

James P. Bowers, PE  
R. William Rudolph, Jr., PE

ALCO  
HAZMAT

SA MAR 25 PM 12:39

March 24, 1994  
SCI 615.006

Mr. Brian Oliva  
Alameda County Health  
Care Services Agency  
80 Swan Way, Room 200  
Oakland, California 94621

**Work Plan**  
**Remediation of Lead**  
**Contaminated Soil**  
**Dignity Housing West II 94609**  
**430 28th Street**  
**Oakland, California**

Dear Mr. Oliva:

This letter presents a work plan prepared by Subsurface Consultants, Inc. (SCI) for remediation of lead contaminated fill at the referenced site. The site is to be developed as affordable housing. SCI previously performed sampling and analyses of the fill which exists in stockpiles on the site (see the attached letter dated October 15, 1993).

Background

The site is covered with stockpiles of fill which were previously placed on the site by others. Analytical test results indicate that the fill contains elevated concentrations of total and soluble lead. Total lead concentrations range from approximately 500 to 700 mg/kg. Soluble lead concentrations range up to 43 mg/l using the Waste Extraction Test (WET) method and up to 0.61 mg/l by the Toxicity Characteristic Leaching Procedure (TCLP). The concentrations of soluble lead require that the fill be handled as a non-RCRA California Regulated Hazardous Waste. Since development plans require that the site be graded essentially to street level, the lead contamination will be remediated by removal and off-site disposal as outlined below.

Project Information

Site:  
430 28th Street  
Oakland, California

RCRA Provisional ID#: CAP4000480488

■ **Subsurface Consultants, Inc.**

Mr. Brian Oliva  
Alameda County Health  
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**General Contractor:**

Roberts-Ohbayashi  
20 Oak Court  
Danville, California 94526

Contact Person: Eric Rimes (510) 820-0600  
License Type: B ID#: 358519

**Subcontractor (Loading):**

O.C. Jones  
1520 4th Street  
Berkeley, California 94710

Contact Person: Jeff Spires (510) 526-3424  
Licence Type: Class A, B, C-8, C-12, C-27 With Hazardous  
Waste Certification  
ID#: 434846

**Soil Transporter:**

Martinez Industrial Services  
3501 Collins Avenue  
Richmond, California 94806

(510) 232-0202

EPA ID#: CAD981425911  
Hauler License #: 1865

**Soil Disposal Site:**

Gibson Environmental  
End of Commercial Drive  
Bakersfield, California 93308

(805) 327-0413

EPA ID#: CAD980883177  
Class: I

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**Consultant:**

Subsurface Consultants, Inc.  
171 12th Street, Suite 201  
Oakland, California 94607

Contact Person: Marianne Watada (510) 268-0461

**Fill Removal/Disposal**

Approximately 860 tons of fill will be removed from the site. The approximate extent of fill is presented on Plate 1, Fill Elevation Contour Map. O.C. Jones, a contractor with hazardous substance removal and remedial actions certification, has been retained by Dignity Housing West to remove the contaminated fill. A site specific Health and Safety Plan will be prepared by a consultant retained by O.C. Jones. An SCI engineer will be on-site to observe the removal activities. The fill will be loaded to trucks, and transported under manifest and disposed of at Gibson Environmental, a Class I disposal facility in Bakersfield, California.

**Confirmation Sampling**

Upon removal of the fill, SCI will obtain surface samples of the soils left in place to confirm that the lead contaminated soils have been removed. In general, the samples will be obtained on a grid at 25 foot spacings. Soil samples will be obtained by hand sampling methods and will be retained in clean brass liners. Teflon sheeting will be placed over the liner ends, prior to capping and sealing with tape.

**Analytical Testing**

The samples will be transmitted to Curtis and Tompkins, Ltd. (C&T), an analytical laboratory certified by the State of California Department of Health Services for waste and water testing. Approximately sixteen (16) samples will be analyzed for Total lead EPA 7420. Any sample containing a concentration of total lead greater than 50 mg/kg will be analyzed for soluble lead, using the WET procedure. If soluble concentrations exceed the Soluble Threshold Limit Concentration (STLC) of 5 mg/l, then additional soil will be removed and disposed of as outlined in the previous section.

Mr. Brian Oliva  
Alameda County Health  
March 24, 1994  
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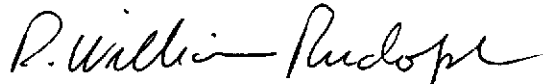
**Final Closure Letter**

Upon completion of remediation, a written report will be submitted to document site activities. The report will include analytical test results of the confirmation samples and receipts from the disposal facility.

If you have any questions, please call.

Yours very truly,

Subsurface Consultants, Inc.



R. William Rudolph  
Geotechnical Engineer 741 (expires 12/31/96)

MFW:RWR:mw

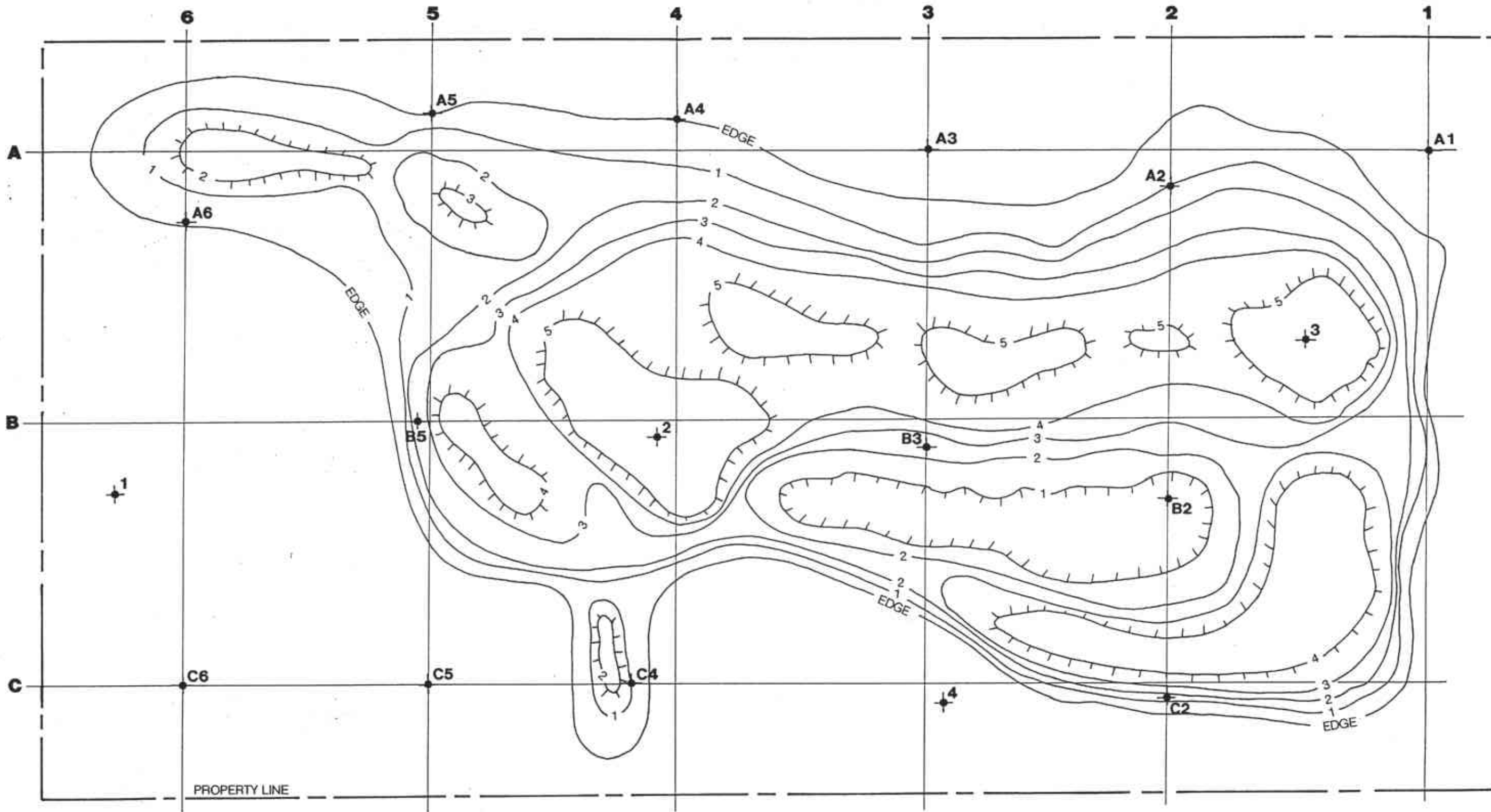
Attachments: Plate 1 - Fill Elevation Contour Map  
SCI Lead Contamination Investigation letter dated  
October 15, 1993.

cc: Ms. Kathryn Kasch  
Dignity Housing West Associates  
690 15th Street  
Oakland, California 94612

Ms. Gretchen Schaffner  
Wells Fargo Bank  
111 Sutter Street, 7th Floor  
MAC #0188-076  
San Francisco, California 94163

Mr. Mike Reed  
California Equity Fund  
160 Sansome Street, 7th Floor  
San Francisco, California 94104

28TH STREET



	TEST BORING
	APPROXIMATE FILL ELEVATION CONTOUR (feet)



APPROXIMATE SCALE (feet)



FILL ELEVATION CONTOUR MAP

430 28TH STREET - OAKLAND, CA

JOB NUMBER  
615.005

DATE  
10/4/93

APPROVED  
*mw*

PLATE

**1**

Subsurface Consultants

October 15, 1993  
SCI 615.005

Ms. Katherine Kasch  
Dignity Housing West Associates  
690 15th Street  
Oakland, California 94612

Lead Contamination Investigation  
Dignity Housing West II  
430 28th Street  
Oakland, California

Dear Ms. Kasch:

This letter summarizes our conclusions regarding lead contamination of the fill that exists at the referenced site. SCI previously performed a preliminary environmental assessment, a geotechnical investigation and supplemental environmental testing at the site. The results were presented in reports dated December 1, 1992, April 23, 1993, and August 25, 1993.

As summarized in our letter dated August 25, 1993, our previous studies had identified that some samples of the fill at the site contained elevated concentrations of total and soluble lead. The soluble lead values were significant enough that the soils would have to be handled as hazardous waste, if transported from the site. This investigation was conducted to more accurately define the extent and characteristics of the contaminated fill.

#### Field Investigation

In April 1993, 4 test borings (1 through 4) were drilled to evaluate subsurface conditions at the site. To further evaluate the extent of the fill 13 additional test borings were extended through the fill and into native soil in October 1993. In general, test borings were drilled on approximately 25 foot centers across the site. Boring locations are presented on Plate 2. The borings were advanced using either a Minuteman drill rig equipped with 3-inch diameter solid flight augers or a truck-mounted drill rig equipped with 4-inch-diameter solid flight augers. Our field engineer/geologist observed drilling operations and prepared logs of the materials encountered. Boring logs are presented on Plates

Subsurface Consultants, Inc.

Ms. Katherine Kasch  
Dignity Housing West Associates  
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3 through 13. Soils are classified in accordance with the Unified Soil Classification System described on Plate 14.

Soil samples were obtained, at frequent intervals using a California or a Modified California Drive Sampler. The number of blows required to drive the sampler the final 12 inches of each 18-inch penetration was recorded on the test boring logs. The samples were retained in brass liners. The ends of the samples were covered with Teflon sheeting prior to capping and sealing with tape. The samples were placed in an ice chest immediately following collection and remained under refrigeration until delivery to the analytical laboratory. The samples were accompanied to the laboratory by Chain-of-Custody Documents.

#### Analytical Testing

Selected samples were transmitted to Curtis & Tompkins, Ltd., an analytical laboratory certified by the State of California Department of Health Services. All the samples were analyzed for total lead (EPA 7420). In addition two of the samples were analyzed for soluble lead using the Waste Extraction Test (WET) and the Toxicity Characteristic Leaching Procedure (TCLP). A summary of analytical test results to date is presented in Table 1. Copies of analytical test reports and Chain-of-Custody Documents are attached.

#### Conclusions

Our field reconnaissance and the test borings indicate that a large portion of the site is blanketed by mounds of fill. The fill thickness varies from nil along the south and east property lines to about 5 feet thick in the central portion of the site. The fill consists of a heterogenous mixture of clayey sand and sandy clay soil with minor amounts of brick, rock, concrete, asphalt charred wood, ash and miscellaneous debris. An approximate map of the fill elevation contours is presented on Plate 2.

The analytical data generated to date indicates that the mounded fill possesses total lead levels on the order of 500 to 700 mg/kg, up to 43 mg/l of soluble lead by WET and up to 0.61 mg/l of soluble lead by TCLP. Although the total lead concentrations are elevated above normal background levels, they do not constitute hazardous waste levels. However, the soluble lead concentrations will require that the soils be handled as a hazardous waste under State of California Hazardous Waste regulations. The material would not

Ms. Katherine Kasch  
Dignity Housing West Associates  
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be classified as a hazardous waste under federal EPA criteria (RCRA).

Since development plans require that the site be essentially graded to street level, we recommend that the fill be selectively excavated and disposed of at a facility capable of accepting non-RCRA hazardous waste levels of lead. Alternatively, the fill could be treated on-site to reduce soluble levels of lead and then disposed of at a Class III landfill. Upon completion of fill excavation activities, confirmation samples should be obtained at the excavation limits to insure that soil remediation has been successful.

If you have any questions, please call.

Yours very truly,

Subsurface Consultants, Inc.



R. William Rudolph  
Geotechnical Engineer 741 (expires 12/31/96)

MFW:JNA:RWR:sld

Attachments:    Table 1 - Lead Concentrations  
                  Plate 1 - Site Plan  
                  Plate 2 - Fill Elevation Contour Map  
                  Plates 3 through 13 - Test Boring Logs  
                  Plate 14 - Unified Soil Classification System  
                  Analytical Test Reports  
                  Chain-of-Custody Documents



**Table 1**  
**Lead Concentrations** ■ Subsurface Consultants, Inc.

<u>Sample ID</u>	<u>Depth (feet)</u>	<u>Soil Type</u>	<u>Total Lead (mg/kg)</u>	<u>STLC Lead (mg/l)</u>	<u>TCLP Lead (mg/l)</u>
Composite 1		Fill & Native	130	--	--
Composite 2		Fill & Native	--	18	--
1	0.5	Fill	510	--	--
2	4.0	Fill	620	--	--
3	4.0	Fill	650	--	--
4	1.0	Native	29	--	--
A1	1.0	Native	56	--	--
A1	2.5	Native	34	--	--
A1	4.0	Native	<5.0	--	--
A2	1.0	Native	25	--	--
A2	2.5	Native	8.5	--	--
A3	1.0	Native	10	--	--
A3	2.5	Native	<5.0	--	--
A3	4.0	Native	<4.9	--	--
A4	1.0	Native	<4.9	--	--
A4	2.5	Native	5.0	--	--
A5	1.0	Native	29	--	--
A5	2.5	Native	7.0	--	--
A6	1.0	Native	35	--	--
A6	2.0	Native	8.4	--	--
A6	4.0	Native	<5.0	--	--
A6	5.5	Native	6.0	--	--
B2	1.0	Native	13	--	--
B2	2.5	Native	6.5	--	--
B3	1.0	Fill	560	--	--
B3	2.5	Native	22	--	--
B3	3.5	Native	<5.0	--	--
B5	0.5	Fill	690	--	--
B5	2.0	Native	<5.0	--	--
B5	3.5	Native	5.0	--	--
B5	5.0	Native	4.9	--	--
C2	0.5	Fill	740	43	0.61
C2	1.0	Fill	340	--	--
C2	2.5	Native	8.5	--	--
C2	4.0	Native	5.0	--	--

Table 1 (Continued)  
Lead Concentrations

<u>Sample ID</u>	<u>Depth (feet)</u>	<u>Soil Type</u>	<u>Total Lead (mg/kg)</u>	<u>STLC Lead (mg/l)</u>	<u>TCLP Lead (mg/l)</u>
C4	0.0	Fill	330	33	<0.25
C4	0.5	Native	<4.9	--	--
C4	2.5	Native	<5.0	--	--
C4	3.5	Native	<5.0	--	--
C4	5.5	Native	<5.0	--	--
C5	2.5	Native	<4.9	--	--
C6	0.5	Native	<4.9	--	--
C6	2.5	Native	5.9	--	--

---

Title 22  
Threshold Limit  
Concentrations

-- 1000 5 --

RCRA  
Regulatory  
Concentration

-- -- -- 5

---

Composite 1 consists of individual samples 2 @ 0', 2 @ 4', 3 @ 1 and 3 @ 4'.

Composite 2 consists of individual samples 1 @ 0.5', 2 @ 4', 3 @ and 4 @ 1'.

Title 22 values are the concentrations above which a waste would be considered hazardous, under California State Regulations.

STLC = Soluble Threshold Limit Concentrations.

Leachate was extracted using the Waste Extraction Test (WET)

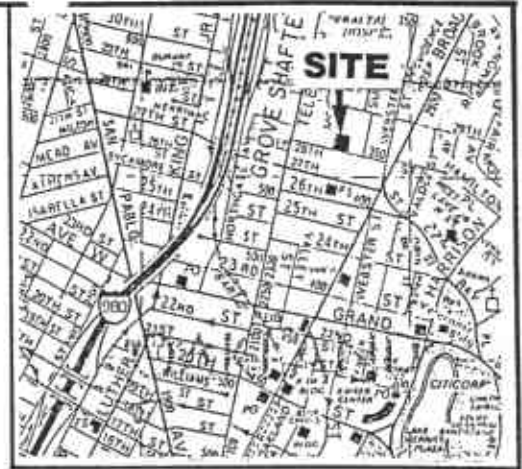
TCLP = Leachate extracted using the Toxicity Characteristic Leachate Procedure.

TWO-STORY APARTMENT BUILDING  
444 28TH STREET



TWO-STORY MEDICAL OFFICE BUILDING  
424 28TH STREET

**28TH STREET**



VICINITY MAP



APPROXIMATE SCALE (feet)



**SITE PLAN**

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430 28TH STREET - OAKLAND, CA

JOB NUMBER  
615.005

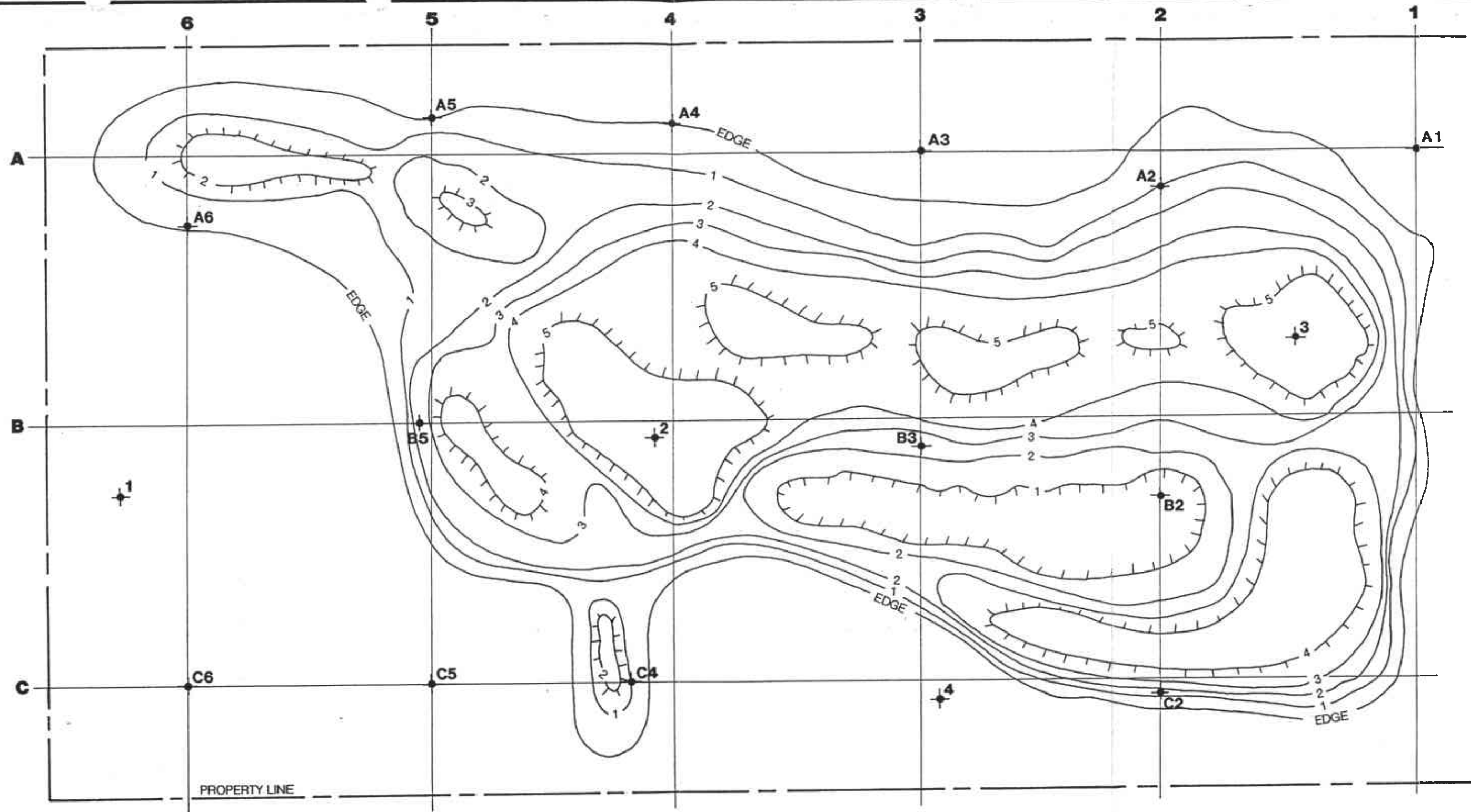
DATE  
10/15/93

APPROVED  
*mw*

PLATE

**1**

28TH STREET



	TEST BORING
	APPROXIMATE FILL ELEVATION CONTOUR (feet)



FILL ELEVATION CONTOUR MAP

Subsurface Consultants	430 28TH STREET - OAKLAND, CA		PLATE <b>2</b>
	JOB NUMBER 615.005	DATE 10/4/93	

# LOG OF TEST BORING 1

EQUIPMENT 4" Solid Flight Auger  
 DATE DRILLED 4/1/93  
 ELEVATION --

LABORATORY TESTS	MOISTURE CONTENT (%)	DRY DENSITY (PCF)	OVM (PPM)	DEPTH (FEET)	SAMPLE	BLOWS PER FOOT	
UC = 1113psf LL = 60% PI = 36%	18.3	100	0	0		14	DARK BROWN SANDY CLAY (CL) medium stiff, moist (fill)
						44	RED BROWN SILTY CLAY (CL) stiff, moist
UC = 833psf	17.6	105	0	5		49	ORANGE BROWN CLAYEY SAND (SC) dense, moist
UC = 3982psf	18.8	109	0				MOTTLED GRAY BROWN SILTY CLAY (CL) very stiff, moist
							ORANGE BROWN CLAYEY SAND (SC) dense, moist
	17.8	108	0	15		78	Boring backfilled with cuttings
							GROUNDWATER NOT ENCOUNTERED DURING DRILLING
							NO GROUNDWATER OBSERVED 24 HOURS AFTER DRILLING
				20			
				25			
				30			
				35			
				40			

LL = Liquid Limit (%)  
 PI = Plasticity Index (%)  
 UC = Unconfined Compressive Shear Strength (psf)

SAMPLER TYPES:  
 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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430 28TH STREET - OAKLAND, CA

JOB NUMBER  
615.005

DATE  
4/5/93

APPROVED  
*[Signature]*

PLATE

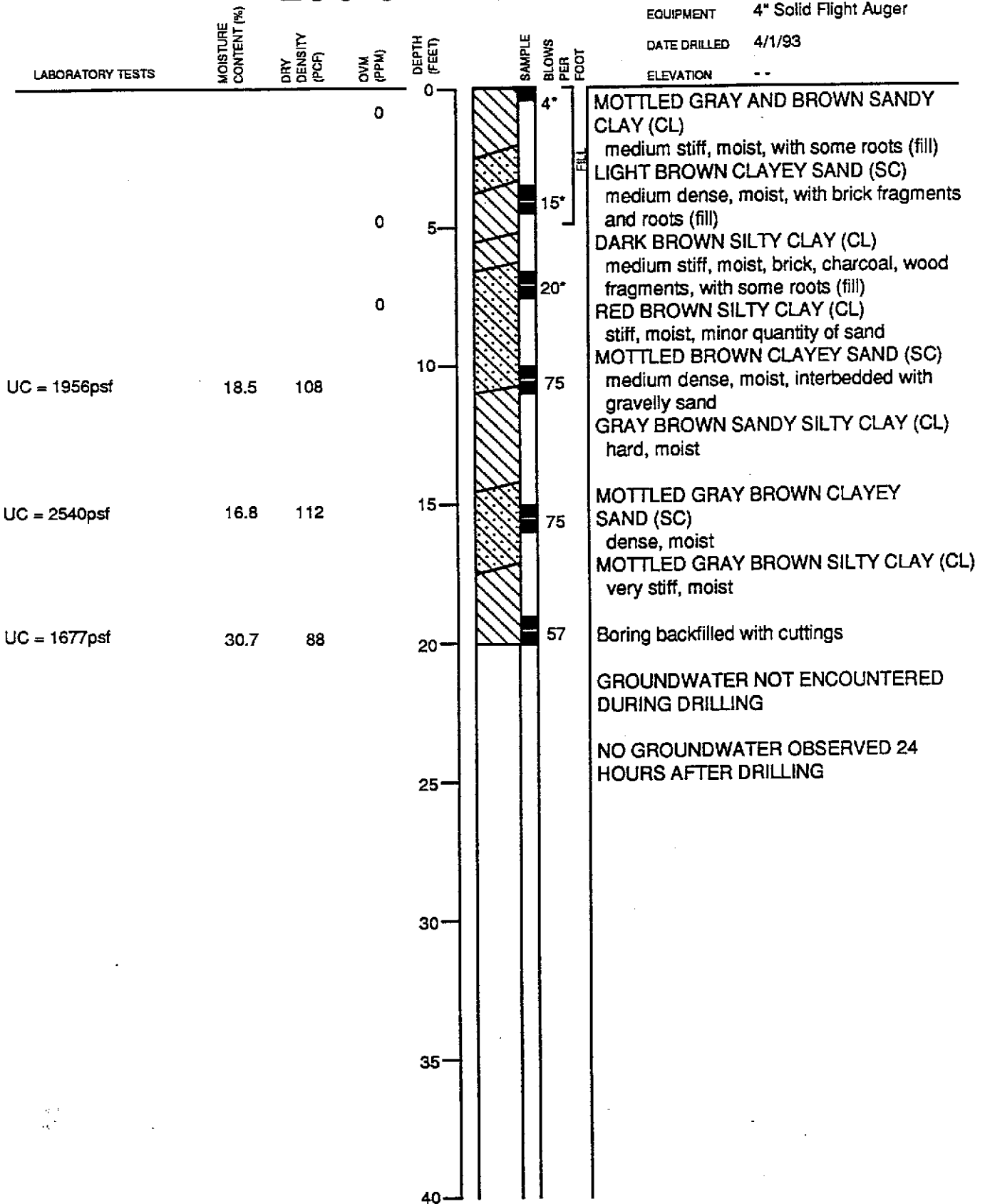
**3**

# LOG OF TEST BORING 2

EQUIPMENT 4" Solid Flight Auger

DATE DRILLED 4/1/93

ELEVATION --



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430 28TH STREET - OAKLAND, CA

PLATE

JOB NUMBER  
615.005

DATE  
4/5/93

APPROVED

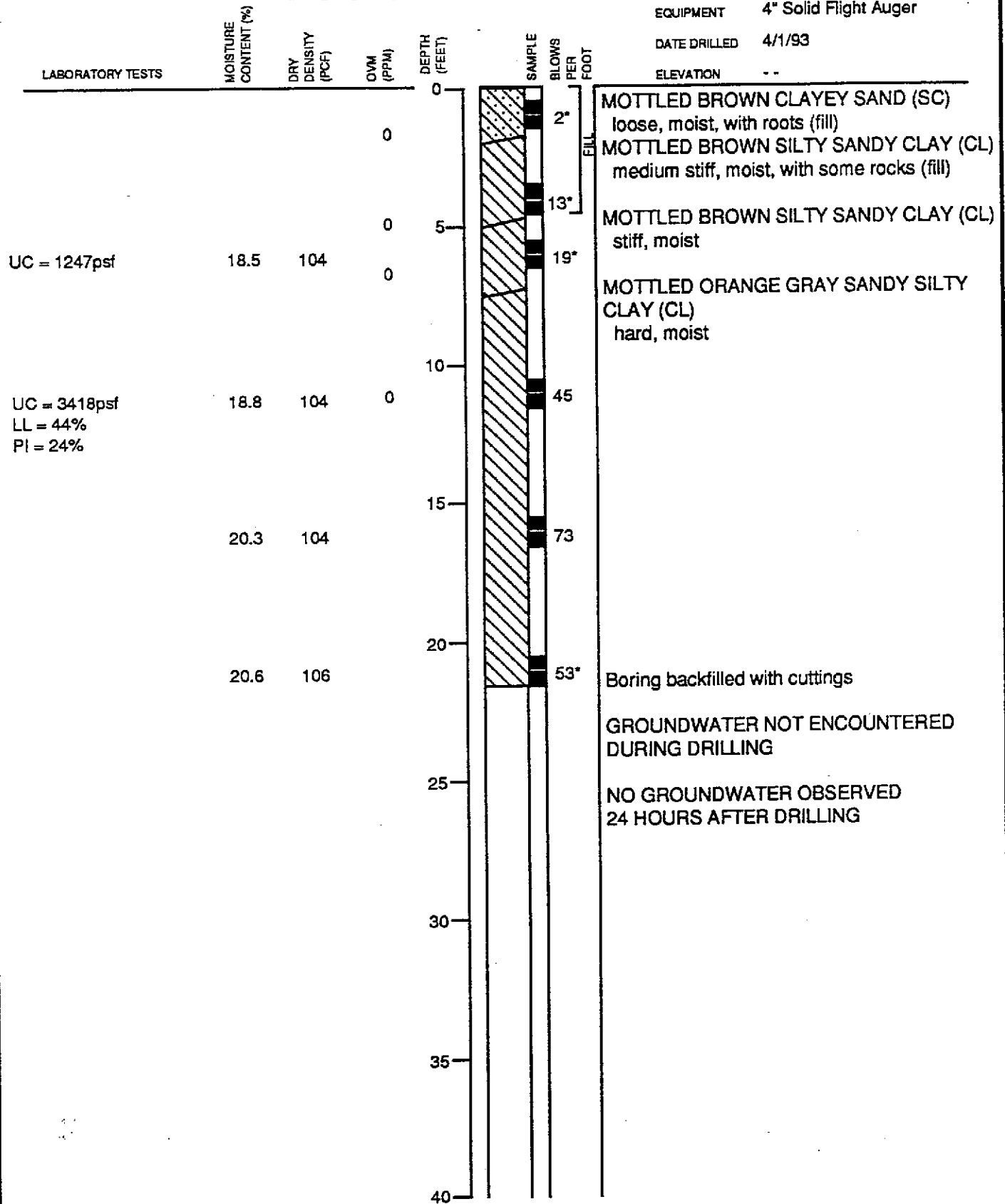
4

# LOG OF TEST BORING 3

EQUIPMENT 4" Solid Flight Auger

DATE DRILLED 4/1/93

ELEVATION --



<h2 style="margin: 0;">Subsurface Consultants</h2>	430 28TH STREET - OAKLAND, CA	PLATE <h1 style="font-size: 2em; margin: 0;">5</h1>
	JOB NUMBER 615.005	DATE 4/5/93

# LOG OF TEST BORING 4

EQUIPMENT 4" Solid Flight Auger

DATE DRILLED 4/1/93

ELEVATION --

LABORATORY TESTS	MOISTURE CONTENT (%)	DRY DENSITY (PCF)	OWM (PPM)	DEPTH (FEET)	SAMPLE	BLOWS PER FOOT	
UC = 1283psf	27.1	94		0			RED BROWN SILTY CLAY (CL) medium stiff, moist
				10			MOTTLED ORANGE BROWN SILTY SANDY CLAY (CL) stiff, moist
UC = 1601psf	19.1	107		5			
				25			MOTTLED ORANGE BROWN CLAYEY SAND (SC) dense, moist
				56			
				65			Boring backfilled with cuttings
							GROUNDWATER NOT ENCOUNTERED DURING DRILLING
							NO GROUNDWATER OBSERVED 24 HOURS AFTER DRILLING
				20			
				25			
				30			
				35			
				40			

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430 28TH STREET - OAKLAND, CA

PLATE

JOB NUMBER  
615.005

DATE  
4/5/93

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# LOG OF TEST BORING A1

EQUIPMENT 3" Solid Flight Auger

DATE DRILLED 9/23/93

ELEVATION --

LABORATORY TESTS

MOISTURE  
CONTENT (%)

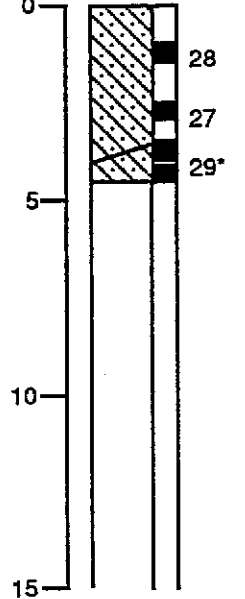
DRY  
DENSITY  
(PCF)

OVN  
(PPM)

DEPTH  
(FEET)

SAMPLE

BLOWS  
PER  
FOOT



BROWN CLAYEY SAND (SC)  
medium dense, moist, with roots (top soil)

ORANGE BROWN CLAYEY SAND (SC)  
dense, moist (Temescal)

GROUNDWATER NOT ENCOUNTERED  
DURING DRILLING

SAMPLER TYPES:  
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

# LOG OF TEST BORING A2

EQUIPMENT 3" Solid Flight Auger

DATE DRILLED 9/23/93

ELEVATION --

LABORATORY TESTS

MOISTURE  
CONTENT (%)

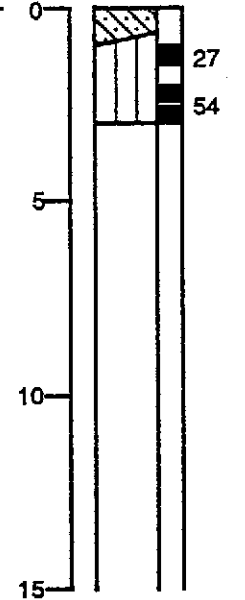
DRY  
DENSITY  
(PCF)

OVN  
(PPM)

DEPTH  
(FEET)

SAMPLE

BLOWS  
PER  
FOOT



BROWN CLAYEY SAND (SC)  
dense, moist (fill)  
LIGHT BROWN SANDY SILT (ML)  
stiff, moist (topsoil)

GROUNDWATER NOT ENCOUNTERED  
DURING DRILLING

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430 28TH STREET - OAKLAND, CA

PLATE

7

JOB NUMBER

615.005

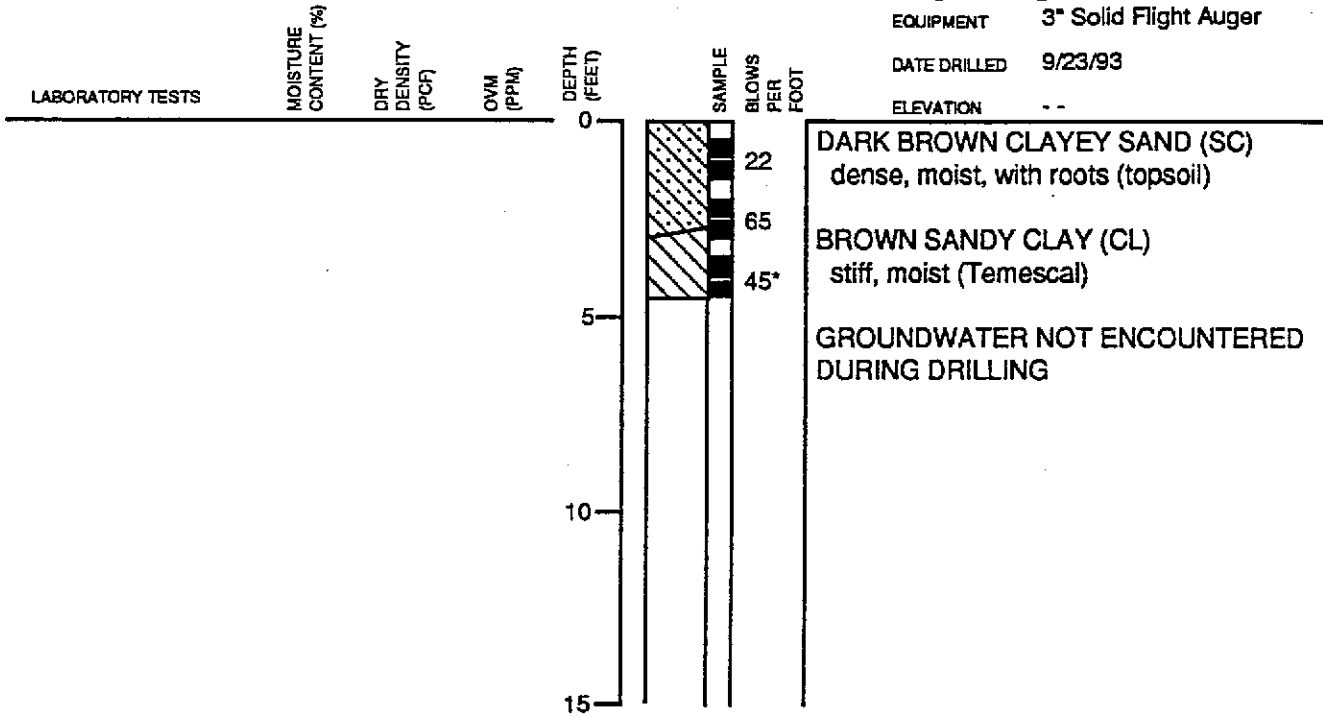
DATE

10/13/93

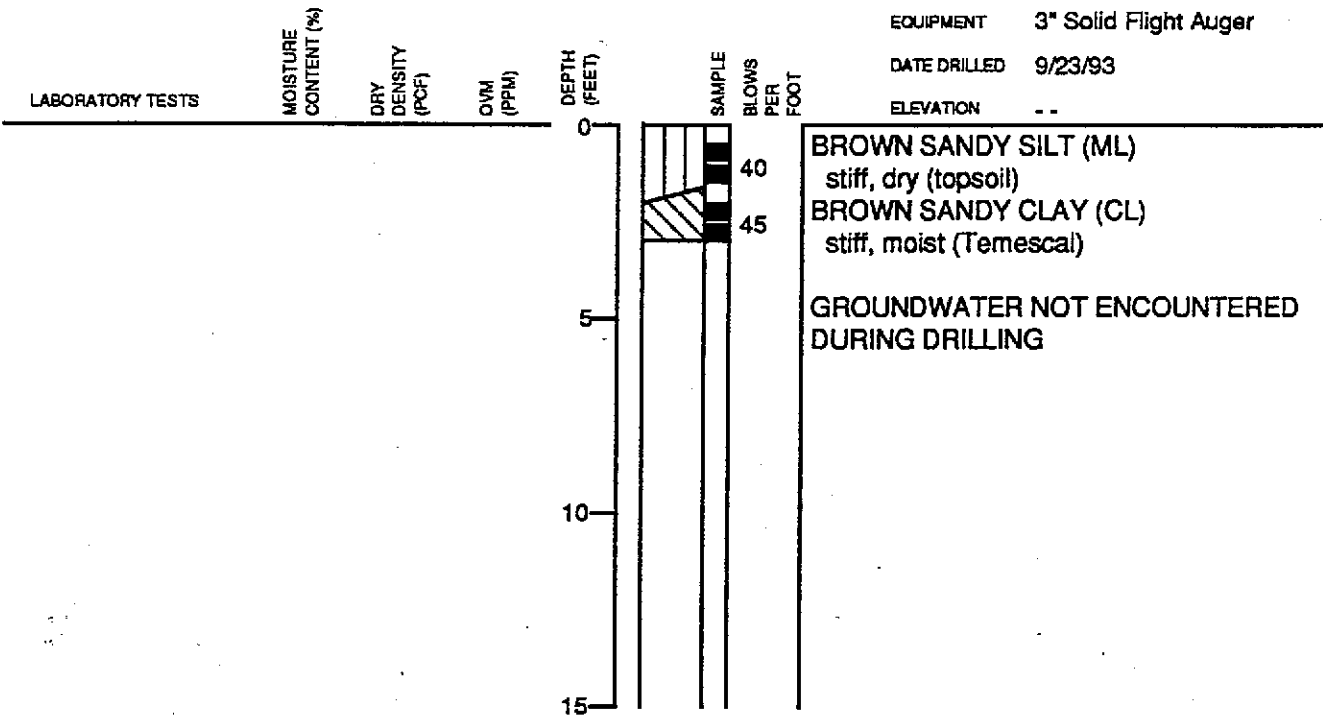
APPROVED

*mw*

# LOG OF TEST BORING A3



# LOG OF TEST BORING A4



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430 28TH STREET - OAKLAND, CA

PLATE

JOB NUMBER  
615.005

DATE  
10/13/93

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*[Signature]*

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# LOG OF TEST BORING A5

EQUIPMENT 3" Solid Flight Auger

DATE DRILLED 9/23/93

ELEVATION --

LABORATORY TESTS

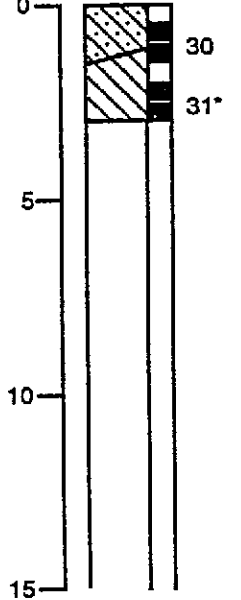
MOISTURE  
CONTENT (%)

DRY  
DENSITY  
(PCF)

QVM  
(PPM)

DEPTH  
(FEET)

SAMPLE  
BLOWS  
PER  
FOOT



BROWN CLAYEY SAND (SC)  
dense, moist (topsoil)  
DARK BROWN SANDY CLAY (CL)  
stiff, moist (Temescal)

GROUNDWATER NOT ENCOUNTERED  
DURING DRILLING

# LOG OF TEST BORING A6

EQUIPMENT 4" Solid Flight Auger

DATE DRILLED 9/23/93

ELEVATION --

LABORATORY TESTS

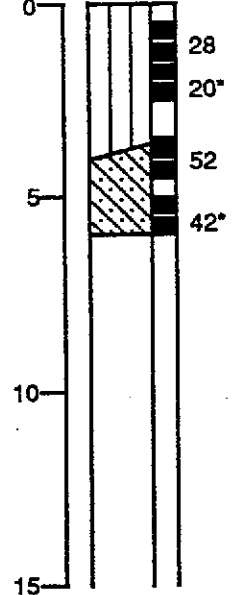
MOISTURE  
CONTENT (%)

DRY  
DENSITY  
(PCF)

QVM  
(PPM)

DEPTH  
(FEET)

SAMPLE  
BLOWS  
PER  
FOOT



DARK BROWN CLAYEY SILT (ML)  
stiff, moist, with sand (topsoil)

ORANGE BROWN CLAYEY SAND (SC)  
dense, moist (Temescal)

GROUNDWATER NOT ENCOUNTERED  
DURING DRILLING

Subsurface Consultants

430 28TH STREET - OAKLAND, CA

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DATE

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MWJ

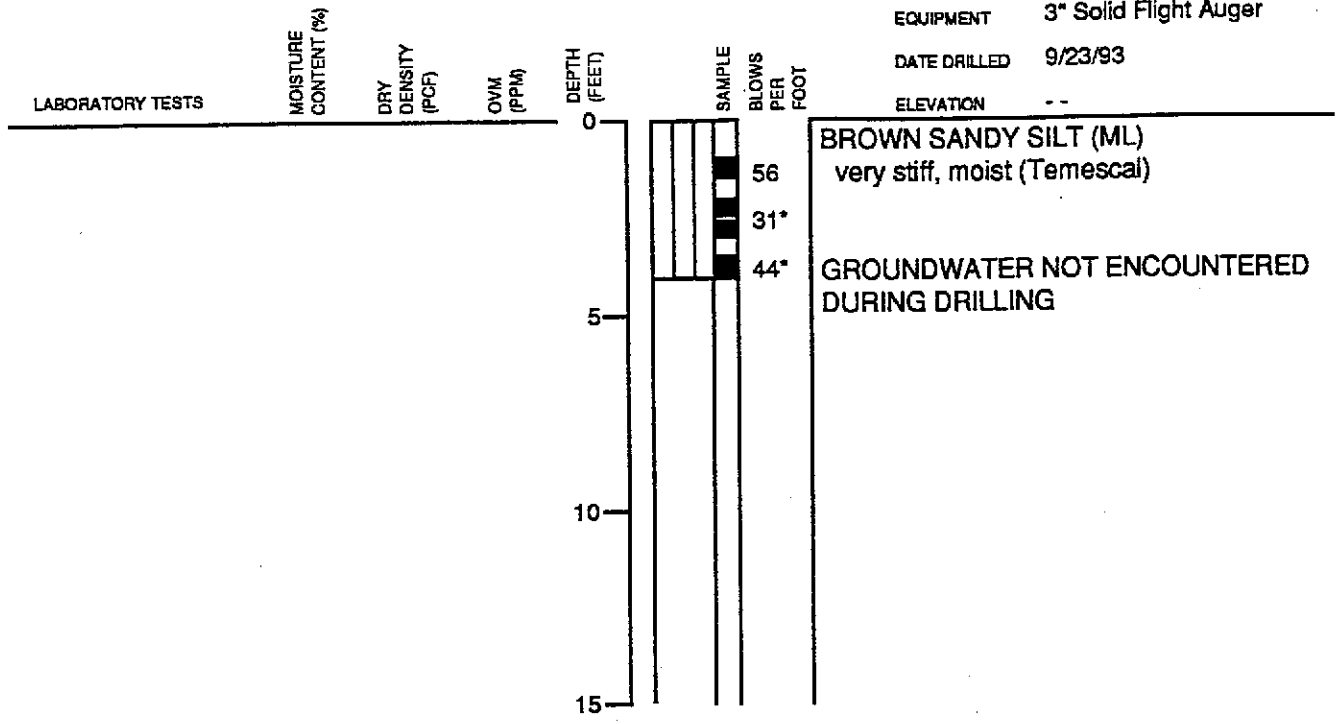
9

# LOG OF TEST BORING B2

EQUIPMENT 3" Solid Flight Auger

DATE DRILLED 9/23/93

ELEVATION --

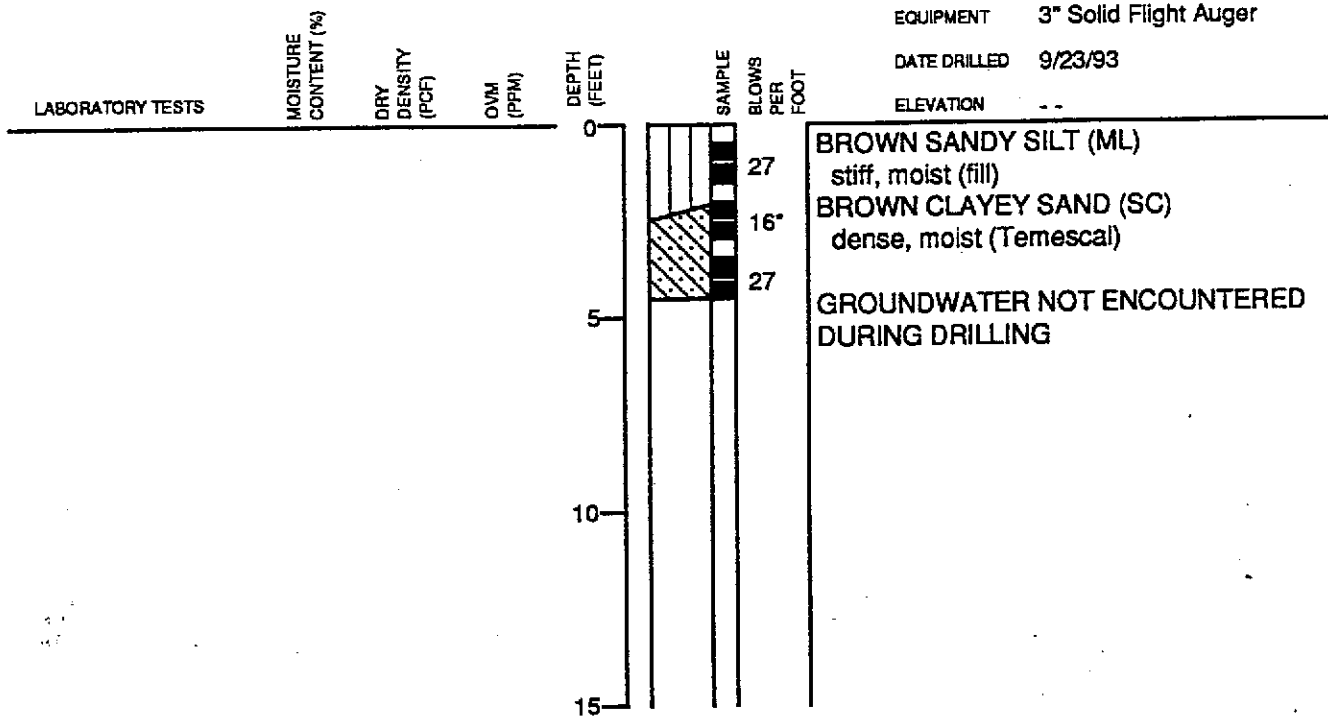


# LOG OF TEST BORING B3

EQUIPMENT 3" Solid Flight Auger

DATE DRILLED 9/23/93

ELEVATION --



**Subsurface Consultants**

430 28TH STREET - OAKLAND, CA

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10/13/93

*mm*

**10**

# LOG OF TEST BORING B5

EQUIPMENT 4" Solid Flight Auger

DATE DRILLED 9/23/93

ELEVATION --

LABORATORY TESTS

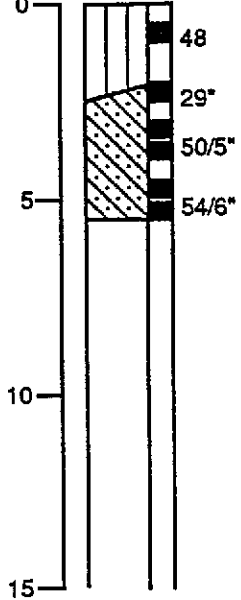
MOISTURE  
CONTENT (%)

DRY  
DENSITY  
(PCF)

QVM  
(PPM)

DEPTH  
(FEET)

SAMPLE  
BLOWS  
PER  
FOOT



DARK BROWN CLAYEY SILT (ML/CL)  
stiff, dry, with sand, wood fragments and  
concrete (fill)  
ORANGE BROWN CLAYEY SAND (SC)  
very dense, moist (Temescal)  
GROUNDWATER NOT ENCOUNTERED  
DURING DRILLING

# LOG OF TEST BORING C2

EQUIPMENT 3" Solid Flight Auger

DATE DRILLED 9/23/93

ELEVATION --

LABORATORY TESTS

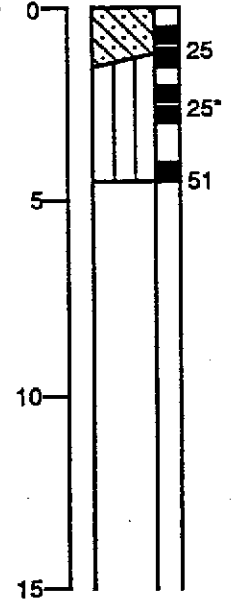
MOISTURE  
CONTENT (%)

DRY  
DENSITY  
(PCF)

QVM  
(PPM)

DEPTH  
(FEET)

SAMPLE  
BLOWS  
PER  
FOOT



BROWN CLAYEY SAND (SC)  
stiff, moist (fill)  
BROWN CLAYEY SILT (ML)  
very stiff, moist (Temescal)  
GROUNDWATER NOT ENCOUNTERED  
DURING DRILLING

Subsurface Consultants

430 28TH STREET - OAKLAND, CA

PLATE

JOB NUMBER  
615.005

DATE  
10/13/93

APPROVED  
mm

11

# LOG OF TEST BORING C4

EQUIPMENT 4" Solid Flight Auger

DATE DRILLED 9/23/93

ELEVATION --

LABORATORY TESTS

MOISTURE  
CONTENT (%)

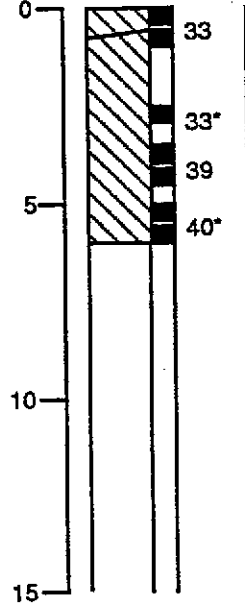
DRY  
DENSITY  
(PCF)

OVN  
(PPM)

DEPTH  
(FEET)

SAMPLE

BLOWS  
PER  
FOOT



DARK BROWN SILTY CLAY (CL)  
stiff, moist, with debris (fill)  
WHITE AND LIGHT BROWN SILTY  
CLAY (CL)  
stiff, moist (Temescal)

GROUNDWATER NOT ENCOUNTERED  
DURING DRILLING

# LOG OF TEST BORING C5

EQUIPMENT 4" Solid Flight Auger

DATE DRILLED 9/23/93

ELEVATION --

LABORATORY TESTS

MOISTURE  
CONTENT (%)

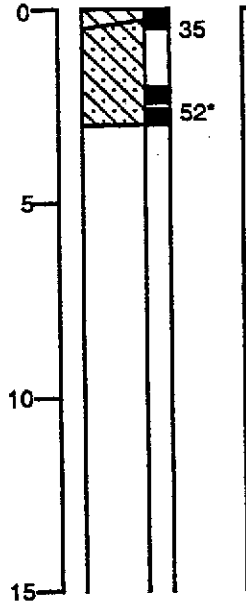
DRY  
DENSITY  
(PCF)

OVN  
(PPM)

DEPTH  
(FEET)

SAMPLE

BLOWS  
PER  
FOOT



BROWN SILTY CLAY (CL)  
stiff, moist, with sand (fill)  
ORANGE BROWN AND WHITE CLAYEY  
SAND (SC)  
dense, moist (Temescal)

GROUNDWATER NOT ENCOUNTERED  
DURING DRILLING

Subsurface Consultants

430 28TH STREET - OAKLAND, CA

JOB NUMBER  
615.005

DATE  
10/13/93

APPROVED  
*mm*

PLATE

12

# LOG OF TEST BORING C6

EQUIPMENT 4" Solid Flight Auger

DATE DRILLED 9/23/93

ELEVATION --

LABORATORY TESTS

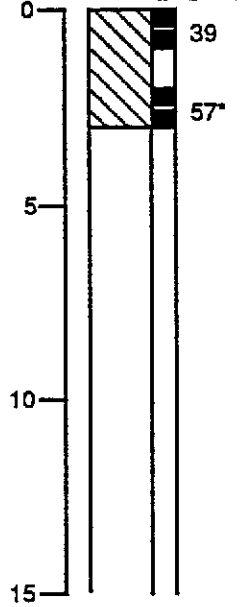
MOISTURE  
CONTENT (%)

DRY  
DENSITY  
(PCF)

OVM  
(PPM)

DEPTH  
(FEET)

SAMPLE  
BLOWS  
PER  
FOOT



ORANGE BROWN AND BROWN SILTY  
CLAY (CL)

very stiff, moist (Temescal)

GROUNDWATER NOT ENCOUNTERED  
DURING DRILLING

Subsurface Consultants

430 28TH STREET - OAKLAND, CA

PLATE

JOB NUMBER

DATE

APPROVED

615.005

10/13/93

*mw*

**13**

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

**Subsurface Consultants**

430 28TH STREET - OAKLAND, CA

JOB NUMBER  
615.005

DATE  
10/13/93

APPROVED  
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PLATE

14





Curtis & Tompkins, Ltd., Analytical Laboratories, Since 1878<sup>JW</sup>

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

A N A L Y T I C A L   R E P O R T

Prepared for:

Subsurface Consultants  
171 12th Street  
Suite 201  
Oakland, CA 94608

Date: 01-OCT-93  
Lab Job Number: 112480  
Project ID: 615.004  
Location: Dignity Housing II

Reviewed by: Teresa K. Morrison

Reviewed by: [Signature]

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CLIENT: Subsurface Consultants  
 PROJECT ID: 615.004  
 LOCATION: Dignity Housing II  
 MATRIX: Soil

DATE REPORTED: 10/01/93

METALS ANALYTICAL REPORT

Lead

Sample ID	Lab ID	Sample Date	Receive Date	Result (mg/Kg)	Reporting Limit (mg/Kg)	QC Batch	Method	Analysis Date
A1 @ 1.0	112480-001	09/24/93	09/24/93	56	5.0	10740	EPA 7420	09/29/93
A1 @ 2.5	112480-002	09/24/93	09/24/93	34	5.0	10740	EPA 7420	09/29/93
A1 @ 4.0	112480-003	09/24/93	09/24/93	ND	5.0	10740	EPA 7420	09/29/93
A2 @ 1.0	112480-004	09/24/93	09/24/93	25	4.9	10740	EPA 7420	09/29/93
A2 @ 2.5	112480-005	09/24/93	09/24/93	8.5	5.0	10740	EPA 7420	09/29/93
A3 @ 1.0	112480-006	09/24/93	09/24/93	10	5.0	10740	EPA 7420	09/29/93
A3 @ 2.5	112480-007	09/24/93	09/24/93	ND	5.0	10740	EPA 7420	09/29/93
A3 @ 4.0	112480-008	09/24/93	09/24/93	ND	4.9	10740	EPA 7420	09/29/93
A4 @ 1.0	112480-009	09/24/93	09/24/93	ND	4.9	10740	EPA 7420	09/29/93
A4 @ 2.5	112480-010	09/24/93	09/24/93	5.0	5.0	10740	EPA 7420	09/29/93
A5 @ 1.0	112480-011	09/24/93	09/24/93	29	5.6	10740	EPA 7420	09/29/93
A5 @ 2.5	112480-012	09/24/93	09/24/93	7.0	5.0	10740	EPA 7420	09/29/93
A6 @ 1.0	112480-013	09/24/93	09/24/93	35	5.0	10740	EPA 7420	09/29/93
A6 @ 2.0	112480-014	09/24/93	09/24/93	8.4	4.9	10740	EPA 7420	09/29/93
A6 @ 4.0	112480-015	09/24/93	09/24/93	ND	5.0	10740	EPA 7420	09/29/93
A6 @ 5.5	112480-016	09/24/93	09/24/93	6.0	5.0	10740	EPA 7420	09/29/93

ND = Not detected at or above reporting limit



CLIENT: Subsurface Consultants  
 PROJECT ID: 615.004  
 LOCATION: Dignity Housing II  
 MATRIX: Soil

DATE REPORTED: 10/01/93

METALS ANALYTICAL REPORT

Lead

Sample ID	Lab ID	Sample Date	Receive Date	Result (mg/Kg)	Reporting Limit (mg/Kg)	QC Batch	Method	Analysis Date
B2 @ 1.0	112480-017	09/24/93	09/24/93	13	5.0	10740	EPA 7420	09/29/93
B2 @ 2.5	112480-018	09/24/93	09/24/93	6.5	5.0	10740	EPA 7420	09/29/93
B3 @ 1.0	112480-019	09/24/93	09/24/93	560	10	10740	EPA 7420	09/29/93
B3 @ 2.5	112480-020	09/24/93	09/24/93	22	5.0	10741	EPA 7420	09/29/93
B3 @ 3.5	112480-021	09/24/93	09/24/93	ND	5.0	10741	EPA 7420	09/29/93
B5 @ 0.5	112480-022	09/23/93	09/24/93	690	9.9	10741	EPA 7420	09/29/93
B5 @ 2.0	112480-023	09/23/93	09/24/93	ND	5.0	10741	EPA 7420	09/29/93
B5 @ 3.5	112480-024	09/23/93	09/24/93	5.0	5.0	10741	EPA 7420	09/29/93
B5 @ 5.0	112480-025	09/23/93	09/24/93	4.9	4.9	10741	EPA 7420	09/29/93
C2 @ 1.0	112480-026	09/24/93	09/24/93	340	5.0	10741	EPA 7420	09/29/93
C2 @ 2.5	112480-027	09/24/93	09/24/93	8.5	5.0	10741	EPA 7420	09/29/93
C2 @ 4.0	112480-028	09/24/93	09/24/93	5.0	5.0	10741	EPA 7420	09/29/93
C4 @ 0.5	112480-029	09/23/93	09/24/93	ND	4.9	10741	EPA 7420	09/29/93
C4 @ 2.5	112480-030	09/23/93	09/24/93	ND	5.0	10741	EPA 7420	09/29/93
C4 @ 4.0	112480-031	09/23/93	09/24/93	330	5.0	10741	EPA 7420	09/29/93
C4 @ 5.5	112480-032	09/23/93	09/24/93	ND	5.0	10741	EPA 7420	09/29/93

ND = Not detected at or above reporting limit





CLIENT: Subsurface Consultants  
JOB NUMBER: 112480

DATE REPORTED: 10/01/93

BATCH QC REPORT  
PREP BLANK

Compound	Result	Reporting Limit	Units	QC Batch	Method	Analysis Date
Lead	ND	5	mg/Kg	10740	EPA 7420	09/29/93
Lead	ND	5	mg/Kg	10741	EPA 7420	09/29/93

ND = Not detected at or above reporting limit



CLIENT: Subsurface Consultants  
JOB NUMBER: 112480

DATE REPORTED: 10/01/93

**BATCH QC REPORT  
BLANK SPIKE/BLANK SPIKE DUPLICATE**

Compound	Spike Amount	BS Result	BSD Result	Units	BS % Recovery	BSD % Recovery	Average Recovery	RPD	QC Batch	Method	Analysis Date
Lead	2	90.5	91.5	mg/Kg	91	92	92	1	10740	EPA 7420	09/29/93
Lead	2	89	86.5	mg/Kg	89	87	88	3	10741	EPA 7420	09/29/93

ND = Not detected at or above reporting limit

CLIENT: Subsurface Consultants  
PROJECT ID: 615.004  
LOCATION: Dignity Housing II  
MATRIX: Soil

DATE REPORTED: 10/01/93

METALS ANALYTICAL REPORT

Lead

Sample ID	Lab ID	Sample Date	Receive Date	Result (mg/Kg)	Reporting Limit (mg/Kg)	QC Batch	Method	Analysis Date
C2 @ 0.5	112480-033	09/23/93	09/24/93	740	9.8	10741	EPA 7420	09/29/93
C5 @ 2.5	112480-034	09/23/93	09/24/93	ND	4.9	10741	EPA 7420	09/29/93
C6 @ 0.5	112480-035	09/23/93	09/24/93	ND	4.9	10741	EPA 7420	09/29/93
C6 @ 2.5	112480-036	09/23/93	09/24/93	5.9	5.0	10741	EPA 7420	09/29/93

ND = Not detected at or above reporting limit



# CHAIN OF CUSTODY FORM

PROJECT NAME: Dianity  
 JOB NUMBER: 615.004 LAB: CAT  
 PROJECT CONTACT: R.W. RUDOLPH TURNAROUND: NORMAL  
 SAMPLED BY: E. CATANA REQUESTED BY: R.W. RUDOLPH

ANALYSIS REQUESTED									

LABORATORY I.D. NUMBER	SCI SAMPLE NUMBER	MATRIX					CONTAINERS				METHOD PRESERVED					SAMPLING DATE				NOTES	
		WATER	SOIL	WASTE	AIR		VOA	LITER	PINT	TUBE		HCL	H <sub>2</sub> SO <sub>4</sub>	HNO <sub>3</sub>	ICE	NONE	MONTH	DAY	YEAR		TIME
112480-1	✓ A1 @ 1.0		✓						X								09	24	93		
-2	✓ 2.5																				
-3	✓ 4.0																				
-4	✓ A2 @ 1.0																				
-5	✓ 2.5																				
-6	✓ A3 @ 1.0																				
-7	✓ 2.5																				
-8	✓ 4.0																				
-9	✓ A4 @ 1.0																				
-10	✓ 2.5																				
-11	✓ A5 @ 1.0																				
-12	✓ 2.5																				

CHAIN OF CUSTODY RECORD			
RELEASED BY: (Signature) <i>[Signature]</i>	DATE / TIME 9/24/93 16:30	RECEIVED BY: (Signature) <i>[Signature]</i>	DATE / TIME 9/24/93 16:30
RELEASED BY: (Signature)	DATE / TIME	RECEIVED BY: (Signature)	DATE / TIME
RELEASED BY: (Signature)	DATE / TIME	RECEIVED BY: (Signature)	DATE / TIME
RELEASED BY: (Signature)	DATE / TIME	RECEIVED BY: (Signature)	DATE / TIME

COMMENTS & NOTES:

**Subsurface Consultants, Inc.**  
 171 12TH STREET, SUITE 201, OAKLAND, CALIFORNIA 94607  
 (510) 268-0461 • FAX: 510-268-0137

# CHAIN OF CUSTODY FORM

PROJECT NAME: Dignity  
 JOB NUMBER: \_\_\_\_\_ LAB: \_\_\_\_\_  
 PROJECT CONTACT: \_\_\_\_\_ TURNAROUND: \_\_\_\_\_  
 SAMPLED BY: \_\_\_\_\_ REQUESTED BY: \_\_\_\_\_

ANALYSIS REQUESTED											

LABORATORY I.D. NUMBER	SCI SAMPLE NUMBER	MATRIX				CONTAINERS				METHOD PRESERVED					SAMPLING DATE				NOTES	
		WATER	SOIL	WASTE	AIR	VOA	LITER	PINT	TUBE	HCL	H <sub>2</sub> SO <sub>4</sub>	HNO <sub>3</sub>	ICE	NONE	MONTH	DAY	YEAR	TIME		
112480-13	✓ AB 0.10		X						X						12	9	24	9 3	Teresa D.	
-14	✓ 2.0																			
-15	✓ 9.0																			
-16	✓ 5.5																			
-17	✓ B2 0.10		X						X											
-18	✓ 0.2.5																			
-19	✓ B3 0.1.0		X																	
-20	✓ 0.2.5																			
-21	✓ 0.2.5																			

CHAIN OF CUSTODY RECORD			
RELEASED BY: (Signature) <u>gc</u>	DATE / TIME	RECEIVED BY: (Signature) <u>ICW</u>	DATE / TIME
RELEASED BY: (Signature)	DATE / TIME	RECEIVED BY: (Signature)	DATE / TIME
RELEASED BY: (Signature)	DATE / TIME	RECEIVED BY: (Signature)	DATE / TIME
RELEASED BY: (Signature)	DATE / TIME	RECEIVED BY: (Signature)	DATE / TIME

COMMENTS & NOTES:

**Subsurface Consultants, Inc.**  
 171 12TH STREET, SUITE 201, OAKLAND, CALIFORNIA 94607  
 (510) 268-0461 • FAX: 510-268-0137



# CHAIN OF CUSTODY FORM

PROJECT NAME: Dignity  
JOB NUMBER: 615.004 LAB: \_\_\_\_\_  
PROJECT CONTACT: \_\_\_\_\_ TURNAROUND: \_\_\_\_\_  
SAMPLED BY: \_\_\_\_\_ REQUESTED BY: \_\_\_\_\_

ANALYSIS REQUESTED											

LABORATORY I.D. NUMBER	SCI SAMPLE NUMBER	MATRIX				CONTAINERS				METHOD PRESERVED					SAMPLING DATE				NOTES
		WATER	SOIL	WASTE	AIR	VOA	LITER	PINT	TUBE	HCL	H2SO4	HNO3	ICE	NONE	MONTH	DAY	YEAR	TIME	
112400-22	B5 @ 0.5		X						X						09	23	93		Total 10
-23	@ 2.0																		
-24	@ 3.5																		
-25	@ 5.0																		
-26	✓ C2 @ 0.5														09	24	93		
-27	✓ @ 2.5																		
-28	✓ @ 4.0																		
-29	✓ C3 @ 0.5														09	23	93		
-30	✓ @ 2.5																		
-31	✓ @ 4.0																		
-32	✓ @ 5.5																		

CHAIN OF CUSTODY RECORD			
RELEASED BY: (Signature) <u>EC</u>	DATE / TIME	RECEIVED BY: (Signature) <u>W</u>	DATE / TIME
RELEASED BY: (Signature)	DATE / TIME	RECEIVED BY: (Signature)	DATE / TIME
RELEASED BY: (Signature)	DATE / TIME	RECEIVED BY: (Signature)	DATE / TIME
RELEASED BY: (Signature)	DATE / TIME	RECEIVED BY: (Signature)	DATE / TIME

COMMENTS & NOTES:

**Subsurface Consultants, Inc.**  
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(510) 268-0461 • FAX: 510-268-0137

# CHAIN OF CUSTODY FORM

PROJECT NAME: DIGNITY  
 JOB NUMBER: \_\_\_\_\_ LAB: \_\_\_\_\_  
 PROJECT CONTACT: \_\_\_\_\_ TURNAROUND: \_\_\_\_\_  
 SAMPLED BY: \_\_\_\_\_ REQUESTED BY: \_\_\_\_\_

ANALYSIS REQUESTED											

LABORATORY I.D. NUMBER	SCI SAMPLE NUMBER	MATRIX				CONTAINERS				METHOD PRESERVED					SAMPLING DATE				NOTES
		WATER	SOIL	WASTE	AIR	VOA	LITER	PINT	TUBE	HCL	H <sub>2</sub> SO <sub>4</sub>	HNO <sub>3</sub>	ICE	NONE	MONTH	DAY	YEAR	TIME	
112480-33	<del>6500.5</del>			X				X							09	23	97		Tetral Pb
-34	02.5																		
-35	4.00.5																		
-36	09.5																		
	C200.5																		

CHAIN OF CUSTODY RECORD			
RELEASED BY: (Signature)	DATE / TIME	RECEIVED BY: (Signature)	DATE / TIME
<i>EC</i>		<i>KO</i>	
RELEASED BY: (Signature)	DATE / TIME	RECEIVED BY: (Signature)	DATE / TIME
RELEASED BY: (Signature)	DATE / TIME	RECEIVED BY: (Signature)	DATE / TIME
RELEASED BY: (Signature)	DATE / TIME	RECEIVED BY: (Signature)	DATE / TIME

COMMENTS & NOTES:

**Subsurface Consultants, Inc.**  
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 (510) 268-0461 • FAX: 510-268-0137



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

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

ANALYTICAL REPORT

Prepared for:

Subsurface Consultants

171 12th Street

Suite 201

Oakland, CA 94608

Date: 11-OCT-93

Lab Job Number: 112591

Project ID: 615.004

Location: Dignity Housing II

Reviewed by:

Reviewed by:

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SAMPLE ID: C4 @ 3.5  
LAB ID: 112591-003  
CLIENT: Subsurface Consultants  
PROJECT ID: 615.004  
LOCATION: Dignity Housing II  
MATRIX: Soil

DATE SAMPLED: 09/23/93  
DATE RECEIVED: 09/24/93  
DATE REPORTED: 10/11/93

METALS ANALYTICAL REPORT

Compound	Result (mg/Kg)	Reporting Limit (mg/Kg)	QC Batch	Method	Analysis Date
Lead	ND	5.0	10886	EPA 7420	10/08/93

ND = Not detected at or above reporting limit

CLIENT: Subsurface Consultants  
PROJECT ID: 615.004  
LOCATION: Dignity Housing II  
MATRIX: WET Leachate

DATE REPORTED: 10/11/93

METALS ANALYTICAL REPORT

Lead

Sample ID	Lab ID	Sample Date	Receive Date	Result (ug/L)	Reporting Limit (ug/L)	QC Batch	Method	Analysis Date
C2 @ 0.5	112591-001	09/24/93	09/24/93	43000	1000	10902	EPA 7420	10/11/93
C4 @ 4.0	112591-002	09/23/93	09/24/93	33000	1000	10902	EPA 7420	10/11/93

CLIENT: Subsurface Consultants  
PROJECT ID: 615.004  
LOCATION: Dignity Housing II  
MATRIX: TCLP Leachate

DATE REPORTED: 10/11/93

METALS ANALYTICAL REPORT

Lead

Sample ID	Lab ID	Sample Date	Receive Date	Result (ug/L)	Reporting Limit (ug/L)	QC Batch	Method	Analys Date
C2 @ 0.5	112591-001	09/24/93	09/24/93	610	250	10871	EPA 6010	10/08/93
C4 @ 4.0	112591-002	09/23/93	09/24/93	ND	250	10871	EPA 6010	10/08/93

ND = Not detected at or above reporting limit

112591

### CHAIN OF CUSTODY FORM

PROJECT NAME: Dignity Housing  
 JOB NUMBER: 615,004 LAB: Curtis & Tompkins  
 PROJECT CONTACT: Marianne Watada TURNAROUND: normal  
 SAMPLED BY: John Wolfe / Eric Chang REQUESTED BY: M. Watada

ANALYSIS REQUESTED		
Lead	Stille	
Lead	TCLP	
Total Lead		

LABORATORY I.D. NUMBER	SCI SAMPLE NUMBER	MATRIX				CONTAINERS				METHOD PRESERVED					SAMPLING DATE				NOTES		
		WATER	SOIL	WASTE	AIR	VOA	LITER	PINT	TUBE	HCL	H2SO4	HNO3	ICE	NONE	MONTH	DAY	YEAR	TIME			
112591-1	X C2@0.5'	X						X				X			09	24	93		X	X	
	-24 C4@4.0'	X						X				X			09	23	93		X	X	
	L-3 C4@3.5'	X						X				X									X

#### CHAIN OF CUSTODY RECORD

RELEASED BY: (Signature) <i>Charles...</i>	DATE / TIME 10-4-93 4:00 pm	RECEIVED BY: (Signature)	DATE / TIME
RELEASED BY: (Signature)	DATE / TIME	RECEIVED BY: (Signature)	DATE / TIME
RELEASED BY: (Signature)	DATE / TIME	RECEIVED BY: (Signature)	DATE / TIME
RELEASED BY: (Signature)	DATE / TIME	RECEIVED BY: (Signature) <i>[Signature]</i>	DATE / TIME 10/11/93 11:00

COMMENTS & NOTES:  
 \* Already at CHT  
 ↓  
 112480-033-aes  
 " -031 - c4@4.0

**Subsurface Consultants, Inc.**  
 171 12TH STREET, SUITE 201, OAKLAND, CALIFORNIA 94607  
 (510) 268-0461 • FAX: 510-268-0137