





**AEI** Consultants  
Environmental & Engineering Services

REMEDIAL ACTION PLAN  
1125 MANDELA PARKWAY  
OAKLAND, CALIFORNIA

# PROJECT OBJECTIVES

- Remove potential environmental risks associated with direct contact
- Achieve case closure for unrestricted land use with Alameda County Environmental Health (ACEH) to allow redevelopment of subject property by Smart Growth Inc. for residential land use

# SITE BACKGROUND

- 1957 – pre-circa 1970: Former gasoline service station
- 1973 - Property purchase by Thompson (former address of 1409-1417 12<sup>th</sup> Street)
- Potential existence of four (4) underground storage tanks (USTs) or aboveground storage tanks (ASTs) in southeast corner of property
- No formal UST removal reports on file with the City of Oakland Fire Department
- Currently sitting as an undeveloped, unpaved vacant lot

# PREVIOUS INVESTIGATIONS & CORRECTIVE ACTION

1999: Blymyer Engineers Subsurface Investigation

- Elevated levels of TPHs in soil and groundwater
- Magnetometer survey – no evidence of buried USTs

2007 - 2008: Site Characterization

- Confirmation of TPH levels in soil and groundwater

2008: Completion of Dual Phase Extraction (DPE) Pilot Test

2010 – 2011: Operation of DPE Remedial System

2013: Completion of DPE Operations / Confirmation  
Sampling & Supplemental Confirmation Sampling

- Confirmation Sampling: Residual TPH-g and EX levels
- Supplemental Sampling: Site met LTCP requirements

# ACEH UST CASE CLOSURE

## April 2015 ACEH Case Closure

Site Management Requirements issued

Land use to limited to commercial/industrial use

## ACEH Conclusions

- Soil vapor evaluated as low risk within upper 5 feet
- Residual impacted soils below 5 feet & above 10 feet

## Notes:

- Property re-zoned for residential land use (RM-2)
- Residential land use planned by Smart Growth Inc.
- Minimal excavation, if any, during redevelopment
- No private, domestic wells will be installed

# HISTORICAL ANALYTICAL DATA

## Soil Vapor:

- TPH-g and VOCs (i.e., benzene) in small, localized area within NW portion of property

## Soil:

- TPH-g and BTEX in two localized areas within NW-Central and NE portions of property

## Groundwater:

- TPH-d, TPH-g, and benzene in two localized areas (NW-Central and NE portions) of property. Most recent groundwater monitoring conducted in 2013 prior to ACEH case closure

# FINDINGS

Two (2) localized, impacted areas within NW-Central and NW portions of property based on distribution of contaminants in subsurface medial

Extent of impacted soil areas mimic areas of impacted groundwater

Extent of impacted soil vapor restricted to small, localized area

Dissolved phase TPH plume in groundwater is stable and not migrating in the direction of groundwater flow

Risk from vapor intrusion due to TPH contamination was determined to be low by ACEH



# REMEDIAL APPROACH

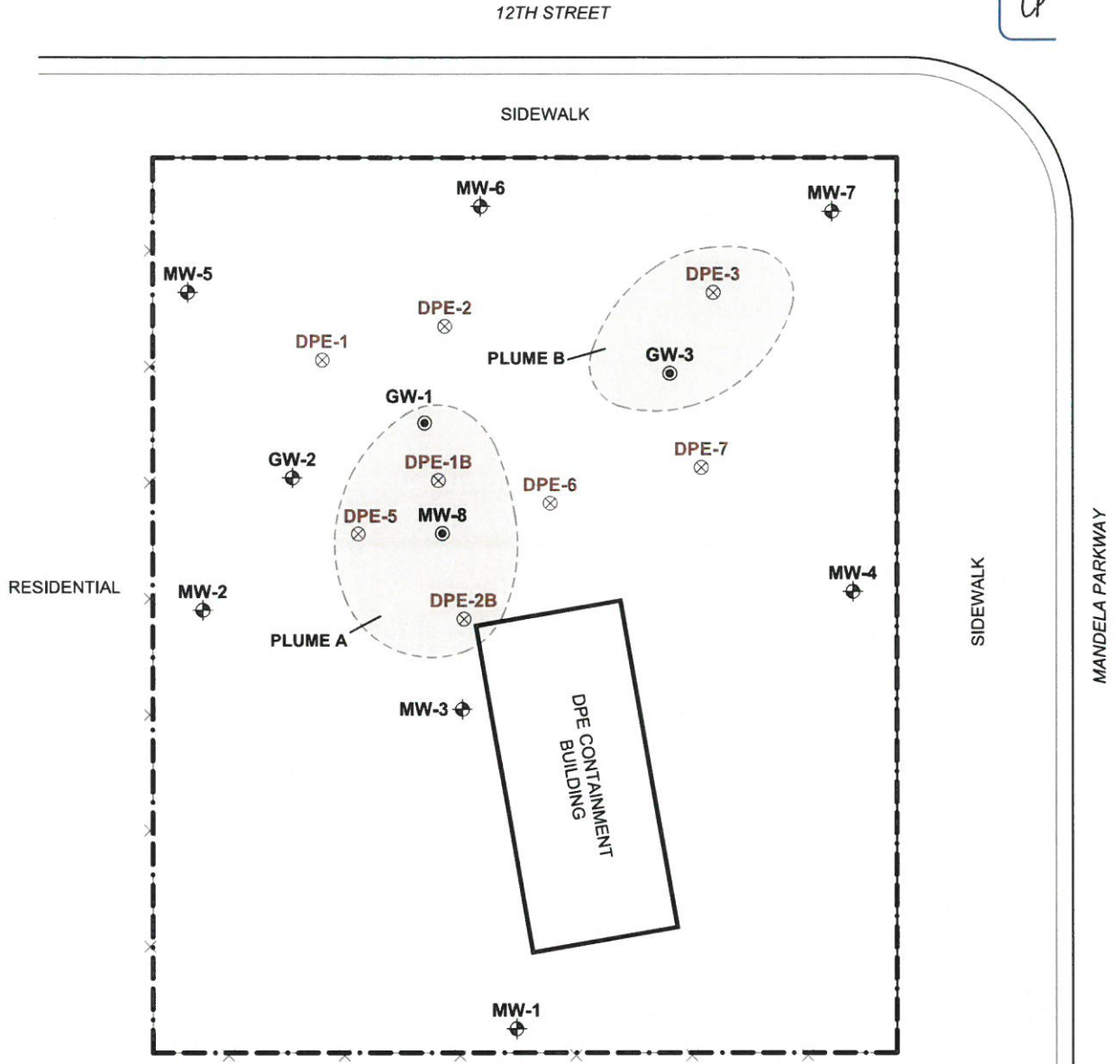
## Goals

- Remove environmental risks for direct contact
- Obtain case closure for unrestricted land use from ACEH thus allowing Smart Growth Inc. to move forward with redevelopment project

## Solution

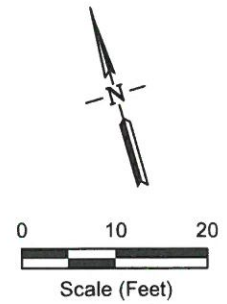
- Engineering control: Vapor Barrier Installation over localized, impacted areas where future structures will be placed

DS  
CP



**EXPLANATION:**

- Approximate Property Boundary
- MW-1 ⊕ Monitoring Well Location
- GW-3 ⊙ DPE/Monitoring Well Location (Dual-Use Well)
- DPE-1 ⊗ DPE Well Location
- Projected Limits of Hydrocarbon Plume



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**Figure 2**  
 1409 to 1417 12TH STREET  
 OAKLAND, CALIFORNIA  
**SITE PLAN**



LEGEND		0 10 20 APPROXIMATE SCALE IN FEET	
MW-1	Monitoring Well Location	SV-2	Soil Vapor Sample Location
GW-3	DPE/Monitoring Well Location (Dual Use Well)	CSB-6	Closure Verification Soil Boring Location
DPE-1	DPE Well Location	---	Approximate Property Boundary
B-14	Exploratory Boring Location	<b>NOTE:</b> Base Map Sources: Google Earth, Image Date 5/11/2015	
B4	Geoprobe Location		

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<b>SITE PLAN</b>	
1125 Mandela Parkway Oakland, California	FIGURE 1 Project No. 346423



LEGEND	
MW-1	Monitoring Well Location
GW-3	DPE/Monitoring Well Location (Dual Use Well)
DPE-1	DPE Well Location
B-14	Exploratory Boring Location
B4	Geoprobe Location
SV-2	Soil Vapor Sample Location
CSV-6	Closure Verification Soil Boring Location
CSV-7	Soil Vapor Location (Site Closure Verification)
	Approximate Property Boundary

**NOTE:**

- Base Map Sources: Google Earth, Image Date 5/11/2015
- Soil vapor analytical results only shown for sampling point SV-6, which exceeds RWQCB for Residential Land Use
- ND - Not Detected
- Benz - Benzene
- TPHg - Total Petroleum Hydrocarbon - Gasoline
- VC - Vinyl Chloride

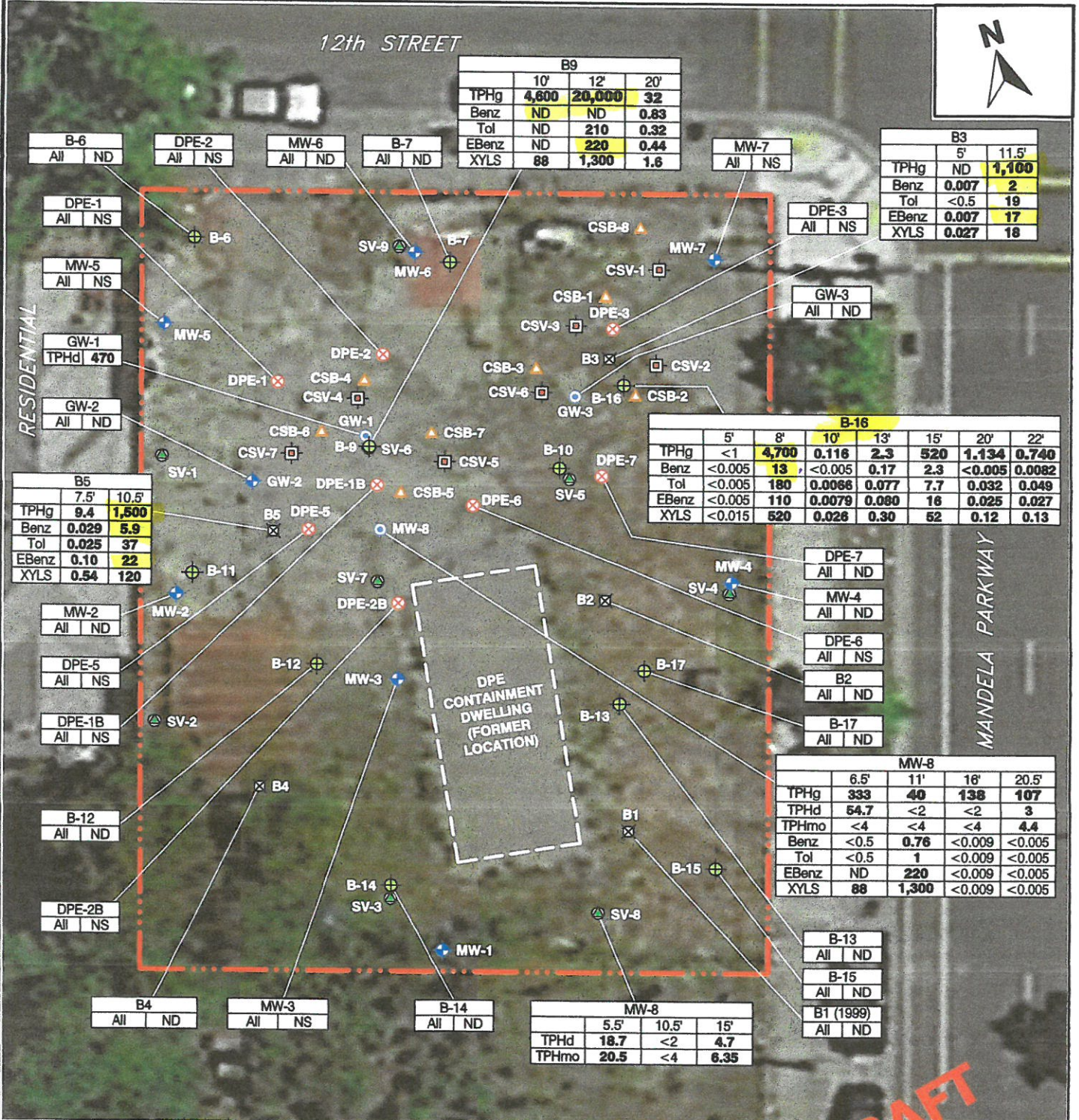
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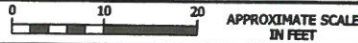
**HISTORICAL SOIL VAPOR ANALYTICAL RESULTS**

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1125 Mandela Parkway Oakland, California	<b>FIGURE 2</b> Project No. 346423
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**LEGEND**



- MW-1 Monitoring Well Location
  - GW-3 DPE/Monitoring Well Location (Dual Use Well)
  - DPE-1 DPE Well Location
  - B-14 Exploratory Boring Location
  - B4 Geoprobe Location
  - SV-2 Soil Vapor Sample Location
  - CSB-6 Closure Verification Soil Boring Location
  - CSV-7 Soil Vapor Location (Site Closure Verification)
- NOTE:**
- Base Map Sources: Google Earth, Image Date 5/11/2015
  - Concentration in Groundwater in Micrograms per Liter (µg/L)
  - ND - Not Detected Above Method Detection Limit
  - TPHd - Total Petroleum Hydrocarbon - Diesel
  - TPHg - Total Petroleum Hydrocarbon - Gasoline
  - TPHmo - Total Petroleum Hydrocarbon - Motor Oil
  - Benz - Benzene
  - Tol - Toluene
  - EBenz - Ethylbenzene
  - XYLS - Total Xylenes
- RESIDENTIAL**

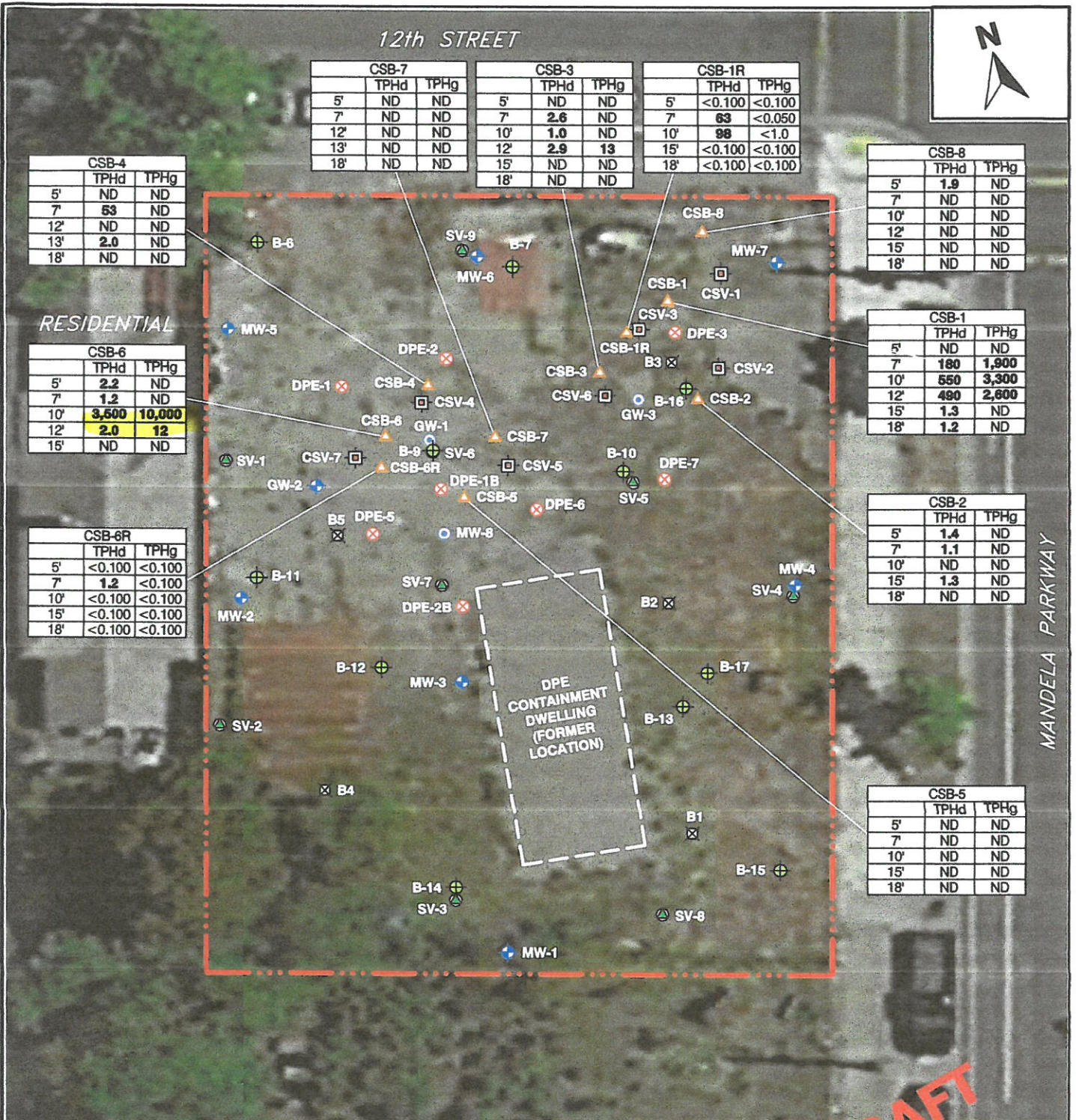
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**HISTORICAL SOIL ANALYTICAL RESULTS**

1125 Mandela Parkway  
Oakland, California

**FIGURE 3**  
Project No. 346423



CSB-4		
	TPHd	TPHg
5'	ND	ND
7'	53	ND
12'	ND	ND
13'	2.0	ND
18'	ND	ND

CSB-7		
	TPHd	TPHg
5'	ND	ND
7'	ND	ND
12'	ND	ND
13'	ND	ND
18'	ND	ND

CSB-3		
	TPHd	TPHg
5'	ND	ND
7'	2.6	ND
10'	1.0	ND
12'	2.9	13
15'	ND	ND
18'	ND	ND

CSB-1R		
	TPHd	TPHg
5'	<0.100	<0.100
7'	63	<0.050
10'	98	<1.0
15'	<0.100	<0.100
18'	<0.100	<0.100

CSB-8		
	TPHd	TPHg
5'	1.9	ND
7'	ND	ND
10'	ND	ND
12'	ND	ND
15'	ND	ND
18'	ND	ND

CSB-6		
	TPHd	TPHg
5'	2.2	ND
7'	1.2	ND
10'	3,500	10,000
12'	2.0	12
15'	ND	ND

CSB-1		
	TPHd	TPHg
5'	ND	ND
7'	180	1,900
10'	550	3,300
12'	490	2,600
15'	1.3	ND
18'	1.2	ND

CSB-6R		
	TPHd	TPHg
5'	<0.100	<0.100
7'	1.2	<0.100
10'	<0.100	<0.100
15'	<0.100	<0.100
18'	<0.100	<0.100

CSB-2		
	TPHd	TPHg
5'	1.4	ND
7'	1.1	ND
10'	ND	ND
15'	1.3	ND
18'	ND	ND

CSB-5		
	TPHd	TPHg
5'	ND	ND
7'	ND	ND
10'	ND	ND
15'	ND	ND
18'	ND	ND

**LEGEND**



- MW-1 Monitoring Well Location
- GW-3 DPE/Monitoring Well Location (Dual Use Well)
- DPE-1 DPE Well Location
- B-14 Exploratory Boring Location
- B4 Geoprobe Location
- SV-2 Soil Vapor Sample Location
- CSB-6 Closure Verification Soil Boring Location
- CSV-7 Soil Vapor Location (Site Closure Verification)
- Approximate Property Boundary

**NOTE:**  
 - Base Map Sources: Google Earth, Image Date 5/11/2015  
 - Concentration in Groundwater in Micrograms per Liter (µg/L)  
 - ND - Not Detected Above Method Detection Limit  
 - TPHd - Total Petroleum Hydrocarbon - Diesel  
 - TPHg - Total Petroleum Hydrocarbon - Gasoline

**DRAFT**

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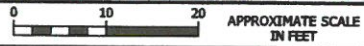
**CLOSURE VERIFICATION SOIL SAMPLE RESULTS**

1125 Mandela Parkway  
 Oakland, California

**FIGURE 4**  
 Project No. 346423



**LEGEND**



- MW-1 Monitoring Well Location
- GW-3 DPE/Monitoring Well Location (Dual Use Well)
- DPE-1 DPE Well Location
- B-14 Exploratory Boring Location
- B4 Geoprobe Location
- SV-2 Soil Vapor Sample Location
- CSB-6 Closure Verification Soil Boring Location
- CSV-7 Soil Vapor Location (Site Closure Verification)
- DPE-2B Total Petroleum Hydrocarbon - Diesel (TPHd) or TPH-Motor Oil (TPHmo) Concentration in Groundwater in Micrograms per Liter (µg/L)
- Approximate Property Boundary

**NOTE:**  
 - Base Map Sources: Google Earth, Image Date 5/11/2015  
 - ND - Not Detected Above Method Detection Limit

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 San Jose, California

**JANUARY 2013 GROUNDWATER ANALYTICAL RESULTS**

1125 Mandela Parkway  
 Oakland, California

**FIGURE 5**  
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