FAX TRANSMITTAL

URS
500 12TH STREET
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OAKLAND, CA 94607
TEL: (510) 893-3600 FAX: (510) 874-3268

T5 / T6.
City of Oakland

DATE: 10/8

PAGE 1 OF: 14

TO: Barney Chan
FIRM: Alameda Cty Health Agency
FAX NO: 337-9335

FROM: Teri Angst/Amy Breckenridge
SUBJECT: Rationale
CC:

MEMO:

The originals are in the mail

10/9/01 spoke w/ A. Breckenridge

- Requested map of borings & MW locations, they need to take elevation of W-3 & prepare GW contour.
- Requested GW contour maps of T-12 (2') mentioned in wplan
- Work was just completed (before all reports & concurrence)

Q Any soil data from boring of W-2? (It is near former USTs).
Ans: BTEX only (Table 2).

- Missing TPHg data in Soil & GW samples near former USTs.

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CO 834

OCT 11 2001

October 8, 2001

Mr. Barney Chan
Alameda County Health Agency
1131 Harbor Bay Parkway
Alameda, CA 94502

Re: Rationale for the Presumed Location of the Former USTs at the City Center Parcel T6, Oakland, California

Dear Mr. Chan:

Per your request and on behalf of the City of Oakland, URS Corporation (URS) is pleased to present the rationale for the presumed location of the former underground storage tanks (USTs) on the City Center Parcel T6. Additionally, a subsurface investigation will be conducted at the Parcel T6 during the week of October 8, 2001 to determine if significant levels of petroleum hydrocarbons exist in soils between 8 and 35 feet below ground surface (bgs). Parcel T6 formerly consisted of addresses 1100 to 1130 Clay Street and is bordered to the northwest by Clay Street, to the southwest by 11th Street, and to the northeast by 12th Street (see Figure 1 – Site Vicinity Map).

Background

Sanborn® fire insurance maps dated 1929 and 1951 reveal that a service station was located at 1100 Clay Street at the corner of 11th Street (see Sanborn® maps) or the south side of Parcel T6. The 1951 map shows four gasoline USTs located outside the southwest side of the property in 11th Street or the sidewalk. There are no records of the removal of these tanks.

Several subsurface investigations have been conducted at Parcel T6 since 1990. A reference list of the reports detailing these investigations is attached. These investigations focused mainly on characterizing the surface fill material (0 to 6 feet bgs) that is impacted by heavy metals, specifically lead (see Figure 2 – Soil Lead Results). Two groundwater wells (identified as W-2 and W-3) were installed on the south side of the Parcel in 1990. During installation of these wells, it was noted that a "very strong gasoline odor" was detected in the soil at approximately 15 feet and 25 feet bgs. Well W-2 has been sampled once and well W-3 has been sampled 3 times since 1990. The current location of well W-2 is unknown and it may have been abandoned. Groundwater in wells W-2 and W-3 have reported low levels of total petroleum hydrocarbons as gasoline (TPHg), toluene, ethylbenzene, xylenes and semi-volatile organics (SVOCs) (see Table

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1 - Groundwater Results Summary). Soil samples collected in the shallow vadose zone (0 to 8 feet bgs) in the south side of Parcel T6 detected low levels of oil and grease, ethylbenzene, xylenes and SVOCs (see Table 2 - Soil Results Summary). Deeper soil samples were not collected from Parcel T6.

Three groundwater monitoring events in the area of Parcels T5/T6 and Parcel T12, located one block northwest of Parcel T6, indicate that the groundwater flow direction is generally to the northwest. Groundwater gradients and flow directions are shown in Table 3 below.

TABLE 3
Groundwater Gradients and Flow Directions

Site	Date	Groundwater Gradient (ft/ft)	Groundwater Flow Direction
Parcel T5/T6	2/20/90	0.0014	N54W
Parcel T12	2/21/90	0.0036	N38W
Parcel T12	9/9/99	0.0067	N40W

N – North
W – West

Proposed Subsurface Investigation

Based on the location of the four gasoline USTs, previous subsurface investigation results, and groundwater flow direction, an additional subsurface investigation consisting of 4 soil borings (with grab groundwater samples from 2 of the borings) and 2 groundwater monitoring wells are proposed. The results of the investigation will be used to determine if soil and/or groundwater at the site has been significantly impacted by the USTs. Rationale for the location of the borings and wells is described in Table 4 below.

TABLE 4
Rationale for Boring and Wells

Boring/Well Id	Location	Rationale
Boring B-10	~50 feet downgradient of USTs	Determine if soil impacted from USTs
Boring B-11	~ 65 feet cross gradient of USTs	Determine lateral extent of soil/groundwater impact
Boring B-12	~ 75 feet downgradient of USTs	Determine if soil impacted near well W-2
Boring B-13	~ 185 feet downgradient of USTs	Determine lateral extent of soil/groundwater impact

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Well W-4	~ 45 feet cross gradient of USTs	Determine lateral extent of soil/groundwater impact
Well W-5	~ 10 feet cross gradient of USTs	Well closest to USTs to determine if USTs had a release

Soil samples will be collected every 5 feet for soil classification and screening with a photo-ionization detector (PID). A minimum of 2 soil samples per boring and a total of 4 groundwater samples (from W-4, W-5, B-11, and B-13) will be submitted to a state certified laboratory based on PID readings and analyzed for TPHg, benzene, toluene, ethylbenzene, and xylenes (BTEX) , Methyl tert-Butyl Ether (MtBE) (by EPA method 8015mod/8020), and TPH as diesel (by EPA method 8015mod with silca gel cleanup). The results will be submitted to Alameda County Health Department with a brief letter report detailing the findings and recommendations.

If you have any questions in regards to the proposed investigation please do not hesitate to contact Amy at (510) 874-3057.

Sincerely,

URS CORPORATION

Amy P. Breckenridge, P.E.
Project Civil Engineer

Jay B. Clare, P.E.
Project Manager

Attachments: References
Figure 1 – Site Vicinity Map
Figure 2 – Total and WET Lead Results in Soil, Parcels T5/T6
Table 1 – Summary of Groundwater Results, Parcel T6
Table 2 – Summary of Soil Results, Parcel T5/T6
Sanborn® Maps, 1929 & 1951

cc: Odili Ojukwu, P.E., City of Oakland

References

Subsurface Consultants, Inc. 2001a. Soil and Groundwater Sampling, City Center Parcels T-5/6, Oakland, California. Reports to the City of Oakland Public Works Agency. August.

Subsurface Consultants, Inc. 2001b. Soil and Water Sampling, City Center Parcels T-5 and T-6, Oakland, California. Reports to the City of Oakland Public Works Agency. September.

Woodward-Clyde Consultants. 1993a. Environmental Site Assessment and Fill Characterization Report, City Center Parcels T5 and T6, Oakland California. Reports to the Redevelopment Agency of the City of Oakland. June.

Woodward-Clyde Consultants. 1993b. Environmental Site Assessment and Fill Characterization Report, City Center Parcels T12, Oakland California. Reports to the Redevelopment Agency of the City of Oakland. June.

URS Greiner Woodward Clyde. 1999. Letter Report Addressing Tasks 1 and 2 of URS Cost Proposal dated August 26, 1999 – Assessment of Handling and Disposal of Contaminated Soil at Property T12 in Oakland, California. Reports to Shorenstein Company, L.P. September.

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TABLE 1
City of Oakland - Parcels T5-T6
Groundwater Results Summary

Well Id	W-1	W-2	W-3	W-3	W-3
Date sampled	02/20/1990	02/20/1990	02/20/1990	11/10/2000	08/07/2001
units	ppb	ppb	ppb	ppb	ppb
Depth to water (ft.)	30.3	30	28.3	27.49	24.46
TVH gasoline				330	79
Benzene	<5	<25	<5	<0.50	<0.50
Bis (2-Ethylehexyl) phthalate			43		
Toluene	<5	26	34	<0.50	<0.50
Ethylbenzene	<5	<25	<5	29	<0.50
Xylenes	<5	3,819	703	51	<0.50
VOC's by EPA 8260A, 8240, or 624	ND	ND	ND	ND	
MTBE				<5.0	<2.0
TPH Diesel				<50	<50
Total Oil and Grease					<5.0
Semi Volatile Compounds			ND		
Naphthalene			45	3.4	
2-Methylnaphthalene			17		
Isopropylbenzene				4.3	
Cyanide			ND		
Antimony	<50	<50	<50		<60
Arsenic	5	10	4		<5.0
Barium	500	250	150		90
Beryllium	<10	<10	<10		<2.0
Cadmium	<20	<20	<20		<5.0
Cobalt	70	<20	<20		<20
Chromium	170	50	30		<10
Copper	40	20	20		<10
Lead	<100	<100	<50		<3.0
Mercury	<1	<1	<1		<0.20
Molybdenum	<20	<20	<20		<20
Nickel	300	<100	<100		25
Selenium	<3	<3	<3		<5.0
Silver	<10	<10	<10		<5.0
Thallium	200	<100	100		<5.0
Vanadium	140	40	30		<10
Zinc	210	90	100		<20

TABLE 2
City of Oakland - Parcel T6
Soil Analytical Results Summary
September 28, 2001

Boring Id		F7	F7	F8	F8	F9	F10	F12	F12	F12
Sample Id		F7-1	F7-2	F8-1	F8-2	F9-1	F10-1	F12-1A	F12-1B	F12-2
Soil Type		Fill	Fill	Fill	Fill	Fill	Fill	Fill	Fill	Fill
Sample Depth (feet)		1	4	2	4	2	2	1.5	2	5
Analyte	**Units**									
Total Lead	mg/kg	**177**	11.9	**391**	<3	3	4	**172**	9.3	4.3
WET Lead	mg/L									
Oil & Grease	mg/kg	174		28		<4	<4	210		
TPH Gasoline	mg/kg			<5				<5		
MTBE	mg/kg									
Benzene	mg/kg									
Toluene	mg/kg									
Ethylbenzene	mg/kg									
Xylenes	mg/kg									
TPH Diesel	mg/kg			<10				<10		
TPH Motor Oil	mg/kg			57				71		
PCB	mg/kg			<0.1		<0.1	<0.1	<0.1		
Semi Volatile Compounds	mg/kg			*						
Silver	mg/kg			<0.5						
Arsenic	mg/kg			14.7						
Barium	mg/kg			70.5						
Beryllium	mg/kg			<0.5						
Cadmium	mg/kg			<1.0						
Cobalt	mg/kg			4						
Chromium	mg/kg			36.6						
Copper	mg/kg			24.9						
Mercury	mg/kg			2.6						
Molybdenum	mg/kg			<1.0						
Nickel	mg/kg			16.7						
Antimony	mg/kg			3.3						
Selenium	mg/kg			4.2						
Thallium	mg/kg			36.4						
Vanadium	mg/kg			17.4						
Zinc	mg/kg			113						

Notes * phenanthrene =0.153 mg/kg, fluoranthene = 0.293 mg/kg, pyrene = 0.271 mg/kg, chrysene = 0.175 mg/kg

TABLE 2
City of Oakland - Parcel T6
Soil Analytical Results Summary
September 28, 2001

Boring Id		F17	F17	F18	F18	F19	F20	F21	W2	W-3
Sample Id		F17-1	F17-2	F18-1	F18-2	F19-1	F20-1	F21-1	T6-W2	T6-W3
Soil Type		Fill	Fill	Fill	Native	Fill	Fill	Fill	Native	Native
Sample Depth (feet)		1	3	1	5.5	1	0.5	3	comp	comp
Analyte	**Units**									
Total Lead	mg/kg	**263**	15.8	**83.9**	21.7	**69.1**	**105**	**80.6**	5.4	<3
WET Lead	mg/L									
Oil & Grease	mg/kg						780			<4
TPH Gasoline	mg/kg					<5				
MTBE	mg/kg									
Benzene	mg/kg								<0.1	<0.1
Toluene	mg/kg								<0.1	<0.1
Ethylbenzene	mg/kg								0.835	<0.1
Xylenes	mg/kg								0.763	<0.1
TPH Diesel	mg/kg					<10				
TPH Motor Oil	mg/kg					371				
PCB	mg/kg					<0.1		<0.1		<0.1
Semi Volatile Compounds	mg/kg								**	
Silver	mg/kg								0.6	
Arsenic	mg/kg								1.4	
Barium	mg/kg								310	
Beryllium	mg/kg								<0.5	
Cadmium	mg/kg								<1.0	
Cobalt	mg/kg								6	
Chromium	mg/kg								34	
Copper	mg/kg								7.6	
Mercury	mg/kg								<0.05	
Molybdenum	mg/kg								<1.0	
Nickel	mg/kg								32.2	
Antimony	mg/kg								<3.0	
Selenium	mg/kg								<0.15	
Thallium	mg/kg								16.7	
Vanadium	mg/kg								21.7	
Zinc	mg/kg								20	

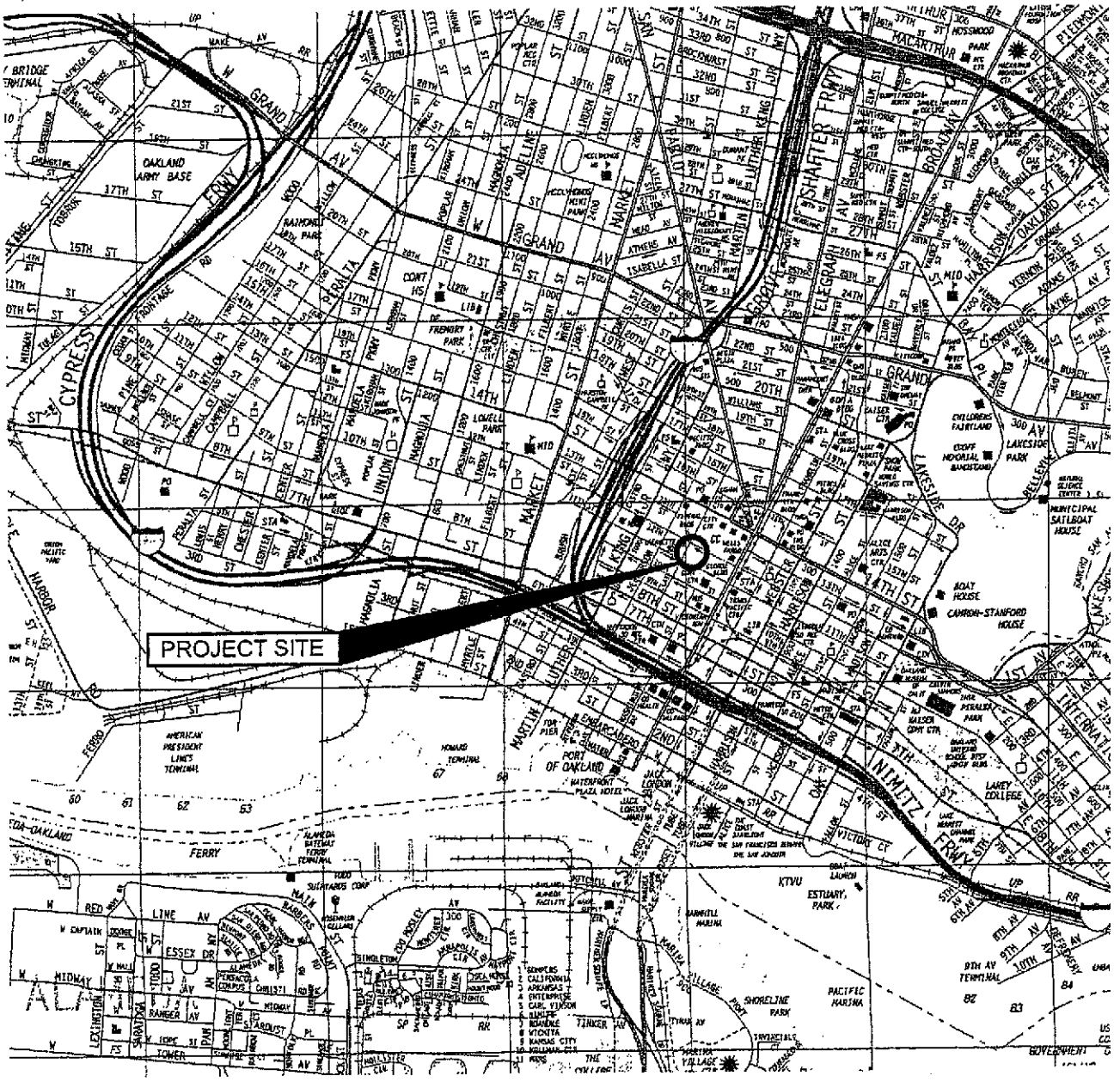
Notes: ** phenol = 0.3 mg/kg, naphthalene = 0.4 mg/kg, 2-methylnapthalene = 0.3 mg/kg, bis (2-Ethylehexyl) pthalate = 2.0, cyanide = non-detect

TABLE 2
City of Oakland - Parcel T6
Soil Analytical Results Summary
September 28, 2001

Boring Id		B2	GP1/GP2	H-3	GP-4	B-1	B-3	B-4	B-7	B-8
Sample Id		T6-B2	GP1/GP2	H-3 .5-3.5'	GP-4 .5-3'	B-1@3.5	B-3@3.5	B-4@4	B-7@3.0	B-8@3.5
Soil Type		Native	Fill	Fill	Fill	Fill	Fill	Fill	Fill	Fill
Sample Depth (feet)		comp	comp	comp	comp	3.5	3.5	4	3	3.5
Analyte	**Units**									
Total Lead	mg/kg	4.4	41	67	84	3.5	2.4	19	99	130
WET Lead	mg/L		1.4	4.4	3.1	<0.15	<0.15	2.2	**7.3**	**6.3**
Oil & Grease	mg/kg									
TPH Gasoline	mg/kg									
MTBE	mg/kg									
Benzene	mg/kg	<0.1								
Toluene	mg/kg	<0.1								
Ethylbenzene	mg/kg	<0.1								
Xylenes	mg/kg	<0.1								
TPH Diesel	mg/kg		<1	2.8	4.7					
TPH Motor Oil	mg/kg		<50	<50	<50					
PCB	mg/kg	<0.1								
Semi Volatile Compounds	mg/kg									
Silver	mg/kg									
Arsenic	mg/kg									
Barium	mg/kg									
Beryllium	mg/kg									
Cadmium	mg/kg									
Cobalt	mg/kg									
Chromium	mg/kg									
Copper	mg/kg									
Mercury	mg/kg		0.15	0.25	0.14					
Molybdenum	mg/kg									
Nickel	mg/kg									
Antimony	mg/kg									
Selenium	mg/kg									
Thallium	mg/kg									
Vanadium	mg/kg									
Zinc	mg/kg									
Cal WET Mercury	mg/L		<0.02	<0.02	<0.02					

TABLE 2
City of Oakland - Parcel T6
Soil Analytical Results Summary
September 28, 2001

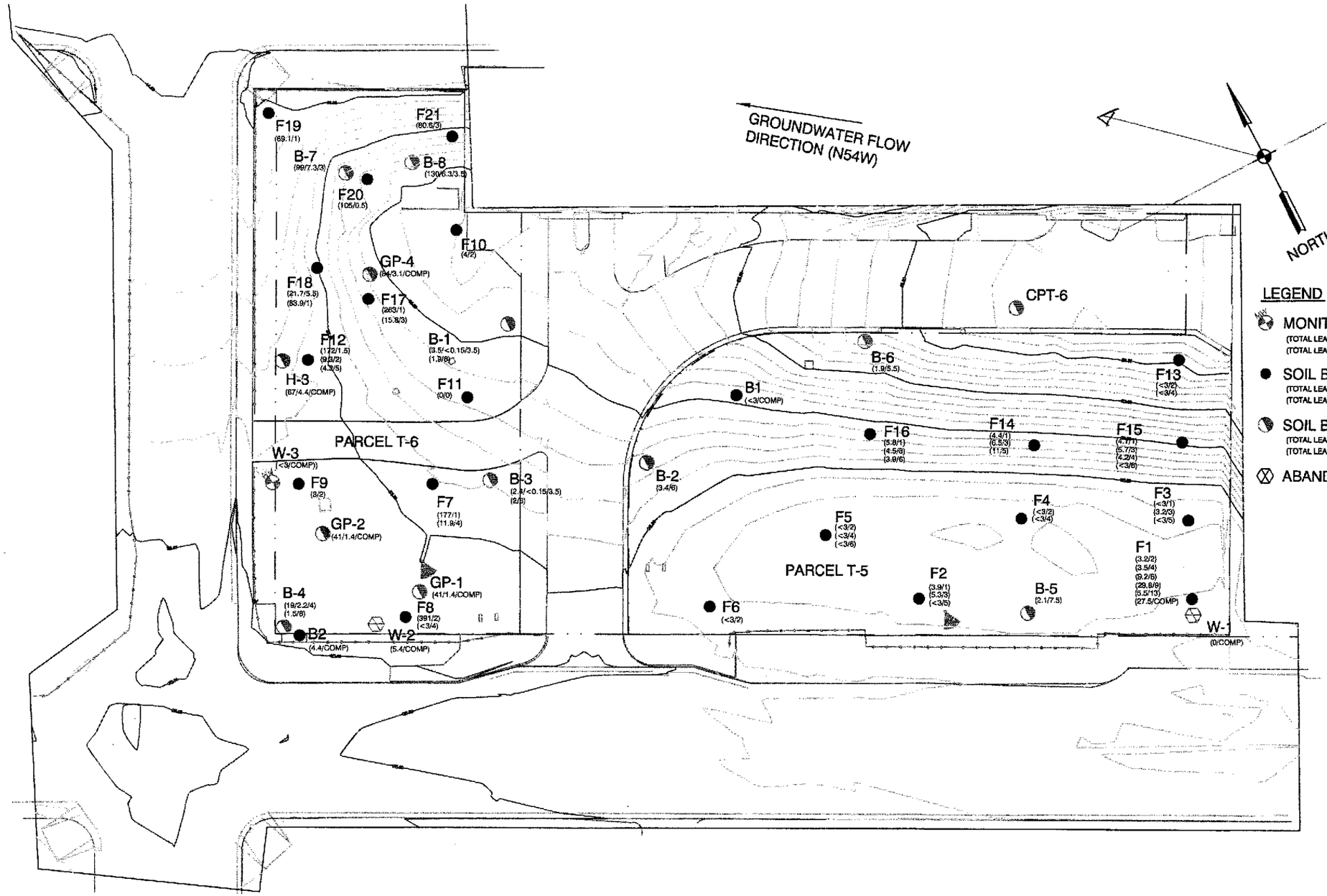
Boring Id		B-1	B-3	B-4
Sample Id		B-1@8.0	B-3@6.0	B-4@8.0
Soil Type		Native	Native	Native
Sample Depth (feet)		8	6	8
Analyte	**Units**			
Total Lead	mg/kg	1.9	2	1.5
WET Lead	mg/L			
Oil & Grease	mg/kg	<50	<50	<50
TPH Gasoline	mg/kg	<1.0	<1.0	<1.1
MTBE	mg/kg	<0.021	<0.021	<0.022
Benzene	mg/kg	<0.0052	<0.0052	<0.0056
Toluene	mg/kg	<0.0052	<0.0052	<0.0056
Ethylbenzene	mg/kg	<0.0052	<0.0052	<0.0056
Xylenes	mg/kg	<0.0052	<0.0052	<0.0056
TPH Diesel	mg/kg	<1.0	<1.0	<1.0
TPH Motor Oil	mg/kg	<5.0	<5.0	<5.0
PCB	mg/kg	ND		
Semi Volatile Compounds	mg/kg	ND		
Silver	mg/kg	<0.24	<0.25	
Arsenic	mg/kg	1.5	1.5	
Barium	mg/kg	38	50	
Beryllium	mg/kg	0.23	0.26	
Cadmium	mg/kg	0.92	0.93	
Cobalt	mg/kg	4.2	4.8	
Chromium	mg/kg	29	33	
Copper	mg/kg	5.5	4.9	
Mercury	mg/kg	<0.019	<0.02	
Molybdenum	mg/kg	<0.97	<1.0	
Nickel	mg/kg	27	31	
Antimony	mg/kg	<2.9	<3.0	
Selenium	mg/kg	<0.24	<0.25	
Thallium	mg/kg	<0.24	<0.25	
Vanadium	mg/kg	21	21	
Zinc	mg/kg	19	17	
Cal WET Mercury	mg/L			



NOTE:
THIS VICINITY MAP IS BASED ON A THOMAS GUIDE MAP FOR SAN FRANCISCO, ALAMEDA, AND CONTRA COSTA COUNTIES, CALIFORNIA, MAP 649, YEAR 2000

PROJECT NO.	SCALE		FIGURE
51-00129010.04	1" = 2400'	CITY OF OAKLAND PARCELS T5/T6 VICINITY MAP	1
URS Corporation			

Oct 08, 2001 - 3:11pm
X:\x_env_waste\Clare\CityofOakland\Plans\FIG 1.dwg



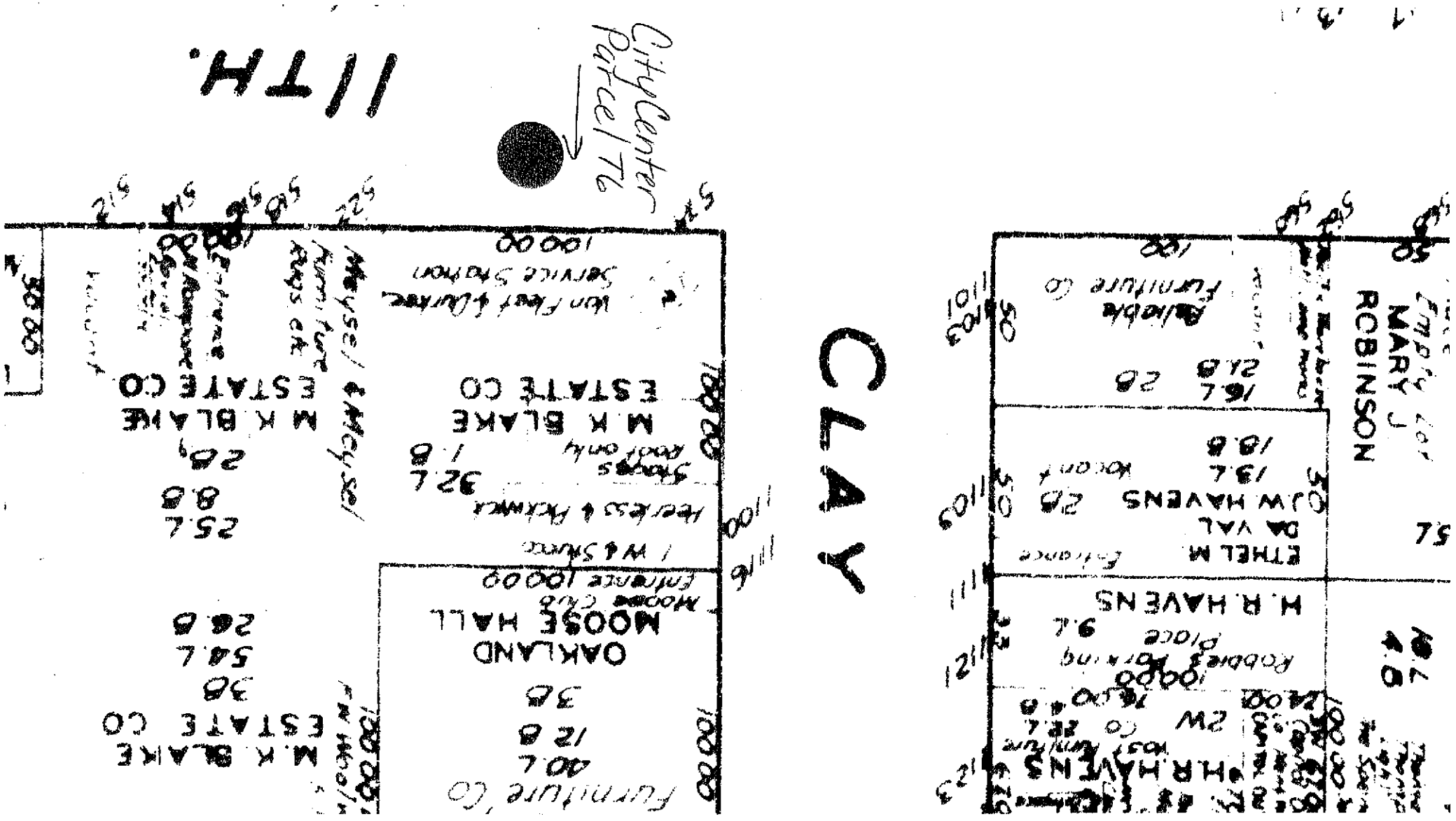
LEGEND

- MONITORING WELL
  (TOTAL LEAD (MG/KG)/WET LEAD (MG/L)/SAMPLE DEPTH (FT)) - SOIL RESULTS
  (TOTAL LEAD (MG/KG)/ SAMPLE DEPTH (FT)) - SOIL RESULTS
- SOIL BORING (LOCATION ESTIMATE) (1990)
  (TOTAL LEAD (MG/KG)/WET LEAD (MG/L)/DEPTH (FT))
  (TOTAL LEAD (MG/KG)/DEPTH (FT))
- SOIL BORING (BY SCI/2000-2001)
  (TOTAL LEAD (MG/KG)/WET LEAD (MG/L)/DEPTH (FT))
  (TOTAL LEAD (MG/KG)/DEPTH (FT))
- ABANDONED OR LOST MONITORING WELL

J:\CADSHARED\

Project No. 51-00129010.04	SCALE 1" = 40'	CITY OF OAKLAND PARCEL T5/T6 SOIL LEAD RESULTS	Figure 2
URS Corporation			

NIRENSTEIN 1929



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