

LEGEND

----- MW-1

----- MW-2



Notes:

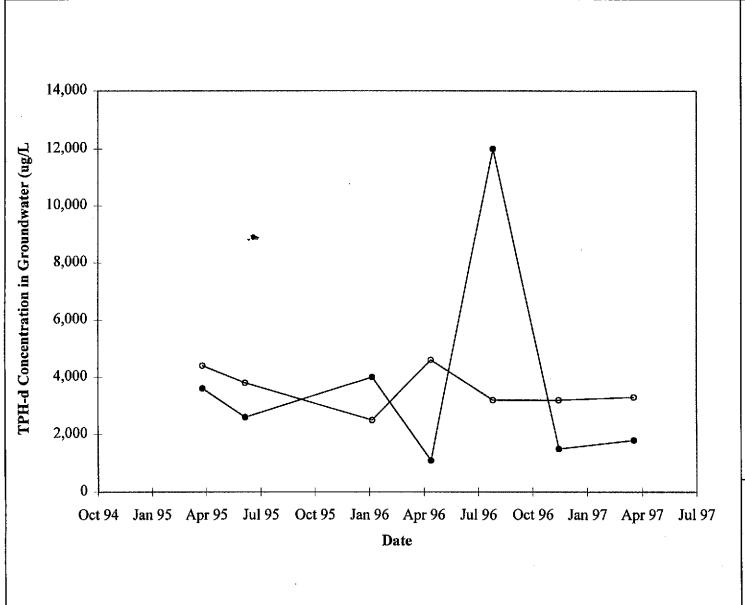
- Samples collected in 1994 and 1995 were collected by TMC Environmental. Samples collected in 1996 and 1997 were collected by Levine-Fricke-Recon.
- TPH-g = Total Petroleum Hydrocarbons quantified as gasoline.

 USTs = Underground Storage Tanks

Erler & Kalinowski, Inc.

TPH-g Concentrations in Groundwater Samples Collected Downgradient of Former USTs at the Former Rifkin Property

> Chiron Emeryville, California July 1997 EKI 970001.81 Figure 7



LEGEND



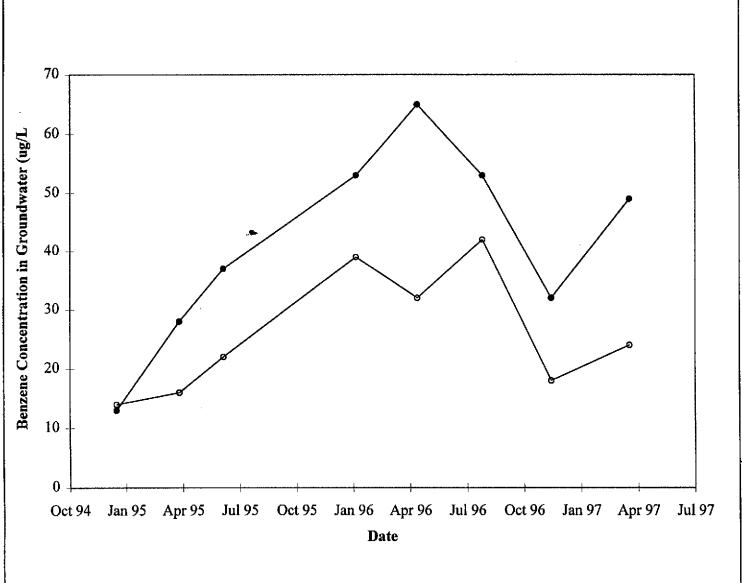
Notes:

- Samples collected prior to 1996 were collected by TMC Environmental. Samples collected from 1996 to 1997 were collected by Levine-Fricke-Recon.
- TPH-d = Total Petroleum Hydrocarbons quantified as diesel
 USTs = Underground Storage Tanks

Erler & Kalinowski, Inc.

TPH-d Concentrations in Groundwater Samples Collected Downgradient of Former USTs at the Former Rifkin Property

> Chiron Emeryville, California July 1997 EKI 970001.81 Figure 8



LEGEND

— MW-1 — MW-2



Notes:

- Samples collected in 1994 and 1995 were collected by TMC Environmental. Samples collected in 1996 and 1997 were collected by Levine-Fricke-Recon.
- 2. USTs = Underground Storage Tanks

Erler & Kalinowski, Inc.

Benzene Concentrations in Groundwater Samples Collected Downgradient of Former USTs at the Former Rifkin Property

> Chiron Emeryville, California July 1997 EKI 970001.81 Figure 9

approval

CHIRON LIFE SCIENCE CENTER RIFKIN PROPERTY PARKING LOT

UPDATE: 12/16/96

							ember		January			bruery	Merch
(D	Task Name	Duration	Start	Finish	DΊ	DB	D 15 D 22 D	29 J5	J 12 J	19 J 26	F2 F	9 F 18 F 23	M2 M9 M18
43	P G & E Transformer Installation	6 d	10/14/96	10/16/96									
44	Electrical Panel Board Installation	5đ	10/14/96	10/16/96									
45	Electrical Service Transfer	Oq	10/16/96	10/16/98							•		
48	Community Notification	Od	12/24/96	12/24/96			12/24 🌪 Cor	nnun t y	Notificati	on		:	
47	Complete Wall Removal Plans	9d	12/9/96	12/19/96	12/9	115	Complet	Wall R	emoval P	iana			
48	Agency Approvals	3 d	12/20/96	12/24/96		12	Agei	су Аррг	ovale				
49	Wall Removal	10d	12/26/96	1/9/97			12/26	GWH)	Wall Ren	noval			,
50	Verification Sampling	5d	1/10/97	1/16/97				1/10	报题 Ve	rification	Sempline)	
51	South Retaining Wall Construction	106	1/29/97	2/11/97						1/29 🕎		South Retain	ng Wall Constru
62	Revise Site Plan	7d	12/16/96	12/24/96]	12/16	Revi	se Ske F	Man				
53	City Approval Revised Permit	7d	12/26/96	1/8/97	,		12/26	ZE C	it y Appr v	out Rev	ed Permi	ı	
54	Reprice	6d	12/23/96	12/31/98			2/23	Repric	ŧ				
55	Complete Recycling Plan	8d	12/16/96	12/26/98		12/16	TWEST C	opiete i	tecycling	Plan			
56	Permit issued	Od	12/31/98	12/31/96			12/31	Penni	t issued				·
67	Mobilize	3d	1/7/97	1/9/97				177)	Mobilize				
58	Demo Structure	12d	1/10/97	1/27/97				1/10	N. 1149-55		mo Struc	cure:	
69	Demo South Structure	4d	1/23/97	1/28/97				i ! !	1/23	阿達 郡	Demo Sou	th Structure	
80	Sawcut & Excavate Trenches	5d	1/29/97	2/497						1/29-	Saw	cut & Excavat	Trenches
61	Slab Preparation / Conduit Runs / Install D.I. Run	10d	1/29/97	2/11/97			1			1/29)	10000	Stab Prepara	ilon / Conduit Ru
62	A.C. Paving / Patch Concrete / Rework Sidewalk	9d	2/12/97	2/25/97				į			2/12		C. Paving / Patc
63	Lighting / Security	5d	2/2 6/9 7	3/4/97								2/26	Lighting / Se
84	Fencing / Landacape / Stripe Lot	5 d	2/26/97	3/4/97			1			•		2/26	Fencing / La
86	Substantial Completion	Od	3/4/97	3/4/97			1	į			•	3	substantial

Table 3
Results of Trend Analysis for Groundwater Data from Downgradient
Monitoring Wells MW-1 and MW-2 at the Former Rifkin Property (1)

Chiron Corporation

		Well MW-1	<u>'a'-'</u>	Well MW-2				
Statistical Parameters	TPH-g	TPH-d	Benzene	ТРН-д	TPH-d	Benzene		
n (2)	7	7	8	7	7	8		
S (3)	-11	-3	11	-17	-4	12		
Mann-Kendall Probability (4)	NA (5)	NA	0.114	NA	NA	0.089		
Significance Level (6)	0.05	0.05	0.05	0.05	0.05	0.05		
Result (7)	No upward trend	No upward trend	No upward trend	No upward trend	No upward trend	No upward trend		

Notes:

- (1) The data from Table 3 were evaluated using the Mann-Kendall test. A value equal to the detection limit was used for concentrations reported to be less than laboratory method detection limits.
 - A statistical evaluation of ethylbenzene, toluene, and xylene concentrations was not performed because concentrations of these chemicals were less than U.S. and California Maximum Contaminant Levels.
- (2) "n" is the number of sampling events.
- (3) "S" is the Mann-Kendali statistic calculated using the methodology described in Gilbert (1987).
- (4) Mann-Kendall probability is related to the values of S and n, and is obtained from Table A21 in Hollaender and Wolfe (1973).
- (5) A negative S value indicates that the data are clearly not increasing and a Mann-Kendall probability is not applicable ("NA").
- (6) A significance level of 0.05 is recommended by U.S. EPA (1994).
- (7) A negative S value or a Mann-Kendall probability greater than the significance level indicates that there is no upward trend in the data (Gilbert, 1987).

Abbreviations:

TPH-g = Total petroleum hydrocarbons quantified as gasoline

TPH-d = Total petroleum hydrocarbons quantified as diesel



Table 4

Comparison of Maximum Concentrations of Petroleum Hydrocarbons and Related Chemicals Detected in Groundwater with RBCA Risk-Based Screening Levels at the Former Rifkin Property

Chiron Corporation

	<u> </u>		Concentration in Grou								
	Well, Boring, or	Sample Date					Ethyl-	Total	Total		
Tank Description	Sample I.D. (1)	(2)	TPH-g	TPH-d	Benzene	Toluene	benzene	Xylenes	Lead		
1,500-Gallon Heating Oil Tank	OB-1	12/15/94	NA	NA	<0.8	93	1.9	10.4	NA		
	MW-2	3/25/97	520	3,300	24	0.7	1.0	<2	NA		
	CPT-4	7/16/93	590	1,200	9.6	<2	<2	<2	NA		
1,000-Gallon Gasoline Tank and	OB-2	12/15/94	NA	NA	8.1	8.4	< 0.4	1.2	NA		
	MW-1	3/25/97	990	1,800	49	2.2	2.4	5.0	NA		
500-Gallon Paint Thinner Tank	Pit-2*	1/6/94	<50	<50	<0.5	<0.5	<0.5	<0.5	<1,000		
	MW-3	3/25/97	310	<50	<0.5	< 0.5	< 0.5	<2	NA		
	RP-1	3/25/97	680	1,200	< 0.5	< 0.5	< 0.5	<2	NA		
	SB-4	4/5/94	<5,000	4,200	<5	<5	<5	<10	NA		
	RP-2	3/25/97	<50	200	<0.5	<0.5	< 0.5	<2	NA		
RBCA Tier 1 Risk-Based Screening Levels (3)											
- Volatilization from Groundwater to Outdoor A	ir		- (4)	-	53,000	sat. (5)	sat.	sat.	-		
- Vapor Intrusion from Groundwater to Indoor A	ir		-	*	210	85,000	sat.	sat.	-		
- Ingestion of Groundwater			-	-	n.a. (6)	n.a.	n.a.	n.a.	-		

Abbreviations:

NA = Not analyzed

TPH-g = Total petroleum hydrocarbons quantified as gasoline

TPH-d = Total petroleum hydrocarbons quantified as diesel

Notes:

- (1) Monitoring well location or grab groundwater sample from soil boring located less than 100 feet downgradient of former tank location; or grab groundwater sample from tank excavation as indicated by asterisk ("*").
- (2) Date of most recent sampling from monitoring well or date of collection of grab groundwater sample.
- (3) Risk-Based Screening Levels ("RBSLs") for groundwater in commercial/industrial areas corresponding to 10⁻⁵ lifetime incremental carcinogenic risk or hazard quotient of 1 for each chemical (ASTM, 1995). RBSL for benzene was adjusted to account for California carcinogenic slope factor for this chemical. Values shown in bold type exceed an RBSL for that chemical.

RIFKUSTS.XLS



Table 4

Comparison of Maximum Concentrations of Petroleum Hydrocarbons and Related Chemicals Detected in Groundwater with RBCA Risk-Based Screening Levels at the Former Rifkin Property

Chiron Corporation

- (4) Hyphen ("-") indicates that no value is provided for this chemical.
- (5) "sat." indicates that risk level is not exceeded for all possible dissolved concentrations of this chemical (i.e., risk-based value exceeds saturation concentration).
- (6) "n.a." indicates that exposure pathway is not applicable for detected chemicals at the former tank locations. Groundwater at the site is not used for drinking water.

RIFKUSTS.XLS (EKI 970001.81)



Table 2

Comparison of Maximum Concentrations of Petroleum Hydrocarbons and Related Chemicals Remaining in Soil with RBCA Risk-Based Screening Levels at the Former Rifkin Property

Chiron Corporation

		Maximum Concentration Detected in So						
Tank Description	Number of Verification Soil Samples	ТРН - g	TPH-d	Benzene	Toluene	Ethyl- benzene	Total Xylenes	Total Lead
1,500-Gallon Heating Oil Tank	15	33	15,700	1.2	2.6	1.4	3.2	159
1,000-Gallon Gasoline Tank	17	616	242	5.4(1)	11	23	158	587
500-Gallon Paint Thinner Tank	14	2,630	123	0.30	<0.1	2.7	5.8	13
RBCA Tier 1 Risk-Based Screening Levels (2)					- 17 11818			
- Volatilization from Soil to Outdoor Air		- (3)	-	1.3	n.e. (4)	n.e.	n.e.	-
- Ingestion, Dermal Exposure, and Inhalation from S	Surficial Soil	-	-	29	18,700	11,500	208,000	-
- Volatilization from Soil to Indoor Air		-	•	n.a. (5)	n.a.	n.a.	n.a.	n.a.
- Leaching from Soil to Groundwater for Drinking V	Water	-	-	n.a. (6)	n.a.	n.a.	n.a.	n.a.

Abbreviations:

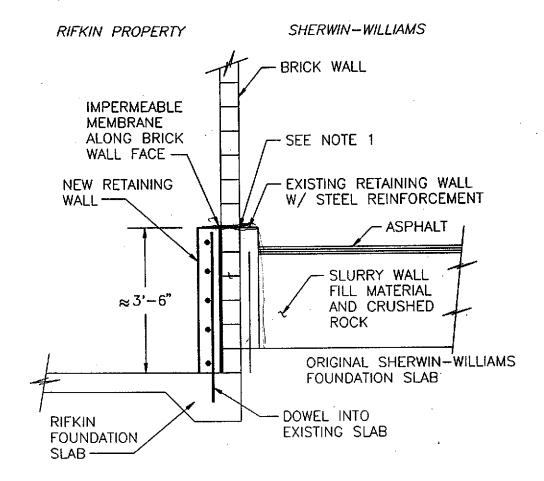
TPH-g = Total petroleum hydrocarbons quantified as gasoline

TPH-d = Total petroleum hydrocarbons quantified as diesel

Notes:

- (1) The 95% upper confidence level for benzene concentration in soil near the former 1,000-gallon gasoline tank excavation is 0.51 mg/kg. This calculation was performed using natural log-transformed data.
- (2) Risk-Based Screening Levels ("RBSLs") for commercial/industrial soil corresponding to 10⁻⁵ lifetime incremental carcinogenic risk or hazard quotient of 1 for each chemical (ASTM, 1995). RBSL for benzene was adjusted to account for California carcinogenic slope factor for this chemical. Values shown in bold type exceed an RBSL for that chemical.
- (3) Hyphen ("-") indicates that no value is provided for this chemical.
- (4) "n.e." indicates that risk level is not exceeded for pure compound present at any concentration.
- (5) "n.a." indicates that exposure pathway is not applicable for detected chemicals at the former tank locations. Chemicals detected in soil are not located under or immediately adjacent to buildings.
- (6) This exposure pathway is not applicable because groundwater at the site is not used for drinking water.





NOTES:

1. BUILDING WALL TO BE DEMOLISHED AT THE SAME HEIGHT AS THE RETAINING WALLS. AFTER DEMOLITION THE TOP OF WALLS WILL BE CAPPED AND A FENCE INSTALLED ON TOP OF WALL.



SHERWIN-WILLIAMS

Retaining Wall Conceptual Design

Levine-Fricke-Recon

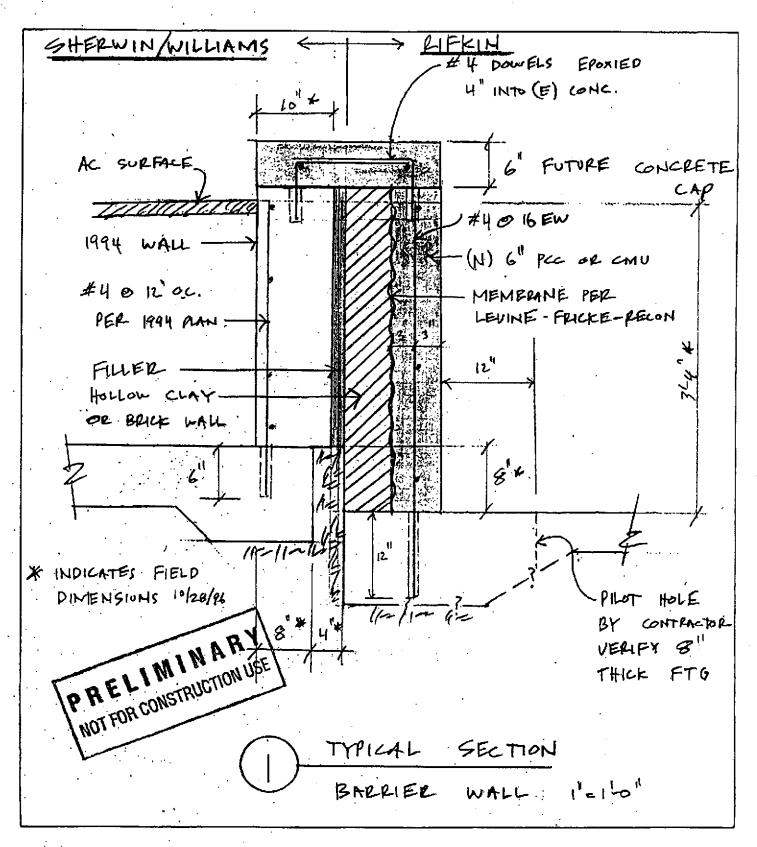
Figure 1

Project No. 3042 --

JOSEPH 102896 GM 102896



PROJECT _	SHEKWIN	WILLIAMS
•	2/2	·
CALCULATE	D BY	DATE
CHECKED B	v _NB	DATE 10/29/96



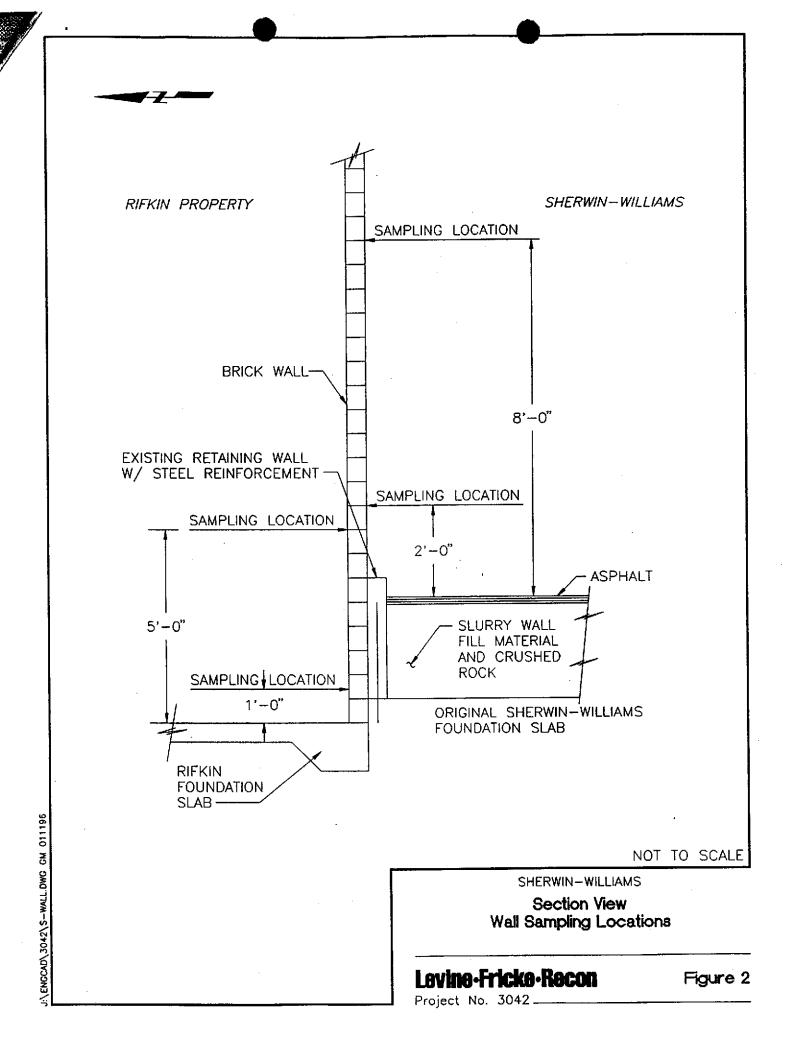




Table 1 Summary of Maximum Concentrations of Petroleum Hydrocarbons and Related Chemicals Remaining in Soil After Tank Excavations at the Former Rifkin Property

Chiron Corporation

		· .				Maximu	m Concenti	ation Dete	cted in Soil	(mg/kg)	
Tank Description	Tank Removal Date	Excavation Completion Date	Excavation Depth (feet bgs)	Number of Verification Soil Samples	TPH-g	TPH-d	Benzene	Toluene	Ethyl- benzene	Total Xylenes	Total Lead
1,500-Gallon Heating Oil Tank	11/24/93	1/10/94	12	15	33	15,700	1.2	2.6	1.4	3.2	159
1,000-Gallon Gasoline Tank	7/8/88	1/27/94	12	17	616	242	5.4 (1)	11	23	158	587
550-Gallon Gasoline Tank	9/30/88	9/30/88	12	6	41	<1	<0.1	<0.1	0.20	1.0	28
500-Gallon Paint Thinner Tank	11/24/93	1/6/94	12	14	2,630	123	0.30	<0.1	2.7	5.8	13
1,500-Gallon Diesel Tank	11/24/93	11/24/93	8.5	5	<1	<1	<0.1	<0.1	<0.1	<0.1	NA
U.S. EPA Preliminary Remediatio	n Goal (2)		,		- (3)	-	1.4	880 .	230	320	1,000

Abbreviations:

bgs = Below ground surface

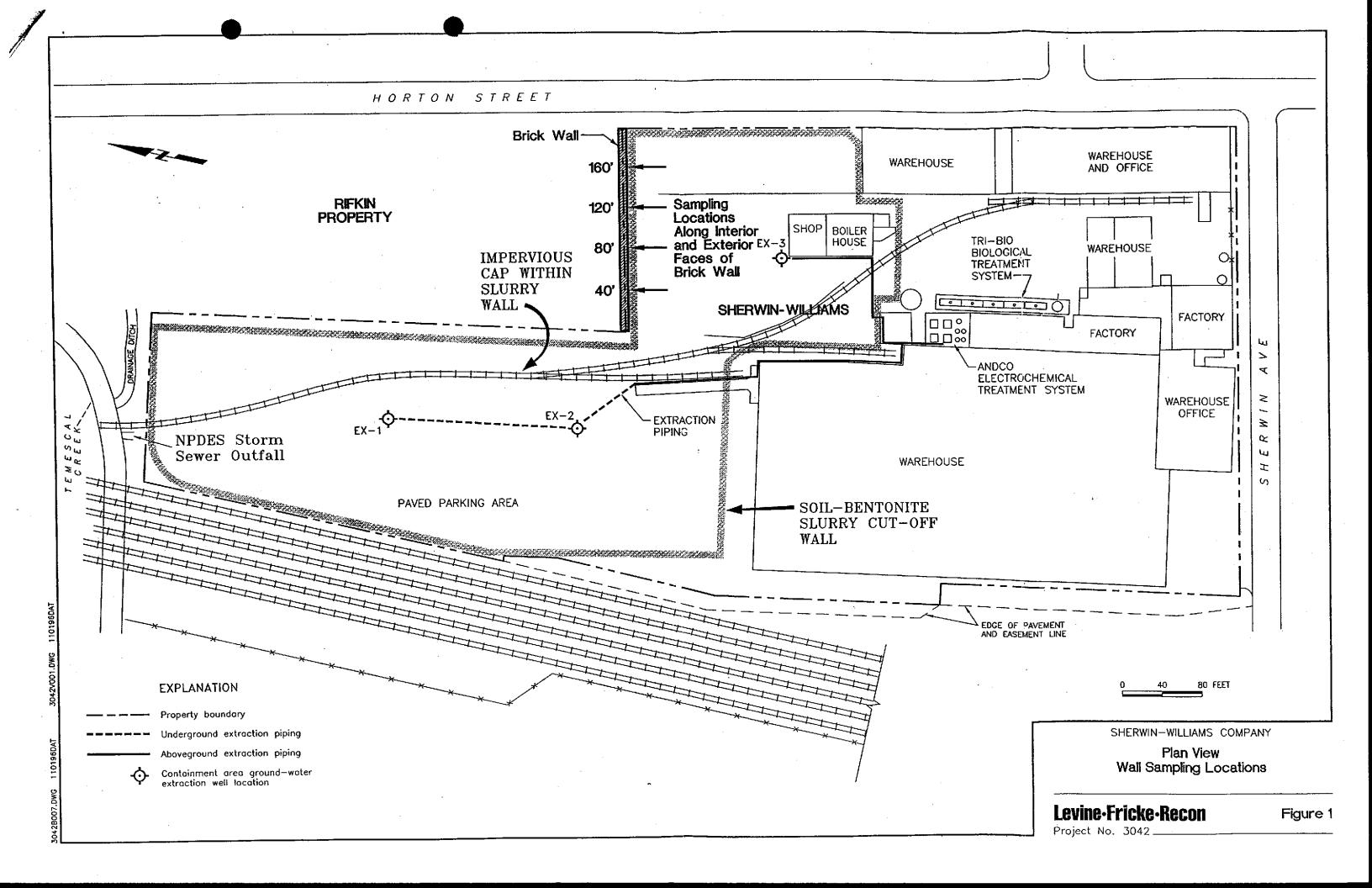
NA = Not analyzed

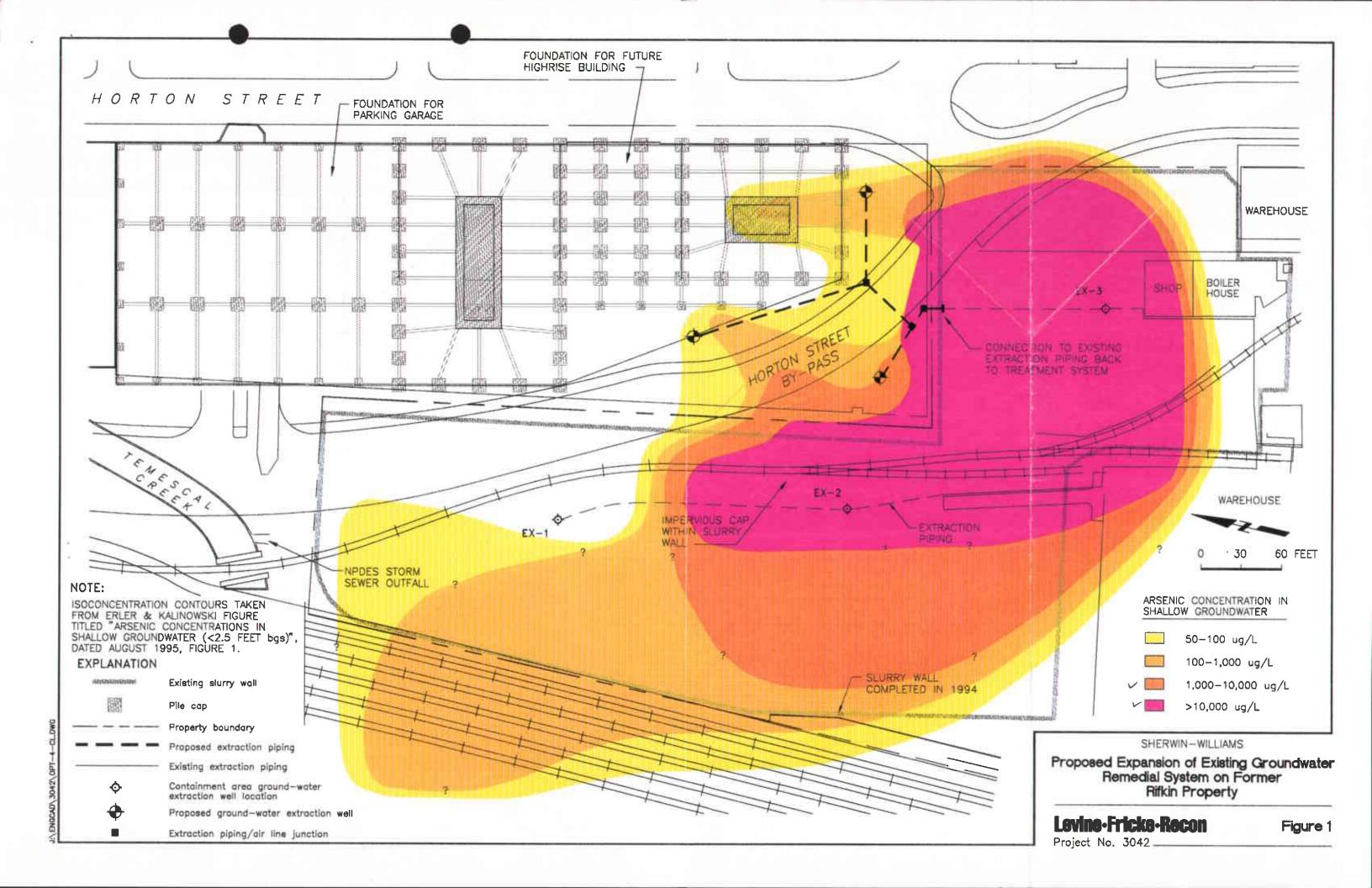
TPH-g = Total petroleum hydrocarbons quantified as gasoline

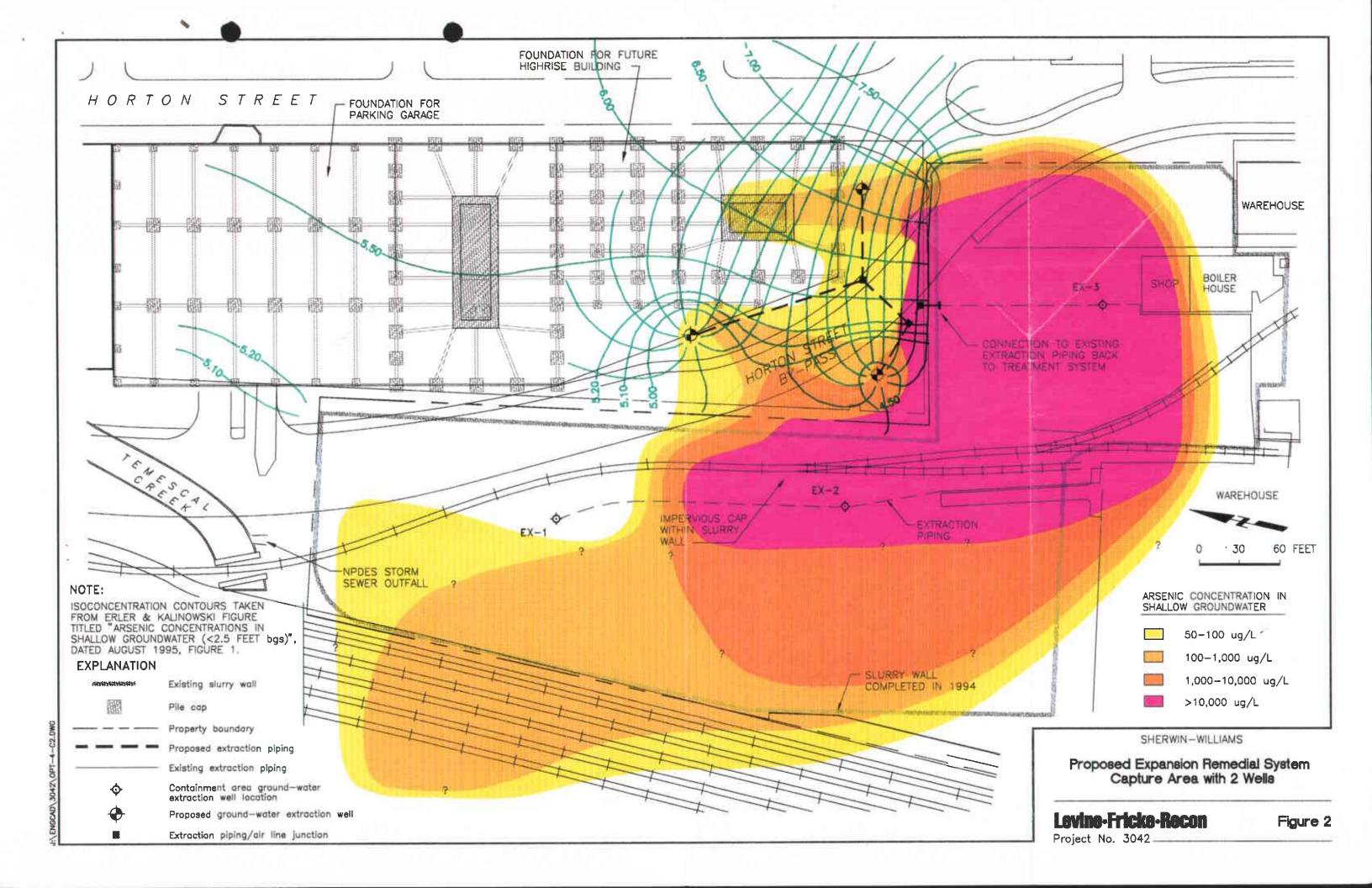
TPH-d = Total petroleum hydrocarbons quantified as diesel

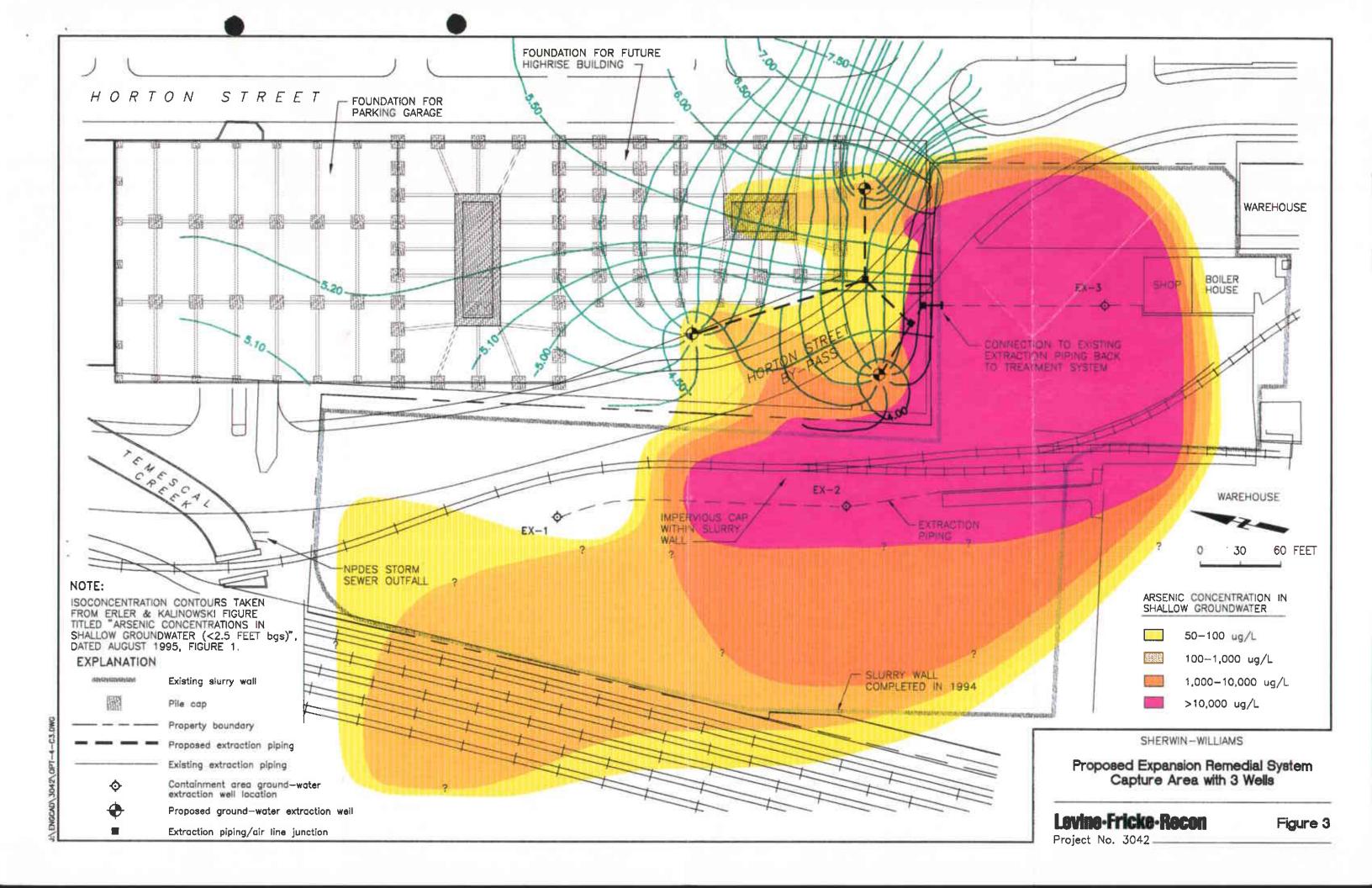
Notes:

- (1) The 95% upper confidence level for benzene concentration in soil near the former 1,000-gallon gasoline tank excavation is 0.51 mg/kg. This calculation was performed using natural log-transformed data.
- (2) U.S. EPA Region IX Preliminary Remediation Goals ("PRGs") for industrial soil (U.S. EPA, 1 August 1996). Values shown in bold type exceed applicable PRG for that chemical.
- (3) Hyphen ("-") indicates that no value is available.

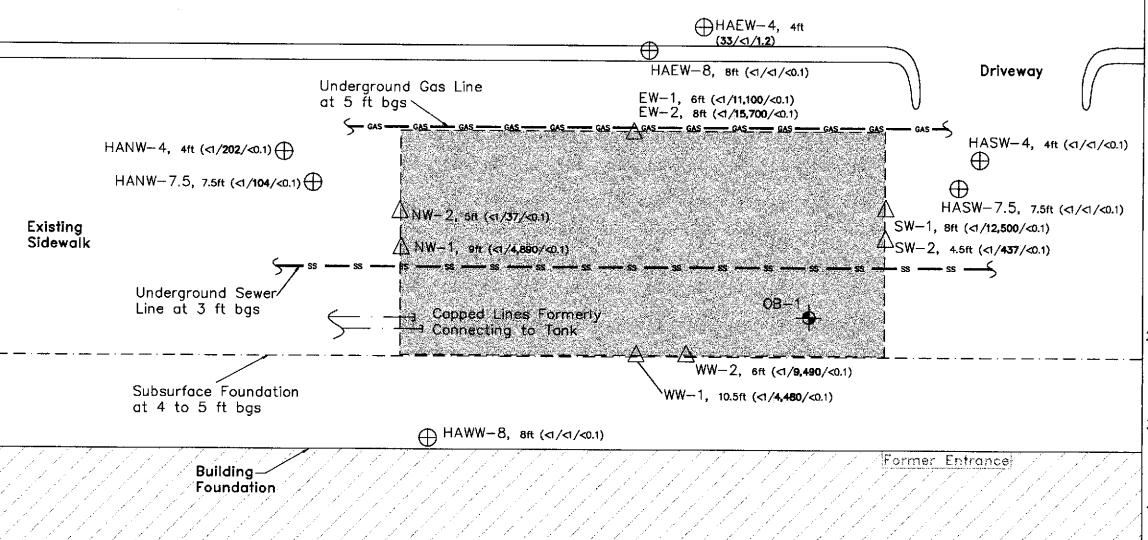






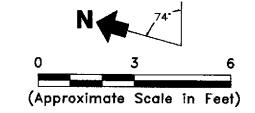


Horton Street



Former Rifkin
Property
4549 Horton Street

PLAN VIEW (Excavation to 11 to 12 ft bgs)



LEGEND

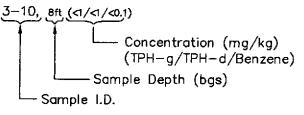
 Abandoned Groundwater Monitoring Well

Excavation Sidewall Soil Sample Location

Excavation Bottom Soil Sample Location

Hand Augered Soil Sample Location

Excavation Limits



** Analyte exceeds US EPA PRG

437 Concentration Above Detection Limits

Notes:

- 1. All locations are approximate.
- 2. TPH-g = Total Petroleum Hydrocarbons quantified as gasoline

TPH-d = Total Petroleum Hydrocarbons quantified as diesel

bgs = Below ground surface

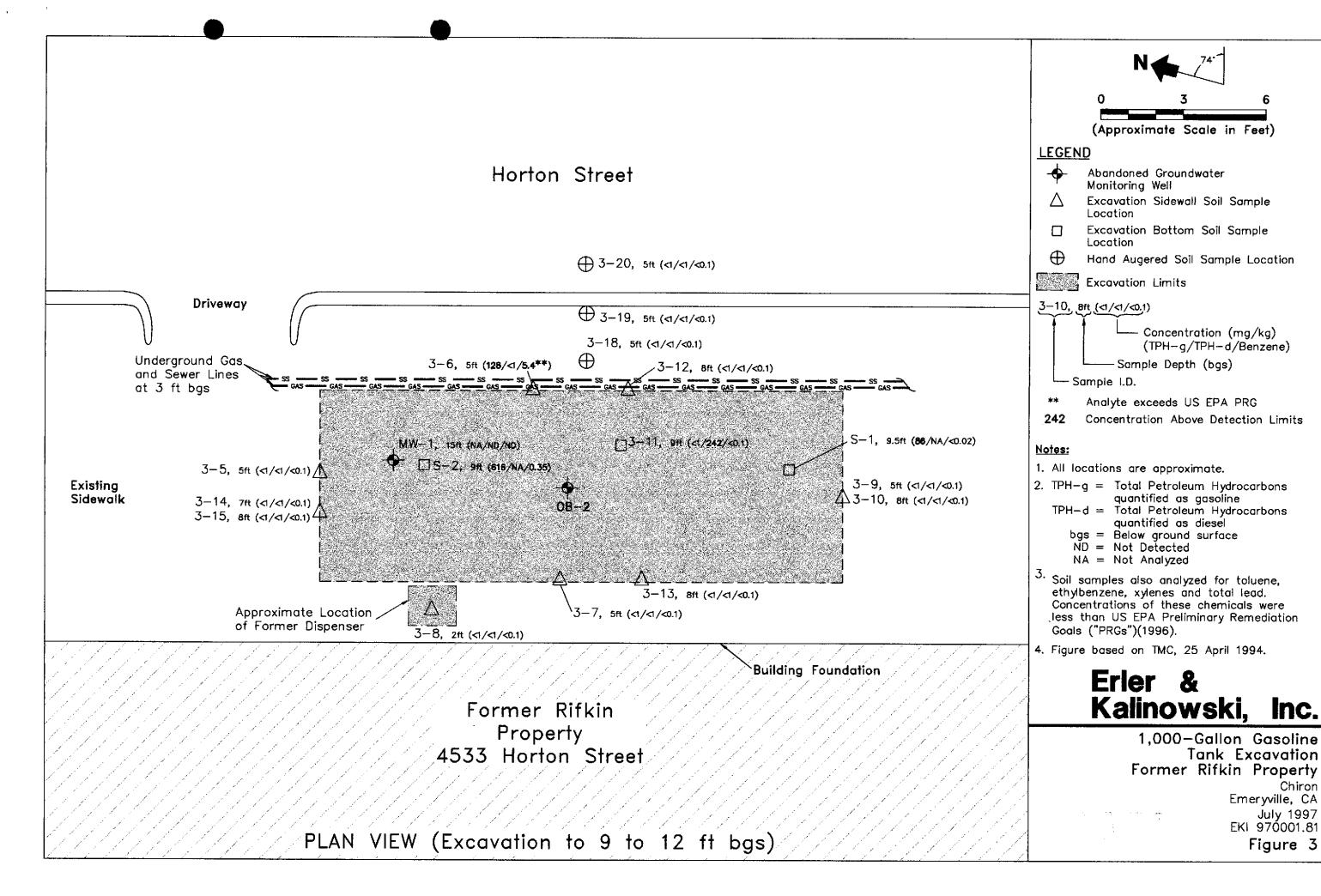
ND = Not Detected

- Soil samples also analyzed for toluene, ethylbenzene, xylenes and total lead. Concentrations of these chemicals were less than US EPA Preliminary Remediation Goals ("PRGs")(1996).
- 4. Figure based on TMC, 1 April 1994.

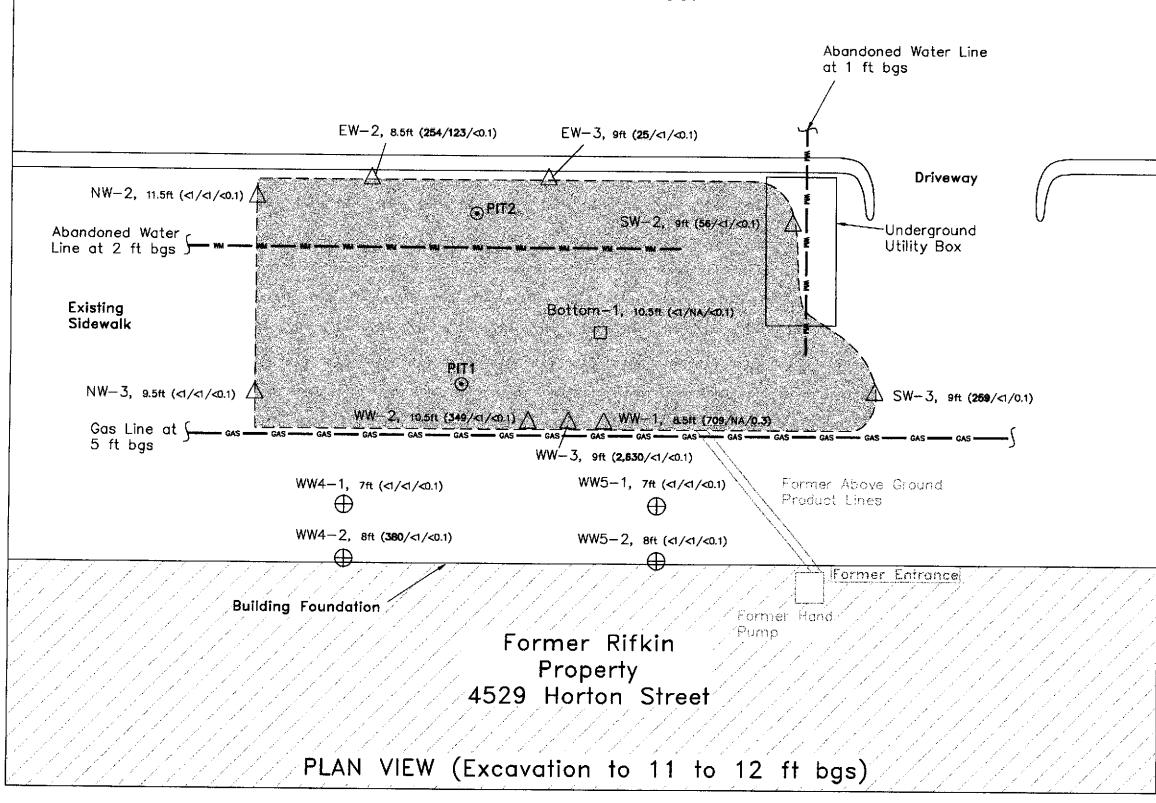
Erler & Kalinowski, Inc.

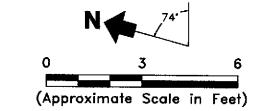
1,500—Gallon Heating Oil Tank Excavation Former Rifkin Property

> Chiron Emeryville, CA July 1997 EKI 970001.81 Figure 2



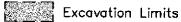
Horton Street





LEGEND

- Grab Groundwater Sample Location from Excavation
- Excavation Bottom Soil Sample Location
- Hand Augered Soil Sample Location



3-10, 8ft (<1/<0.1)

Concentration (mg/kg)

(TPH-g/TPH-d/Benzene)

Sample Depth (bgs)

Sample I.D.

- ** Analyte exceeds US EPA PRG
- 259 Concentration Above Detection Limits

Notes:

- 1. All locations are approximate.
- 2. TPH-g = Total Petroleum Hydrocarbons quantified as gasoline

TPH-d = Total Petroleum Hydrocarbons quantified as diesel

bgs = Below ground surface

ND = Not Detected

NA = Not Analyzed

- Soil samples also analyzed for toluene, ethylbenzene, xylenes and total lead. Concentrations of these chemicals were less than US EPA Preliminary Remediation Goals ("PRGs")(1996).
- 4. Figure based on TMC, 1 April 1994.

Erler & Kalinowski, Inc.

500—Gallon Paint Thinner Tank Excavation Former Rifkin Property

Chiron Emeryville, CA July 1997 EKI 970001.81 **Figure 4**





Figure 6 EKI 970001.81

Emeryville, CA July 1997

In Shallow Groundwater (<25 test bgs) PROPERTIES: BTEX Concentration Detected