.	FIELD MOISTURE % DRY WEIGHT	DRY DENSITY LB./CU. FT.	SHEAR RESISTANCE KIPS/SQ. FT.	DEPTH FEET	SOIL/ROCK SYMBOL	SOIL/ROCK TYPE	Descriptions and Remarks
		6	7.8	132.4					@ 31 feet, 8-inch layer of finely micaceous, Sandy SILTSTONE: greenish-brown and medium greenish-gray (GLEY-1-10Y5/1)
						35			@ 31.7 to 32.4 feet, mostly gravel-size clasts in fine to coarse Silty SAND matrix
									@ 32.5 feet, Shear: N10W,25NE: with 1/2 to 1-inch Clayey SILT above, smooth surface, dull to moderately polished, possible striations plunge S85E
									@ 33 to 40 feet, mostly medium greenish-gray, fine- to coarse-grained Silty SANDSTONE with fine to medium gravel-size clasts
	*	11	4.8	124.7		40			@ 40 feet, more gravel and coarser clasts
									@ 41 feet, clasts are mostly fine to medium gravel-size
									@ 41.5 feet, 8-inch irregular bed of fine to coarse Clayey SANDSTONE: N30E,28SE
						45			@ 44 feet, fine to coarse gravel-size clasts
									@ 45 to 46 feet, cement lens on SE side, small cobble on NW
									@ 48 feet, more silty matrix
		14	8.2	135.5		50			@ 50 feet, greenish-brown to greenish-gray, very Silty Clayey SAND matrix
									@ 52 feet, gravel- and cobble-size clasts become more numerous
						55			@ 54 feet, seepage from crude cobble lens, fine to coarse Silty SAND matrix, less silty
									@ 55 to 60 feet, mostly fine to coarse Silty SANDSTONE with few gravel and cobble clasts and very moist, light greenish-gray (GLEY-1 10Y6/1) (unoxidized)

BEDROCK



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Figure No.:
B-14.2

LOG OF BORING

Drill Rig: Bucket Auger - EZ Bore	Boring Diameter: 28 inches	Boring Elevation: 253 feet	Boring No. BA-4
Date Drilled: 2/20/2006 GDH		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.	

BULK	TUBE	BLOWS/FT.	FIELD MOISTURE % DRY WEIGHT	DRY DENSITY LB./CU. FT.	SHEAR RESISTANCE KIPS/SQ. FT.	DEPTH FEET	SOIL/ROCK SYMBOL	SOIL/ROCK TYPE	Descriptions and Remarks
		25	5.1	141.1		65	G.S.	BEDROCK	@ 60 feet, greenish-gray (GLEY-1-5B5/1) to bluish-gray (GLEY-2-5B5/1), unoxidized, with more numerous gravel- to cobble-size clasts and very slight seepage on the east side @ 62 feet, more numerous clasts and greenish-gray (5Y-5/2) @ 63 to 70.5 feet, numerous gravel and cobble-size clasts with some boulders @ 66 feet, coring @ 66 to 69 feet, slight seepage from crude gravel and cobble lenses @ 70.5 feet, 12-inch greenish-gray Sandy SILTSTONE @ 71.5 feet, 12-inch cemented lens @ 72 to 73.5 feet, irregular bed of greenish-gray (GLEY-1-10GY5/1) very moist, very stiff Sandy SILT @ 73.5 feet, shear at base of SILTSTONE: N75W, 11-13NE and N10E, 15-17 SE with 1/2-inch to 1-inch greenish-brown, Clayey SILT group with some small rock fragments and few 1/4-inch gypsum crystals @ 73.5 to 78 feet, Fracture with red-brown oxide staining: N10E, 63-65SE; does not cut the shear above @ 73.5 to 85 feet, numerous gravels and cobble-size clasts and few boulders in dense matrix of Silty SAND @ 75 feet, seepage from fracture <div style="text-align: right;">SAN ONOFRE BRECCIA</div>
						85			Bottom of boring at 85 feet. Note: 1) Seepages at 60', 66-69' and 75'. 2) No caving. 3) Boring down-hole logged and backfilled and tamped.



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Figure No.:
 B-14.3

LOG OF BORING

Drill Rig: EZ Bore Bucket Auger	Boring Diameter: 30 inches	Boring Elevation: 264.2 feet	Boring No. BN-1
Date Drilled: 7/26/2006 GDH		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.	

BULK	TUBE	BLOWS/FT.	FIELD MOISTURE % DRY WEIGHT	DRY DENSITY LB./CU. FT.	SHEAR RESISTANCE KIPS/SQ. FT.	DEPTH FEET	SOIL/ROCK SYMBOL	SOIL/ROCK TYPE	Descriptions and Remarks
		push				5	ML		Sandy SILT with Clay, dark greenish-brown, very moist to saturated, soft FILL
		push					CL		Silty CLAY with Sand, reddish-brown (5YR-4/3), very moist, soft @ 7 feet, irregular contact: N2 SE, 15-20 SE RESIDUAL SOIL
		2				10	B		BRECCIA: gravel- to cobble-size, sub-angular to sub-rounded, dark gray (GLEY-1-N4) to dark greenish-gray (GLEY-2-10G 4/1) and some light colored quartzite clasts in greenish-brown (2.5Y-5/3) Sandy SILT and Silty SAND Matrix; some crude cobbly/bouldery layers @ 7 to 9 feet, mostly fine- to coarse Silty SANDSTONE with Gravel-size clasts @ 9.5 feet, gravel to cobble-size clasts more numerous @ 13 feet, crude contact with pebbly Silty SANDSTONE: N65E, 20-22SE @ 15 feet, crude boulder/cobble layer with boulders to 16 inches @ 17 feet, 18-inch boulder @ 18.5 to 20.5 feet, cemented, pebbly, light yellowish-brown, Sandy SILTSTONE: N25W, 20NE @ 20.5 feet, becomes gravelly/cobbly again @ 25 feet, crude contact with pebbly, orange-brown, slightly cemented Silty SANDSTONE with some scattered cobble-size clasts: N75 E, 25 SE @ 28.5 to 30 feet, 4 to 6 inch shear zone with some ribbons and pockets of dark greenish-gray CLAY in mostly Clayey SILT with Sand: N-S, 35W @ 30 feet, base of shear zone dull surface: N10E, 45 NW
		4/10"				15			
		5/6"				20			
		4				25			



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Figure No.: B-2.1

LOG OF BORING

Drill Rig: EZ Bore Bucket Auger	Boring Diameter: 30 inches	Boring Elevation: 264.2 feet	Boring No. BN-1
Date Drilled: 7/26/2006 GDH		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.	
SAMPLE			

BULK	TUBE	BLOWS/FT.	FIELD MOISTURE % DRY WEIGHT	DRY DENSITY LB./CU. FT.	SHEAR RESISTANCE KIPS/SQ. FT.	DEPTH FEET	SOIL/ROCK SYMBOL	SOIL/ROCK TYPE	Descriptions and Remarks
		6				35	*		@ 30 feet, gravel, cobble and boulder-size clasts @ 31.5 to 33 feet, matrix is very light brown and cemented and smaller clasts @ 33 feet, becomes medium to dark greenish-brown @ 35 feet, no sample, too hard (boulders) @ 38 to 40 feet: coring @ 38 feet, 18-inch boulder @ 39 to 41 feet, cemented. Lens light greenish-brown (5y-5/4)
		5				40	*	BEDROCK	@ 41 feet, 2 to 4 inches shear zone with mostly greenish-gray Silty CLAY with Sand and some pebbles and small rock fragments: moderately irregular: N15 W, 35 NE, moderately polished on portions of the base with striations plunge N82E @ 42 to 44 feet, crude, moderately cemented, light yellowish-brown Sandy SILTSTONE dips N-S, 25-30 degrees E @ 44.5 feet, moderately irregular shear: N-S, 30-35E, some pockets of medium greenish-gray Silty CLAY @ 45 feet, becomes darker greenish-brown (5y-4/3) @ 48 feet, 20-inch x 10-inch rock fragment
		6				50	*		@ 55 feet, cobbles and boulder-size clasts becoming more numerous, matrix becomes very moist @ 57 feet, very slight seepage @ 58 to 59 feet, crude cemented lens @ 59 feet, slight increase in seepage ** No recovery



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Figure No.:
B-2.2

LOG OF BORING

Drill Rig: EZ Bard Bucket Auger	Boring Diameter: 30 inches	Boring Elevation: 264.2 feet	Boring No. BN-1
Date Drilled: 7/27/2006 GDH		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.	

SAMPLE		BLOWS/FT.	FIELD MOISTURE % DRY WEIGHT	DRY DENSITY LB./CU. FT.	SHEAR RESISTANCE KIPS/SQ. FT.	DEPTH FEET	SOIL/ROCK SYMBOL	SOIL/ROCK TYPE	Descriptions and Remarks
BULK	TUBE								
						65	BEDROCK	@ 60 feet, more numerous boulder size clasts @ 60.5 feet, matrix slightly cemented @ 60 to 65 feet, coring required @ 65 feet, coring rate too slow and drilling terminated	
						70		SAN ONOFRE BRECCIA Bottom of boring at 65 feet. Note: 1) seepage at 57 to 59 feet 2) Water level at 63 feet overnight 3) boring down-hole logged to 61 feet 4) Boring backfilled and tamped and sod replaced	
						75			
						80			
						85			



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Figure No.: B.2.3

LOG OF BORING

Drill Rig: EZ Bore Bucket Auger	Boring Diameter: 30 inches	Boring Elevation: 232 ± feet	Boring No. BN-2
Date Drilled: 7/26/2006 GDH		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.	

BULK	TUBE	BLOWS/FT.	FIELD MOISTURE % DRY WEIGHT	DRY DENSITY LB./CU. FT.	SHEAR RESISTANCE KIPS/SQ. FT.	DEPTH FEET	SOIL/ROCK SYMBOL	SOIL/ROCK TYPE	Descriptions and Remarks
						5	SM	SM	Silty SAND: fine- to Coarse-grained PAD FILL
						10	SM	SM	Silty SAND with Clay: dark yellowish-brown, gravel-size rock fragments
		2	6.3	130.0		15	L	L	L
		5	8.8	128.9		20	L	L	L
						25	L	L	L
									<p style="text-align: center;">COLLUVIUM</p> <p>BRECCIA: Sub-angular to rounded, mostly gravel-size clasts with isolated cobbles and small boulders in a greenish-brown, Silty Sand matrix,</p> <p>@ 6 feet: crude lense of cobbles</p> <p>@ 8 to 9 feet: cobbles and small boulders</p> <p>@ 10 feet: mostly gravel-size clasts in Silty SAND Matrix</p> <p>@ 14 feet: began coring and cored to 15 feet but unable to extract the core</p> <p>@ 15 feet: refusal in cemented matrix with cobbles and boulders</p> <p>Bottom of boring at 15 feet.</p> <p>Notes:</p> <ol style="list-style-type: none"> 1) No ground water encountered. 2) No caving. 3) Refusal at 15 feet. 4) Boring backfilled and tamped.



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Figure No.: B-3

LOG OF BORING

Drill Rig: EZ Bore Bucket Auger Boring Diameter: 30 inches Boring Elevation: 232 ± feet Boring No.:

Date Drilled: 7/26/2006 GDH 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.

SAMPLE: BN-3

BULK	TUBE	BLOWS/FT.	FIELD MOISTURE % DRY WEIGHT	DRY DENSITY LB./CU. FT.	SHEAR RESISTANCE KIPS/SQ. FT.	DEPTH FEET	SOIL/ROCK SYMBOL	SOIL/ROCK TYPE	Descriptions and Remarks
						0	SM		Silty SAND: fine- to coarse, gravelly PAD FILL
						1	SM		Silty SAND with Clay: dark yellowish-brown, gravel-size clasts
						5		LANDSLIDE	COLLUVIUM
						10			Displaced BRECCIA: mostly sub-angular to rounded, gravel-size clasts in a tight, greenish-brown Silty sand to Sandy Silt matrix with some isolated cobbles and boulders and crude cobble and boulder lenses and pockets
						15			@ 6 feet: cobbles lens @ 8 to 9 feet: cobbles and small boulders @ 9 feet: mostly gravel-size in tight Silty Sand to Sandy Silt
						20			@ 15 feet: more numerous clasts gravel to cobble size @ 17 feet: 12-inch boulders @ 19.5 feet: becomes Silty Sandstone with gravel-size clasts @ 20.5 feet: irregular 6-inch bed of pebbly Silty Sandstone: N40E, 20SE @ 21.5 feet: irregular 6-inch bed of pebbly Silty Sandstone: N40E, 20SE
		5	4.9	138.6		20			@ 22 to 23 feet: 1/4-inch thick, dark greenish-brown, Silty Clay Seam dips 25 - 35° east, with polished shear surface at base: N10E, 35SE; well-developed striations plunge 58SE, gravelly Silty Sandstone below with reddish-brown oxidation
						25		LANDSLIDE?	Displaced (?) BRECCIA: dense, greenish-gray @ 24 to 26 feet: small boulder-and cobble-size clasts @ 26.5 to 27.5 feet: greenish-gray and very Silty @ 28 to 30 feet: cemented matrix with cobbles and small boulders: cured for 2 hours and could not extract the core - Refusal at 30 feet.
									Bottom of boring is at 30 feet. Notes: 1) No ground water encountered 2) No caving 3) Boring backfilled and tamped



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Project No.: 6375-04.1 Figure No.: B-4

LOG OF BORING

Drill Rig: Bucket Auger	Boring Diameter: 24 inches	Boring Elevation: 160± feet	Boring No. BN-4
Date Drilled: 2/9/2007 GDH		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.	

SAMPLE		BLOWS/FT.	FIELD MOISTURE % DRY WEIGHT	DRY DENSITY LB./CU. FT.	SHEAR RESISTANCE KIPS/SQ. FT.	DEPTH FEET	SOIL/ROCK SYMBOL	SOIL/ROCK TYPE	Descriptions and Remarks
12" DRG 24SD	BULK TUBE								
←						0	SM	Silty SAND: brown, loose	PAD FILL
		10	7.7	131.5		5	LANDSLIDE	Displaced, BRECCIA: greenish-brown, very weathered Silty Sand matrix with mostly gravel-size sub-angular to well-rounded gravel size clasts, some isolated cobbles	
						10		@ 7.5 to 8.5 feet: Shear Zone with 2-inch Clayey SILT with grit and some soft, white chalk-like inclusions, roots along the base: N15E, 26 SE @ 8.5 feet: matrix is tighter and less weathered	
		15	7.5	136.4		15	BEDROCK	@ 11 to 12 feet: irregular bed of pebbly SANDSTONE N30E, 20-25 SE; 6-inch cobble below @ 14 feet: Rupture Surface with 1-inch greenish-brown, moderately plastic Silty Clay gouge: N17 E, 22-23 SE, well-developed striations S86E, some decayed roots along the base	LANDSLIDE
						20		Displaced BRECCIA: greenish-gray with mostly gravel-size clasts @ 15 feet: tighter and slightly darker @ 16 to 17 feet: crude pebbly Sandstone bed, dips about 20° E, more gravelly clasts below with few small cobbles @ 20 feet: 6-inch irregular dark bluish-gray Sandy SILTSTONE bed, dips about 20° E @ 21 feet: 12-inch cemented lens, required coring	
						25		@ 22 feet: becomes bluish-gray matrix of Sandy SILT with mostly gravel-size, sub-angular to rounded clasts and few cobbles and small boulders @ 25 feet: fracture: N35 SE, 85 NW @ 26 feet: more numerous clasts @ 27.5 feet: becoming Silty SAND matrix	
		23	7.6	136.8					



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Project No.: 6375-04.1	Figure No.: B-5.1
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LOG OF BORING

Drill Rig: Bucket Auger	Boring Diameter: 24 inches	Boring Elevation: 160± feet	Boring No. BN-4
Date Drilled: 2/9/2007 GDH		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.	
SAMPLE			

12" DROP	BULK	TUBE	BLOWS/FT.	FIELD MOISTURE % DRY WEIGHT	DRY DENSITY LB./CU. FT.	SHEAR RESISTANCE KIPS/SQ. FT.	DEPTH FEET	SOIL/ROCK SYMBOL	SOIL/ROCK TYPE	Descriptions and Remarks
			25	10.1	127.2		35	LS		@ 30 feet: wet along vertical fracture (N5W) @ 31 feet: 12-inch irregular, cemented lens on west side @ 36.5 feet: irregular shear with 1-inch Silty Clay with grit (N53E, 16-17 SE) no striations found, 12-inch cemented lens beneath the shear on west side. @ 32.5 feet: very slight seepage on south side, and greenish-gray @ 35 feet: small boulder @ 42 feet: cemented, cored for 90 minutes @ 43 feet: refusal
							40	BEDROCK		@ 42 feet: cemented, cored for 90 minutes @ 43 feet: refusal
							45			SAN ONOFRE BRECCIA Bottom of boring at 43 feet.
							50			Notes: 1) Very slight seepage at 30 and 31.5 feet. 2) Boring down-hole logged. 3) Boring backfilled and tamped
							55			



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 Dana Point, California

Project No.: 6375-04.1	Figure No.: B-5.2
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LOG OF BORING

Drill Rig: Boyle 37 Truck-mounted Core rig	Boring Diameter: 4 inches	Boring Elevation: 233± feet	Boring No. BN-5
Date Drilled: 2/13/07-2/14/07 GDH	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.		

SAMPLE										SOIL/ROCK TYPE	Descriptions and Remarks
12" DROP	BULK	TUBE	BLOWS/FT.	FIELD MOISTURE % DRY WEIGHT	DRY DENSITY LB./CU. FT.	SHEAR RESISTANCE KIPS/SQ. FT.	DEPTH FEET	SOIL/ROCK SYMBOL	SOIL/ROCK TYPE		
								SM	SM	<p>Silty SAND with Gravel PAD_FILL</p> <hr/> <p>Silty SAND with Clay and gravel-size clasts COLLUVIUM</p>	
							5	LANDSLIDE		<p>Displaced BRECCIA: mostly gravel-size, subangular to rounded clasts in a greenish-brown, Silty Sand matrix, with pockets and crude lenses of cobbles and boulders and irregular beds of Silty Sand and Sandy Silt; soft and very weathered to 10 feet.</p> <p>@ 7 feet: soft, sheared, 60° - 70° NW</p> <p>@ 8 feet: cobbles and small boulders</p> <p>@ 10 to 11 feet: fine, sub-angular gravel-size clasts in Silty Sand matrix</p> <p>@ 15 feet: oxidized fracture dips 45° NW</p> <p>@ 15 feet: 12 inches hard, bluish-gray boulder</p> <p>@ 16 to 19 feet: soft, very weathered, greenish-brown (5Y-5/3) Sandy SILTSTONE with sub-angular gravel-size clasts</p> <p>@ 20 feet: polished shear dips 30° east</p> <p>@ 20.5 feet: becomes soft and sheared</p> <p>@ 20.8 feet: shear with 1/8-inch Clay gouge: N40E, 7SE</p>	
							25	LANDSLIDE ?		<p>@ 21 feet, Displaced? BRECCIA Light greenish-gray (5Y-6/2) fine- to medium-grained Silty Sandstone with fine, angular rock fragments.</p> <p>@ 24 to 25 feet: hard boulder</p> <p>@ 25 to 27.5 feet: no recovery (probably Silty Sand matrix washed out)</p> <p>@ 27 to 29 feet: hard boulders</p> <p>@ 29 to 31.2 feet: soft, very weathered, yellowish-brown, oxide stained.</p>	



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Project No.: 6375-04.1

Figure No.: B-6.1

LOG OF BORING

Drill Rig: Boyle 37 Truck-Mounted Core rig	Boring Diameter: 4 inches	Boring Elevation: 233± feet	Boring No. BN-5
Date Drilled: 2/13/2007 GDH		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.	
SAMPLE			

12" DROP	BULK	TUBE	BLOWS/FT.	FIELD MOISTURE % DRY WEIGHT	DRY DENSITY LB./CU. FT.	SHEAR RESISTANCE KIPS/SQ. FT.	DEPTH FEET	SOIL/ROCK SYMBOL	SOIL/ROCK TYPE	Descriptions and Remarks
							35	[Handwritten Symbols]	LANDSLIDE ?	@ 31.2 feet: light greenishbrown, moderately cemented Silty SANDSTONE @ 31.5 feet: dull Shear with 1/4-inch Sandy SILT with Clay: N 18 E, 29 NW @ 31.7 feet: 4-inch cemented bed @ 32 to 33.5 feet: slightly cemented, with gravel in greenish-brown Silty SANDSTONE @ 33.5 to 35 feet: no recovery @ 35 to 36.8 feet: light green-gray, Silty Sandstone with gravel-size, sub-angular clasts @ 36.8 feet: small, hard cobble @ 37 to 38 feet: greenish-brown and more numerous gravel-size clasts @ 38 to 39 feet: cobbles @ 39 to 42.7 feet: moderately cemented, Silty SAND with gravel-size clasts, cobble at 42.7 feet some dark yellowish-brown oxidation and irregular fractures @ 43 to 47 feet: moderately cemented with more numerous gravel- to small cobble-size clasts @ 43.5 feet: irregular shear with thin Clayey SILT gouge and oxide stained, dips 35° approximately east LANDSLIDE?
							45	[Handwritten Symbols]	BED ROCK	BRECCIA @ 44.2 feet: 6-inch well cemented bed @ 45 feet: more cobbly: weathered and soft to 47 feet @ 47 feet: thin 1/4-inch, low-angle, Clayey Silt bed @ 47 to 49 feet: small boulders and cobbles and random fractures @ 49 to 51 feet: closely fractured, moderate to high angle @ 51 to 53 feet: no recovery @ 53 to 54.8 feet: closely fractured @ 54.8 feet: 3-inch white quartz cobble @ 55 to 57 feet: no recovery @ 57 to 59 feet: closely fractured, weathered, gravel to cobble-sized clasts @ 58.5 feet: 4 to 5 inches greenish-brown (5Y-5/3) soft, weathered Clayey SILTSTONE @ 59 to 61.5 feet: no recovery
							55	[Handwritten Symbols]		



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Project No.: 6375-04.1	Figure No.: B-6.2
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LOG OF BORING

Drill Rig: Boyle 37 Truck-Mounted Core Rig	Boring Diameter: 4 inches	Boring Elevation: 233± feet	Boring No. BN-5
Date Drilled: 2/14/2007 GDH			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.

SAMPLE			BLOWS/FT.	FIELD MOISTURE % DRY WEIGHT	DRY DENSITY LB./CU. FT.	SHEAR RESISTANCE KIPS/SQ. FT.	DEPTH FEET	SOIL/ROCK SYMBOL	SOIL/ROCK TYPE	Descriptions and Remarks
12" DROP	BULK	TUBE								
							65			@ 59 to 61.5 feet: no recovery (large piece of gravel stuck in sampler tip) @ 61.5 to 62 feet: slightly cemented, greenish-brown Sandy Siltstone with clay @ 62 to 62.5 feet: cemented at 62.5 and small cobble @ 62.5 to 63 feet: greenish-brown, Sandy Silt with clay matrix @ 63 to 64.8 feet: mostly greenish-brown (5Y-5/3), soft, weathered, Silty Sand with Clay matrix and sub-angular, gravel- @ 64.8 to 66 feet: fine- to coarse-grained, greenish-brown Silty Sandstone, finer at 66 feet @ 66 feet: fine- to medium, weathered, slightly cemented and greenish-gray (5Y-6/2) @ 66.5 feet: Shear with clay coating, dips about 5° approximately east with possible striations S 45 E @ 66.6 feet: becomes moderately cemented Silty Sand matrix with gravel-size clasts @ 67.5 feet: becomes dark bluish-gray (GLE-2, 5B-4/1) to dark greenish-gray (GLE-2, 10BG-4/1), fine to coarse, Silty Sand matrix, slight to moderately cemented, with sub-angular, gravel-size clasts @ 70 feet: 3-inch dark greenish-gray, very stiff Clayey Siltstone bed with random shears, dips approximately east at about 5° @ 71.5 feet: becomes fine-coarse, slightly cemented Silty Sandstone @ 72.1 feet: 3-inch Clayey Siltstone, slightly clayey with 2 parallel polished shears, dip 12 degrees approximately east; shear at 72.3 has 1/2-inch very stiff Silty Clay @ 72.5 feet: moderately cemented, some fine clasts in Sandy Silt with Clay matrix @ 73 feet: fine- to coarse-grained Silty Sandstone @ 73.3 feet: becomes very dark greenish-gray to bluish-gray, unoxidized (GLE-2, 5GB-4/1 to 5B-3/1), moderate to well cemented Silty Sand matrix with numerous sub-angular to rounded gravel-size clasts @ 77 feet: some larger clasts (coarse-gravel size) with few small cobbles @ 78 feet: 6-inch pebbly Sandstone bed, irregular contacts @ 81 feet: 3-inch cemented bed @ 81.6 feet: cement bed @ 82.1 to 83.3 feet: fine-to coarse-grained, very dark greenish-gray, cemented Silty Sandstone with some pebbles @ 82.3 to 84.5 feet: numerous clasts @ 84.5 feet: 4-inch cemented bed @ 85 to 90 feet: Silty Sandstone matrix, hard with gravel to small cobble-size clasts SAN ONOFRE BRECCIA
							70		BEDROCK	
							75			
							80			
							85			
										Bottom of boring at 90 feet.

- Notes:
- 1) Ground water at 63 feet at 7:30 AM, 2/15/07
 - 2) OPTV logged on 2/16/07
 - 3) Boring backfilled with bentonite/ cement slurry



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Project No.: 6375-04.1	Figure No.: B-6.3
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BN-5

FEATURE TABLE

Borehole ID: BN-5

Azimuth values relative to magnetic north

Depth m	Depth ft	Azimuth deg	Dip deg	Depth m	Depth ft	Azimuth deg	Dip deg
0.93	3.1	311	59	10.08	33.1	110	42
1.08	3.5	278	84	10.38	34.1	301	86
1.14	3.7	269	64	11.67	38.3	29	74
1.18	3.9	286	63	11.99	39.4	341	85
1.24	4.1	264	59	12.43	40.8	339	43
1.34	4.4	258	84	13.88	45.5	143	42
1.42	4.7	245	58	14.40	47.2	191	40
1.88	6.1	244	78	14.67	48.1	228	89
2.38	7.9	277	66	14.77	48.5	141	60
2.47	8.1	272	89	15.03	49.3	95	47
2.56	8.4	286	71	15.59	51.1	129	64
2.83	9.3	262	56	16.14	53.0	238	29
3.18	10.5	307	79	16.47	54.0	275	26
4.06	13.3	12	62	16.83	55.2	286	62
4.44	14.6	262	75	17.32	56.8	245	70
4.51	14.8	260	74	18.06	59.2	0	76
4.57	15.0	293	30	18.89	61.3	223	75
4.70	15.4	269	46	20.13	66.0	304	53
4.78	15.7	326	37	20.63	67.7	77	85
4.88	16.0	358	33	21.04	69.0	103	64
4.93	16.2	18	57	21.10	69.2	317	64
5.12	16.8	282	82	21.53	70.8	304	58
5.61	18.4	129	41	21.87	71.8	109	54
5.72	18.8	339	31	21.94	72.0	283	63
6.23	20.4	83	51	22.70	74.5	280	60
6.38	20.9	295	56	24.17	79.3	145	46
6.52	21.4	314	60	24.44	80.2	83	68
6.61	21.7	131	7	24.73	81.1	38	71
7.04	23.1	318	29	25.33	83.1	138	31
7.20	23.6	287	54	25.50	83.7	328	60
7.40	24.3	62	59	25.79	84.6	233	71
7.53	24.7	310	30	26.33	86.4	250	68
7.58	24.9	288	85	26.58	87.2	38	70
7.93	26.0	278	60				
8.00	26.3	255	54				
8.15	26.7	302	59				
8.36	27.4	134	63				
8.38	27.5	294	29				
8.60	28.2	272	49				
8.64	28.4	122	49				
8.69	28.5	288	56				
8.88	29.1	315	28				
9.10	29.8	305	64				
9.18	30.1	71	83				
9.47	31.1	124	78				
9.48	31.1	273	29				



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SOUTH SHORES CHURCH
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Dana Point, California

6375-04.1

May 2007

Fig. B-10.1

LOG OF BORING

Drill Rig: Boyle 37 Truck-Mounted Core Rig	Boring Diameter: 4 inches	Boring Elevation: 232± feet	Boring No. BN-6
Date Drilled: 2/15/2007 GDH			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.
SAMPLE			

12" DROP	BULK	TUBE	BLOWS/FT.	FIELD MOISTURE % DRY WEIGHT	DRY DENSITY LB./CU. FT.	SHEAR RESISTANCE KIPS/SQ. FT.	DEPTH FEET	SOIL/ROCK SYMBOL	SOIL/ROCK TYPE	Descriptions and Remarks
							0	SM		Silty SAND with Clay: dark brown, moist @ 1 foot: reddish-brown Silty CLAY with Sand and rock fragments
							3	COLLUVIUM		@ 3 feet: grading to breccia
							5	LANDSLIDE		Displaced BRECCIA: brown to greenish-brown Silty SAND to Sandy SILT matrix with gravel-cobble-size, sub-angular to sub-rounded clasts @ 6 to 8 feet: soft, weathered, greenish-brown (5Y-5/3) Sandy to Clayey SILTSTONE with isolated and crude thin lenses of sub-angular, gravel-size clasts and some random shears @ 7 feet: irregular Shear dips 45° approximately east LANDSLIDE
							10	LANDSLIDE?		Displaced BRECCIA @ 8 to 9.5 feet: fine- to coarse-grained Silty SANDSTONE, tight @ 9 feet: tight, 75° oxide-stained fracture @ 9.5 to 13.5 feet: numerous sub-angular to rounded gravel-size clasts in Silty SAND matrix, slightly cemented, some oxide-satined random fractures
							15			@ 13.5 feet: 5 inch Sandy SILTSTONE bed @ 14 to 14.5 feet: Silty SANDSTONE bed @ 14.5 feet: gravelly layer @ 15 feet: becomes fine-grained and greenish-brown @ 15 feet: bedding: N 70 W, 21 SW (from OPTV log and core
							20			@ 16 feet: becomes fine- to coarse-grained, with no clasts to 17.2 feet and greenish-brown (5Y-5/3) @ 17.2 to 19 feet: some gravel-size clasts, soft and very weathered @ 19 to 20 feet: hard, dark bluish-gray, quartzite boulder @ 20 feet: cobble
							25			@ 21 feet: bedding: N 75W, 12 NE @ 20 to 26 feet: numerous gravel-size clasts in light greenish-brown (5Y-5/3 to 6/3) Silty SAND matrix, slightly to moderately cemented, some oxide staining
							26			@ 26 to 27.8 feet: partial recovery (loose clasts only), soft and very weathered @ 27.8 to 28.3 feet: 30° to 60° random fractures @ 28.3 to 29 feet: moderately well cemented gravelly SANDSTONE @ 29 to 29.4 feet: intense oxide staining and not cemented @ 29.8 feet: becomes greenish-brown Sandy SILT matrix



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South Shores Church
32712 Crown Valley Parkway
Dana Point, California

Project No.: 6375-04.1

Figure No.: B-7.1

LOG OF BORING

Drill Rig:	Boyle 37 Truck-Mounted Core Rig	Boring Diameter:	4 inches	Boring Elevation:	232± feet	Boring No.	
Date Drilled:	2/15/2007 GDH		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.				BN-6
SAMPLE							

12" DROP	BULK	TUBE	BLOWS/FT.	FIELD MOISTURE % DRY WEIGHT	DRY DENSITY LB./CU. FT.	SHEAR RESISTANCE KIPS/SQ. FT.	DEPTH FEET	SOIL/ROCK SYMBOL	SOIL/ROCK TYPE	Descriptions and Remarks
							35	LS?		<p>@ 30 to 30.3 feet: gravel-size clasts in Sandy SILT matrix, cemented at 30.3 to 30.8 feet</p> <p>@ 30.8 feet: becomes clayey SILTSTONE, light greenish-brown to greenish-gray (5Y-6/3 to 6/2) soft and sheared, few random clasts</p> <p>@ 31 to 31.7 feet: several polished shears dip 15 to 20° approximately east</p> <p style="text-align: right;">LANDSLIDE</p> <p>BRECCIA:</p> <p>@ 31.9 feet: numerous gravel- to small boulder-size clasts in greenish-brown Sandy SILT with Clay matrix with random, oxide-stained fractures</p> <p>@ 35 feet: Bedding from OPTV log: N 65 E, 15 SE</p> <p>@ 36 feet: small white quartz cobble</p> <p>@ 37 to 41 feet: no recovery; cuttings are fine- to coarse-grained Sand (rock fragment plug in the bit)</p> <p>@ 41 to 43 feet: cobbles and small boulders, fractured with oxide staining</p> <p>@ 42 feet: approximately 30° polished shear with 1/4-inch Sandy SILT with Clay gouge</p> <p>@ 43 to 43.8 feet: No recovery</p> <p>@ 43.8 to 46 feet: closely-fractured cobbles and small boulders, 45 to 60° dips with greenish-brown Clayey SILT coating along fractures</p> <p>@ 45.7 feet: 3-inch Shear with Clayey SILT and small rock fragments and black (hornblend) fragment: N 45 E, 19 SE</p> <p>@ 46.5 feet: maller clasts, slightly cemented</p> <p>@ 47.5 to 50 feet: not cemented, greenish-brown, mostly weathered, Silty Sand matrix with small gravel-size clasts, with few scattered, larger clasts</p> <p>@ 47.8 feet: 25° polished Shear and soft to 48.3 feet</p> <p>@ 48 feet: Bedding: N15 E, 10 NW (from OPTV log)</p> <p>@ 49.5 feet: larger clasts</p> <p>@ 49.8 feet: stiff Sandy SILTSTONE bed</p> <p>@ 50 to 53 feet: no recovery, rock plug in cutting head (probably mostly Sandstone)</p> <p>@ 53 to 54.6 feet: mostly light greenish-brown Silty SANDSTONE, slightly cemented with mostly fine- to medium-gravel-size clasts and some thin, irregular Sandy Siltstone beds</p> <p>@ 54.6 to 55 feet: light greenish-brown Clayey SILT</p> <p>@ 54.8 feet: polished Shear, dips 45° approximately east</p> <p>@ 55.6 feet: 5 inches Sandy SILT bed, medium to dark greenish-gray (GLEYS, BG-5/1-4/1)</p> <p>@ 56.5 feet: becoming greenish- to bluish-gray (unoxidized) and harder, moderately cemented Silty SAND matrix with gravel-size clasts</p>
							40		BED ROCK	
							45			
							50			
							55			



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South Shores Church
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 Dana Point, California

Project No.:
 6375-04.1

Figure No.:
 B-7.2

BN-6

FEATURE TABLE

Borehole ID: BN-6

Azimuth values relative to magnetic north

Depth m	Depth ft	Azimuth deg	Dip deg	Depth m	Depth ft	Azimuth deg	Dip deg
0.28	0.9	237	46	14.62	48.0	269	10
0.53	1.8	247	18	14.79	48.5	276	19
0.56	1.8	232	51	15.65	51.3	260	27
0.72	2.4	164	43	15.98	52.4	239	30
0.98	3.2	235	9	17.21	56.5	265	44
1.27	4.2	274	32	17.56	57.6	322	24
1.36	4.5	288	38	17.69	58.0	165	25
1.87	6.1	256	36	18.45	60.5	64	18
2.02	6.6	200	50	18.92	62.1	278	27
2.30	7.5	64	50	19.45	63.8	146	42
2.30	7.6	257	48				
2.57	8.4	90	35				
2.59	8.5	268	35				
2.74	9.0	60	31				
2.78	9.1	198	54				
3.04	10.0	72	40				
3.43	11.3	243	44				
3.65	12.0	253	52				
3.68	12.1	247	41				
4.37	14.3	138	32				
4.57	15.0	200	21				
4.84	15.9	341	32				
5.00	16.4	302	32				
5.14	16.9	253	39				
5.69	18.7	283	25				
5.95	19.5	106	31				
5.95	19.5	54	38				
6.24	20.5	319	25				
6.24	20.5	264	46				
6.38	20.9	0	12				
8.29	27.2	2	27				
8.35	27.4	211	21				
8.49	27.9	49	14				
8.57	28.1	102	37				
8.88	29.1	148	16				
10.13	33.3	62	46				
10.22	33.5	113	44				
10.31	33.8	313	32				
10.62	34.9	140	15				
10.65	35.0	332	17				
10.74	35.2	321	36				
11.10	36.4	104	41				
12.52	41.1	326	12				
13.50	44.3	146	19				
13.87	45.5	121	19				
14.16	46.5	78	34				



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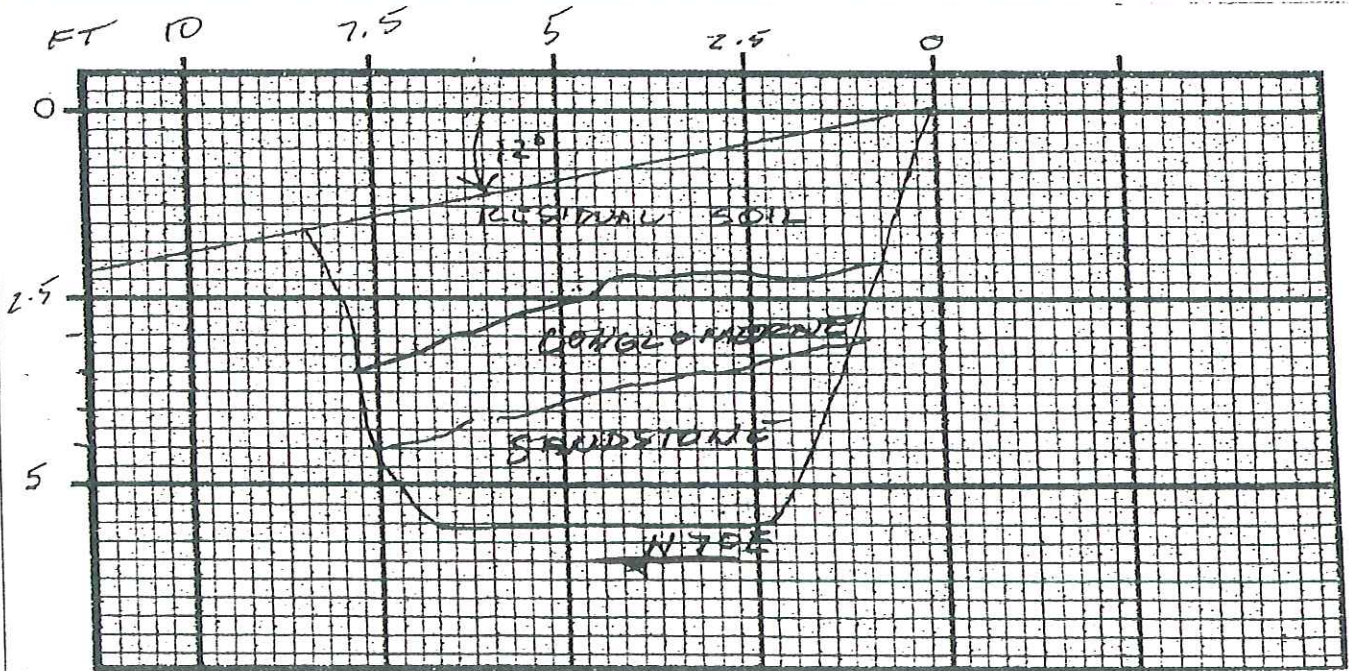
6375-04.1

May 2007

Fig. B-11.1

LOG OF TEST PIT

Surface Elevation: 249±	Logged By: T. Hill	Test Pit Number TP-1
Pit Orientation: N70E	Date: 16-Feb-06	
Pit Dimensions: See Below	Equipment: Backhoe - Al-Roy	
Ground Water Depth:		
GEOLOGICAL Classification and Description	Samples	ENGINEERING Classification and Description
Residual Soil (CL)	Depth (ft.) Graphic Symbol Soil Type (USCS) In-Situ Bulk	Moisture (%) Dry Density (p.c.f.)
Bedrock: Conglomerate and SANDSTONE SAN ONOFRE BRECCIA	<div style="display: flex; flex-direction: column; align-items: center;"> <div style="margin-bottom: 10px;">2.5</div> <div style="margin-bottom: 10px;">5</div> <div style="margin-bottom: 10px;">7.5</div> </div>	<p>0 to 2 feet, RESIDUAL SOIL. Sandy Clay (CL) with gravel and cobbles. Brown to 12 inches then orange-brown. Dry to 12 inches then humid to moist. Cracked and dry. Many roots to 12 inches</p> <p>2 to 5.5 feet, Bedrock: San Onofre Breccia Interbedded Cobble Conglomerate and Conglomeratic SANDSTONE. Massive, hard, no bedding observed.</p> <p>Note: Test pit backfilled and tamped.</p>



Surface Gradient:

Slope Gradient -20°

Scale:

1"=2.5'



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South Shores Church
32712 Crown Valley Parkway
Dana Point, California

Date: Mar-06

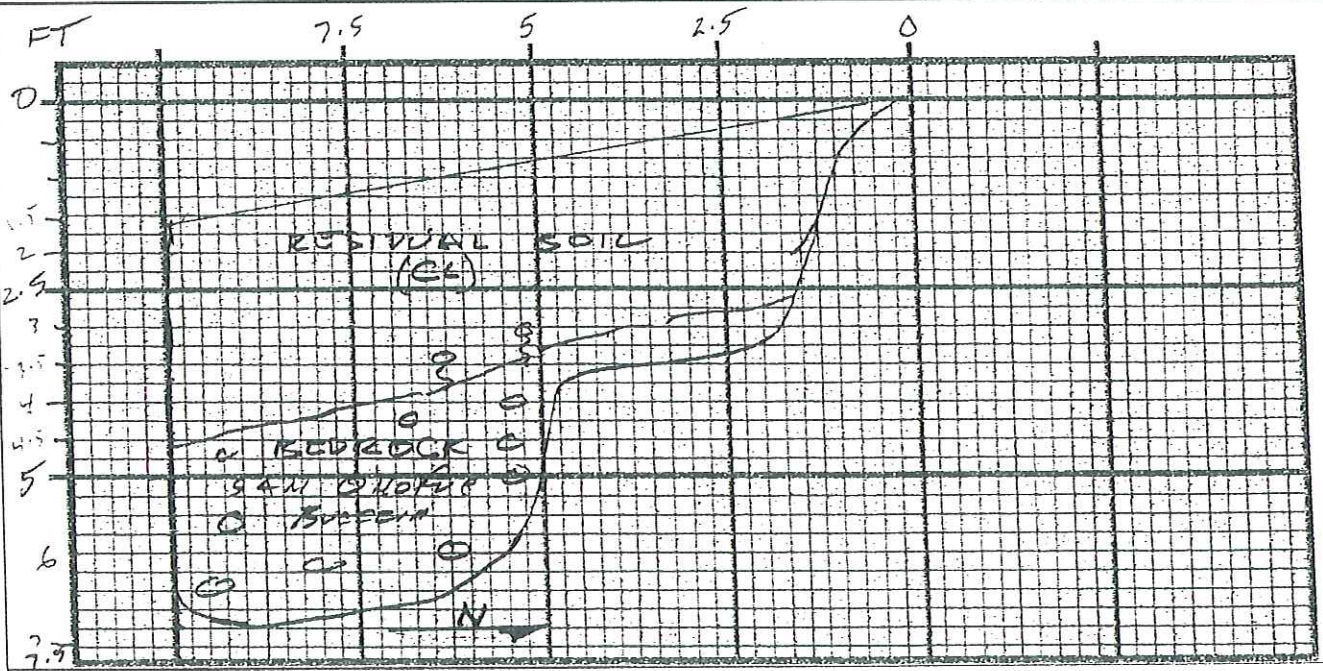
Project No. 6375-04

Figure No. B-15

LOG OF TEST PIT

Surface Elevation: 248±	Logged By: T. Hill	Test Pit Number TP-2
Pit Orientation: NS	Date: 16-Feb-06	
Pit Dimensions: 8x5.5	Equipment: Backhoe - Al-Roy	
Ground Water Depth: Seepage 2.5-5.5'		

GEOLOGICAL Classification and Description	Depth (ft.)	Graphic Symbol	Soil Type (USCS)	Samples		ENGINEERING Classification and Description	Moisture (%)	Dry Density (p.c.f.)
				In-Situ	Bulk			
Residual Soil (CL)	0					0 to 2 feet, RESIDUAL SOIL. Sandy Clay (CL) with gravel and cobbles. Dark brown to 2 feet then reddish-brown. Very moist (watered area) soft at surface then stiff		
Bedrock: SAN ONOFRE BRECCIA	2.5						2.5 to 5.5 feet, Bedrock: San Onofre Breccia. Cobble Conglomerate with SAND and CLAY. Matrix massive. Hard below 4'. Minor seepage at Soil/Bedrock Contact from irrigation water	
	5							
	7.5							



Surface Gradient: 10° in trench direction - 16° downslope

Scale: 1"=2.5'



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South Shores Church
32712 Crown Valley Parkway
Dana Point, California
Date: Mar-06
Project No. 6375-04 | Figure No. B-16

LOG OF TEST PITS

Surface Elevation: 269± feet	Logged By: T. Hill	Test Pit Number T-1
Pit Orientation: N/A	Date: 3/9/2006	
Pit Dimensions: 2'x3'x5.5'	Equipment: Hand Auger	
Ground Water Depth: None Encountered		

Samples						DESCRIPTION AND REMARKS
Bulk	Tube	Depth (ft.)	Moisture (%)	Dry Density (p.c.f.)	Soil Type (USCS)	
		18.6		105.1	CL	Sandy CLAY: dark brown, very moist, soft, many roots, 14" thick TOPSOIL
		16.7		105.5	CL	Sandy CLAY: reddish-brown, moist, very stiff, fine roots, few cobbles (14 to 28") RESIDUAL SOIL
		5 14.7		114.2	BEDROCK	BRECCIA: Gravel to boulder-size clasts in a sandstone matrix, no bedding found, very difficult to excavate (28 to 66") SAN ONOFRE BRECCIA
						Bottom of pit at 5.5 feet. Note: 1) No caving. 2) Pit backfilled and tamped.

Surface Elevation: 263± FEET	Logged By: T. Hill	Test Pit Number T-2
Pit Orientation: N/A	Date: 3/8/2006	
Pit Dimensions: 1.5x1.5x2.5'	Equipment: Hand Equipment	
Ground Water Depth: None Encountered		

Samples						DESCRIPTION AND REMARKS
Bulk	Tube	Depth (ft.)	Moisture (%)	Dry Density (p.c.f.)	Soil Type (USCS)	
					CL	Sandy CLAY: dark brown, very moist, soft, bedrock fragments FILL
					CL	CLAY: dark yellowish-brown, moist, stiff, with sand and rock fragments, grades to bedrock RESIDUAL SOIL
		5			BEDROCK	Gravelly SANDSTONE: massive, hard SAN ONOFRE BRECCIA
						Bottom of pit at 2.5 feet. Note: 1) No caving. 2) Pit backfilled and tamped.



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32712 Crown Valley Parkway
Dana Point, California

Date: April-06

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Figure No.

B-17

LOG OF TEST PITS

Surface Elevation: 265± feet	Logged By: T. Hill	Test Pit Number T-3
Pit Orientation: N/A	Date: 3/9/2006	
Pit Dimensions: 2x3x5'	Equipment: Hand Equipment	
Ground Water Depth: None Encountered		

Samples							DESCRIPTION AND REMARKS
Bulk	Tube	Depth (ft.)	Moisture (%)	Dry Density (p.c.f.)	Graphic Symbol	Soil Type (USCS)	
					[Diagonal Hatching]	SC/CL	Sandy CLAY: dark brown, very moist, soft, roots LANDSCAPE SOIL
			7.6	115.5	[Diagonal Hatching]	CL	Clayey SAND and Sandy CLAY: layered, brown and reddish-brown, very moist, stiff/dense, some cobbles, few brick and branch fragments FILL
			13.2	110.5	[Diagonal Hatching]	CL	Sandy CLAY: reddish-brown RESIDUAL SOIL
		5			[Diagonal Hatching]	CL	BRECCIA: Boulders, hard SAN ONOFRE BRECCIA
		10			[Diagonal Hatching]	CL	Bottom of pit at 5 feet. Note: 1) No caving. 2) Pit backfilled and tamped.
		15			[Diagonal Hatching]	CL	
					[Diagonal Hatching]	CL	

Surface Elevation: 351± feet	Logged By: T. Hill	Test Pit Number T-4
Pit Orientation: N/A	Date: 3/8/2006	
Pit Dimensions: 1.5x1.5x2.6'	Equipment: Hand Equipment	
Ground Water Depth: None Encountered		

Samples							DESCRIPTION AND REMARKS
Bulk	Tube	Depth (ft.)	Moisture (%)	Dry Density (p.c.f.)	Graphic Symbol	Soil Type (USCS)	
					[Diagonal Hatching]	CL	Sandy CLAY: dark brown, moist, stiff COLLUVIUM
					[Diagonal Hatching]	CL	CLAY: dark yellowish-brown, moist, stif, rock fragments RESIDUAL SOIL
					[Diagonal Hatching]	CL	SANDSTONE with Gravel and Cobbles: yellowish-brown, massive, hard SAN ONOFRE BRECCIA
		5			[Diagonal Hatching]	CL	Bottom of pit at 2.6 feet. Note: 1) No caving. 2) Pit backfilled and tamped.
		10			[Diagonal Hatching]	CL	
		15			[Diagonal Hatching]	CL	



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LOG OF TEST PITS

Surface Elevation: 237± feet	Logged By: T. Hill	Test Pit Number T-5
Pit Orientation: E-W	Date: 3/8/2006	
Pit Dimensions: 2x5x3.5'	Equipment: Hand Equipment	
Ground Water Depth: None Encountered		

Samples							DESCRIPTION AND REMARKS
Bulk	Tube	Depth (ft.)	Moisture (%)	Dry Density (p.c.f.)	Graphic Symbol	Soil Type (USCS)	
						CL	Sandy CLAY with rock fragments: dark yellowish-brown, moist, stiff, fragments to 12" diameter COLLUVIUM
						CL	Sandy CLAY: medium brown, moist, stiff, rock fragments RESIDUAL SOIL
		7.2		119.3			Clayey SANDSTONE with Gravel and Cobbles: yellowish-brown, massive, hard SAN ONOFRE BRECCIA
		5				↑ BEDROCK	Bottom of pit at 3.5 feet. Note: 1) No caving. 2) Pit backfilled and tamped.
		-10					
		-15					

Surface Elevation:	Logged By:	Test Pit Number
Pit Orientation:	Date:	
Pit Dimensions:	Equipment:	
Ground Water Depth:		

Bulk	Tube	Depth (ft.)	Moisture (%)	Dry Density (p.c.f.)	Graphic Symbol	Soil Type (USCS)	DESCRIPTION AND REMARKS
		5					
		-10					
		-15					



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Project No:
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Figure No.

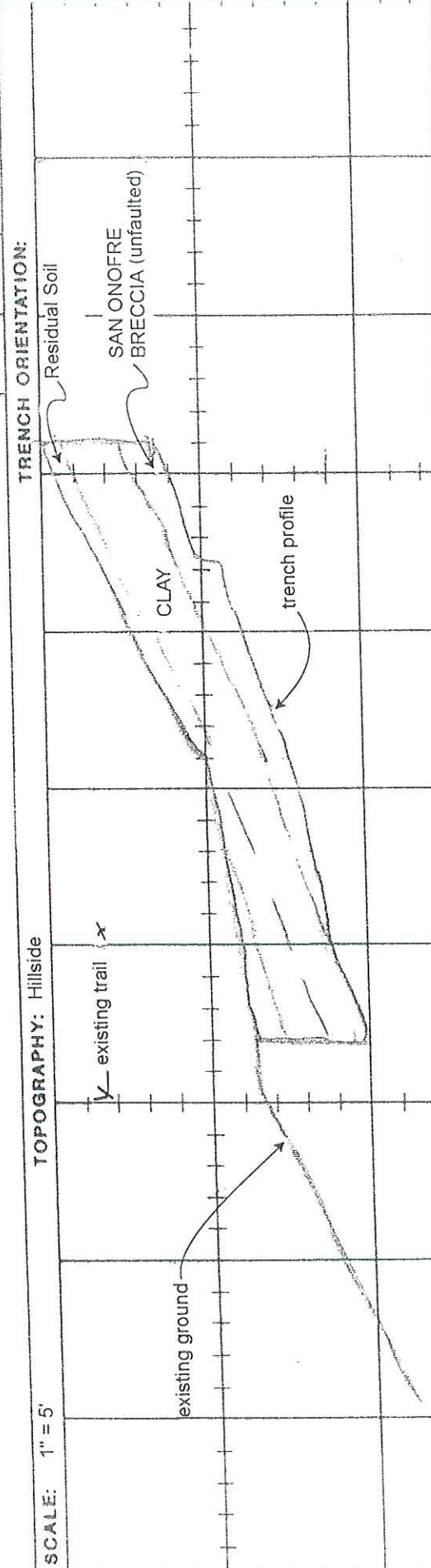
B-19

TRENCH LOG

PROJECT NAME: South Shores Church
JOB NO.: 6375-04
EQUIPMENT: Hand Dug
LOGGED BY: Tom Hill

TRENCH NO.: ?
DATE: 03-09-06
ELEVATION: 234-240 feet (approx.)
LOCATION: Hillside

DEPTH	DESCRIPTION	ENGINEERING PROPERTIES			
		CLASSIFICATION U.S.C.S.	BULK SAMPLE	UNDISTURBED SAMPLE	MOISTURE (%)
0-9"	Dark yellowish-brown, Sandy CLAY to Clayey SAND: moist, loose, with organics, roots, prismatic fracturing.				
9"-2.5'	Residual Soil/Weathered Bedrock: dark reddish-brown, Sandy CLAY with Bedrock fragments from gravel to boulder-size. Moist, stiff with roots. Blocky, prismatic fractures.				
2.5-3.5'	Bedrock: San Onofre Breccia. Yellow-brown gravel cobble breccia with sandstone matrix. Massive, hard, slightly to moderately fractured.				

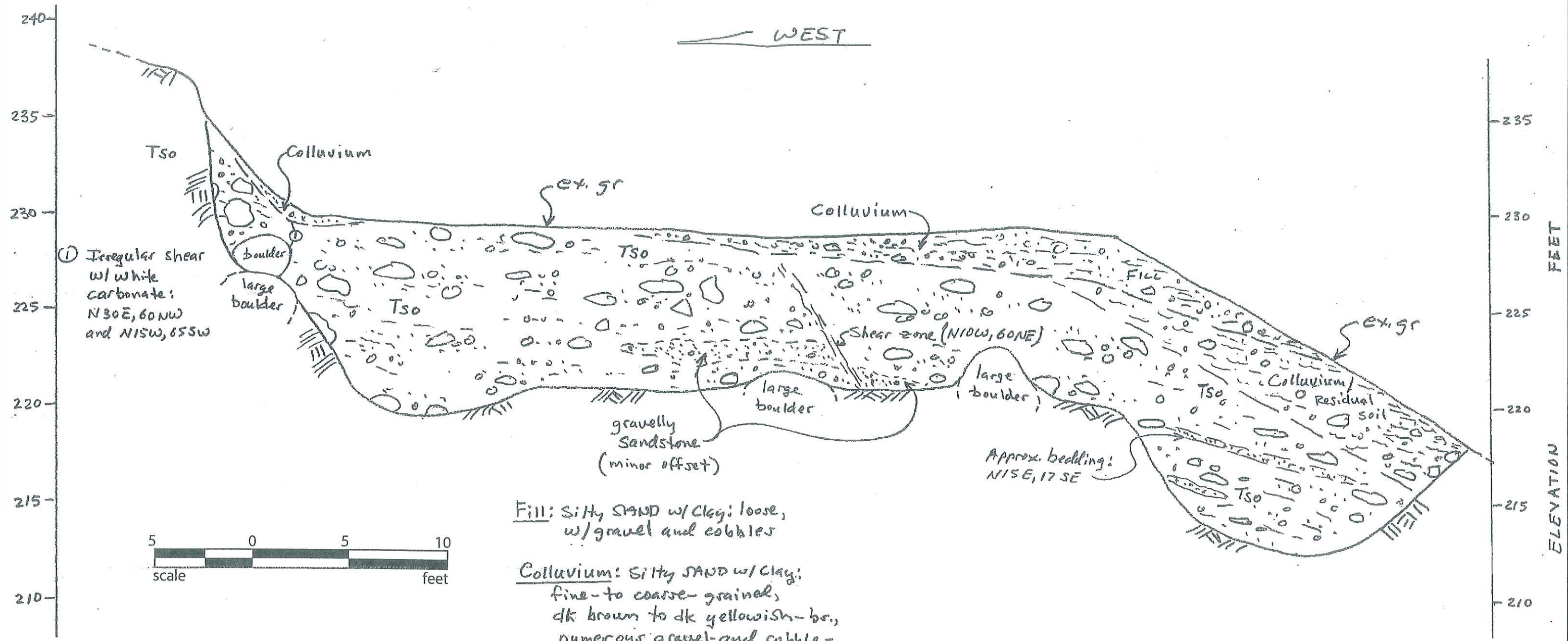


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South Shores Church
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TRENCH TR-2



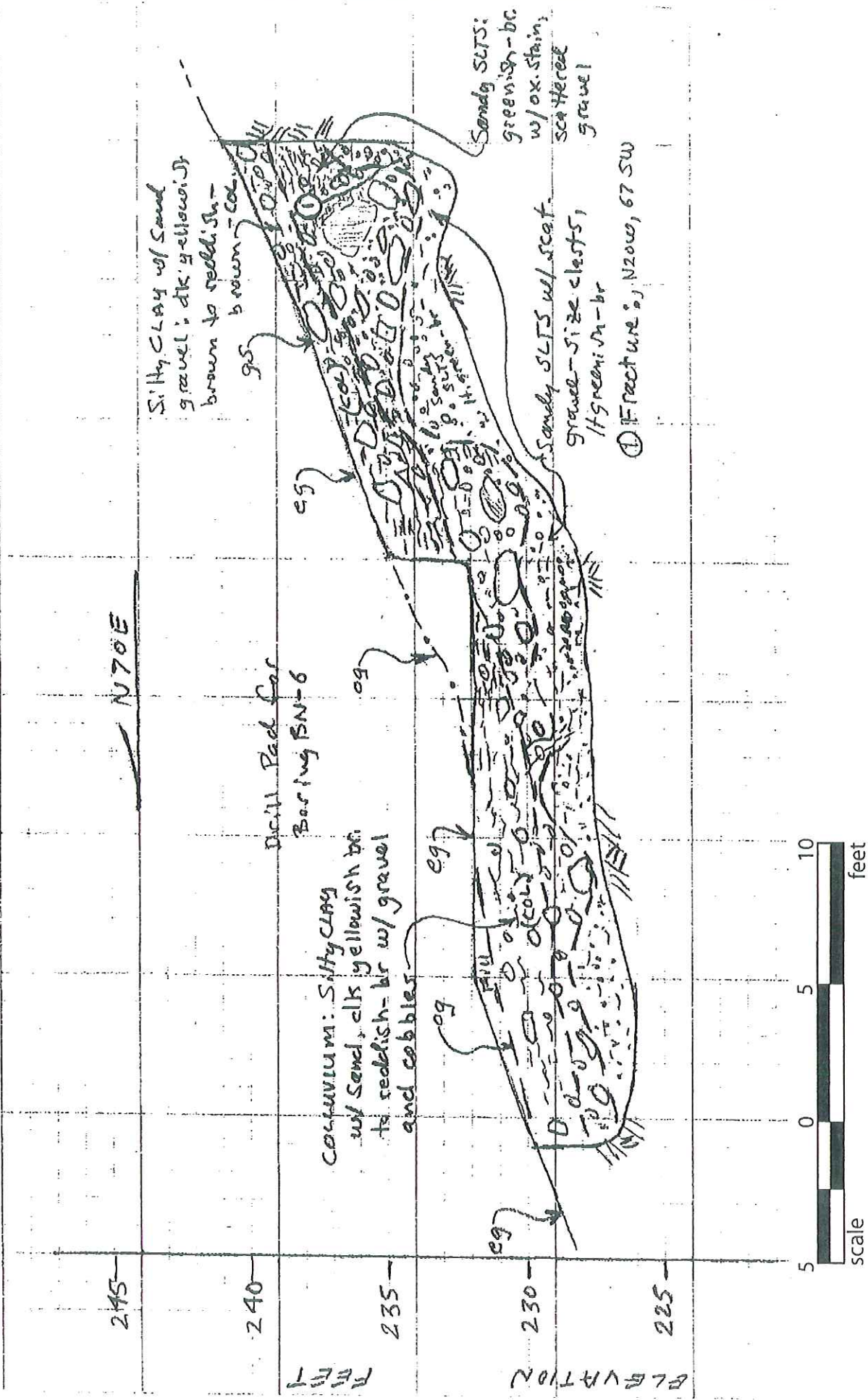
Fill: Silty SAND w/ clay; loose, w/ gravel and cobbles

Colluvium: Silty SAND w/ clay; fine- to coarse-grained, dk brown to dk yellowish-br., numerous gravel and cobble-size clasts; grades to v. weathered breccia

Tso: BRECCIA: Sub-angular to sub-rounded gravel-to large boulder-size clasts in a greenish-brown silty sand w/ clay matrix; bedding is v. crude to indistinct

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TRENCH TR-3



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May 2007

Fig. B-9