

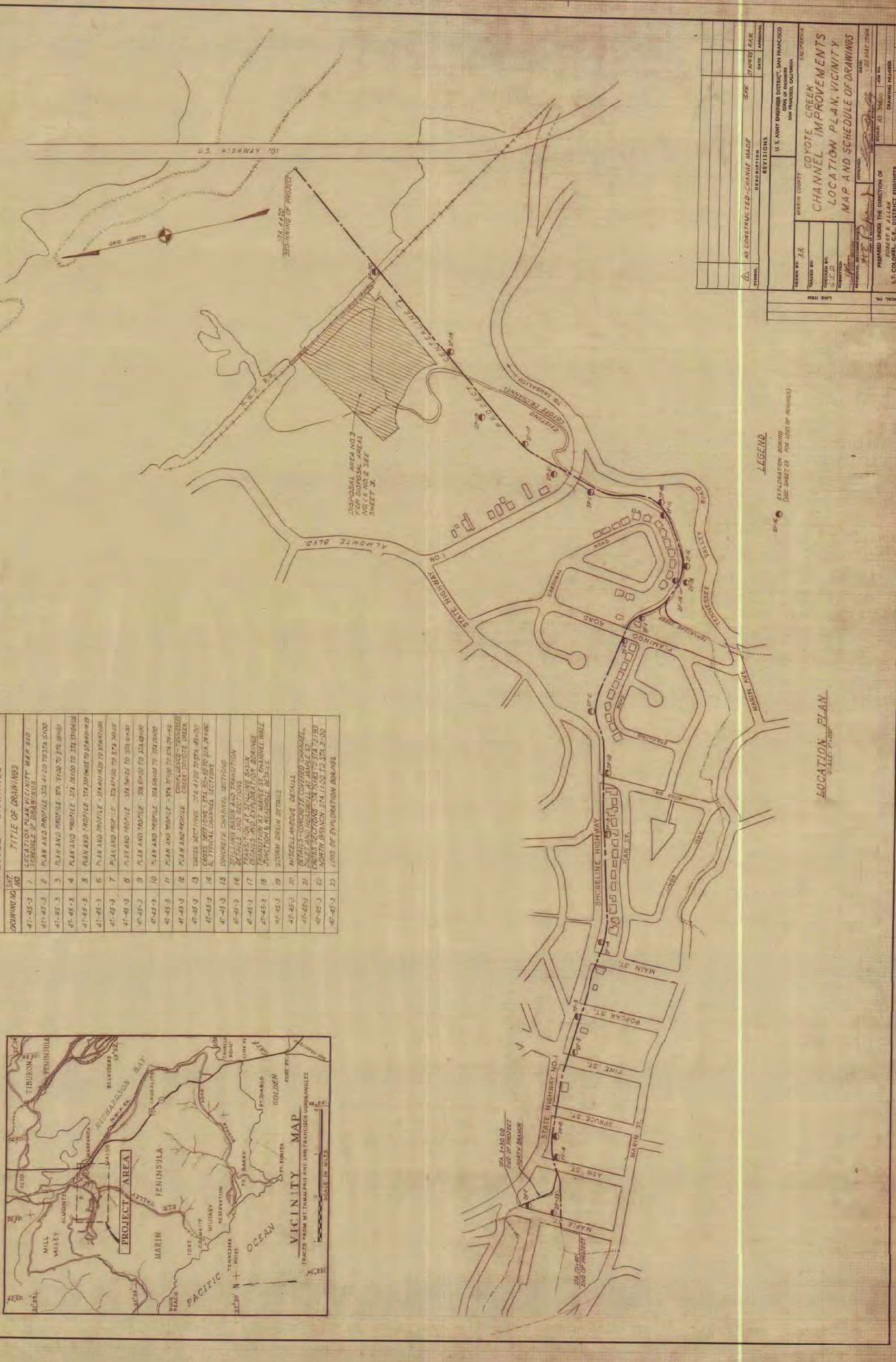
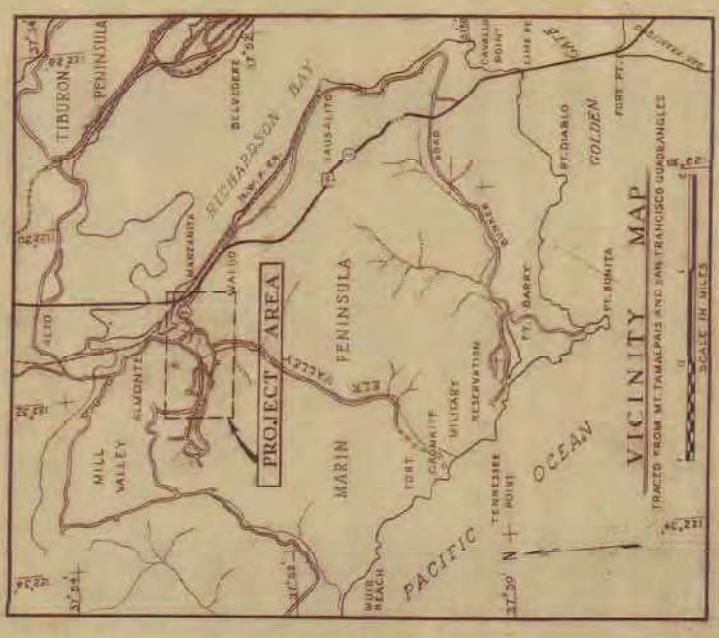
# Appendix A

---

Previous Geotechnical Exploration Logs



DRAWING NO.	SHEET NO.	TITLE OF DRAWINGS
47-45-3	1	LOCATION PLAN VICINITY MAP AND SCHEDULE OF DRAWINGS
47-45-3	2	PLAN AND PROFILE STA 41+20 TO STA 51+00
47-45-3	3	PLAN AND PROFILE STA 51+00 TO STA 60+00
47-45-3	4	PLAN AND PROFILE STA 60+00 TO STA 70+00
47-45-3	5	PLAN AND PROFILE STA 70+00 TO STA 80+00
47-45-3	6	PLAN AND PROFILE STA 80+00 TO STA 90+00
47-45-3	7	PLAN AND PROFILE STA 90+00 TO STA 100+00
47-45-3	8	PLAN AND PROFILE STA 100+00 TO STA 110+00
47-45-3	9	PLAN AND PROFILE STA 110+00 TO STA 120+00
47-45-3	10	PLAN AND PROFILE STA 120+00 TO STA 130+00
47-45-3	11	PLAN AND PROFILE STA 130+00 TO STA 140+00
47-45-3	12	PLAN AND PROFILE STA 140+00 TO STA 150+00
47-45-3	13	CROSS SECTIONS STA 41+20 TO STA 41+00 & TYPICAL CHANNEL SECTIONS
47-45-3	14	CROSS SECTIONS STA 50+40 TO STA 50+00
47-45-3	15	CONCRETE CHANNEL SETTINGS
47-45-3	16	STILLING BASIN AND TRANSITION DETAILS AND SECTIONS
47-45-3	17	DETAILS OF CHANNEL HEADWALL
47-45-3	18	TRANSITION AT MARBLE ST. CHANNEL WALL
47-45-3	19	SECOND DRAIN DETAILS
47-45-3	20	MISCELLANEOUS DETAILS
47-45-3	21	DETAILS OF CONCRETE CHANNEL HEADWALL
47-45-3	22	CROSS SECTIONS STA 25+00 TO STA 27+00 NORTH BRANCH STA 17+00 TO STA 19+00
47-45-3	23	LOSS OF EXPLORATION BORINGS



REVISIONS		DATE	STARTED	APPROVAL
NO.	DESCRIPTION	DATE	STARTED	APPROVAL
1	AS CONSTRUCTED - CHANGE MADE			

U. S. ARMY ENGINEER DISTRICT, SAN FRANCISCO  
 OFFICE OF ENGINEERS  
 SAN FRANCISCO, CALIFORNIA

MARIN COUNTY  
 COYOTE CREEK  
 CHANNEL IMPROVEMENTS  
 LOCATION PLAN, VICINITY  
 MAP AND SCHEDULE OF DRAWINGS

DESIGNED BY: AR  
 TRACED BY: [Signature]  
 CHECKED BY: [Signature]  
 SUBMITTED: [Signature]  
 APPROVAL: [Signature]

PREPARED UNDER THE DIRECTION OF  
 ROBERT H. JALLAY  
 DISTRICT ENGINEER  
 LT. COLONEL, C.E.

DATE: 12 MAY 1954  
 SCALE: AS SHOWN  
 DRAWING NUMBER: 1  
 SHEET: 1 OF 3





Soil and Foundation Investigation  
Crest Marin Creek Pump Station  
Marin County, California

Conducted For

Marin County Flood Control and Water Conservation District  
P. O. Box 4186  
San Rafael, California 94903

In Cooperation With

Yarnell and Ron  
Consulting Civil Engineers  
604 Mission Street  
San Francisco, California 94105

Project No. S-74-458-A

October 8, 1974

CONVERSE DAVIS DIXON ASSOCIATES

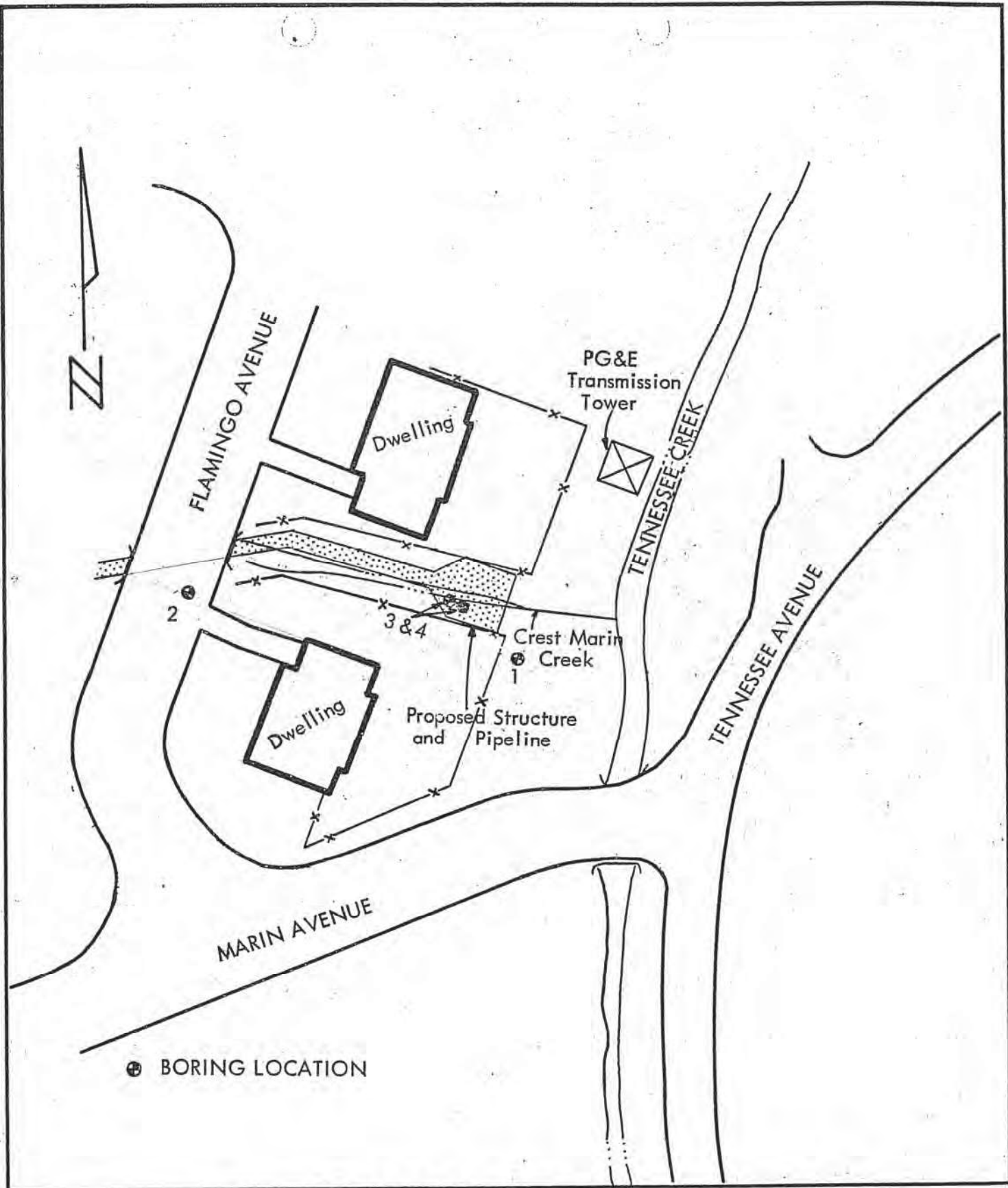
*Geotechnical Consultants*

*San Francisco • Pasadena • Anaheim • Las Vegas • Seattle*

325 Pacific Avenue, San Francisco, California 94111

(415) 391-5225





**LOCATION OF BORINGS**

PREPARED BY: <i>RH</i>	CREST MARIN PUMP STATION Marin County, California		DRAWING NUMBER
CHECKED BY: <i>JEM</i>	for: Marin County Flood Control & Water Conservation District		1
APPROVED BY: <i>WCB</i>	DATE: 10/1/74	SCALE: 1"=50'	PROJECT NUMBER: S-74-458-A
CONVERSE, DAVIS AND ASSOCIATES			Consulting Engineers and Geologists

RM N -73

# SUMMARY — BORING NO. 1

DATE DRILLED: 9/9/74

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

DEPTH IN FEET

SAMPLES SYMBOL

ELEVATION: 6.0± \*

DRIVE ENERGY  
FT. KIPS/FT.  
FIELD MOISTURE  
% DRY WEIGHT  
DRY DENSITY  
LB./CU. FT.  
SHEAR  
RESISTANCE  
KIPS/SQ. FT.

DEPTH IN FEET	SAMPLES SYMBOL	MOISTURE	SOIL TYPE	DRIVE ENERGY (FT. KIPS/FT.)	FIELD MOISTURE (% DRY WEIGHT)	DRY DENSITY (LB./CU. FT.)	SHEAR RESISTANCE (KIPS/SG. FT.)
0	1	dry	firm gray & brown FILL - MIXED CLAYS (CL)	9.5	9.1	125	
1		slightly moist	SILTY CLAY (CL)	1.6	26.5	90	
2		moist	FILL trace organics	1.1	32.5	85	
3		moist	gray ORGANIC CLAY (OH)	<1	40.0	118	.23**
4		wet	soft (Bay Mud)	<1	50.4	70	
5			CLAY sand lenses (CH)	<1	72.9	56	
10			(Bay Mud)	<1	78.2	55	
15			sand and pea gravel	<1	79.0	53	
20			SILTY CLAY (CL) sandy lense	<1	48.8	69	
25				<1	50.8	70	
30			firm ORGANIC CLAY (OH) (Bay Mud)	<1	114.5	40	.58
35			CLAYEY SILT (ML)	<1	43.9	74	.28
40			loose CLAYEY SAND (SC)				1.28
40			firm SILTY CLAY (OH) some sand & gravel	<1	44.6	75	.64
45			black SILTY CLAY (CL) AND SAND NODULES (Bay Mud)	<1	24.1	104	.34**
45			green & SANDY CLAY (CL) with some rock fragments				.78
50			gray				

\*Marin County Dept. Public Works Topo Map-Tennessee Valley and Tamalpais Valley, February 1-967

CONTINUED

CREST MARIN PUMP STATION  
Marin County, California  
for: Marin County Flood Control & Water Conservation District

CONVERSE, DAVIS AND ASSOCIATES

Consulting Engineers and Geologists

PROJ. NO. S-74-458-A



11.5  
53.5  
-64.1

## SUMMARY - BORING NO. 1 Continued

DATE DRILLED: 9/9/74

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

DEPTH  
IN  
FEET

SAMPLES  
SYMBOL

DRIVE ENERGY  
FT. KIPS/FT.  
FIELD MOISTURE  
% DRY WEIGHT  
DRY DENSITY  
LB./CU. FT.  
SHEAR  
RESISTANCE  
KIPS/50. FT.

DEPTH IN FEET	SAMPLES SYMBOL	DESCRIPTION	DRIVE ENERGY FT. KIPS/FT.	FIELD MOISTURE % DRY WEIGHT	DRY DENSITY LB./CU. FT.	SHEAR RESISTANCE KIPS/50. FT.
50	13	wet loose gray & brown SAND (SP) with some clay	3.7			
51	14		3.7			
52	15	medium dense	11			
55		INTERBEDDED SHALE AND SANDSTONE (Bedrock)				
60	16		>50			
61.1		Bottom at 61.1 Feet				
65						
70						
75						
80						
85						
90						
95						
100						

\*\*Unconfined Compression Test  
Shear Strength =  $\frac{1}{2}$  unconfined compressive strength

CREST MARIN PUMP STATION  
Marin County, California  
for: Marin County Flood Control & Water Conservation District

DRAWING NO.

3

CONVERSE, DAVIS AND ASSOCIATES

Consulting Engineers and Geologists

PROJ. NO. 5-74-458-A

FORM NO. D7A-73 APPROVED FOR PUBLICATION BY WFS

## SUMMARY — BORING NO. 2

DATE DRILLED: 9/9/74

THIS SUMMARY APPLIES ONLY AT THE LOCATION OF THIS BORING AND AT THE TIME OF DRILLING. SUBSURFACE CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH THE PASSAGE OF TIME. THE DATA PRESENTED IS A SIMPLIFICATION OF ACTUAL CONDITIONS ENCOUNTERED.  
ELEVATION: 5.7 ± \*

DEPTH IN FEET	SAMPLES SYMBOL									
						DRIVE ENERGY FT. KIPS/FT.	FIELD MOISTURE % DRY WEIGHT	DRY DENSITY LB./CU. FT.	SHEAR RESISTANCE KIPS/SQ. FT.	
0					Asphalt - 5 1/2"					
1		slightly moist & moist	stiff & firm	gray & brown	SILTY & SANDY CLAYS (CL) w/rock fragments FILL	5.3	10.7	108		
2						1.6	27.3	93		
3		wet	soft	gray	SILT & SAND (SM/ML) CLAY (OH) (Bay Mud)	<.5	73.9	55		
4							110.2	42		
5							98.6	46		
6					sand Tense-6"		79.3	53		
7					sand sandy		72.8	57	.42 .44	
8					CLAY (CH) (Bay Mud) with sand & fine pea gravel lenses 3/8" avg. dia.		34.4	88	1.5 .37**	
9										
10										
15										
20										
25										
30										
35										
40										
45			loose	green & gray brown	CLAYEY SAND (SC) some fine gravel organic mat CLAYEY SAND (SC) med. & coarse w/fine gravel					
50										

\*Marin County Dept. Public Works Topo Map - Tennessee Valley and Tamalpais Valley, February, 1967

\*\*Bay Mud Layer

CONTINUED..

CREST MARIN PUMP STATION  
Marin County, California  
for: Marin County Flood Control & Water Conservation District

DRAWING NO.  
4

APPROVED FOR PUBLICATION BY 10/18 1978 FORM NO. DT-73



## SUMMARY — BORING NO.2 Continued

DATE DRILLED: 9/9/74

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

DEPTH IN FEET	SAMPLES SYMBOL								
						DRIVE ENERGY FT. KIPS/FT.	FIELD MOISTURE % DRY WEIGHT	DRY DENSITY LB./CU. FT.	SHEAR RESISTANCE KIPS/SG. FT.
50	9	wet	loose	brown	CLAYEY SAND (SC) medium & coarse, w/fine gravel	4.7			
55	10		soft	blue & gray	SANDY CLAY (CL)	5.7			
60			dense		CLAYEY SAND (SC) w/fine gravel				
65					BEDROCK - siltstone				
70					Bottom at 66.5 Feet				
75									
80									
85									
90									
95									
100									

65  
127  
55

CREST MARIN PUMP STATION  
Marin County, California  
for: Marin County Flood Control & Water Conservation District

DRAWING NO.

5

CONVERSE, DAVIS AND ASSOCIATES

Consulting Engineers and Geologists

PROJ. NO. S-74-458-A

FORM NO. D7A-73 APPROVED FOR PUBLICATION BY *WFB*

# SUMMARY — BORING NO. 3

DATE DRILLED: 9/16/74

THIS SUMMARY APPLIES ONLY AT THE LOCATION OF THIS BORING AND AT THE TIME OF DRILLING. SUBSURFACE CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH THE PASSAGE OF TIME. THE DATA PRESENTED IS A SIMPLIFICATION OF ACTUAL CONDITIONS ENCOUNTERED.  
ELEVATION: 0.0± \*

DEPTH IN FEET	SAMPLES SYMBOL	wet	soft	gray	CLAY	DRIVE ENERGY FT. KIPS/FT.	FIELD MOISTURE % DRY WEIGHT	DRY DENSITY LB./CU. FT.	SHEAR RESISTANCE KIPS/SQ. FT.
0	1								
2	2				(OH)		104.6	44	
5					Bottom at 5.0 Feet				
10									
15									
20									
25									
30									
35									
40									
45									
50									

\* Marin County Dept. Public Works Topo Map - Tennessee Valley and Tamalpais Valley, February 1967

**CREST MARIN PUMP STATION**  
 Marin County, California  
 for: Marin County Flood Control & Water Conservation District

DRAWING NO.  
**6**

CONVERSE, DAVIS AND ASSOCIATES

Consulting Engineers and Geologists

PROJ. NO. S-74-458-A

APPROVED FOR PUBLICATION BY *[Signature]* 10/1  
 FORM NO. DT-73



# SUMMARY — BORING NO. 4

DATE DRILLED: 9/16/74

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

ELEVATION: 0.9 ± \*

DEPTH  
IN  
FEET

SAMPLES  
SYMBOL

DRIVE ENERGY  
FT. KIPS/FT.

FIELD MOISTURE  
% DRY WEIGHT

DRY DENSITY  
LB./CU. FT.

SHEAR  
RESISTANCE  
KIPS/SQ. FT.

0	1	wet	soft	brown	SILTY CLAYS w/rock fragments (CL)			
5				gray	CLAY w/some organics (OH)		95.7	47
10					Bottom at 8.5 Feet			
15								
20								
25								
30								
35								
40								
45								
50								

\* Marin County Dept. Public Works Topo Map - Tennessee Valley and Tamalpais Valley, February 1967

• CREST MARIN PUMP STATION  
Marin County, California  
for: Marin County Flood Control and Water Conservation District

DRAWING  
NO.

7

CONVERSE, DAVIS AND ASSOCIATES

Consulting Engineers and Geologists

PROJ. NO. S-74-458-A

FORM NO. D7-73 APPROVED FOR PUBLICATION BY W.D. 1/1/8

A Report Prepared For

Jay Phares Corporation  
300 Lakeside Drive, Suite 1980  
Oakland, California 94612

SOIL INVESTIGATION  
PLANNED SHOPPING CENTER  
SHORELINE HIGHWAY AND FLAMINGO ROAD  
MILL VALLEY, CALIFORNIA

A L B ASSOCIATES NO. 751.01

by

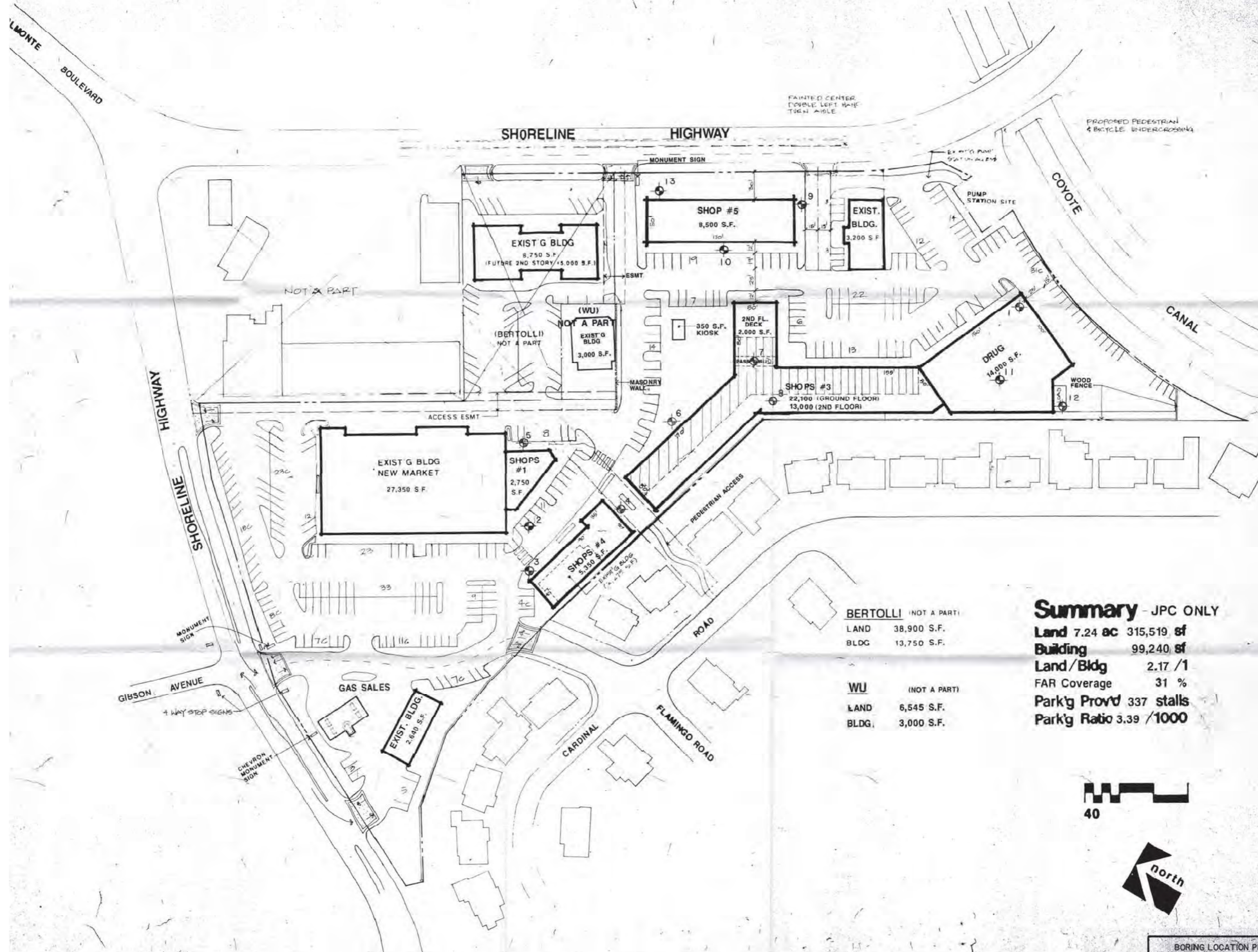
  
Albert L. Buchignani  
Geotechnical Engineer 170

A L B ASSOCIATES, INC.  
425 Sycamore Avenue, Suite 1  
Mill Valley, California 94941  
(415) 381-5110

May 29, 1990







<b>BERTOLLI</b>	(NOT A PART)
LAND	38,900 S.F.
BLDG	13,750 S.F.
<b>WU</b>	(NOT A PART)
LAND	6,545 S.F.
BLDG.	3,000 S.F.

**Summary - JPC ONLY**

Land	7.24 ac	315,519 sf
Building		99,240 sf
Land/Bldg		2.17 /1
FAR Coverage		31 %
Park'g Provd		337 stalls
Park'g Ratio		3.39 /1000

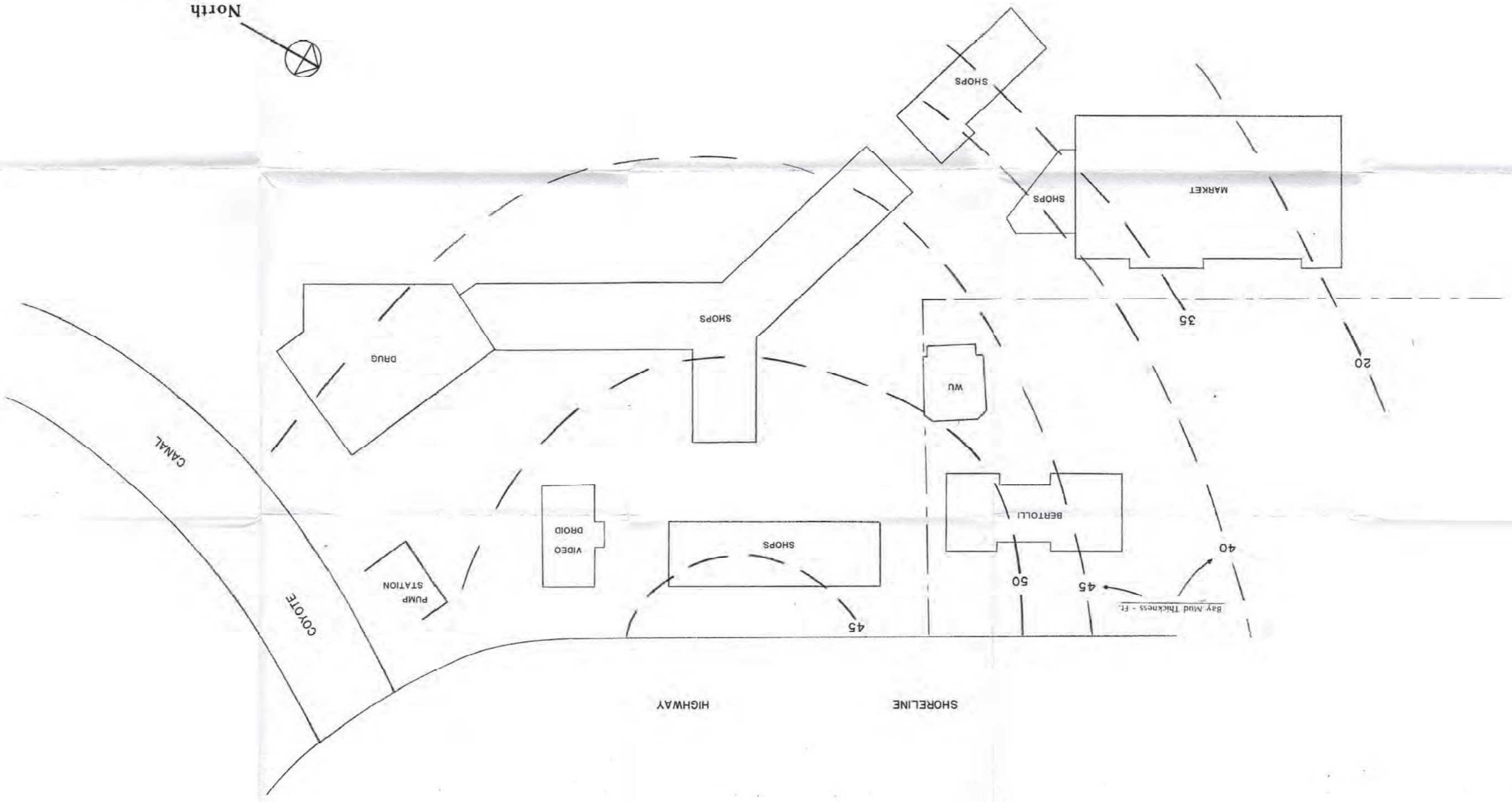
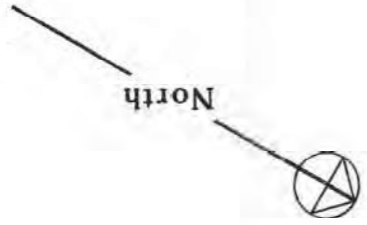
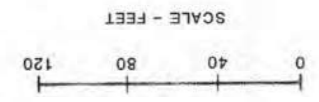


References: Sheet C-4, by The Nadal Partnership, dated 3/27/90

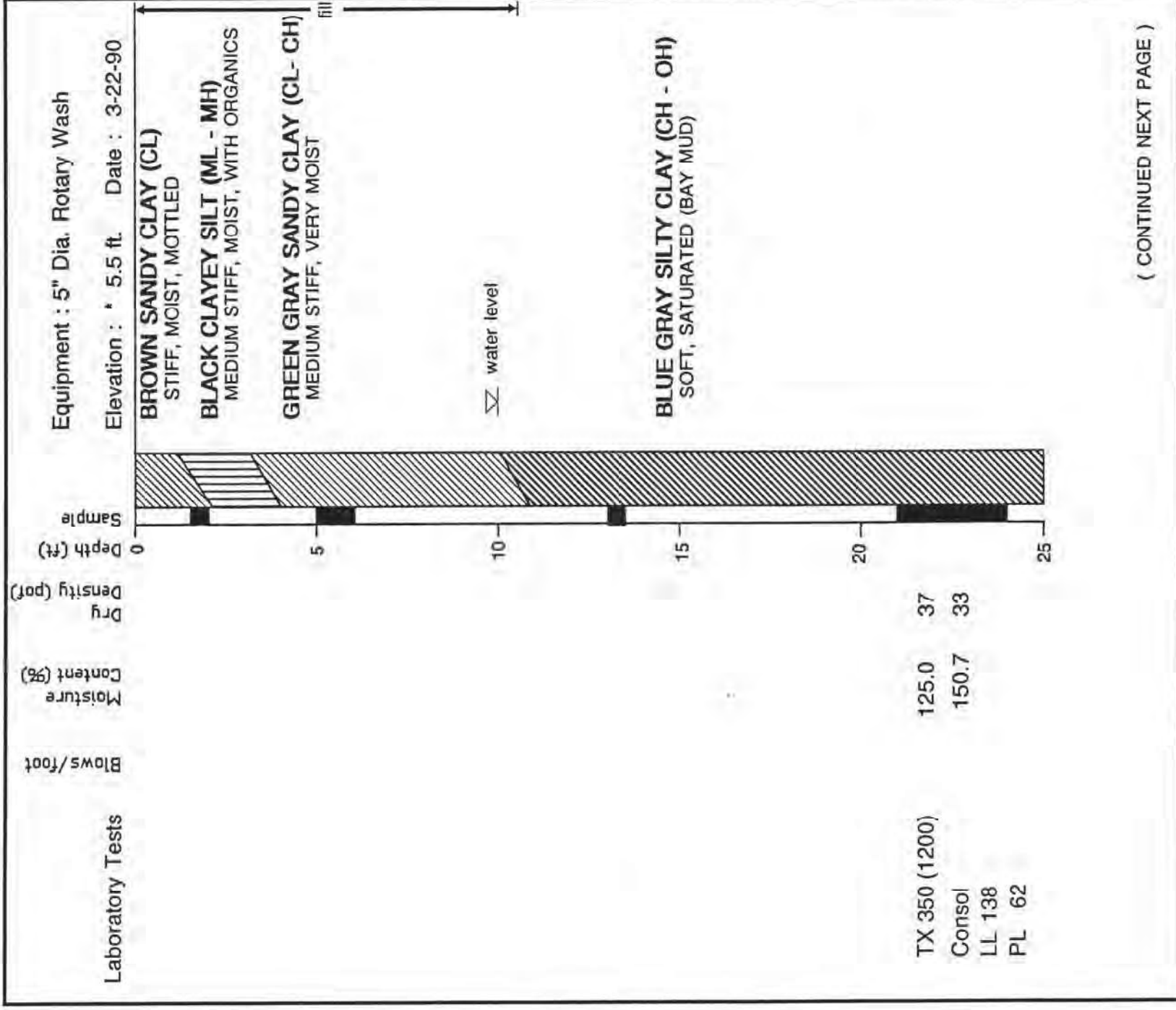
BORING LOCATION PL	
Drawn: L.N.	Shoreline Highway Shopping
Approved: A.C.B.	Mill Valley, California
Date: 5-29-90	Job No. 751.0 HA I. B. ASSOCIATES

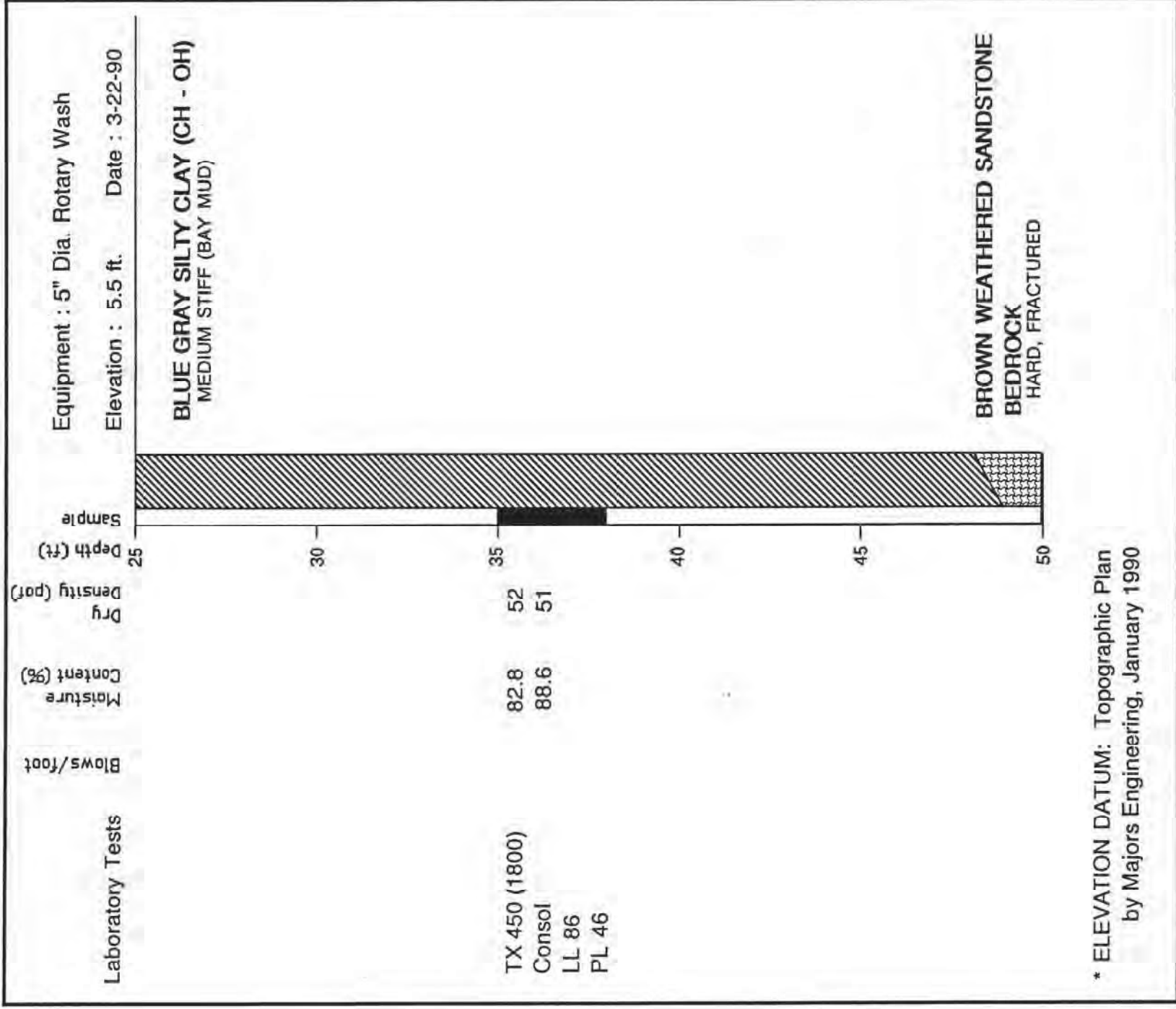


**PLOT PLAN**  
 Bay Mud Thickness Contours  
 Mill Valley, California  
 Drawn: L.N.  
 Approved: A.B.  
 Date: 5-7-70  
 Job No. 751.01  
 A L B ASSOCIATES  
 Figure 1A









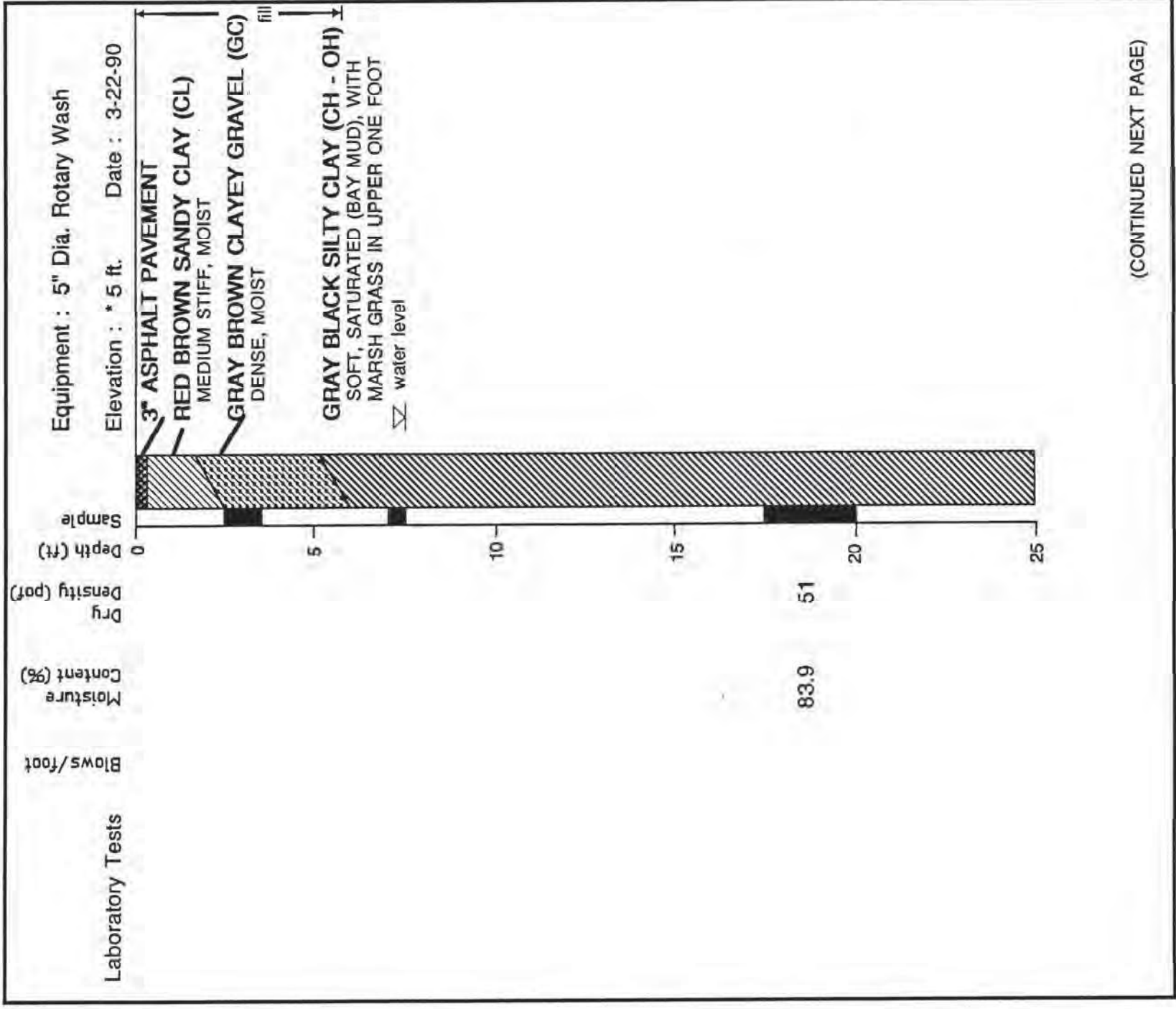
**ALB** A L B ASSOCIATES  
 CONSULTING SOIL & FOUNDATION ENGINEERS

LOG OF BORING: 1 (2 of 2)  
 Shoreline Highway Shopping Center  
 Mill Valley, California

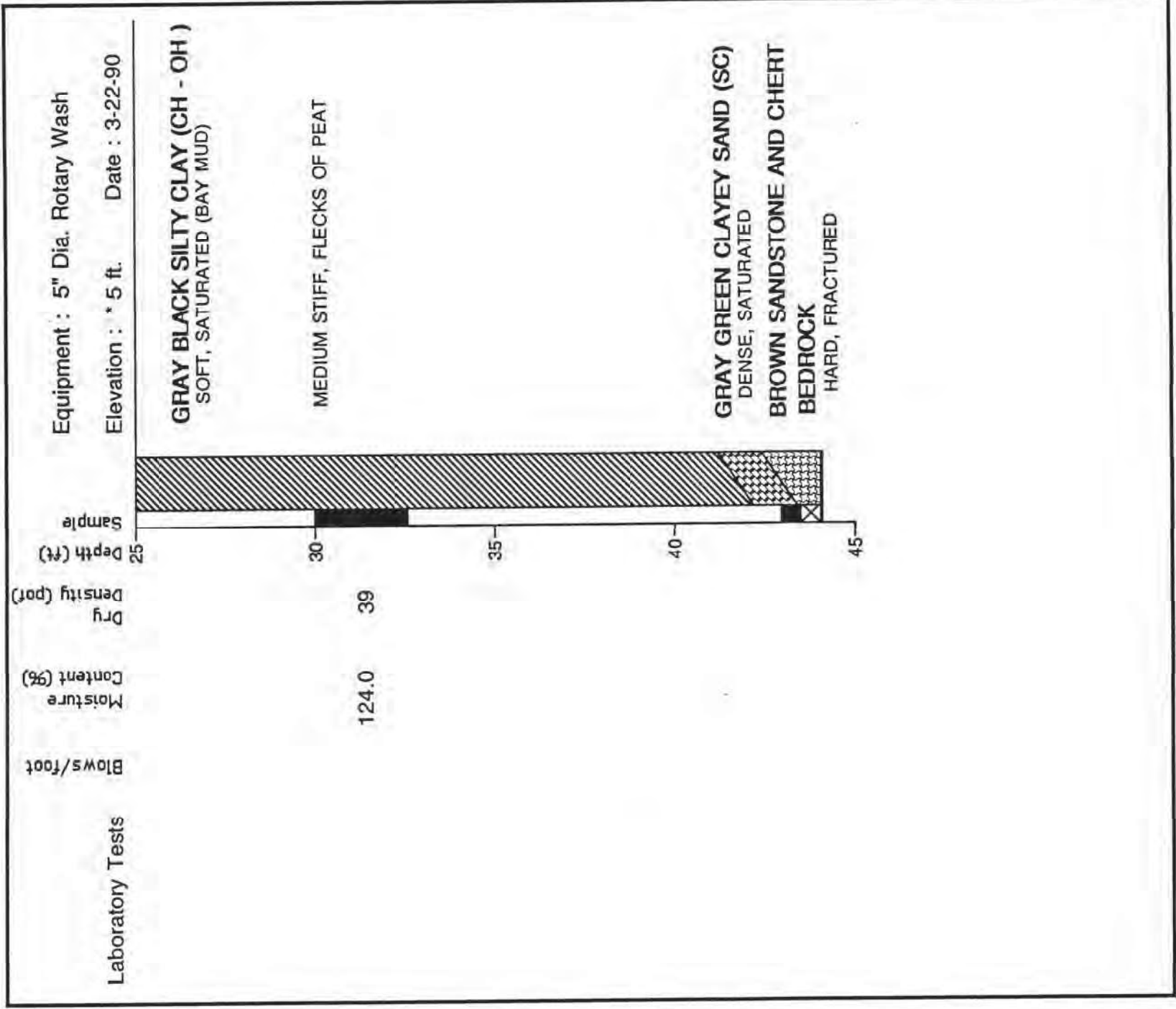
Figure 2a

Drawn : L.N. Job No. : 751.01 Approved : *ACB* Date : 5-24-90





(CONTINUED NEXT PAGE)

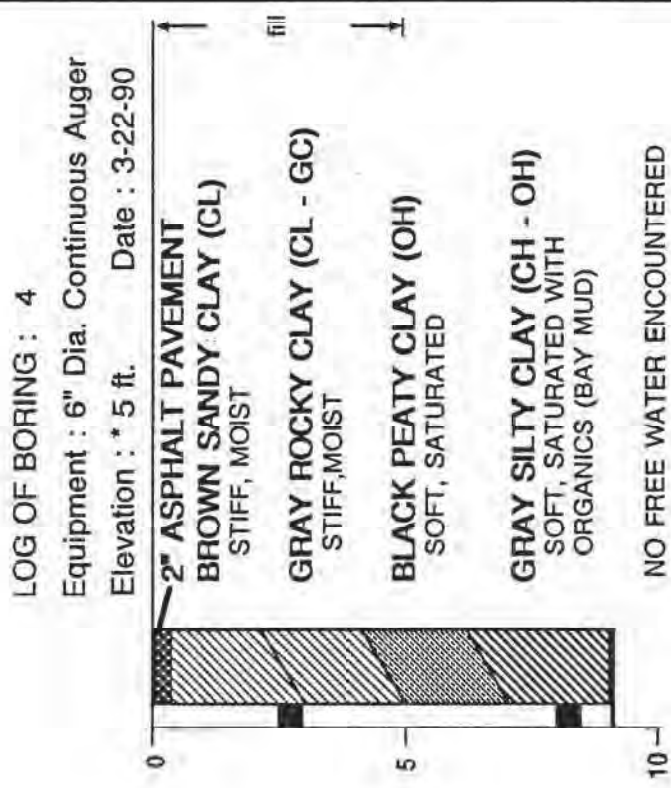
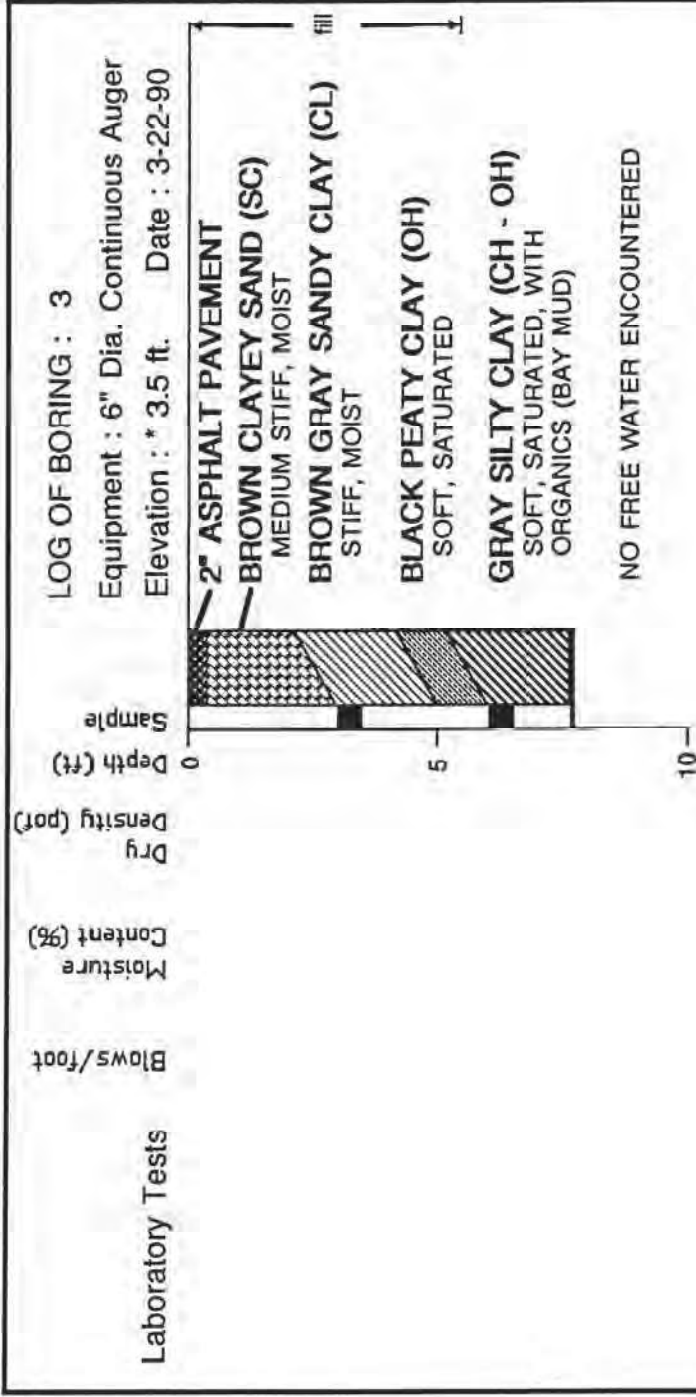


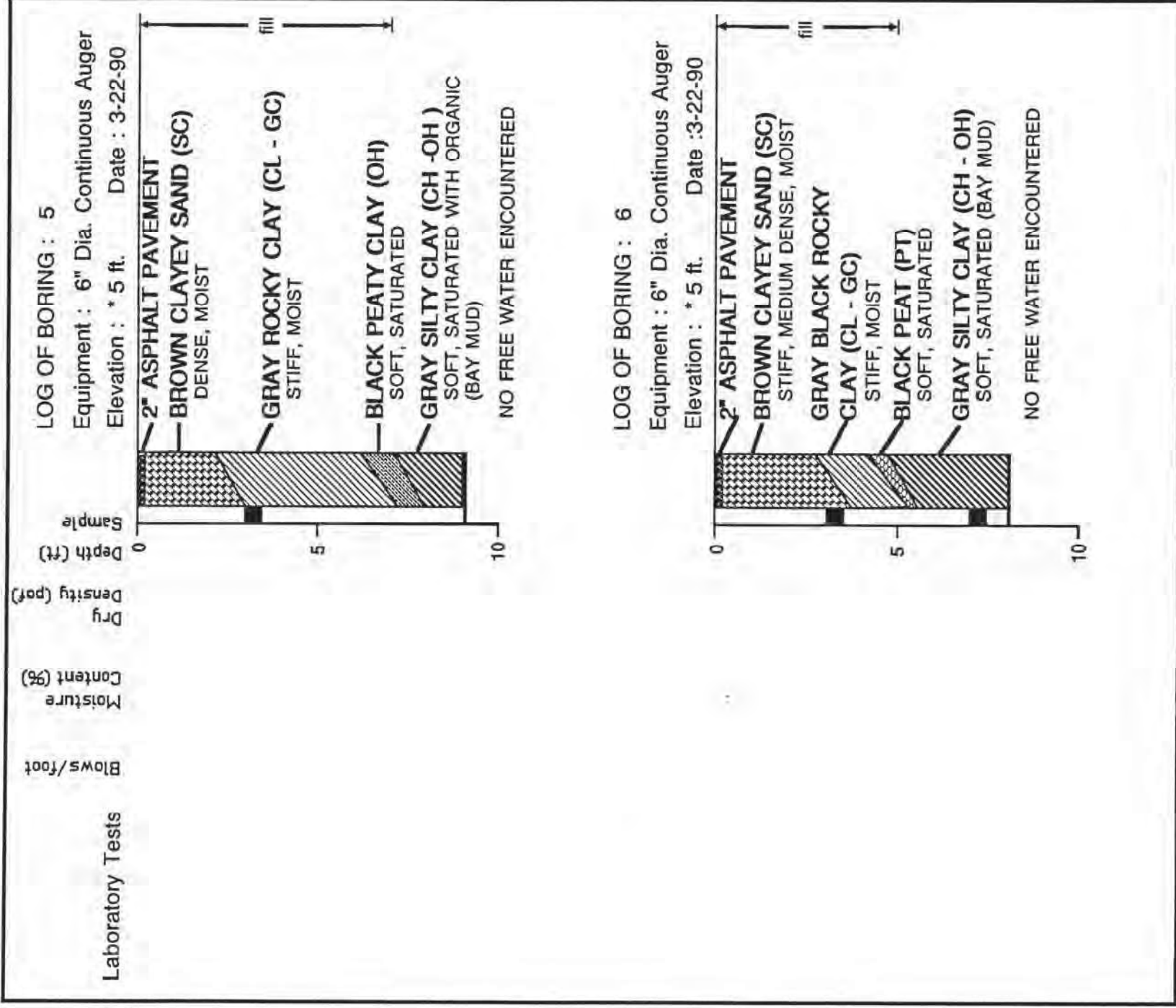
**ALB ASSOCIATES**  
CONSULTING SOIL & FOUNDATION ENGINEERS

**LOG OF BORING: 2 (2 of 2)**  
Shoreline Highway Shopping Center  
Mill Valley, California      Figure 3a

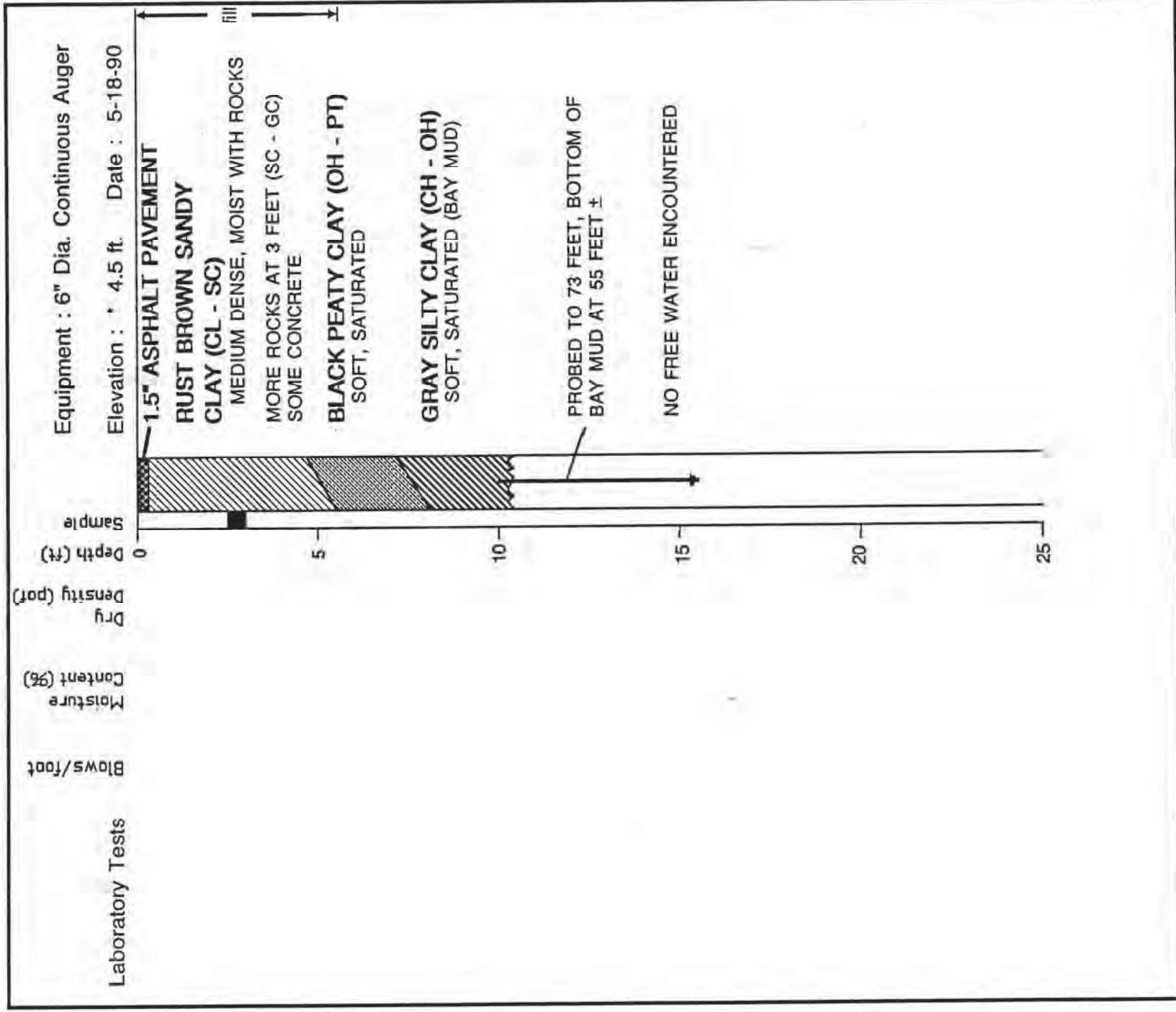
Drawn : L.N.      Job No. : 751.01      Approved : *ACB*      Date : 5.24.90







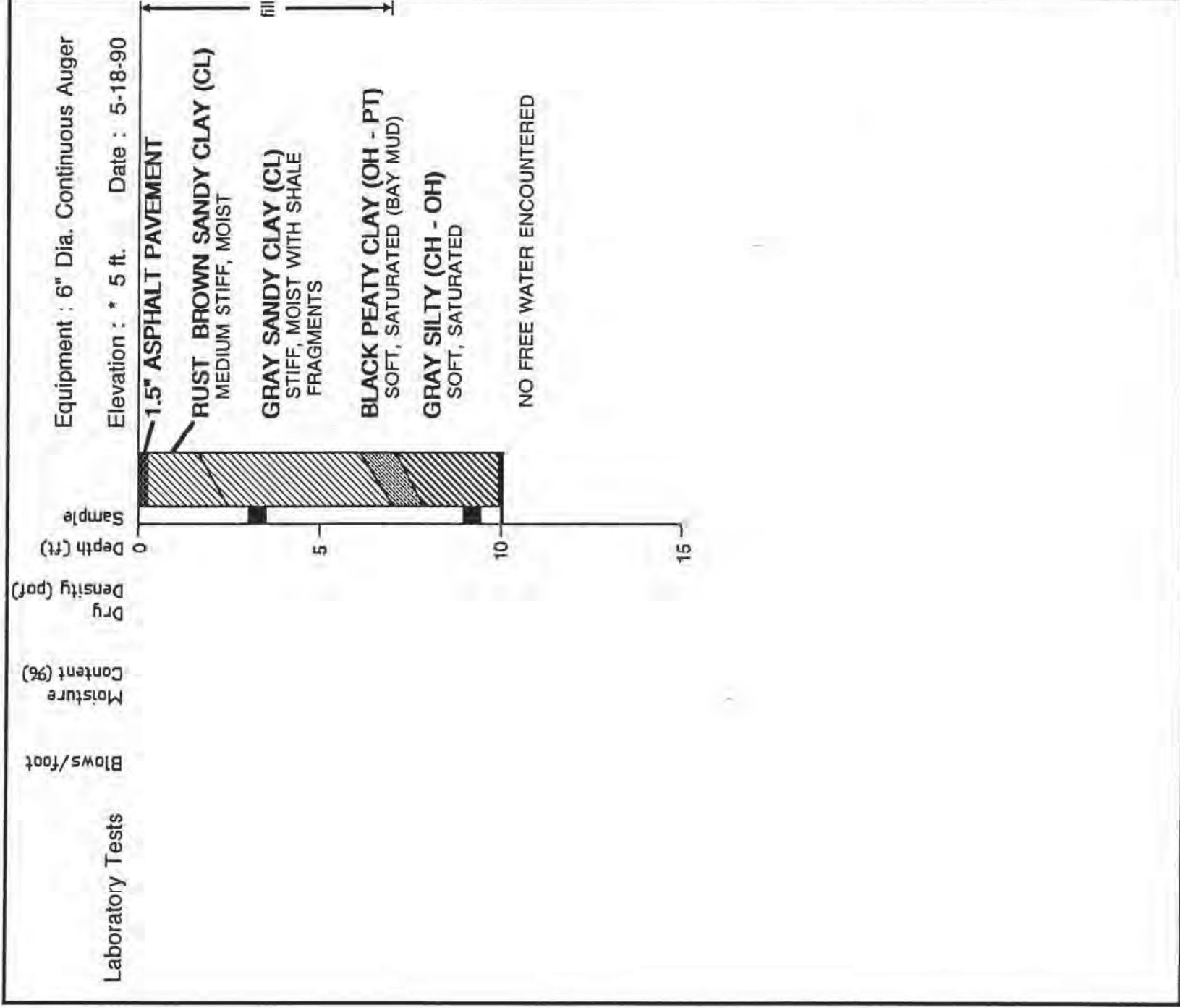


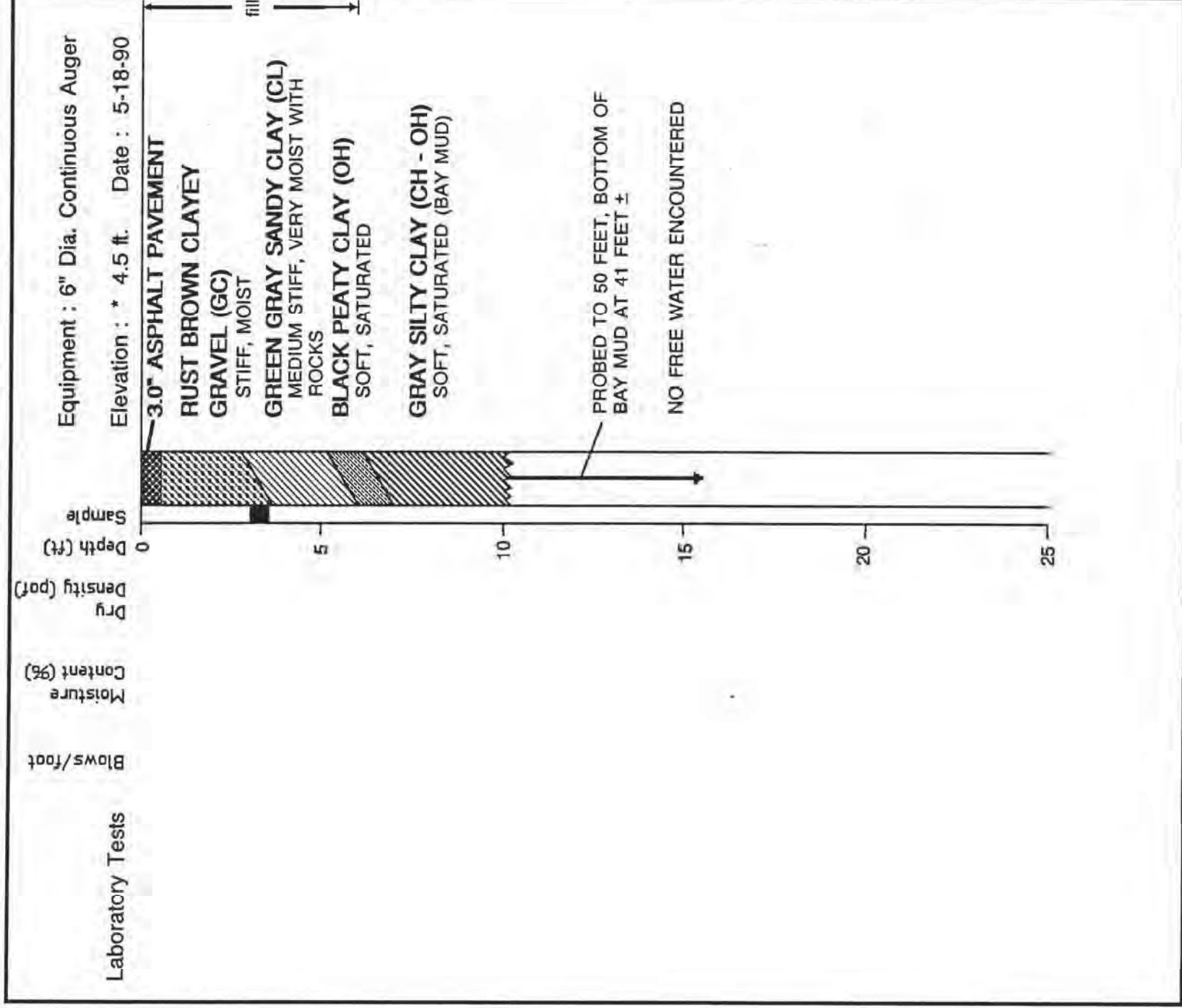


A L B ASSOCIATES  
 CONSULTING SOIL & FOUNDATION ENGINEERS

LOG OF BORING: 7  
 Shoreline Highway Shopping Center  
 Mill Valley, California  
 Figure 6

Drawn : L.N. Job No. : 751.01 Approved : A-L-B Date : 5-24-90

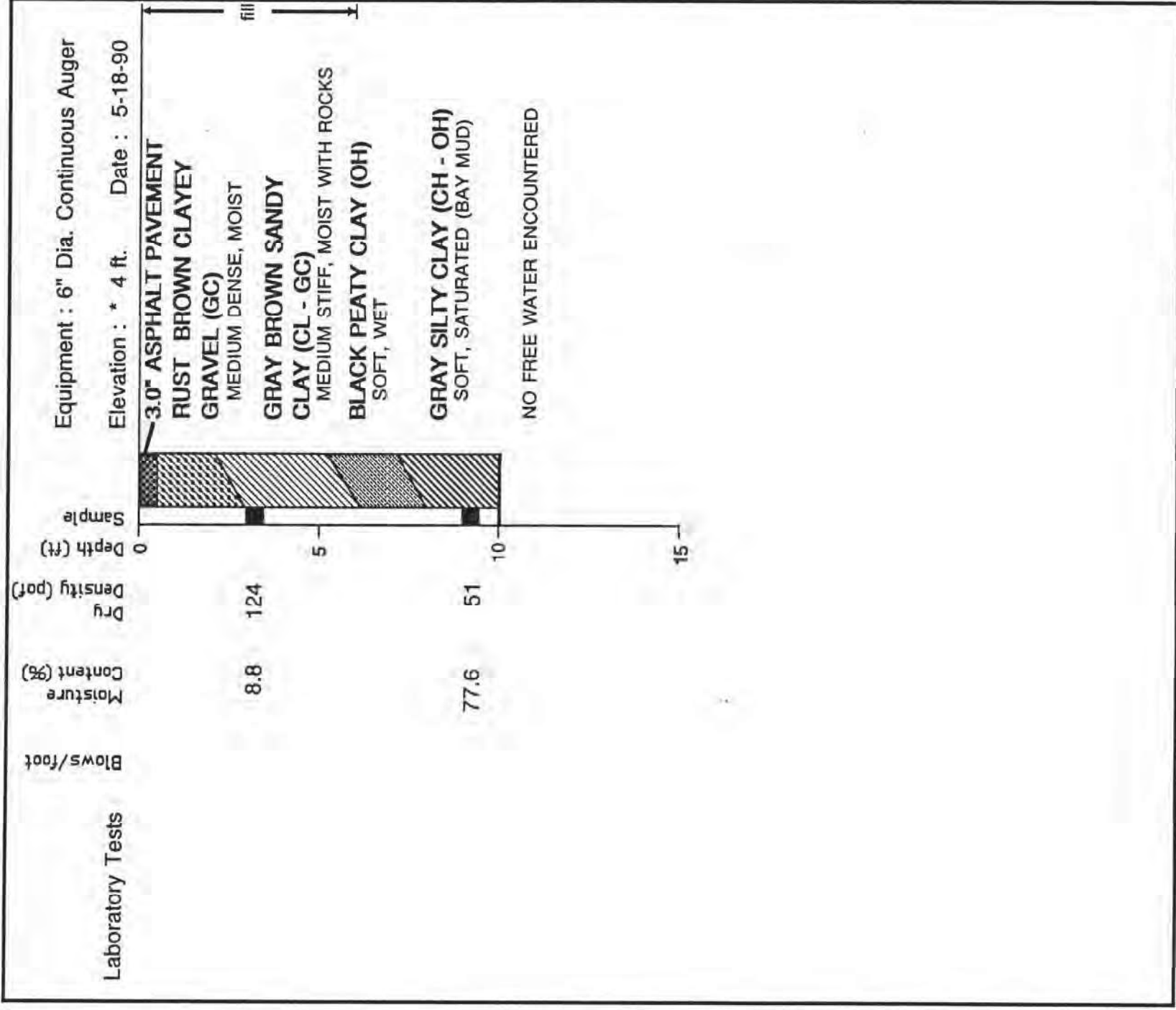




LOG OF BORING: 9  
 Shoreline Highway Shopping Center  
 Mill Valley, California

Figure 8





A L B ASSOCIATES  
 CONSULTING SOIL & FOUNDATION ENGINEERS

LOG OF BORING: 10  
 Shoreline Highway Shopping Center  
 Mill Valley, California

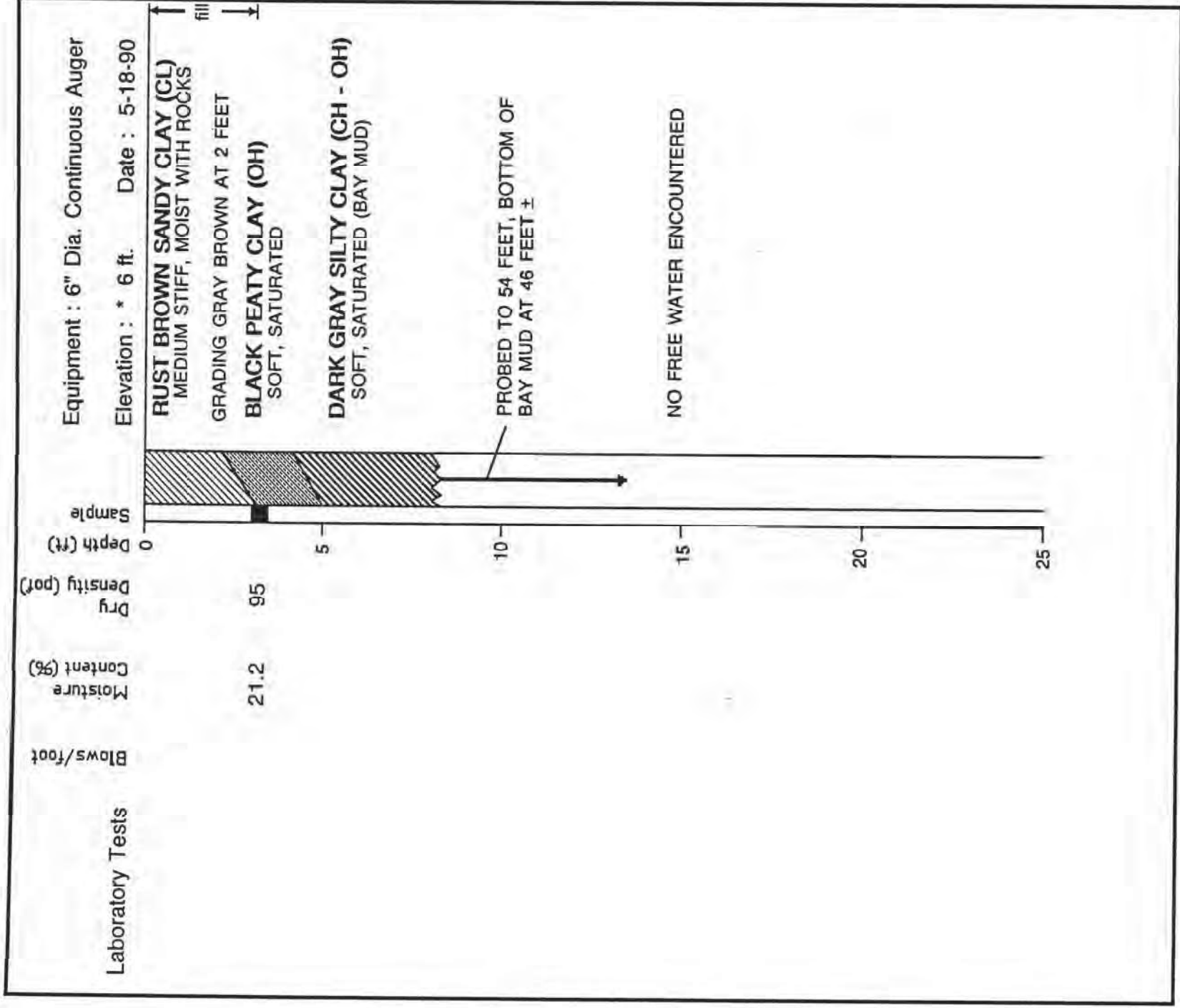
Figure 9

Drawn : L.N.

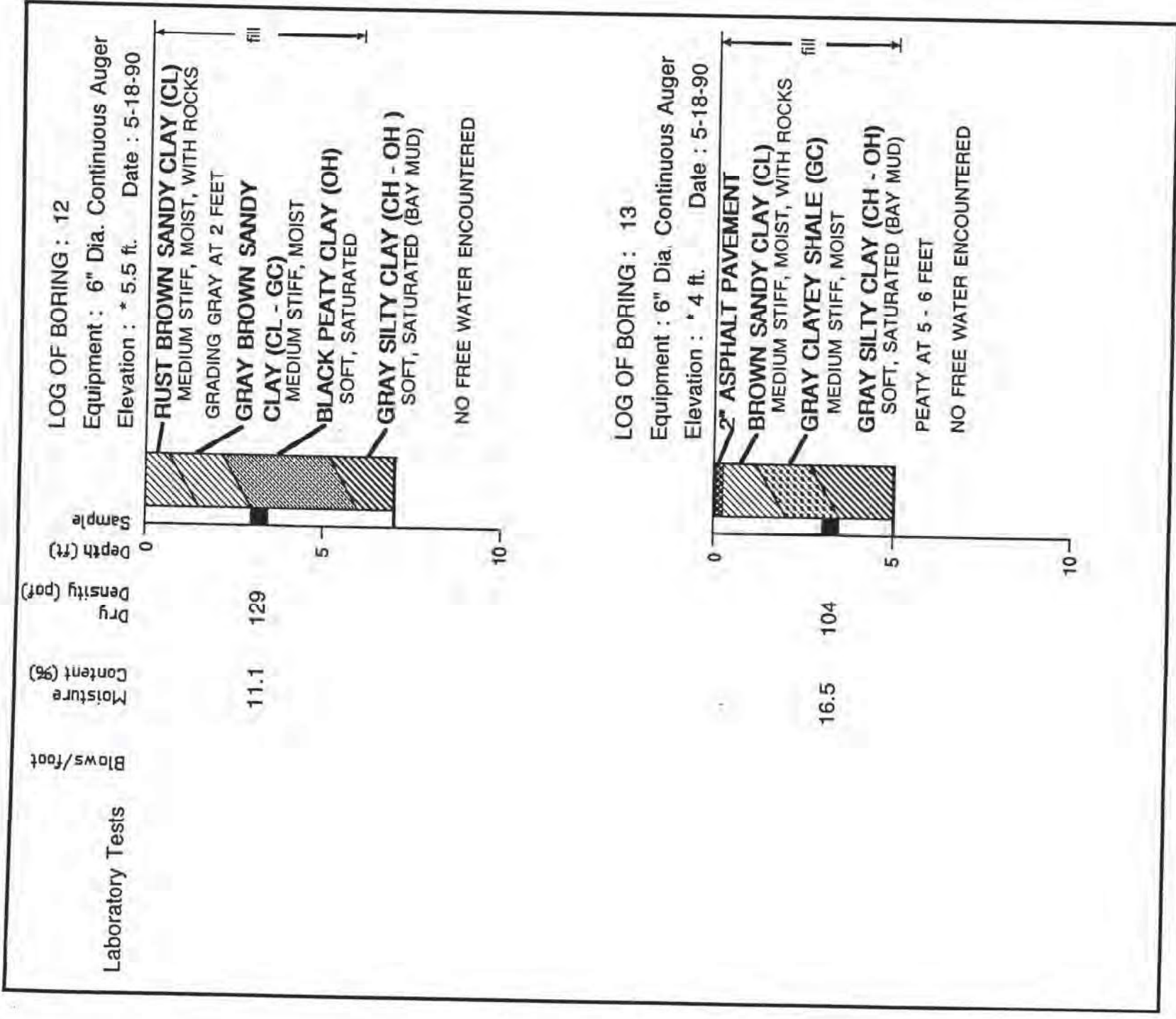
Job No. : 751.01

Approved : ALB

Date : 5-24-90







**A L B ASSOCIATES**  
 CONSULTING SOIL & FOUNDATION ENGINEERS

**LOG OF BORINGS: 12 & 13**  
 Shoreline Highway Shopping Center  
 Mill Valley, California

Figure 11

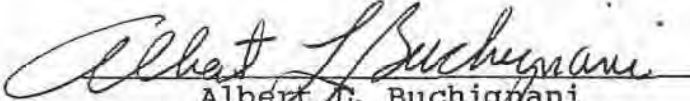
Drawn : L.N. Job No. : 751.01 Approved : *ALB* Date : 5-24-90

A Report Prepared For  
County of Marin  
Department of Public Works  
P. O. Box 4186  
San Rafael, California 94913

**GEOTECHNICAL INVESTIGATION  
COYOTE CREEK  
LEVEE IMPROVEMENTS  
MARIN COUNTY, CALIFORNIA**

A L B ASSOCIATES NO. 0964.05

by

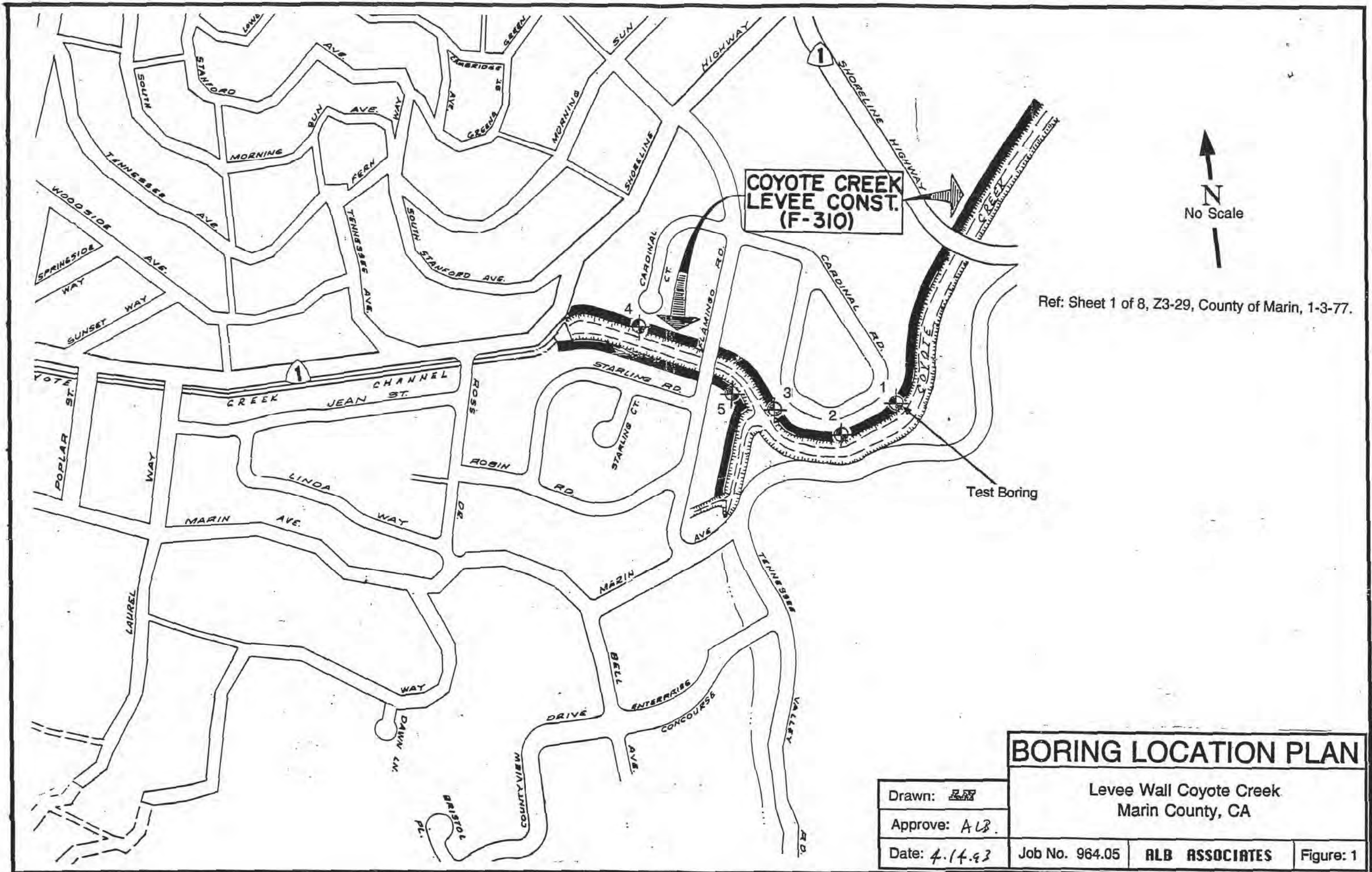
  
Albert L. Buchignani  
Geotechnical Engineer 170

A L B ASSOCIATES, INC.  
180 Rose Avenue  
Mill Valley, California 94941  
(415) 381-5110

April 17, 1993







**COYOTE CREEK  
LEVEE CONST.  
(F-310)**



Ref: Sheet 1 of 8, Z3-29, County of Marin, 1-3-77.

Test Boring

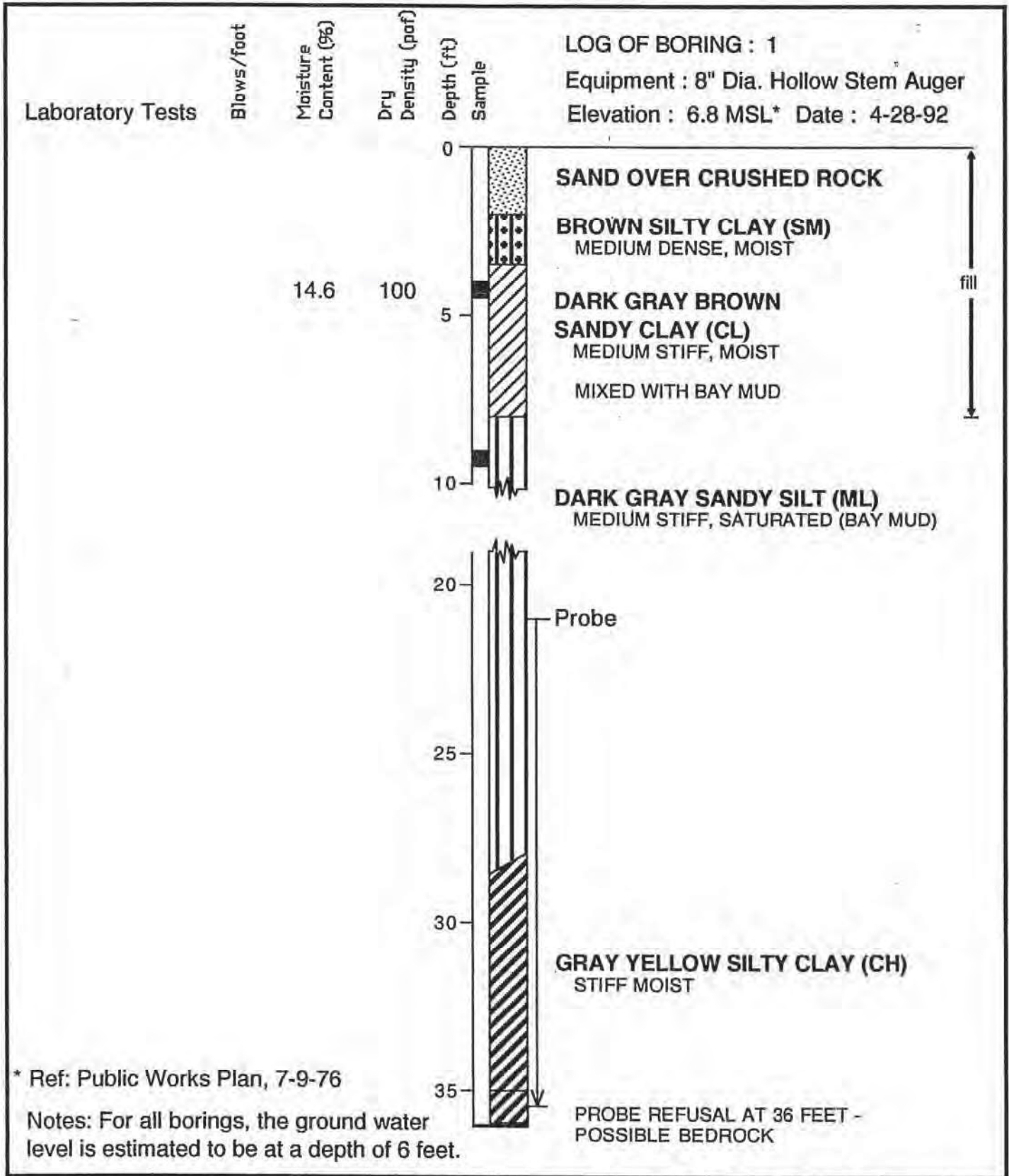
**BORING LOCATION PLAN**

Levee Wall Coyote Creek  
Marin County, CA

Drawn: *RLB*  
 Approve: *ALB*  
 Date: *4.14.93*

Job No. 964.05 | **ALB ASSOCIATES** | Figure: 1





**ALB ASSOCIATES**  
 CONSULTING SOIL & FOUNDATION ENGINEERS

**LOG OF BORING : 1**  
 Coyotte and Tennessee Creek  
 Levee Walls  
 Marin County, CA

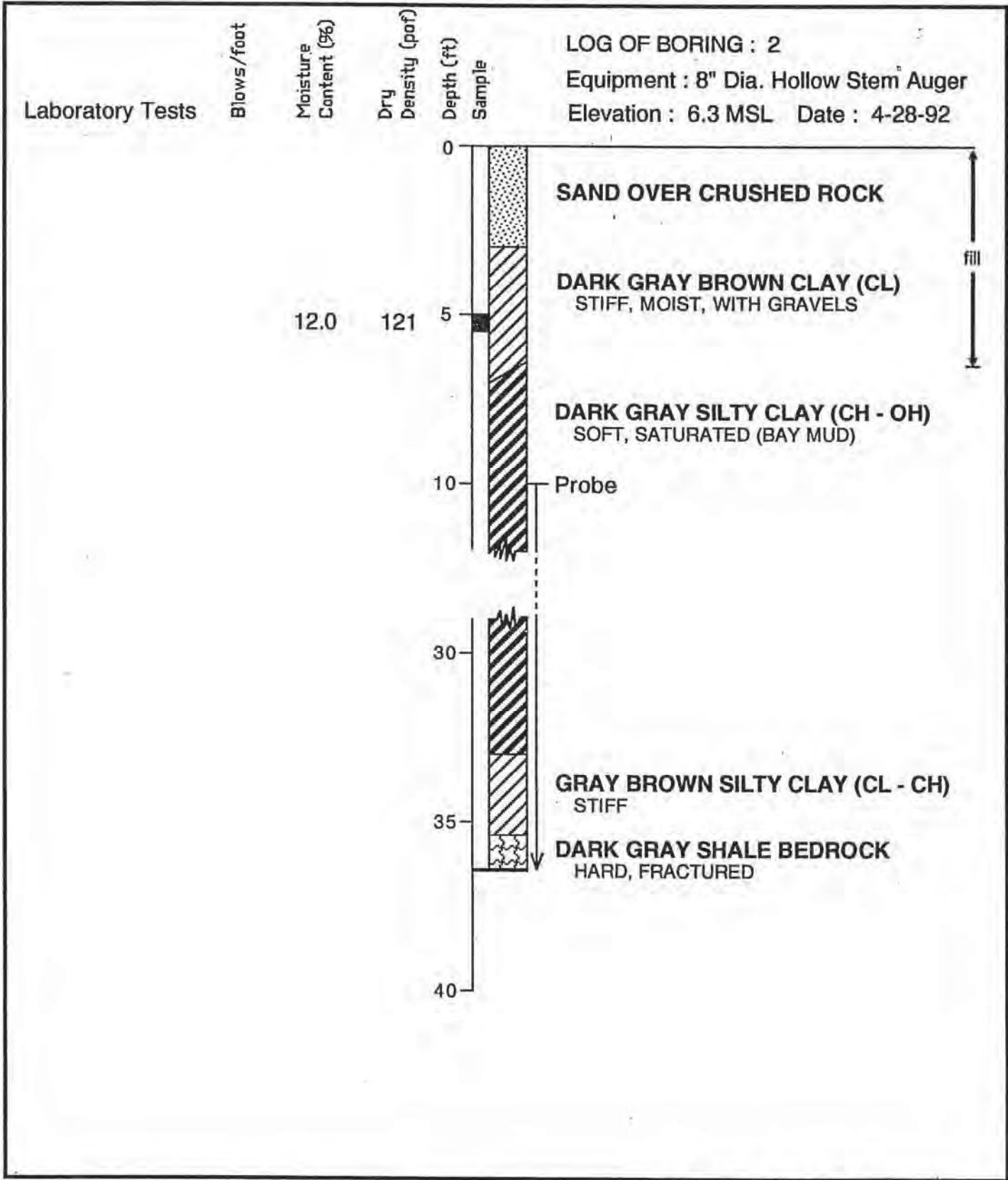
Figure 2

Drawn : L.N.

Job No. : 964.05

Approved : ALB

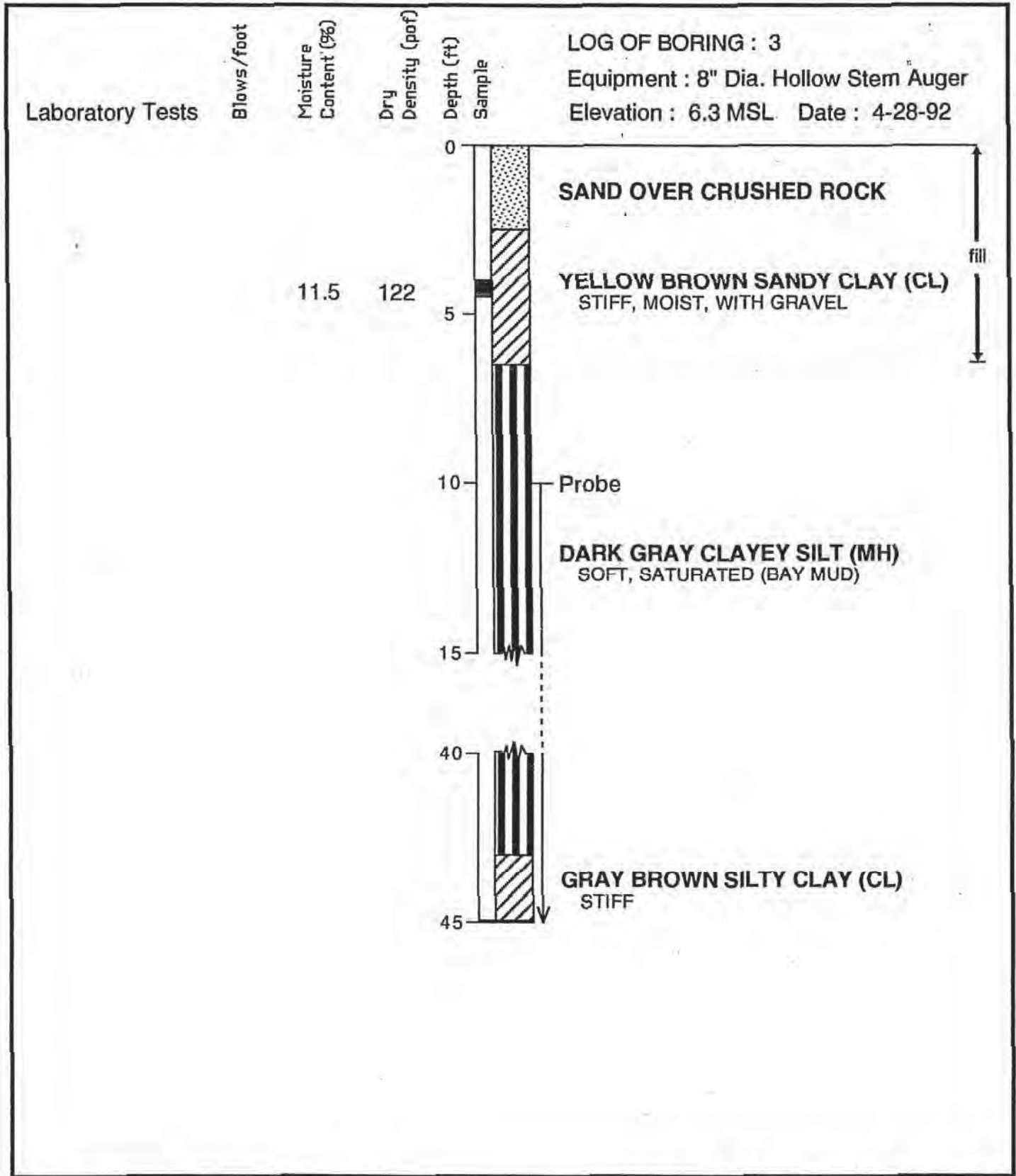
Date 4-14-93

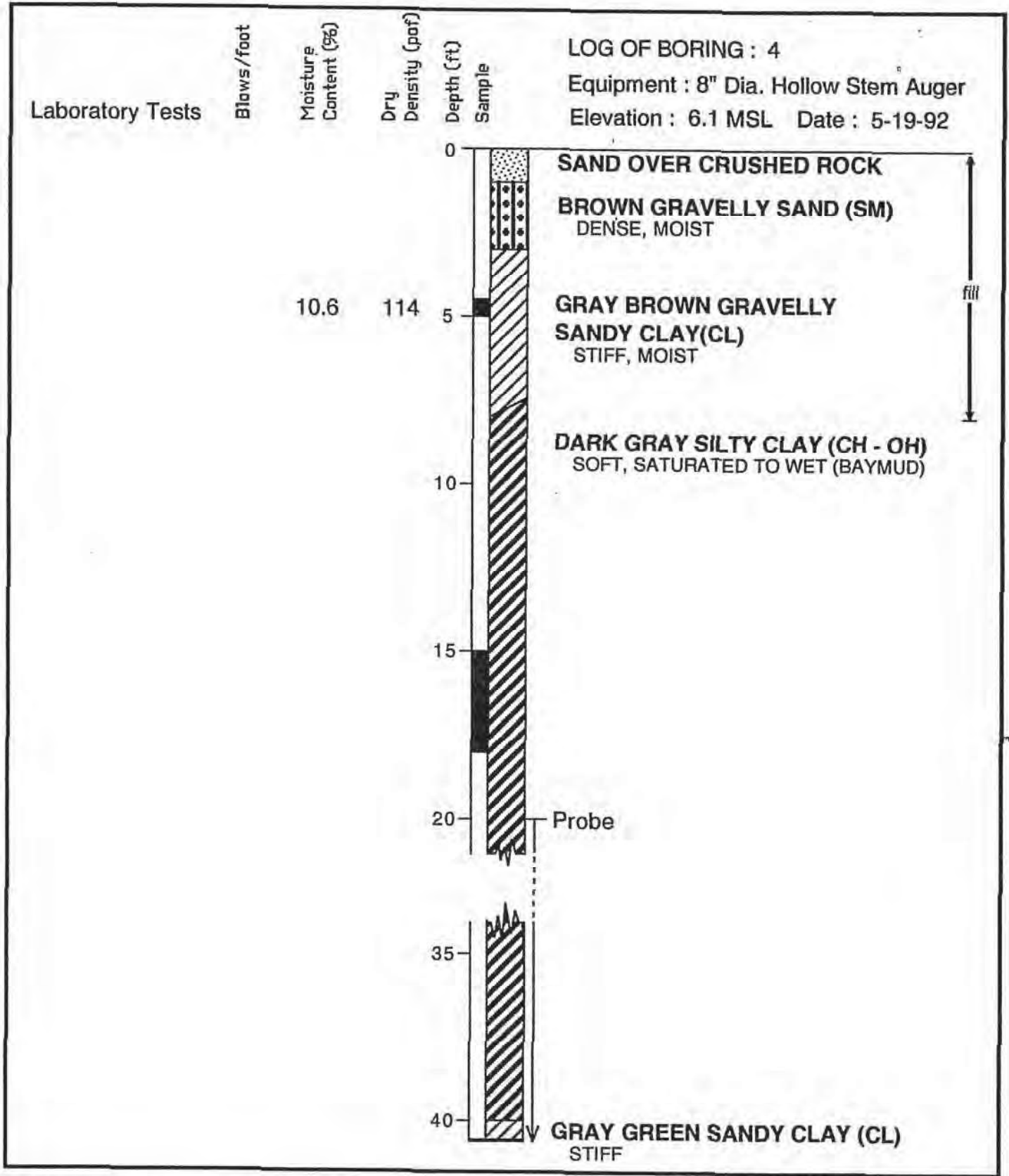


**ALB ASSOCIATES**  
 CONSULTING SOIL & FOUNDATION ENGINEERS

LOG OF BORING : 2  
 Coyotte and Tennessee Creek  
 Levee Walls  
 Marin County, CA Figure 3







**ALB ASSOCIATES**  
 CONSULTING SOIL & FOUNDATION ENGINEERS

LOG OF BORING : 4  
 Coyotte and Tennessee Creek  
 Levee Walls  
 Marin County, CA

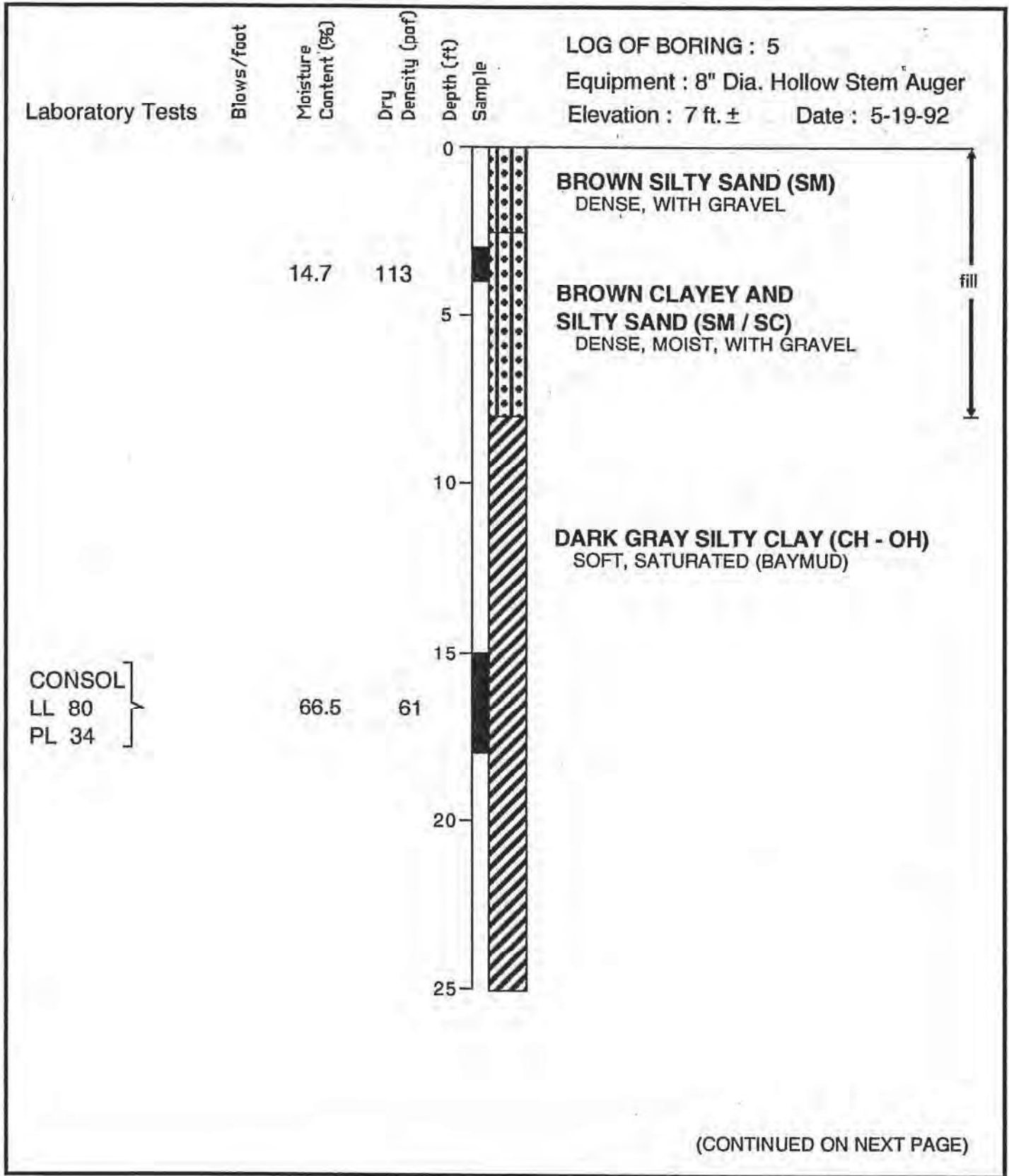
Figure 5

Drawn : L.N.

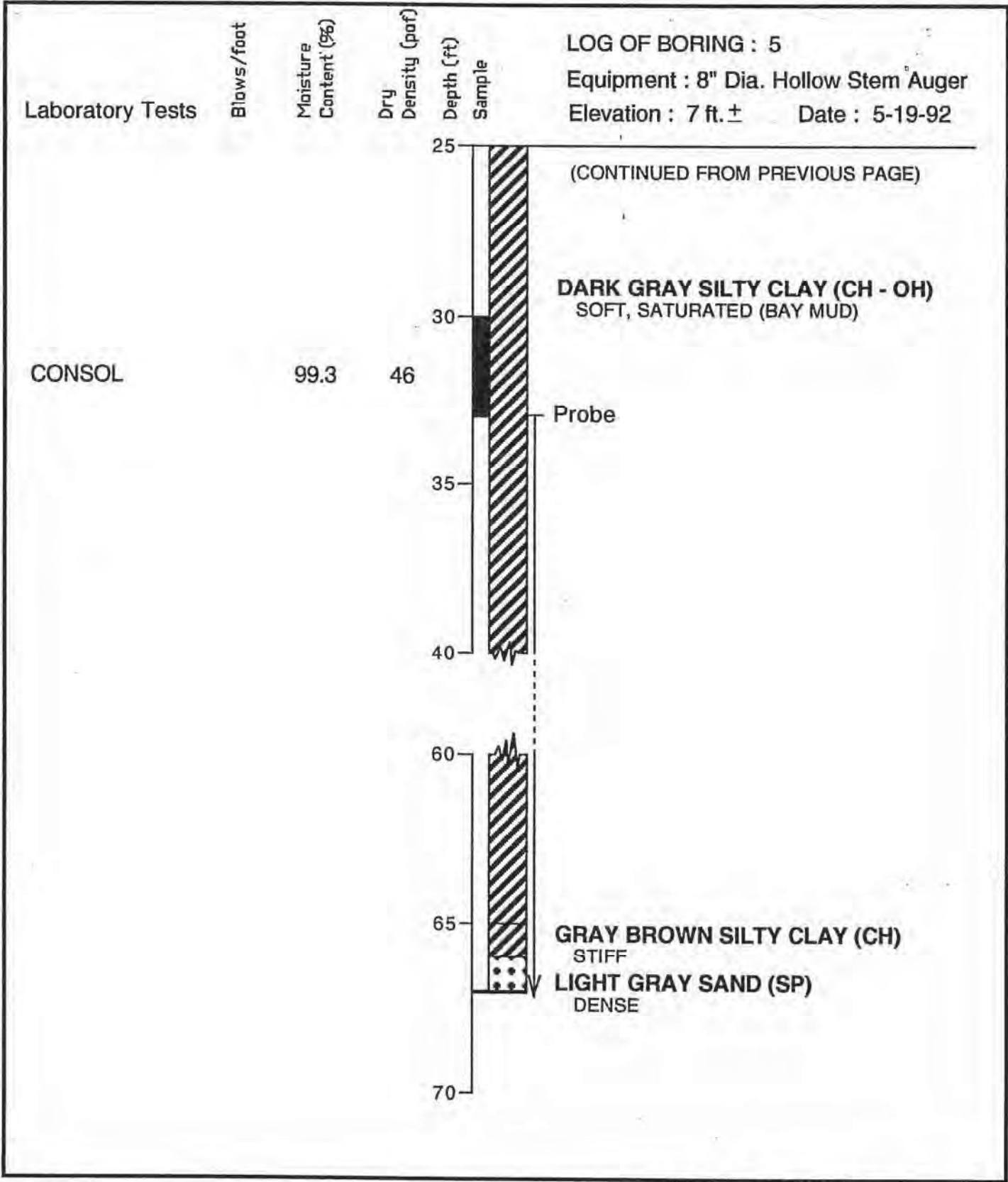
Job No. : 964.05

Approved : ALB.

Date 4.14.93







**ALB ASSOCIATES**  
CONSULTING SOIL & FOUNDATION ENGINEERS

LOG OF BORING : 5  
Coyotte and Tennessee Creek  
Levee Walls  
Marin County, CA

















Figure 6A



Drawn : L.N.

Job No. : 964.05

Approved : ALB.

Date 4.14.93

MAJOR DIVISIONS		TYPICAL NAMES	
COARSE GRAINED SOILS <small>more than half is larger than #200 sieve</small>	GRAVELS More than half coarse fraction is larger than no. 4 sieve size	Clean Gravels with Little or No Fines	GW  Well Graded Gravels, Gravel - Sand Mixtures
			GP  Poorly Graded Gravels, Gravel - Sand Mixtures
		Gravels with Over 12% Fines	GM  Silty Gravels, Poorly Graded Gravel - Sand - Silt Mixtures
			GC  Clayey Gravels, Poorly Graded Gravels - Sand - Clay Mixtures
	SANDS More than half coarse fraction is smaller than no. 4 sieve size	Clean Sands with Little or No Fines	SW  Well Graded Sands, Gravelly Sands
			SP  Poorly Graded Sands, Gravelly Sands
		Sands with Over 12% Fines	SM  Silty Sands, Poorly Graded Sand - Silt Mixtures
			SC  Clayey Sands, Poorly Graded Sand - Clay Mixtures
FINE GRAINED SOILS <small>more than half is smaller than #200 sieve</small>	SILTS & CLAYS Liquid limit less than 50	ML  Inorganic Silts and Very Fine Sands, Rock Flour, Silty or Clayey Fine Sands, or Clayey Silts with slight Plasticity	
		CL  Inorganic clays of low to medium Plasticity, Gravelly Clays, Sandy Clays, Lean Clays	
		OL  Organic Clays and Organic Silty Clays of Low Plasticity	
	SILTS & CLAYS Liquid limit greater than 50	MH  Inorganic Silts, Micaceous or Diatomaceous Fine Sandy or Silty Soils, Elastic Silts	
		CH  Inorganic Clays of High Plasticity, Fat Clays	
		OH  Organic Clays of High Plasticity, Organic Silts	
HIGHLY ORGANIC SOILS	Pt  Peat and Other Highly Organic Soils		
ROCK FORMATION	 Bedrock		
<b>UNIFIED SOILS CLASSIFICATION SYSTEM</b>			

				Shear Strength, psf	
				Confined Pressure, psf	
Consol	— Consolidation	*Tx	320 (2600)		Unconsolidated Undrained Triaxial
LL	— Liquid Limit (in %)	TxCU	320 (2600)		Consolidated Undrained Triaxial
PL	— Plastic Limit (in %)	DS	2750 (2000)		Consolidated Drained Direct Shear
G <sub>s</sub>	— Specific Gravity	FVS	470		Field Vane Shear
SA	— Sieve Analysis	UC	2000		Unconfined Compression
	— "Undisturbed" Sample	LVS	700		Laboratory Vane Shear
	— Bulk Sample	TV	1000		Tor Vane
Note : All strength tests on 2.4" diameter samples unless otherwise indicated.					
<b>KEY TO TEST DATA</b>					

 **ALB ASSOCIATES**  
CONSULTING SOIL & FOUNDATION ENGINEERS

**Soil Classification Chart & Key to Test Data**

Coyote and Tennessee Creek  
Levee Walls  
Marin County, CA

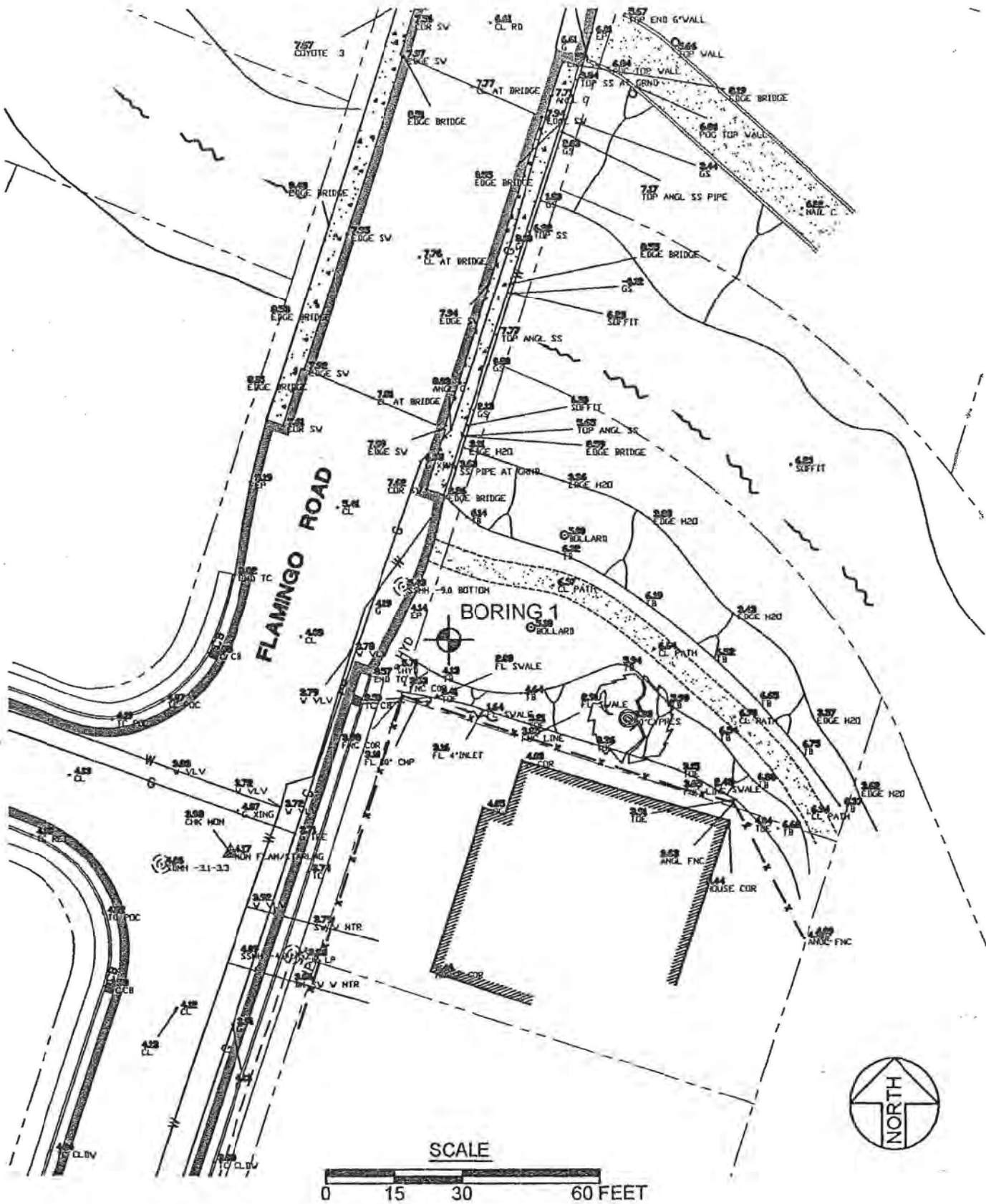
Fig. 7

Job No. : 964.05

Approved : ALB

Date : 4-14-93





REFERENCE: Nute Engineering, Flamingo Rd. Pump Station Plan and Profile, January 2002

FILE: Site Plan.dwg

**Miller Pacific**  
ENGINEERING GROUP

SITE PLAN  
Flamingo Road Pump Station  
Mill Valley, California

1

Project No. 905.01












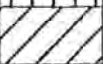




Date 2/15/02

Approved By:

Figure



# SOIL CLASSIFICATION CHART

MAJOR DIVISIONS		SYMBOL	DESCRIPTION
COARSE GRAINED SOILS over 50% sand and gravel	CLEAN GRAVEL	GW 	Well-graded gravels or gravel-sand mixtures, little or no fines
		GP 	Poorly-graded gravels or gravel-sand mixtures, little or no fines
	GRAVEL with fines	GM 	Silty gravels, gravel-sand-silt mixtures
		GC 	Clayey gravels, gravel-sand-clay mixtures
	CLEAN SAND	SW 	Well-graded sands or gravelly sands, little or no fines
		SP 	Poorly-graded sands or gravelly sands, little or no fines
	SAND with fines	SM 	Silty sands, sand-silt mixtures
		SC 	Clayey sands, sand-clay mixtures
	FINE GRAINED SOILS over 50% silt and clay	SILT AND CLAY liquid limit <50%	ML 
CL 			Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays
OL 			Organic silts and organic silt-clays of low plasticity
SILT AND CLAY liquid limit >50%		MH 	Inorganic silts, micaceous or diatomaceous fine sands or silts, elastic silts
		CH 	Inorganic clays of high plasticity, fat clays
		OH 	Organic clays of medium to high plasticity
HIGHLY ORGANIC SOILS	PT 	Peat, muck, and other highly organic soils	
ROCK		Undifferentiated as to type or composition	

## KEY TO BORING AND TEST PIT SYMBOLS


### CLASSIFICATION TESTS


AL	ATTERBERG LIMITS TEST
SA	SIEVE ANALYSIS
HYD	HYDROMETER ANALYSIS
P200	PERCENT PASSING NO. 200 SIEVE
P4	PERCENT PASSING NO. 4 SIEVE

### STRENGTH TESTS


TV	FIELD TORVANE (UNDRAINED SHEAR)
UC	LABORATORY UNCONFINED COMPRESSION
TXCU	CONSOLIDATED UNDRAINED TRIAXIAL
TXUU	UNCONSOLIDATED UNDRAINED TRIAXIAL
UC, CU, UU = 1/2 Deviator Stress	

### SAMPLER TYPE

 UNDISTURBED CORE SAMPLE:  
MODIFIED CALIFORNIA OR  
HYDRAULIC PISTON SAMPLE

 STANDARD PENETRATION  
TEST SAMPLE

X DISTURBED OR BULK SAMPLE

 ROCK OR CORE SAMPLE

NOTE: Test boring and test pit logs are an interpretation of conditions encountered at the location and time of exploration. Subsurface rock, soil and water conditions may differ in locations and with the passage of time. Lines defining interface between differing soil or rock description are approximate and may indicate a gradual transition.

FILE: Soil Class.dwg

**Miller Pacific**  
ENGINEERING GROUP

SOIL CLASSIFICATION CHART  
Flamingo Road Pump Station  
Mill Valley, California

2

Project No. 905.01

Date 2/15/02

Approved By:

Figure

OTHER TEST DATA	UNDRAINED SHEAR STRENGTH psf (1)	BLOWS PER FOOT	MOISTURE CONTENT (%)	DRY UNIT WEIGHT pcf (2)	DEPTH meters feet	SAMPLE SYMBOL (3)	DESCRIPTION
			13.2		0-0		CLAYEY SAND/SANDY CLAY (SC-CL) dark gray brown, moist, loose/soft, low plasticity, with minor rounded gravels to 3/8-inch
		10	9.4		-1		SILTY CLAY (CL-CH) (BAY MUD) dark gray, very moist, very soft, medium to high plasticity
		8			-2		
		3	99.2	45	-3		
					-4		
		6	77.7	54	-5		
					-6		
					-15		
					-20		

NOTES: (1) METRIC EQUIVALENT STRENGTH (kPa) = 0.0479 x STRENGTH (psf)  
(2) METRIC EQUIVALENT DRY UNIT WEIGHT kN/m<sup>3</sup> = 0.1571 x DRY UNIT WEIGHT (pcf)  
(3) GRAPHIC SYMBOLS ARE ILLUSTRATIVE ONLY

(continued)

FILE: 905 05Boring.dwg  
CCP\R\RIGHT 2001, MILLER PACIFIC ENGINEERING GROUP

**Miller Pacific**  
ENGINEERING GROUP

BORING LOG  
Flamingo Road Pump Station  
Mill Valley, California

3

Project No. 905.05 Date 2/15/02 Approved By: \_\_\_\_\_ Figure

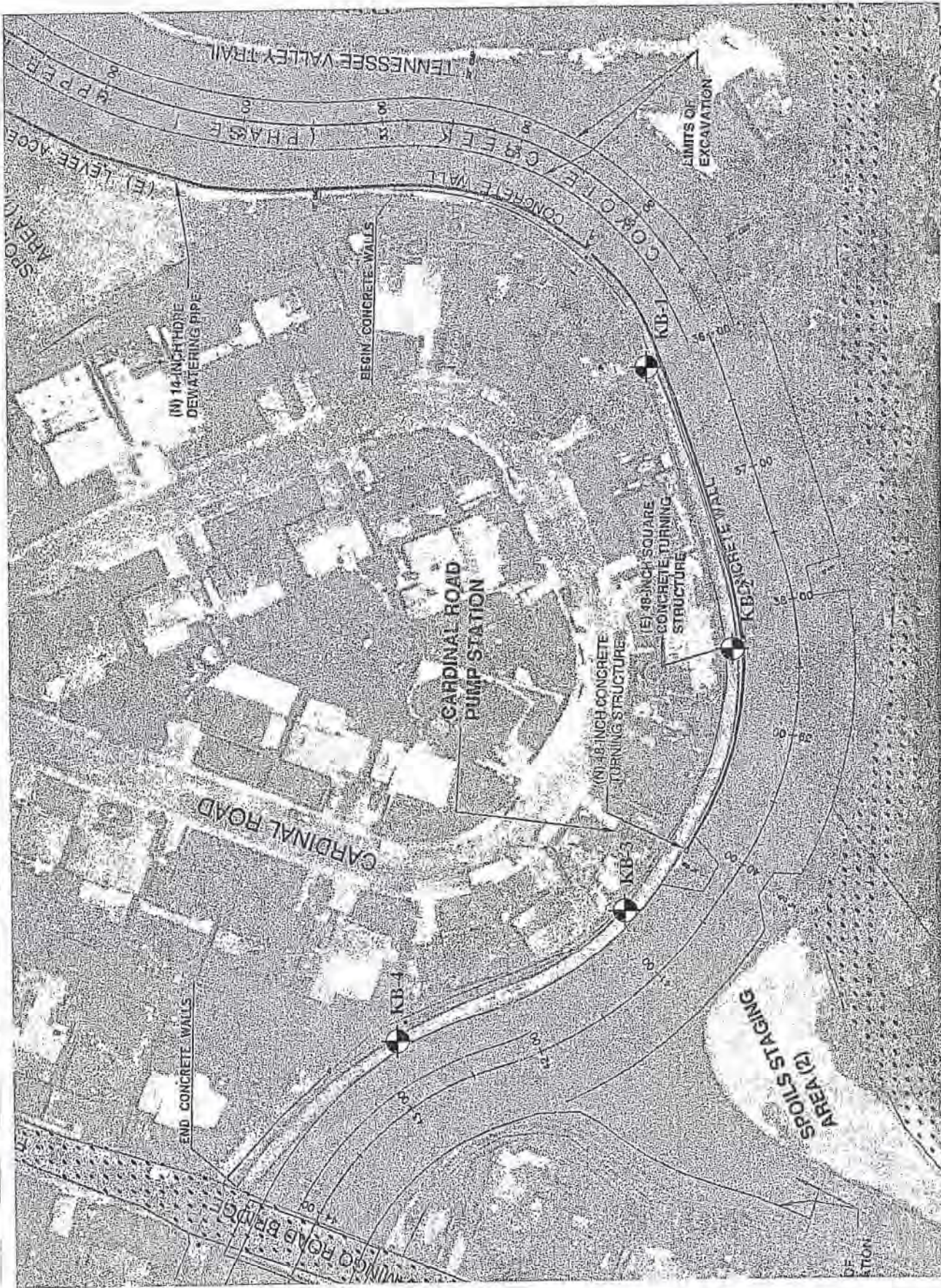
OTHER TEST DATA	UNDRAINED SHEAR STRENGTH psf (1)	BLOWS PER FOOT	MOISTURE CONTENT (%)	DRY UNIT WEIGHT pcf (2)	DEPTH meters feet	SAMPLE SYMBOL (3)	BORING 1 (CONTINUED)
		4	77.7	54	20		<p>SILTY CLAY (CL-CH) (BAY MUD) dark gray, very moist, very soft, medium to high plasticity</p> <p>Bottom of boring at 21.5-feet No groundwater observed</p>

NOTES: (1) METRIC EQUIVALENT STRENGTH (kPa) = 0.0479 x STRENGTH (psf)  
(2) METRIC EQUIVALENT DRY UNIT WEIGHT kN/m<sup>3</sup> = 0.1571 x DRY UNIT WEIGHT (pcf)  
(3) GRAPHIC SYMBOLS ARE ILLUSTRATIVE ONLY



**BORING LOG**  
Flamingo Road Pump Station  
Mill Valley, California





APPROXIMATE BORING LOCATION (KLEINFELDER, 2003)

APPROXIMATE SCALE  
1 INCH = 100 FEET

**KLEINFELDER**  
 Geotechnical, Materials and  
 Environmental Engineering

Job No. 26449  
 Date: MAR 2003

**TEST BORING LOCATION PLAN**  
 COYOTE CREEK LEVEE  
 MARIN COUNTY, CALIFORNIA

PLATE



MAJOR DIVISIONS					TYPICAL NAMES
COARSE GRAINED SOILS More than Half > #200 sieve	GRAVELS MORE THAN HALF COARSE FRACTION IS LARGER THAN NO. 4 SIEVE	CLEAN GRAVELS WITH LITTLE OR NO FINES	GW		WELL GRADED GRAVELS, GRAVEL-SAND
			GP		POORLY GRADED GRAVELS, GRAVEL-SAND MIXTURES
		GRAVELS WITH OVER 12% FINES	GM		SILTY GRAVELS, POORLY GRADED GRAVEL-SAND-SILT MIXTURES
			GC		CLAYEY GRAVELS, POORLY GRADED GRAVEL-SAND-CLAY MIXTURES
	SANDS MORE THAN HALF COARSE FRACTION IS SMALLER THAN NO. 4 SIEVE	CLEAN SANDS WITH LITTLE OR NO FINES	SW		WELL GRADED SANDS, GRAVELLY SANDS
			SP		POORLY GRADED SANDS, GRAVELLY SANDS
		SANDS WITH OVER 12% FINES	SM		SILTY SANDS, POORLY GRADED SAND-SILT MIXTURES
			SC		CLAYEY SANDS, POORLY GRADED SAND-CLAY MIXTURES
FINE GRAINED SOILS More than Half < #200 sieve	SILTS AND CLAYS LIQUID LIMIT LESS THAN 50	ML		INORGANIC SILTS AND VERY FINE SANDS, ROCK FLOUR, SILTY OR CLAYEY FINE SANDS, OR CLAYEY SILTS WITH SLIGHT PLASTICITY	
		CL		INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS	
		OL		ORGANIC CLAYS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY	
	SILTS AND CLAYS LIQUID LIMIT GREATER THAN 50	MH		INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS FINE SANDY OR SILTY SOILS, ELASTIC SILTS	
		CH		INORGANIC CLAYS OF HIGH PLASTICITY, FAT CLAYS	
		OH		ORGANIC CLAYS OF MEDIUM TO HIGH PLASTICITY, ORGANIC SILTS	
		Pt		PEAT AND OTHER HIGHLY ORGANIC SOILS	
HIGHLY ORGANIC SOILS					

### UNIFIED SOIL CLASSIFICATION SYSTEM

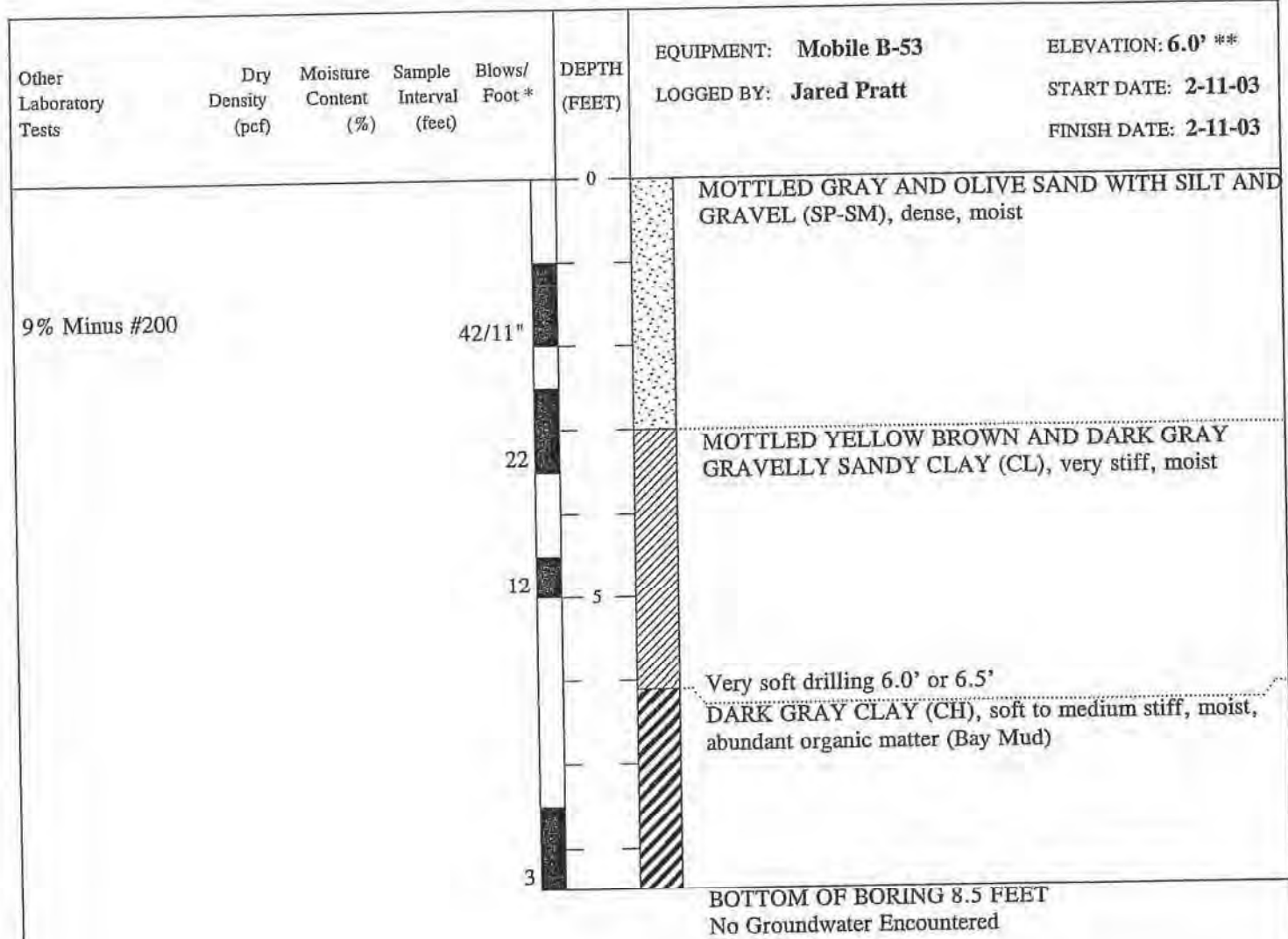
PS	Percent Saturation				
SG	Specific Gravity				
Consol	Consolidation	Tx	2630 (240)		Unconsolidated Undrained Triaxial
LL	Liquid Limit (in %)	Tx sat	2100 (575)		Unconsolidated Undrained Triaxial, saturated prior to test
PL	Plastic Limit (in %)	DS	3740 (960)		Consolidated Drained Direct Shear
PI	Plasticity Index	FVS	1320		Field Vane Shear
TS	Total Saturation Moisture Content	UC	4200		Unconfined Compression
SA	Sieve Analysis	LVS	500		Laboratory Vane Shear
<input type="checkbox"/>	Undisturbed Sample	C			Concrete Compressive Strength
<input checked="" type="checkbox"/>	Bulk Sample	PE			Petrographic Examination
<input checked="" type="checkbox"/>	Standard Penetration Test	Perm			Permeability
<input type="checkbox"/>	Sample Attempt with No Recovery	SE			Sand Equivalent

### KEY TO TEST DATA

**KLEINFELDER**  
Geotechnical, Materials and Environmental Engineering

**SOIL CLASSIFICATION CHART  
AND KEY TO TEST DATA**  
**COYOTE CREEK LEVEE**

PLATE  
A-1



\* Converted to equivalent standard penetration blow counts.  
 \*\* Existing ground surface at time of drilling.

**KLEINFELDER**  
 Geotechnical, Materials and Environmental Engineering

PROJECT NUMBER 26449      DATE MAR 2003

**LOG OF BORING KB-1**

**COYOTE CREEK LEVEE**

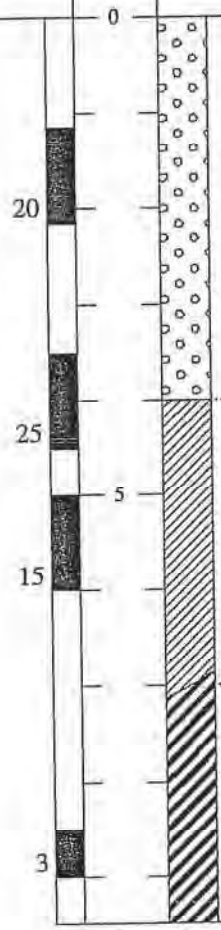
**Marin County, California**

PLATE  
**A-2**



Other Laboratory Tests	Dry Density (pcf)	Moisture Content (%)	Sample Interval (feet)	Blows/ Foot *	DEPTH (FEET)	EQUIPMENT: <b>Mobile B-53</b>	ELEVATION: <b>6.5' **</b>
						LOGGED BY: <b>Jared Pratt</b>	START DATE: <b>2-11-03</b>
							FINISH DATE: <b>2-11-03</b>

4% Minus #200



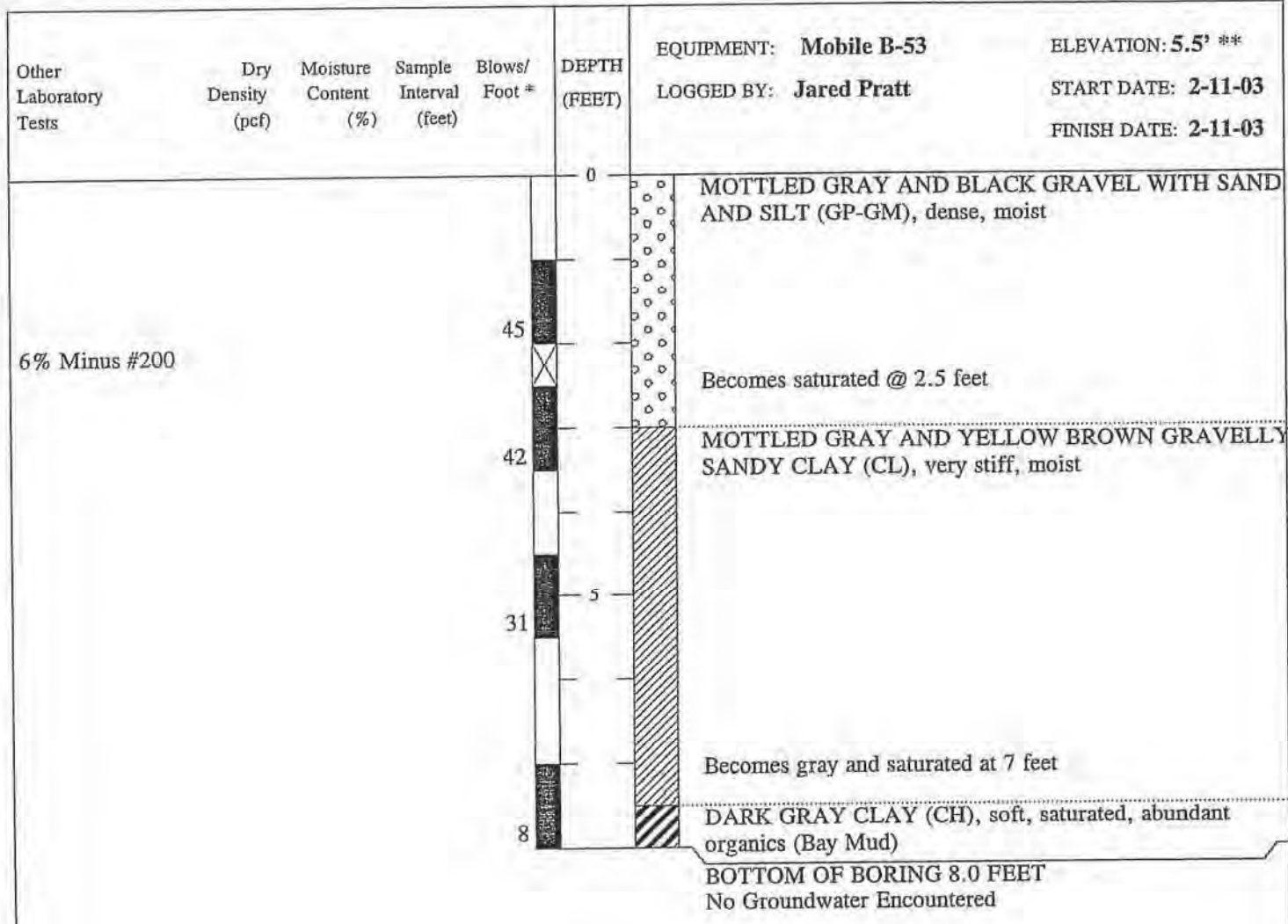
MOTTLED GRAY AND BLACK GRAVEL WITH SAND (GP), medium dense, moist

MOTTLED DARK GRAY AND OLIVE GRAVELLY CLAY WITH SAND (CL), stiff, moist

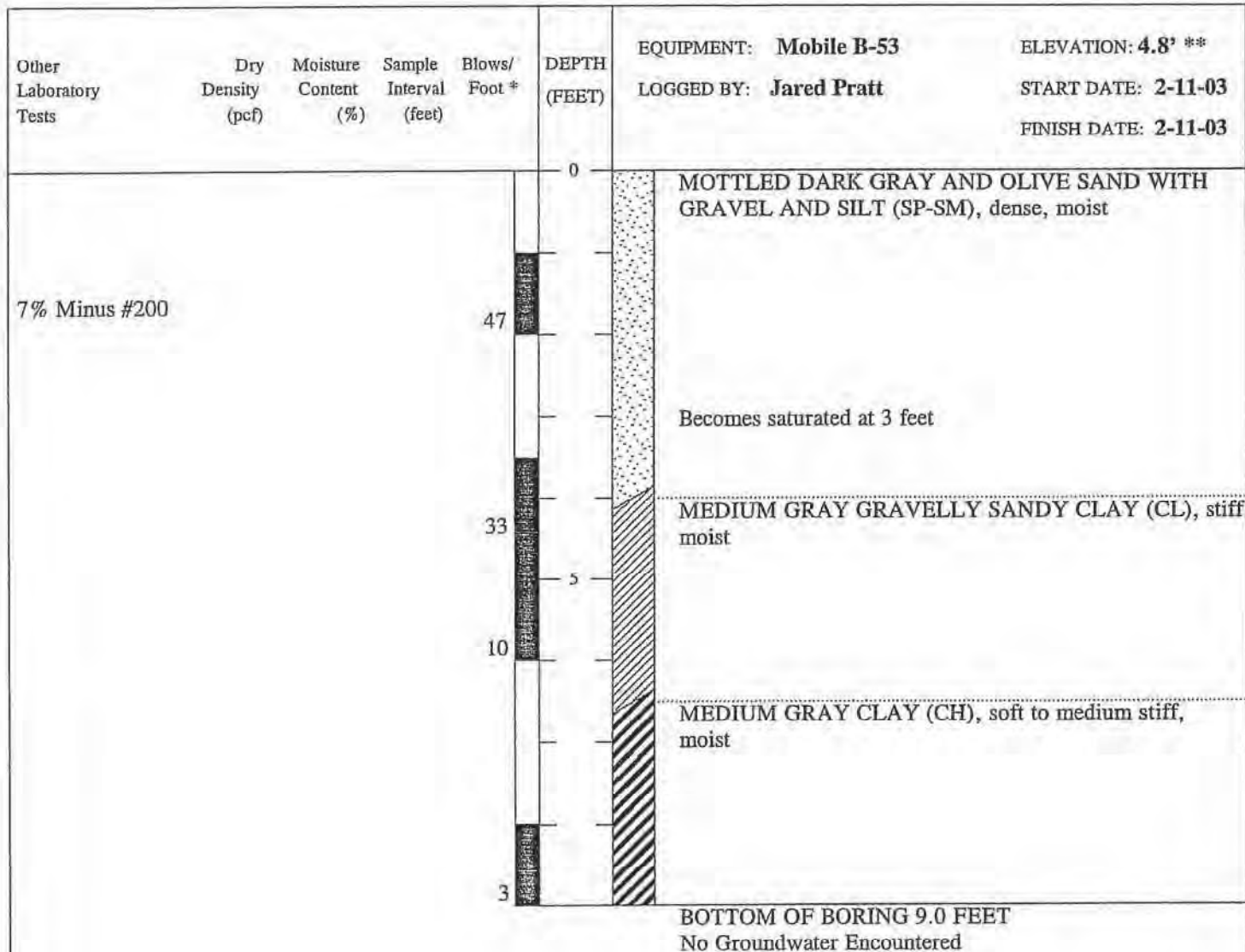
GRAY CLAY (CH), soft to medium stiff, moist, organic matter (Bay Mud)

BOTTOM OF BORING 9.5 FEET  
No Groundwater Encountered

\* Converted to equivalent standard penetration blow counts.  
 \*\* Existing ground surface at time of drilling.



\* Converted to equivalent standard penetration blow counts.  
 \*\* Existing ground surface at time of drilling.



\* Converted to equivalent standard penetration blow counts.  
 \*\* Existing ground surface at time of drilling.



A Report Prepared for:

Marin County Flood Control  
3501 Civic Center Drive Room 304  
San Rafael, CA 94903


Attn: Mr. Timotheus Hampton

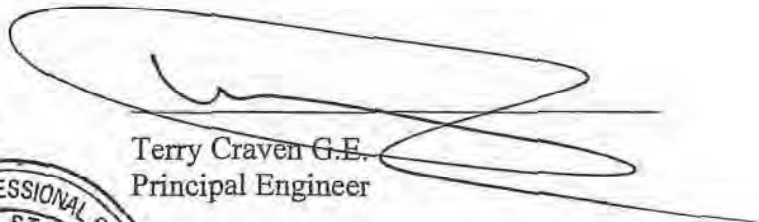
**GEOTECHNICAL INVESTIGATION REPORT  
CREST-MARIN CREEK BOX CULVERT  
MILL VALLEY, CALIFORNIA**

**Kleinfelder Job No: 78045**

Prepared by:

Reviewed by:

  
Mark H. Stanley, G.E.  
Geotechnical Engineer 2397

  
Terry Craven G.E.  
Principal Engineer

**KLEINFELDER, INC.**  
2240 Northpoint Parkway  
Santa Rosa, CA 95407  
(707) 571-1883

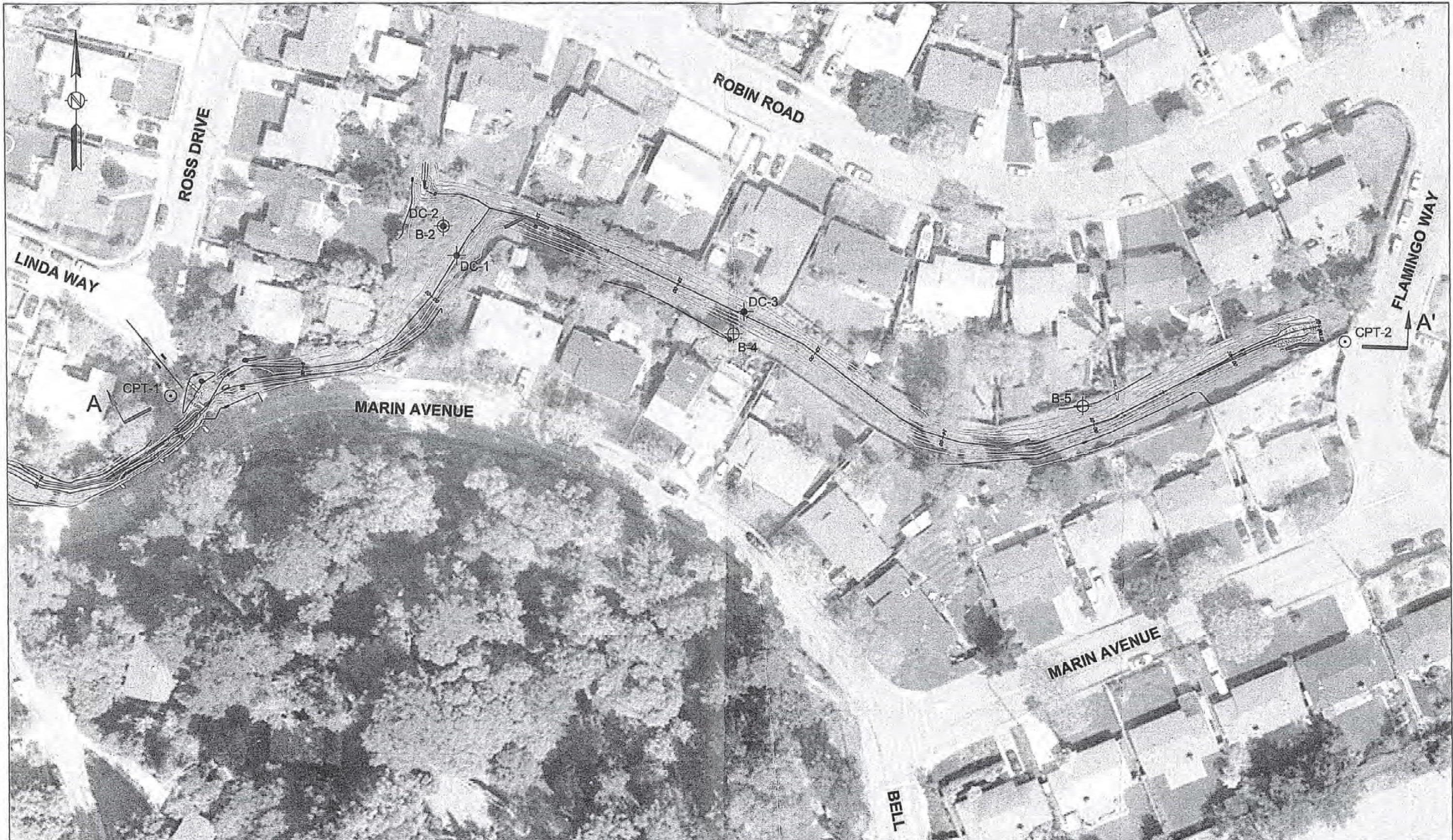


December 29, 2006

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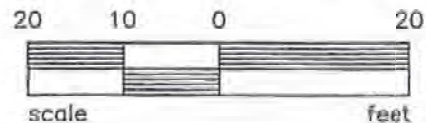


**EXPLANATION**

B-1 HAND AUGER BORING

CPT-2 CONE PENETRATION TEST

DC-3 DYNAMIC CONE PENETRATION TEST



**KLEINFELDER**

PROJECT NO. 78045

DATE DEC 2008

**SITE PLAN  
CREST MARIN CREEK BOX CULVERT**

Mill Valley, California


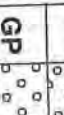
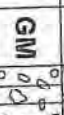
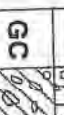

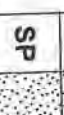
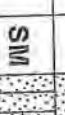
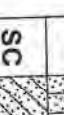
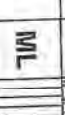

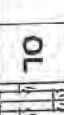

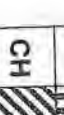
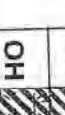
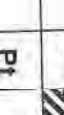
PLATE

**2**

Base: County of Marin GIS Data Site, 2003



## UNIFIED SOIL CLASSIFICATION SYSTEM

MAJOR DIVISIONS		DESCRIPTIVE NAMES	
<b>GRAVELS</b> MORE THAN HALF COARSE FRACTION IS LARGER THAN NO. 4 SIEVE	CLEAN GRAVELS WITH LITTLE OR NO FINES	<b>GW</b> 	WELL GRADED GRAVELS, GRAVEL-SAND MIXTURES
	GRAVELS WITH OVER 12% FINES	<b>GP</b> 	POORLY GRADED GRAVELS, GRAVEL-SAND MIXTURES
<b>SANDS</b> MORE THAN HALF COARSE FRACTION IS SMALLER THAN NO. 4 SIEVE	CLEAN SANDS WITH LITTLE OR NO FINES	<b>GM</b> 	SILTY GRAVELS, POORLY GRADED GRAVEL-SAND-SILT MIXTURES
	SANDS WITH OVER 12% FINES	<b>GC</b> 	CLAYEY GRAVELS, POORLY GRADED GRAVEL-SAND-CLAY MIXTURES
	CLEAN SANDS WITH LITTLE OR NO FINES	<b>SW</b> 	WELL GRADED SANDS, GRAVELLY SANDS
	SANDS WITH OVER 12% FINES	<b>SP</b> 	POORLY GRADED SANDS, GRAVELLY SANDS
	SANDS WITH OVER 12% FINES	<b>SM</b> 	SILTY SANDS, POORLY GRADED SAND-SILT MIXTURES
	SANDS WITH OVER 12% FINES	<b>SC</b> 	CLAYEY SANDS, POORLY GRADED SAND-CLAY MIXTURES
	SANDS WITH OVER 12% FINES	<b>ML</b> 	INORGANIC SILTS AND VERY FINE SANDS, ROCK FLOUR, SILTY OR CLAYEY FINE SANDS, OR CLAYEY SILTS WITH SLIGHT PLASTICITY
<b>SILTS AND CLAYS</b> LIQUID LIMIT LESS THAN 50	SILTS AND CLAYS LIQUID LIMIT LESS THAN 50	<b>CL</b> 	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS
	SILTS AND CLAYS LIQUID LIMIT LESS THAN 50	<b>OL</b> 	ORGANIC CLAYS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY
	SILTS AND CLAYS LIQUID LIMIT LESS THAN 50	<b>MH</b> 	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS FINE SANDY OR SILTY SOILS, ELASTIC SILTS
	SILTS AND CLAYS LIQUID LIMIT LESS THAN 50	<b>CH</b> 	INORGANIC CLAYS OF HIGH PLASTICITY, FAT CLAYS
	SILTS AND CLAYS LIQUID LIMIT LESS THAN 50	<b>OH</b> 	ORGANIC CLAYS OF MEDIUM TO HIGH PLASTICITY, ORGANIC SILTS
<b>HIGHLY ORGANIC SOILS</b>	<b>Pt</b> 	PEAT AND OTHER HIGHLY ORGANIC SOILS	

### FIELD SAMPLING



- MODIFIED CALIFORNIA SAMPLE
- DISTURBED, BAG OR BULK SAMPLE
- STANDARD PENETRATION TEST
- SHELBY TUBE SAMPLE
- 3-1/2" I.D. CONTINUOUS CORE SAMPLE
- UNRETAINED PORTION OF SAMPLE
- WATER LEVEL OBSERVED IN BORING (at given post-drilling time)
- WATER LEVEL OBSERVED IN BORING (at time of drilling)

### LABORATORY TESTS

- LL LIQUID LIMIT
- PI PLASTICITY INDEX
- SA SIEVE ANALYSIS
- #200 PERCENT PASSING #200 SIEVE
- RV RESISTANCE VALUE
- EI EXPANSION INDEX
- DS DIRECT SHEAR
- Tx/UU TRIAXIAL SHEAR-UNCONSOLIDATED UNDRAINED
- UC UNCONFINED COMPRESSION
- SG SPECIFIC GRAVITY
- PP POCKET PENETROMETER SHEAR STRENGTH (1sf)

NOTES: Blow counts represent the number of blows of a A-1-pound hammer falling 30-inches required to drive a sampler the last 12-inches of an 18-inch penetration. The blow counts have been converted to standard N-value blow counts.

The lines separating strata on the logs represent approximate boundaries only. The actual transition may be gradual. No warranty is provided as to the continuity of soil strata between borings. Logs represent the soil strata and groundwater observed at the boring location on the date of drilling only.



**KLEINFELDER**

### BORING LOG LEGEND

Crest Marin Creek  
Box Culvert  
Mill Valley, California

PLATE

A-1