

PHASE II ENVIRONMENTAL SITE ASSESSMENT

**197 Nepperhan Avenue
Yonkers, New York 10701**

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Prepared for:

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2	Semi-Volatile Organic Compounds in Soil
3	TAL Metals in Soil

FIGURES

<u>Number</u>	<u>Title</u>
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2	Sampling Diagram

APPENDICES

<u>Section</u>	<u>Title</u>
A	Field Notes
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1.0 INTRODUCTION AND SCOPE OF THE ASSESSMENT

On April 4 and 11, 2006, Advanced Cleanup Technologies, Inc. (ACT) performed a Phase II Environmental Site Assessment (Phase II ESA) of the property located at 197 Nepperhan Avenue, Yonkers, New York (the “Site”). The purpose of the Assessment was to determine whether certain Recognized Environmental Conditions identified in ACT’s Phase I Environmental Site Assessment dated February 23, 2006 have impacted the environmental quality of the subject property. These conditions include suspect inactive underground storage tanks located beneath the Nepperhan Avenue sidewalk adjacent to the subject property. In addition, other potential areas of soil and ground water contamination were investigated as part of this Assessment.

The scope of work included the performance of a Ground-Penetrating Radar (GPR) Survey and the installation and sampling of two (2) soil borings. The scope of work also included the following:

- In-field screening of soil samples with a photoionization detector;
- Laboratory analysis of two (2) soil samples for volatile organic compounds (VOCs) in accordance with United States Environmental Protection Agency (EPA) Method 8260, semi-volatile organic compounds (SVOCs) in accordance with EPA Method 8270, and TAL metals in accordance with EPA Method 6010; and
- A comparison of soil quality data to NYSDEC Technical and Administrative Guidance Memorandum (TAGM), HWR-94-4046, revised December 20, 2000.

2.0 SITE BACKGROUND

2.1 Site Location

The Site is located in a residential and commercial area in the southern portion of Westchester County in New York. A Locational Diagram showing the site and its immediate vicinity is provided as Figure 1. The property is located at the southwest corner of the intersection of Nepperhan Avenue and Elm Street.

Residential apartment buildings are located to the south and west of the Site. A two-story commercial building is located to the east of the Site. A gasoline service station is located to the north, across Elm Street.

2.2 Site Description

The Site consists of a one-story commercial building with three commercial units and a full basement. The footprint of the building is approximately 4,482 square feet in area and the property is approximately 5,567 square feet in area. An exterior yard is located along the southern portion of the building. The yard is half brick paved and half bare soil. Pertinent site features are shown in Figure 2.

A suspect fill pipe was identified in the sidewalk to the east of the building during the Phase I inspection. No pipes leading into the basement of the building were identified along the eastern basement foundation wall. The suspect fill pipe suggested the potential presence of an inactive underground storage tank located beneath the sidewalk to the east of the building.

2.3 Geology and Hydrogeology

The topography of the area is generally level. The vicinity of the Site is approximately 111 feet above mean sea level.¹ The ground surface in the vicinity of the property is covered with asphalt and concrete pavement. The general direction of ground water flow beneath the Site is anticipated to be toward the Hudson River west of the Site. The bedrock which underlies this portion of Westchester County is generally metamorphic in character and Ordovician and Precambrian in age. It

¹

U.S.G.S. 7.5 Minute Series Topographic Map, Yonkers, New York

lies close to the surface and is exposed in many locations.

3.0 FINDINGS AND RESULTS OF THE ASSESSMENT

3.1 Ground-Penetrating Radar

On April 4, 2006, ACT performed a Ground-Penetrating Radar (GPR) survey of the sidewalk to the east of the Site to determine the presence and precise location of any suspect inactive USTs. The survey was performed utilizing an SIR-2000 GPR Unit and a 500 megahertz antenna. In a GPR survey, the radar signal generated by the GPR antenna reflects off geologic materials and foreign objects in the subsurface and back to the antenna based upon differences in the conductivity and dielectric constant of subsurface features. The radar signal is then converted into an electrical signal which is visually displayed on a video monitor.

The radar antenna was pulled along transects spaced 5 feet apart in north-south and east-west directions, forming a rectangular grid over the ground surface. The survey was performed at a range to allow for the identification of anomalies to a depth of approximately 10 feet below ground surface.

No reflections indicative of USTs were observed throughout the surveyed area. The surveyed areas produced horizontal reflections of low to moderate conductivity representative of native soil or fill material. Upon completion of the utility mark outs prior to soil boring installation, the suspect fill pipe was later confirmed to be associated with a water line beneath the sidewalk

GPR is primarily used as a preliminary survey of a property for the development of subsurface information prior to a formal site assessment. Surface cover, subsurface soil types or buried debris can mask or conceal the presence and precise locations of underground structures or even suggest their presence when none exist. The presence, absence or precise locations of underground structures indicated during a GPR survey should be confirmed by excavation or other invasive procedures.

3.2 Soil Quality

Soil quality was investigated during the Phase II Assessment by advancing two (2) soil

borings at the Site, as indicated in Figure 2. These soil borings are designated SB-01 and SB-02. Soil boring SB-01 was installed in the exterior yard, and soil boring SB-02 was installed in the basement of the Site building.

Soil boring SB-01 was installed utilizing a Geoprobe style truck-mounted drill rig. Due to limited access, soil boring SB-02 was advanced utilizing a portable hydraulic percussion hammer. Continuous soil samples were collected utilizing five foot macro core soil samplers containing acetate liners. All sampling equipment was decontaminated between sampling events. Soil samples were observed for lithology as well as visual and olfactory evidence of contamination. The soil samples were screened in-field using a Photovac Microtip Photo-ionization detector (PID). The PID is capable of detecting organic vapors at concentrations as low as 0.1 parts per million (ppm).

The soil borings were advanced until refusal was encountered. Refusal was encountered at 11.5 feet below grade in soil boring SB-01 and 2.5 feet below the basement floor in soil boring SB-02. Soil sample lithology generally consisted of light to dark brown silty fine sand with some gravel and rock fragments. Brick, coal, and ash were observed in soil boring SB-01 throughout its entire depth. A layer of coal and ash was encountered at soil boring SB-01 at 5 to 6 feet below grade. Ground water was not encountered in any of the soil borings. No detectable PID readings were measured in the soil borings, and there was no visual or olfactory evidence of contamination in the soil borings.

In the absence of detectable PID readings and lack of visual or olfactory evidence of contamination, soil samples from the entire boring depths were composited and placed into laboratory-issued containers. A total of two (2) soil samples were transmitted to Environmental Testing Laboratories, Inc. (ETL, ELAP No. 10969) for analysis of VOCs utilizing EPA Method 8260, SVOCs utilizing EPA Method 8270, and TAL metals utilizing SW846 Method 6010. The laboratory results were compared to NYSDEC TAGM, HWR-94-4046, revised December, 2000 (NYSDEC TAGM). Summaries of the laboratory analyses of soil samples are presented in Tables 1, 2, and 3. Copies of the laboratory reports are presented in Appendix B.

As indicated in Table 1, a total of four (4) VOCs were detected in the soil sample from SB-01. No VOCs were detected in the soil sample from SB-02.

As indicated in Table 2, several SVOCs were detected in the soil sample from SB-01 with fewer and lower detections in the soil sample from SB-02. Polycyclic aromatic hydrocarbons (PAHs) were prevalent in SB-01, where abundant coal and ash material was observed. Total SVOCs in the soil sample from SB-01 were detected at 18,620 parts per billion (ppb).

As indicated in Table 3, TAL metals in soil are compared with the regulatory standards which are represented by the NY State Recommended Soil Cleanup Objective or an established range of concentrations associated with the Eastern USA region. TAL metals in urban areas generally tend to be at the high end of the Eastern USA background range of values. Several metals were detected above the maximum Eastern USA background values.

4.0 CONCLUSIONS

The results of the Phase II Environmental Site Assessment are contained in this report. Based upon this investigation, ACT makes the following conclusions concerning the environmental quality of the property.

- The Ground Penetrating Radar survey conducted at exterior portions of the Site did not reveal any anomalies suggestive of underground storage tanks at the Site.
- There is evidence of fill material beneath the Site containing significant amounts of coal and ash which is likely the source of the elevated semi-volatile organic compounds in the subsurface soil.
- Low levels of volatile organic compounds were detected and may be associated with the storage of motor vehicles at the Site.
- The metals detected in the soil are attributed to the former industrial activities in the area of the Site.

5.0 RECOMMENDATIONS

ACT makes the following recommendations with respect to the above conclusions.

- In order to direct the proper handling of contaminated material, a Material Management Plan should be prepared for future construction activities including waste characterization, transportation and off-site disposal.
- A Construction Health and Safety Plan should be prepared to insure the proper handling of all excavated soil and safety of construction workers or other people occupying the site during its development.

Caroline A. Cadalso
Senior Project Manager

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President

6.0 EXCLUSIONS AND DISCLAIMER

The purpose of this assessment was to assess the potential environmental liabilities at the subject site with respect to data which Advanced Cleanup Technologies, Inc. has accumulated during the Phase II Environmental Site Assessment. The conclusions presented in this report are based solely on the observations of the site at the time of the investigation. Data provided, including information provided by others, was utilized in assessing the site conditions. The accuracy of this report is subject to the accuracy of the information provided. Advanced Cleanup Technologies, Inc. is not responsible for areas not surveyed or information not collected. This report is given without a warranty or guarantee of any kind, expressed or implied. Advanced Cleanup Technologies, Inc. assumes no responsibility for losses associated with the use of this report.

FIGURES

TABLES

APPENDIX A

FIELD NOTES

APPENDIX B

LABORATORY RESULTS