					L	.OG	OF	В	ORIN	IG	
Drill F	Rig:	Dualest Au			Boring Di	ameter:				Boring Elevation:	Deslag
Date	Drille	Bucket Au d:	ger				28 inc	hes		175 feet	Boring No.
SAM	IPLE	9/13-14/05	5	GDH	This log is a r	epresentation	of subsu	riace co	nditions at the	time and place of drilling. With the passage of time or at any	(MC)
- Oran				Ι .						itions.	BA-3
BULK	TUBE	BLOWSFT	MOISTURE % DRY WEIGHT	DRY DENSITY LBJCU. FT	SHEAR RESISTANCE KIPS/SO. FT	DEPTH FEET	SOILAGCK	SOIL/ROCK TYPE		Descriptions and Remarks	
		push push	24.7	92.2				1	Silty CLAY rock fragm	large rock fragment  feet, mostly dark brownish-gray, odorous with	
										YOUNGER GENERATION	N (?) FILL
		push							Clayey SIL moist, firm	T to Silty CLAY with Sand: brown to greenish-b to stiff, siltstone fragments	rown,
-								ML/	@ 21.5 to	22.5 feet, soft, very moist layer	
		push	21.5	100.7		_ 25 _			@ 25 feet,	becomes more stiff	
-									@ 28 feet,	OLDER GENER contact, clean, slight dip to west FILL	RATION (?)
							Server of the	ML/ SM	Displaced,	, Sandy SILT: dark brown (7.5 YR-3/3-4/3) to red (R-3/3), numerous gravel and cobble clasts, sor	ddiob
-	1		******	-							
					GANIC EARTH S	O Geot	nical LTAN	, Inc. TS	Lyon - Monarch Coast Apartments Building 32 Reconstruction  Project No.: Figure No.:		

Irvine, California

G6328-04

B-4.1

#### LOG OF BORING Drill Rig: Boring Diameter: Boring Elevation: Boring **Bucket Auger** 28 inches 175 feet Date Drilled: No. 9/14/2005 GDH This log is a representation of subsurface conditions at the time and place of drilling. With the passage of time or at any MC) SAMPLE other location, there may be consequential changes in conditions. **BA-3** SHEAR RESISTANCE KIPSISQ. FT DRY DENSITY LBJCU, FT FIELD MOISTURE % DRY WEIGHT SOUTHOCK Descriptions and Remarks 5.0 ML @ 30 feet, more sandy 00 SM 0 @ 32.5 to 33.5 feet, irregular contact with greenish-gray Sandy SILT with only few rounder gravel clasts; some yellowish-brown oxidation and few small roots at contact ML 8 @ 34 feet, more Sandy 35 33.4 77.3 @ 35 feet, more Clayey and mottled OLDER LANDSLIDE - QIso(Qt) Displaced, Clayey SILTSTONE: greenish-gray, weathered, stiff; numerous random, polished slicks @ 39 feet, Shear: N55W,28NE 40 40.0 77.1 @ 42.5 to 44 feet, dark gray and tightly folded @ 43.5 to 44.5 feet, broken cemented bed on west side of fold LANDSLIDE @ 45 feet, irregular clay seam: N05E,14-15SE; with some light gray 8 46.5 67.3 silty inclusions 46 feet, becomes stiffer and darker gray to brownish-gray @ 48 feet, slight seepage on west side of boring @ 48.5 to 50 feet, numerous cemented fragments @ 50 feet, slight seepage at NW side of boring 50 @ 50.5 feet, softer, numerous random slicks @ 52 feet, Polished Shear: N25W,28NE 3 @ 53.5 to 54.5 feet, Slide Plane: N10W,28NE; striations and shallow grooves on medium greenish-gray surface dip S80E OLDER LANDSLIDE - Qls. (Tm) 9.1 128.2 Sandy SILTSTONE: medium greenish-gray, dense, some gravel-size BEDROCK clasts @ 58 feet, Breccia, with gravel- to boulder-size clasts; hard, very slight seepage and sandy matrix 0 Lyon - Monarch Coast Apartments **Building 32 Reconstruction**

GANICO Geotechnical, Inc. EARTH SCIENCE CONSULTANTS

Irvine, California

Project No.:

G6328-04

Figure No.:

B-4.2

						_OG	OF	В	ORIN	G		
Drill F		Bucket Au	ner		Boring Di	ameter:	28 inc	boo	E	Boring Elevation:		Boring
	Drilled		9/14/2005	GDH	This log is a lother location	representation	of subsu	rlace co	nditions at the tin	me and place of drilling. With the par		No.
BULK	TUBE	BLOWS/FT.	HELD MOISTURE % DRY WEIGHT	DRY DENSITY LBJCU, FT	SHEAR RESISTANCE KIPS/SO. FT		SOIL/ROCK	YPE	anges in conditi	Descriptions and F	Remarks	BA-3
						- 65 70 75 80 85	000000000000000000000000000000000000000	BEDROCK	@ 60 feet,  Bottom of b  Note:  1) Slight se  2) No cavin	coring at 65 feet.  sepage at 48 and 50 feet.  ackfilled and tamped.	SAN ONOFRI	E BRECCIA
					GAN EARTH	ICO Geo	otech CONS	nica	al, Inc. NTS	Lyon - Monarch Coast Apa Building 32 Reconstruction	rtments )   Figure No	

Irvine, California

Figure No.:

B-4.3

G6328-04

LUG UF BURING

					T	<del>-  </del> -					*	Т	-		
1 (1 (1 (1 (1 (1 (1 (1 (1 (1 (1 (1 (1 (1	Job No.: 93-102			ck, greenish gray to			ck, greenish gray to	ck, greenish gray to	ck, greenish gray to				ck, greenish gray to		
	Excavated by: 24inch bucket auger	Description	ARTIFICIAL FILL (Af)	Asphaltic Concrete Silt: Clayey to sandy with fragments of rock, greenish gray to	large rock fragment	Silt: Sandy to clayey, brown, moist.	Silt: Clayey to sandy with fragments of rock, greenish gray to brown.	Silt: Clayey to sandy with fragments of rock, greenish gray to	[Silt: Clayey to sandy with fragments of rock, greenish gray to	brown.]	large rock fragment		[Silt: Clayey to sandy with fragments of rock, greenish gray to brown.]		
	ب	Graphic Log	.	A P			2	25		Ç?	1	۵	a 6	ا ع	Αf
	77 feet	(tast ni) noitoval3		175			170			L (	-165			160	
	+1	(feet ni) Atged				5-	t)		10-				15		
	199 atio	Blows per foot				push 3350	lb.bar		push 3350	15 bar	3142		push 3350 lb.bar		
	No. June 24,	Dry Unit Weight (1bs. per cu. ft.)				100.3	58		93.4				97.6		
		tnatnoo avutzioM (%)				24.4			30.4				25.6		
	Borin Date:_ Surface	diga Uo, and Depth	s			S-1	ი		S-2	.0			S-3		
					-				The second secon						

etanta junkiaraneaneaneanane. "C.C.

		·		·		D-7
	[Silt: Clayey to sandy with fragments of rock, greenish gray to	Silt: Sanc   Silt: Sanc   BEDROCK-   Breccia:	Breccia: Angular fragment of rock (schistose) in sandy silt matrix, blueish gray to rusty brown with veins of caliche.	Breccia: Clayey silt, brown, sheared.	Breccia: Angular fragments of rock (schistose) in sandy silt matrix, brown.  Breccia: Angular fragments of rock (schistose) in clayey sand matrix, brown.	Breccia: Angular fragments of rock (schistose) in silty sand matrix, brown.  Breccia: Angular fragments of rock (schistose) in sandy silt matrix, gray to reddish brown.  Tso  Bottom of Boring at 43 feet (refusal)
	-160			145	C 4	. w
_	75	20-55-		000	35-	40-
_	push 3350 Ib.bar			7 2045 lb.bar	5 2045 Ib.bar	14 2045 Ib.bar
-	97.6	103.9	144.0	100.6	120.1	133.1
-	25.6	9.5	7.9	24.7	2.4.2	7.7
-	S-3 15, 20, 20, 25,		0 8 0 0 0 0	35,	8-8 40°	
1						

# LOG OF BORING

Boring No. LB-2

Dafe: August 7, 1997

Excavated by: 24 inch bucket auger

Logged by: RH/RM

Job No.: 93-102

Surface Elevation: ± 178.5 feet

Г															
	Description	ARTIFICIAL FILL (Af)	Asphaltic Concrete	Silt: Sandy to clayey, tan to light brown.	Sand: Silty to clayey, tan to brown.	Silt: Clayey, greenish gray to brown.	Sand: Silty, reddish brown.	Silt: Clayey to sandy, greenish gray to brown.	becomes somewhat moist	Sand: Clayey to silty, brown.	BEDROCK- SAN ONOFRE BRECCIA (Tso) Breccia: Angular fragments of rock (schistose) in sandy matrix,	brown.	Breccia: Angular fragments of rock (schistose) in silty sand matrix, tan to brown.	Breccia: Angular fragments of rock (schistose), some relatively	becomes very firm
	Graphic Log	Af	U		0	/	17	•	0	A	01	/ 1.80 /	12.	1/.	· .
	Elevation (in feet)				-175					170	•	2			
	(test ni) AtqsQ					. ا	0				10-			15	٠.
	Blows perfoot		342			- 1	2400 75.bar				24	b.bar			
.75	Dry Unit Welght (1bs. percu. ft.)					(	ກ ດ ກຸ				137.2	-		1	
	Moisture Content		•			1	0.77				8.0			. 1	5±
	Sample No. and Depth	S S								5-2	S-3	දු ද			

								and the same of th					e .		D -	8
Description	ARTIFICIAL FILL (Af)  A subaltic Concrete	Silt: Sandy to clayey, tan to light brown.	77	Silt: Clayey, greenish gray to Sand: Silty, reddish brown.		becomes somewhat moist	Sand: Clayey to silty, brown.	BEDROCK- SAN ONOFRE BRECCIA (Tso)  Breccia: Angular fragments of rock (schistose) in sandy matrix, brown.	Breccia: Angular fragments of rock (schistose) in silty sand matrix, tan to brown.	Breccia: Angular fragments of rock (schistose), some relatively large, in clayey to sandy silt matrix.	becomes very firm	i	Clay seam: Somewhat silty to sandy, while to fight tall, something sheared.	Breccia: Angular fragments of rock (schistose) in sandy to slightly		Bottom of Boring at 26 feet (refusal)
Graphic Lo	Af		0	7	•	0	AF -	0/5	1,0	.1/	. 01	.) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1	1.18 1.16 1 2 . 6	ج <sub>/</sub> (	70/0/	O Tso
Elevation (in f			-175				.170	<b>3</b> 9	60			. 160			155	
Depth (in tea				r.				10.		75	1.0		20.			25
Blows per to				12400	75.bar			12 2400 Ib bar		ı	ě	თ	2400 b.bar			
Dry Unit Wel (1bs. per cu.				96.3				137.2	***************************************	ı		Tank and the Control of the Control	136.2			
Moisture Cont (%)				27.5				0.8		1		N-12-12-11-11-11-11-11-11-11-11-11-11-11-	8.8			
ample No. and C	os .			1-0	)			S-2		0 i	<b>B</b> .		10.5 70.5			
								-			-		THE RESERVE OF THE PERSON NAMED IN	CONTRACTOR OF THE PARTY OF THE	-	

# LOG OF BORING

Boring No.: LB-3 Date: August 7, 1997

Excavated by: 24inch bucket auger

Logged by: RH/RM

Job No.: 93-102

Surface Elevation: ± 178.1 feet

Description	ARTIFICIAL FILL (Af)	Asphaltic Concrete	Silt: Sandy to clayey, brown.	Silt: Sandy to clayey, greenish gray to brown.	Sand: Silty, reddish brown.	Silt: Sandy to clayey, greenish gray to brown.		Sand: Silty to slightly clayey, greenish gray to brown.	Silt: Sandy to clayey, greenish gray to brown.	REDROCK- SAN ONOFRE BRECCIA (Tso)	Rescrise. Angular fragments of rock (schistose) in a gravelly to silty	sand matrix, greenish gray to reddish brown.	Breeis. Angular fragments of rock (schistose) in a sandy to clayey		lots of rock fragments	large rock fragment (8 inches)	Breccia: Angular fragments of rock (schistose) in a gravelly to silty
Graphic Log			A! 	   			D			Af L		Tso	ر ا ا	\ 	0	) )/j	'/'
Elevation (in feet)				175					170					-165			
(test ni) Atged						ro I			- I.		101					15-	
Blows per foot					۲	2400	Jo.oar			-	9 -	Jo.oar					
Dry Unit Weight (1bs. per cu. (t.)			<b>186</b>			93.2					141.0						
Instrio ContraioM (%)						30.1					4.8						
ample No. and Depth					5-1	)				N .							

												D - 8
	70 Sand: Silty to slightly clayey, greenish gray to brown.	Brecci	Breccia:	large rock fragment (8 inches)  Breccia: Angular fragments of rock (schistose) in a gravelly to silty	160 Breccia: Angular fragments of rock (schistose) in a sandy to clayey silt matrix, brown.	Breccia: Angular fragments of rock (schistose) in a sandy to clayey	55		50 Clay Scam: Somewhat silty to sandy, white to light tan, somewhat sheared.  Attitude of Clay Scam: N20°W, 25°NE	Breccia: Angular fragments of rock (schistose) in a silty to clayey	145 Tso	Bottom of Boring at 37 feet (refusal)
	11	10	<u>T</u>	ν Γ		20-		25-		30-		30
1 =						2004						
:		11 02400 Jb.bar						6 1550 1b.bar	α . Σ,	1550 15.bar		
		0.141	No.					128	и С	) )		
	٠	8.		-				11.0	1			
		S-2						S-3 25'	N 1	29.5		

LB-1 (B) Leighton Boring at N cut

DATE		21-8	35		DRILL	HOLE 1	Yo	B-I SHEET _ 1_OF _ 3
				. 1				PROJECT NO. 1851456-6
HOLE	DIAM	ETER	24"		DRIVE	Weren	- 250	TYPE OF RIG BUCKET
ELEV	/ATION	TOP OF	HOLE-2	55 =	REF. O	R DAT	UM	SEE GEOTECHNICAL MAP DROP 12
о  < Геет	GRAPHIC LOG	m Arritudes	TUBE SAMPLE NO.	BLOWS PER FOOT	DRY DENSITY PCF	MOISTURE CONTENT, Z	\$015 (LASS.	GEOTECHNICAL DESCRIPTION  LOGGED BY WG  SAMPLED BY WG
5		GENERAL STATE OF THE STATE OF T		16	124.1	10.2	GNV 6C	San Onofre Breccia:  Orange-brn - mottled w/ gray, damp, dense, clayey sandy breccia; abdt cobbles a pebbles; clasts predom. blueschist; large amt thin roots to 4'; iron-stained; massive.  Olivian

OCOTECHNICAL BORING LUG	
DATE 10 - 21 - 85 DRILL HOLE NO. B-1	5 5
PROJECT REGISZADEA IK	SHEET 2 OF 3
DRILLING CO. GO- JAC / SHURING ENCINE AND	PROJECT No. 1851456-01
HOLE DIAMETER 24" DRIVE WEIGHT 250016, /251/75016, PULL	TYPE OF RIG BUCKET
ELEVATION TOP OF HOLE 255' REF. OR DATUM SEE GEOTECNICAL	MAP DROP

ELEY	NOITAV	TOP OF	HOLE 2	55'±	REF. O	r Dat	UM	SEE GEOTECNICAL MAP
DEPTH * FEET	GRAPHIC Log	ATTITUDES	TUBE SAMPLE NO.	BLOWS PER FOOT	DRY DENSITY PCF	POISTURE Z	\$016 CLASS.	GEOTECHNICAL DESCRIPTION  LOGGED BY
-	0000		2	16	110.9	12.9	GM/	0 30' Color change from mottled grayish brn to orangeish brown.
-	000							0 33' Grayish brn, mottled w/ orange; on west wall large boulder to 35'.
35	2.0 2.0		-					Q 35' NX wall - seepage below boulder
	00/		① F					@ 38-40' 2' sand & gravel bed below large cobbles &
40-	600	GB: NJON	1 -	16	123.5	7. 5	c 24/	boulders; seepage confined to north & west walls.  @ 40' Seepage from gravel bed.
0	600	68: NSSE					ιċ	
45 _		22.52	1 1					<ul> <li>6 43.5' Grayish brn, 2' sand bed; med grained, well-packed, grades below to a clayey sand.</li> <li>6 44' Hottled gray brn to orange; pebbles,</li> </ul>
		0.0 C						cobbles, small boulders.
	0/	68 (som	E					0 48' Sand bed 1.5' thk.
50.	20000	7 20	4	22	117.8	9.0	GA	
	B	50						
55	- D							
				Н				@ 57' Less clay, more sand in matrix; very abdt cobbles & small boulders.
60	100	20						0 60' Caying below.

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100 mm

Em

DRII Holi	LLING ( E DIAM	- 1 EK	3/A RE 0 - JAC 24"	A 15 /SHO	DRILL RING DRIVE	HOLE 1	1NBL	PROJECT NO. 1851456-6  TYPE OF RIG BUCKET  1011, /150014, 025'/75014, 045'  DOOD
ELE	HOITAV	TOP OF	HOLE 2	25'±	REF. O	R DAT	UM	SEE GEOTECHNICAL MAP
DEPTH. FEET	GRAPHIC Log	ATTITUDES	TUBE NO.	BLOWS PER FOOT	DRY DENSITY PCF	Moisture Content, Z	\$01L CLASS.	GEOTECHNICAL DESCRIPTION  Logged by
70-		*						Q 75' Gray blue, damp, silty sandy breccia; fine-grained matrix; abdt subangular-subrounded clasts of blueschist & quartzite.  TD 78.5'  Downhole logged to 60' Light seepage at 35' & 40', heavy seepage blow 60'. Caving below 60' After 1 hour, water level @ 70'

DATE12-10-85	DRILL HOLE NO B-1 (LAB-1)	SHEET 1 OF 2	
PROJECTStein-Brief/Area 16		PROJECT No. 1851354-01	
DRILLING Co. Contractors Dri	lling Service	TYPE OF RIG Bucket	-
HOLE DIAMETER	DRIVE WEIGHT 2200 lbs to 23', 1450 lbs to 46'	Dane 12	
·	REE OR DATUM See Gentechnical Man	DROP	I١

FLE	MOITAV	TOP OF	HOLE-	129'±	REF.	OR DAT	UM _S	ee Geotechnical Map
) ЕРТН Е FEET	GRAPHIC LOG	m Attitubes	TUBE SAMPLE NO.	BLOWS PER FOOT	DRY DENSITY PCF	Moisture Content, %	Soll CLASS.	GEOTECHNICAL DESCRIPTION  LOGGED BY
	////							Artificial Fill:  Med brn, v. moist, sandy silty clay; occasional pebbles & debris, variable to sandy clayey silt w/ pebbles & cobbles abdt, up to 9" diam.
5 —			1	2/6" Dist.		29.0	ML	
10 — . –	( ) / M.C.		2	2/10" Dist.		30	ML	Landslide Debris: @ 12'+: Yellow orange brn, moist, firm, sandy silt
15 —	10 - 10 - 0 - 0 - 0 - 0 - 0 - 0 - 0 - 0	d 30E						w/ abdt pebbles & cobbles - breccia?  @ 15' Reddish green to gray, mottled, sandy silt w/ large boulders & cobbles to 12" diam.; roots & roothairs, local clayey zones.
20	10,0000		3	2/6" Dist.				@ 20' Grades to med-brn, v. moist, sdy silt w/ clay; abdt pebbles & cobbles, generally less than 3", mottled w/ green grey, abdt Fe0 stn. @ 21' Very clayey @ 24' Clayier - clayey silt, pick goes in 1/2",
25 —	000000000000000000000000000000000000000	@ 27' RS: N2E 29E						decoming predom. reddish with some gray.  27' RS: yellow red-brn, v. moist, silty clay; 1/4"-1"; plastic, polished & striated surface; well-developed striae down dip.  San Onofre Breccia: 27' Blue-gray sandy silt, mod. abdt pebbles. s.
_	4 4	Striae: N74W @ 29' GB N20E, 35E	4	30/10	140.	9 7.3	ML	Fe0 stn.  9 27.8'-28.3' Silty fine sand bed, parallel to RS - appears sheared.  9 28.3' Med bluish gray, moist, sdy silt matrix; clasts predom. pebbles; well consolidated.  9 29.6' Silty sand zone

		12-10-8	5		DRILL	Hole	No	B-1 (LAB-1) SHEET 2 OF 2	
		Stein-Br	riet/Area	16				PROJECT No. 1851354-01	
Hore	LING DIAM	ETED 8	24"	VIII	ng Ser	vice	٠2	TYPE OF RIG Bucket	_
ELEV	'ATION	TOP OF	HOLE_	129 ' ±	REF.	MEIGH OR DAT	IIM S	ee Geotechnical Map DROP 12 I	N
	GRAPHIC Log	ATTITUDES	TUBE SAMPLE NO.	BLOWS PER FOOT	DRY DENSITY PCF	Moisture Content, %	Soll CLASS.	GEOTECHNICAL DESCRIPTION  LOGGED BY	
35 —	0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.		1 5	38	138.8	7.5	ML	### Bound of the gray sandy silt w/ cobbles & pebbles  ### Bound of the gray sandy silt w/ cobbles & pebbles  ### Bound of the gray sandy silt w/ cobbles & gray sandy silt w/ gravel & pebbles.  ### Bound of the gray sandy silt w/ cobbles & gray sandy silt w/ gravel & pebbles.  ### Bound of the gray sandy silt w/ cobbles & gray sandy silt w/ clayer soft, sdy clayer silt, w/ gravel & pebbles.  ### Bound of the gray sandy silt w/ cobbles & gray sandy support silt w/ clayer diam.  ### Bound of the gray sandy silt w/ cobbles & gray sandy support silt w/ clayer diam.  ### Bound of the gray sandy silt w/ cobbles & gray sandy support silt w/ clayer diam.  ### Bound of the gray sandy silt w/ cobbles & gray sandy support silt w/ clayer diam.  ### Bound of the gray sandy silt w/ cobbles & gray sandy support silt w/ clayer diam.  ### Bound of the gray sandy silt w/ cobbles & gray sandy support silt w/ clayer diam.  ### Bound of the gray sandy support silt w/ cobbles & gray sandy support silt w/ clayer diam.  ### Bound of the gray sandy support silt w/ clayer diam.  ### Bound of the gray sandy support silt w/ cobbles & gray sandy support silt w/ clayer diam.  ### Bound of the gray sandy silt w/ cobbles & gray sandy support silt w/ clayer diam.  ### Bound of the gray sandy silt w/ clayer diam.  ### Bound of the gray sandy silt w/ clayer diam.  ### Bound of the gray sandy silt w/ clayer diam.  ### Bound of the gray sandy silt w/ clayer diam.  ### Bound of the gray sandy silt w/ clayer diam.  ### Bound of the gray sandy silt w/ clayer diam.  ### Bound of the gray sandy silt w/ clayer diam.  ### Bound of the gray sandy silt w/ clayer diam.  ### Bound of the gray sandy silt w/ clayer diam.  ### Bound of the gray sandy silt w/ clayer diam.  ### Bound of the gray sandy silt w/ clayer diam.  ### Bound of the gray sandy silt w/ clayer diam.  ### Bound of the gray sandy silt w/ clayer diam.  ### Bound of the gray sandy silt w/ clayer diam.  ### Bound of the gray sandy silt w/ clayer diam.  #### Bound of the gray sandy silt w/ clayer	

TYPE		5"	ROTA	RY W	ASH			ELE	VATI	ION +/-108.5 FEET BORING R-2
TILL		T						1	ML F	TLL (Af): CLAYEY SILT, dark grayish brown, dry to moist, soft to firm
										(1.5 feet) rig chatter, COBBLE, dark gray, igneous in nature
		46	91.4	5	2.4	1	5		K	LANDSLIDE DEBRIS (Qls): (4 feet) SILTY CLAY, laminated light gray 2.5Y 7/1, light brownish gray 2.5Y 6/2, grayish brown 2.5Y 5/2 and light olive brown 2.5Y 5/3, diatomaceous, gypsiferous, scattered pockets of rust staining, rootlets, moist, soft
		42	108.0	28	2.4	2	10			(10 feet) Diatomaceous SILTSTONE, laminated white 2.5Y 8/1, light grayish brown 2.5Y 6/2, pale yellow 2.5Y 7/4 and brownish yellow 10YR 6/6, jointed/fractured, staining along fracture surfaces, interbedded with fine SAND, light brownish gray 2.5Y 6/4, micaceous, moist, firm to stiff
		39	116.5	P	TCHER	3	15			(15 to 18 feet - 3 feet recovery)  Diatomaceous SILTSTONE, laminated white 2.5Y 8/1,  light grayish brown 2.5Y 6/2 and brownish yellow 10YR  6/6, high angle closed fractures, with up to 1/4" offset,  fish scales, moist, soft
		38 40 52	114.6	30	2.4	4	20 -			Diatomaceous SILTSTONE, laminated very pale brown 10YR
										8/4, brownish yellow 10YR 6/8, light brownish gray 10YR 6/2 and gray 10YR 5/1, healed joints/fractures, abundant rip ups and rolled shears, moist, firm to stiff
							_			Continued
STRIKE	RELATIVE COMPACTION	Y DENSITY	MOISTURE (%)	BLOWS/FOOT	SAMPLE SIZE (INCHES)	SAMPLE NO.	DEPTH IN FEET	ASTERTAL	SYMBOL	THIS BORING LOG SUMMARY APPLIES ONLY AT THE TIME AND LOCATION INDICATED. SUBSURFACE CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND TIMES.
	80	DRY The		19	SA	ર્જ		ľ		COUNTY DB/JG DATE 3-17-99 A-6

TYPE		5"	ROTA	ARY W	ASH			ELEVATI	
	4	46	94.2	FI	CHER	5			(25 to 28 feet - 1.5 feet recovery) Diatomaceous SILTSTONE, laminated, very pale brown, brownish yellow, light brownish gray, shears on bedding surfaces, close spaced fractures (28 to 30 feet) hard SILTSTONE/PORCELLENITE layer, slow drilling
		44 1	101.8	30	2.4	6	30 -		(30 feet) Diatomaceous SILTSTONE, laminated white 10YR 8/1, light yellowish brown 10YR 6/4 and light brownish gray 10Yr 6/2 interbedded with fine SILTY SANDSTONE, black 5Y 2.5/1 to olive gray 5Y 5/2, healed fractures, rollups, fish scales, oxidation staining on fractures and bedding surfaces, moist, soft to moderately, soft rock strength
				PI	TCHER	7	35		MONIEREY FORMATION: Tm  (35 to 38 feet - 2 inch recovery) drilled 1.5 feet back into hard rock, COBBLE jammed in tip
)		87	35.1	30	2.5	8	40 -		(40 feet) bluish gray 5B 6/1, micaceous SANDY SILTSTONE interlaminated with olive black 5Y 2/1, CLAYSTONE partings, very close high-angle fractures, very soft, slightly to moderately weathered, moist sheared along CLAYSTONE laminations
		64 79	54.6 34.4	I	TTCHER	9	45 -		(45 feet) sampler advanced ~2 feet (45 to 50 feet) scattered chert fragments in cuttings SILTSTONE with CLAY, dark grayish brown, gypsiferous on parting surfaces, fissile, microfractures, abundant shears randomly oriented, moist, soft
	ON NO	T.\ +.)	Ш	то	ZZE )	0	z		Continued  THIS BORING LOG SUMMARY APPLIES ONLY AT THE
STRIKE	RELATIVE	DRY DENSITY (1bs-cu.ft.)	MOISTURE	BLOWS/FOOT	SAMPLE SIZE (INCHES)	SAMPLE NO	DEPTH IN	NATERIAL SYMBOL UNIFIED SOIL CLASS	TIME AND LOCATION INDICATED. SUBSURFACE CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND TIMES.  LOGGED BY DB/JG DATE 3-17-99

PE		5	" ROTA	RY WA				EL	EVA	TION $\pm$ /-108.5 FEET BORING R-2
	8		34.0			10				(50 feet) high-angle laminations with thin chert interbeds, rock fabric sheared/rolled
										(52 feet) fragments of cemented oxidized shale in cuttings
		76	46.6	FIT	CHER	11	55			(55 feet) sampler advanced 1.5 feet, SILTSTONE, olive black 5Y 2/1, laminated, with laminations inclined up to 10 degrees, fissile, moderately cemented, moist to wet, soft
										Dark greenish gray 5GY 3/1, CLAYEY SILTSTONE, soft, slightly weathered, slightly gypsum (?) cemented, scattered
		91	27.9	90	2.5	12	60			thin olive black 5Y 2/1, CLAYSTONE interbeds, bedding is low angle with close high-angle fractures
										Olive black 5Y 2/1, CLAYEY SILTSTONE, slightly weathered, slightly gypsum-cemented, moderately-high plasticity, low-angle laminated to thin bedded, soft, moist
		76 85	42.3 39.3	Pr	TCHER	13	65 -			(65 feet) CLAYEY SILTSTONE, olive black 5Y 2/1, unoxidized, laminated to thinly bedded, sheared, moist, soft
		101	23.3							
				F	TCHE	R 14	70 -			(70 feet) SILTSTONE, olive black 6Y 2/1, laminated, fissile, moderately cemented, very light gray low angle SILTY partings, moist, soft
		46	35.1							
									=	
PKE P	RELATIVE	DENSITY	TURE	Foot Ibs.	SAMPLE SIZE (INCHES)	E NO.	H IN		RIAL BOL	Continued  THIS BORING LOG SUMMARY APPLIES ONLY AT THE TIME AND LOCATION INDICATED. SUBSURFACE CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND TIMES.  LOGGED BY DB/JG DATE 3-17-99
STRIKE	RELA	DRY DE	MOISTURE (%)	BLOWS/FOOT	CINC	SAMPLE	DEPTH	) *:	SYM	AND TIMES.  SHOW LOGGED BY DB/JG DATE 3-17-99

					<u> </u>			NG LOG
TYPE		" ROTAL					ELEVA	ATION +/-108.5 FEET BORING R-2 (75 feet) dark greenish gray 5G 4/1 to dark gray N3/4,
	78	38.8	2.5	15				CLAYEY SILTSTONE, thin bedded, low angle, soft, slightly weathered, moist
			BA	G 1	6	30		(79 to 81 feet) cemented shale (small bag of cuttings)
			FITCI	HER 1	7			SILTSTONE with CLAY, olive black 5Y 2/1, laminated, with laminations inclined ~10 degrees, fine SANDY or micaceous partings, sheared, with shears inclined ~30 degrees, shear surfaces are paper thin with striations on surfaces, very closely to closely fractured, top of tube is less disturbed than bottom, moist, soft
	83	34.9	FITC	THER	18	85 -		(85 feet) SILTSTONE with CLAY, micaceous or fine SAND on parting surfaces, closely fractured, abundant shears, striations on sheared surfaces, thinly bedded, moist, soft
	79	36.6						(88 feet) abundant microcrystalline pyrite - petrolific odor
	87	28.9	75	2.5	19	90		(90 feet) abundant randomly - oriented shear surfaces, waxy texture
			FIT	CHER	20	95 -		(95 to 98 feet - 3 feet recovery)  SILTSTONE with CLAY, very dark brown 10YR 2/2, gypsiferous, tectonic shears, waxy appearance, relatively low angle, bedding inclined -10 degrees, closely fractured,
	80	37.3						relatively high angle, pods of olive gray clayey SILTSTONE, moist, soft rock strength
								Continued  Continued  APPLIES ONLY AT THE
STRIKE	RELATIVE COMPACTION DRY DENSITY	bs-cu. +T.) MOISTURE	BLOWS/FOOT	SAMPLE SIZE (INCHES)	SAMPLE NO.	DEPTH IN FEET	MATERIAL	THIS BORING LOG SUMMARY APPLIES ONLY AT THE TIME AND LOCATION INDICATED. SUBSURFACE CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND TIMES.  LOGGED BY DB/JG DATE 3-17-99

							797	L D				LUG	erere	BORING	R-3
TYF	PE		5"	ROTA	ARY WA	SH			IEL	EVA		N +/-108 FE L(Af):	SEI ]	DUMINO	IV-2
		1	110	18.1	12	2.4	1	5		CL	CI	. (5 feet) SILTY CLA 2.5Y 5/2, dark gra 10YR 4/2, gypsife 7.5YR 5/8, oxidati moist, firm to stiff	AY with SAN y 10YR 4/1 a rous, scattered ion staining,	D, mottled gray and dark grayish d pockets of str	rish brown brown ong brown
NS	SR				10	2.4	2	10				(10 feet - no recov SILTY CLAY pul	ery) led out of sar	npler	
			88	41.6	Fr	TCHER	3	15		N	AIL	(15 to 18 feet - 1.5 SILT with GRAV yellowish gray 1 dark gray 10YR moist, firm	EL mottled	white 10YR 8/ dark gray 10YI	3 4/1 and
	NSR		94	27.7	7	TCHER	. 4	20 -			SW	(20 to 23 feet - no red (24 feet) GRAV grayish brown	ÆLLY SAN	D with CLAY, v ngular, GRAVE	very dark L sized rock
	STRIKE	RELATIVE	DRY DENSITY	MOISTURE (%)	BLOWS/FOOT	SAMPLE SIZE (INCHES)	SAMPLE NO.	DEPTH IN		MATERIAL SYMBOL	UNIFIED SOIL CLASS.	Continued THIS BORING LOC TIME AND LOCAT CONDITIONS MA' AND TIMES. LOGGED BY	TON INDIC	ATED. SUBSU	JRFACE

ГҮРЕ		5'	ROT	ARY W	VASH			E	LEV	ATI	
									*************		fragments, severely weathered/oxidized, wet, loose (25.5 feet) losing drilling fluid through GRAVELLY layer
			13.0	38	2.4	6			57	W S	TREAM DEPOSITS (Qal): (28 feet) GRAVELLY SAND with CLAY, very dark grayish brown 10YR 3/2, GRAVEL composed of schist and various igneous rock, occasional COBBLE of schist, wet, medium dense
		1	102.0	50/10"	2.4	7	30 -	- his big his liter liter		7	MONTEREY FORMATION (Tm): (30 feet) no recovery, only in tip, COBBLE jammed in sampler (30 to 37 feet) COBBLY zone, COBBLES of various igneous rock interbedded with SILTY CLAYSTONE, gray 10YR 5/1, strong brown 7.5 YR 5/8, oxidation staining overlying laminated SILTSTONE, well cemented, severely
							35 -				weathered, dark brown 7.5 YR 3/4, rust staining, moist, soft rock strength (36 feet) COBBLE no sample taken
				Ŧ	ггснех	8	40				(40 to 43 feet - 1 foot recovery)  SILTSTONE black 7.5 YR 2.5/1, abundant shears along bedding planes, waxy-greasy appearance, moist, soft rock strength
		108	36.8	100/9*	2.4	9	45				SILTSTONE, very dark grayish brown 10Yr 3/2, thinly bedded, interbedded with very thin beds of SANDSTONE and CLAYSTONE SILTSTONE oxidized, abundant packages of shears, moist to wet, soft to moderately soft rock strength
111	JE ION	ITY Ff.)	3E	Toc	IZE	NO.	NI.			SS.	Continued  THIS BORING LOG SUMMARY APPLIES ONLY AT THE TIME AND LOCATION INDICATED. SUBSURFACE
STRIKE	RELATIVE COMPACTION	DRY DENSITY (1bs-cu.ft.	MOISTURE	BLOWS/FOOT	SAMPLE SIZE (INCHES)	SAMPLE N	DEPTH J	1	MATERIAL SYMBOL	UNIFIED SOLITION OF ASS.	CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND TIMES.  LOGGED BY DB DATE 3-12-99 3-17-99

HTCHER 10  Signature of the state of the sta	TYPE	5" RC	TARY V	VASH			ELEVATION +/-1	108 FEET	BORING	R-3
83 40.2  84 40.2  85 40.2  86 38.7 40 2.4 13 65 65 65 66 66 67 66 66 67 66 67 68 67		77 41.2	25	2.4	11	55	(50 to 53 feet SILTSTONE bedded to the bedding surgypsiferous to moderate (54 feet) lost of hole (55 feet) no re	- 3 feet recovery)  , very dark grayish  hickly laminated, at faces, waxy appears or fine SAND on p  ely soft rock strengt  drilling fluid leakin	oundant shears al ance, roll up shea parting surfaces, n th	, thinly ong rs, noist, soft
oxidized, thinly bedded, abundant shears randomly oriented, waxy appearance, moist, soft rock strength  Continued		83 40.2	FI	TCHER	12	65 -	(60 feet) lost (60 to 63 feet) SILTSTONI and gray 10 angle fracti waxy appea on parting (65 feet) SII oxidized, th oriented, n	t - 2 feet recovery) E mottled very dark DYR 5/1, laminated ures, abundant shearance, rolled shear surfaces, unoxidized CTSTONE, dark grainly bedded, abundants, soft to moder	k grayish brown 1 i to thinly bedded ars randomly orie rs, gypsiferous or ed, moist, soft roc rayish brown 10Y dant shears rande rately soft rock st	OYR 3/2 I, high ented, fine SAND k strength  R 3/2, omly
	SIRIKE. DIP RELATIVE COMPACTION	>0		SAMPLE SIZE (INCHES)	SAMPLE NO.	-	Continued  Continued  THIS BORING TIME AND LO	hinly bedded, abunwaxy appearance, n  LOG SUMMARY CATION INDICA	dant shears rand noist, soft rock st APPLIES ONL TED. SUBSUR	omly rength  Y AT THE FACE

			PLI	CHER	15	11	==	(75 to 78 feet - 1 foot recovery)
	1		80	2.4	14			SILTSTONE, dark grayish brown 10YR 3/2, thinly bedded, slightly gypsiferous, close spaced shears, moist moderately soft rock strength
	76	42.0	50	2.4	16	80 -		SILTSTONE to CLAYEY SILTSTONE, very dark grayish brown 10YR 3/2 to dark brown 10YR 3/3 to dark gray 2.5Y 4/1, thinly bedded, some staining along bedding planes, interbedded with fine SANDSTONE beds up to 1/4 inch thick, bluish gray 5PB 5/1 and micaceous beds, secondary mineralization along some bedding planes, moist, moderately
	76	40.4	Ħ	TCHER	17	85		(85 to 88 feet - 1.5 feet recovery)  SILTSTONE, very dark brown 10YR 2/2 to very dark gray 5Y 3/1, thinly bedded, abundant shears, waxy appearance, CLAYEY on sheared surfaces, interbedded with very thin beds of SANDSTONE, some staining along bedding planes, gypsiferous, moist, soft rock strength
	77	38.9	55	2.4	18	90 -		(90 feet) SILTSTONE, very dark brown 7.5YR 2.5/0, thinly bedded to beds up to 1/2 inch thick, interbedded with very thin to 1 inch thick CLAYSTONE beds, dark gray 5Y 4/1, CLAYSTONE has abundant shearing, randomly oriented, waxy appearance, SILTSTONE has minor staining along bedding planes, high angle joints/fractures, moist, soft to moderately soft rock strength
	75	36.6		тсне	₹ 19	95 -		(95 to 98 feet - 2 feet recovery) drilled for 2.5 feet, rock became too hard SILTSTONE, dark brown 7.5 Yr 2.5/0, thinly bedded to thickly laminated, abundant, waxy shears, randomly oriented, deformation zones, shears abundant, gypsiferous, moist, soft rock strength
STRIKE	COMPACTION DRY DENSITY		OWS/FOOT	SAMPLE SIZE (INCHES)	SAMPLE NO.	DEPTH IN FEET	MATERIAL SYMBOL UNIFIED	Continued  THIS BORING LOG SUMMARY APPLIES ONLY AT THE TIME AND LOCATION INDICATED. SUBSURFACE CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND TIMES.  3-12-99

# AGRA Earth & Environmental, Inc.

TYPE		5	" ROTA							VAT		+/-108 F		BORING	R-3	
				00/6"	2.4	20		Z	H			eet) SILTSTO	NE, very da	rk grayish brown edded, shears or		1
					1							es, gypsiferous				_
										1	NOTES:					
										4	) Total d	epth of boring	100.5 feet			
									1	1	2) Ground	lwater encount	tered at 24 fe		· ·	
			- 1							4	1) Backfill	led with #30 S		om 0 feet to 100	icci.	
												veight 140 lbs. uously lost dril	lling fluid thr	ough SANDY la	iyer at	
											elevati	on ~20 feet. on from topo.				
											/) Elevali	on nom topo.				
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ш	RELATIVE	FT.	몽	T00	SAMPLE SIZE (INCHES)	NO.	IN		7	58.	THIS B			Y APPLIES ON ATED. SUBSU		
IRIKE	ATT.	ENS	TS.	120			DEPTH IN FEET		RIG		CONDI	TIONS MAY		TOTHER LOC		
SI	JAN.	DRY DENSIT	MOISTURE	BLOWS/FOOT	FINCE	SAMPLE	JEP.		MATERIAL	UNIFIED SOL	AND T		-	T	3-12-99	
	22	民芸		100	S. S.	જુ			Ĺ	S	LOGG	GED BY	DB	DATE	3-17-99	

TYPE		5" ROT	ARY W						TION +/-107 FEET BORING R-4
							- - - -	ML	FILL (Af): CLAYEY SILT with SAND, grayish brown 2.5Y 5/2, inclusions GRAVEL to COBBLE size, rootlets, damp, soft
	83	56.0	8	2.4	1	5	-		(5 feet) CLAYEY SILT with SAND, mottled yellow 2.5Y 7/6, olive gray 5Y 4/2 and black 5Y 2.5/1, inclusions GRAVEL to COBBLE size of schist and various igneous rock, slightly gypsiferous, rootlets, moist, soft
-	105	27.1	14	2.4	2	10		CL	(10 feet) SILTY CLAY with SAND, mottled light olive brown 2.5Y 5/4, olive gray 5Y 4/2 and black 5Y 2.5/1, inclusions GRAVEL to COBBLE size of schist and various weathered igneous rock, moist, soft to firm, poor recovery 4 inch, sample disturbed
	98	26.9	H	TCHER	3	15		MI	(15 to 18 feet - 2.75 feet recovery)  CLAY, very dark olive gray 5Y 3/2 to olive gray 5Y 5/2,  CLAYEY SILT in lighter material than fat CLAY in  darker material (black 5Y 2.5/1), bedding is a couple of inches thick, apparent dip of ~ 30 - 35 degrees, scattered gravel, CLAY is plastic, argillaceous odor, very moist, soft
	79	35.3	1	ITCHER	. 4	20 -		CI	(20.5 to 23.5 feet - 2.75 feet recovery)  SILTY CLAY with medium to coarse SAND with scattered GRAVEL, olive brown 2.5Y 4/3, scattered roots, wet, soft
374	PACTION	u. ft.) URE	Foot	SIZE (ES)	. NO.	I IN		RIAL BOL TED	Continued  THIS BORING LOG SUMMARY APPLIES ONLY AT THE TIME AND LOCATION INDICATED. SUBSURFACE CONDITIONS MAY DIFFER AT OTHER LOCATIONS
SIRI	COMPAC DRY DEI	(lbs-cu.ft. MOISTURE	PLOWS	SAMPLE	SAMPLE	DEPTH		SYMB	THIS BORING LOG SUMMARY APPLIES ONLY AT THE TIME AND LOCATION INDICATED. SUBSURFACE CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND TIMES.  LOGGED BY DB DATE 3-19-99 3-22-99

TYPE			EN DO	T'A DYI	IXI A CINY			1	
TIPE		88	5" RO	TARY Y	WASH 2.4	e 1		ELEVA'	
		υo	29.1	3	2.4	5			(25 feet) SILTY CLAY mottled dark grayish brown 10YR 4/2 and black 10YR 2/1 with fragments of weathered SILTSTONE, moist to wet, soft
NSR				P	ITCHER		30 -		LANDSLIDE DEBRIS (Qis): (30 feet - no recovery) very soft
		98	22.7	9	2.4	6	25		(34 feet) SILTY CLAY with GRAVEL, mottled white 10YR 8/1, pale brown 10YR 6/3 and gray 10YR 6/1,
		105	22.0	P	ITCHER	. 7	35 -		GRAVEL angular SILTSTONE fragments, moist to wet, soft  (35 to 38 feet - 2 feet recovery)  SANDY SILTSTONE to SILTSTONE with SANDSTONE interbeds, white 10YR 8/1, pale brown 10YR 6/3 and gray 10YR 6/1, SILTSTONE layers predominately fine SAND, scattered coarse SAND, non-plastic, SILTY
		52	74.5 75.1	F	ITCHER	2 8	40 -		SANDSTONE, fine to medium grain, non-plastic, bedding ~40 degrees at 2", moist to wet, soft (38 feet) lost all drilling fluid (40 to 43 feet - 1.5 feet recovery)  SILTY CLAYSTONE with SILTSTONE interbeds, very dark brown 10YR 2/2, CLAYSTONE moderate to high plasticity, SILTSTONE low to moderate plasticity, hackley fractured, very heavily weathered, abundant shears, waxy appearance, moist to wet, soft to very soft rock strength
		98	22.9	80/6"	2.4	9	45		(45 feet) hammer hanging up last 30 blows - 1 inch recovery  SILTY CLAYSTONE, very dark brown 10YR 2/2, interbedded with thin SILTSTONE beds, secondary mineralization along some bedding planes, moist, soft rock strength
									MONTEREY FORMATION (Tm):
STRIKE	RELATIVE	DRY DENSITY (1bs-cu.ft.)	MOISTURE (%)	BLOWS/FOOT	SAMPLE SIZE (INCHES)	SAMPLE NO.	DEPTH IN FEET	MATERIAL SYMBOL UNIFIED SOIL CLASS.	Continued  THIS BORING LOG SUMMARY APPLIES ONLY AT THE TIME AND LOCATION INDICATED. SUBSURFACE CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND TIMES.
ob No.		_		arch 20		(i)			LOGGED BY DB DATE 3-19-99 3-22-99

TYPE		די וצחת	ARY W				ELEVA	NGLOG ATION +/-107 FEET BORING R-4
					10			(50 to 53 feet - 1 foot recovery  COBBLE jammed in tip, well cemented SILTSTONE.  Second try only went a couple of inches - too hard
	79 71 81	44.3 47.3 40.3	FIT	CCHER	11	55		(55 to 58 feet - 2 feet recovery) SILTSTONE to CLAYEY SILTSTONE very dark brown 10YR 2/2, gypsiferous, thinly bedded to laminated, laminations inclined ~5 degrees, moderately cemented (gypsum?), abundant bedding shears, waxy appearance, shears inclined ~30 degrees, roll ups, unoxidized, low plasticity, moist, soft rock strength losing drilling fluid
)	89	28.2	100/7*	2.4	12	60		(60 feet) CLAYEY SILTSTONE, very dark brown 10YR 2/2, abundant shears, interbedded with very thin beds of SANDSTONE, moist, moderately soft rock strength
	85 77	38.3 37.9	Ħ	TCHER	13	65 -		(65 to 68 feet - 1 foot recovery)  CLAYEY SILTSTONE, very dark brown 10YR 2/2, slightly gypsiferous, high angle, close spaced joint/fractures, highly sheared, randomly oriented waxy appearance, higher clay content than before, unoxidized, petrolific odor, COBBLE of very hard dolostone, moist to wet, moderately soft rock strength
	75	40.0		ггснег	. 14	70 -		(69 feet) caving/COBBLE blocking boring, redrilled part of boring (70 to 73 feet - 2.5 feet recovery) SILTSTONE interbedded with CLAYEY SILTSTONE, very dark brown 10YR 2/2, CLAYEY SILTSTONE is moderately cemented, gypsiferous, high angle, close spaced joints/fractures, unoxidized, petrolific odor, moist to wet, moderately soft to moderate rock strength
STRIKE DIP RELATIVE	DENSITY	MOISTURE	OWS/FOOT ft-1bs.	SAMPLE SIZE (INCHES)	PLE NO.	DEPTH IN FEET	TERIAL YMBOL	Continued  THIS BORING LOG SUMMARY APPLIES ONLY AT THE TIME AND LOCATION INDICATED. SUBSURFACE CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND TIMES.
SII	COM PRY PRY		BLO	SAMP	SAMPLE	日日	E S	CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND TIMES.  LOGGED BY DB DATE 3-19-99 3-22-99

YPE			ROTA					ELEVA	
	93	1	9.7 100	)/10*	2.4	15			(75 feet - 2 inch of recovery) SILTSTONE, very dark brown 10YR 2/2, laminated, well indurated, highly fractured, moderately weathered, moist to wet, moderate rock strength
	97	7	29.9	F	TCHER	16	80	GW GW	(80 to 83 feet - 1.5 feet recovery)  SILTSTONE, very dark brown 10YR 2/2, laminated, laminations/partings inclined -30 degrees, moderately/gypsum cemented, highly sheared waxy appearance, randomly oriented highly fracture, moist to wet, moderately soft to moderate rock strength
	8	30	39.5	Pr	TCHER	17	85	GM GM GM GM GM GM GM GM GM GM GM GM GM G	
	1	.25	12.8	. 85	2.4	18	90 -		(90 feet) BRECCIA, light bluish gray 5PB 7/1, GRAYWACKE matrix (CLAYEY SANDSTONE) clast of fine GRAVEL to COBBLE size, moderately weathered schist, quartz and severely weathered various igneous hard rock, subrounded to subangular, matrix very severely to severely weathered, damp, moderately soft (93 to 96 feet) lot of rig chatter
		105	18.5	F	TCHE	19	95 -		(95 to 98 feet - 1.75 feet recovery)  COBBLE of schist jammed in tip  BRECCIA, light bluish gray SPB 7/1, GRAYWACKE  matrix (CLAYEY to SILTY SANDSTONE) high  plasticity, gypsiferous, clasts GRAVEL to COBBLE  sized, schist and quartz, subrounded to subangular,  moist, soft to moderate rock strength
		>-^			Ш				Continued  THIS BORING LOG SUMMARY APPLIES ONLY AT THE
STRIKE	RELATIVE	DRY DENSITY	MOISTURE	BLOWS/FOOT	SAMPLE SIZE (INCHES)	SAMPLE NO.	DEPTH IN FEET	MATERIAL SYMBOL	THIS BORING LOG SUMMARY AFFLIES ONLY AT THE TIME AND LOCATION INDICATED. SUBSURFACE CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND TIMES.  LOGGED BY DB DATE 3-19-99 3-22-99

MI. PILL (APE SILT with SAND), mortled brown 10 YR 5/3 and very dark gay 10 YR 3/1, inclusions GRAVEL to COBBLE sized, SILTSTONE fragments, quartz, schist and igneous rock, rooticts, damp, soft  (4 to 5 feet) COBBLE  (5.5 feet) CLAYEY SILT, motited black 10 YR 2/1 and dark grayish brown 10 YR 4/2, slightly goalferous, scattered pockets of calcite material, ordized rock fragments (10 YR 8/8, oxidized, severely weathered fragments of schist and various ignous rock, rast and other oxidation staining present, most; soft poor recovery 6 inches  NSR  FITCHER 3 15  CL  (20 to 23 feet - 2 feet recovery)  CLAYEY SILT/SILTY CLAY, motited reddish brown side  (15 to 18 feet) no recovery, need new drill bit  (20 to 23 feet - 2 feet recovery)  CLAYEY SILT/SILTY CLAY, motited reddish brown side  (15 to 18 feet) no recovery, need new drill bit  COL  COL  CONTINUED  COL  CONTINUED  COL  CONTINUED  COL  CONTINUED	[ <del></del>									ORINGLOG
very dark gray 10 YR 3/1, inclusions GRAVEL to COBBLE seed, SILTS/ONE fragments, quartz, schist and igneous rock, rootlets, damp, soft  (4 to 5 feet) COBBLE  (5.5 feet) CLAYEY SILT, mottled black 10 YR 2/1 and dark grayish brown 10 YR 4/2, slightly gopiferous, scattered pockets of calcite material, oxidized rock fragments  LANDSLIDE DEBRIS (Gle):  121 18.5 11 2.4 2 10  IT (10 feet) SILTY CLAY, yellowish brown 10 YR 5/6 to yellow 16 YR 8/8, oxidized, severely weathered fragments of schist and various igneous rock, rust and other oxidation statining present, moist, soft poor recovery 6 inches  NSR  IT CHER 3 15  CL  CL  (20 to 23 feet - 2 feet recovery) CLAYEN SILTY CLAY, mottled reddish brown 5YR 4/4 and blush gray puls 5/1, oxidized, severely weathered fragments of Srk 14/4 and blush gray puls 5/1, oxidized, severely weathered fragments of skist, quartz, and various igneous rock, rust staining, moist, soft  CL  CL  CL  COntinued	) <u>T</u>	YPE			5" RO	TARY	WASH			ML FILL (Af):
110 17.9 10 2.4 1      MI										very dark gray 10YR 3/1, inclusions GRAVEL to COBBLE sized, SILTSTONE fragments, quartz, schist and igneous rock
ML CL  MI CL  I 18.5 11 2.4 2 10    I 11    I 10    I 10    I 10    I 10    I 10    I 11    I 10    I 11    I 11    I 12    I 10    I 10    I 10    I 11    I 10    I 10    I 11    I 10    I 10    I 11    I 10    I 10    I 10    I 11    I 11    I 11    I 12    I 12    I 13    I 10    I 10    I 10    I 11    I 11    I 11    I 12    I 12    I 13    I 10    I 10    I 10    I 10    I 11    I 11    I 11    I 12    I 10    I 10    I 10    I 11    I 11    I 11    I 12    I 12    I 13    I 10    I 10    I 10    I 11    I 11    I 11    I 12    I 12    I 13    I 10    I 10    I 10    I 10    I 11    I 11    I 11    I 12    I 12    I 13    I 10    I 10    I 10    I 10    I 10    I 11    I 10    I 11    I 10    I 10    I 11    I 11    I 11    I 11    I 11    I 11    I 10    I 11    I									5	(4 to 5 feet) COBBLE
NSR  FITCHER 3  15  CL  (10 feet) SILTY CLAY, yellowish brown 10YR 5/8 to yellow 10YR 8/8, oxidized, severely weathered fragments of schist and various igneous rock, rust and other oxidation staining present, moist, soft poor recovery 6 inches  (14 feet) drilled out boring - COBBLES falling in from side (15 to 18 feet) no recovery, need new drill bit  CL  (20 to 23 feet - 2 feet recovery) CLAYEY SILT/SILTY CLAY, mottled reddish brown 5YR 4//4 and bluish gray 10B 5/1, oxidized, severely weathered fragments of schist, quartz, and various igneous rock, rust staining, moist, soft  CL  CL  CCL  COntinued				110	17.9	10	2.4	1		dark grayish brown 10YR 4/2, slightly gypsiferous, scattered pockets of calcite material, oxidized rock fragments
NSR  FITCHER 3  15  CL  (15 to 18 feet) no recovery, need new drill bit  (20 to 23 feet - 2 feet recovery) CLAYEY SILTY CLAY, mottled reddish brown SYR 4//4 and bluish gray 10B 5/1, oxidized, severely weathered fragments of schist, quartz, and various igneous rock, rust staining, moist, soft  CL  Continued				121	18.5	11	2.4	2	10	yellow 10YR 8/8, oxidized, severely weathered fragments of schist and various igneous rock, rust and other oxidation staining present, moist, soft
122 16.0  PITCHER 4  20 (20 to 23 feet - 2 feet recovery)  CLAYEY SILT/SILTY CLAY, mottled reddish brown  5YR 4//4 and bluish gray 10B 5/1, oxidized, severely  weathered fragments of schist, quartz, and various igneous rock, rust staining, moist, soft  CL  Continued		vsr				P	пснег	3	15	side
				122	16.0	F	пснег	₹ 4	20	(20 to 23 feet - 2 feet recovery)  CLAYEY SILT/SILTY CLAY, mottled reddish brown  5YR 4//4 and bluish gray 10B 5/1, oxidized, severely  weathered fragments of schist, quartz, and various  igneous rock, rust staining, moist, soft
	- J	J. C.	IVE	SITY .ft.)	URE	F00T	SIZE ES)	NO.	NI.	
THIS BORING LOG SUMMARY APPLIES ONLY AT THE TIME AND LOCATION INDICATED. SUBSURFACE CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND TIMES.  Job No. 8-212-107500 - March 20, 2000				ORY (1bs-		80	SAMPLE	SAMPLE	DEPTH	CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND TIMES.  LOGGED BY DB DATE 3-20-99

			TAKE Y	VASH			ELE	VAII	R-5 (ON +/-112 FEET BORING $R-5$
	48	74.5	Fr	TCHER	10				(50 to 55 feet - 2.5 feet recovery)  SILTSTONE, very dark gray 2.5Y 3/1, gypsiferous, moist, soft rock strength
	73	43.7	100	2.4	11	55			(55 feet) SILTSTONE with CLAY, very dark gray 2.5Y 3/1, gypsiferous, occasional secondary mineralization along bedding surface, bedding plane shears, rolled-shears, high angle joints/fractures, moist, soft to moderately soft rock strength
	82	38.5	F	TTCHER	12	60			(60 to 63 feet - 2.75 feet recovery) very dark gray 2.5Y 3/1, thinly bedded, high and low angle shear surfaces ~30 degrees to 50 degrees along bedding surfaces, striations of shear surfaces, fine SAND or gypsiferous on parting surfaces, moist, soft rock strength
	80	38.5 27.9	P	ITCHER	13	65			(65 to 68 feet -3 feet recovery) SILTSTONE, very dark gray 5.5Y 3/1, SILTSTONE is well indurated slightly gypsiferous, highly sheared waxy appearance, pyrite, gypsiferous, or fine SAND on parting surfaces, moist, moderately soft rock strength
	81	38.8	70	2.4	14	70			(70 feet) SILTSTONE, very dark gray 2.5Y 3/1 to dark bluish gray 5PB 4/1, abundant shears on bedding surfaces, waxy appearance, high angle joints/fractures, secondary mineralization along some bedding planes, staining on others, gypsiferous, moist, soft rock strength
SIRIKE DIP RELATIVE	DRY DENSITY	MOISTURE (%)	BLOWS/FOOT		SAMPLE NO.	DEPTH IN FEET	MATERIAL SYMBOL	UNIFIED SOIL CLASS.	Continued  THIS BORING LOG SUMMARY APPLIES ONLY AT THE TIME AND LOCATION INDICATED. SUBSURFACE CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND TIMES.  LOCGED BY DR. DATE: 3-20-99

YPE		n ROT	'ARY WA	SH			ELEV	ATIO	N +/-112 FEET BORING R-5
	89	26.4			15				. (75 to 78 feet - 1.5 feet recovery) SILTSTONE, very dark gray 2.5Y 3/1 to dark bluish gray 5PB 4/1, thinly bedded, abundant shears on bedding surfaces, waxy appearance, high angle joints/fractures, secondary mineralization along some bedding planes, staining on others, gypsiferous, moist, soft rock strength
	102	34.7	FTTC	CHER	16	80			. (80 to 82 feet - 2 feet recovery, drilled for 2 feet) SILTSTONE, very dark gray 2.5Y 3/1, thinly bedded, well indurated, high angle fractures/joints, highly sheared waxy appearance, moist, moderate rock strength
	84	28.6	100/7*	2.4	17	85 —			(85 feet - poor recovery 2 inches) SILTSTONE, very dark gray 2.5Y 3/1, well indurated, slightly gypsiferous, jointed/fractured interbedded with up to 1.5 inch thick beds of SILTY CLAYSTONE, moist, soft to moderately soft rock strength
)			FLI	CHER	18	90 -			SILTSTONE, very dark gray 2.5Y 3/1, well indurated, slightly gypsiferous, interbedded with SILTY CLAYSTONE, very dark gray 2.5Y 3/1, moist, soft to moderately soft rock strength
			FIT	TCHER	19	95 -			(95 to 98 feet - 1 foot recovery)
	140	10.3						GW GM s	AN ONOFRE BRECCIA (Tso): (97 feet) BRECCIA, GRAYWACKE matrix (CLAYEY SILTSTONE to SILTY SANDSTONE), light bluish gray 5PB 7/1, gypsiferous, moderately severe weathering, clast GRAVEL to COBBLE sized clasts of schist, quartz and various igneous rock, subrounded to subangular, matrix
				å					Continued
1 02 1 0	COMPACTION DRY DENSITY		BLOWS/FOOT	SAMPLE SIZE (INCHES)	SAMPLE NO.	DEPTH IN FEET	MATERIAL	UNIFIED IL CLASS	THIS BORING LOG SUMMARY APPLIES ONLY AT THE TIME AND LOCATION INDICATED. SUBSURFACE CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND TIMES.  LOGGED BY  DATE  3-20-99 3-24-99

<u>.</u> *			ELEVATION +/-112 FEET BORING R-5
TYPE 5" RO	OTARY WAS 100/10" 2.4	H 20	
			severe to moderately severe weathering, moist, soft to moderate rock strength  (100 feet) BRECCIA, GREYWACKE matrix (CLAYEY SILITSTONE to SILITY SANDSTONE), light bluish gray SPB 7/1, gypsiferous, clasts GRAVEL to COBBLE sized of schist and various igneous rock, subrounded to subangular, moderate weathering, strong brown 7.5YR 5/8 oxidation staining, matrix moderately severe weathering, moist, soft to moderate rock strength  NOTES:  1) Total depth of boring 101 feet. 2) 2 inch diameter well screen installed 0 feet to 100 feet. 3) Backfilled with #30 SAND. 4) Drive weight 140 lbs. 5) Elevation from topo.
STRIKE DIP RELATIVE COMPACTION DRY DENSITY (1bs-cu.ft.)	MOISTURE (%) BLOWS/FOOT	SAMPLE SIZE (INCHES) SAMPLE NO.	THIS BORING LOG SUMMARY APPLIES ONLY AT THE TIME AND LOCATION INDICATED. SUBSURFACE CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND TIMES.  LOGGED BY DB DATE 3-20-99 3-24-99

ГҮРЕ	2	<b>4"</b>	LES.		ELEVATION +/-207 FEET BORING BB-104
		BULK	1		SC COLLUVIUM (Qcol): Dark brown 7.5YR 4/4 SANDY CLAY with scattered GRAVEL and COBBLES, moist LANDSLIDE DEBRIS (Qls):
104W/58NE					BRECCIA, matrix is light olive brown 2.5Y 5/4 to 2.5Y 5/6 to grayish yellow green 5GY 6/2, soft, very severely weathered, moist, clasts are GRAVEL to COBBLE size, subangular, clasts composed of schist and some quartz, abundant manganese
N15E/16SE, N50E/46SE	3	BAG 2.5	1A 2	5	oxide staining on clast surfaces(2 feet) shear surface, approximately 1.0 inch wide, composed of plastic CLAY
N55E/12SE		BAG	2A		(4 feet) attitudes on two intersecting shear surfaces - both approximately 0.2 inch wide and filled with plastic CLAY (sample). High angle shear merges with lower-bound, low-angle shear surface.
N80E/49SE		,			(5 feet) "rolled" zone approximately 1-foot wide, adjacent and parallel to above low-angle shear (6.5 feet) shear surface ranges from paper-thin to 0.3 inch
N40E/23SE		BAG 4 2.5	2B 3	10	wide, composed of plastic CLAY (sample). This shear surface varies from 55 to 12 degrees in inclination and emplaces BRECCIA over an approximately 4.0 foot thick paleosol
N35E/41SE		BUL	K 4		(8 feet) high angle shear surface (9 feet) low angle shear surface up to 0.5 inch wide (sample). Tabular schist fragments to COBBLE size are drawn out along shear surface (12 feet) undulatory contact
N42E/38SE		80 1.4	5	15 -	SAN ONOFRE BRECCIA (Tso):  BRECCIA, GRAYWACKE matrix is light olive brown 2.5Y 5/6 fine to coarse SILTY SAND, moderately hard, severely weathered, clasts are GRAVEL to COBBLE size with scattered BOULDERS, subangular to subrounded, clasts composed of schist and some quartz (13.5 feet) bedding attitude in preferred alignment of COBBLES
				20	(18.5 to 21.5 feet) BOULDER
					Continued
STRIKE DIP JOINTING	DRY DENSITY (LBS/CU.FT) MOISTURE (%)	BLOWS/FOOT	SAMPLE SIZE (INCHES) SAMPLE NO.	DEPTH IN FEET	THIS BORING LOG SUMMARY APPLIES ONLY AT THE TIME AND LOCATION INDICATED. SUBSURFACE CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND TIMES.  LOGGED BY JPG/LEF DATE 3-31-99
S 5 8	CLB9	BLO	SAM	日日	LOGGED BY JPG/LEF DATE 3-31-99

TYPE		24"			E	ELEVA	ATION +/-207 FEET BORING BB-104
		100	1.4	6	30		(26 feet) matrix becomes wet (27 feet) slight seepage, sloughing at sides of hole
		90	1.4	7	35		NOTES:  1) Total depth of boring 36.5 feet. 2) Seepage from 27 feet. 3) Minor sloughing below 27 feet. 4) Kelly weight 3,200 lbs. 5) Boring downhole logged by JPG to 27 feet. 6) Boring backfilled with cuttings and tamped on March 31, 1999.
STRIKE DIP JOINTING	DRY DENSITY (LBS/CU.FT)	MOISTURE (X)	SAMPLE SIZE (INCHES)	SAMPLE NO.	DEPTH IN FEET	MATERIAL SYMBOL	THIS BORING LOG SUMMARY APPLIES ONLY AT THE TIME AND LOCATION INDICATED. SUBSURFACE CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND TIMES.  LOGGED BY JPG/LEF DATE 3-31-99

TYPE	24" DL	A BUC	KET A	UGER		E	LEVATIO	
N70E/08SE (C)			В	Л.К	2	5		LLUVIUM (Qcol): ark brown (7.5 YR 4/4) to (7.5 YR 3/4) SANDY CLAY with attered roots to 0.25-inch, scattered GRAVEL and OBBLES, stiff, moist  (3 feet) irregular contact INDSLIDE (Qls)?: BRAYWACKE matrix is olive (5Y 5/4) fine to coarse SILTY ANDSTONE, moderately hard, damp to moist, clasts are BRAVEL- to BOULDER-size, subangular to subrounded,
a			В	BULK	3			lasts composed of schist and quartz, unit is severely to very everely weathered
			100	1.4	4	10		
			90	1.4	5	15		
N02W/50NE (C?) DIST			73	1.4	6	20		
	119	12.4	6	2.5 BULK	7			(22.5 feet) errosional contact within BRECCIA between overlying COBBLEY channel deposits and underlying BRECCIA with GRAYWACKE (SANDY SILTSTONE) matrix     (24 feet) matrix is soft to moderately hard SANDY
STRIKE DIP JOINTING BEDDING	DRY DENSITY (LBS/CU.FT)	MOISTURE	BLOWS/F00T	SAMPLE SIZE (INCHES)	SAMPLE NO.	DEPTH IN FEET	MATERIAL SYMBOL UNIFIED	Continued  THIS BORING LOG SUMMARY APPLIES ONLY AT THE TIME AND LOCATION INDICATED. SUBSURFACE CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND TIMES.  LOGGED BY JPG DATE 3-29-99 3-30-99

-								1 1)				G L O G
	TYPE	24	" DI		CKET 200+	AUGE 1.4	<b>R</b> 9	TH	E	LEV	ATIC	ON +/-227 FEET BORING BB-106 SILTSTONE
1	N33E/21SE			1		BULK	9A		-			(26 feet) shear plane up to 0.5-inch wide filled with olive-gray SILTY CLAY of moderate plasticity (Sample),
1	N11E/62SE	20				BULK	10					root to 0.25 inch diameter in shear plane. A second shear extends upward into the hanging wall from the first to a maximum angle of 62 degrees.
	N17W/14NE			\					_			(28.5 feet) shear surface to 0.5-inch with scattered reddish-orange streaks in low plasticity CLAYEY SILT
1	(S)	0	23:	5	76	1.4	11	30 -			SA	AN ONOFRE BRECCIA (Tso):
	N75E/18SE (B?)										- 1	(31 feet) strong brown oxidation-staining in GRAYWACKE SANDY SILTSTONE matrix (32 feet) top of nested COBBLES and BOULDERS
	N6SW/25NE (B)	119		8.4	140	2.5	12	35 -				(35 feet) gradational contact - change in GRAYWACKE matrix from SANDY SILTSTONE (above) to fine to coarse SILTY SANDSTONE (below)
,	)				120	1.4	13	40 ⊑				(41 feet) slight seepage, increases with depth (42 feet) abundant nested COBBLES and BOULDERS
					141	BULK	14 15	45 -				
								<u>*</u>				
												Continued
	TKE P TING	TINE	U.FT)	TURE	FDOT	SAMPLE SIZE (INCHES)	E NO.	NIT	Ш	SIAL 30L	IED LASS.	CONTINUED  THIS BORING LOG SUMMARY APPLIES ONLY AT THE TIME AND LOCATION INDICATED. SUBSURFACE CONDITIONS MAY DIFFER AT OTHER LOCATIONS
にはいる	STRIKE DIP JOINTING	BEDUING	(LBS/CU.FT)	MOISTURE (%)	BLOWS/F00T	SAMPLE	SAMPLE	DEPTH .		MATERIAL	UNIFIED SOIL CLASS.	AND TIMES.  LOGGED BY JPG DATE 3-29-99 3-30-99

TYPE	24" D	IA RIIC	TET	AUGER	E 3 1		T-		ATIC	DD 407
/ IFE	24 D				16	IA		T		N ONOFRE BRECCIA:
			85	1.4	17	555				(55 feet) nested COBBLES and BOULDERS
									1) 2) 3	Total depth of boring 58 feet. Scepage at 41 feet. Groundwater surface measured at 46 feet on March 30, 1999. Boring downhole logged on March 30, 1999 by JPG/LEF. Boring backfilled with cuttings and tamped on March 30, 1999.  B = Bedding F = Fault Fr = Fracture J = Joint P = Plunge S = Shear
STRIKE DIP JOINTING	DRY DENSITY	MOISTURE (%)	BLOWS/F00T	SAMPLE SIZE (INCHES)	SAMPLE NO.	DEPTH IN FEET	111	MATERIAL	UNIFIED SOIL CLASS.	THIS BORING LOG SUMMARY APPLIES ONLY AT THE TIME AND LOCATION INDICATED. SUBSURFACE CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND TIMES.  LOGGED BY JPG DATE 3-29-99 3-30-99

TYPE	24"	DIA BI	JCKE	r auge	R		E	ELEVATION +/- 110.5 FEET BORING BB-108
				BULK	1			SAN ONOFRE BRECCIA (Tso):  GRAYWACKE matrix is light olive-brown (2.5 Y 5/4) fine to medium (SILTY SANDSTONE), damp to moist, hard, moderately severe weathering, clasts are GRAVEL to BOULDER-size, subangular to subrounded, clasts composed of schist and quartz, strong brown (7.5 YR 5/8) oxidation - staining  (1 to 5 feet) abundant rootlets
			67	1.4	2	5		
N75E/22SE (B) N20E/52SE (S)			er i	BAG	2A			(6.5 feet) olive-brown CLAYSTONE layer approximately 6 inches thick, low to moderate plasticity, scattered iron-stained streaks (6.5 feet) orientation on two shear zones in CLAYSTONE layer, shears are approximately 0.5-inch wide with thin/tight network of rootlets and exhibit
			43	1.4	3	10		normal offsets of approximately 1-inch. Shears extend downward into BRECCIA, no waxy zones (8 feet) irregular contact at top of a zone of nested COBBLES/BOULDERS that extends to 13 feet, GRAYWACKE matrix is very severely weathered (SILTY SANDSTONE), moist
N35E/43SE (Fr) N5SW/64NE (Fr)			60	1.4	4	15 -		(13 feet) 3-foot diameter schist BOULDER (14 feet) orientation on two closed fractures, thin CLAYEY films on fracture surfaces, abundant nested COBBLES
			118	1.4	5	20 -		(19 to 20 feet) 2-foot diameter schist BOULDER (20 to 21 feet) discontinuous tectonic shear in BRECCIA, coincident with COBBLEY zone, shear
								surface is approximately 0.5-inch wide and lithified, local GRAYWACKE matrix is (CLAYEY SANDSTONE/SANDY CLAYSTONE) (21 to 24 feet) interval of nested COBBLES and
N50E/10SE (C)	) v6	,						BOULDERS, orientation on base on interval
170,								
STRIKE DIP JOINTING	DRY DENSITY	MOISTURE	BLOWS/FOOT	SAMPLE SIZE	SAMPLE NO.	DEPTH IN FEET		Continued  THIS BORING LOG SUMMARY APPLIES ONLY AT THE TIME AND LOCATION INDICATED. SUBSURFACE CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND TIMES.  LOGGED BY JPG DATE 3-22-99 3-23-99
5 5	JRY PRY		BLC	SAM	SA	ä		LOGGED BY JPG DATE 3-22-99 3-23-99

NSSW/26SW (C)  100  1.4  6  100  1.4  7  30  BULK  8  BULDER, matrix changes to olive-gray (2.5 Y 5/2) (SANDY SILISTONE) GRAYWACKE with trace of CLAY and motited strong brown (7.5 Y K-5) exidation staining, moderately weathered, moderately hard, moist  (32 to 34 feet) interval of nessed COBBLES  N32W/47SW (S)  112  1.4  9  35  (38 feet) shear surface approximately 3 inches wide composed of grayish-brown to epitowish-brown moderate placeticly SILTY CLAY (rample), wet, some irros-staining on hanging wall of above shear surface  N55W/35SW (C)  120  5.7  3.6  2.5  12  2.5  1.7  1.7  1.7  1.7  1.7  1.7  1.7  1	TYPE	24" I	DIA BU		r auge	CR		ELEVAT	ION +/- 110.5 FEET BORING BB-108
BAG 9A  112 1.4 9 3.5 (38 feet) interval of nested COBBLES  112 1.4 9 3.5 (38 feet) shear surface approximately 3 inches wide composed of grayish-brown to yellowish-brown moderate planticity SILTY CLAY (sample), wet, some iron-staining on hanging wall  116 11.4 4 2.5 11 BAG 11A  117 118 119 119 119 119 119 119 119 119 119				200+	1.4	6			BOULDER, matrix changes to olive-gray (2.5 Y 5/2) (SANDY SILTSTONE) GRAYWACKE with trace of CLAY and mottled strong brown (7.5 YR 5/8) oxidation
N32W/47SW (S)  BAG 9A  25 1.4 10 40  116 11.4 4 2.5 11 BAG 11A  Was a surface approximately 3 inches wide composed of grayish-brown to yellowish-brown moderate plasticity SILTY CLAY (sample), wet, some iron-staining on hanging wall of above shear surface  N55W/35SW (C)  N55W/35SW (C)  120 5.7 36 2.5 12  Continued  Continued  Continued				100			30		(32 to 34 feet) interval of nested COBBLES
NS5W/35SW (C)  120 5.7 36 2.5 12  (46 feet) irregular gradational contact seen as change in matrix to medium to coarse (SANDSTONE) GRAYWACKE, hard, slightly weathered  Continued		116	11.4	25	BAG	9A 10	40		composed of grayish-brown to yellowish-brown moderate plasticity SILTY CLAY (sample), wet, some iron-staining on hanging wall
GRAYWACKE, hard, slightly weathered  Continued		116	11.4	4		11			surface  (46 feet) irregular gradational contact seen as change in
>-		120	5.7	36	2.5	12			GRAYWACKE, hard, slightly weathered
LOGGED BY JPG DATE 3-22-99	STRIKE DIP JOINTING BEDDING	ORY DENSITY (LBS/CU.FT)	MOISTURE (%)	BLOWS/F00T	SAMPLE SIZE (INCHES)	SAMPLE NO.	DEPTH IN	MATERIAL SYMBOL UNIFIED SOIL CLASS.	

#### LOG OF BORING Boring Dlameter: Boring Elevation: **Boring Number** Drill Rig: EZ Bore Bucket Auger 24 inches This log is a representation of subsurface conditions at the time and place of drilling. With the Date Drilled: BA-1**(**X passage of time or at any other location there may be consequential changes in conditions June 2, 1993 SAMPLE THOWARD & I 1 685 CENSITY 41055, 1. Shire Description and Remarks OEPTH. Clayey SAND: dark brown, very moist, dense SC @ 3 feet, becomes light orange-brown, medium dense 10-15% rock clasts present 13.3 116.9 FILL Clayey SANDSTONE Conglomerate: fine- to medium-17 13.8 120.0 grained, light grey-green, poorly cemented, somewha weathered, abundant quartz cobbles present, poorly 0 @ 9.5-10 feet, siliceous zone 10 @ 9.8 feet, becomes well cemented @ 10.5 feet, increasing clasts up to 12 inches in 37 12.0 125.2 diameter, slight caving @ 12 feet, caved zone 1' diameter northwest side of hole @ 13.5 feet, Bedding: N71E, 34SE @ 14.5 feet, rock fragments make up 50% of matrix 0 @ 16 feet, increasingly weathered @ 16.4 feet, becomes fine-grained, yellow-brown, 37 6.0 loose to medium dense, dry @ 17 feet, well cemented, very hard @ 18 feet, Fracture: N87W,58NE, infilled with Clayey SAND soil, moist, loose. 20 23 13.1 103.0 @ 22.5 feet, Matrix 90% Clayey SAND: fine-grained, light greenish-grey, poorly bedded, poorly cemente moderately hard @ 23.5 feet, Bedding: N81E,34SE 25 @ 27 feet, becomes very well cemented >100 7.9 123.1 (Continued on Figure B-2.2) South Shores Baptist Church 32712 Crown Valley Parkway Dana Point, California G.A. NICOLL & ASSOCIATES, INC. EARTH SCIENCE CONSULTANTS Figure No.: Project No.: Tustin, California B-2.14800-04

	LOG O	F BORING	
Drill Rig: EZ Bore Bucket Auger	Boring Diameter: 24inches	Boring Elevation:	Boring Number
Date Drilled: June 2, 1993 AK	This log is a representation passage of time or at an	on of subsurface conditions at the time and place of drilling. With the my other location there may be consequential changes in conditions.	BA-1 <b>(X)</b>
SAMPLE ST.		Description and Remarks (Continued from Figure B-2.1)	
44 7.9 123.1	BR   BR	@ 32 feet, siliceous zone to 35 feet	
- 19 10.6 127.8 	- 35 -	@ 35 feet, becomes orange-brown, less	hard
-   -   -   -   -   -   -   -   -   -	- 40 - \(\frac{1}{2}\) \(\frac{1}2\) \(\frac{1}2\) \(\frac{1}2\) \(\frac{1}2\) \(\frac{1}2\) \	@ 40 feet, becomes very hard, well cer visible bedding or fractures	nented, no
- - - - NR NR	-45 - 	very hard drilling conditions SAN ONOFRE BRECCIA	
	 - 55 -  	Bottom of Boring at 52 feet. Notes: 1) Minor caving at 10.5 and 12 feet. 2) No ground water encountered. 3) Boring backfilled and tamped 20 blo NR - No Recovery	ws every 5 feet.
G.A. NICOLL EARTH SCIENC Tustin, Callforn	& ASSOCIATES, IN	South Shores Baptist Church 32712 Crown Valley Parkway Dana Point, California  Project No.: 4800-04	io.: <sub>B-2•2</sub>

Orill Rig: EZ Bore Bucket Auger	Boring Diameter: 24 inches	Boring Elevation:	Boring Number
Date Drilled: June 3, 1993 AK	This log is a representation of sub-	surface conditions at the time and place of drilling. With ocation there may be consequential changes in conditions.	
SAMPLE SA		Description and Remark	
		rey SAND: fine- to medium-grai moist, dense	ned, redaish-bro FILL
20   11.7   121.4	BR grain   hard	rey SANDSTONE Conglomerate: ned, orange-brown, moist, weath, 5% rock fragments present feet, rock fragments make up 2 eathered feet, becomes light greenish-groorly bedded 2-8.8 feet, weathered zone Clayeddish-brown, very moist, mediu	hered, moderate  0% of matrix, le  ey, well cement  yey SAND:
	<u> </u>	feet, becomes well cemented, agments show faint striations	
	@ 14	l feet, oxidation present, Beddin	ng: N86E,24SE
12.2 124.9	@ 17   @ 17   br	3.5 feet, Bedding: N45E,19SE 7.5 feet, Fracture: N11E,70SE, coide infilled with Silty CLAY and agments 9.7-21 feet, weathered zone, Clarown, moist, medium dense, less	d angular rock ayey SAND: ora
		1.5-25 feet, Siliceous layer	
27   z3.3   99.1	- 25 - 0 (Con	tinued on Figure B-3.2)	
	& ASSOCIATES, INC.	South Shores Baptist Church 32712 Crown Valley Parkway Laguna Niguel, California	

		OF BORING		There were
Drill Rig: EZ Bore BUcket Auger	Boring Diameter: 24 i	nches	oring Elevation:	Boring Number
Date Drilled: June 3, 1993 AK	This log is a represen passage of time or a	tation of subsurface conditions at it any other location there may be	the time and place of drilling. With the e consequential changes in conditions.	BA-2 <b>(X)</b>
SAMPLE SOLUTION AND SOLUTION AN			Description and Remarks com Figure B-3.1)	
- NR NR	35	to 50% of ma	acreasing rock fragmen atrix, well cemented, v augered to 32 feet augered to 35 feet asal SAN ONOFRE BRECO	ery hard
	- 40		ater encountered. illed and tamped 20 blo	ws every 5 fee
G.A. NICO EARTH SCIE Tustin, Calif	LL & ASSOCIATES, ENCE CONSULTANTS Fornia	32712 Crov	es Baptist Church vn Valley Parkway guel, California Figure I	No.: B-3 <b>.</b> 2

GEOTECHNICAL BORING LOG

	E 2/2	786 STEIN	-BRIEF/A	REA 16	DRILL	HOLE	No	8-7
DRII	LLING	Co	Shor	ing Eng		W		TYPE OF RIG LDH Spin Auger
HoLE	E DIAM	ETER	24"	2661	DRIVE	WEIGH	IT	DROP
ELE	MOITAV	TOP OF	HOLE—	<u> 200`</u>	REF.	OR DAT	TUM	See Geotechnical Map
ИЕРТІІ <b>≲</b> Feet	роТ Гос Сос	m Attitubes	Tube Sample No.	BLOWS PER FOOT	DRY DENSITY PCF	Moisture Content, %	80.18.848ss.	GEOTECHNICAL DESCRIPTION  LOGGED BY RM/DT SAMPLED BY -
) <del>-</del>	71. T							Fill:
- - - -								Medium brown, moist to very moist, slightly to mod. dense, silty sand; fine to medium grained.  @ 1.0' Medium gray, Tc fill, roothairs  @ 2.8' Dark brown, silty clayey sand; fine to medium grained; occasional pebbles.  @ 3' Brick.  @ 4' Wood fragment.  Topsoil/Colluvium:  @ 4.4' Red brown, moist to very moist, sansy clay; pebbles and cobbles near contact, loose, soil mottling, loc. wet.
		@ 11.3'= G8: N-5, 52 W @ 12.3' G8: Hori @ 13.0' G8: N60-80E, 10-15 SE						San Onofre Breccia:  0 5.5' Red brown to yellow gray, clayey sand; fine to medium grnd; clasts are weathered; clast-supported; fine gravel and cobbles to 3-4" diam.  3 3.8' Orange brown, very moist to wet, sandy silt with fine gravel; dips to north, may be contact w/above.  9 9.8' Yellow-gray, dry to damp, silty sand; small pebbles.  12.3' 2-3" thk gray brn to mottled orange brn sand bed.  12.5-13' Gradational change from sandy silt to green gray - mottled yellow clayey sand to sandy clay with loc. gravel.  9 14.7' Gray to orange brn, dense, 2-3" thk sand bed; non-cemented; parallels beds above.  7 15' Grayer, more siliceous, clasts up to 5 diam., abundant gravel; sandy clayey sand matrix.
0	0101	⊌ 13' F/S: N46E, 64 ₩						9 13' Fault zone, polished, sheared, numerous subparablel shears; jux. prange bro with gray bro. Zone is 1.5' thick with white clayey gouge 1" thick, subparablel to shear zone.  Below Fault: Green gray, moist, dense, clayey sand to cobbles; general fabric parablels above zone.
5	2000							@ 24' Quartz chunk.
								9 27' Fabric subparallels above fault zone - material drier below - gray bro clayey silt with sand, not as much gravel or cobbles, occ. boulders. 9 27' Very hard clast.

GEOTECHNICAL BORING LOG

		2/24/86 ST	EIN-BRIE		DRILL 16	HOLE	No	B-7 LB-TD) SHEET 2 OF 3 PROJECT No. 1851354-01
	JECT	Co	7 505 11 11			· · · · · · · · · · · · · · · · · · ·		TYPE OF RIG LDH Spin Auger
Hou	E DIAM	ETER	24"		DRIVE	WEIGH	Т —	Drop
ELE'	VATION	TOP OF	HOLE_20	66'	REF.	OR DAT	אט	See Geotechnical Map .
Дертн Е Геет !	GRAPH1C Log	m Attitubes	TUBE No.	BLQWS PER FOOT	DRY DENSITY PCF	Moisture Content, %	\$0.18.5L8s\$.	GEOTECHNICAL DESCRIPTION  LOGGED BY RM/OT SAMPLED BY
35 -		@ 33' GB: N O-20 W 39 E						0 31-31.5' Clast density increases; clayey sand matrix.  0 33' Bouldery bed, with silty to clayey sand; minor seepage on bed.  0 34' Gray, silty sand with cabbles, cobbles.  0 36' Gray brown, dry - damp, dense, clayey sand with peobles to boulders; belied cone.
45	000000000000000000000000000000000000000	@ 43' GB: N10- 30E, 26E						@ 43' Gray bro sand bed, poorly defined, fewer clasts, irregular, discontinuous.  @ 44.5' Clayey sand to sandy clay bed, 1/2' thick; few clasts; FeO stained, trained, traintinuous bedding planes, wet 3 soft on one side, dry on other side.  Medium gray, massive, abot boulders.
50 -	10 40 00 00 00 00 00 00 00 00 00 00 00 00							@ 51' Matrix gray brn, damp - moist, massiva, very rocky, similar to above.
55 -	0,0,0,0,0,0,0,0							

505A(11/77)

LEIGHTON & ASSOCIATES

TD=74'

PAGE 3 of 3 -NOT AVAILABLE -

LB-1 (B) GEOTECHNICAL BORING LOG Leighton Boring at N cut DATE 10 - 21 - 85 DRILL HOLE NO. B-1 SHEET \_\_\_\_\_OF \_\_3 PROJECT\_ REGIS /AREA 15 PROJECT No. 1851456-6 DRILLING CO. BO-JAC / SHORING ENGINEERING TYPE OF RIG\_BUCKET DRIVE WEIGHT 2500 16, /1500 14, @25'/750 14, @ 45' DROP 12 HOLE DIAMETER 24" ELEVATION TOP OF HOLE 255 REF. OR DATUM SEE GEOTECHNICAL MAP Dens I 7 SAMPLE NO. MOISTURE CONTENT. X ATTITUDES PER FOOT GEOTECHNICAL DESCRIPTION DRY WG LOGGED BY . SAMPLED BY W6 Sam Omofre Breccia: Orange-brn - mottled w/ gray, damo, dense, clayey sandy breccia; abdt cobbles i pebbles; clasts predom. blueschist; large amt thin roots to 4'; iron-stained; mass ive. (l)@ 12" Clasts smaller in size @ 12-18", increase in moisture. @ 14.5° SE wall - large boulder 1-2' diam., above 15 sandy zone. 68 @ 17 % Maok al (3) 16 1241 10.2 GMI 20 6C P 21' Large boulder on west side of hole 2' diam.; some discontinuous sand lenses, poorly developed. @ Z3" Increase in clayey sand. 25 a: with w 25° Rimor belling of bore hole.

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	2.2				GEO	TECHN	ICAL I	ORING LOG	ű
DATE	<u>10</u>	-21- REG15	85		DRILL	HOLE	Ho	B-1	SHEET 2 OF 3
		Co			l O C IN	T TAR	والمراش والما		PROJECT No. 1851456-61
HOLE	DIAH	ETFR	242	_ , _ ,	Douge	Urano	-   Dag	AIN C	TYPE OF RIG RUCKET  DROP 12
ELE	NOI TAN	TOP OF	HOLE 2	<u>55′</u> ±	PRIVE Ref. c	meigh dr Dat	11 <u></u> 1	SEE GEO:	TECHICAL MAP DROP I
		5/A			<u>ئ</u>	<b>64</b>	-		
DEPTH FEET	GRAPHIC Log	ATTITUDE	SAMPLE NO.	BLOWS R FOOT	DENS!	MOISTURE CONTENT:	CLAS:		GEOTECHNICAL DESCRIPTION
82	iA. L	E	THE STATE OF			NO Tess	\$8!\$.	LOGGED BY -	W.G.
W		E <	Ù,	n.	DRY	<b>E</b> 9	æ	SAMPLED BY	
30	12.		. 1	1,6	-				
-	5		A	10	110.5	12.9	GA!	£ 30'	Color change from mottled grayish brm to orangeish brown.
	997			1					
_	000							e 33°	
•	Ro							F 33	Grayish brn, mottled w/ orange; on west wall large boulder to 35".
35	1.C		-	4				e 35'	MV wall - Seepage below boulder
'-	ĽX			1					200 100
- 1	1.4								
_	E a								
	0.90	e31"	0					4 79-40.	2' sand & gravel bed below large cobbles & boulders; seepage confined to north & west
40_	]98:	68: MJoN		1					M9112"
175	1402		ادا	16	123.5	1.5	C~	₽ 40°	Seepage from gravel bed.
'-	100			1			Sec.		
1 .	100 C	3	1 1	-	1				
•	160	36 43.		-		Ì			
1	4 = 1	Z 22.52	4 5	4		To the second		@ 43.5°	brayish brn. 2' sand bed; med grained, well-packed, grades below to a clayey
45 _	4:::							9 44	Sand_
1	一场	<u> </u>							Nottled gray brn to orange; pebbles. cobbles, small boulders.
	بزيرا							NEW COLUMN TO THE PROPERTY OF	•
	Dig.	2 477							
	%	DEB (						P 48'	Sand bed 1.5' thk.
	133	10 K ( h.d. )	7 8	Н					
50.	一般		1 .,		117. £	2.0	1		
	435	8.	4	H 212	111.5	1 **	G A		
	12	8]		Ц					
	占	5		Ц					
		A)					National Property and Property		
55	D!			П					
1	兴			П					<u>.</u>
	19Y	刻		H					
	1(_	<i>!</i> !		H		Marine Marine		€ 57'	Less clay, more sand in matrix; very about
	<b>-</b> DX	J <u>:</u>		Н		The state of the s			cobbles I small bowlders.
	100	8		H					
124	- Iノ	57.	1	11	1	1		6 60.	Cavino helms

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#### GEOTECHNICAL PORING LOG

		<u> </u>	No	100 T	\$1 <b>7</b> Y	JRE 7	\$ C. S.	SEE GEGTECHNICAL MAP  GEOTECHNICAL DESCRIPTION
=	GRAPHIC	ATTITUDES	SAMPLE NO.	BLOWS PER FOOT	DRY DENS	CONTENT,	\$8!\$.E.§.\$.	LOGGED BY WG
5 -					A CONTRACTOR CONTRACTOR DESCRIPTION			
70-							enus el suprece d'April ce con se su	
75-								
						According to the William Control of the Control of		9 75° Gray blue, damp, silty sandy breccia fine-grained matrix; abdt subangular subrounded clasts of blueschist quartzite.
						Consequence of modern consequence of the consequenc		· · · · · · · · · · · · · · · · · · ·
							ale construction and the construction of the c	TD 78.5"  Downhole logged to 60' Light seepage at 35' 1 40', heavy seepage below 60'. Caving below 60' After 1 hour, water level 8 70'