

ERAS

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May 21, 2003

Mr. Francis Rush
 Rush Property Group
 2200 Adeline Street, #350
 Oakland, CA, 94607

Post-It* Fax Note	7671	Date	# of pages
To	BARNEY CHAN	From	David Siegel
Co./Dept.		Co.	
Phone #		Phone #	
Fax #	337-9335	Fax #	

Subject: Informal Summary of Subsurface Investigation and Recommendation
 1549 32nd Street, Oakland, CA
 Project Number 02-006, Task 02

Dear Mr. Rush:

This letter presents an informal summary of the analytical results for samples taken during the subsurface investigation and proposes areas for removal of soil as corrective action. This letter does not provide a comprehensive detailing of the investigation procedures nor does it include all of the chemical results of all of the samples. That information will be needed to receive final case closure from the Alameda County Health Services Agency (ACHSA) and the Regional Water Quality Control Board (RWQCB), and will be presented as a formal report that ERAS is still preparing.

However, in recognition of your need to proceed with corrective action in a timely manner, this letter provides key information regarding the contaminants that present environmental risk issues and a map showing the estimated area that will require removal of soil.

Groundwater Flow

Groundwater was found to flow to the west-northwest under the site with a gradient of about 0.03 foot/foot (3%). The Figure *Groundwater Elevation Map - April 9, 2003* is attached to this letter.

Total Petroleum Hydrocarbons

Vault Samples

Six samples of oil covered sand or gravel from vaults were analyzed for Total Petroleum Hydrocarbons (TPH) by EPA Method 8015M. The analyses indicate that all the vaults but one contained only or predominantly hydraulic oil. The last vault (Vault F) located in the northern portion of the building contained motor oil. The results of the analyses are summarized in Table 1.

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Groundwater Samples

In groundwater samples from the current investigation, only concentrations of TPH-hydraulic oil exceeded the RWQCB Risk-Based Screening Levels (RBSLs) for groundwater that is not potential drinking water (640 µg/L for hydraulic oil). The Figure *Estimated Extent of TPH in Groundwater* shows the estimated horizontal extent of concentrations of dissolved TPH-hydraulic oil above 640 µg/L. (Note: this RBSL is based on threat to aquatic life. The ceiling value RBSL based on odor etc is 5,000 µg/L). This figure shows two areas of concern, the area in the north portion of the current building, and the other near the southeast corner of the current building. The inferred contours incorporate results from both the current investigations and previous investigations. The area of TPH in groundwater above the RBSL does not appear to have advanced offsite to the west, and only a short distance to the east. . The results of the analyses are summarized in Table 4.

Soil Samples

In soil samples from the current investigation, only concentrations of TPH-hydraulic oil exceeded the RWQCB Risk-Based Screening levels for soil contamination that may leach to groundwater (1,000 mg/kg for hydraulic oil). The attached Figure *Estimated Extent of TPH in Soil* shows the area in which soil is estimated to contain concentrations of TPH-hydraulic oil above 1,000 mg/kg. These areas incorporate analytical results from the current investigation as well as results of previous investigations. The figure shows two areas of concern, the area in the northern area of the building around boring E-5, and an area covering the south-east and central portions of the current building. . The results of the analyses are summarized in Table 2.

Metals

The soil and groundwater samples were analyzed for chromium, copper and nickel. None of the soil samples were found to contain concentrations of these metals above the Oakland surface soil RBSLs for residential land use. However, one of the groundwater samples (E-5) was found to exceed the Oakland RBSLs for chromium and copper, and all groundwater samples were found to exceed the Oakland RBSL for nickel. The analytical results for nickel did not show a correlation between the nickel concentrations in soil and groundwater samples collected from the same boring.

The Figure *Estimated Extent of Nickel in Groundwater* is attached to this letter. The areas of highest nickel concentration in groundwater are in the northern and central portions of the site and seem to echo the distribution of TPH-hydraulic oil in groundwater, therefore residual oil in the soil appears to be the most likely source of nickel in groundwater. Only the vault sample Vault G was tested for metals, and was found to contain some nickel. The figure shows that the area of dissolved nickel above the Oakland RBSL (0.1 mg/L) appears to have advanced only a short distance offsite. The results of the analyses are summarized in Tables 3 and 5.

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Other Suspected Contaminants

None of the vault samples were found to contain PCBs, PAHs or VOCs. Some VOCs were detected in soil and groundwater samples. However, all VOCs detected were found at concentrations below Oakland residential RBSLs, for those compounds for which RBSLs exist.

Recommended Corrective Action

The estimated areas of soil and groundwater contamination above the RBSLs show that contamination does not appear to have advanced far offsite to the west. Thus, ERAS does not believe this contamination is likely to advance much further down-gradient in the future. Therefore, ERAS recommends removal of contaminated soil that appears to be the source of contamination to the groundwater. The attached Figure *Estimated Area of Excavation* shows estimated excavation and confirmatory soil sample locations that is estimated will remove the soil with TPH-hydraulic oil concentrations above 1,000 mg/kg, except where limited to the east by the property boundary. This target concentration is based on the RWQCB RBSL for soil contamination leaching to groundwater that is not potential drinking water, and on a telephone conversation between Barney Chan of ACDHS and Dave Siegel of ERAS on 14 March 2003. It is assumed that the removal of residual TPH in the soil will also remove the bulk of the source of metals to the groundwater.

The recommended excavation includes removal of all of the vaults. Note the figure indicates the soil that might have to be removed. The actual extent will be based on visual observations and confirmation sampling that should be performed as the remediation project proceeds. Soil should be removed as close to the building walls as is safe to protect the stability and integrity of the structure. In addition, there is a line of roof support columns that trend east-west across the southern area. Excavation activities should not undermine these column footings.

Soil should be excavated to a maximum depth of 9 feet bgs. Sidewall samples should be collected at 7 feet bgs as this appears to be the horizon with the highest TPH concentrations. Confirmation samples should be analyzed for Fuel Scan – Extractable by EPA Method 8015 modified. If TPH above 1,000 mg/kg is detected in confirmation samples, excavation should continue in those directions unless limited by the presence of a building wall, the property boundary or the support column footings.

Note that the planned remediation activities will likely not be able to remove all of the impacted soil and water. Therefore, some amount of contaminated soil will remain following redevelopment. However, it appears that this will be contamination devoid of volatile constituents and will be largely confined to a depth below the surface and/or groundwater. This remaining contamination should not pose a threat to future occupants of the planned development.

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ERAS hopes that the above information will help you proceed with your project.
If you have any questions, please call me at (510) 247-9885

Very truly yours,
ERAS Environmental, Inc.



David Siegel, Geologist, REA II
President, ERAS Environmental, Inc.

Attachments

Tables 1-5

Figure 2 - Groundwater Elevation Map – April 9, 2003

Figure 7 - Estimated Extent of TPH in Soil

Figure 8 - Estimated Extent of TPH in Groundwater

Figure 9 - Estimated Extent of Nickel in Groundwater

Figure 10 - Estimated Areas of Excavation

TABLE 1. ANALYTICAL RESULTS FOR TPH IN VAULTS**1549 32nd Street, Oakland, CA**

SAMPLE ID	DATE SAMPLED	TOTAL PETROLEUM HYDROCARBONS		
		Motor Oil	Diesel	Hydraulic Oil
Units: Laboratory Method		mg/kg 8015 MOD	mg/kg 8015 MOD	mg/kg 8015 MOD
Vault E	04/01/03	<6,500	<500	18,000
Vault F	04/01/03	93	<5	<65
Vault G	04/01/03	<13	<1	18
Vault H	04/01/03	<13,000	<1,000	29,000
Vault I	04/01/03	<13,000	1,100	43,000
Vault J	04/01/03	<65	<5	110

Notes:

<6,500 = Not detected above the laboratory method reporting limit.

TABLE 2. ANALYTICAL RESULTS FOR TPH AND VOC IN SOIL

1549 32nd Street, Oakland, CA

SAMPLE ID	SAMPLE DEPTH (ft)	DATE SAMPLED	TOTAL PETROLEUM HYDROCARBONS			VOLATILE ORGANIC COMPOUNDS								
			Gasoline	Diesel	Hydraulic Oil	1,2,4-TMB	1,3,5-TMB	1,2-DCB	1,4-DCB	Chloro-benzene	Methylene Chloride	Napthalene	Toluene	Total Xylenes
Units			µg/g	mg/g	mg/g	µg/g								
Laboratory Method			GC-MS	SO15 MOD	SO15 MOD	SO15 MOD								
PZ-1	3.0-3.5	04/01/03	<50	8.1	<13	☺	☺	☺	☺	<5	☺	<5	<5	☺
	11.0-12.0	04/01/03	<50	12	<13	☺	☺	☺	☺	<5	☺	<5	<5	☺
PZ-2	1.0-2.0	04/03/03	<50	<1	80	☺	☺	☺	☺	<5	☺	<5	<5	☺
	11.5-12.0	04/03/03	<50	<1	20	☺	☺	☺	☺	<5	☺	<5	<5	☺
E-5	2.5-3.5	04/02/03	318	<100	3,400	20	13	<12.5	<12.5	<12.5	<62.5	150	<12.5	23
	11.0-12.0	04/02/03	<50	3.8	<13	☺	☺	☺	☺	<5	☺	<5	<5	☺
E-6	4.0-5.0	04/01/03	<50	<20	640	☺	☺	☺	☺	<5	☺	<5	<5	☺
	8.5-9.0	04/01/03	<50	<20	2,000	☺	☺	☺	☺	<5	☺	<5	<5	☺
E-7	4.0-5.0	04/01/03	88	4.8	<13	☺	☺	☺	☺	<5	☺	<5	<5	☺
	11.0-12.0	04/01/03	<50	<1	<13	☺	☺	☺	☺	<5	☺	<5	<5	☺
E-8	4.0-5.0	04/01/03	81	<25	<312.5	☺	☺	☺	☺	<5	☺	<5	<5	☺
	11.0-12.0	04/01/03	<50	9.8	<13	☺	☺	☺	☺	<5	☺	<5	<5	☺
E-9	1.0-2.0	04/02/03	<50	<50	1,500	☺	☺	☺	☺	<5	☺	<5	<5	☺
	11.0-12.0	04/02/03	<50	<1	<13	☺	☺	☺	☺	<5	☺	<5	<5	☺
E-10	3.0-4.0	04/01/03	280	<100	3,700	15	17	<12.5	<12.5	<12.5	<62.6	84	15	13
	11.0-12.0	04/01/03	<50	<1	28	☺	☺	☺	☺	<5	☺	<5	<5	☺
E-11	4.0-4.5	04/02/03	120	<10	220	☺	☺	53	5.7	5.7	<25	5.9	<5	☺
	10.0-11.0	04/02/03	<50	9.0	<13	☺	☺	☺	☺	<5	☺	<5	<5	☺
E-12	2.0-3.0	04/02/03	<50	<1	<13	☺	☺	☺	☺	<5	☺	<5	<5	☺
	11.0-12.0	04/02/03	<50	<1	<13	☺	☺	☺	☺	<5	☺	<5	<5	☺
E-13	2.0-3.0	04/02/03	<50	2.6	<13	☺	☺	☺	☺	<5	☺	<5	<5	☺
	11.0-12.0	04/02/03	<50	<1	<13	☺	☺	☺	☺	<5	☺	<5	<5	☺
RBSL - City of Oakland										620	3.1*	1,200	9,000,000	54,000,000
RBSL - RWQCB			400	500	500			1,000	130					

NOTES:
 <50 = Not detected above the laboratory method reporting limit.
 RBSL = Risk-Based Screening Level for Residential Land Use.
 RWQCB = Regional Water Quality Control Board, San Francisco Bay Region.
 1,2,4-TMB = 1,2,4-Trimethylbenzene.
 1,3,5-TMB = 1,3,5-Trimethylbenzene.
 1,2-DCB = 1,2-Dichlorobenzene.
 1,4-DCB = 1,4-Dichlorobenzene.
 * Ingestion of groundwater impacted by leachate.

TABLE 3. ANALYTICAL RESULTS FOR METALS IN SOIL

1549 32nd Street, Oakland, CA

SAMPLE ID	SAMPLE DEPTH (ft)	DATE SAMPLED	METALS		
			Chromium	Copper	Nickel
			Units: mg/Kg Laboratory Method: 6010B	mg/Kg 6010B	mg/Kg 6010B
PZ-1	3.0-3.5	04/01/03	27	9.1	24
	11.0-12.0	04/01/03	25	20	58
PZ-2	1.0-2.0	04/03/03	31	16	27
	11.5-12.0	04/03/03	34	15	72
E-5	2.5-3.5	04/02/03	35	14	26
	11.0-12.0	04/02/03	28	19	54
E-6	4.0-5.0	04/01/03	33	15	25
	8.5-9.0	04/01/03	30	13	21
E-7	4.0-5.0	04/01/03	37	16	34
	11.0-12.0	04/01/03	38	19	75
E-8	4.0-5.0	04/01/03	27	9.4	22
	11.0-12.0	04/01/03	37	16	41
E-9	1.0-2.0	04/02/03	35	20	32
	11.0-12.0	04/02/03	40	17	63
E-10	3.0-4.0	04/01/03	28	10	17
	11.0-12.0	04/01/03	41	24	54
E-11	4.0-4.5	04/02/03	30	30	26
	10.0-11.0	04/02/03	46	29	130
E-12	2.0-3.0	04/02/03	43	19	33
	11.0-12.0	04/02/03	42	21	56
E-13	2.0-3.0	04/02/03	38	19	32
	11.0-12.0	04/02/03	45	18	120
Vault G	3.0-4.0	04/01/03	33	11	32
RBSL - City of Oakland			74,000	2,800	1,500

NOTES:

RBSL = Risk-Based Screening Level Tier 1 for City of Oakland, Residential Land Use.
Chromium RBSL for Cr(II).

TABLE 4. ANALYTICAL RESULTS FOR TPH IN GROUNDWATER
1549 32nd Street, Oakland, CA

SAMPLE ID	DATE SAMPLED	TOTAL PETROLEUM HYDROCARBONS	
		Diesel	Hydraulic Oil
Units		ug/L	ug/L
Laboratory Method		8015 MOD	8015 MOD
PZ-1	04/01/03	<50	<250
PZ-2	04/03/03	<50	<556
E-5	04/02/03	<570	5,300
E-6	04/01/03	130	<338
E-7	04/01/03	<50	<250
E-8	04/01/03	<77	<385
E-9	04/02/03	<58	890
E-10	04/01/03	<63	670
E-11	04/02/03	<118	890
E-12	04/02/03	<50	<250
E-13	04/02/03	<67	<333
RBSL - RWQCB		500	500

NOTES:

<50 = Not detected above the laboratory method reporting limit.

RBSL = Risk-Based Screening Level for Residential Land Use.

RWQCB = Regional Water Quality Control Board, San Francisco Bay Region.

TABLE 5. ANALYTICAL RESULTS FOR METALS IN GROUNDWATER

1549 32nd Street, Oakland, CA

SAMPLE ID	DATE SAMPLED	METALS		
		Chromium	Copper	Nickel
	Units Laboratory Method	mg/L 200.7	mg/L 200.7	mg/L 200.7
PZ-1	04/01/03	0.79	0.57	1.4
PZ-2	04/03/03	1.4	1.00	2.6
E-5	04/02/03	2.9	3.6	6.6
E-6	04/01/03	0.40	0.32	0.46
E-7	04/01/03	3.0	2.9	7.2
E-8	04/01/03	1.1	0.79	2.3
E-9	04/02/03	1.3	1.0	2.5
E-10	04/01/03	0.83	0.61	1.6
E-11	04/02/03	2.2	2.0	5.7
E-12	04/02/03	2.0	1.2	2.8
E-13	04/02/03	1.5	1.2	3.5
RBSL - City of Oakland		1.6	1.3	0.1

were samples filtered?

NOTES:
 RBSL = Risk-Based Screening Level Tier 1 for City of Oakland, Residential Land Use.
 Chromium RBSL for Cr(III).

32ND STREET

Sidewalk

Fenced Yard

Offices

⊕ PZ-1
-1.89

Residential

EXPLANATION

⊕ Piezometer by ERAS

0.53 Groundwater elevation in feet referenced to Mean Sea Level (MSL)

--(-1.00)-- Groundwater elevation contour

Sidewalk

Building

--(-1.00)--



Approximate groundwater flow direction at a gradient of 0.03 Ft./Ft.

⊕ PZ-2
0.53

--(-1.5)--

--(-1.0)--

--(-0.5)--

--0.0--

HANNAH STREET

Building

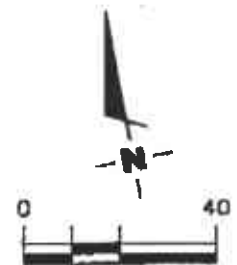
Outside Yard

Residential

Shed

⊕ PZ-3 (E-12)
-1.40

Property Line



Scale in Feet

Base Map: TGA site plan dated 08-28-02

GROUNDWATER ELEVATION MAP-APRIL 9, 2003

DATE
04/03
REVIEWED BY
GMJ

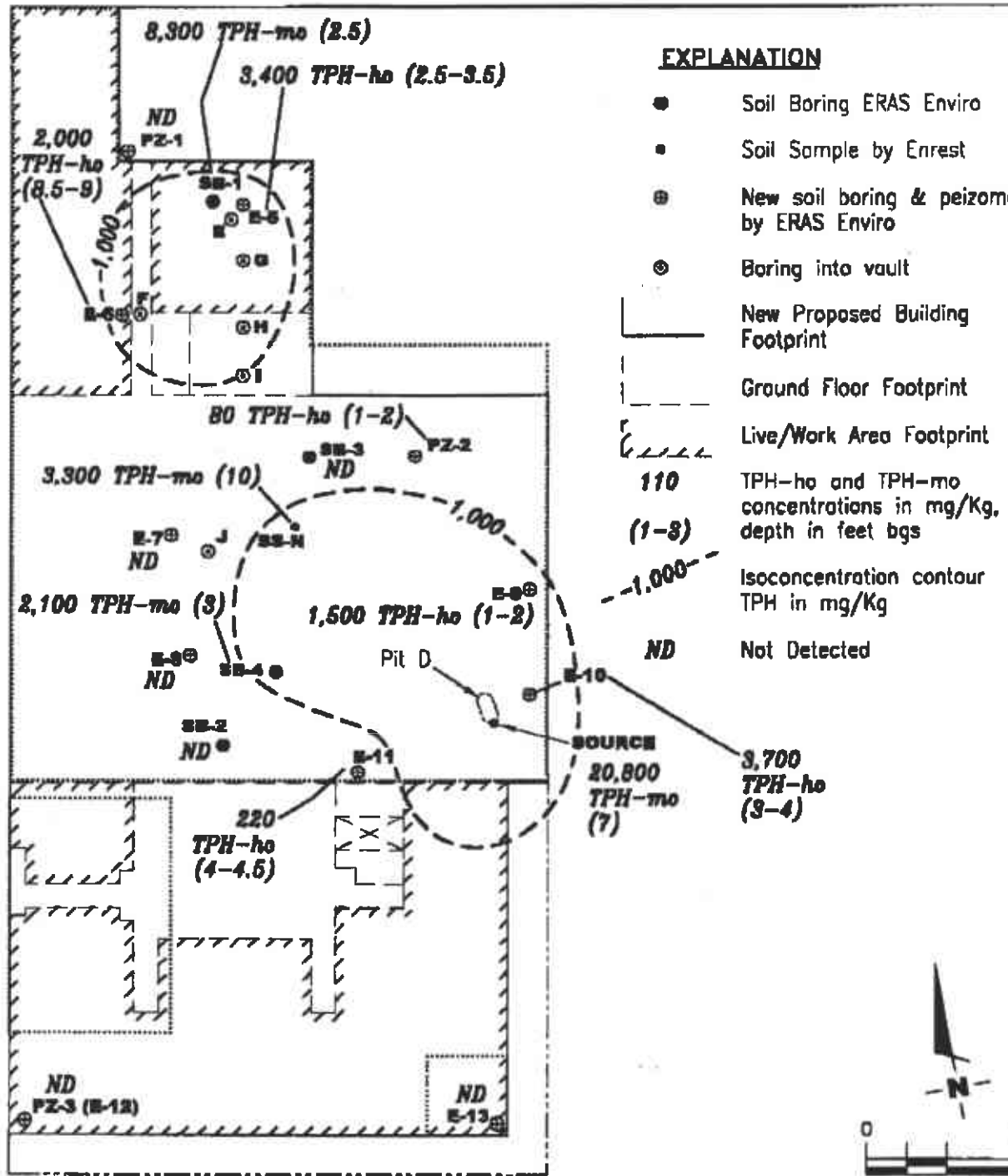
FORMER PRECISION CASTING
1549 32nd Street
Oakland, California

JOB NUMBER
02-006-02
FIGURE
3

ERAS Environmental Inc.

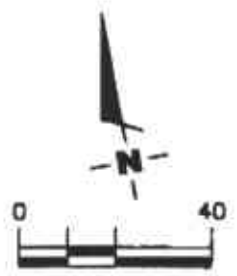
32ND STREET

HANNAH STREET



EXPLANATION

- Soil Boring ERAS Enviro
- Soil Sample by Ernest
- ⊕ New soil boring & peizometer by ERAS Enviro
- ⊙ Boring into vault
- ┌ New Proposed Building Footprint
- └ Ground Floor Footprint
- ┌ Live/Work Area Footprint
- 110 TPH-ho and TPH-mo concentrations in mg/Kg, depth in feet bgs (1-3)
- - - 1,000 - - - Isoconcentration contour TPH in mg/Kg
- ND Not Detected



Base Map: TDA site plan dated 08-26-02

ESTIMATED EXTENT OF TPH IN SOIL

DATE
05/03
REVIEWED BY
GMJ

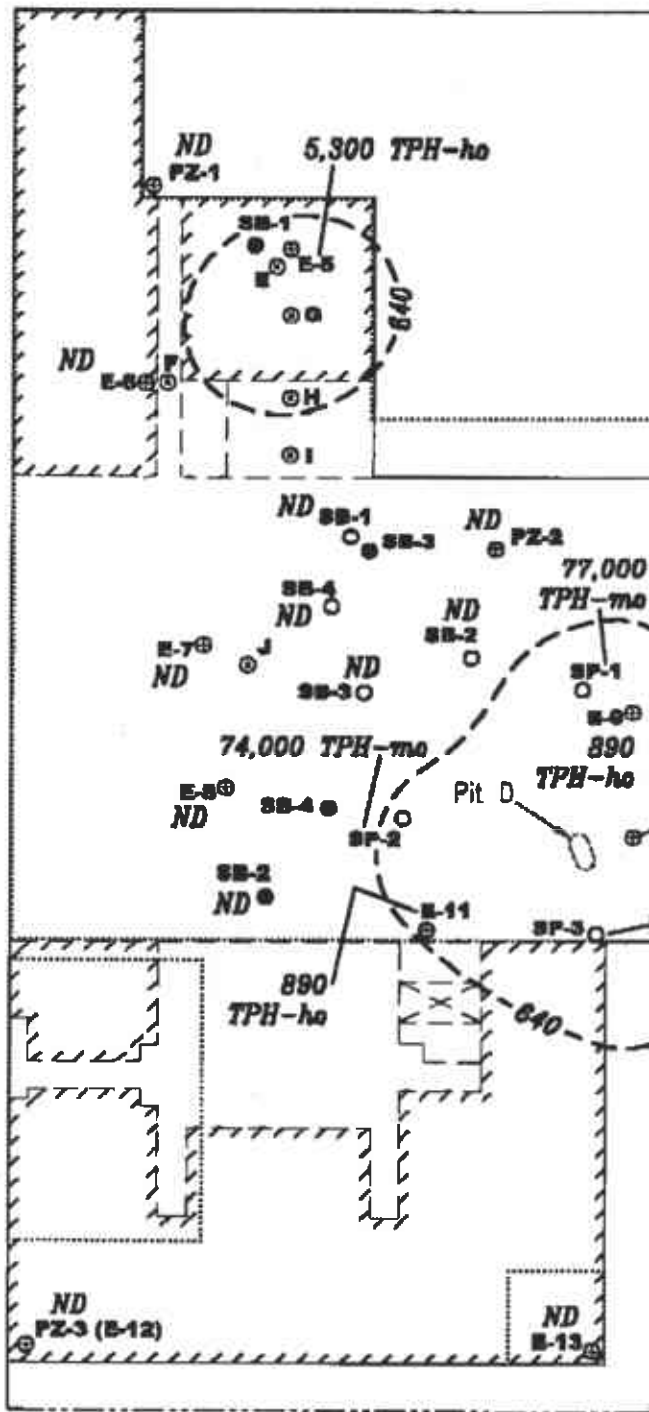
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1549 32nd Street
Oakland, California

JOB NUMBER
02-006-02
FIGURE
7

ERAS Environmental Inc.

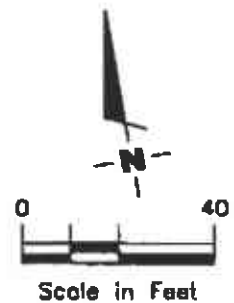
32ND STREET

HANNAH STREET



EXPLANATION

- Soil Boring ERAS Enviro
- Soil Sample by Ernest
- Groundwater Sample by Ernest
- ⊕ New soil boring & piezometer by ERAS Enviro
- ⊙ Boring into vault
- New Proposed Building Footprint
- - - Ground Floor Footprint
- ▨ Live/Work Area Footprint
- 670 TPH-ho and TPH-mo concentrations in ug/L
- - - 640 Isoconcentration contour TPH in ug/L
- ND Not Detected



Base Map: TDA site plan dated 06-28-02

ESTIMATED EXTENT OF TPH IN GROUNDWATER

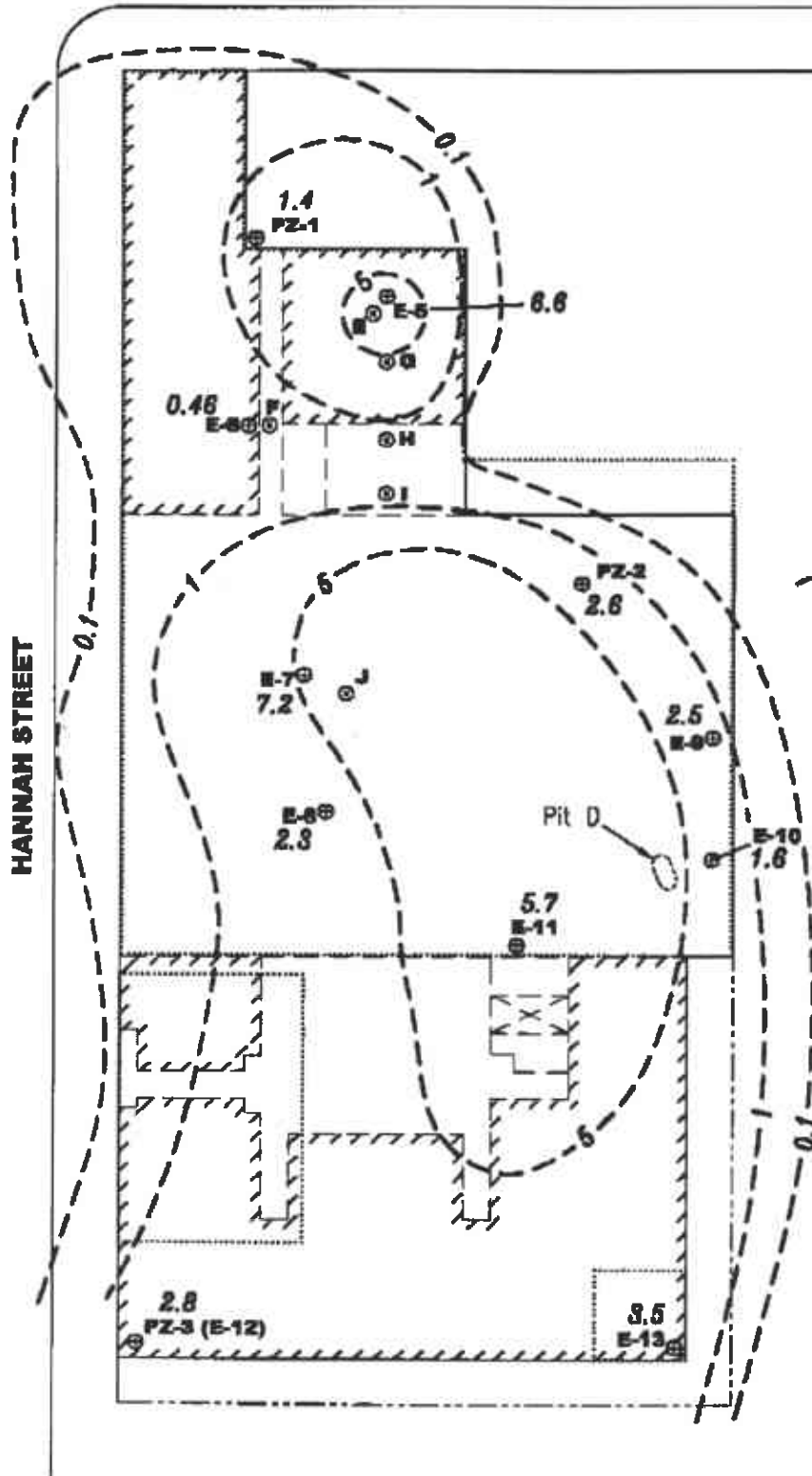
DATE
05/03
REVIEWED BY
GMJ

FORMER PRECISION CASTING
1549 32nd Street
Oakland, California

JOB NUMBER
02-006-02
FIGURE
8

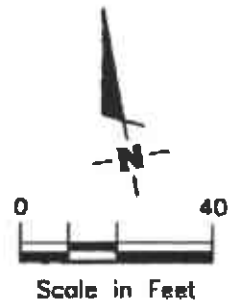
ERAS Environmental Inc.

32ND STREET



EXPLANATION

- ⊕ New soil boring & peizometer by ERAS Enviro
- ⊙ Boring into vault
- New Proposed Building Footprint
- - - Ground Floor Footprint
- ▨ Live/Work Area Footprint
- 7.2 Nickel concentrations in mg/L
- - - 0.1 Isoconcentration contour of Nickel in mg/L



Base Map: TDA site plan dated 06-28-02

ESTIMATED EXTENT OF NICKEL IN GROUNDWATER

DATE
05/03
REVIEWED BY
GMJ

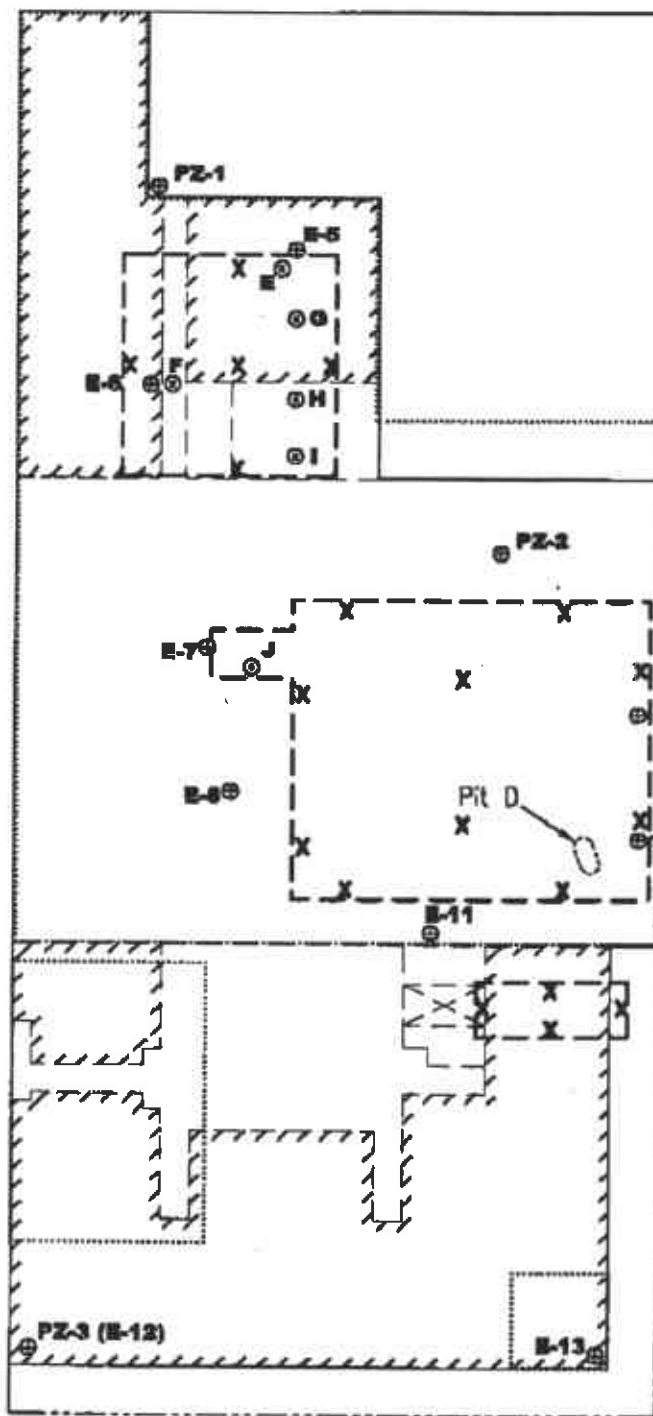
FORMER PRECISION CASTING
1549 32nd Street
Oakland, California

JOB NUMBER
02-006-02
FIGURE
9

ERAS Environmental Inc.

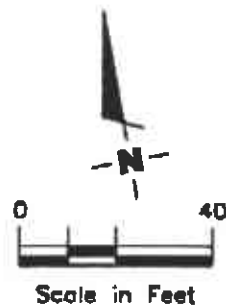
32ND STREET

HANNAH STREET



EXPLANATION

- ⊕ New soil boring & peizometer by ERAS Enviro
- ⊙ Boring into vault
- New Proposed Building Footprint
- - - Ground Floor Footprint
- ▨ Live/Work Area Footprint
- [X] Proposed area of excavation of soil and location of confirmatory soil samples in sidewall (7' bgs) at bottom (9' bgs)



Base Map: TOA site plan dated 05-25-02

ESTIMATED AREAS OF EXCAVATION

DATE
05/03
REVIEWED BY
GMJ

FORMER PRECISION CASTING
1549 32nd Street
Oakland, California

JOB NUMBER
02-006-02
FIGURE
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ERAS Environmental Inc.