

RO3123 Meeting

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# Comprehensive Site Investigation Workplan

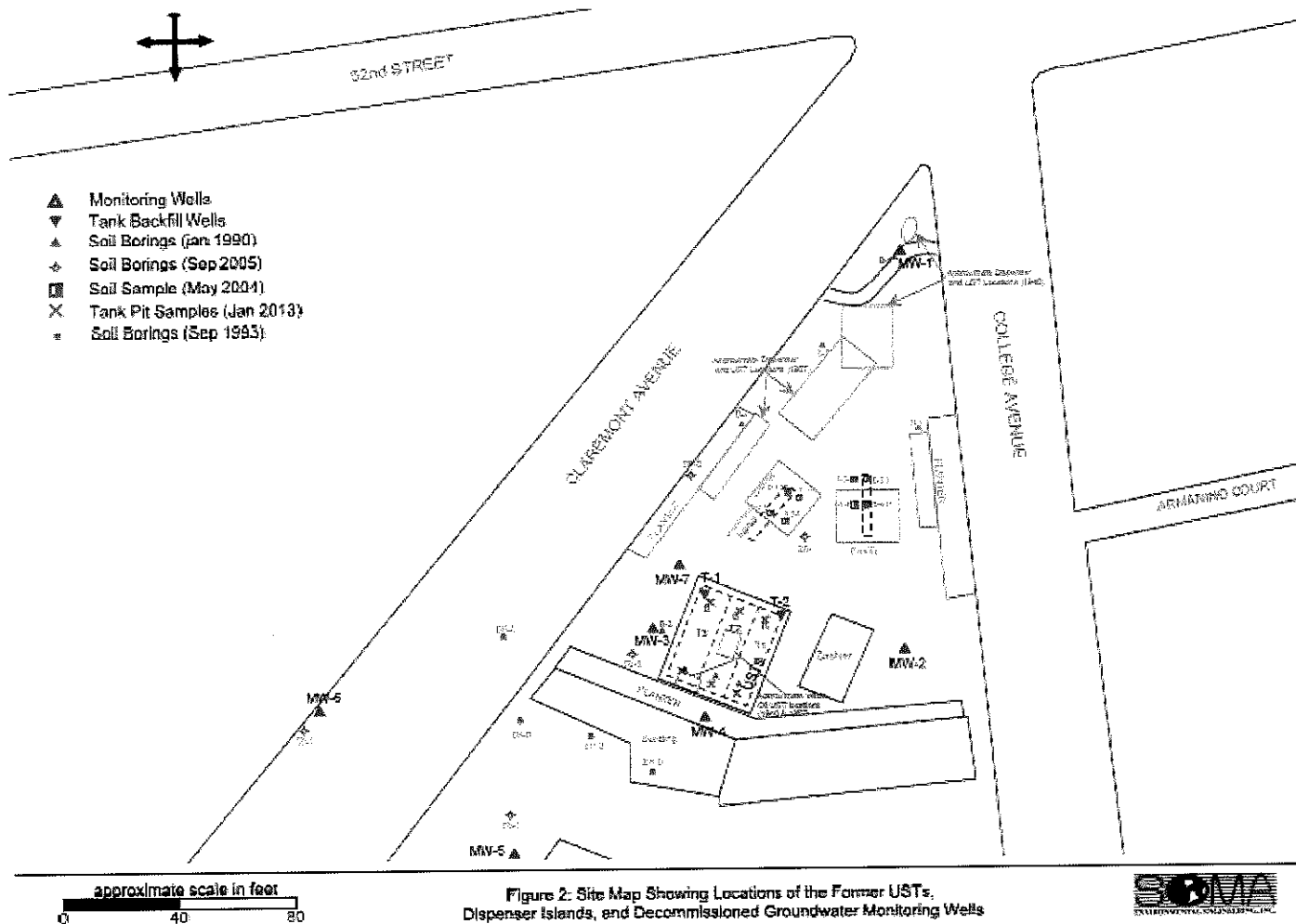
6039 College Ave  
Oakland, CA

Prepared By:  
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# Site Vicinity



# Site Map





# Site History

- In 1989, an unauthorized petroleum hydrocarbon release form was filed with ACEHS;
- Site investigation was started in 1990 during which up to 5,900 mg/Kg TPH-d, 610 mg/Kg TPH-g and up to 110,000 mg/Kg of TPH-mo was reported;
- In 1990, monitoring wells MW-1 thru MW-4 were installed and MW-5 was installed in 1991;
- In 1998 up to 5,300 mg/Kg TPH-g, 420 mg/Kg TPH-d and 10 mg/Kg benzene was reported in soils next to pump islands;



# Site History

- In 1999 free product was reported in MW-3 and MW-4 next to USTs and weekly product removal was initiated;
- In 2001 DVE was pilot tested and during which MW-4 and MW-3 were used as the extraction wells to remove product;
- In 2005 six additional borings were drilled; soil and groundwater samples were collected. Up to 740 mg/Kg TPH-g in soil and up to 43,000  $\mu\text{g/L}$  in groundwater was reported. TBA at 3,400  $\mu\text{g/L}$  was also reported.



# Site History

- In 2006, additional investigation was conducted around the most westerly pump island. Up to 689 mg/Kg of TPH-g was reported and MW-7 was installed.
- In 2010 soil gas survey was performed. No significant contaminants concentrations were reported in soil vapor samples;
- In 2012 NFA status was adopted by the ACEHS for the site, provided that the site continued to be used for commercial purposes (gasoline service station);
- In 2013, during removing USTs elevated levels of TPH-g, naphthalene, oil and grease were reported beneath the USTs.

TPH<sub>g</sub> in soil

# Previous Soil Gas Probe Locations

- ◆ Soil Vapor Probe Location (Feb 2010)
- ▲ Monitoring Wells
- ▼ Tank Backfill Wells
- ▲ Soil Borings (Jan 1990)
- ◆ Soil Borings (Sep 2005)
- Soil Sample (May 2004)
- × Tank Pit Samples (Jan 2013)
- Soil Borings (Sep 1993)

TPH-g  
mg/kg

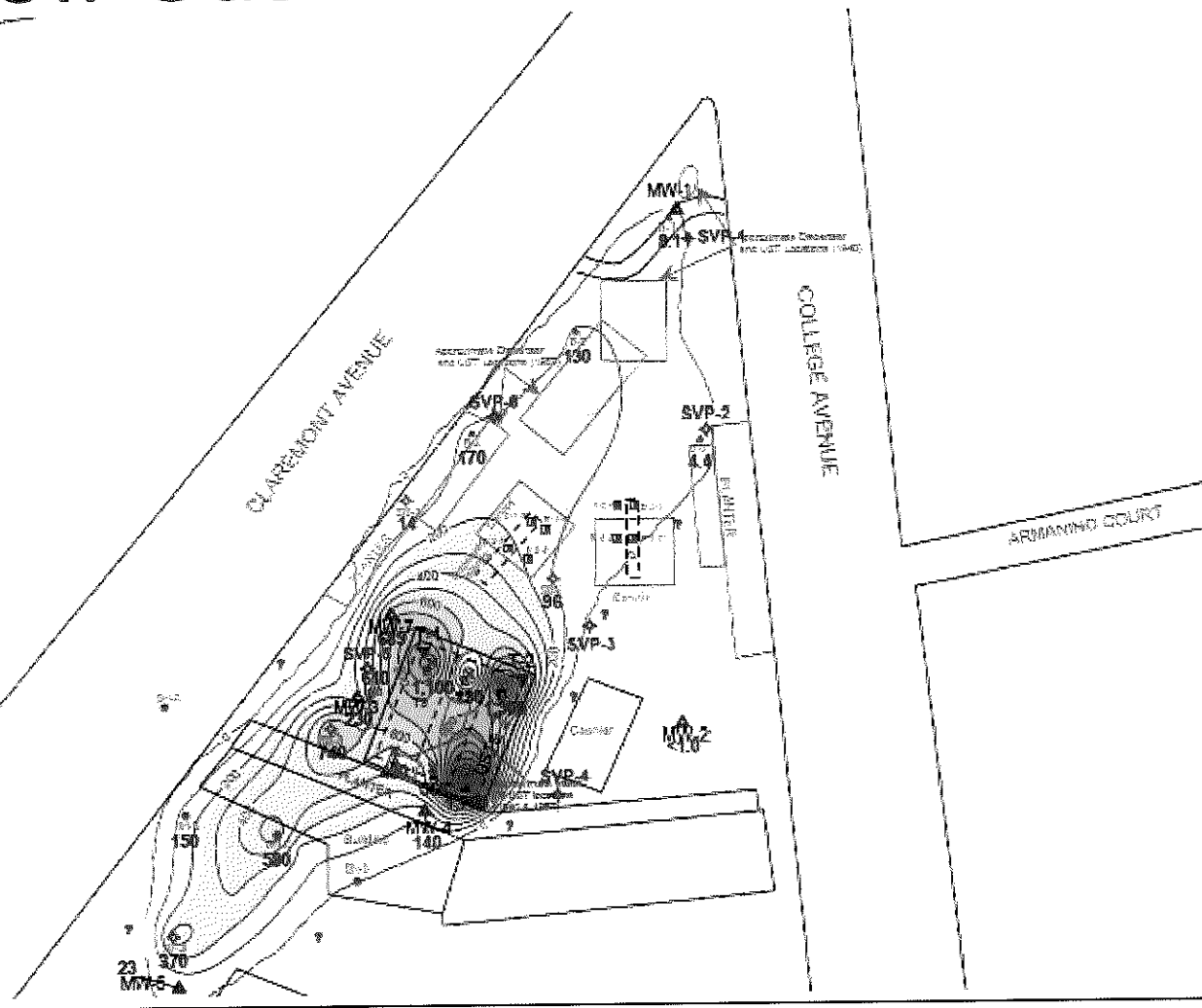
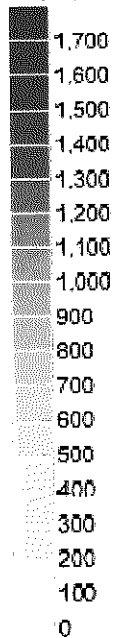


Figure 5: Locations of Previous Soil Gas Probes



## Maximum Concentrations in Groundwater

Note: ESL- Environmental screening levels (SFRWQCB, Groundwater is a current or potential drinking water source, Interim Final-December 2013)

# Maximum Concentration in Groundwater

	TPH-g µg/L	TPH-d µg/L	Benzene µg/L	Toluene µg/L	Ethylben zene µg/L	Xylenes µg/L	MtBE µg/L	TBA µg/L
<b>Maximum Concentration</b>	67,100	3,100	1,650	6,100	574	3,690	78,000	2,000
<b>ESL (Drinking Water)</b>	100	100	1.0	40	30	20	5.0	12



# In Summary

- The site hydrogeology has not been defined;
- The vertical extent of contamination has not been defined;
- Site conceptual model has not been prepared;
- Despite the presence of elevated levels of petroleum hydrocarbons in soil and *groundwater no active remediation* has been conducted at the site;
- The available incomplete data do not meet LTCP criteria for future residential land use scenario;
- Due to site future intended use which allows it for residential development, active remediation may be warranted following the completion of additional proposed site investigation activities.



# Objectives

- Define vertical extent of soil and groundwater contamination beneath the site;
- Define site stratigraphy and hydrogeology
- Construct site conceptual model
- Evaluate potential for vapor intrusion into the future structures
- Evaluate if the site meets Low Threat Closure Policy criteria for residential land use
- If not, prepare a corrective action plan



# Proposed Site Investigation

- SOMA proposes to install 6 CPT-MIP to 50-60 feet bgs to evaluate the site hydrogeology and vertical extent of contamination;
- Install 6 DPT boreholes for sampling groundwater from different depth intervals per MIP results;
- Install soil vapor probes for conducting soil gas survey for evaluation of vapor intrusion into the future site's structures;
- Using above information SOMA will construct site conceptual model, evaluation LTCP for residential land use and prepare corrective action plan (CAP) if warranted.

# TPH-g Concentrations in Soil

- ▲ Monitoring Wells
- ▼ Tank Backfill Wells
- ▲ Soil Borings (Jan 1990)
- ◆ Soil Borings (Sep 2005)
- Soil Sample (May 2004)
- × Tank Pit Samples (Jan 2013)
- Soil Borings (Sep 1993)

TPH-g  
mg/kg

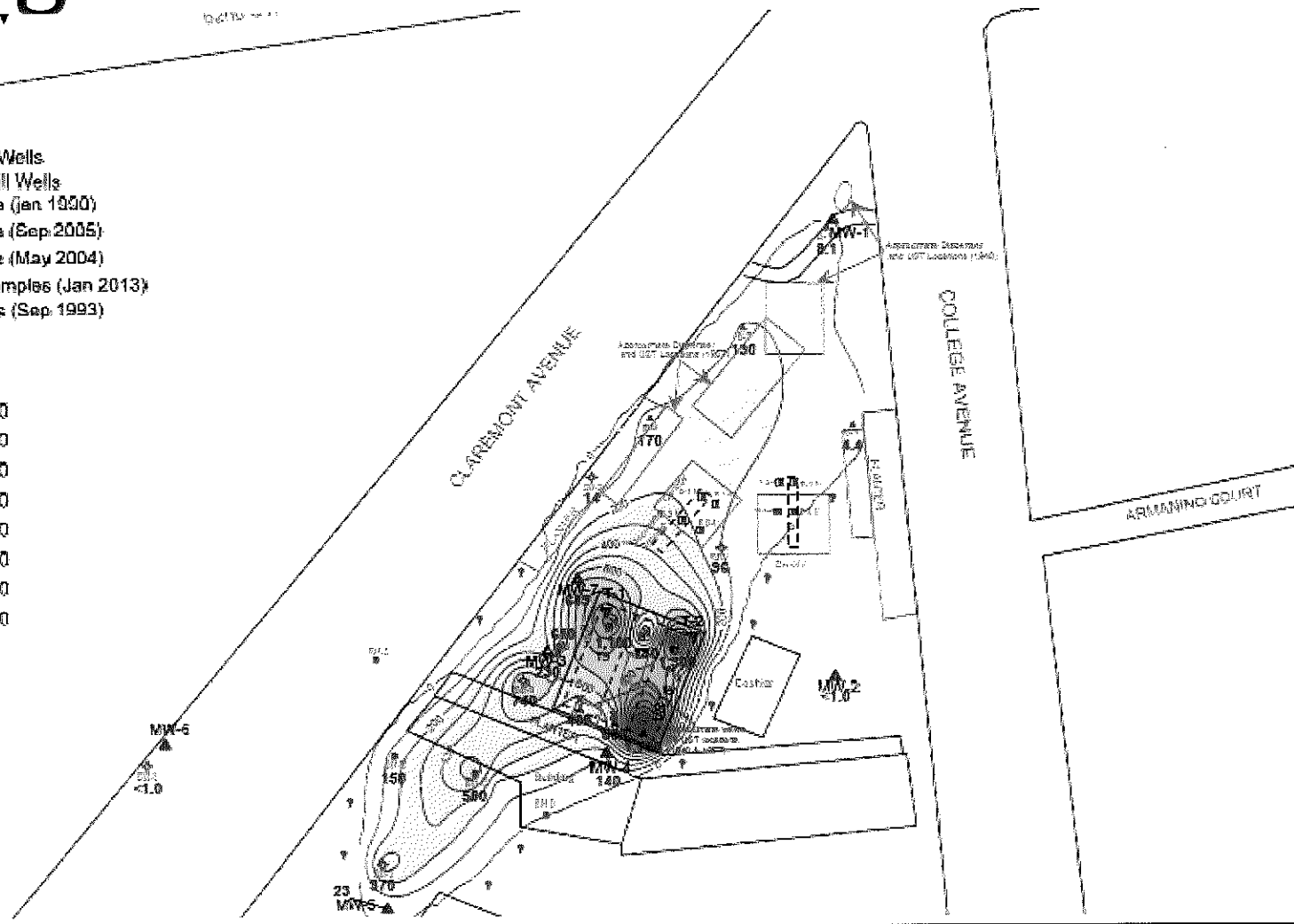


Figure 3: Extent of TPH-g Concentration in Soil



# Locations of Proposed Boreholes

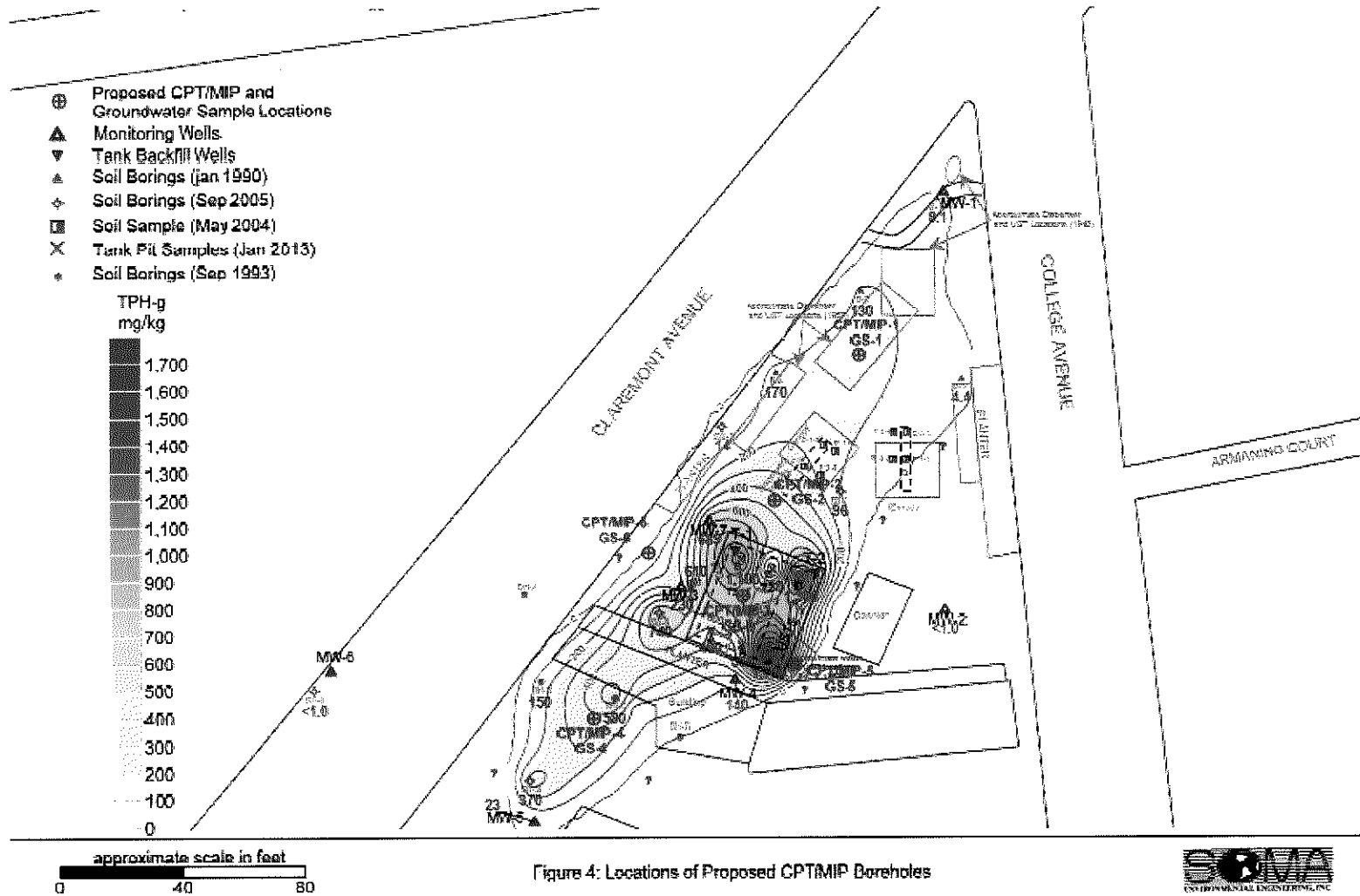
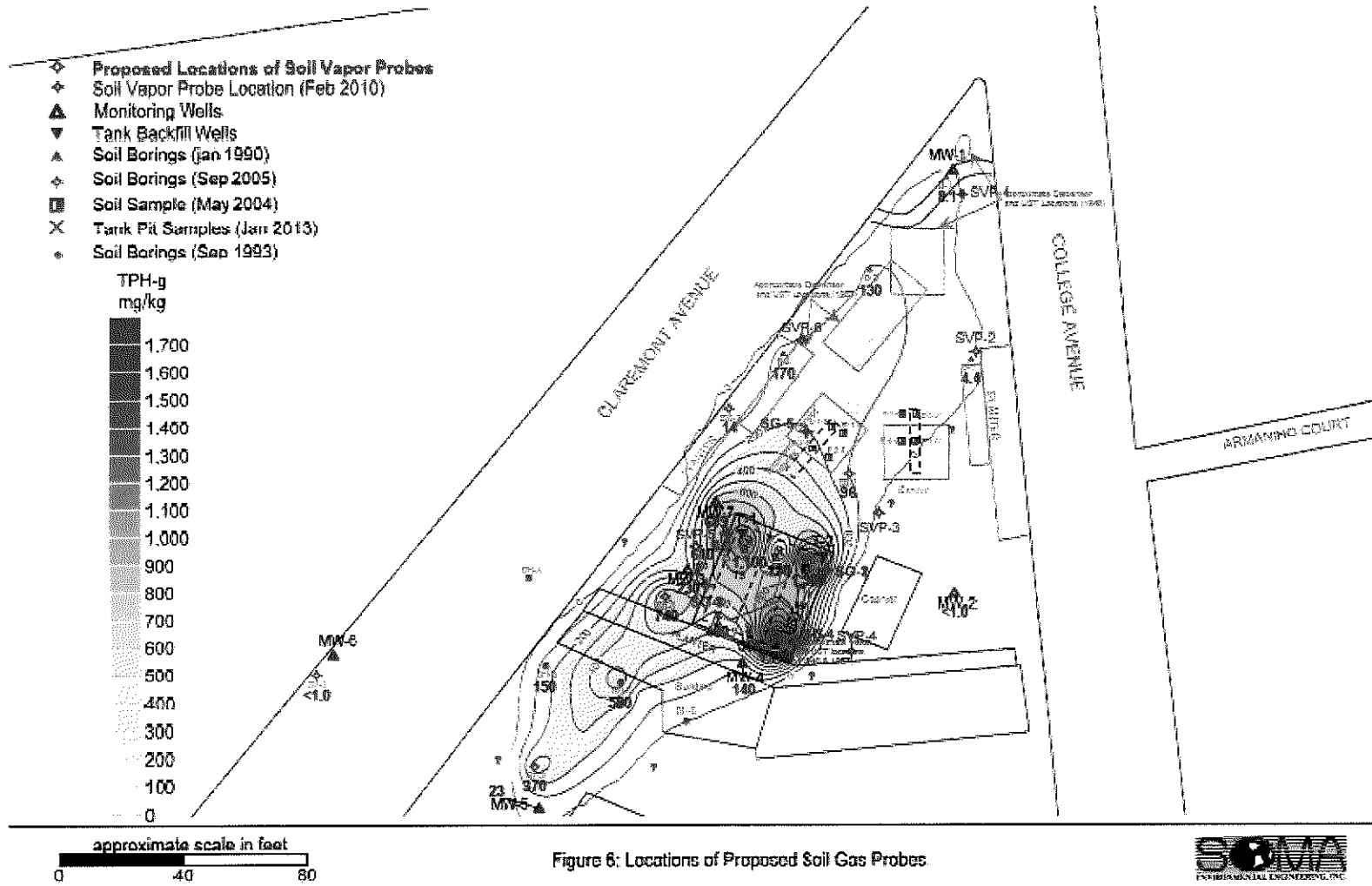
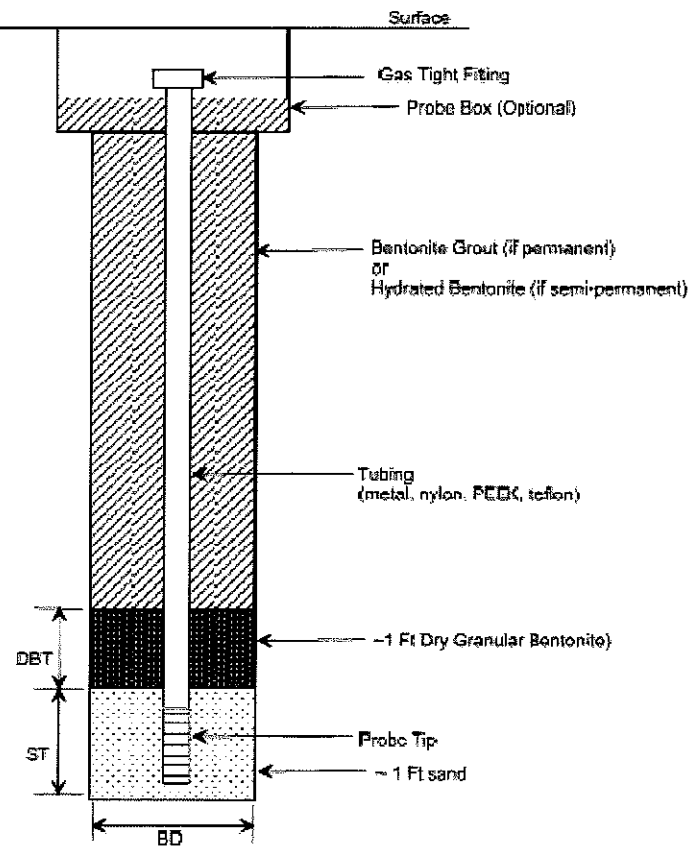


Figure 4: Locations of Proposed CPTMIP Boreholes

# Proposed Soil Gas Probe Locations



# Soil Gas Probe



## LEGEND

BD = borehole diameter (inches)  
DBT = dry bentonite thickness (ft)  
ST = sand pack thickness (FT)  
PEEK = Polyetheretherketone