

411 W. McArthur LLC.

650B Fremont Ave #375

Los Altos, Ca 94024

415-705 9922

joehernon@gmail.com

RECEIVED

By Alameda County Environmental Health 9:43 am, Jun 20, 2016

June 6, 2016

Keith Nowell and Dilan Roe:

Alameda County Department of Environmental Health 1131 Harbor Bay Parkway,
Suite 250

Alameda, CA 94502-6577

Subject: Supplemental Environmental Investigation
411 West MacArthur Boulevard, Oakland, California

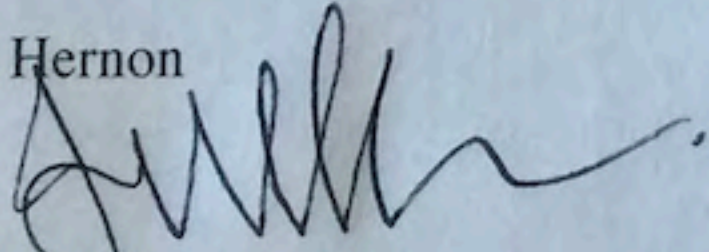
Dear Mr. Nowell and Ms. Roe:

Attached please find a report entitled "Supplemental Environmental Investigation" prepared by Aquifer Sciences for the property at 411 West MacArthur Boulevard, Oakland, California. Soil sampling and analysis were conducted in accordance with our work plan dated May 2, 2016, and follow-up email of May 4th to Keith Nowell of the Alameda County Department of Environmental Health (ACDEH). The objective of the supplemental investigation was to satisfy the request from ACDEH for additional assessment of soil quality in the eastern portion of the property along Webster Street.

I declare, under penalty of perjury, that the information and/or recommendations contained in the attached document or report are true and correct to the best of my knowledge.

Sincerely,

Joe Hernon



Manager, 411 W. MacArthur LLC

SUPPLEMENTAL ENVIRONMENTAL INVESTIGATION

411 West MacArthur Boulevard
Oakland, California

Prepared for

411 W. MacArthur LLC
c/o The Hernon Group Inc.
1714 Franklin Street, #100-244
Oakland, California 94612

by

Aquifer Sciences, Inc.
3520 Golden Gate Way
Lafayette, California 94549

June 6, 2016

June 6, 2016
216621

Joe Hernon
411 W. MacArthur LLC
c/o The Hernon Group Inc.
1714 Franklin Street, #100-244
Oakland, CA 94612

Subject: Supplemental Environmental Investigation
411 West MacArthur Boulevard, Oakland, California

Dear Mr. Hernon:

Aquifer Sciences is pleased to present the results of the supplemental environmental investigation performed at 411 West MacArthur Boulevard, Oakland, California. Soil sampling and analysis were conducted in accordance with our work plan dated May 2, 2016, and follow-up email of May 4th to Keith Nowell of the Alameda County Department of Environmental Health (ACDEH). The objective of the supplemental investigation was to satisfy the request from ACDEH for additional assessment of soil quality in the eastern portion of the property along Webster Street.

We appreciate the opportunity to be of service. Please feel free to call us if you have any questions about the report.

Respectfully yours,



Rebecca Sterbentz, PG, CHG, QSP/QSD
President



Duncan Knudsen
Staff Geologist

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SUPPLEMENTAL ENVIRONMENTAL INVESTIGATION

411 West MacArthur Boulevard

Oakland, California

May 2016

1.0 INTRODUCTION

This report presents the results of the supplemental environmental investigation performed by Aquifer Sciences, on behalf of 411 W. MacArthur LLC, at the site located at 411 West MacArthur Boulevard, Oakland, California (Figure 1). The objective of the supplemental investigation was to satisfy the request from Alameda County Department of Environmental Health (ACEH) for additional assessment of soil quality in the eastern portion of the site along Webster Street. ACEH's concern was that the soil in this area might be a potential residual contaminant source that could pose a risk to the residential development. Soil sampling and analysis were conducted in accordance with our work plan dated May 2, 2016, and follow-up email of May 4th to Keith Nowell of the ACEH.

2.0 SITE DESCRIPTION

The site is situated in a residential/commercial area of Oakland at the southeastern corner of West MacArthur Boulevard and Webster Street (Figures 1 and 2). The site is approximately 0.15 acre in size, and contains a former gas station canopy near the center of the site and small retail building in the southwest corner. The land surface at the site is essentially flat and paved with asphalt.

3.0 DRILLING AND SAMPLING PROCEDURES

On May 6, 2016, three soil borings (AS-1, AS-2, and AS-3) were drilled on the 411 West MacArthur Boulevard site. The borings were drilled near the eastern boundary along Webster Street (Figure 2). The locations were selected within the 300-square-foot oval-shaped area of concern, as shown on Figure 2.

Prior to drilling, each proposed boring location was marked, and Underground Service Alert was notified to check for the presence of underground utilities (USA Ticket W000170037). A drilling permit (W2016-0324) was obtained from the Alameda County Public Works Agency. A C-57 certified environmental drilling company (Gregg Drilling) performed the subsurface drilling and sampling under Aquifer Sciences' supervision.

On May 6, 2016, a ground-penetrating radar contractor was hired to scan the sidewalk area adjacent to the site for possible underground storage tanks left in place. No tanks were detected. A copy of the ground-penetrating radar report is included in Appendix A.

Drilling was accomplished using a Geoprobe 5400 truck-mounted drill rig, equipped with 2-inch diameter samplers and rods. Soil cuttings were examined for lithologic identification, visible signs of contamination, and observations were recorded on the drilling logs. Soil was described in accordance with the Standard Recommended Practice for Description of Soils (Visual-Manual Procedure), ASTM Designation D-2488, issued in 2000. An Aquifer Sciences geologist supervised the drilling and sampling and prepared field logs, including descriptions and classifications of materials encountered and recovered, and OVM (Organic Vapor Monitor) readings. A California Professional Geologist directed the field activities. Copies of drilling logs are included in Appendix B.

Soil samples were collected in clean liners. The liners were sealed, labeled, stored on ice in a cooler at 4° Celsius, and transported under chain-of-custody protocol to McCampbell Analytical, a state-certified analytical laboratory, located in Pittsburg, California. All drilling and sampling equipment were cleaned before the field program began. Reusable sampling equipment was washed in an Alconox solution, rinsed with tap water, and rinsed with distilled water prior to use.

Four soil samples were collected from each of the three borings (AS-1, AS-2, and AS-3) at select intervals below ground surface to a maximum depth of 18 feet. Sample depths were selected in the field using the evaluation criteria specified by ACEH, including the OVM readings, visible signs of contamination, changes in lithology, and the soil/groundwater interface.

All investigation-derived waste was placed in a 55-gallon DOT drum for disposal. The soil in the drum was profiled and approved for disposal at a permitted Class II landfill. The drum will be picked up by NRC Environmental Services of Hayward, California, and transported to Recology-Hayroad Landfill in Vacaville, California, on June 10, 2016. ARS, Inc. will forward the non-hazardous waste transport manifest to ACEH when it is received from the landfill.

4.0 GEOLOGY AND HYDROGEOLOGY

The near-surface soils in the vicinity of 411 West McArthur Boulevard consist of Holocene-age, fine-grained, alluvial sediments that were deposited by rivers draining upland surfaces to the east of the site. These sediments were deposited in a low-energy environment on the alluvial margins of San Francisco Bay.

The soils at the site generally consist of very fine silty clay and clay deposits. Deposition in this environment has resulted in a sequence characterized by irregular interfingering of medium sized material materials (sands and coarse sands in stream channels) into finer soils (silts and

clays in overbank, estuarine, and bay deposits). Individual deposits are highly variable and discontinuous. The depth to groundwater is currently 17 feet below grade.

5.0 LABORATORY ANALYSIS

In total, 12 soil samples were collected from three borings (AS-1, AS-2, and AS-3). The samples were analyzed for total petroleum hydrocarbons quantified as gasoline (TPH-gasoline, benzene, toluene, ethylbenzene, and xylenes (BTEX) by EPA Method 8021B and 8015B.

6.0 ANALYTICAL DATA EVALUATION

Table 1 summarizes the analytical data for TPH-gasoline and BTEX in the soil samples collected in May 2016. Figure 3 lists concentrations from the most recent investigation in May 2016, as well as from historical sampling events. Figure 4 is a map showing the locations of cross sections (A-A', B-B', and C-C'). Figures 5, 6, and 7 illustrate the three cross sections A-A', B-B', and C-C', respectively. Copies of the laboratory analytical report and chain-of-custody documentation are included in Appendix C.

The analytical results were compared to regulatory standards to evaluate the environmental quality of the soil. One set of currently applicable regulatory guidelines is given by the Regional Water Quality Control Board (RWQCB), which consists of environmental screening levels (ESLs). The presence of a chemical at concentrations in excess of the ESL does not indicate that adverse impacts to human health are occurring, but suggests that further evaluation of potential human health concerns may be warranted. The RWQCB presents multiple ESLs that dictate maximum concentration values, which differ depending on exposure scenarios. The analytical data in this report were compared to the ESL for direct exposure human health risk levels for any land use and depth of soil exposure for construction workers (Table S-1). The California State Water Resources Control Board also presents maximum concentration values for the Low Threat Closure Policy (LTCP) that dictates acceptable limits for a site to be closed with minimal risk. LTCP values include the following exposure scenarios: 1) residential and commercial limits for ingestions of soil, dermal contact with soil, inhalation of volatile soil emissions and inhalation of particulate emissions for soils that are 0 to 5 feet below ground surface; 2) residential and commercial limits for inhalation of volatile soil emissions for soils that are 5 to 10 feet below ground surface; and 3) limits for exposure to construction workers or utility trench workers.

Due to the depth where contaminants were detected in soil at the site, most of the ESLs don't apply. The likelihood of contact with soil at deeper depths would be only for construction workers. Therefore, the regulatory limit that would apply is the Construction Worker ESL, direct exposure (Table S-1).

At boring AS-1, soil samples were collected at depths of 5, 10, 16, and 18 feet below ground surface. Low concentrations of TPH-gasoline, toluene, ethylbenzene, and xylenes were detected in the sample collected at a depth of 16 feet. None of the concentrations exceeded the construction worker ESLs or the LTCP limits.

At boring AS-2, soil samples were collected at depths of 5, 8, 13, and 15 feet below ground surface. Low concentrations of TPH-gasoline were detected in all of the samples. One or more of the BTEX constituents were detected in the samples collected at depths of 8, 13, and 15 feet. None of the concentrations exceeded the construction worker ESLs or the LTCP limits.

At boring AS-3, soil samples were collected at depths of 7, 10, 14, and 16 feet below ground surface. Due to poor recovery in the upper 5 feet, it was not possible to obtain a sample shallower than 7 feet below ground surface. Low concentrations of TPH-gasoline were detected in all of the samples. BTEX constituents were detected in some of the samples. Sample AS-3-16, collected at the 16-foot depth, contained benzene at 2.4 mg/kg. The benzene concentration exceeded the LTCP residential limit of 1.9 mg/kg for ingestion of soil, dermal contact with soil, inhalation of volatile soil emissions and inhalation of particulate emissions for soils that are 0 to 5 feet below ground surface. However, the sample was collected at a depth of 16 feet, so the LTCP limit does not apply. None of the TPH-gasoline or BTEX concentrations exceeded the construction worker ESLs.

7.0 SUMMARY AND CONCLUSIONS

In May 2016, Aquifer Sciences collected soil samples at 411 West MacArthur Boulevard, Oakland, California. The objective of the supplemental investigation was to satisfy the request from ACEH for additional assessment of soil quality in the eastern portion of the site along Webster Street. ACEH's concern was that the soil in this area might be a potential residual contaminant source that could pose a risk to the residential development. Soil sampling and analysis were conducted in accordance with our work plan dated May 2, 2016, and follow-up email of May 4, 2016 to Keith Nowell of the ACEH.

In May 2016, three soil borings were drilled in the 300-square-foot area of concern. Four soil samples were collected from each boring. The 12 samples were analyzed in the laboratory for TPH-gasoline and BTEX. Low concentrations of TPH-gasoline and BTEX were detected in some of the samples. None of the concentrations exceeded the construction worker ESLs. Based on the data from this investigation, there is no risk of exposure via direct contact or ingestion in the shallow soil for the residential development.

8.0 RECOMMENDATIONS

Soil vapor is the only possible exposure pathway risk identified in the oval-shaped area during the previous investigation performed in April 2016. Soil gas samples SG-2 and SG-3 contained elevated concentrations of benzene and methane. The analytical data and map from the soil gas investigation are included in Appendix D. These soil gas concentrations can be mitigated using a soil vapor barrier. At a minimum, we propose that a soil vapor barrier be installed in a rectangular-shaped area (approximately 400 to 500 square feet) at the eastern edge of the site along Webster Street to inhibit migration of benzene and methane. Additionally, we recommend the installation of a passive sub-slab depressurization and venting system, including collection pipes, and subsequent vapor sampling to determine if the system should be made active. Alternatively, it may be beneficial to install the vapor barrier and passive venting system throughout the area of the planned commercial space (approximately 3,000 square feet), including the elevator shaft. The recommended area for the vapor barrier and passive venting system is shown on Figure 2.

We recommend that a qualified engineer supervise the installation of the vapor barrier and sub-slab ventilation system. The engineer should indicate with the proper wet-ink signature and stamp that these engineering controls were properly installed under his/her supervision.

Prior to constructing concrete floor slabs over the vapor barrier or membrane, the installer will need to certify to the local building department and ACEH that the membrane was installed and tested in accordance with the manufacturer's specifications and is free of leaks.

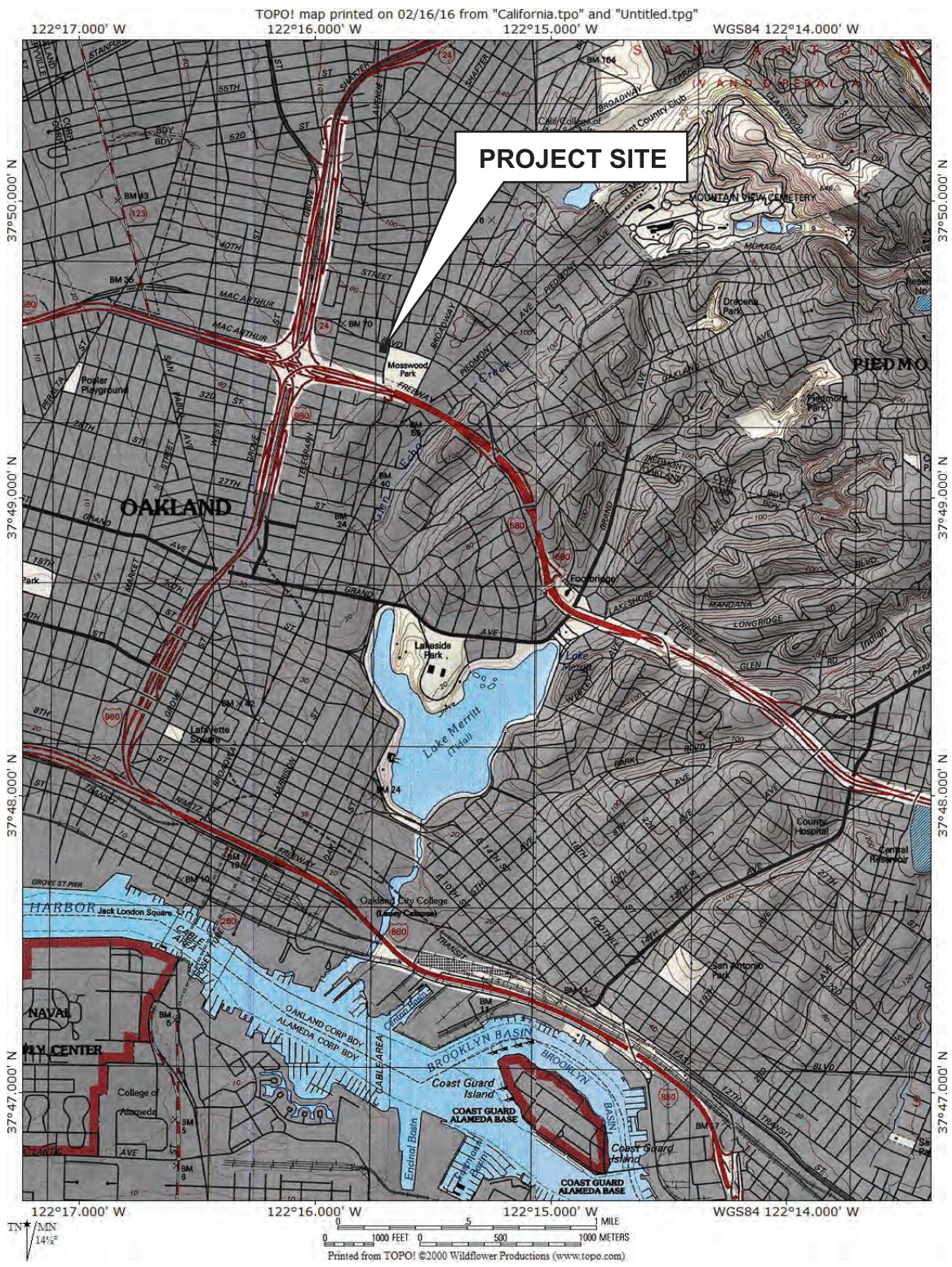
The owner will submit a technical report before the end of the project and prior to building occupancy, describing the installation and inspection activities conducted for the vapor barrier and the sub-slab ventilation system, including documentation from the installer and the consulting engineer. The owner will also submit a technical report, comprising a Site Management Plan that discusses the steps and procedures to be taken by owners and occupants of the buildings to ensure the integrity of the vapor barrier and any other risk mitigation engineering controls installed at the Site.

9.0 REFERENCES

Regional Water Quality Control Board, 2013. Attachment C Direct Contact and Outdoor Air Exposure Pathways, December 5-6, 2013.

Regional Water Quality Control Board, 2016. Environmental Screening Levels, Interim Final, February 2016.

California State Water Resources Control Board, Resolution 2012-006, 2012. Low-Threat Closure Policy, August 17, 2012.

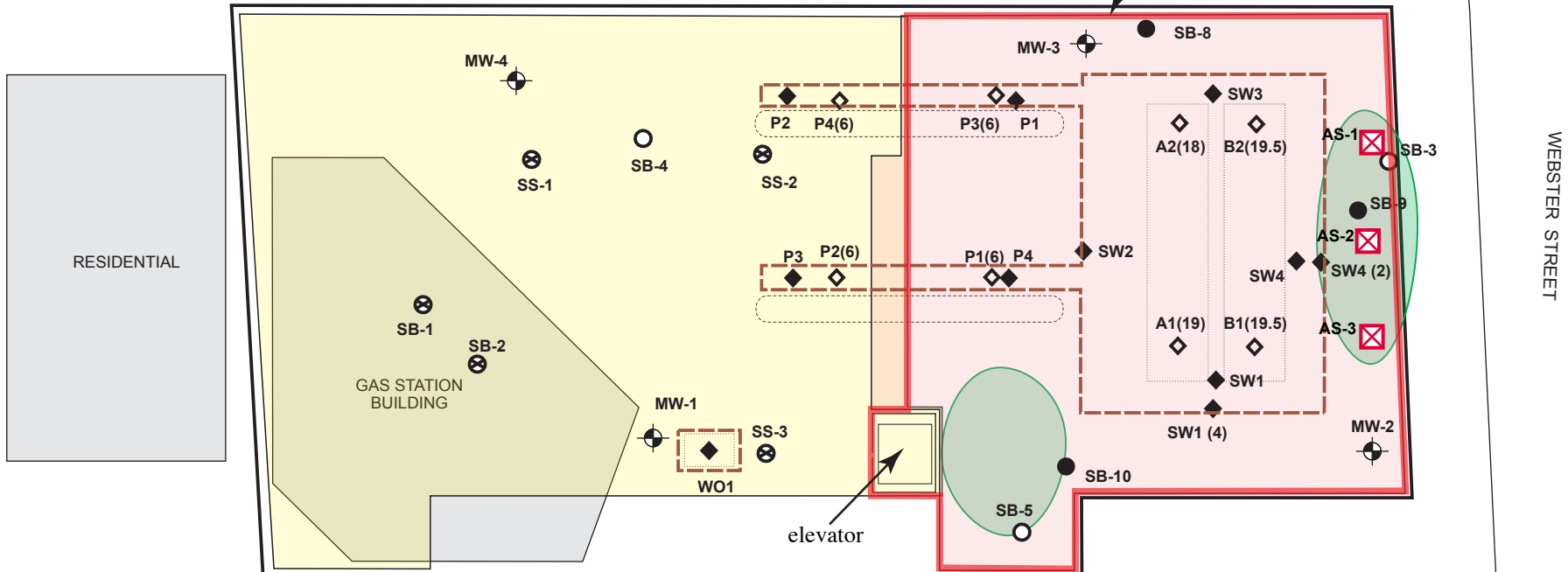


DESIGNED BY: JG	CHECKED BY: MK	SITE VICINITY MAP	DATE: 02/25/2016	FIGURE: 1
DRAWN BY: JG	SCALE:		ARS, INC <i>Applied Remedial Services, Inc.</i> P.O. Box 5086 Walnut Creek, CA 94596	
PROJECT NO: ARS-16-29-01		411 WEST MACARTHUR BLVD. OAKLAND, CALIFORNIA		



WEST MACARTHUR BOULEVARD

Area to install
vapor barrier and
passive venting system

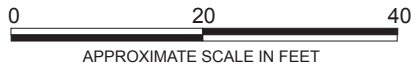


- ◇ - UST REMOVAL SOIL SAMPLE, 09/1998
- ◆ - UST REMOVAL SOIL SAMPLE, 07/1989
- ⊗ - SOIL BORING LOCATION (SLR, 2014)
- - SOIL BORING LOCATION (DELTA, 2010)
- - SOIL BORING LOCATION (TRC, 2006)
- ⊕ - GROUNDWATER MONITORING WELL LOCATION

⊗ - SOIL BORING LOCATION (Aquifer Sciences 5/6/16)

■ - COMMERCIAL/RETAIL SUITE ON GROUND FLOOR, 14 FEET CEILING.

■ - BASEMENT, CAR STACKER & MECH./STORAGE, 9 FEET CEILING; PARKING ON GROUND FLOOR, 14 FEET CEILING.



DESIGNED BY: JG	CHECKED BY: MK
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PROJECT NO: ARS-16-29-01	

SAMPLING LOCATIONS

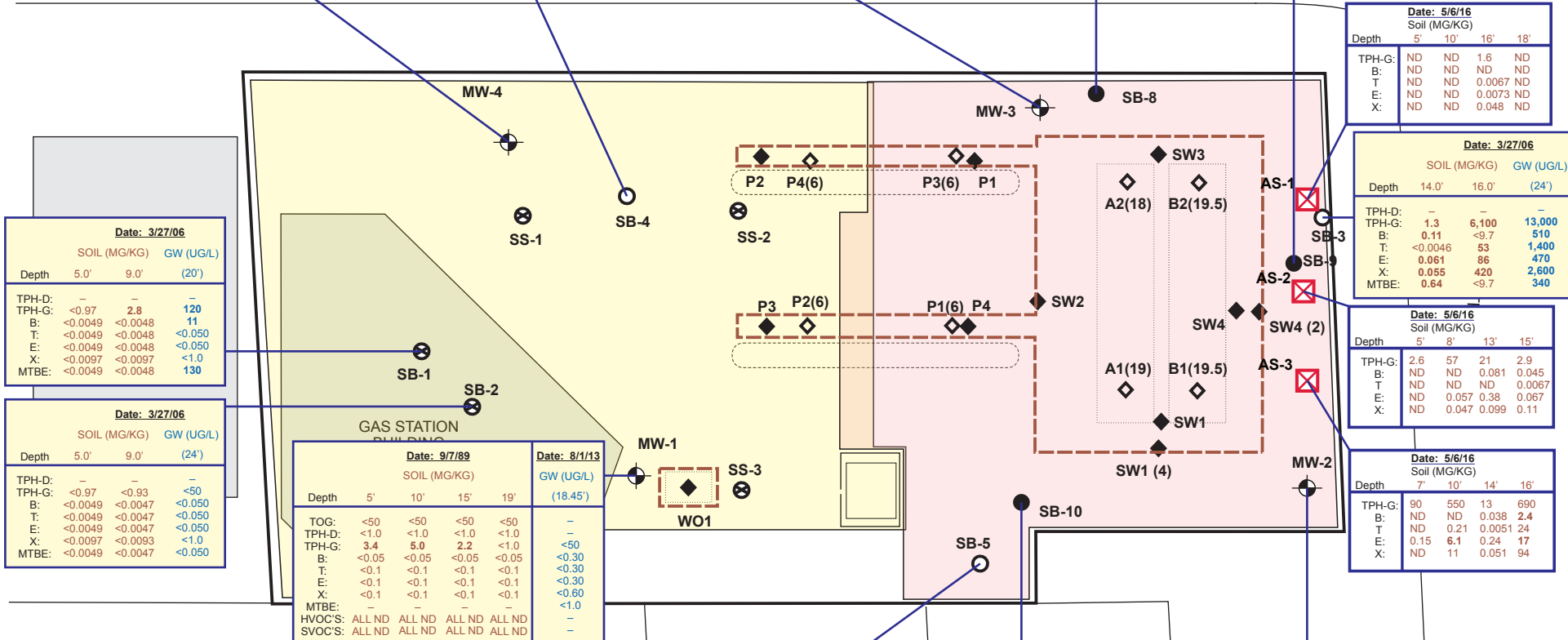
411 W. MAC ARTHUR BLVD.
OAKLAND, CALIFORNIA

DATE: 03/31/2016

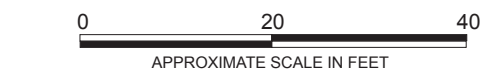
FIGURE: 2



Date: 9/6/89		Date: 8/1/13		Date: 3/27/06		Date: 9/7/89				Date: 2/5/14		Date: 12/20/10				Date: 12/20/10				Date: 12/20/10					Date: 12/20/10							
SOIL (MG/KG)				GW (UG/L)		SOIL (MG/KG)		GW (UG/L)		SOIL (MG/KG)		GW (UG/L)		SOIL (MG/KG)				GW (UG/L)		SOIL (MG/KG)					GW (UG/L)							
Depth	5'	10'	15'	18.5'	(18.05')	Depth	5.0'	15.0'	(24')	Depth	5'	10'	15'	18.5'	(18.24')	Depth	5'	10'	15'	20.0'	(20'-25')	Depth	5'	10'	15'	20'	25'	30'	(17'-22)	(24'-29')		
TPH-D:	-	-	-	-	<50	TPH-D:	<0.93	<0.92	<50	TPH-D:	-	-	-	<1.0	<50	TPH-D:	<0.20	0.30	<10	520	2,000	TPH-D:	-	-	-	<10	4.5	0.30	-	0.28	9,500	2,900
TPH-G:	3.1	17	20	2.1	<50	TPH-G:	<0.093	<0.092	<50	TPH-G:	1.3	1.8	3.3	<1.0	<50	TPH-G:	<0.050	<0.050	<0.025	<1.2	<0.50	TPH-G:	9.9	3.0	<10	4.5	0.30	-	0.28	9,500	2,900	
B:	<0.05	<0.05	<0.05	<0.05	<0.30	B:	<0.0047	<0.0046	<0.050	B:	<0.005	0.29	<0.05	<0.05	<0.30	B:	<0.0050	<0.0050	<0.025	<1.2	<0.50	B:	<0.025	<0.0050	1.4	0.17	<0.0050	<0.0050	<0.0050	430	79	
T:	<0.1	<0.1	<0.1	<0.1	<0.30	T:	<0.0047	<0.0046	<0.050	T:	<0.1	<0.1	<0.1	<0.1	<0.30	T:	<0.0050	<0.0050	<0.025	19	48	T:	<0.025	0.011	0.28	0.10	0.014	0.02	2,000	470		
E:	<0.1	<0.1	<0.1	<0.1	<0.30	E:	<0.0047	<0.0046	<0.050	E:	<0.1	<0.1	<0.1	<0.1	<0.30	E:	<0.0050	<0.0050	<0.025	19	48	E:	0.10	0.069	0.14	0.067	0.0050	0.011	330	100		
X:	<0.1	0.10	0.27	<0.1	<0.60	X:	<0.0093	<0.0092	<1.0	X:	<0.1	<0.1	<0.1	<0.1	<0.60	X:	<0.010	<0.010	<0.050	86	340	X:	0.059	0.28	0.66	0.37	0.028	0.043	2,100	540		
MTBE:	-	-	-	-	<1.0	MTBE:	<0.0047	<0.0046	3.4	MTBE:	-	-	-	-	7.2	MTBE:	<0.0050	<0.0050	<0.025	<1.2	<0.50	MTBE:	<0.025	0.014	0.04	0.62	<0.0050	<0.0050	190	<5.0		



- ◆ - UST REMOVAL SOIL SAMPLE, 09/1998
- ◆ - UST REMOVAL SOIL SAMPLE, 07/1989
- ⊗ - SOIL BORING LOCATION (SLR, 2014)
- - SOIL BORING LOCATION (DELTA, 2010)
- - SOIL BORING LOCATION (TRC, 2006)
- ⊕ - GROUNDWATER MONITORING WELL LOCATION
- ⊠ - SOIL BORING LOCATION (Aquifer Sciences 5/6/16)

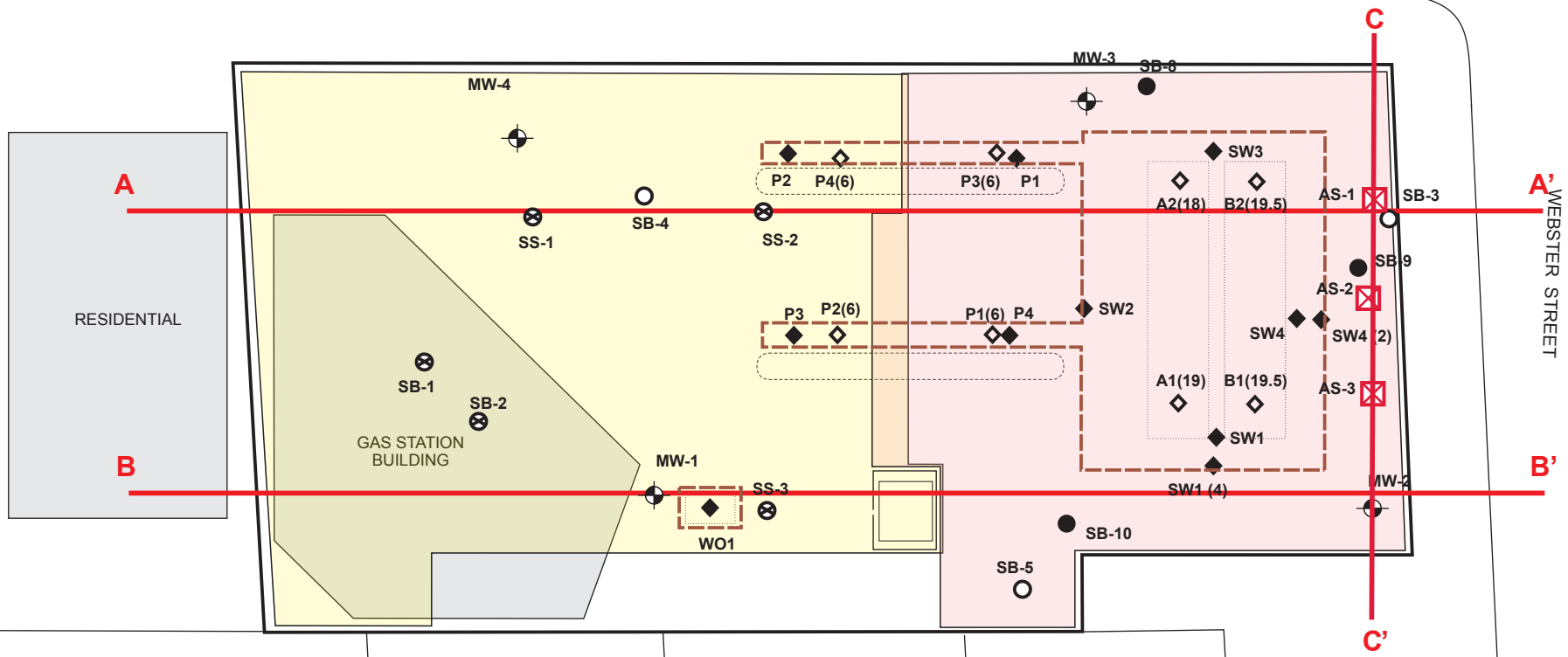


Date: 3/27/06		Date: 12/21/10				Date: 12/21/10				Date: 9/6/89				Date: 2/5/14				
SOIL (MG/KG)		GW (UG/L)		SOIL (MG/KG)				GW (UG/L)		SOIL (MG/KG)				GW (UG/L)				
Depth	9.0'	13.0'	(20')	Depth	5'	10'	15'	20'	25'	30'	(17'-22)	(24'-29')	Depth	5'	10'	15'	19'	(18.34')
TPH-D:	-	-	-	TPH-D:	<0.20	0.28	0.47	0.31	<0.20	<0.20	1,500	310	TPH-D:	1.4	<1.0	1.8	13	<50
TPH-G:	<0.93	<0.93	3,000	TPH-G:	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	20	1.8	TPH-G:	<0.05	<0.05	<0.05	1.5	<0.30
B:	<0.0046	<0.0047	44	B:	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.96	25	B:	<0.1	<0.1	<0.1	2.1	<0.30
T:	<0.0046	<0.0047	1.2	T:	<0.0050	<0.0050	0.0050	0.047	<0.0050	<0.0050	75	12	T:	<0.1	<0.1	<0.1	0.34	<0.30
E:	<0.0046	<0.0047	63	E:	<0.0050	<0.0050	0.0050	0.012	<0.010	0.012	8.3	63	E:	<0.1	<0.1	<0.1	1.8	<0.60
X:	<0.0093	<0.0093	30	X:	<0.010	0.017	0.024	<0.010	<0.010	0.012	<0.50	5.8	X:	<0.1	<0.1	<0.1	1.8	<0.60
MTBE:	<0.0046	<0.0047	53	MTBE:	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.50	5.8	MTBE:	-	-	-	-	1.7

DESIGNED BY: JG	CHECKED BY: MK	SOIL & GROUNDWATER HYDROCARBON RESULTS 411 W. MAC ARTHUR BLVD. OAKLAND, CALIFORNIA	DATE: 02/25/2016	FIGURE: 3
DRAWN BY: JG	SCALE:		 Applied Remedial Services, Inc. P.O. Box 5086 Walnut Creek, CA 94596	
PROJECT NO: ARS-16-29-01				



WEST MACARTHUR BOULEVARD

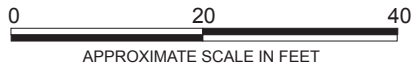


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- ⊕ - GROUNDWATER MONITORING WELL LOCATION

⊗ - SOIL BORING LOCATION (Aquifer Sciences 5/6/16)

■ - COMMERCIAL/RETAIL SUITE ON GROUND FLOOR, 14 FEET CEILING.

■ - BASEMENT, CAR STACKER & MECH./STORAGE, 8 FEET CEILING; PARKING ON GROUND FLOOR, 14 FEET CEILING.



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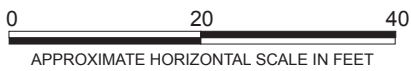
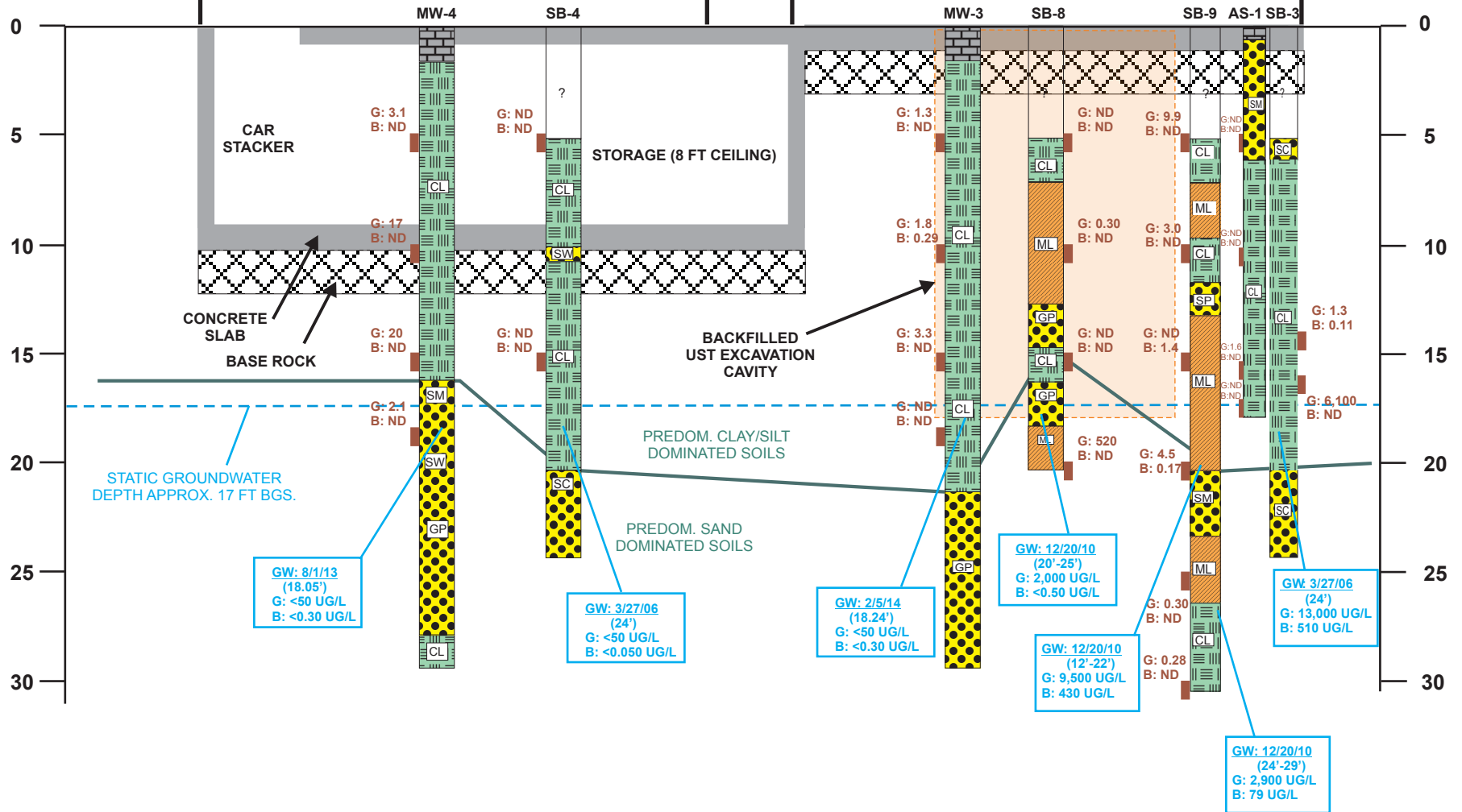
**CROSS SECTION
LOCATION MAP**
411 W. MAC ARTHUR BLVD.
OAKLAND, CALIFORNIA

DATE: 02/25/2016 FIGURE: 4



A (E)

A' (W)

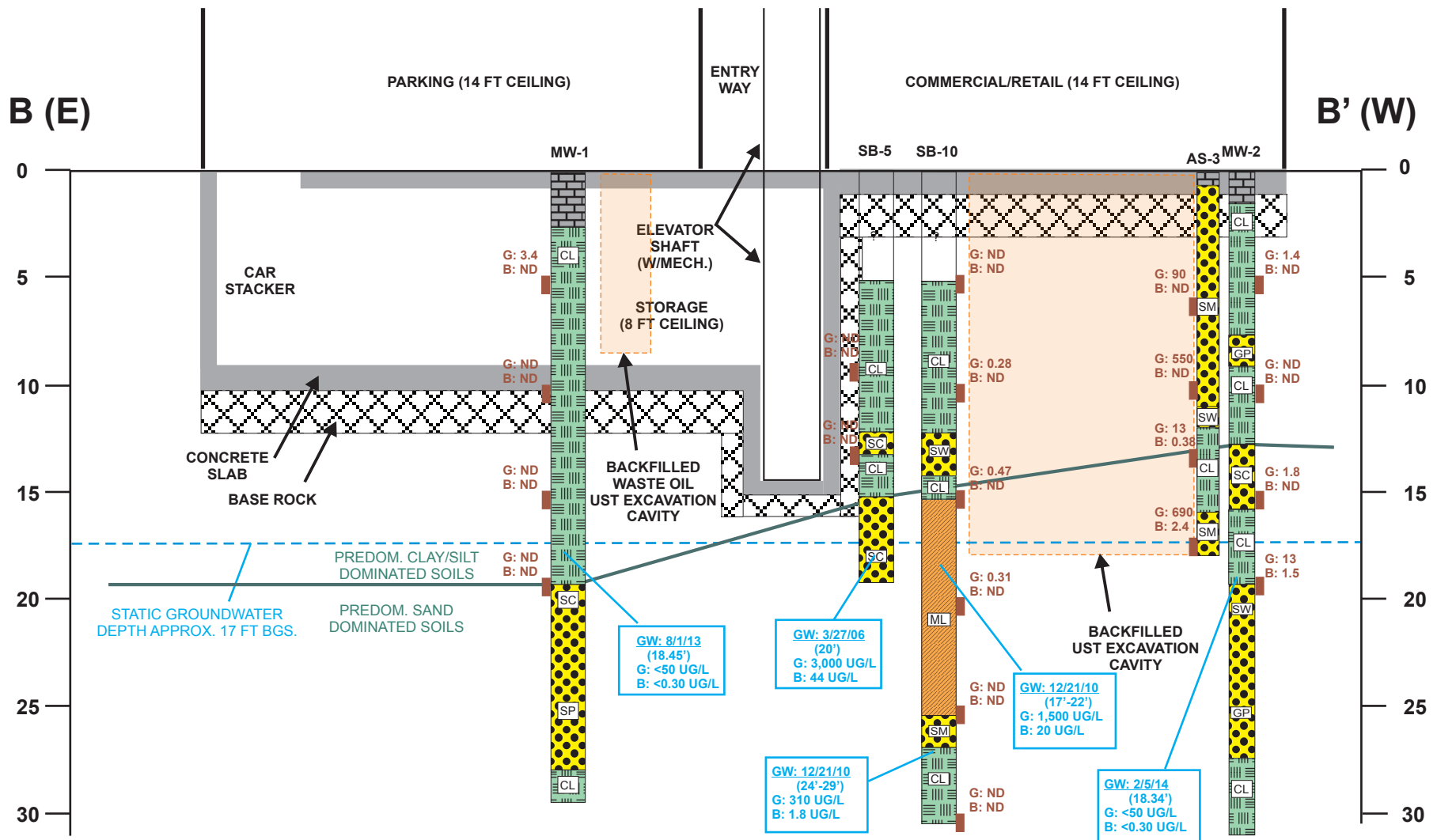


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PROJECT NO: ARS-16-29-01	

CROSS SECTION A-A'

411 W. MAC ARTHUR BLVD.
OAKLAND, CALIFORNIA

DATE: 02/25/2016	FIGURE: 5
<p>ARS, INC Applied Remedial Services, Inc. P.O. Box 5086 Walnut Creek, CA 94596</p>	



DESIGNED BY: JG	CHECKED BY: MK
DRAWN BY: JG	SCALE:
PROJECT NO: ARS-16-29-01	

CROSS SECTION B-B'

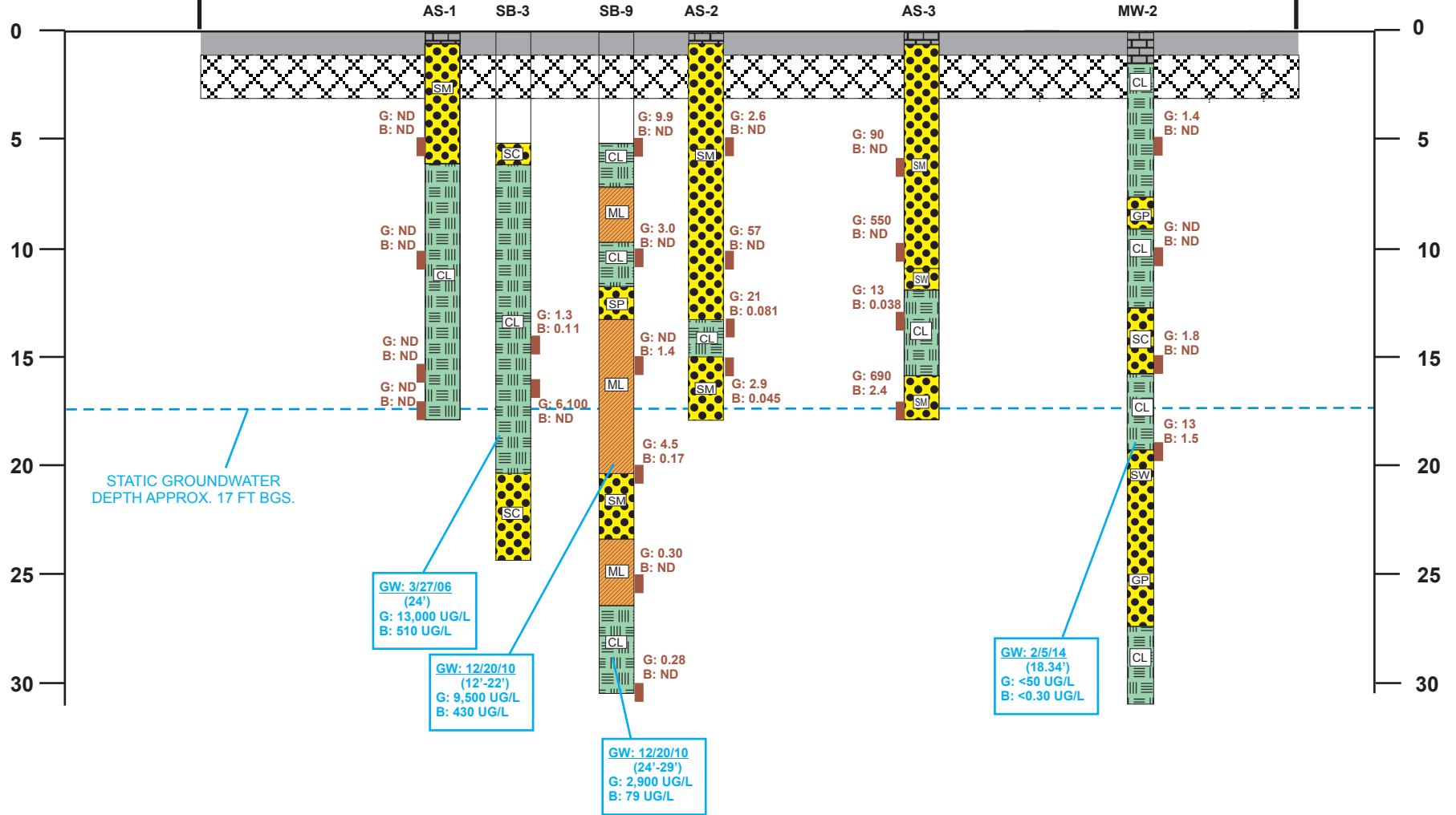
411 W. MAC ARTHUR BLVD.
OAKLAND, CALIFORNIA

DATE: 02/25/2016	FIGURE: 6
<p>Applied Remedial Services, Inc. P.O. Box 5086 Walnut Creek, CA 94596</p>	

C (N)

COMMERCIAL/RETAIL (14 FT CEILING)

C' (S)



DESIGNED BY: JG	CHECKED BY: MK
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PROJECT NO: ARS-16-29-01	

CROSS SECTION C-C'
411 W. MAC ARTHUR BLVD.
OAKLAND, CALIFORNIA

DATE: 02/25/2016 FIGURE: 7



AQUIFER SCIENCES, INC.

Table 1. ANALYTICAL DATA FOR SOIL – Gasoline and BTEX
411 West MacArthur Boulevard, Oakland, California

Sample Name	Sample Date	Depth (feet)	TPH-gasoline (mg/kg)	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Total Xylenes (mg/kg)
AS-1-5	5/6/16	5	ND	ND	ND	ND	ND
AS-1-10	5/6/16	10	ND	ND	ND	ND	ND
AS-1-16	5/6/16	16	1.6	ND	0.0067	0.0073	0.048
AS-1-18	5/6/16	18	ND	ND	ND	ND	ND
AS-2-5	5/6/16	5	2.6	ND	ND	ND	ND
AS-2-8	5/6/16	8	57	ND	ND	0.057	0.047
AS-2-13	5/6/16	13	21	0.081	ND	0.38	0.099
AS-2-15	5/6/16	15	2.9	0.045	0.0067	0.067	0.11
AS-3-7	5/6/16	7	90	ND	ND	0.15	ND
AS-3-10	5/6/16	10	550	ND	0.21	6.1	11
AS-3-14	5/6/16	14	13	0.038	0.0051	0.24	0.051
AS-3-16	5/6/16	16	690	2.4	24	17	94
Reporting Limit			1 - 200	0.0050 - 1.0	0.0050 - 1.0	0.0050 - 1.0	0.0015 - 3.0
Construction Worker ESL (Direct Exposure)			7,400	24	28,000	480	65,000
Residential (LTCP Direct Exposure 0 - 5 bgs)			NE	1.9	NE	21	NE
Residential (LTCP Direct Exposure 5 - 10 feet bgs)			NE	2.8	NE	32	NE
Commercial (LTCP Direct Exposure 0 - 5 bgs)			NE	8.2	NE	89	NE
Commercial (LTCP Direct Exposure 5 - 10 feet bgs)			NE	12	NE	134	NE
Utility Worker (LTCP 0 - 10 feet bgs)			NE	14	NE	314	NE

mg/kg = milligrams per kilogram (parts per million or ppm)

ND = none detected

NE = none established

BTEX = benzene, toluene, ethylbenzene, xylenes

TPH-gasoline = total petroleum hydrocarbons quantified as gasoline

ESL = Environmental Screening Level, San Francisco Regional Water Quality Control Board, February 2016

LTCP = Low Threat Closure Policy, California State Water Resources Control Board, August 2012

Construction Worker ESL (Direct Exposure) = Environmental Screening Levels for Direct Exposure Human Health Risk Levels (Table S-1).

Residential (LTCP Direct Exposure 0 - 5 bgs) = Residential concentration limit for direct contact, ingestion, and inhalation of volatile soil.

Residential (LTCP Direct Exposure 5 - 10 feet bgs) = Residential concentration limit for potential for volatilization and inhalation to outdoor air.

Commercial (LTCP Direct Exposure 0 - 5 bgs) = Commercial concentration limit for direct contact, ingestion, and inhalation of volatile soil.

Commercial (LTCP Direct Exposure 5 - 10 feet bgs) = Commercial concentration limit for potential for volatilization and inhalation to outdoor air.

Utility Worker (LTCP 0 - 10 feet bgs) = Concentration limit for utility workers.

APPENDIX A

GROUND PENETARTING RADAR REPORT



Operator Greg Milburn
"THE NEW WAY TO X-RAY"

Main Office: 419-843-9804 1-866-914-4718
Main Office Fax: 419-843-5829
www.gp-radar.com

Nationwide Service Available

New Customer

JOB TICKET

Job Date: 5 6 16

Customer: Michael Kara / ARS Inc Phone: (925) 943-7742

Customer Address: P.O. Box 5086 City: Walnut Creek State: CA Zip: 94596

Billing Address: P.O. Box 5086 City: Walnut Creek State: CA Zip: 94596

Job Location: 411 McArthur + Webster, Oakland, CA

PO#: _____ Job#: _____ Report Requested Yes No

LOCATE Utilities Conduit Rebar/Post-tension UST Voids Other

Work Description

Scanned sidewalk area on Webster from Webster - 37th Street.
Scanned area with 400mhz GPR Antenna and RD7100. Marked
findings directly on surface with pink spray paint. Customer was
concerned with UST's and upon scanning area, no UST's were
found within the scan zone. GPR does have limitations, UST's
are not guaranteed to not be there. Advised to stay as far from
workings as possible. No other anomalies were seen by GPR during scan.

\$ 700

CREDIT CARD INFORMATION

VISA MASTERCARD DISCOVER AM/EX

Check Number: _____

Card #: _____ Exp. Date: 1 1 CID#: _____

Company Name: ARS Inc Name on Credit Card: Michael F Kara

Billing Address: P.O. Box 5086 City: Walnut Creek State: CA Zip: 94596

I HAVE READ THE TERMS AND CONDITIONS ON THE BACK OF THIS FORM FOR THE ABOVE PROJECT.

Concrete Terms and Conditions _____

Underground Terms and Conditions _____

Please Print Name Here _____

Authorizing Signature _____

Phone: _____

E-Mail: _____

Thank you for allowing us to serve you. We look forward to working for you again.



APPENDIX B



DRILLING LOGS

AQUIFER SCIENCES, INC.

PROJECT NAME 216621

NO. AS-1

DRILLING LOCATION <u>411 West MacArthur Blvd. Oakland</u>		ELEVATION AND DATUM (FT) -	
DRILLING AGENCY <u>Gregg Drilling</u>	DRILLER <u>Leo Santos</u>	DATE STARTED <u>5/6/16</u>	DATE FINISHED <u>5/6/16</u>
DRILLING METHOD <u>Direct Push</u>	DRILL BIT <u>2"</u>	BORING DEPTH (FT) <u>18'</u>	WELL DEPTH (FT) -
DRILLING EQUIPMENT <u>Geo Probe, DP-13</u>	SAMPLER <u>2" Acrylic Liner</u>	NO. OF SAMPLES <u>4</u>	SOIL <u>4</u>
SIZE AND TYPE OF CASING -	DEPTH TO WATER (FT) -	FIRST -	GW - OTHER -
TYPE OF PERFORATION -	FROM - TO - FT.	LOGGED BY: 	CHECKED BY: 
SIZE AND TYPE OF FILTER PACK -	FROM - TO - FT.		
TYPE OF SEAL -	FROM - TO - FT.		
TYPE OF SEAL -	FROM - TO - FT.		

DEPTH (FEET)	DESCRIPTION	GRAPHIC LOG		SAMPLES				REMARKS (Drilling Rate, Fluid Loss, Odor, etc.)						
		Lithology	Well Construction Diagram	Water Level	Sampling Interval	Recovery (%)	Blow Counts (per 6 in.)		OVm (ppmv)					
1	Asphalt							Start time: 1105						
2						100%	2.7							
3														
4							20.1							
5	Dark brown moist medium dense	SM				80%		AS-1-5 @ 1115						
6	Clayey SILT w/ sand occasional angular gravel												3.6	
7														
8														2.2
9														
10						100%	2.2	AS-1-10 @ 1120						
11														
12							1.8							
13	olive gray to olive moist medium stiff inorganic CLAY	CL				100%	1.6							

BORING NUMBER AS-1


SHEET 1 OF 2

DEPTH (FEET)	DESCRIPTION	GRAPHIC LOG		Water Level	SAMPLES			REMARKS (Drilling Rate, Fluid Loss, Odor, etc.)
		Lithology	Well Construction Diagram		Sampling Interval	Recovery (%)	Blow Counts (per 6 in.)	
15	Olive Gray to olive Moist Medium stiff Inorganic Clay	CL			100%		1.5	AS-1-15 @ 1125
16					100%		4.9	
17								
18	Bottom of boring 18'						10.7	AS-1-18 @ 1130 Finish time: 1130

AQUIFER SCIENCES, INC.

PROJECT NAME 216621

NO. AS-2

DRILLING LOCATION <u>411 West MacArthur Blvd. Oakland</u>		ELEVATION AND DATUM (FT) <u>-</u>			
DRILLING AGENCY <u>Gregg Drilling</u>	DRILLER <u>Leo Santos</u>	DATE STARTED <u>5/6/16</u>	DATE FINISHED <u>5/6/16</u>		
DRILLING METHOD <u>Direct Push</u>	DRILL BIT <u>2"</u>	BORING DEPTH (FT) <u>18'</u>	WELL DEPTH (FT) <u>-</u>		
DRILLING EQUIPMENT <u>Geo Probe DP-13</u>	SAMPLER <u>2" Acrylic Liner</u>	NO. OF SAMPLES <u>5</u>	SOIL <u>5</u>	GW <u>-</u>	OTHER <u>-</u>
SIZE AND TYPE OF CASING <u>-</u>	DEPTH TO WATER (FT) <u>-</u>	FIRST <u>-</u>	COMPLETION <u>-</u>	OTHER <u>-</u>	
TYPE OF PERFORATION <u>-</u>	FROM <u>-</u> TO <u>-</u> FT.	LOGGED BY: 		CHECKED BY: 	
SIZE AND TYPE OF FILTER PACK <u>-</u>	FROM <u>-</u> TO <u>-</u> FT.				
TYPE OF SEAL <u>-</u>	FROM <u>-</u> TO <u>-</u> FT.				
TYPE OF SEAL <u>-</u>	FROM <u>-</u> TO <u>-</u> FT.				

DEPTH (FEET)	DESCRIPTION	GRAPHIC LOG		SAMPLES				REMARKS (Drilling Rate, Fluid Loss, Odor, etc.)
		Lithology	Well Construction Diagram	Water Level	Sampling Interval	Recovery (%)	Blow Counts (per 6 in.)	
1	Asphalt							Start time:
2						100%	1.4	
3	Dark brown moist							
4	Medium Dense						7.3	
5	Clayey <u>SILT</u> w/ sand							AS-2-5 @ 1030
6	occasional Angular Gravel	SM				80%	4.9	
7								
8	Light brown w/ olive grey mottling						7.3	AS-2-8 @ 1035
9	Moist							
10	Medium Dense							
11	Clayey <u>SILT</u> w/ sand					100%	8.7	
12	Light brown moist							
13	Medium Dense						12.5	
13	Clayey <u>SILT</u> w/ sand.							
13	Olive Gray to olive moist Medium stiff Inorganic CLAY	CL				100%	7.3	AS-2-13 @ 1040



BORING NUMBER AS-2

SHEET 1 OF 2

DEPTH (FEET)	DESCRIPTION	GRAPHIC LOG		Water Level	SAMPLES			REMARKS (Drilling Rate, Fluid Loss, Odor, etc.)
		Lithology	Well Construction Diagram		Sampling Interval	Recovery (%)	Blow Counts (per 6 in.)	
15	Olive Gray to Olive Moist medium dense Inorganic <u>CLAY</u>	CL			100%		76.1	NOTE: Petroleum ODOR AS-2-15 @ 1050
16	Olive Gray to Olive Moist Medium stiff Clayey <u>SILT</u> w/ sand	SM			100%		1245	
17								
18	Bottom of boring 18'						432	AS-2-18 @ 1055 (Hold) Finish time: 1055

AQUIFER SCIENCES, INC.

PROJECT NAME 216621 NO. AS-3

DRILLING LOCATION <u>411 West MacArthur Blvd. Oakland</u>		ELEVATION AND DATUM (FT) <u>-</u>	
DRILLING AGENCY <u>Gregg Drilling</u>	DRILLER <u>Leo Santos</u>	DATE STARTED <u>5/6/16</u>	DATE FINISHED <u>5/6/16</u>
DRILLING METHOD <u>Direct Push</u>	DRILL BIT <u>2"</u>	BORING DEPTH (FT) <u>18'</u>	WELL DEPTH (FT) <u>-</u>
DRILLING EQUIPMENT <u>Geo Probe DP-13</u>	SAMPLER <u>2" Acrylic Liner</u>	NO. OF SAMPLES <u>4</u>	SOIL <u>-</u> GW <u>-</u> OTHER <u>-</u>
SIZE AND TYPE OF CASING <u>-</u>	DEPTH TO WATER (FT) <u>15.5'</u>	FIRST <u>-</u>	COMPLETION <u>-</u> OTHER <u>-</u>
TYPE OF PERFORATION <u>-</u>	FROM <u>-</u> TO <u>-</u> FT.	LOGGED BY: 	
SIZE AND TYPE OF FILTER PACK <u>-</u>	FROM <u>-</u> TO <u>-</u> FT.	CHECKED BY: 	
TYPE OF SEAL <u>-</u>	FROM <u>-</u> TO <u>-</u> FT.		
TYPE OF SEAL <u>-</u>	FROM <u>-</u> TO <u>-</u> FT.		

DEPTH (FEET)	DESCRIPTION	GRAPHIC LOG		Water Level	SAMPLES			REMARKS (Drilling Rate, Fluid Loss, Odor, etc.)
		Lithology	Well Construction Diagram		Sampling Interval	Recovery (%)	Blow Counts (per 6 in.)	
1	Asphalt							Start time:
2							1.8	NOTE: Petroleum ODOR starting @ 2' ODOR consistent to 18'.
3								
4	Dark Brown						2.4	NOTE: Not able to sample due to low recovery
5	Moist							
6	Medium Dense clayey SILT w/ sand	SM					10.4	
7	occasional angular Gravel							AS-3-7 @ 0945
8							7.3	
9								
10	Light Brown						50.2	AS-3-10 @ 0955
11	Moist							
12	Medium Dense clayey SILT w/ sand.							
13	Olive Brown	SW					21.8	
14	Moist very loose well graded SAND							
15	Olive Gray to olive							
16	Wet	CL						
17	Medium stiff to soft							
18	Inorganic CLAY							NOTE: Ground water encountered @ ~ 15.5', may be elevated due to sloshing

DEPTH (FEET)	DESCRIPTION	GRAPHIC LOG		SAMPLES				REMARKS (Drilling Rate, Fluid Loss, Odor, etc.)	
		Lithology	Well Construction Diagram	Water Level	Sampling Interval	Recovery (%)	Blow Counts (per 6 in.)		QVM (ppmv)
14	Olive Gray to olive wet Medium stiff to soft Inorganic <u>CLAY</u>	CL		▲	X			284	AS-3-14 @ 1000
15					X				
16	Dark Brown Saturated Loose Sandy clayey <u>SILT</u>	SM			X			302	AS-3-16 @ 1010
17					X				
18	Bottom of boring 18'							871	Finish time: 1010

APPENDIX C

LABORATORY REPORTS

AND

CHAIN-OF-CUSTODY DOCUMENTATION



McC Campbell Analytical, Inc.

"When Quality Counts"

Analytical Report

WorkOrder: 1605290

Report Created for: Aquifer Sciences, Inc.

3520 Golden Gate Way
Lafayette, CA 94549

Project Contact: Duncan Knudsen

Project P.O.:

Project Name: 216621

Project Received: 05/06/2016

Analytical Report reviewed & approved for release on 05/13/2016 by:

Angela Rydelius,
Laboratory Manager

The report shall not be reproduced except in full, without the written approval of the laboratory. The analytical results relate only to the items tested. Results reported conform to the most current NELAP standards, where applicable, unless otherwise stated in the case narrative.





Glossary of Terms & Qualifier Definitions

Client: Aquifer Sciences, Inc.
Project: 216621
WorkOrder: 1605290

Glossary Abbreviation

%D	Serial Dilution Percent Difference
95% Interval	95% Confident Interval
DF	Dilution Factor
DI WET	(DISTLC) Waste Extraction Test using DI water
DISS	Dissolved (direct analysis of 0.45 µm filtered and acidified water sample)
DLT	Dilution Test (Serial Dilution)
DUP	Duplicate
EDL	Estimated Detection Limit
ITEF	International Toxicity Equivalence Factor
LCS	Laboratory Control Sample
MB	Method Blank
MB % Rec	% Recovery of Surrogate in Method Blank, if applicable
MDL	Method Detection Limit
ML	Minimum Level of Quantitation
MS	Matrix Spike
MSD	Matrix Spike Duplicate
N/A	Not Applicable
ND	Not detected at or above the indicated MDL or RL
NR	Data Not Reported due to matrix interference or insufficient sample amount.
PDS	Post Digestion Spike
PDSD	Post Digestion Spike Duplicate
PF	Prep Factor
RD	Relative Difference
RL	Reporting Limit (The RL is the lowest calibration standard in a multipoint calibration.)
RPD	Relative Percent Deviation
RRT	Relative Retention Time
SPK Val	Spike Value
SPKRef Val	Spike Reference Value
SPLP	Synthetic Precipitation Leachate Procedure
ST	Sorbent Tube
TCLP	Toxicity Characteristic Leachate Procedure
TEQ	Toxicity Equivalents
WET (STLC)	Waste Extraction Test (Soluble Threshold Limit Concentration)



Glossary of Terms & Qualifier Definitions

Client: Aquifer Sciences, Inc.
Project: 216621
WorkOrder: 1605290

Analytical Qualifiers

S Surrogate spike recovery outside accepted recovery limits
c4 surrogate recovery outside of the control limits due to coelution with another peak(s) / cluttered chromatogram.
d1 weakly modified or unmodified gasoline is significant
d2 heavier gasoline range compounds are significant (aged gasoline?)
d7 strongly aged gasoline or diesel range compounds are significant in the TPH(g) chromatogram
d9 no recognizable pattern

Quality Control Qualifiers

F1 MS/MSD recovery and/or RPD is out of acceptance criteria; LCS validated the prep batch.



Analytical Report

Client: Aquifer Sciences, Inc.
Date Received: 5/6/16 15:50
Date Prepared: 5/6/16-5/10/16
Project: 216621

WorkOrder: 1605290
Extraction Method: SW5030B
Analytical Method: SW8021B/8015Bm
Unit: mg/Kg

Gasoline Range (C6-C12) Volatile Hydrocarbons as Gasoline with BTEX and MTBE

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
AS-1-5	1605290-001A	Soil	05/06/2016 11:15	GC7	120731

Analytes	Result	RL	DF	Date Analyzed
TPH(g)	ND	1.0	1	05/11/2016 11:55
MTBE	---	0.050	1	05/11/2016 11:55
Benzene	ND	0.0050	1	05/11/2016 11:55
Toluene	ND	0.0050	1	05/11/2016 11:55
Ethylbenzene	ND	0.0050	1	05/11/2016 11:55
Xylenes	ND	0.015	1	05/11/2016 11:55

Surrogates	REC (%)	Limits
2-Fluorotoluene	106	70-130

Analyst(s): LT

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
AS-1-10	1605290-002A	Soil	05/06/2016 11:20	GC19	120636

Analytes	Result	RL	DF	Date Analyzed
TPH(g)	ND	1.0	1	05/10/2016 01:36
MTBE	---	0.050	1	05/10/2016 01:36
Benzene	ND	0.0050	1	05/10/2016 01:36
Toluene	ND	0.0050	1	05/10/2016 01:36
Ethylbenzene	ND	0.0050	1	05/10/2016 01:36
Xylenes	ND	0.015	1	05/10/2016 01:36

Surrogates	REC (%)	Limits
2-Fluorotoluene	97	70-130

Analyst(s): TD



Analytical Report

Client: Aquifer Sciences, Inc.
Date Received: 5/6/16 15:50
Date Prepared: 5/6/16-5/10/16
Project: 216621

WorkOrder: 1605290
Extraction Method: SW5030B
Analytical Method: SW8021B/8015Bm
Unit: mg/Kg

Gasoline Range (C6-C12) Volatile Hydrocarbons as Gasoline with BTEX and MTBE

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
AS-1-16	1605290-003A	Soil	05/06/2016 11:30	GC19	120636
<u>Analytes</u>	<u>Result</u>		<u>RL</u>	<u>DF</u>	<u>Date Analyzed</u>
TPH(g)	1.6		1.0	1	05/10/2016 05:06
MTBE	---		0.050	1	05/10/2016 05:06
Benzene	ND		0.0050	1	05/10/2016 05:06
Toluene	0.0067		0.0050	1	05/10/2016 05:06
Ethylbenzene	0.0073		0.0050	1	05/10/2016 05:06
Xylenes	0.048		0.015	1	05/10/2016 05:06
<u>Surrogates</u>	<u>REC (%)</u>		<u>Limits</u>		
2-Fluorotoluene	102		70-130		05/10/2016 05:06
<u>Analyst(s):</u> TD			<u>Analytical Comments:</u> d2,d9		

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
AS-1-18	1605290-004A	Soil	05/06/2016 11:40	GC19	120636
<u>Analytes</u>	<u>Result</u>		<u>RL</u>	<u>DF</u>	<u>Date Analyzed</u>
TPH(g)	ND		1.0	1	05/10/2016 05:36
MTBE	---		0.050	1	05/10/2016 05:36
Benzene	ND		0.0050	1	05/10/2016 05:36
Toluene	ND		0.0050	1	05/10/2016 05:36
Ethylbenzene	ND		0.0050	1	05/10/2016 05:36
Xylenes	ND		0.015	1	05/10/2016 05:36
<u>Surrogates</u>	<u>REC (%)</u>		<u>Limits</u>		
2-Fluorotoluene	88		70-130		05/10/2016 05:36
<u>Analyst(s):</u> TD					



Analytical Report

Client: Aquifer Sciences, Inc.
Date Received: 5/6/16 15:50
Date Prepared: 5/6/16-5/10/16
Project: 216621

WorkOrder: 1605290
Extraction Method: SW5030B
Analytical Method: SW8021B/8015Bm
Unit: mg/Kg

Gasoline Range (C6-C12) Volatile Hydrocarbons as Gasoline with BTEX and MTBE

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
AS-2-5	1605290-005A	Soil	05/06/2016 10:30	GC19	120636
<u>Analytes</u>	<u>Result</u>		<u>RL</u>	<u>DF</u>	<u>Date Analyzed</u>
TPH(g)	2.6		1.0	1	05/10/2016 06:07
MTBE	---		0.050	1	05/10/2016 06:07
Benzene	ND		0.0050	1	05/10/2016 06:07
Toluene	ND		0.0050	1	05/10/2016 06:07
Ethylbenzene	ND		0.0050	1	05/10/2016 06:07
Xylenes	ND		0.015	1	05/10/2016 06:07
<u>Surrogates</u>	<u>REC (%)</u>		<u>Limits</u>		
2-Fluorotoluene	98		70-130		05/10/2016 06:07
<u>Analyst(s):</u> TD			<u>Analytical Comments:</u> d2		

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
AS-2-8	1605290-006A	Soil	05/06/2016 10:35	GC19	120636
<u>Analytes</u>	<u>Result</u>		<u>RL</u>	<u>DF</u>	<u>Date Analyzed</u>
TPH(g)	57		2.0	2	05/10/2016 20:39
MTBE	---		0.10	2	05/10/2016 20:39
Benzene	ND		0.010	2	05/10/2016 20:39
Toluene	ND		0.010	2	05/10/2016 20:39
Ethylbenzene	0.057		0.010	2	05/10/2016 20:39
Xylenes	0.047		0.030	2	05/10/2016 20:39
<u>Surrogates</u>	<u>REC (%)</u>		<u>Limits</u>		
2-Fluorotoluene	93		70-130		05/10/2016 20:39
<u>Analyst(s):</u> HD			<u>Analytical Comments:</u> d7		

(Cont.)



Analytical Report

Client: Aquifer Sciences, Inc.
Date Received: 5/6/16 15:50
Date Prepared: 5/6/16-5/10/16
Project: 216621

WorkOrder: 1605290
Extraction Method: SW5030B
Analytical Method: SW8021B/8015Bm
Unit: mg/Kg

Gasoline Range (C6-C12) Volatile Hydrocarbons as Gasoline with BTEX and MTBE

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
AS-2-13	1605290-007A	Soil	05/06/2016 10:40	GC19	120636
<u>Analytes</u>	<u>Result</u>		<u>RL</u>	<u>DF</u>	<u>Date Analyzed</u>
TPH(g)	21		1.0	1	05/11/2016 00:13
MTBE	---		0.050	1	05/11/2016 00:13
Benzene	0.081		0.0050	1	05/11/2016 00:13
Toluene	ND		0.0050	1	05/11/2016 00:13
Ethylbenzene	0.38		0.0050	1	05/11/2016 00:13
Xylenes	0.099		0.015	1	05/11/2016 00:13
<u>Surrogates</u>	<u>REC (%)</u>		<u>Limits</u>		
2-Fluorotoluene	83		70-130		05/11/2016 00:13
<u>Analyst(s):</u> HD			<u>Analytical Comments:</u> d1		

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
AS-2-15	1605290-008A	Soil	05/06/2016 10:50	GC19	120636
<u>Analytes</u>	<u>Result</u>		<u>RL</u>	<u>DF</u>	<u>Date Analyzed</u>
TPH(g)	2.9		1.0	1	05/11/2016 01:14
MTBE	---		0.050	1	05/11/2016 01:14
Benzene	0.045		0.0050	1	05/11/2016 01:14
Toluene	0.0067		0.0050	1	05/11/2016 01:14
Ethylbenzene	0.067		0.0050	1	05/11/2016 01:14
Xylenes	0.11		0.015	1	05/11/2016 01:14
<u>Surrogates</u>	<u>REC (%)</u>		<u>Limits</u>		
2-Fluorotoluene	91		70-130		05/11/2016 01:14
<u>Analyst(s):</u> HD			<u>Analytical Comments:</u> d1		

(Cont.)

NELAP 4033ORELAP

 Angela Rydelius, Lab Manager



Analytical Report

Client: Aquifer Sciences, Inc.
Date Received: 5/6/16 15:50
Date Prepared: 5/6/16-5/10/16
Project: 216621

WorkOrder: 1605290
Extraction Method: SW5030B
Analytical Method: SW8021B/8015Bm
Unit: mg/Kg

Gasoline Range (C6-C12) Volatile Hydrocarbons as Gasoline with BTEX and MTBE

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
AS-3-7	1605290-010A	Soil	05/06/2016 09:45	GC7	120636

Analytes	Result	RL	DF	Date Analyzed
TPH(g)	90	20	20	05/11/2016 22:34
MTBE	---	1.0	20	05/11/2016 22:34
Benzene	ND	0.10	20	05/11/2016 22:34
Toluene	ND	0.10	20	05/11/2016 22:34
Ethylbenzene	0.15	0.10	20	05/11/2016 22:34
Xylenes	ND	0.30	20	05/11/2016 22:34

Surrogates	REC (%)	Limits
2-Fluorotoluene	102	70-130

Analyst(s): LT

Analytical Comments: d7,d9

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
AS-3-10	1605290-011A	Soil	05/06/2016 09:55	GC19	120636

Analytes	Result	RL	DF	Date Analyzed
TPH(g)	550	20	20	05/13/2016 02:31
MTBE	---	1.0	20	05/13/2016 02:31
Benzene	ND	0.10	20	05/13/2016 02:31
Toluene	0.21	0.10	20	05/13/2016 02:31
Ethylbenzene	6.1	0.10	20	05/13/2016 02:31
Xylenes	11	0.30	20	05/13/2016 02:31

Surrogates	REC (%)	Qualifiers	Limits
2-Fluorotoluene	140	S	70-130

Analyst(s): LT

Analytical Comments: d2,d9,c4

(Cont.)



Analytical Report

Client: Aquifer Sciences, Inc.
Date Received: 5/6/16 15:50
Date Prepared: 5/6/16-5/10/16
Project: 216621

WorkOrder: 1605290
Extraction Method: SW5030B
Analytical Method: SW8021B/8015Bm
Unit: mg/Kg

Gasoline Range (C6-C12) Volatile Hydrocarbons as Gasoline with BTEX and MTBE

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
AS-3-14	1605290-012A	Soil	05/06/2016 10:00	GC19	120642
<u>Analytes</u>	<u>Result</u>		<u>RL</u>	<u>DF</u>	<u>Date Analyzed</u>
TPH(g)	13		1.0	1	05/10/2016 23:12
MTBE	---		0.050	1	05/10/2016 23:12
Benzene	0.038		0.0050	1	05/10/2016 23:12
Toluene	0.0051		0.0050	1	05/10/2016 23:12
Ethylbenzene	0.24		0.0050	1	05/10/2016 23:12
Xylenes	0.051		0.015	1	05/10/2016 23:12
<u>Surrogates</u>	<u>REC (%)</u>		<u>Limits</u>		
2-Fluorotoluene	90		70-130		05/10/2016 23:12
<u>Analyst(s):</u> HD			<u>Analytical Comments:</u> d1		

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
AS-3-16	1605290-013A	Soil	05/06/2016 10:10	GC19	120642
<u>Analytes</u>	<u>Result</u>		<u>RL</u>	<u>DF</u>	<u>Date Analyzed</u>
TPH(g)	690		200	200	05/13/2016 14:58
MTBE	---		10	200	05/13/2016 14:58
Benzene	2.4		1.0	200	05/13/2016 14:58
Toluene	24		1.0	200	05/13/2016 14:58
Ethylbenzene	17		1.0	200	05/13/2016 14:58
Xylenes	94		3.0	200	05/13/2016 14:58
<u>Surrogates</u>	<u>REC (%)</u>	<u>Qualifiers</u>	<u>Limits</u>		
2-Fluorotoluene	332	S	70-130		05/13/2016 14:58
<u>Analyst(s):</u> LT			<u>Analytical Comments:</u> d1,c4		



Quality Control Report

Client: Aquifer Sciences, Inc.
Date Prepared: 5/6/16
Date Analyzed: 5/7/16
Instrument: GC19
Matrix: Soil
Project: 216621

WorkOrder: 1605290
BatchID: 120636
Extraction Method: SW5030B
Analytical Method: SW8021B/8015Bm
Unit: mg/Kg
Sample ID: MB/LCS-120636
 1605272-001AMS/MSD

QC Summary Report for SW8021B/8015Bm

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
TPH(btex)	ND	0.616	0.40	0.60	-	103	70-130
MTBE	ND	0.0885	0.050	0.10	-	88	70-130
Benzene	ND	0.103	0.0050	0.10	-	103	70-130
Toluene	ND	0.105	0.0050	0.10	-	105	70-130
Ethylbenzene	ND	0.105	0.0050	0.10	-	105	70-130
Xylenes	ND	0.315	0.015	0.30	-	105	70-130
Surrogate Recovery							
2-Fluorotoluene	0.0986	0.0990		0.10	99	99	70-130

Analyte	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
TPH(btex)	0.531	0.528	0.60	ND	88	88	70-130	0	20
MTBE	0.0893	0.0811	0.10	ND	89	81	70-130	9.67	20
Benzene	0.105	0.0870	0.10	ND	105	87	70-130	18.7	20
Toluene	0.106	0.0900	0.10	ND	106	90	70-130	16.4	20
Ethylbenzene	0.104	0.0906	0.10	ND	104	91	70-130	13.8	20
Xylenes	0.310	0.272	0.30	ND	103	91	70-130	13.1	20
Surrogate Recovery									
2-Fluorotoluene	0.101	0.0861	0.10		101	86	70-130	16.4	20



Quality Control Report

Client: Aquifer Sciences, Inc.
Date Prepared: 5/6/16
Date Analyzed: 5/7/16
Instrument: GC3
Matrix: Soil
Project: 216621

WorkOrder: 1605290
BatchID: 120642
Extraction Method: SW5030B
Analytical Method: SW8021B/8015Bm
Unit: mg/Kg
Sample ID: MB/LCS-120642
 1605290-012AMS/MSD

QC Summary Report for SW8021B/8015Bm

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
TPH(btex)	ND	0.610	0.40	0.60	-	102	70-130
MTBE	ND	0.0991	0.050	0.10	-	99	70-130
Benzene	ND	0.113	0.0050	0.10	-	113	70-130
Toluene	ND	0.114	0.0050	0.10	-	114	70-130
Ethylbenzene	ND	0.112	0.0050	0.10	-	112	70-130
Xylenes	ND	0.335	0.015	0.30	-	112	70-130

Surrogate Recovery

2-Fluorotoluene	0.100	0.111		0.10	100	111	70-130
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Analyte	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
TPH(btex)	3.60	3.72	0.60	2.097	250,F1	270,F1	70-130	3.39	20
MTBE	0.100	0.118	0.10	ND	88	106	70-130	15.9	20
Benzene	0.140	0.159	0.10	0.03782	102	121	70-130	12.6	20
Toluene	0.116	0.128	0.10	0.005119	110	122	70-130	9.79	20
Ethylbenzene	0.439	0.458	0.10	0.2387	201,F1	219,F1	70-130	4.08	20
Xylenes	0.362	0.394	0.30	0.05087	104	114	70-130	8.37	20

Surrogate Recovery

2-Fluorotoluene	0.0899	0.0989	0.10		90	99	70-130	9.52	20
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Quality Control Report

Client: Aquifer Sciences, Inc.
Date Prepared: 5/10/16
Date Analyzed: 5/11/16
Instrument: GC19, GC7
Matrix: Soil
Project: 216621

WorkOrder: 1605290
BatchID: 120731
Extraction Method: SW5030B
Analytical Method: SW8021B/8015Bm
Unit: mg/Kg
Sample ID: MB/LCS-120731

QC Summary Report for SW8021B/8015Bm

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
TPH(btex)	ND	0.540	0.40	0.60	-	90	70-130
MTBE	ND	0.0918	0.050	0.10	-	92	70-130
Benzene	ND	0.0929	0.0050	0.10	-	93	70-130
Toluene	ND	0.0797	0.0050	0.10	-	80	70-130
Ethylbenzene	ND	0.0946	0.0050	0.10	-	95	70-130
Xylenes	ND	0.288	0.015	0.30	-	96	70-130
Surrogate Recovery							
2-Fluorotoluene	0.104	0.111		0.10	104	111	70-130



1534 Willow Pass Rd
Pittsburg, CA 94565-1701
(925) 252-9262

CHAIN-OF-CUSTODY RECORD

WorkOrder: 1605290

ClientCode: ASI

WaterTrax
 WriteOn
 EDF
 Excel
 EQUS
 Email
 HardCopy
 ThirdParty
 J-flag

Report to:

Duncan Knudsen
Aquifer Sciences, Inc.
3520 Golden Gate Way
Lafayette, CA 94549
(925) 283-9098 FAX: 925-283-9133

Email: dknudsen@aquifer.com; ras@aquifer.com
cc/3rd Party:
PO:
ProjectNo: 216621

Bill to:

Accounts Payable
Aquifer Sciences, Inc.
3520 Golden Gate Way
Lafayette, CA 94549

Requested TAT: 5 days;

Date Received: 05/06/2016

Date Logged: 05/06/2016

Lab ID	Client ID	Matrix	Collection Date	Hold	Requested Tests (See legend below)											
					1	2	3	4	5	6	7	8	9	10	11	12
1605290-001	AS-1-5	Soil	5/6/2016 11:15	<input type="checkbox"/>	A											
1605290-002	AS-1-10	Soil	5/6/2016 11:20	<input type="checkbox"/>	A											
1605290-003	AS-1-16	Soil	5/6/2016 11:30	<input type="checkbox"/>	A											
1605290-004	AS-1-18	Soil	5/6/2016 11:40	<input type="checkbox"/>	A											
1605290-005	AS-2-5	Soil	5/6/2016 10:30	<input type="checkbox"/>	A											
1605290-006	AS-2-8	Soil	5/6/2016 10:35	<input type="checkbox"/>	A											
1605290-007	AS-2-13	Soil	5/6/2016 10:40	<input type="checkbox"/>	A											
1605290-008	AS-2-15	Soil	5/6/2016 10:50	<input type="checkbox"/>	A											
1605290-010	AS-3-7	Soil	5/6/2016 9:45	<input type="checkbox"/>	A											
1605290-011	AS-3-10	Soil	5/6/2016 9:55	<input type="checkbox"/>	A											
1605290-012	AS-3-14	Soil	5/6/2016 10:00	<input type="checkbox"/>	A											
1605290-013	AS-3-16	Soil	5/6/2016 10:10	<input type="checkbox"/>	A											

Test Legend:

1	G-MBTX_S	2		3		4	
5		6		7		8	
9		10		11		12	

Prepared by: Jena Alfaro

Comments:

NOTE: Soil samples are discarded 60 days after results are reported unless other arrangements are made (Water samples are 30 days).
Hazardous samples will be returned to client or disposed of at client expense.



WORK ORDER SUMMARY

Client Name: AQUIFER SCIENCES, INC.

QC Level: LEVEL 2

Work Order: 1605290

Project: 216621

Client Contact: Duncan Knudsen

Date Logged: 5/6/2016

Comments:

Contact's Email: dknudsen@aquifer.com; ras@aquifer.com

WaterTrax WriteOn EDF Excel Fax Email HardCopy ThirdParty J-flag

Lab ID	Client ID	Matrix	Test Name	Containers /Composites	Bottle & Preservative	De-chlorinated	Collection Date & Time	TAT	Sediment Content	Hold	SubOut
1605290-001A	AS-1-5	Soil	SW8021B/8015Bm (G/MBTEX)	1	Acetate Liner	<input type="checkbox"/>	5/6/2016 11:15	5 days		<input type="checkbox"/>	
1605290-002A	AS-1-10	Soil	SW8021B/8015Bm (G/MBTEX)	1	Acetate Liner	<input type="checkbox"/>	5/6/2016 11:20	5 days		<input type="checkbox"/>	
1605290-003A	AS-1-16	Soil	SW8021B/8015Bm (G/MBTEX)	1	Acetate Liner	<input type="checkbox"/>	5/6/2016 11:30	5 days		<input type="checkbox"/>	
1605290-004A	AS-1-18	Soil	SW8021B/8015Bm (G/MBTEX)	1	Acetate Liner	<input type="checkbox"/>	5/6/2016 11:40	5 days		<input type="checkbox"/>	
1605290-005A	AS-2-5	Soil	SW8021B/8015Bm (G/MBTEX)	1	Acetate Liner	<input type="checkbox"/>	5/6/2016 10:30	5 days		<input type="checkbox"/>	
1605290-006A	AS-2-8	Soil	SW8021B/8015Bm (G/MBTEX)	1	Acetate Liner	<input type="checkbox"/>	5/6/2016 10:35	5 days		<input type="checkbox"/>	
1605290-007A	AS-2-13	Soil	SW8021B/8015Bm (G/MBTEX)	1	Acetate Liner	<input type="checkbox"/>	5/6/2016 10:40	5 days		<input type="checkbox"/>	
1605290-008A	AS-2-15	Soil	SW8021B/8015Bm (G/MBTEX)	1	Acetate Liner	<input type="checkbox"/>	5/6/2016 10:50	5 days		<input type="checkbox"/>	
1605290-009A	AS-2-18	Soil	SW8021B/8015Bm (G/MBTEX)	1	Acetate Liner	<input type="checkbox"/>	5/6/2016 10:55			<input checked="" type="checkbox"/>	
1605290-010A	AS-3-7	Soil	SW8021B/8015Bm (G/MBTEX)	1	Acetate Liner	<input type="checkbox"/>	5/6/2016 9:45	5 days		<input type="checkbox"/>	
1605290-011A	AS-3-10	Soil	SW8021B/8015Bm (G/MBTEX)	1	Acetate Liner	<input type="checkbox"/>	5/6/2016 9:55	5 days		<input type="checkbox"/>	
1605290-012A	AS-3-14	Soil	SW8021B/8015Bm (G/MBTEX)	1	Acetate Liner	<input type="checkbox"/>	5/6/2016 10:00	5 days		<input type="checkbox"/>	
1605290-013A	AS-3-16	Soil	SW8021B/8015Bm (G/MBTEX)	1	Acetate Liner	<input type="checkbox"/>	5/6/2016 10:10	5 days		<input type="checkbox"/>	

NOTES: - STLC and TCLP extractions require 2 days to complete; therefore, all TATs begin after the extraction is completed (i.e., One-day TAT yields results in 3 days from sample submission).
 - MAI assumes that all material present in the provided sampling container is considered part of the sample - MAI does not exclude any material from the sample prior to sample preparation unless requested in writing by the client.

1605290

AQUIFER SCIENCES, INC.

3520 Golden Gate Way
~~3680 A Mt. Diablo Blvd.~~ (925) 283-9098
 Lafayette, CA 94549 (925) 283-9133 FAX

CHAIN OF CUSTODY

Project Number: 216621				Number of Containers and Preservative				<input type="checkbox"/> Diesel <input type="checkbox"/> Motor Oil <input type="checkbox"/> silica gel cleanup <input checked="" type="checkbox"/> Gasoline <input checked="" type="checkbox"/> BTEX <input type="checkbox"/> MTBE <input type="checkbox"/> EPA <input type="checkbox"/> Halogenated VOCs <input type="checkbox"/> Aromatic VOCs <input type="checkbox"/> EPA 624 / 8260 <input type="checkbox"/> VOCs <input type="checkbox"/> Fuel Oxygenates <input type="checkbox"/> EPA 625 / 8270 <input type="checkbox"/> SVOCs <input type="checkbox"/> PAHs <input type="checkbox"/> Metals: <input type="checkbox"/> CAM 17 <input type="checkbox"/> PCBs <input type="checkbox"/> LUFT 5 <input type="checkbox"/> 13 Priority Poll.										Results: <input checked="" type="checkbox"/> Email <input type="checkbox"/> FAX <input type="checkbox"/> EDF GeoTracker										
Sampler(s) Signature(s):				Unpreserved														Turn-around time: <input type="checkbox"/> 10-day <input checked="" type="checkbox"/> 5-day <input type="checkbox"/>										Contact: <u>dknudsen@aquifer.com</u>
Sample Identification	Date	Time	Sample Type	HCl	HNO ₃	H ₂ SO ₄	NaOH											Email: <u>RAS @aquifer.com</u>										Comments
AS-1-5	5/6/16	1115	soil	1				<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>						
AS-1-10	↑	1120	↑	1				<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>						
AS-1-16		1130		1				<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>						
AS-1-18		1140		1				<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>						
AS-2-5		1030		1				<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>						
AS-2-8		1035		1				<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>						
AS-2-13		1040		1				<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>						
AS-2-15		1050		1				<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>						
AS-2-18		1055		1				<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	# Hold AS-2-18					
AS-3-7		0945		1				<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>						
AS-3-10		0955		1				<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>						
AS-3-14	↓	1000	↓	1				<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>						
AS-3-16	5/6/16	1010	soil	1				<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>						

Relinquished by	Date	Time	Received by	Date	Time
	5-6-16	1505		5-6-16	1505
	5-6-16	1540		5/6/16	1550

Analytical laboratory: McCampbell Analytical Shipping notes: Via Carrier Page 1 of 1



Sample Receipt Checklist

Client Name: **Aquifer Sciences, Inc.**
Project Name: **216621**
WorkOrder No: **1605290** Matrix: Soil
Carrier: Bernie Cummins (MAI Courier)

Date and Time Received: **5/6/2016 15:50**
Date Logged: **5/6/2016**
Received by: **Jena Alfaro**
Logged by: **Jena Alfaro**

Chain of Custody (COC) Information

Chain of custody present? Yes No
Chain of custody signed when relinquished and received? Yes No
Chain of custody agrees with sample labels? Yes No
Sample IDs noted by Client on COC? Yes No
Date and Time of collection noted by Client on COC? Yes No
Sampler's name noted on COC? Yes No

Sample Receipt Information

Custody seals intact on shipping container/cooler? Yes No NA
Shipping container/cooler in good condition? Yes No
Samples in proper containers/bottles? Yes No
Sample containers intact? Yes No
Sufficient sample volume for indicated test? Yes No

Sample Preservation and Hold Time (HT) Information

All samples received within holding time? Yes No
Sample/Temp Blank temperature Temp: 4.1°C NA
Water - VOA vials have zero headspace / no bubbles? Yes No NA
Sample labels checked for correct preservation? Yes No
pH acceptable upon receipt (Metal: <2; 522: <4; 218.7: >8)? Yes No NA
Samples Received on Ice? Yes No
(Ice Type: WET ICE)

UCMR3 Samples:

Total Chlorine tested and acceptable upon receipt for EPA 522? Yes No NA
Free Chlorine tested and acceptable upon receipt for EPA 218.7, 300.1, 537, 539? Yes No NA

Comments:

APPENDIX D

MAP AND DATA TABLE

SOIL GAS INVESTIGATION, APRIL 2016

Table 1							
GRAB GROUNDWATER LABORATORY ANALYTICAL RESULTS							
411 W. MacArthur Blvd., Oakland, CA							
Sample ID	Sample Depth (ft)	Concentration (micrograms per liter, ug/L)					
		TPH-G	B	T	E	X	Naphth.
Soil Boring Investigation, ARS, April 8, 2016							
GW-1	(20 ft)	42,000	110	67	2,600	4,800	2,300
GW-2	(20 ft)	21,000	39	540	850	3,900	490
GW-3	(20 ft)	7,800	<5.0	81	230	1,000	190
ESL-Vapor Intrusion (res.)		NL	30	100,000	370	38,000	180
ESL-Vapor Intrusion (comm.)		NL	260	NL	3,300	NL	1,600

Table Notes

TPH-G = Total Petroleum Hydrocarbons as Gasoline

B = Benzene,

T = Toluene

E = Ethylbenzene

X = Xylenes

Naphth. = Naphthalene

<0.5 = Not detected above the expressed detection level.

ESL = Environmental Screening Levels, as contained in Screening for Environmental Concerns at Sites with Contaminated Soil and Groundwater, San Francisco Bay Regional Water Quality Control Board, February 2016.

Table 2													
SOIL GAS LABORATORY ANALYTICAL RESULTS													
411 W. MacArthur Blvd., Oakland, CA													
Sample ID	Date	Sample Depth	TPH-G (ug/m3)	B (ug/m3)	T (ug/m3)	E (ug/m3)	X (ug/m3)	Naphth. (ug/m3)	Methane (%)	CO2 (%)	N (%)	O2 (%)	Helium (%)
SG-1	4/15/2016	16.0 ft	150,000	39	210	360	1,100	<53	0.50	0.12	NA	11.0	<0.050
SG-2	4/8/2016	5.5 ft	1,900,000	450	<190	<220	<660	<530	21	5.2	NA	2.5	4.3
SG-3	4/8/2016	5.5 ft	2,700,000	<160	<190	390	<660	<530	23	4.2	NA	0.76	<0.050
Soil Gas ESL-Residential			300,000	48	1.6E+05	560	5.2E+04	41	LEL = 4.4 UEL = 17	--	--	--	--
Soil Gas ESL-Commercial			2,500,000	420	1.3E+06	4,900	4.4E+05	360	LEL = 4.4 UEL = 17	--	--	--	--

Table Notes

TPH-G = Total Petroleum Hydrocarbons as Gasoline

B = Benzene

T = Toluene

E = Ethylbenzene

X = Xylenes

Naphth. = Naphthalene

ug/m3 = micrograms per cubic meter

% = Percent

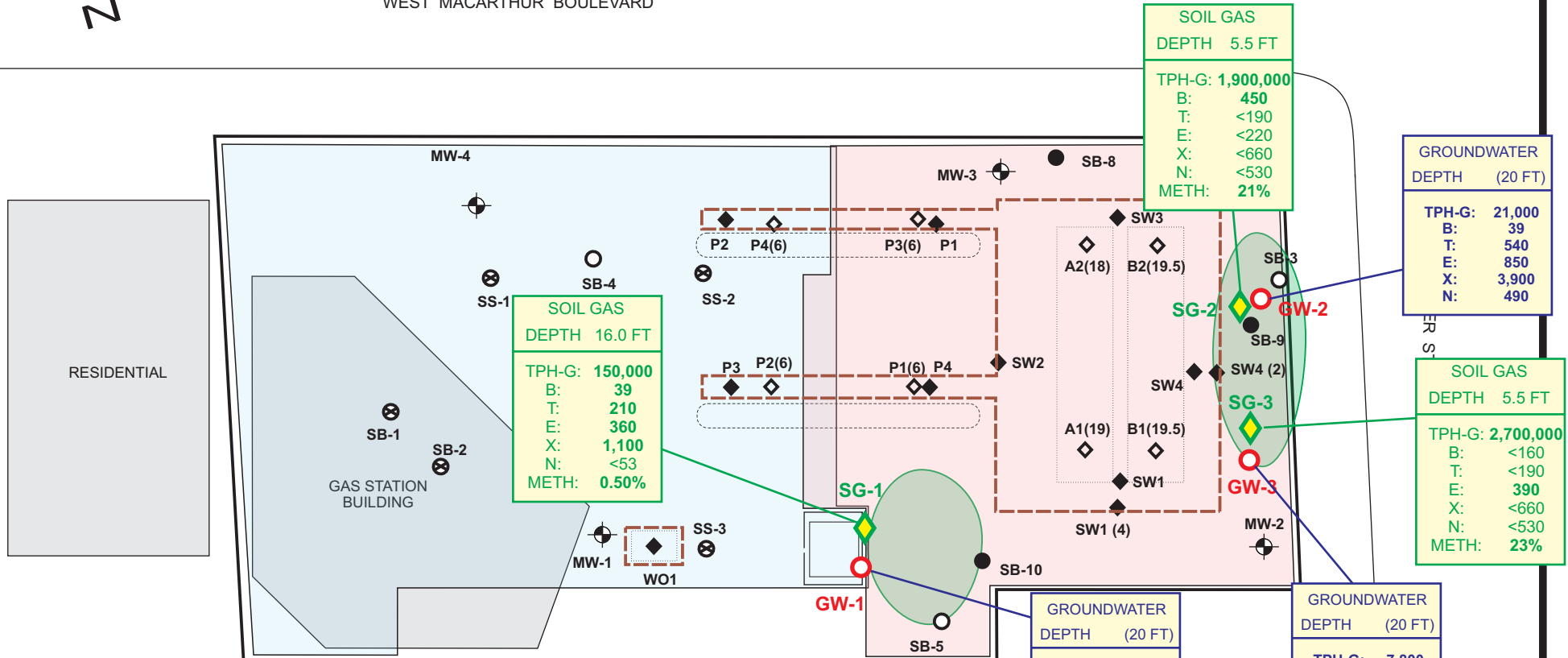
<0190 = Not detected above the expressed detection level.

LEL = Lower explosion limit

UEL = Upper explosion limit



WEST MACARTHUR BOULEVARD



SOIL GAS
DEPTH 5.5 FT
TPH-G: 1,900,000
B: 450
T: <190
E: <220
X: <660
N: <530
METH: 21%

SOIL GAS
DEPTH 16.0 FT
TPH-G: 150,000
B: 39
T: 210
E: 360
X: 1,100
N: <53
METH: 0.50%

GROUNDWATER
DEPTH (20 FT)
TPH-G: 21,000
B: 39
T: 540
E: 850
X: 3,900
N: 490

SOIL GAS
DEPTH 5.5 FT
TPH-G: 2,700,000
B: <160
T: <190
E: 390
X: <660
N: <530
METH: 23%

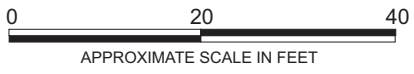
GROUNDWATER
DEPTH (20 FT)
TPH-G: 42,000
B: 110
T: 67
E: 2,600
X: 4,800
N: 2,300

GROUNDWATER
DEPTH (20 FT)
TPH-G: 7,800
B: <5.0
T: 81
E: 230
X: 1,000
N: 190

- ◇ - UST REMOVAL SOIL SAMPLE, 09/1998
- ◆ - UST REMOVAL SOIL SAMPLE, 07/1989
- ⊗ - SOIL BORING LOCATION (SLR, 2014)
- - SOIL BORING LOCATION (DELTA, 2010)
- - SOIL BORING LOCATION (TRC, 2006)
- ⊕ - GROUNDWATER MONITORING WELL LOCATION

- ◇ - SOIL GAS SAMPLE LOCATION
- - GROUNDWATER SAMPLE LOCATION

- - COMMERCIAL/RETAIL SUITE ON GROUND FLOOR, 14 FEET CEILING.
- - BASEMENT, CAR STACKER & MECH./STORAGE, 9 FEET CEILING; PARKING ON GROUND FLOOR, 14 FEET CEILING.



DESIGNED BY: JG	CHECKED BY: MK
DRAWN BY: JG	SCALE:
PROJECT NO: ARS-16-29-01	

**GROUNDWATER & SOIL GAS
SAMPLE RESULTS**
411 W. MAC ARTHUR BLVD.
OAKLAND, CALIFORNIA

DATE: 04/19/2016	FIGURE: 1
 Applied Remedial Services, Inc. P.O. Box 5086 Walnut Creek, CA 94596	