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LETTER OF TRANSMITTAL

TO:

Ms. Lynn Nightingale  
c/o Miller & Miller  
250 Executive Park Boulevard, #3100  
San Francisco, CA 94134

DATE: November 4, 1993  
PROJECT: 4629 Martin Luther King, Jr., Way  
SCI JOB NUMBER: 827.001

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REMARKS:

COPIES TO: ✓(1) Ms. Eva Chu, Alameda County Health Care Services Agency, 80 Swan Way,  
Room #200, Oakland, CA 94621

BY: Mark Kawakami  
Mark Kawakami (Cecilia)

Subsurface Consultants, Inc.

**PRELIMINARY FUEL OIL CONTAMINATION  
ASSESSMENT  
4629 MARTIN LUTHER KING JR., WAY  
OAKLAND, CALIFORNIA  
SCI 827.001**

*Nov 1993*

Prepared for:

Ms. Lynn Nightingale  
c/o Miller & Miller  
250 Executive Park Boulevard, #3100  
San Francisco, California 94134

By:

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James P. Bowers  
Geotechnical Engineer 157 (expires 3/31/96)



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November 4, 1993

## I INTRODUCTION

This report presents the results of a soil contamination assessment conducted by Subsurface Consultants, Inc. (SCI) regarding three fuel oil tanks located at 4629 Martin Luther King, Jr., Way, Oakland, California. The location of the site is shown on the Site Plan, Plate 1.

In July 1992, five underground storage tanks were removed from the site. Two (2) of the tanks stored gasoline, and three stored fuel oil. SEMCO Inc. removed the tanks and obtained soil samples from the excavations. Analytical results indicated that petroleum hydrocarbons, quantified as diesel and oil & grease, were present in the soil below the fuel oil tanks. Additionally, toluene, ethylbenzene and xylenes were detected at low concentrations in the soil. Petroleum hydrocarbons and benzene, toluene, ethylbenzene, xylene (BTEX) were not detected in samples obtained from the gasoline tank excavations at concentrations above the reporting limits.

In February 1993, the property owner retained SCI to further define the extent of soil contamination associated with the previous fuel oil tanks. In May 1993, our scope of services was expanded to include additional field and laboratory studies. Specifically, our services included:

1. Drilling and sampling 9 test borings,
2. Performing analytical tests on selected soil samples,
3. Evaluating the data generated, and
4. Preparing this report.

## II FIELD INVESTIGATION

Subsurface conditions were explored on March 10 and May 6 and 7, 1993 by drilling 9 test borings extending to depths varying from 23 to 32 feet. The test borings were drilled using truck-mounted, 6 and 8-inch-diameter, hollow-stem auger equipment. Test borings within the building were drilled using truck-mounted, 4-inch-diameter solid flight augers or a portable "Minuteman" drill rig equipped with 3-inch-diameter solid flight augers. Boring locations are shown on Plate 1.

Our engineer observed drilling operations and prepared detailed logs of the borings. Soil samples were obtained from the borings using a California drive sampler having an outside diameter of 2.5 inches and an inside diameter of 2.0 inches, and a Modified California Drive sampler having an outside diameter of 3.0 inches and an inside diameter of 2.5 inches. The samplers were driven using a 140 pound hammer with a drop of 30 inches. The number of blows required to drive the samplers the final 12 inches of each 18 inch penetration were recorded and are shown on the boring logs, Plates 2 through 10. Soils are classified in accordance with the Unified Soil Classification system described on Plate 11.

Soil samples were retained in brass sample liners. Samples for environmental analysis were capped and sealed with duct tape. Teflon sheeting was placed between the caps and the soil samples.

The sealed liners were placed in an ice filled cooler and remained iced until delivery to the laboratory. Chain-of-Custody records accompanied the samples to the laboratory.

The shoe sample from each drive was placed in a plastic bag and screened for volatile organic chemicals using an organic vapor meter (OVM). OVM measurements are recorded on the boring logs.

All augers, drill rods, sampling equipment, etc., that were placed in the test borings were thoroughly cleaned prior to their initial use and each subsequent use to reduce the likelihood of cross contamination between borings.

All borings were backfilled with cement grout upon completion of drilling. Soil cuttings generated during drilling were stockpiled within the building and covered with plastic sheeting.

### III SITE CONDITIONS

#### A. Regional Geology

The site is located on a broad alluvial plain on the east side of San Francisco Bay. The plain is characterized by nearly level topography. Locally, the alluvial deposits consist largely of interfingered lenses of clayey gravel, sandy and silty clays and sand-clay-silt mixtures.

#### B. Subsurface Conditions

The site is relatively level and largely occupied by a high one-story warehouse type structure with a concrete slab-on-grade floor. The structure has plan dimensions of approximately 110 by

192 feet. Five (5) underground storage tanks previously existed on-site. Their locations are shown on Plate 1.

C. Subsurface Conditions

Our test borings indicate that the site is blanketed by 13 to 22 feet of medium stiff to stiff silty and sandy clays. Underlying the clay and extending to the maximum depths drilled was a medium dense to dense clayey sand. Within the tank excavations, approximately 2 feet of sand was encountered at the surface. Underlying the sand was approximately 6 to 10 feet of pea gravel.

Hydrocarbon odors were noted in soil samples obtained from Borings 1 through 5.

Groundwater was encountered between depths of 17 and 27 feet below the groundsurface during drilling. These levels likely do not represent stabilized groundwater levels in the area. The borings were backfilled before water levels could stabilize. However, we judge that groundwater levels will likely exist at a depth of 16 to 17 feet.

#### IV ANALYTICAL TESTING

Soil samples were analyzed by Curtis & Tompkins, Ltd., a California Department of Health Services (DHS) certified analytical laboratory. Selected soil samples were analyzed for:

1. Total extractable hydrocarbons (TEH) - EPA Methods 3550/8015 modified, and
2. Oil and grease (O&G) - SMWW 17:5520 E&F.

The analytical results are summarized in Table 1. Analytical test reports and Chain-of-Custody records are presented in the Appendix. The results are also graphically presented on Plate 1.

## V CONCLUSIONS

Oil and grease and diesel weight hydrocarbons were detected in the soil beneath and adjacent to the previous fuel oil tanks, at concentrations up to 760 and 1700 mg/kg, respectively. In our opinion, the most likely source of the hydrocarbons were the previous fuel oil tanks. The O&G and diesel have impacted soils below the previous tanks and have migrated laterally beneath portions of 47th Street and the existing building. Based on the available data, we judge that the lateral extent of hydrocarbon contamination may be approximately as shown on Plate 1. In our opinion, the lateral extent of contamination has been relatively well defined. The vertical extent of contamination appears to be limited to depths less than about 25 feet.

## VI LIMITATIONS

This study was intended to characterize the extent of soil contamination associated with releases from the previous underground fuel oil tanks, based on limited subsurface investigation and analytical testing. If areas of contamination exist on other portions of the property, away from the area investigated, it is possible that they would not have been detected during this study.

Environmental sampling studies are by nature non-comprehensive and subject to limitations. This study was not designed to identify all potential concerns nor eliminate all risks.

SCI has performed this assessment in accordance with generally accepted standards of care which currently exist in Northern California. It should be recognized that the definition and evaluation of environmental conditions is difficult and inexact. Judgements leading to conclusions and recommendations are generally made with an incomplete knowledge of subsurface and/or historic conditions applicable to the site. In addition, the conclusions recorded herein reflect site conditions at the time of the investigation. These conditions may change with time and as such, our conclusions may also change.

The conclusions and opinions expressed herein may be affected by future changes in the practice of environmental engineering and laws governing hazardous wastes. The reader is advised to consult with SCI prior to relaying upon the information provided.





**Table 1**  
**Petroleum Hydrocarbon Concentrations in Soil**

<u>Boring</u>	<u>Depth (feet)</u>	<u>O&amp;G<sup>1</sup> (mg/kg)<sup>3</sup></u>	<u>TEH<sup>2</sup> (mg/kg)</u>
1	11.5	<50	<1
	20	<50	6
2	15	<50	14
	23	<50	570
3	18	380	310
	21	760	1700
	25	-- <sup>4</sup>	190
4	21	<50	80
	31	<50	<1
5	21	<50	<1
	27.5	<50	<1
	30.5	<50	<1
6	21	<50	16
	27.5	<50	<1
7	21.5	140	170
	25	<50	<1
8	19	540	750
	24.5	<50	<1
9	22	<50	2
	25	<50	<1

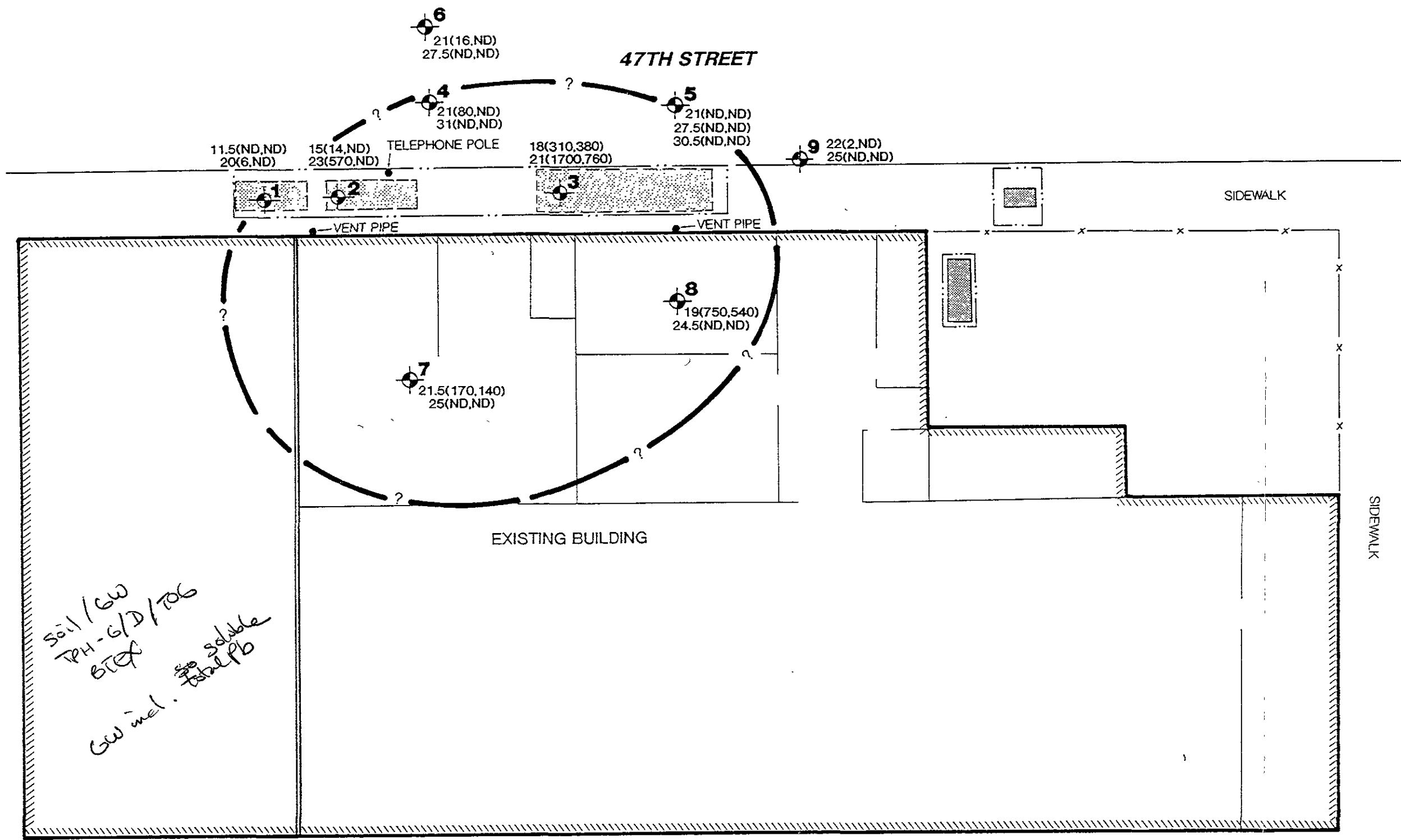
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<sup>1</sup> Oil and grease

<sup>2</sup> Total extractable hydrocarbons, as diesel

<sup>3</sup> Milligrams per kilogram

<sup>4</sup> Test not requested



Soil / GW  
 TPH - G/D / TOG  
 BTEX  
 GW incl. <sup>soluble</sup> Total Pb

	TEST BORING	21(10,150)	OIL & GREASE CONCENTRATION (mg/kg)
	APPROXIMATE LOCATION OF PREVIOUS HEATING OIL FUEL TANKS	21(80,ND) 31(ND,ND)	TEH, AS DIESEL CONCENTRATION (mg/kg)
	APPROXIMATE LOCATION OF PREVIOUS GASOLINE TANK	18(310,380) 21(1700,760)	SAMPLE DEPTH (feet)
	EXTENT OF TANK EXCAVATION	21(16,ND) 27.5(ND,ND)	ND - NOT DETECTED
	APPROXIMATE EXTENT OF SOIL CONTAMINATION	21(ND,ND) 27.5(ND,ND) 30.5(ND,ND)	



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SITE PLAN		
4625 MARTIN LUTHER KING JR WAY - OAKLAND		
JOB NUMBER 827 001	DATE 5/19/93	APPROVED 
		PLATE <b>1</b>

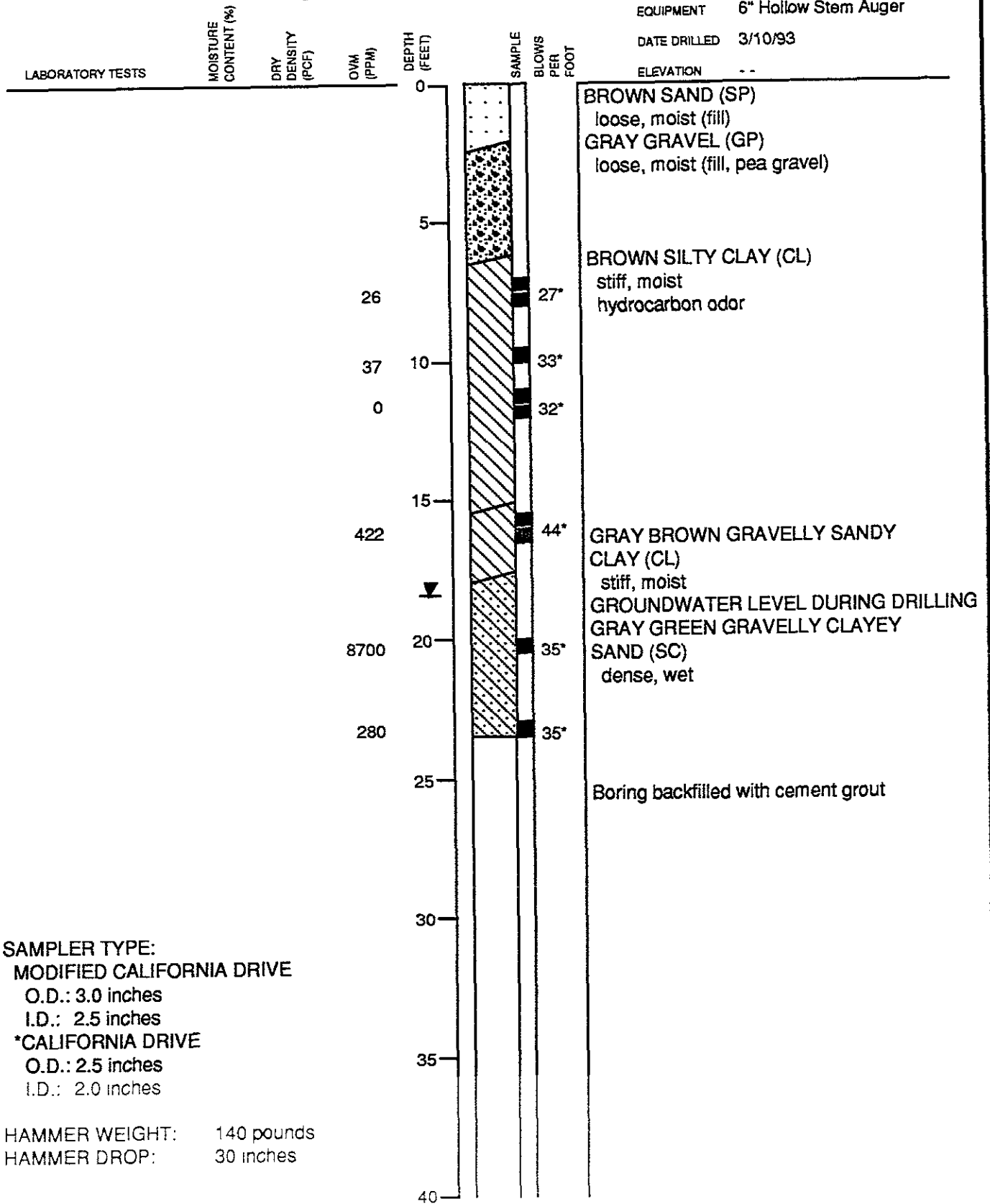
MARTIN LUTHER KING JR. WAY

# LOG OF TEST BORING 1

EQUIPMENT 6" Hollow Stem Auger

DATE DRILLED 3/10/93

ELEVATION --



SAMPLER TYPE:  
 MODIFIED CALIFORNIA DRIVE  
 O.D.: 3.0 inches  
 I.D.: 2.5 inches  
 \*CALIFORNIA DRIVE  
 O.D.: 2.5 inches  
 I.D.: 2.0 inches

HAMMER WEIGHT: 140 pounds  
 HAMMER DROP: 30 inches

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827.001

DATE  
3/12/93

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PLATE

2

# LOG OF TEST BORING 2

EQUIPMENT 6" Hollow Stem Auger

DATE DRILLED 3/10/93

ELEVATION --

LABORATORY TESTS

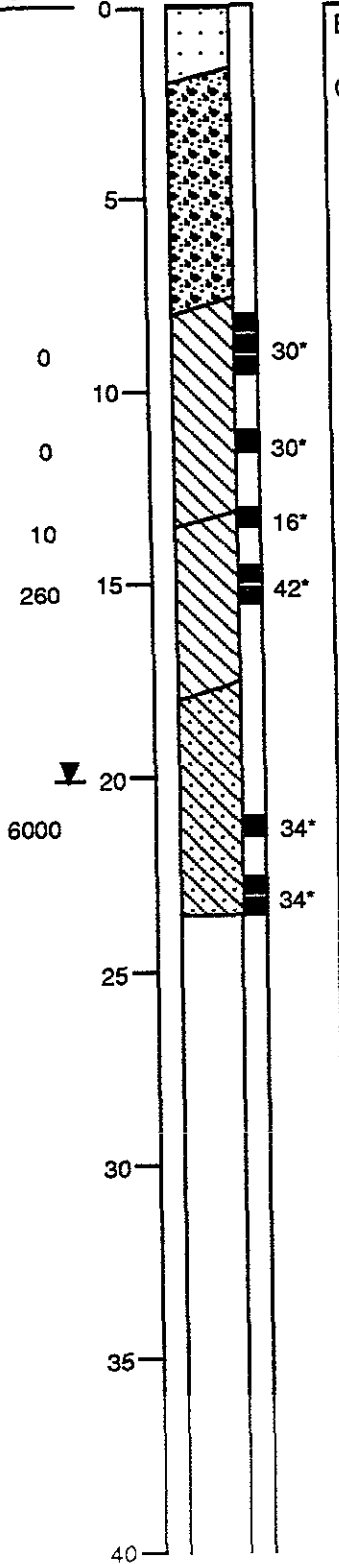
MOISTURE  
CONTENT (%)

DRY  
DENSITY  
(PCF)

QVM  
(PPM)

DEPTH  
(FEET)

SAMPLE  
BLOWS  
PER  
FOOT



BROWN SAND (SP)  
loose, moist (fill)

GRAY GRAVEL (GP)  
loose, moist (fill, pea gravel)

BROWN SILTY CLAY (CL)  
stiff, moist

GRAY BROWN SANDY CLAY (CL)  
stiff, moist  
oil in soil sample

GRAY GRAVELLY CLAYEY SAND (SC)  
dense, wet

GROUNDWATER LEVEL DURING DRILLING

Boring backfilled with cement grout

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4629 MARTIN LUTHER KING JR. WAY - OAKLAND  
 JOB NUMBER 827.001  
 DATE 3/12/93  
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PLATE  
**3**

# LOG OF TEST BORING 3

EQUIPMENT 6" Hollow Stem Auger

DATE DRILLED 3/10/93

ELEVATION --

LABORATORY TESTS

MOISTURE  
CONTENT (%)

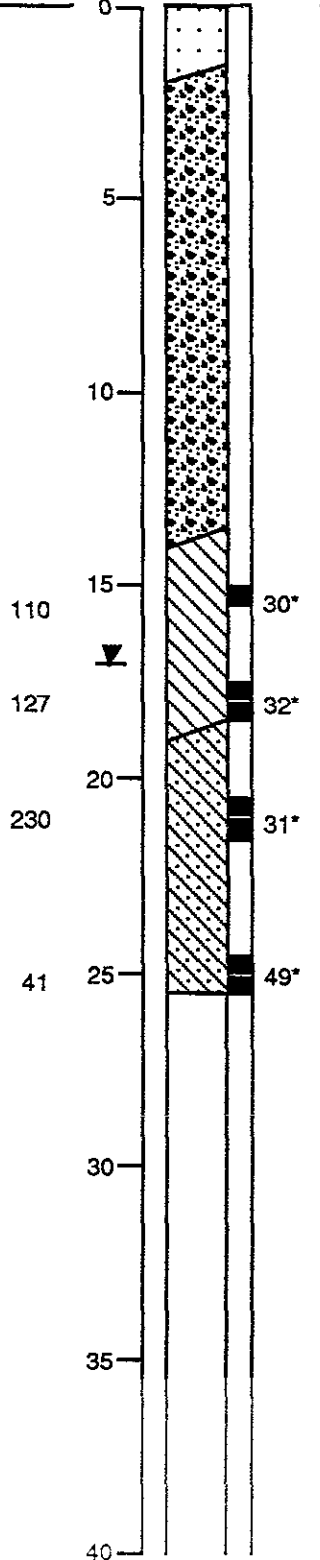
DRY  
DENSITY  
(PCF)

OMV  
(PPM)

DEPTH  
(FEET)

SAMPLE

BLOWS  
PER  
FOOT



BROWN SAND (SP)  
loose, moist (fill)  
GRAY GRAVEL (GP)  
loose, moist (fill, pea gravel)

GRAY BROWN SANDY CLAY (CL)  
stiff, moist  
hydrocarbon odor  
GROUNDWATER LEVEL DURING DRILLING

GRAY GREEN GRAVELLY CLAYEY  
SAND (SC)  
dense, wet

color change to brown

Boring backfilled with cement grout

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JOB NUMBER  
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DATE  
3/12/93

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PLATE

4

# LOG OF TEST BORING 4

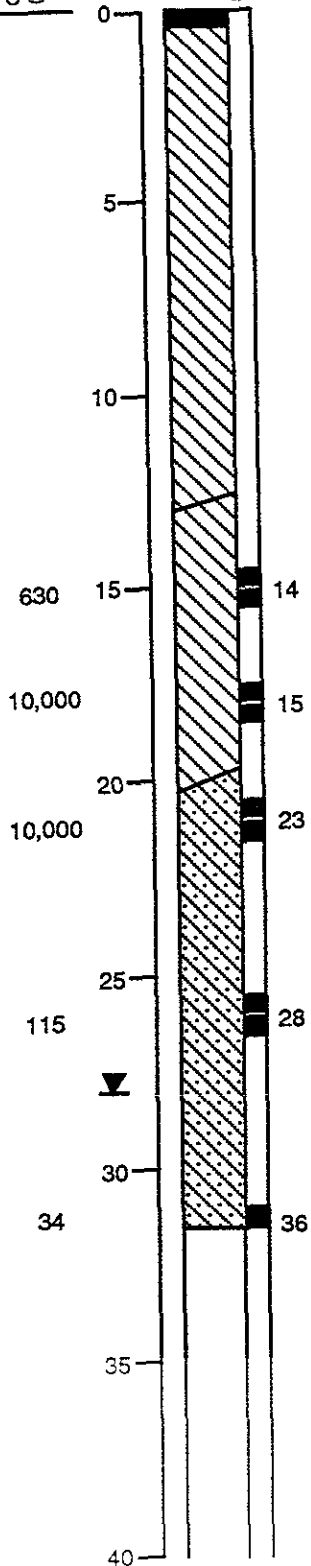
EQUIPMENT 8" Hollow Stem  
 DATE DRILLED 5/6/93  
 ELEVATION --

LABORATORY TESTS

MOISTURE  
CONTENT (%)  
 DRY  
DENSITY  
(PCF)  
 OVM  
(PPHM)

DEPTH  
(FEET)

SAMPLE  
BLOWS  
PER  
FOOT



ASPHALTIC CONCRETE - 5.5" thick  
 DARK BROWN SILTY CLAY (CL)  
 medium stiff, moist, with gravel

color change to brown

GREEN GRAY SANDY SILTY CLAY (CL)  
 stiff, moist

petroleum hydrocarbon odor

GREEN GRAY CLAYEY SAND (SC)  
 medium dense, moist

color change to brown

GROUNDWATER LEVEL DURING DRILLING

Boring backfilled with bentonite chips and  
 cement grout

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JOB NUMBER  
827.001

DATE  
5/6/93

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PLATE

5

# LOG OF TEST BORING 5

EQUIPMENT 8" Hollow

DATE DRILLED 5/6/93

ELEVATION - -

LABORATORY TESTS

MOISTURE  
CONTENT (%)

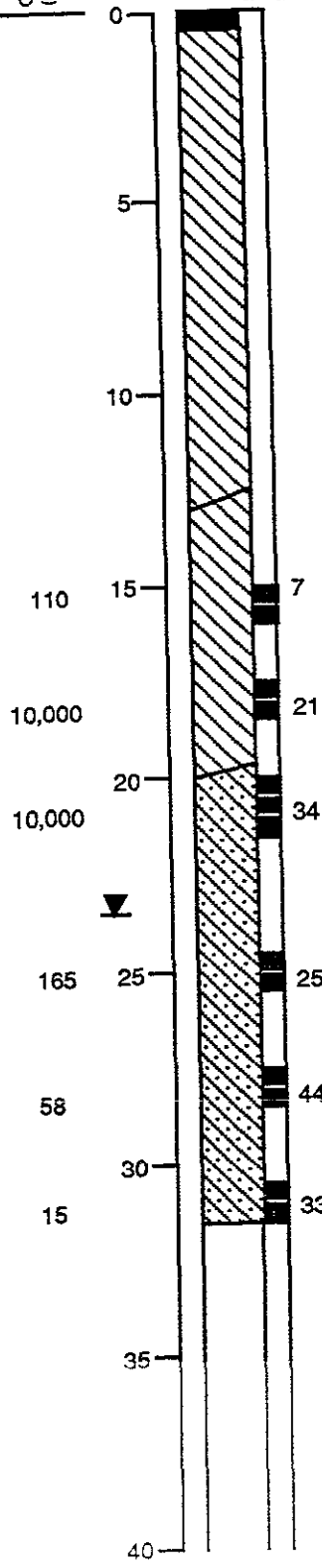
DRY  
DENSITY  
(PCF)

OVUM  
(PPM)

DEPTH  
(FEET)

SAMPLE

BLOWS  
PER  
FOOT



ASPHALTIC CONCRETE - 6" thick  
DARK BROWN SILTY CLAY (CL)  
medium stiff, moist

color change to brown

GREEN GRAY SANDY SILTY CLAY (CL)  
medium stiff, moist

GRAY GREEN CLAYEY SAND (SC)  
medium dense, moist, with gravel

GROUNDWATER LEVEL DURING DRILLING

color change to brown

Boring backfilled with bentonite chips and  
cement grout

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4629 MARTIN LUTHER KING JR. WAY - OAKLAND

JOB NUMBER  
827.001

DATE  
5/6/93

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PLATE

6



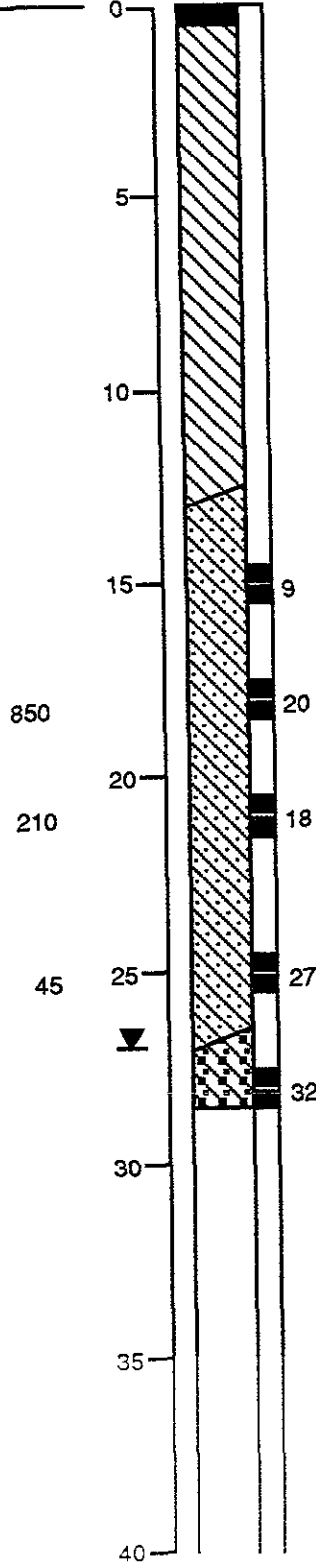
# LOG OF TEST BORING 6

EQUIPMENT 8" Hollow Stem  
 DATE DRILLED 5/6/93  
 ELEVATION --

LABORATORY TESTS

MOISTURE CONTENT (%)  
 DRY DENSITY (PCF)  
 OVM (PPM)

DEPTH (FEET)  
 SAMPLE  
 BLOWS PER FOOT



ASPHALTIC CONCRETE - 6" thick  
 DARK BROWN SILTY CLAY (CL)  
 medium stiff, moist

color change to brown

GREEN GRAY SILTY CLAYEY SAND (SC)  
 loose to medium dense, moist

color change to brown

GROUNDWATER LEVEL DURING DRILLING  
 BROWN SANDY CLAYEY GRAVEL (GC)  
 dense, wet

Boring backfilled with bentonite chips and cement grout

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DATE  
 5/6/93

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PLATE

**7**

# LOG OF TEST BORING 7

EQUIPMENT 8" Hollow Stem

DATE DRILLED 5/6/93

ELEVATION --

LABORATORY TESTS

MOISTURE  
CONTENT (%)

DRY  
DENSITY  
(PCF)

QVM  
(PPM)

DEPTH  
(FEET)

SAMPLE

BLOWS  
PER  
FOOT

0  
5  
10  
15  
20  
25  
30  
35  
40

0  
0  
5  
165  
5

16  
25  
22  
34  
30  
16  
21

CONCRETE SLAB - 7" thick  
DARK BROWN SILTY CLAY (CL)  
medium stiff, moist, with gravel

BROWN SILTY CLAY (CL)  
stiff, moist

GRAY GREEN CLAYEY SAND (SC)  
medium dense to dense, moist

GROUNDWATER LEVEL DURING DRILLING  
BROWN GRAVELLY CLAYEY SAND (SC)  
medium dense, wet

Boring backfilled with bentonite chips and  
cement grout

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JOB NUMBER  
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DATE  
5/6/93

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*llk*

PLATE

8

# LOG OF TEST BORING 8

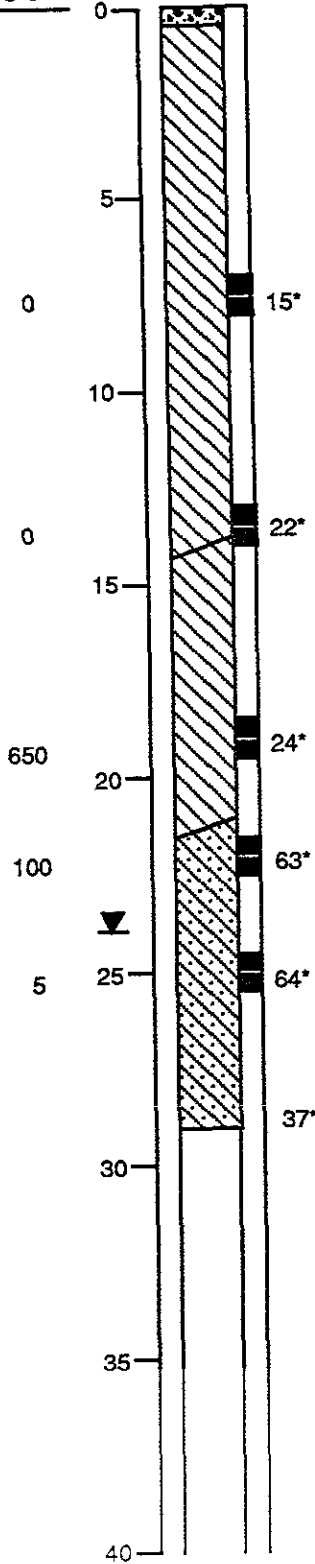
EQUIPMENT 4" Solid Flight  
 DATE DRILLED 5/7/93  
 ELEVATION --

LABORATORY TESTS

MOISTURE CONTENT (%)  
 DRY DENSITY (PCF)  
 OVM (PPM)

DEPTH (FEET)

SAMPLE  
 BLOWS PER FOOT



CONCRETE SLAB - 7" thick  
 DARK BROWN SILTY CLAY (CL)  
 medium stiff, moist

color change to brown

15\*

22\*

24\*

63\*

64\*

37\* Boring backfilled with bentonite chips and cement grout

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4629 MARTIN LUTHER KING JR. WAY - OAKLAND

JOB NUMBER  
 827.001

DATE  
 5/6/93

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*M*

PLATE

9

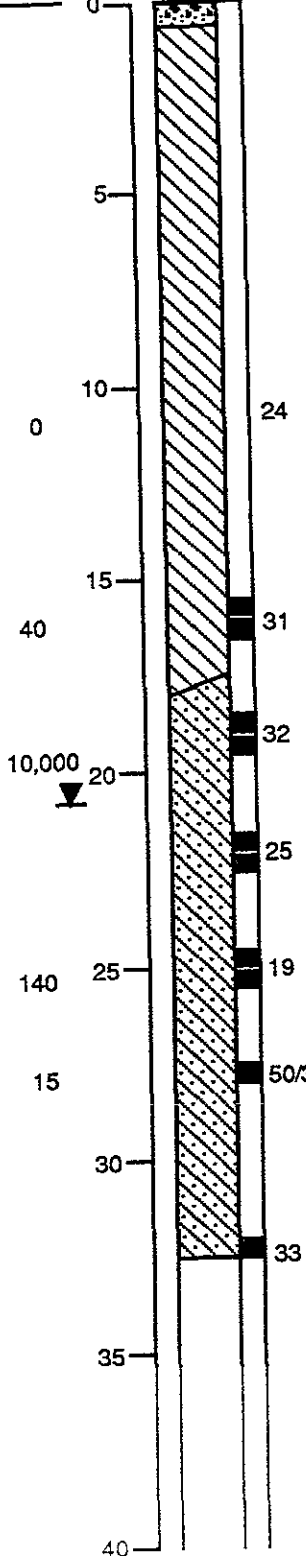
# LOG OF TEST BORING 9

EQUIPMENT 8" Hollow Stem  
 DATE DRILLED 5/6/93  
 ELEVATION --

LABORATORY TESTS

MOISTURE CONTENT (%)  
 DRY DENSITY (PCF)  
 OVM (PPM)

DEPTH (FEET)  
 SAMPLE  
 BLOWS PER FOOT



ASPHALTIC CONCRETE - 8" thick  
 DARK BROWN SILTY CLAY (CL)  
 medium stiff, moist

color change to brown

GRAY GREEN CLAYEY SAND (SC)  
 medium dense, moist, with gravel

GROUNDWATER LEVEL DURING DRILLING

color change to brown

Boring backfilled with bentonite chips and  
 cement grout

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JOB NUMBER  
 827.001

DATE  
 5/6/93

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PLATE  
**10**

GENERAL SOIL CATEGORIES			SYMBOLS	TYPICAL SOIL TYPES
<b>COARSE GRAINED SOILS</b> More than half is larger than No. 200 sieve	<b>GRAVEL</b> More than half coarse fraction is larger than No. 4 sieve size	Clean Gravel with little or no fines	GW	Well Graded Gravel, Gravel-Sand Mixtures
			GP	Poorly Graded Gravel, Gravel-Sand Mixtures
		Gravel with more than 12% fines	GM	Silty Gravel, Poorly Graded Gravel-Sand-Silt Mixtures
			GC	Clayey Gravel, Poorly Graded Gravel-Sand-Clay Mixtures
	<b>SAND</b> More than half coarse fraction is smaller than No. 4 sieve size	Clean Sand with little or no fines	SW	Well Graded Sand, Gravelly Sand
			SP	Poorly Graded Sand, Gravelly Sand
		Sand with more than 12% fines	SM	Silty Sand, Poorly Graded Sand-Silt Mixtures
			SC	Clayey Sand, Poorly Graded Sand-Clay Mixtures
<b>FINE GRAINED SOILS</b> More than half is smaller than No. 200 sieve	<b>SILT AND CLAY</b> Liquid Limit Less than 50%	ML	Inorganic Silt and Very Fine Sand, Rock Flour, Silty or Clayey Fine Sand, or Clayey Silt with Slight Plasticity	
		CL	Inorganic Clay of Low to Medium Plasticity, Gravelly Clay, Sandy Clay, Silty Clay, Lean Clay	
		OL	Organic Clay and Organic Silty Clay of Low Plasticity	
	<b>SILT AND CLAY</b> Liquid Limit Greater than 50%	MH	Inorganic Silt, Micaceous or Diatomaceous Fine Sandy or Silty Soils, Elastic Silt	
		CH	Inorganic Clay of High Plasticity, Fat Clay	
		OH	Organic Clay of Medium to High Plasticity, Organic Silt	
<b>HIGHLY ORGANIC SOILS</b>			PT	Peat and Other Highly Organic Soils

UNIFIED SOIL CLASSIFICATION SYSTEM

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4629 MARTIN LUTHER KING JR. WAY- OAKLAND  
 JOB NUMBER 827.001 DATE 3/12/93 APPROVED *HK*

PLATE

11



Curtis & Tompkins, Ltd., Analytical Laboratories, Since 1878

2323 Fifth Street, Berkeley, CA 94710. Phone (510) 486-0900

DATE RECEIVED: 03/12/93

DATE REPORTED: 03/19/93

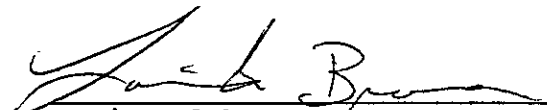
LABORATORY NUMBER: 110314


CLIENT: SUBSURFACE CONSULTANTS

PROJECT ID: 827.001

LOCATION: 4629 MLK JR WAY

RESULTS: SEE ATTACHED

  
Reviewed by

  
Reviewed by

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Client: Subsurface Consultants

Laboratory Login Number: 110314

Project Name: 4629 MLK Jr. Way  
Project Number: 827.001

Report Date: 19 March 93

ANALYSIS: Hydrocarbon Oil & Grease (Gravimetric) METHOD: SMWW 17:5520EF

Lab ID	Sample ID	Matrix	Sampled	Received	Analyzed	Result	Units	RL	Analyst	QC Batch
110314-001	1 @ 11.5	Soil	10-MAR-93	12-MAR-93	17-MAR-93	ND	mg/Kg	50	TR	8602
110314-002	1 @ 20	Soil	10-MAR-93	12-MAR-93	17-MAR-93	ND	mg/Kg	50	TR	8602
110314-003	2 @ 15	Soil	10-MAR-93	12-MAR-93	17-MAR-93	ND	mg/Kg	50	TR	8602
110314-004	2 @ 23	Soil	10-MAR-93	12-MAR-93	17-MAR-93	ND	mg/Kg	50	TR	8602
110314-005	3 @ 18	Soil	10-MAR-93	12-MAR-93	17-MAR-93	380	mg/Kg	50	TR	8602
110314-006	3 @ 21	Soil	10-MAR-93	12-MAR-93	17-MAR-93	760	mg/Kg	50	TR	8602

ND = Not Detected at or above Reporting Limit (RL).

## Q C B a t c h R e p o r t

 Client: Subsurface Consultants  
 Project Name: 4629 MLK Jr. Way  
 Project Number: 827.001

 Laboratory Login Number: 110314  
 Report Date: 19 March 93

ANALYSIS: Hydrocarbon Oil &amp; Grease (Gravimetric)

QC Batch Number: 8602

## Blank Results

Sample ID	Result	MDL	Units	Method	Date Analyzed
BLANK	ND	50	mg/Kg	SMWW 17:5520EF	17-MAR-93

## Spike/Duplicate Results

Sample ID	Recovery	Method	Date Analyzed
BS	96%	SMWW 17:5520EF	17-MAR-93
BSD	87%	SMWW 17:5520EF	17-MAR-93

		Control Limits
Average Spike Recovery	91%	80% - 120%
Relative Percent Difference	10.0%	< 20%





LABORATORY NUMBER: 110314  
CLIENT: SUBSURFACE CONSULTANTS  
PROJECT ID: 827.001  
LOCATION: 4629 MLK JR WAY

DATE SAMPLED: 03/10/93  
DATE RECEIVED: 03/12/93  
DATE EXTRACTED: 03/15/93  
DATE ANALYZED: 03/16/93  
DATE REPORTED: 03/19/93

Extractable Petroleum Hydrocarbons in Soils & Wastes  
California DOHS Method  
LUFT Manual October 1989

LAB ID	SAMPLE ID	KEROSENE RANGE (mg/Kg)	DIESEL RANGE (mg/Kg)	REPORTING LIMIT* (mg/Kg)
110314-1	1@11.5	**	ND	1
110314-2	1@20	**	6	1
110314-3	2@15	**	14	1
110314-4	2@23	**	570	10
110314-5	3@18	**	310	10
110314-6	3@21	**	1,700	10

ND = Not Detected at or above reporting limit.

\* Reporting limit applies to all analytes.

\*\*Kerosene range not reported due to overlap of hydrocarbon ranges.

QA/QC SUMMARY

RPD, %	1
RECOVERY, %	116



Curtis & Tompkins, Ltd., Analytical Laboratories, Since 1878

2323 Fifth Street, Berkeley, CA 94710. Phone (415) 486-0900

DATE RECEIVED: 03/22/93  
DATE REPORTED: 03/24/93

LABORATORY NUMBER: 110408



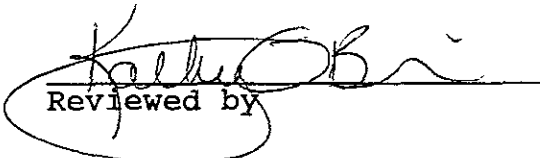
CLIENT: SUBSURFACE CONSULTANTS

PROJECT ID: 827.001

LOCATION: 4629 MARTIN LUTHER KING JR. WAY

RESULTS: SEE ATTACHED

  
Reviewed by

  
Reviewed by

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LABORATORY NUMBER: 110408  
CLIENT: SUBSURFACE CONSULTANTS  
PROJECT ID: 827.001  
LOCATION: 4629 MARTIN LUTHER KING JR. WAY

DATE SAMPLED: 03/10/93  
DATE RECEIVED: 03/22/93  
DATE EXTRACTED: 03/22/93  
DATE ANALYZED: 03/24/93  
DATE REPORTED: 03/24/93

Extractable Petroleum Hydrocarbons in Soils & Wastes  
California DOHS Method  
LUFT Manual October 1989

LAB ID	SAMPLE ID	KEROSENE RANGE (mg/Kg)	DIESEL RANGE (mg/Kg)	REPORTING LIMIT* (mg/Kg)
110408-1	3 @ 25	**	190	1

\*\* Quantitated as diesel range due to overlap in hydrocarbon ranges.

ND = Not Detected at or above reporting limit.

\* Reporting limit applies to all analytes.

QA/QC SUMMARY: Laboratory Control Sample

RECOVERY, %	111
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Curtis & Tompkins, Ltd., Analytical Laboratories, Since 1878

2323 Fifth Street, Berkeley, CA 94710, Phone (510) 486-0900

DATE RECEIVED: 05/11/93  
DATE REPORTED: 05/18/93

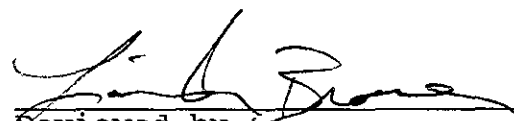
LABORATORY NUMBER: 110863

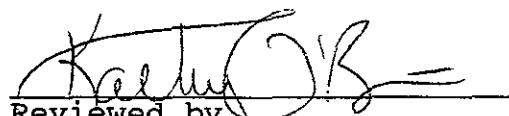
CLIENT: SUBSURFACE CONSULTANTS

PROJECT ID: 827.001

LOCATION: 4629 MLK JR. WAY

RESULTS: SEE ATTACHED

  
Reviewed by

  
Reviewed by

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LABORATORY NUMBER: 110863  
 CLIENT: SUBSURFACE CONSULTANTS  
 PROJECT ID: 827.001  
 LOCATION: 4629 MLK JR. WAY

DATE SAMPLED: 05/06-07/93  
 DATE RECEIVED: 05/11/93  
 DATE EXTRACTED: 05/11/93  
 DATE ANALYZED: 05/12-13/93  
 DATE REPORTED: 05/18/93  
 DATE REVISED: 05/21/93

Extractable Petroleum Hydrocarbons in Soils & Wastes  
 California DOHS Method  
 LUFT Manual October 1989

LAB ID	SAMPLE ID	KEROSENE RANGE (mg/Kg)	DIESEL RANGE (mg/Kg)	REPORTING LIMIT* (mg/Kg)
110863-1	4 @ 21	**	80	1
110863-2	4 @ 31	ND	ND	1
110863-3	5 @ 21	**	ND	1
110863-4	5 @ 27.5	**	ND	1
110863-5	5 @ 30.5	ND	ND	1
110863-6	6 @ 21	**	16	1
110863-7	6 @ 27.5	ND	ND	1
110863-8	7 @ 21.5	**	170	1
110863-9	7 @ 25	ND	ND	1
110863-10	8 @ 19	**	750	10
110863-11	8 @ 24.5	ND	ND	1
110863-12	9 @ 22	**	2	1
110863-13	9 @ 25	**	ND	1

ND = Not Detected at or above reporting limit.

\* Reporting limit applies to all analytes.

\*\* Kerosene range not reported due to overlap of hydrocarbon ranges.

QA/QC SUMMARY

=====  
 RPD, % 9  
 RECOVERY, % 86  
 =====

## Q C B a t c h R e p o r t

 Client: Subsurface Consultants  
 Project Name: 4629 MLK Jr. Way  
 Project Number: 827.001

 Laboratory Login Number: 110863  
 Report Date: 18 May 93

ANALYSIS: Hydrocarbon Oil &amp; Grease (Gravimetric)

QC Batch Number: 9235

## Blank Results

Sample ID	Result	MDL	Units	Method	Date Analyzed
BLANK	ND	50	mg/Kg	SMWW 17:5520EF	17-MAY-93

## Spike/Duplicate Results

Sample ID	Recovery	Method	Date Analyzed
BS	88%	SMWW 17:5520EF	17-MAY-93
BSD	85%	SMWW 17:5520EF	17-MAY-93

		Control Limits
Average Spike Recovery	87%	80% - 120%
Relative Percent Difference	3.9%	< 20%

Client: Subsurface Consultants

Laboratory Login Number: 110863

 Project Name: 4629 MLK Jr. Way  
 Project Number: 827.001

Report Date: 18 May 93

ANALYSIS: Hydrocarbon Oil &amp; Grease (Gravimetric)      METHOD: SMWW 17:5520EF

Lab ID	Sample ID	Matrix	Sampled	Received	Analyzed	Result	Units	RL	Analyst	QC Batch
110863-001	4 @ 21	Soil	06-MAY-93	11-MAY-93	17-MAY-93	ND	mg/Kg	50	TR	9235
110863-002	4 @ 31	Soil	06-MAY-93	11-MAY-93	17-MAY-93	ND	mg/Kg	50	TR	9235
110863-003	5 @ 21	Soil	06-MAY-93	11-MAY-93	17-MAY-93	ND	mg/Kg	50	TR	9235
110863-004	5 @ 27.5	Soil	06-MAY-93	11-MAY-93	17-MAY-93	ND	mg/Kg	50	TR	9235
110863-005	5 @ 30.5	Soil	06-MAY-93	11-MAY-93	17-MAY-93	ND	mg/Kg	50	TR	9235
110863-006	6 @ 21	Soil	06-MAY-93	11-MAY-93	17-MAY-93	ND	mg/Kg	50	TR	9235
110863-007	6 @ 27.5	Soil	06-MAY-93	11-MAY-93	17-MAY-93	ND	mg/Kg	50	TR	9235
110863-008	7 @ 21.5	Soil	07-MAY-93	11-MAY-93	17-MAY-93	140	mg/Kg	50	TR	9235
110863-009	7 @ 25	Soil	07-MAY-93	11-MAY-93	17-MAY-93	ND	mg/Kg	50	TR	9235
110863-010	8 @ 19	Soil	07-MAY-93	11-MAY-93	17-MAY-93	540	mg/Kg	50	TR	9235
110863-011	8 @ 24.5	Soil	07-MAY-93	11-MAY-93	17-MAY-93	ND	mg/Kg	50	TR	9235
110863-012	9 @ 22	Soil	07-MAY-93	11-MAY-93	17-MAY-93	ND	mg/Kg	50	TR	9235
110863-013	9 @ 25	Soil	07-MAY-93	11-MAY-93	17-MAY-93	ND	mg/Kg	50	TR	9235

ND = Not Detected at or above Reporting Limit (RL).



LABORATORY NUMBER: 110863  
 CLIENT: SUBSURFACE CONSULTANTS  
 PROJECT ID: 827.001  
 LOCATION: 4629 MLK JR. WAY

DATE SAMPLED: 05/06-07/93  
 DATE RECEIVED: 05/11/93  
 DATE EXTRACTED: 05/11/93  
 DATE ANALYZED: 05/12-13/93  
 DATE REPORTED: 05/18/93

Extractable Petroleum Hydrocarbons in Soils & Wastes  
 California DOHS Method  
 LUFT Manual October 1989

LAB ID	SAMPLE ID	KEROSENE RANGE (mg/Kg)	DIESEL RANGE (mg/Kg)	REPORTING LIMIT* (mg/Kg)
110863-1	4 @ 21	**	80	1
110863-2	4 @ 31	ND	ND	1
110863-3	5 @ 21	69	ND	1
110863-4	5 @ 27.5	9	ND	1
110863-5	5 @ 30.5	ND	ND	1
110863-6	6 @ 21	85	***	1
110863-7	6 @ 27.5	ND	ND	1
110863-8	7 @ 21.5	**	170	1
110863-9	7 @ 25	ND	ND	1
110863-10	8 @ 19	**	750	10
110863-11	8 @ 24.5	ND	ND	1
110863-12	9 @ 22	25	***	1
110863-13	9 @ 25	8	ND	1

ND = Not Detected at or above reporting limit.

\* Reporting limit applies to all analytes.

\*\* Kerosene range not reported due to overlap of hydrocarbon ranges.

\*\*\* Diesel range not reported due to overlap of hydrocarbon ranges.

QA/QC SUMMARY

RPD, %	9
RECOVERY, %	86







