BORING 1092 - 1

30" bucket auger bagging samples of lithologic changes & downhole logging

Elev. 445' depth	field soil class	Geologic formation & attitude	Soil description & drilling remarks
	CL & ML	Topsoil	SANDY, SILTY CLAY, black brown, damp, soft /firm ,grades down into weathered claystone with lots of caliche
5		Qls Debris	LANDSLIDE DEBRIS comprised mostly of CLAYSTONE, intermixed with blocks of SANDSTONE and SILTSTONE high in caliche. Claystone is highly sheared predominately green or marroon and locally mottled or impregnated with caliche The most heavily sheared zones cave easily and seriously . The zones are wet and appear to be stacked slip planes .
10	SM		SANDSTONE, dark green gray poorly sorted, medium dense locally hard or crushed with long vertical , caliche filled fractures.
	CL		CALICHE nine inches thick dry , punky, dirty white
		N6E36S	CLAYSTONE, dark green, highly sheared , firm impregnated with caliche, erractic shears At 13' shears dip N6E36SE At 15' shear dips northward EW 31N
15		EW31N	CALICHE, four inches thick , soft damp to moist , punky to pliable, with strong shear
	SM		SANDSTONE, dark green gray heavy with caliche, poorly sorted, dense, numerous hard caliche nodules
20			SEEPAGE at 21 feet, strongest flow enters from the north side of boring.
	CL		CLAYSTONE, green and red , intensely sheared, soft , saturated, spalls easily along
		N20W19N	smooth, polished sheared surfaces on curved, wavey planes. Dip trends N30 W19NE Sheared zone caves forming cavity six inches to a foot wider between 21 and 24 feet.
25	ML	Qls Debris	CLAYEY SILTSTONE block, dark green, dense & competent with steep dipping lenghty fractures, but most fractures dip neutral to the slope , dry to damp, some dark brown fractures filled with organic material
30		NS45E	Long shear dips NS 45E
	CL ML		Shearing trends dip either northward or southward
35		Qls Debris	
	SM & ML		SILTY SANDSTONE , light green , dense , with transitional contact into the sdy siltstone
			At 40 ' large shears favor a dip trend of N65E 40NW
40	CL	N85E40N	CLAYSTONE, maroon, intensely sheared, caving badly .
45			A cavity up to two feet wider than boring formed between 39 and 44 ' , another between 47 and 52 ' . The deepest part of the cavities formed to both the north and south sides The boring was not entered below 42 feet because of the constant slumping of the wet , sheared claystone Shear plane faces on the slumping claystone was occurring on slip planes that dipped north or south mostly between an estimated 30 to 45 degrees.
50		Qls Debris	The basal slide plane for the principal slide mass is believed to be the disturbed zone between 20 and 23 feet as studies by others show . However, this boring indicates a potential for other smaller slides below the front end of this mass 20 to 30 feet deeper.

BORING 992 - 23

Bucket auger - 30" - bag sampling lithologic changes and visual downhole logging

Elev 421 Depth	Field soil class	Geologic Formation & attitudes	Soil description and drilling remarks
	CH	Topsoil	CLAY, black, stiff, dry to damp, plastic, becomes silty with depth
	ML	Subsoil	SANDY SILTSTONE, green very clayey, deeply weathered abundance of caliche, soft to firm
5		Friars Fm	
			Weathered Bedrock
			Less caliche
			Gradational contact
10	SM		SANDSTONE, gray green, poorly sorted, clayey, dense, moderately indurated
			Distinct horizontal contact between sandstone and underlying claystone
	CL & ML		CLAYSTONE, red, very silty, moderate to heavily sheared, badly weathered during deposition especially in the upper few feet. Large continous shear at 15 feet dips down hill at N10W21NE
		N10W21NE	
15		Friars Fm	
		N54W34NE	At 18 feet , a long shear filled with caliche dips N54W34NE
20		N75E42SE	At 19.5 feet , a large shear dips southward neutral to slope at N75E42SE
		N75W36NE	At 21 feet , another long shear dips N75W36NE
			Gradational contact
	SM & SC		SANDSTONE, gray, hard, dense, fine to coarse, undisturbed
25		Friars Fm	
30			Clay lense
35			SILTY SANDSTONE, gray , medium to coarse, very dense , hard, competent
40	ML		SILTSTONE green gray, very clayey, dense becomes sandy with depth
			Slight seepage at 44 feet
45			Total depth 45 feet 9/4/92

Boring location is 205 feet right of station 286+80 on the SR centerline

11 SD 125 pm 20.0 / 22.4 EA 010721

BORING LOG 992 23

BORING 493 - 10

Flight Auger Drill - drilling 6 " hole & sampling with 140 lbs weight dropped 30 " on 1.4 " sample barrel

elev 455' depth	field soil class	SPT Blows per 6 "	Soil description and drilling remarks
	CL	Topsoil	CLAY, brown, silty, sandy, dry, expansive, many dessication cracks nearby
		'5/6/5	SPT driven from 1 to 5.5 ft
	SM/		SILTSTONE pale gray with organics grades rapidly into SILTY SANDSTONE, fine to
	SP	'8/10/13	medium with caliche, friable, w/ variegated minerals, dry
5	ML	'10/16/18	SANDY SILTSTONE, pale yellow brown, slight induration to friable, dry, not plastic
		Friars	
	SM	push 1.3'	California sampler push 1.3 ft
	SM/	Friars	SILTY SANDSTONE, pale yelo gray, loose to friable fine to medium, massive, interbeds
10	SP	Fm	of SANDY SILTSTONE, light brown, friable, dry
		'9/16/19	SPT driven from 10 to 11.5 ft
			CLAYEY SANDSTONE, pinkish gray mottled with rust, loose to very friable, massive
15			fine to medium, dry, caliche common, silt interbeds, micaceous
		'10/20/28	SPT driven from 15 to 16.5 ft
	GC		CLAYEY GRAVEL, heavy clayey matrix, interbeds of CLAYSTONE, red brown
			well rounded metavolcanic pebbles and cobbles
20			
	ML	'17/30/50	SPT driven from 20 to 21.5 ft
			SANDY SILTSTONE, light olive gray, slightly indurated, non plastic, dry, caliche common
	ML/		
	SP		
25			
		'50+	CLAYEY SILTSTONE, olive gray, includes some very fine sandstone lenses, dry
	ML/		Atempt to sample at 25 feet with 1.4" SPT - 50 blows for 6"
	SP		
30			
	CH	'14/18/28	SPT driven from 30 to 31.5 ft
		push	California sampler push 1.5 ft
			CLAY, mottled pale yelo brown - pale olive, hackly
35			
	CL	'13/31/38	SPT driven from 35 to 36.5 ft.
	&		SANDY SILTY CLAYSTONE and CLAYEY SILTSTONE, mottled, pale olive to dark olive,
	ML		dry , with caliche, hard
40			
	ML	'10/20/34	SPT driven from 40 to 41.5 feet
	&		
	CL		CLAYEY SILTSTONE and SANDY, SILTY CLAYSTONE, gray yelo green, hard,
			moderate indurated, waxy luster, slow dilatancy, slight plastic, caliche cemented
45			
		'15/31/36	SPT driven from 45 to 46.5 feet

Total depth to 46.5 feet 4/28/93

Boring location is 100 feet left of station 296+50 on SR 125 centerline

11- SD- 125 PM 20.0 / 22.4 EA 010721

BORING LOG 493 - 10

BORING - 493 - 3

30" bucket auger - bag sampling lithologic changes and downhole visual logging

Elev. 444' Depth	field soil class	Geologic formation & attitude	Soil description and drilling remarks
	CL	Topsoil	SILTY CLAY, black to dark brown, dry , very stiff to moist and pliable below dry crust
			very expansive
	CL	Friars	CLAYSTONE, gray mottled intensely , white caliche, dry , expansive, locally soft and moist
		Fm	
5			Color grades to light brown and it contains less caliche
			A significant amount of silt increase
			SILTY CLAYSTONE, dark green, hard fractured, rootlets in fractures, large, prominent
10		N6E33N	caliche vein crosses boring trending N6E33NW
			CLAYSTONE, dark green to dark gray, very stiff to hard
	ML		CLAYEY SILTSTONE, light green gray very dense well consolidated , medium spaced
15			fractures are very tight, dry. Grades sandy with depth. Thin clay bed at 15 is flat lying.
			SILTY CLAYSTONE, light gray w/ dark green & red mottling , medium spaced fractures
			are tight rock is very dense , dry to moist.
20			SILTSTONE, yellow green, sandy, moist, medium dense to dense with heavily sheared
			zone at 23' to 25 feet
			SILTY CLAYSTONE, tan, mottled w/caliche, locally light and punky with caliche, medium
			soft. Few shear planes w/ waxy luster, heavy with slicks at 25 ft. many calcareous nodules
25			scattered about, a few calcareous seams dip randomly. Silty sandstone layer at 25 to 26'.
	SM		
	ML		SILTY CLAYSTONE as above
	SM		SANDSTONE, gray, silty, coarse, calcareous, very dense
30			
		3/3/6	SPT @ 30'- 3/3/6 Blow counts for six inch penetration using 2300 lbs kelly dropped 30 inches
			CLAYSTONE, dark green gray, chaotically broken, many short slickensides planes
	CL		dipping randomly between 34 and 36 feet. . Tightly brecciated but dense.
35			
			Brecciated claystone zone extends from 32 to 41 feet
		2/1/3	SPT @ 37' - 2/1/3 Blow counts for six inch penetration using 2300 lbs kelly dropped 30"
			CLAYSTONE, dark green gray, hard, silty many small tight interlaced short shears
40			randomly oriented give hackly appearance ,on parting faces, otherwise, firmly indurated
			tight shear and fractures planes.
	ML		
			CLAYEY SILTSTONE, light green gray with dark green inclusions, dry, hard, dense
45			many grains
			Grades very sandy below 45 ft.
	SM		SANDSTONE, gray medium to coarse grained, v/dense,well consolidated. It contains
		N10E88S	a long, steep dipping fracture from 43 to 53 ft. Fracture is open as much as 1/4 inch.
50			has oxidation zone on both sides of fracture and trend measurement is N10E88SE
		N5E71N	Another large fracture below measures N05E71NW
		N30W17N	Lower contact is disturbed but overall it dips downslope N30W 17NE

	CL		CLAYSTONE, dark red and dark gray, chaotically disturbed broken into tiny fragments
55			with many shiny, polished, short, shear planes particularly between 53 and 55 feet..
			Below 55 feet rock grades firmer having fewer shear planes. It also turns light gray to tan
			becoming very siltyand hard at 57 feet.
	SM & SP	N2E69N	Minor fault at 59 feet measures N02E 69 NW
60			SANDSTONE, gray green to light brown, dry very dense, dense silty, v/fine to coarse,
			locally, clayey, ranges from friable to well cemented
		N10E88N	
		N15W85S	At 63' slight seepage from crack measuring N10E88NW to N15W 85SW
65			
70			SANDSTONE as above but contains mostly coarse grains
		N5E5-10S	Crude, irregular contact at 71.5 measures N05E 5 to 10 SE
	CL		CLAYSTONE, dark brown, highly fractured but no slickensides evident between planes
			wet,strong flow from contact. Crack in SS does not continue ver, far into claystone
75		N55W35S	Stong shear plane @ 75' measures N55W35SW
	CL & ML		
			Claystone, red brown, mottled with white cacareous nodules and green and red inclusions
			Wet fractured blocks peel off easily from boring walls, Many fractures but few shears with
			polished planes . Several long continuos calcareous nodular seams are very hard.
80			Chaotically brecciated into short, small shear planesthat dip randomly. Larger blocked
			planes scale off easily, very wet because water seeps in from cracks in the sdst section
			Downhole logging stopped at this depth
			Water rose to 66 feet overnite. Rock below 85 feet was drilled in 20 feet of standing water
85			
	SM		SANDSTONE, drk gry green, poorly sorted, hard to drill Fresh pieces of rock appear dry
90			
	CL & ML		CLAYSTONE, dark green to dark brown red includes traces of white sandstone
			fractures do not contain polished surfaces
95			Grades into clayey siltstone gradually
	ML		
			SILTSTONE, light gray with tinge of green, clayey to sandy, contains many oxidized
100			inclusions, very hard and competent
			This zone may be upper limits of deeply weathered granite underlying the area.

Total depth to 103' 4/19/93

Boring is located 70 feet left of station 298 + 20 on SR 125 centerline

11 - SD - 125 pm 20.0 / 22.4 EA 010721

BORING LOG 493 - 3

BORING 493 - 4

Elev. 497' Depth	field soil class	Geologic formation & altitude	30" bucket auger - bag sampling lithologic changes and downhole visual logging Soil description and drilling remarks
	CL	Topsoil	CLAY, black, moist , stiff to very stiff where dry , very plastic , high in organics
			Trace of pebbles
5			**Soil penetrometer readings in this clay average 2.5 tons per square foot**
			Black topsoil has few inches of base intermixing with light gray clay below.
			From 8 to 9.5 feet a light green gray CLAY is sandwiched between black topsoil above
	CH	Qls	and a dark brown older topsoil below. The CLAY is slightly moist, stiff to very stiff , plastic
10	MH	Paleosoil	and contains a zone of short shear planes with slickensides at 9.5 feet which is the base.
		Colluvium	Sheared clay is probably a slide plane for creeping topsoil
			Paleosol is a SILTY,SANDY CLAY, dark brown, poorly developed, w/lenses of gravel
	ML	Decomposed	Colluvium is a GRAVEL, oxidized red orange, v/sandy grades down into sandy silt
		Granite	SANDY to CLAYEY SILT, mottled w/patches of red, tan, orange ,gray and green like a
15			highly weathered granite. Locally, it contains lenses of clay or coarse sand .
			With depth, the sand predominates. The material is dry, very dense becomes coarsely
			crystalline Decomposed Granite.
20			
	SW	DG	SAND, gray w/ salt and pepper texture, many fragments still congealed but friable.
			crystalline GRANITE. Mostly coarse to very coarse but overall poorly sorted.
25			
30			**Moderately difficult to drill**
35			

Total depth to 35' 4/21/93

Boring is located 195 feet right of station 299 + 18 on SR 125 centerline

11 - SD - 125 pm 20.0 / 22.4 EA 010721

BORING LOG 493 - 4

BORING 493 - 8

Flight Auger - 6" dia. sampling w/ 140 lbs wt dropped 30" on 1.4 " or modified Calif. sample barrel, as noted.

elev 416' Depth	field soil class	SPT Blows per 6"	Soil description and drilling remarks
	CH		Topsoil, CLAY, black, sandy, dry, soft to stiff, very expansive, many dessication cracks
		5/6/11	SPT driven from 1.5 to 3 feet with 1.4" sampler
		Friars	SAND, white, very fine to medium, well indurated, medium dense
	SM	12/16/19/32	SPT, modified California 2" sampler from 3 to 5 feet
5	CH		CLAYSTONE, tan, moist, stiff, to hard, brecciated, expansive
	to	17/18/30	SPT driven from 5 to 6.5 feet with 1.4 sampler
	CL		
		16/25/47	SPT, modified California 2" sampler from 6.5 to 8 feet and from 8 to 9 feet
		25/55	CLAYSTONE, tan, moist, v/ stiff to hard, brecciated into tiny fragments tightly compressed
10		50	SPT, driven from 9 to 9.5 feet with 1.4 " sampler
			Hard, calcareous nodules scattered throughout
		Friars	
		Fm	
15			
	ML	18/24/50	SPT, driven from 15 to 16.5 feet with 1.4 " sampler
			SILTY CLAYSTONE, dark green gray brecciated into tiny, tightly compacted fragments
			with shiny surfaces, very stiff to hard, , dry to damp, with trace of scattered sand grains
20			White calcareous nodules are common, grades into a silty clayey sandstone at base
		8/14/14	SPT, driven from 20 to 21.5 feet with 1.4 " sampler
	SM		SANDSTONE, gray, very dense, medium to coarse, slightly clayey, hard to drill
25	CH		CLAYSTONE, dark green, moist, very plastic, grades to dark red, stiff , hard with caliche
		39/30/24	SPT, driven from 25 to 26.5 feet with 1.4" sampler
	CL		SILTY CLAYSTONE , dark red and green, moist very silty, very stiff
30			
	ML	8/9/14	SPT, driven from 30 to 31.5 feet with 1.4" sampler
			CLAYEY SILTSTONE, light green gray, very sandy, includes white sand lenses, dense
		21/25/25	SPT, modified California 2" Sampler from 31.5 to 33 feet

Total depth to 33 feet 4/27/93

Boring location is 20 feet left of station 300+92 on SR 125 centerline

11- SD- 125 PM 20.0 / 22.4 EA 010721

BORING LOG 493 - 8

Elev 304' Depth	Field Soil Class	Geologic formation & attitude	BORING 493 - 5
			30" bucket auger - bag sampling lithologic changes and downhole visual logging
			Soil description and drilling remarks
	CL	Topsoil	SILTY CLAY, black , dry , very stiff to moist and pliable with depth,plastic when wet.
	SW	DG	SAND ,derived from Decomposed Granite, red brown , poorly sorted , dry, very dense
			friable
5			
10			

Total depth to 12' 4/21/93

Boring is located 100 feet left of station 302 + 85 on SR 125 centerline

11 - SD - 125 pm 20.0 / 22.4 EA 010721

BORING LOG 493 - 5

BORING 493 - 9

Flight Auger Drill - drilling 6 " hole & sampling with 140 lbs weight dropped 30 " on 1.4 " sampler .

elev 360' Depth	field soil class	SPT Blows per 6 "	Soil description and drilling remarks
	SM		SAND , dark brown, clayey loose, grass roots in upper foot, grades rapidly into DG
		4/4/5	Two SPT samples driven between 1 and 4 feet.
		5/15/29	
		DG	SAND, brown, derived from weathered granite medium dense to dense, well graded or
5			poorly sorted; commonly called Decomposed Granite or DG
		35/50+	SPT driven at 5 feet for 4 inches with 50 blows
			Decomposed Granite , dark brown, medium to coarse, very dense, damp SAND
			Grades firmer with depth
10			

Total depth to 10 feet 4/27/93

Boring location is 50 feet right of station 303+88 on SR 125 centerline

11- SD- 125 PM 20.0 / 22.4 EA 010721

BORING LOG 493 - 9

BORING 493 - 7

Flight Auger Drill - drilling 6 " hole & sampling with 140 lbs weight dropped 30 " on 1.4 " sampler .

elev. 305' Depth	field soil class	SPT Blows per 6 "	Soil description and drilling remarks
	SC	DG	SAND , dark brown, clayey loose, grass roots in upper foot, grades rapidly into DG
		3/7/10	Four SPT samples driven between 1 and 6.5 feet.
		17/34/28	
	SM		SAND, brown, derived from weathered granite medium dense to dense, well graded or
5		16/50	poorly sorted; commonly called Decomposed Granite or DG
		36/36/50	
			Grades firmer with depth
10			

Total depth to 10 feet 4/27/93

Boring location is 150 feet left of station 306+35 on SR 125 centerline

11- SD- 125 PM 20.0 / 22.4 EA 010721

BORING LOG 493 - 7

BORING 493 - 6

Flight Auger Drill - drilling 6 " hole & sampling with 140 lbs weigth dropped 30" on 1.4" sample barrel

elev 360' Depth	field soil class	SPT Blows per 6 "	Soil description and drilling remarks
	SM		SAND, brown, silty, fine to medium, loose, dry, contains grass roots
		'4/7/11	SPT driven from 1 to 3.5 feet
			SAND, as above ,slightly clayey
		17/50/50	SPT driven from 3.5 to 5 feet
5		DG	SILTY SAND, dark brown, very fine ,very dense, deeply weathered granite commonly
			called decomposed granite or DG
			SAND (DG) brown, fine to coarse, very dense, angular to subangular crystals, damp
10			
		50 blows	SPT driven at 10 feet - 50 blows for five inches
		for 5"	
			Grades firmer with depth
15			

Total depth to 15 feet 4/27/93

Boring location is 20 feet left of station 306+60 on SR 125 centerline

11- SD- 125 PM 20.0 / 22.4 EA 010721

BORING LOG 493 - 6

SEISMIC LINE	South End	distance	Station	North End	distance	station	
1		20 ' Left	219+05		66' Left	220+15	on line "B"
2		3' Left	215+60		40' Left	216+70	"
3		110' Right	213+19		88' Right	214+40	"
4		210' Right	208+11		105' Right	208+65	"
5		31' Left	204+28		31' Left	205+08	"
6		80' Left	221+50		20' Right	222+10	"
7		156' Right	220+10		110' Right	221+22	"
7x		195' Right	219+00		156' Right	220+10	"
8		22' Right	223+60		132' Right	224+20	"
9		179' Right	228+50		105' Right	229+76	"
10		225' Left	218+52		142' Left	219+50	"
11		185' Left	216+90		212' Left	217+72	"
12		22' Right	210+08		24' Right	211+50	"
13		19' Left	206+85		2' Right	208+00	"
14		188' Left	206+00		179' Left	207+20	"
15		12' Right	227+70		12' Right	228+90	"
16		70' Left	260+40		70' Left	261+70	"
17		70' Left	261+70		110' Left	263+00	"
18		200' Left	286+20		106' Left	286+34	"
19		100' Left	282+73		34' Left	283+47	"
20		75' Left	293+58		83' Left	294+65	"
21		303' Left	243+72		283' Left	244+60	"
22		18' Left	293+28		30' Left	294+28	"
23		75' Right	263+40		70' Right	264+45	"
24		2' Right	263+75		96' Right	263+80	"
25		10' Left	230+00		20' Right	231+10	"
26		32 Right	231+71		60' Right	232+82	"

X AXIS = DISTANCE (FEET)
Y AXIS = DEPTH BELOW GROUND SURFACE (FEET)

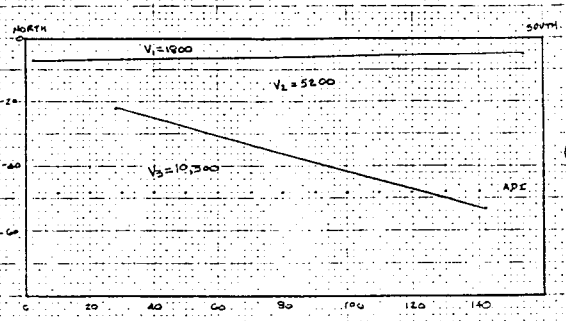
11	SD	125	20²/22±	2	3

REGISTERED CIVIL ENGINEER

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — No. — Exp. — CIVIL — STATE OF CALIFORNIA

(9)



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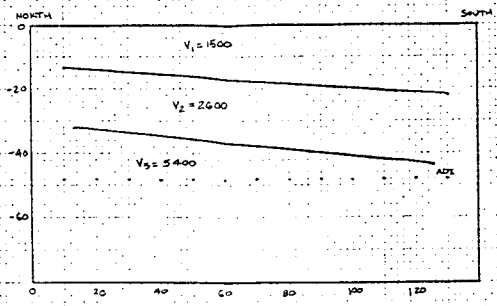

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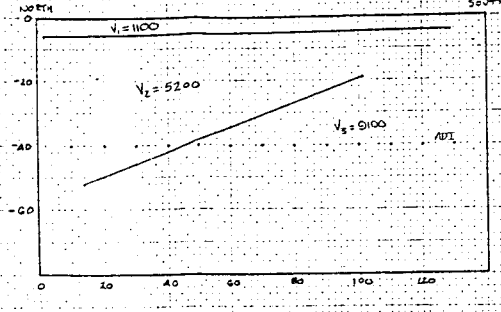

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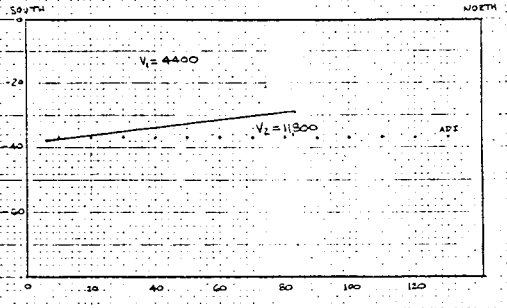

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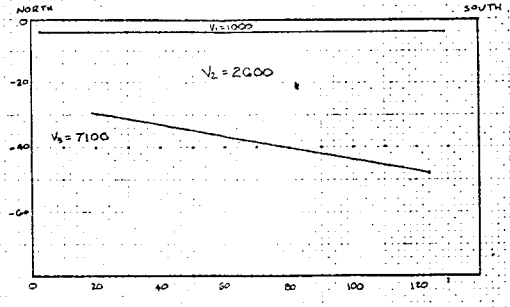

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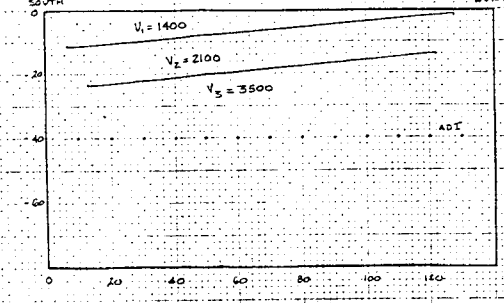

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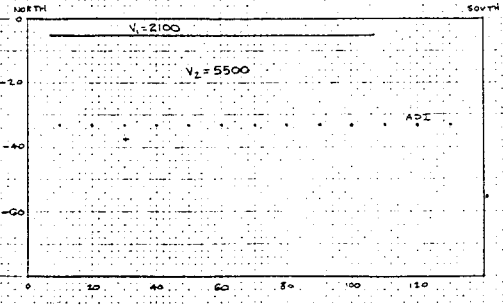

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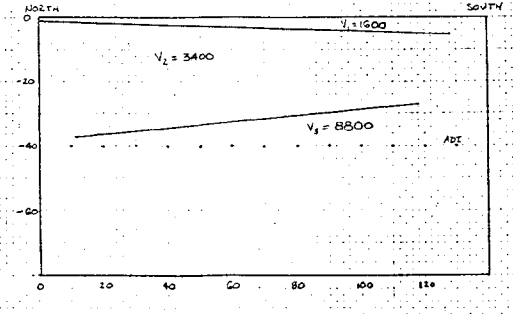

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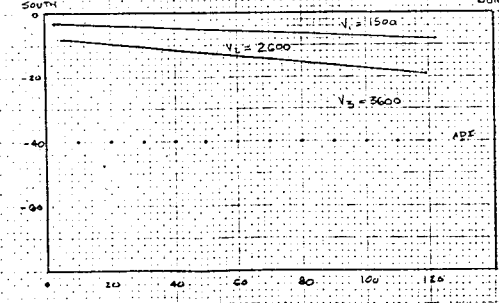

FOR REDUCED PLANS
ORIGINAL SCALE IS IN INCHES 0 1 2 3

FIGURE 2

CU

EA 010721

X AXIS= DISTANCE (FEET)
Y AXIS= DEPTH BELOW GROUND SURFACE (FEET)

11	SD	125	20.9/22.4	3	3

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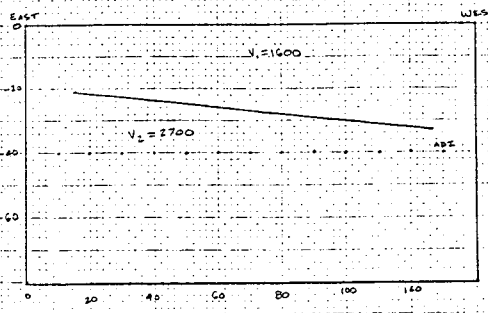
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — No. — Exp. CIVIL — STATE OF CALIFORNIA



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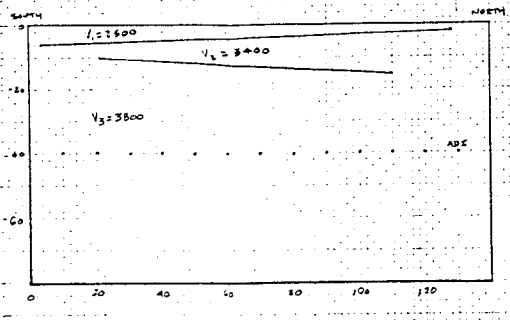

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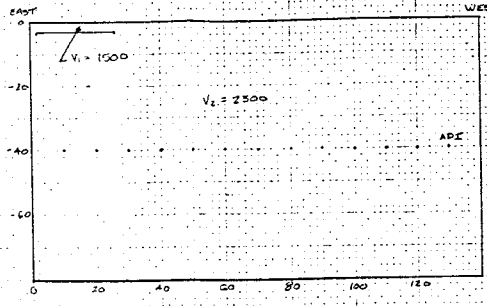

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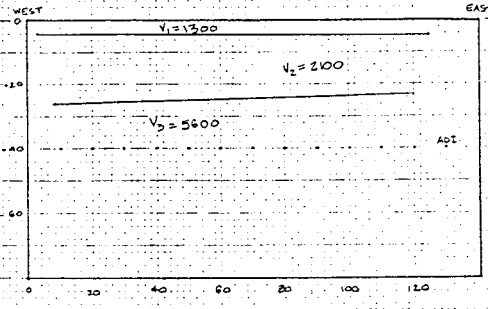

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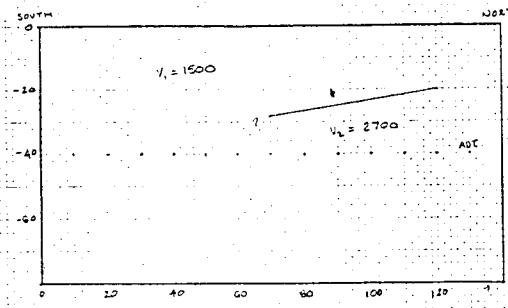

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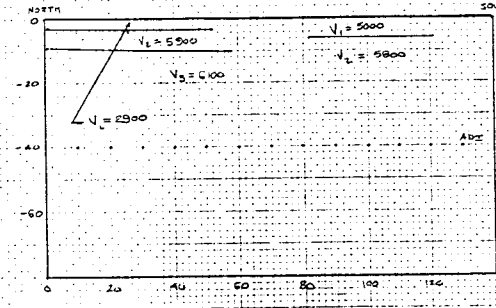

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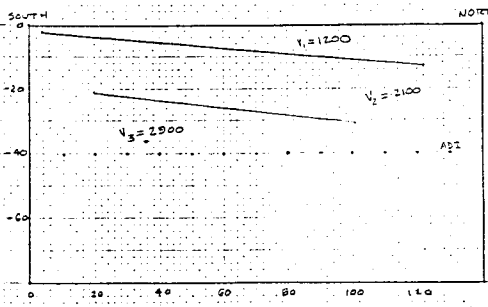

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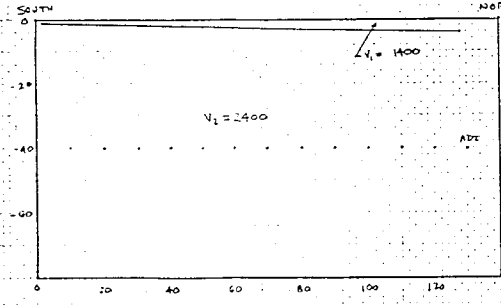

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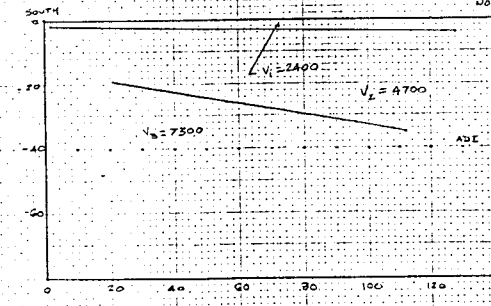

(26)

		FOR REDUCED PLANS ORIGINAL SCALE IS IN INCHES 0 1 2 3	FIGURE 3	CU	EA 010721