

Former Pacific Electric Motors

Aspire Charter School

Presentation to ACEH to Review
Site Conditions and Discuss Path Forward

Imagine the result



Former Pacific Electric Motors Site
1009 66th Avenue Oakland, CA
College for Certain Site Meeting

Alameda County Department of
Environmental Health
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502-6577
Tel (510) 567-6700

Attendees:

Paresh Khatri - Alameda County Department of Environmental Health (ACEH)
Donna Drogos - ACEH
Charles Robitaille - Pacific Charter Schools - College for Certain - Aspire
Ron Goloubow - ARCADIS/ College for Certain
Eric Ehlers - ARCADIS / College for Certain
Dave Voorhies - Underwood & Rosenblum, Inc

Meeting Objective:

Review site data for the soil removal actions
Review site data for the air sparging-soil vapor extraction system
Clarify the path forward for the project with ACEH

Agenda:

Presentation by ARCADIS / College for Certain

1. Brief Site History and Redevelopment Plan/Schedule
2. Summary of Soil Removal PCB, Lead, and Arsenic
3. Toxic Substance Control Act Cap
4. Summary of Groundwater Remediation - posted data
5. Scenarios 1, 2, and 3
6. Recommendations for Path Forward

Discussion with County (during and after presentation)

Wrap Up

Attachments:

Maps with concentration data -- previously provided

Objectives

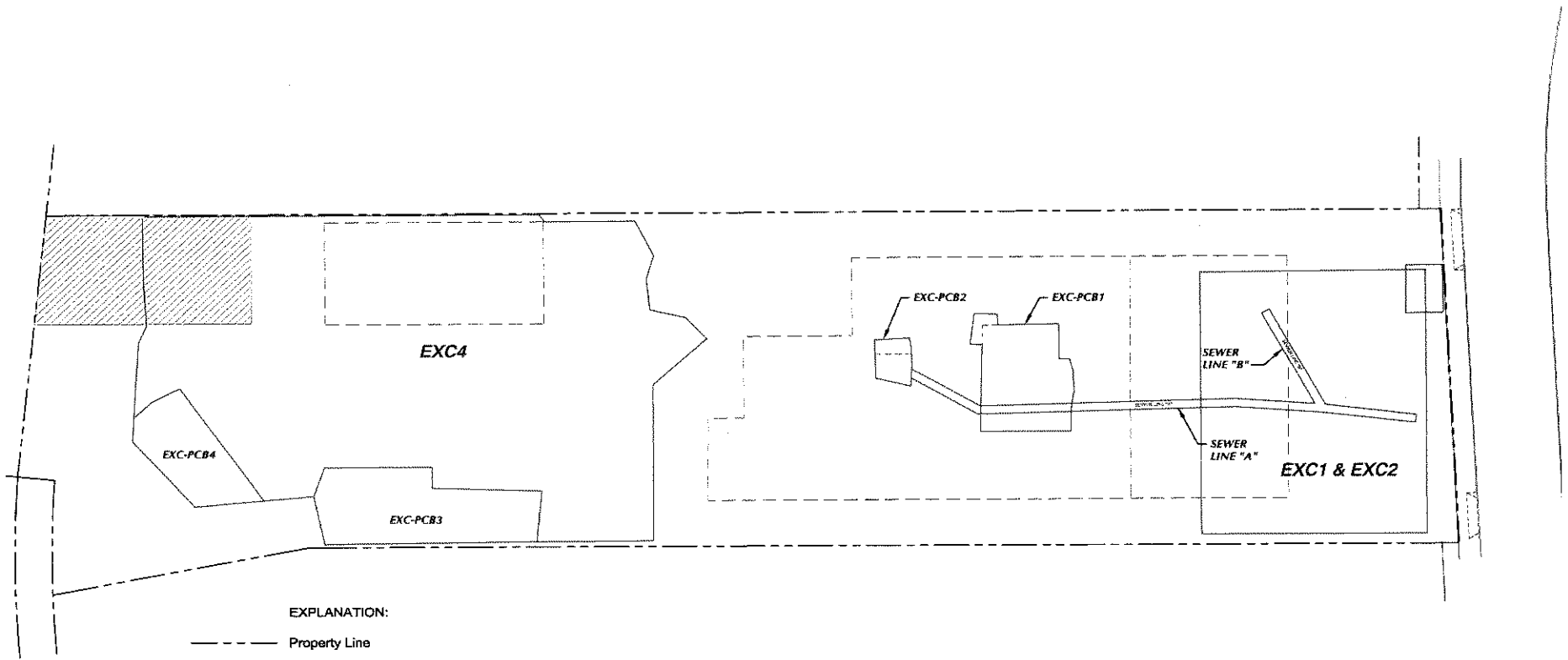
- Review site data.
- Clarify and obtain ACEH concurrence regarding site conditions and path forward.

Outline

- Site History
- Site Conditions:
 - Sources
 - Soil Remediation
 - Groundwater Remediation
 - Potential receptors
- Conclusions and Recommendations

Site History - Soil Remediation

- Subsurface investigations from 1996 through 2010
- Approximately 400 cy of PCB - affected soil was excavated from the northwestern corner of the Site under the direction of the ACEH 1992
- Corrective Action Plan – July 2009
- EPA becomes involved for the remediation of the PCB affected soil through the Toxic Substances Control Act – November 2009
- From November 2009 to August 2010
- 5,745 tons of “non-hazardous” soil taken to Vasco Road Landfill
- 1,060 tons demo debris taken to Keller Canyon
- 856 tons of TSCA soil taken to Kettleman
- 2,061 of non-RCRA soil taken to Kettleman
- TOTAL: 9,722 tons of soil removed from the Site

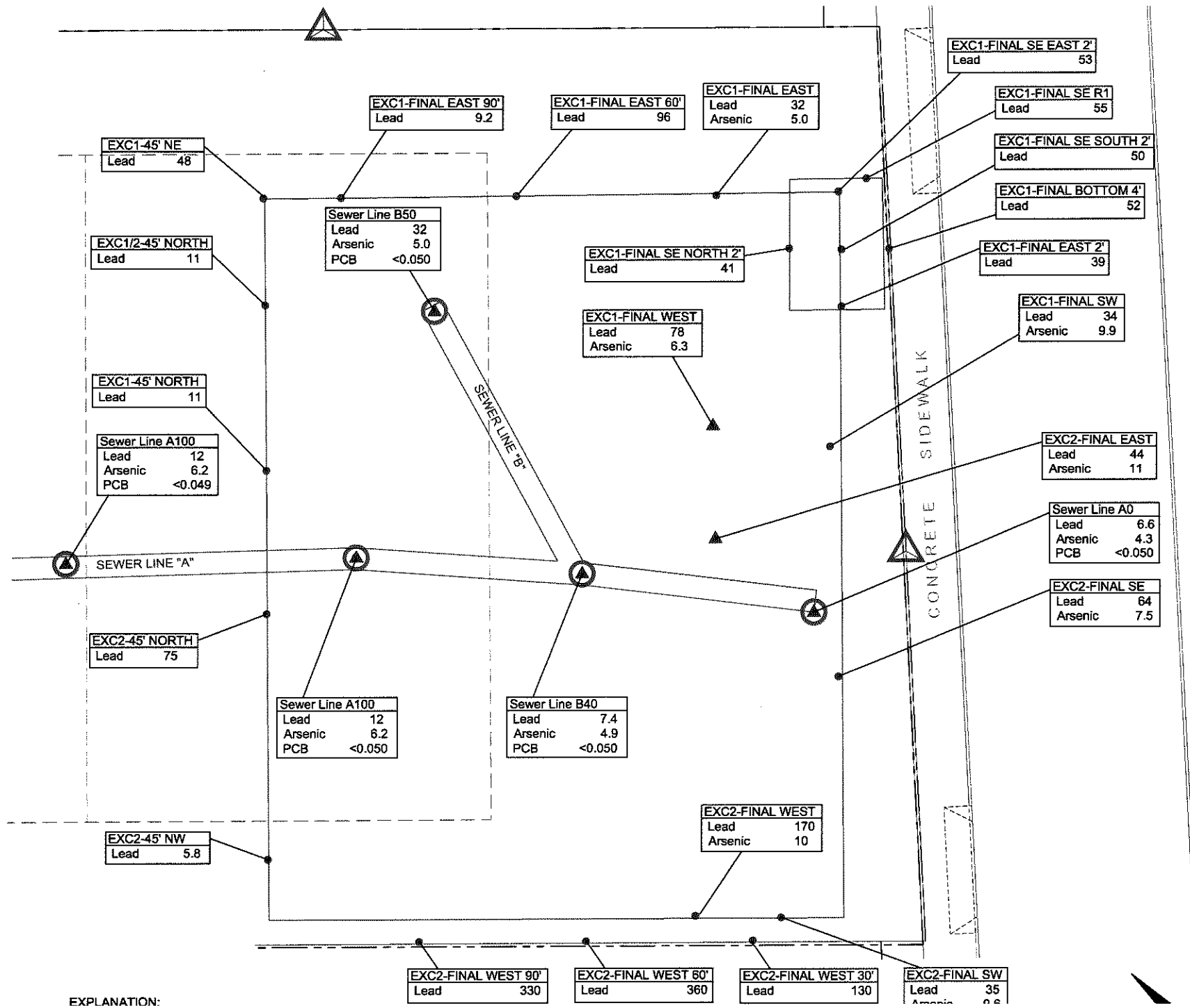


EXPLANATION:

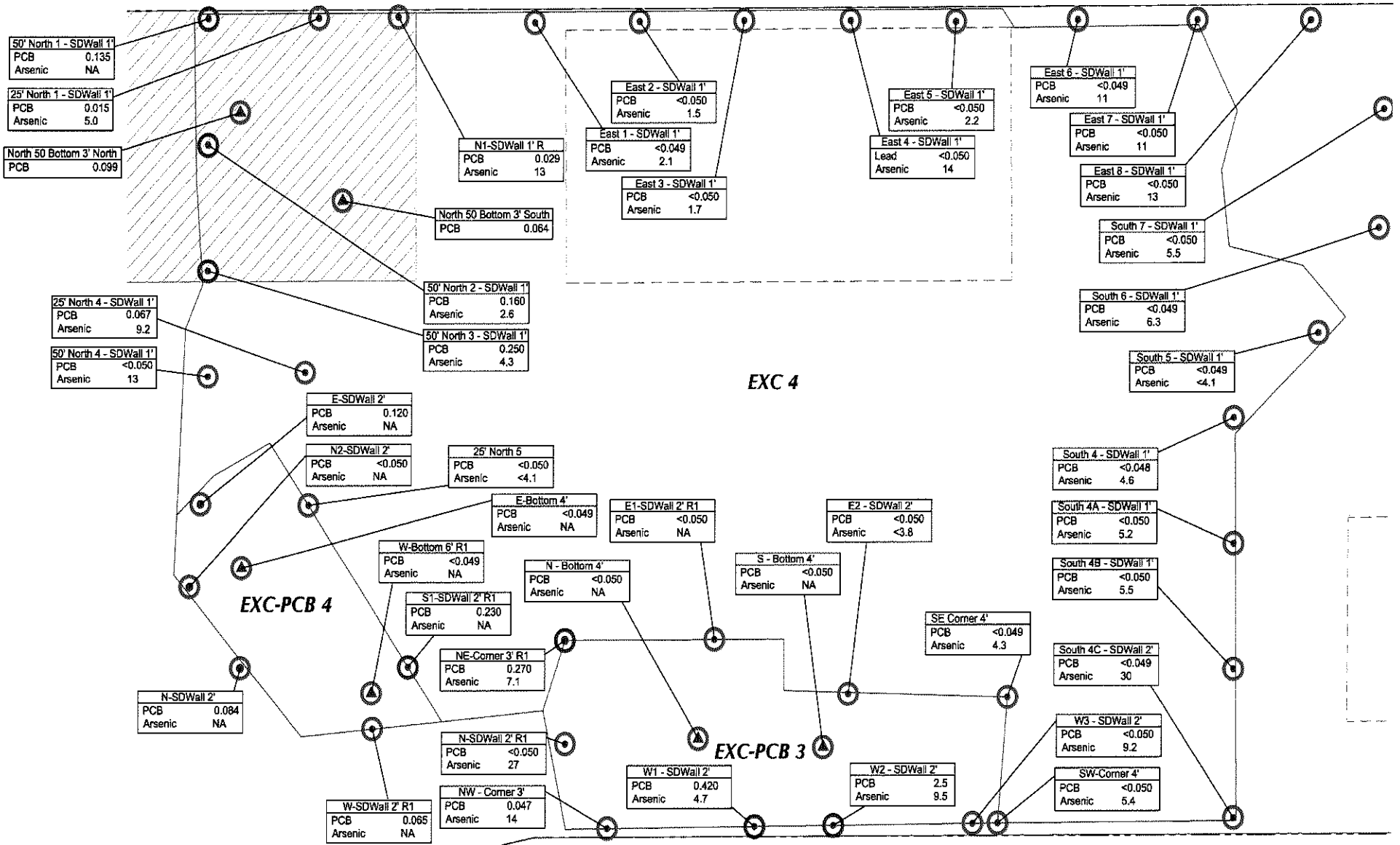
- Property Line
- - - - - Former Warehouse Building
- ▭ Area of Excavation
- ▨ Reported Area of Excavation of PCB-Affected Soil in 1992



0 50 Feet



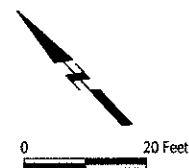
EXPLANATION:



EXPLANATION:

- Property Line
- - - Former Warehouse Building
- ▭ Excavation
- ▨ Reported Area of Excavation of PCB-Affected Soil in 1992
- ▲ Air Monitoring Station

- Sidewall Confirmation Sample Location and ID
 - ▲ Bottom Confirmation Sample Location and ID
 - NA Not Analyzed
 - Passed PCB Criteria of 0.130 mg/kg
 - Failed PCB criteria of 0.130 mg/kg
- | | |
|---------------|------------------------------------------|
| EXC2-FINAL SW | Sample ID |
| PCB 35 | Concentration in milligrams per kilogram |
| Arsenic 9.6 | Analyte |



Site History - UST

- UST removed in 1995
- Subsurface investigations from 1996 through 2010
- Approximately 1,500 cy of soil were removed from the UST area in 1995
- Approximately 116,000 gallons of petroleum hydrocarbon-affected groundwater were pumped from the excavation in 1995
- Approximately 800 cy of soil were removed from the UST area in 2002
- Groundwater monitoring has taken place at the Site since 1998
- AS-SVE pilot test was conducted in January-February 2009
- AS-SVE operation in source area August 2009 to November 2009 and June 2010 to present
- Approximately 610 pounds of TPH as vapors have been removed from the subsurface by the SVE (not including any TPH removed by bio remediation)
- Ongoing AS-SVE O&M and groundwater monitoring and reporting

Current Site Conditions

1. Primary sources of soil and groundwater contamination have been removed.
2. Potential exposure pathway from affected soil is mitigated through the TSCA Cap and soil management plan.
3. Source area for the groundwater plume has been reduced to a point that it is no longer contributing significant mass to the plume. Review maps
4. The EPA Advanced version of the Johnson & Ettinger model with California toxicity criteria and site-specific parameters calculated 66 ug/l of benzene is protective of the vapor intrusion pathway.
5. Planning to place a land use restriction on the deed prohibiting the development - use of groundwater at the Site.

AS-5I	25-May-10
TPHg	<50
TBA	130
MTBE	10
Benzene	<0.50
Toluene	<0.50
Ethylbenzene	<0.50
Xylenes	<1.0

AS-2I	22-Sept-09	25-May-10	28-July-10
TPHg	<8,300	8,600	<5,000
TBA	2,900	5,600	8,700
MTBE	11,000	8,000	1,200
Benzene	460	76	<50
Toluene	120	<25	<50
Ethylbenzene	<83	220	<50
Xylenes	130	<50	<100

AS-4I	25-May-10
TPHg	310
TBA	1,500
MTBE	110
Benzene	2.7
Toluene	<0.50
Ethylbenzene	<0.50
Xylenes	<1.0

NW-2I	13-Mar-09	22-Oct-09	25-May-10	28-July-10
TPHg	49,000	4,200	8,600	130
TBA	NA	3,300	17,000	300
MTBE	1,100	330	770	71
Benzene	18,000	110	360	0.67
Toluene	17,000	110	35	<0.50
Ethylbenzene	1,600	5.8	400	<0.50
Xylenes	8,200	650	8,600	8.2

ASMW-3I	11-Mar-09	22-Sept-09	22-Oct-09
TPHg	<50	<50	<50
TBA	<10	<10	<10
MTBE	1.4	3.4	6.9
Benzene	<0.50	<0.50	<0.50
Toluene	<0.50	1.4	1.4
Ethylbenzene	<0.50	<0.50	<0.50
Xylenes	<0.50	<0.50	<0.50

AS-6I	26-May-09	23-Sept-09	25-May-10	28-July-10
TPHg	42,000	26,000	840	58
TBA	<1,000	330	210	450
MTBE	170	1,600	25	45
Benzene	11,000	1,000	23	<0.50
Toluene	780	400	<0.50	1.9
Ethylbenzene	2,400	230	14	2.7
Xylenes	10,200	5,300	1.5	8.1

AS-7I	26-May-09	23-Sept-09	26-May-10
TPHg	<50	<50	<50
TBA	35	<10	<4
MTBE	2.5	0.8	<0.50
Benzene	<0.50	<0.50	<0.50
Toluene	<0.50	0.95	<0.50
Ethylbenzene	<0.50	<0.50	<0.50
Xylenes	<0.50	<0.50	<1.0

ASMW-5I	10-Aug-09	22-Oct-09	24-May-10	27-July-10
TPHg	59,000	22,000	48,000	110
TBA	<1,400	330	310	28
MTBE	91	110	120	1.6
Benzene	9,100	560	2,300	<0.50
Toluene	1,800	330	150	<0.50
Ethylbenzene	2,400	240	2,000	0.80
Xylenes	12,200	4,600	12,000	20

ASMW-4I	11-Mar-09	22-Oct-09	26-May-10	27-July-10
TPHg	9,200	1,900	1,800	940
TBA	<130	<10	<4	<4
MTBE	<6.3	<0.50	<0.50	<0.50
Benzene	38	4.0	4.6	2.9
Toluene	<6.3	1.0	<0.50	<0.50
Ethylbenzene	570	75	86	68
Xylenes	2,030	133	90	35

ASMW-2I	13-Mar-09	22-Oct-09	25-May-10	27-July-10
TPHg	49,000	<50	2,000	<50
TBA	3,200	370	330	<4.0
MTBE	1,700	290	98	20
Benzene	18,000	<0.50	280	<0.50
Toluene	17,000	4.6	50	0.80
Ethylbenzene	1,600	<0.50	170	<0.50
Xylenes	8,200	20	350	4.5

AS-8I	23-Sept-09
TPHg	<50
TBA	<10
MTBE	1.0
Benzene	<0.50
Toluene	1.6
Ethylbenzene	<0.50
Xylenes	<0.50

NW-3I	21-Sept-09	24-May-10
TPHg	<50	<50
TBA	<10	<4
MTBE	1.3	1.2
Benzene	<0.50	<0.50
Toluene	0.54	<0.50
Ethylbenzene	<0.50	<0.50
Xylenes	<0.50	1.7

EXPLANATION:

- MW-1 Monitoring Well
- NW-1 Nested Monitoring Wells
- AS-4D Air Injection Well
- ASMW-3I Air Injection Monitoring Well
- SVE-4 SVE or SVE Monitoring Well

- Property Line
- Asphalt Surface
- Concrete Surface

- Location ID
- Date sample taken

AS-7I	26-May-09
TPHg	<50

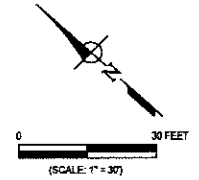
Concentration in micrograms per liter
Chemical

22-Sept-09 Denotes sample collected during operation of the soil vapor extraction air sparging groundwater treatment system began operation in August 13, 2009 to October 27, 2009 and June 16, 2010 to present

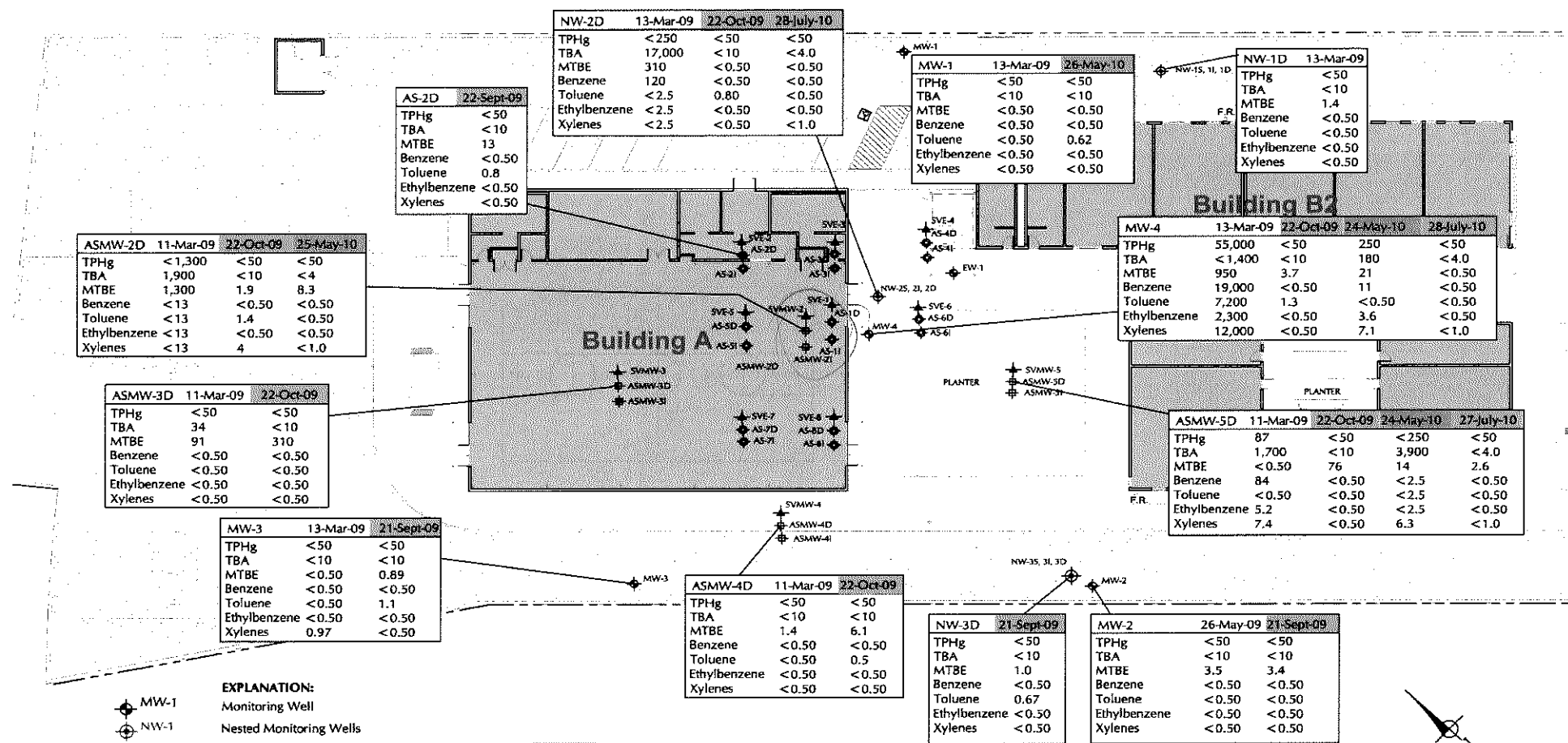
25-May-10 Denotes sample collected after the soil vapor extraction air sparging groundwater treatment system stopped operation from October 27, 2009 to June 16, 2010

NOTES:

TPHg = total petroleum hydrocarbons as gasoline
TBA = tertiary butyl alcohol
MTBE = methyl tertiary-butyl ether
"<" = not detected above the laboratory reporting limit given
VOCs = volatile organic compounds



Intermediate Zone Groundwater



ASMW-2D	11-Mar-09	22-Oct-09	25-May-10
TPHg	<1,300	<50	<50
TBA	1,900	<10	<4
MTBE	1,300	1.9	8.3
Benzene	<13	<0.50	<0.50
Toluene	<13	1.4	<0.50
Ethylbenzene	<13	<0.50	<0.50
Xylenes	<13	4	<1.0

AS-2D	22-Sept-09
TPHg	<50
TBA	<10
MTBE	13
Benzene	<0.50
Toluene	0.8
Ethylbenzene	<0.50
Xylenes	<0.50

NW-2D	13-Mar-09	22-Oct-09	28-July-10
TPHg	<250	<50	<50
TBA	17,000	<10	<4.0
MTBE	310	<0.50	<0.50
Benzene	120	<0.50	<0.50
Toluene	<2.5	0.80	<0.50
Ethylbenzene	<2.5	<0.50	<0.50
Xylenes	<2.5	<0.50	<1.0

MW-1	13-Mar-09	26-May-10
TPHg	<50	<50
TBA	<10	<10
MTBE	<0.50	<0.50
Benzene	<0.50	<0.50
Toluene	<0.50	0.62
Ethylbenzene	<0.50	<0.50
Xylenes	<0.50	<0.50

NW-1D	13-Mar-09
TPHg	<50
TBA	<10
MTBE	1.4
Benzene	<0.50
Toluene	<0.50
Ethylbenzene	<0.50
Xylenes	<0.50

MW-4	13-Mar-09	22-Oct-09	24-May-10	28-July-10
TPHg	55,000	<50	250	<50
TBA	<1,400	<10	180	<4.0
MTBE	950	3.7	21	<0.50
Benzene	19,000	<0.50	11	<0.50
Toluene	7,200	1.3	<0.50	<0.50
Ethylbenzene	2,300	<0.50	3.6	<0.50
Xylenes	12,000	<0.50	7.1	<1.0

ASMW-3D	11-Mar-09	22-Oct-09
TPHg	<50	<50
TBA	34	<10
MTBE	91	310
Benzene	<0.50	<0.50
Toluene	<0.50	<0.50
Ethylbenzene	<0.50	<0.50
Xylenes	<0.50	<0.50

MW-3	13-Mar-09	21-Sept-09
TPHg	<50	<50
TBA	<10	<10
MTBE	<0.50	0.89
Benzene	<0.50	<0.50
Toluene	<0.50	1.1
Ethylbenzene	<0.50	<0.50
Xylenes	0.97	<0.50

ASMW-4D	11-Mar-09	22-Oct-09
TPHg	<50	<50
TBA	<10	<10
MTBE	1.4	6.1
Benzene	<0.50	<0.50
Toluene	<0.50	0.5
Ethylbenzene	<0.50	<0.50
Xylenes	<0.50	<0.50

NW-3D	21-Sept-09
TPHg	<50
TBA	<10
MTBE	1.0
Benzene	<0.50
Toluene	0.67
Ethylbenzene	<0.50
Xylenes	<0.50

MW-2	26-May-09	21-Sept-09
TPHg	<50	<50
TBA	<10	<10
MTBE	3.5	3.4
Benzene	<0.50	<0.50
Toluene	<0.50	<0.50
Ethylbenzene	<0.50	<0.50
Xylenes	<0.50	<0.50

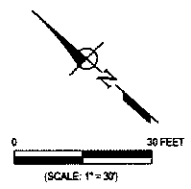
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 - AS-4D Air Injection Well
 - ASMW-3I Air Injection Monitoring Well
 - SVE-4 SVE or SVE Monitoring Well
 - Property Line
 - Asphalt Surface
 - Concrete Surface
 - Location ID
 - Date sample taken
 - Concentration in micrograms per liter
 - Chemical

22-Sept-09 Denotes sample collected during operation of the soil vapor extraction air sparging groundwater treatment system began operation in August 13, 2009 to October 27, 2009 and June 16, 2010 to present

25-May-10 Denotes sample collected after the soil vapor extraction air sparging groundwater treatment system stopped operation from October 27, 2009 to June 16, 2010

NOTES:

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 MTBE = methyl tertiary-butyl ether
 "<" = not detected above the laboratory reporting limit given
 SVE = soil-vapor extraction
 VOCs = volatile organic compounds



Deep Zone Groundwater

Path Forward – Soil Issues

- Soil Remediation - is complete based on soil confirmation sampling
- 95%UCL data indicates that arsenic and lead – affected soil has been remediated to site specific clean-up goals
- Potential exposure pathway from affected soil is mitigated through the TSCA cap and soil management plan
- Draft soil removal report to be sent to ACEH by August 27,2010

Path Forward – Groundwater and Soil Vapor Issues

- Groundwater Remediation – appears to have been highly effective
- Conduct Groundwater monitoring on August 30, 2010
- Begin site redevelopment
- Shut down AS-SVE system by September 10, 2010
- Abandon sparge and monitoring wells that will be affected by construction of the multi-purpose building
- Retain wells that are located outside the footprint of the multi-purpose building
- Current site conditions not conducive for soil gas sampling (lack of vadose zone soils).
- Conduct quarterly groundwater monitoring for one year after the AS-SVE is shut down
- Install a vapor barrier and passive subslab depressurization system beneath the multipurpose building

Scenario 1

- Shut Down AS-SVE
- Redevelop the Site
- Continue - conduct quarterly groundwater monitoring for one year
- Analytical results for groundwater monitoring data remains stable.
- No further action.

Scenario 2

- Shut Down AS-SVE; redevelop the Site; conduct quarterly groundwater monitoring for one year
- If groundwater data indicate that concentrations of benzene are increasing above 66 ug/l, then collect soil vapor samples from beneath the slab of the multi purpose building
- If sub-slab vapor samples show no benzene, then continue groundwater and vapor monitoring until groundwater concentrations decrease to acceptable levels
- If sub-slab vapor samples contain benzene concentrations above CHHLs, then convert “passive” sub-slab depressurization system to an “active” vapor removal system

Scenario 3

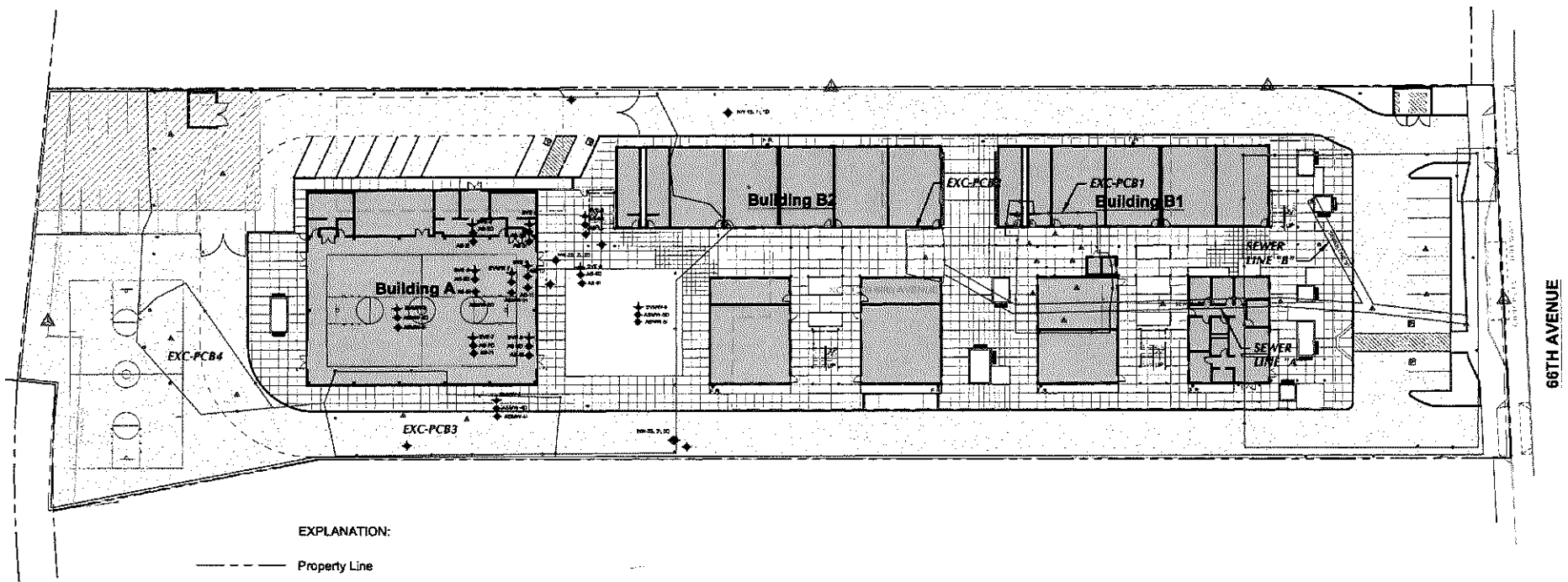
- Shut Down AS-SVE; redevelop the Site; conduct quarterly groundwater monitoring for one year
- If groundwater data indicate that concentrations of benzene are increasing, then collect soil vapor samples from beneath the slab of the multi purpose building
- If sub-slab vapor samples contain benzene concentrations above CHHLs, then convert “passive” sub-slab depressurization system to an “active” vapor removal system
- Continue groundwater and vapor monitoring until groundwater concentrations decrease to acceptable levels
- If groundwater concentrations continue to increase, then inject oxygen releasing compound to the intermediate-zone sediments to further remediate TPH-affected groundwater.

Conclusions

- Affected soil has been removed.
- The AS-SVE has been effective at significantly reducing concentrations of fuel and related compounds in groundwater.

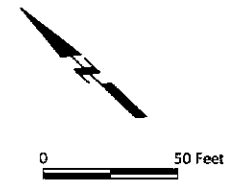
Recommendations

- Submit and finalize soil removal report
- Redevelop the Site with TSCA cap across the Site
- Prepare a land use covenant prohibiting the development - use of groundwater at the Site
- Conduct groundwater monitoring and reporting on a quarterly basis for one year to monitor for potential rebound in the source area
- Evaluate analytical results of groundwater monitoring to assess if the sub-slab depressurization system needs to become “active” or if oxygen releasing compounds are required to be injected into the subsurface
- Grant NFA if the results of groundwater monitoring confirms the overall declining/stable trends in fuel constituent concentrations for a period of one year

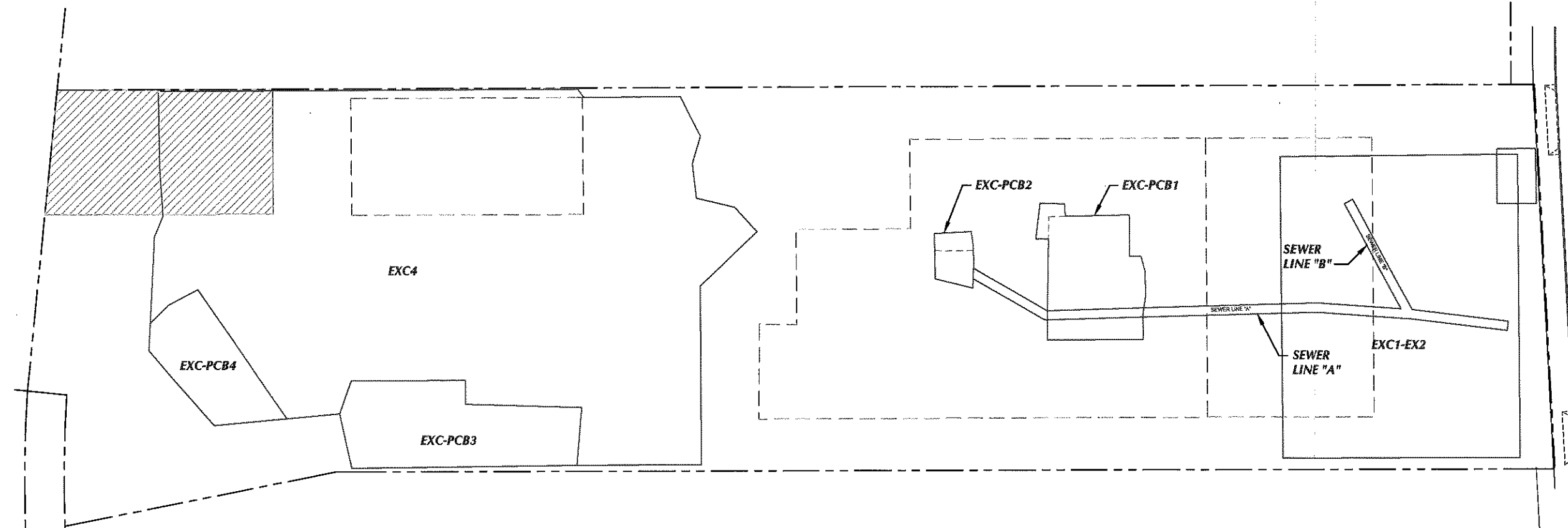


EXPLANATION:

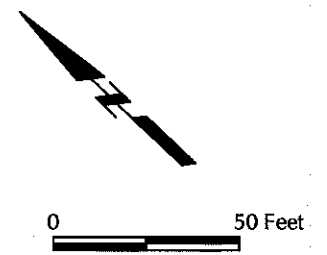
- Property Line
- - - - - Former Warehouse Building
- Area of Excavation
- ▨ Reported Area of Excavation of PCB-Affected Soil in 1992
- ▲ Air Monitoring Station
- Sidewall Confirmation Sample Location and ID
- ▲ Bottom Confirmation Sample Location and ID



CITY:\Read\DIV\GROUP\Read\DB\Read\LD\Op\ PIC\Op\ PM\Read\ T\A\Op\ L\Y\Op\N\7\OFF\FEP
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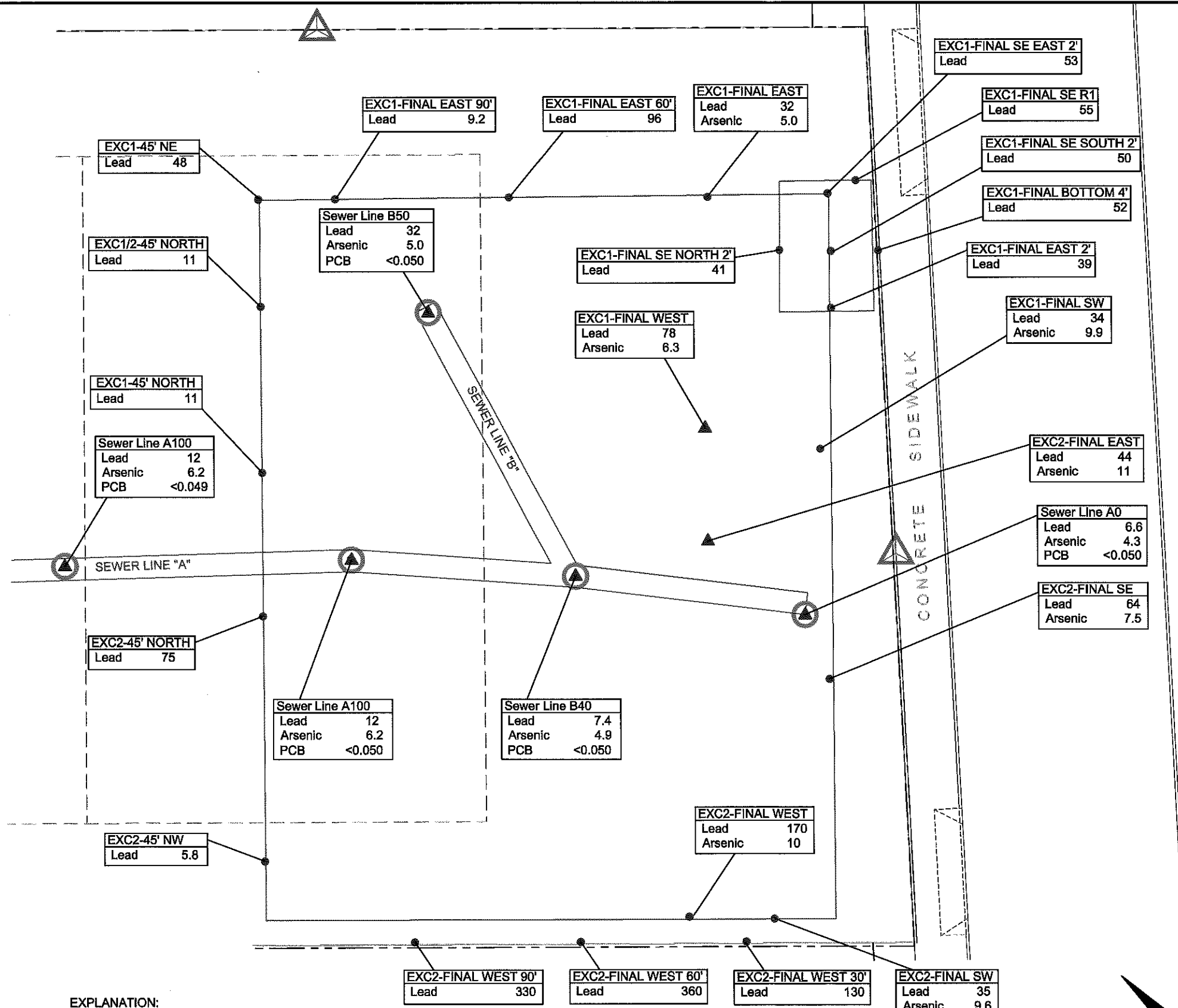


- EXPLANATION:
- Property Line
 - - - - - Former Warehouse Building
 - Area of Excavation
 - ▨ Reported Area of Excavation of PCB-Affected Soil in 1992



PROPOSED CHARTER SCHOOL SITE 1009 66TH AVENUE, OAKLAND, CALIFORNIA	
SITE PLAN	
ARCADIS	FIGURE 2

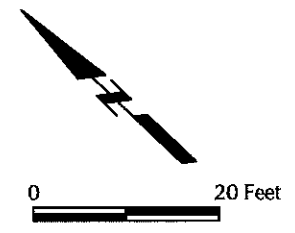
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EXPLANATION:

- Property Line
- Former Warehouse Building
- Excavation
- Sidewall Confirmation Sample Location
- Bottom Confirmation Sample Location
- Air Monitoring Station

EXC2-FINAL SW — Sample ID
 Lead 35
 Arsenic 9.6
 — Concentration in milligrams per kilogram
 — Analyte



PROPOSED CHARTER SCHOOL SITE
 1009 66TH AVENUE, OAKLAND, CALIFORNIA

EXCAVATIONS EXC1 AND EXC2

FIGURE