SITE CHARACTERIZATION / PRELIMINARY REMEDIAL INVESTIGATION WORK PLAN

DP 16 LLC
ONE COMMERCE PARK SITE
115 WALL STREET
VALHALLA, NEW YORK

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1.0 INTRODUCTION

This Site Characterization / Preliminary Remedial Investigation Work Plan (SC / PRI Work Plan) outlines the investigation activities to be conducted at the One Commerce Park Site (hereinafter referred to as the "Subject Property") located at 115-117 Wall Street in Valhalla, New York (see ***Figure 1-1***: Site Location Map). According to a draft New York State Department of Environment Conservation (NYSDEC) Order on Consent and Administrative Settlement (Order), the Subject Property is not currently listed in the New York State Registry of Inactive Hazardous Waste Sites, although the Order references Site # 360054.

It is understood that the NYSDEC is requesting completion of SC / PRI activities at the Subject Property based upon the following:

- As part of RI activities conducted circa 2000 at the southeastern adjoining property known as the Farrand Controls Site (NYSDEC Site Registry No. 3-60-046) located at 99 Wall Street, a groundwater volatile organic compound (VOC) plume possibly attributed to an upgradient site was identified; and,
- The Subject Property, which was indicated to be upgradient or crossgradient to the Farrand Controls Site, was once owned and operated by the Farrand Corporation. Therefore, there is a suspicion that halogenated solvents similar to those found at the 99 Wall Street property may have been utilized and / or disposed of on the Subject Property historically.

The investigation planned for the Subject Property to assess the foregoing assertions includes the following general scope of work:

- A comprehensive document review, employee interview task, and site inspection task to evaluate the Subject Property with respect to the presence and locations where hazardous materials are or may have been stored, handled and / or disposed of on-site;
- Completion of a geophysical survey to determine if reported, historic sanitary waste disposal system(s) is / are still present on the Subject Property and if so, to determine their configuration. The geophysical survey will also assist in the mark out of on-site, sub-surface utilities (that are not addressed through public mark out call-in numbers);

- Collection and analyses of soil vapor samples from beneath and adjacent to the building envelope utilizing the GORE survey technique. Soil vapor sample results will provide a good overview of potential areas of concern (AOCs), if any, and will allow the completion of a more focused soil and groundwater investigation program;

- Collection and analyses of multi-depth soil and groundwater samples from possible on-site AOCs identified during the document review and soil vapor sampling phase of the project. Multi-depth soil and groundwater grab samples are to be collected utilizing the Geoprobe drilling technique; and,

- The installation and sampling of permanent groundwater monitoring wells at multiple depths within the overburden deposits. Well locations will be optimized based upon Geoprobe and soil vapor data.

The following sections of this work plan, when implemented in conjunction with the Site Health and Safety Plan (HASP) and the Quality Assurance Project Plan (QAPP), and review of previous investigation data, will meet the objectives of the SC / PRI as outlined in NYSDEC Technical and Administrative Guideline Memorandum (TAGM) No. 4025, Guidelines for Remedial investigation/Feasibility Studies (NYSDEC TAGM 4025, March 31, 1989); United States Environmental Protection Agency (USEPA) Guidance for Conducting Remedial Investigations and Feasibility Studies under CERCLA (USEPA, October 1988); NYSDEC TAGM SW-96-09 – Development and Review of Site Analytical Plans dated May 3, 2001; and, NYSDEC Draft DER-10 – Technical Guidance for Site Investigation and Remediation, dated December 25, 2002, as amended.

The HASP and QAPP are submitted under separate cover.

1.1 Objectives

The components of the SC / PRI Program have been designed to meet the following specific objectives:

- Evaluate on-site, historic and current chemical use and waste disposal practices in order the identify specific AOCs for subsequent evaluation;

- Investigate and confirm the presence of on-site source areas of contamination at AOCs indentified above, if any, via the collection and analyses of soil vapor samples;

- Confirm the presence of impacted groundwater, if any, observed on the Subject Property;

- Collect sufficient elevation data to confirm the potentiometric surfaces of the shallow, intermediate and deep portions of the aquifer and the inferred groundwater flow direction;

- Investigate possible historic and current upgradient groundwater contaminants migrating onto the Subject Property;

- Complete sufficient groundwater flow direction, topographic data, and preferential pathway analyses on the Subject Property to evaluate the possibility of a relationship between contamination found underlying the Subject Property, if any, and the adjacent Farrand Controls property. This objective will focus on the impacted areas on the Farrand Controls property specifically attributed by the NYSDEC to be the result of an "*apparent upgradient source*;" and,

- Meet the RI requirements set forth by the NYSDEC and USEPA to limit the need for additional investigation activities to the degree practical given the information available at this time.

1.2 Site Description and Location

As shown in ***Figure 1-1*** and ***Figure 1-2,*** the Subject Property encompasses a 10.001-acre parcel of land currently improved with an approximate 63,000 square foot (sf), two-story industrial / office building and an associated parking lot. The Subject Property has an address of 115-117 Wall Street and is located within the Village of Valhalla, Town of Mount Pleasant, Westchester County, New York and has been assigned Town Tax Map No. Section 117.6 – Bock 1 – Lot 40. The Subject Property is also known as One Commerce Park and Three Commerce Park. The Subject Property is located on the east side of the Taconic State Parkway near the intersection of Wall Street and Commerce Street.

The following provides a description of the Subject Property exterior of the building envelope, as well as surrounding property uses based upon the information currently available (see ***Figure 1-3***);

- The northern portion of the site is dominated by undeveloped woodland with an approximately 40-foot increase in topographic elevation from the building to the north property boundary. The northern property line abuts against property owned by the City of New York associated with the Catskill Aqueduct. A cemetery is present to the north of the aqueduct right-of-way;

- The eastern portion of the property consists of undeveloped woodland and paved parking areas. Off-site to the east / southeast lies the Farrand Control Site and additional undeveloped woodland. A residential development is present further to the east;

- The southern portion of the property is improved with paved parking areas and access roads, followed by an area of vegetated wetlands. As indicated in ***Figure 1-4***, the U.S. Fish & Wildlife Service has designated the wetlands as palustrine, forested, broad-leaved, seasonally-flooded or palustrine, emergent, persistent, semi-permanently flooded type wetlands (see ***Appendix A*** for supporting documentation). Adjacent to the wetlands is the Taconic State Parkway, followed by a large cemetery; and,

- The western portion of the property is dominated by a small portion of undeveloped woodlands. The adjacent property includes the Taconic State Parkway, followed by a large cemetery.

1.3 Environmental History

As discussed previously, one of the primary drivers for development of this SC / PRI Work Plan is to complete an evaluation of an alleged "*apparent upgradient source*" of contamination on the Farrand Controls property. This "*apparent upgradient source*" is reportedly a reference to the Subject Property and the NYSDEC has requested an investigation to determine the nature and extent of contamination on the Subject Property, and the possibility of linkage of contamination between the two sites, if any. To assess potential linkage of contamination between the Subject Property and the adjacent Farrand Controls Site, if any, an environmental history of both sites was reviewed. The following sections summarize the currently known environmental history and issues at the two properties.

1.3.1 Subject Property Documents

The following documents were available for review regarding the Subject Property and considered in the development of the SC / PRI scope of work:

- May 1, 1998: Phase I Environmental Site Assessment (ESA) Report prepared by Detail Associates, Inc. for the Subject Property;
- January 14, 2003: Phase I ESA Report prepared by IES for the Subject Property;
- March 2003: Phase II ESA Report prepared by Ira D. Conklin & Sons, Inc. for the Subject Property;
- June 30, 2003: correspondence prepared by Team Environmental Consultants, Inc. (TEC) for the Subject Property providing a summary of previous investigations;
- June 2, 2005: NYSDEC communications and draft Order for the Subject Property which is referred to as the "Praedium II" Site and has been assigned NYSDEC Site No. 3-60-054; and,
- February 26, 2009: NYSDEC communications and draft Order for the Subject Property which is referred to as the "One Commerce Park" Site and has been assigned NYSDEC Site No. 3-60-054.

Each of these is discussed further in ***Section 1.3.3***.

1.3.2 Farrand Controls Site Property

The following documents were available for review regarding the neighboring Farrand Controls property and were considered in the development of the SC / PRI scope of work:

- August 2000: RI Report prepared by Dvirka and Bartilucci Consulting Engineers (D&B) for the adjacent Farrand Control Site located at 99 Wall Street; and,
- March 2002: NYSDEC Record of Decision (ROD) for the adjacent Farrand Controls Site located a 99 Wall Street.

Each of these is discussed further in the following section of this SC / PRI Work Plan.

1.3.3 Environmental History Discussion

Based upon the review of the aforementioned reports, the Subject Property was first developed in 1958 by Farrand Controls (and / or its subsidiaries) which utilized the on-site building for industrial-manufacturing and office use through circa 1990 when the 115-117 Wall Street portion of the Farrand Controls facility (i.e., the Subject Property) was purchased by Messenger Realty (Messenger). In the 2003 Phase I ESA Report, it was reported that DEL Global Technologies (a former tenant), which was on-site from 1991 through at least 2003, generated one (1) 55-gallon drum of waste trichloroethene (TCE) approximately every ten (10) weeks.

The reports indicate that the building on the Subject Property was always heated via a natural gas fired system and there are reportedly no historic or on-going underground storage tanks (UST) or aboveground storage tanks (AST). There were conflicting reports indicating that the Subject Property was equipped with an on-site sanitary waste disposal system or was attached to the municipal sewer system. Based upon a June 4, 2009 conversation with the Town of Mount Pleasant Building Department, the Subject Property was attached to the municipal sewer system on August 12, 1992. If this is correct, there is the potential that the Subject Property was serviced by an on-site sanitary waste disposal system prior to 1992. Apex has submitted a Freedom of Information Law (FOIL) request to the Town requesting any records associated with the historic and current waste disposal practices at the Subject Property and records will be reviewed as part of this SC / PRI.

The results of the above-referenced Phase II ESA Report, which did not identify any significant site-related impacts, were limited in value as:

- There was limited documentation as to the selection criteria for the six (6) soil sampling locations (i.e., it cannot be determined if sample locations were appropriate without additional information). Although the rationale behind sample location selection is not provided, two (2) of the on-site soil samples

contain TCE at concentrations below the NYSDEC threshold of concern. The fact that TCE was detected, even at low concentrations, indicates that additional investigation may be warranted.

- Due to the selected sampling methodology, only one (1) groundwater sample was collected and analyzed from the unconsolidated sediments underlying the Subject Property. No on-site sampling was conducted in the underlying semi-consolidated or bedrock where monitoring wells located on the adjacent Farrand Controls Site (allegedly downgradient of the Subject Property) have reportedly indicted evidence of halogenated VOCs.

The TEC correspondence provides a summary of the previous investigations. Further, the document provides a summary of activities conducted to evaluate suspect piping. While the piping reportedly proved not to be associated with a UST system, a hand-drawn site sketch indicates the presence of a "*sump pit for groundwater*." One of the reported sources of contamination at the adjacent Farrand Controls Site was an internal "*sump pit"*.

The NYSDEC RI Report and ROD for the adjacent Farrand Controls Site provides summaries of site hydrogeologic conditions and contaminant nature and extent at that Site. In addition, the document also references an "*apparent upgradient source*" across the northwest property line that reportedly is a reference to the Subject Property. The following is a summary of significant information included in the Farrand Controls site ROD with possible relevance to the Subject Property SC / PRI:

- The groundwater flow direction at the property line between the Subject Property and the Farrand Controls Site has been identified as to the south; therefore, the Subject Property is reportedly located upgradient and / or crossgradient of the 99 Wall Street Property;

- The ROD includes the following discussion

  "A second plume of contaminated groundwater from an apparent up-gradient source has migrated from the north across the Farrand Controls northwestern property line. . . The NYSDEC will investigate the source of this plume separately from the Farrand Controls project;" and,

- The RI Report indicates that selected halogenated VOCs were present in the deep overburden at the northwestern portion of the Farrand Control site (i.e., immediately adjacent to and reportedly downgradient or crossgradient of the Subject Property).

During a March 11, 2009, preliminary site walk through, Apex observed the following potential AOCs that are to be further evaluated as part of this SC / PRI: 1) two (2) truck loading bays; 2) a dumpster / debris staging area; 3) an area where empty drums which formerly contained Instapak (contains polymeric isocyanate) were staged; and, 4) a concrete

pad which may have potentially been utilized for drum storage purposes. Although not inspected on March 11th, the reported groundwater sump located within the on-site building also represents an AOC.

1.4 Overview of Work Plan Documents

This SC / PRI Work Plan includes the Field Sampling Plan (FSP). The Health and Safety Plan (HASP) and Quality Assurance Project Plan (QAPP) are under separate covers and are incorporated into this SC / PRI Work Plan by reference.

2.0 SCOPE OF WORK (FIELD SAMPLING PLAN)

The following sections of this SC / PRI Work Plan include all aspects of the FSP and will discuss the soil, groundwater and soil vapor investigation activities that will be completed as part of this characterization study. The findings of previous investigations at the adjacent Farrand Controls Site are discussed where necessary to fully describe the rationale behind the work to be performed as part of this project.

2.1 Review of Historic Data and Studies / Interviews and Site Inspection

A review of the reports that were summarized in ***Section 1.3*** of this document was conducted during the development of this scope of work. The data quality objectives (DQOs) of this task include:

- Acquisition of as much relevant, historic / publically-available information as possible;
- Identification of effective, follow up interview "targets" and site inspections contacts; and,
- Evaluation / identification of potential site AOCs for subsequent investigation activities, if necessary.

As part of this task, the following activities will be completed:

2.1.1 Acquisition and Review of Database Report and FOIL Requests

Apex will acquire an industry standard database report in order to evaluate historic site conditions (e.g., spills, violations, etc.), chemical use / disposal practices, etc. Apex will also submit FOIL requests to applicable Town of Mount Pleasant and Village of Valhalla departments (e.g., engineering, planning, sewer, etc.) to acquire as much historic information as possible with respect to former and current site infrastructure and operations. These data will be correlated with the results of the aforementioned historic documentation review tasks.

2.1.2 Interviews

Apex will conduct interviews of those facility personnel made available. If made available, personnel from each on-site tenant / business will be queried with respect to current chemical uses and disposal practices. Copies will be made of relevant documents as provided (e.g., materials disposal documentation, material safety data sheets [MSDSs], etc.) for later review. Further, Apex will request that the current property owner make inquires to identify current or former site employees who may have knowledge of former chemical use / disposal practices, particularly during the period of Farrand Controls ownership to the extent practical and reasonable. Assuming that Farrand Controls cooperates and such staff are still

employed at that Site, employees at the Farrand Controls Site who may have knowledge of historic operations at the Subject Property will also be interviewed.

2.1.3 Site Inspection

Apex personnel will conduct a visual inspection of the Subject Property. This inspection will specifically target current and former on-site infrastructure (e.g., interior sumps, heating equipment, process lines, loading docks, etc.) in which chemicals / hazardous materials may have been stored, handled, utilized, etc. The results of this visual inspection will be photo-documented and keyed to a site figure. A site map indicating the locations of all identified AOCs, as well as the proposed sampling locations / methodologies to evaluate them, if different from those identified in this SC / PRI Work Plan, will be developed.

2.2 Site Geophysical Survey

A geophysical survey will be conducted in the vicinity of identified AOCs which warrant further evaluation. For example:

- In the event that an out-of-service sanitary waste disposal system is identified, the geophysical survey will be utilized to evaluate the sub-grade components of the system (e.g., septic tanks, cesspools, tile drain fields, etc.) which will allow for a targeted and effective sampling of the system;
- The infrastructure associated with the reported interior groundwater sump will be evaluated to evaluate whether there are any potential associated discharge points; and,
- Any other AOCs identified as part of the aforementioned work.

The geophysical survey protocols utilized for this task may include the use of one or more of the following techniques: ground-penetrating radar (GPR), cable avoidance tools, electromagentics and magnetometry. The actual techniques utilized, and sampling / survey grid, will be dependent upon the nature of the targets of concern.

The area of each AOC, and any other potential drilling location (e.g., monitoring well locations) will be included in the geophysical survey in order to clear exploration locations for the presence of sub-surface utilities.[1]

[1] *In accordance with prevailing regulations, Dig Safe will also be provided with sufficient notification to allow for the mark out of sub-grade utilities.*

2.3 Soil Vapor Survey

Based upon the historic reported uses of the Subject Property by Farrand, and possibly by subsequent property owners, there is the potential that halogenated and / or petroleum-related solvents / materials were once stored, handled, utilized and / or disposed of at the Subject Property. The collection and analyses of soil vapor samples from below the building slab and associated building-exterior locations has been included in order to evaluate for the absence or presence of undocumented areas of potential concern which may have contained solvents in the form of halogenated VOCs or petroleum-related products. This sampling utilizing emplaced carbon adsorption collectors, is considered a high-quality, field-screening technique and is being conducted for the purposes of evaluating for the absence or presence of VOC-impacted areas that may warrant further investigation and delineation (e.g., soil borings, hand-auger samples, subsequent wells, etc.). The soil vapor survey is ***not*** designed to quantify mass or concentrations of contaminants.

Depending on the results of this task, follow up soil and groundwater locations, as discussed below, may be re-located to better target possible source areas.

2.3.1 Soil Vapor Sampling Procedures

As indicated in ***Figure 2-1***, a systematic series of six (6) building-interior soil vapor sampling locations (i.e., SV-1 through SV-6) and ten (10) building-exterior soil vapor sampling locations (i.e., SV-7 to SV-16) will be assessed.[2] Soil vapor samples will be collected at each location in accordance with the following protocols:

- A 0.5-to-0.75-inch-diameter pilot hole will be advanced with a rotary-impact hammer to a nominal depth of three-feet below grade surface (bgs);
- A GORE Module (an adsorbent structure engineered by GORE to be hydrophobic and to collect a wide variety of volatile inorganic and organic compounds ranging from C2 (ethane) to C20 phytane) is removed from its laboratory-supplied container and the serial number and corresponding site information are recorded on a chain-of-custody (COC) form;
- An insertion rod is placed into the pocket in the end of the module and then inserted to the terminal depth of the pilot hole and the top of the hole is plugged utilizing a cork; and,

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[2] *It should be noted that the location of soil vapor sample points was selected to allow mathematical modeling of data as well as to identify specific, potential AOCs. Therefore, it is critical that locations selected contain non-contaminated locations as well as possibly contaminated locations to complete statistically significant, data evaluation of soil vapor data. This approach also helps to bound areas of potential concern to better focus subsequent soil and groundwater sampling events.*

- One-to-two weeks later, the GORE Module is removed, placed back in its original container and submitted to the laboratory for analyses. The pilot hole is backfilled with clean sand and the original surface is repaired.

2.3.2 Analytical Parameters and Rationale

Based upon the soil, soil vapor and groundwater analytical data included in the NYSDEC RI Report for the adjacent Farrand Controls Site, the primary contaminants of concern for the adjacent property include:

- Trichloroethene (TCE);
- 1,1-Dichloroethene (DCE);
- Trans 1,2-dichloroethene (trans 1,2-DCE);
- Cis-1,2-dichloroethene (cis 1,2-DCE);
- Vinyl chloride (VC);
- 1,1,1-Trichloroethane (TCA);
- 1,1-Dichloroethane (DCA); and,
- 1,1,2-Trichlorotrifluoroethane (Freon 113).

With the exception of Freon 113, all of the aforementioned halogenated VOCs are included in the NYSDEC Target Compound List (TCL). Therefore, for the purposes of this investigation, and in accordance with prevailing NYSDEC protocols, all of the soil vapor samples will be analyzed for NYSDEC TCL VOCs and Freon 113 by modified EPA Method 8260. The TCL VOC list of analytes also includes most of the common petroleum-related VOCs such as benzene, ethylbenzene, toluene, xylenes, etc. Information regarding this sampling and analyses methodologies is included in ***Appendix B***.

Quality control / quality assurance (QA / QC) sample collection and analysis including the use of trip blanks, duplicates and laboratory control samples will be conducted as per the QAPP.

2.4 Direct Push Soil and Groundwater Sampling and Analyses

As discussed above, the following possible AOCs have been identified on the Subject Property:

- Two (2) truck loading bays;
- A dumpster / debris staging area;

- An area where empty drums which formerly contained Instapak (contains polymeric isocyanate) were stored;
- A concrete pad which may have potentially been utilized for drum storage purposes; and,
- An interior groundwater sump.

The locations of these AOCs are shown in ***Figure 2-2***

Three (3) sampling locations (i.e., SB/GW-1, SB/GW-2 and SB-GW-3) are proposed to evaluate soil and groundwater conditions at the southeast property line, adjacent to where VOC-impacted groundwater was reported in the NYSDEC RI Report for the Farrand Controls Site. As indicated in ***Figure 2-2***, eight (8) multi-depth soil / groundwater sampling locations are planned to evaluate the previously-identified on-site AOCs and area of potential groundwater impact, including seven (7) locations (i.e., SB/GW-1, SB/GW-2, SB-GW-3, SB/GW-4, SB/GW-6, SB/GW-7 and SB/GW-8) exterior of the building and one (1) location (i.e., SB/GW-5) inside of the building.

Table 2-1 provides a summary of the preliminary soil and groundwater sample locations and the rationale for their selection.

2.4.1 Data Quality Objectives

The primary DQO of the direct push sampling task is the effective collection and analysis of multi-depth soil and / or groundwater samples from within each identified AOC to allow for an evaluation of whether either media are impacted from historic or on-going site practices. The related DQO for the multi-depth groundwater sampling task is the evaluation of aquifer conditions in the direct vicinity of any identified on-site AOCs and along the property line with the Farrand Controls Site. The specific DQO for the multi-depth soil sampling is the evaluation of the chemical nature of soils directly within / underlying site-specific AOCs to assess whether impacts have occurred at or along the property line with the adjacent Farrand Controls Site.

Based upon review of the data collected at the adjacent Farrand Controls Site, multi-depth soil and groundwater samples can be successfully collected utilizing the Geoprobe direct-push sampling technique. Prior to advancing the first boring and before each subsequent boring, the samplers, rods, and other equipment will be thoroughly decontaminated. Each item will first be washed with an Alconox and deionized water mixture, and then rinsed off with deionized water. All sample liners will be factory decontaminated. Additional sampling details are provided in the QAPP.

2.4.2 Soil Sampling Procedures

Depending on the boring location, the maximum depth to water is expected to be ten-feet below grade surface (bgs). At each soil boring location, soil samples will be collected on a nominal continuous basis by advancing a five-foot-long stainless steel macrocore sampler with the Geoprobe drill rig. Each macrocore sampler will be equipped with factory-decontaminated, plastic acetate liners. In the event of borehole collapse, a large bore (LB) type soil sampler will be utilized for completion of the boring. The LB is driven to the top of the desired sample interval. Chase rods are then fitted down the drill rods and LB sampler to unscrew the bottom pin which then allows the underlying soils to enter the LB. The LB is then driven an additional two (2) feet to collect the soils from the desired two-foot interval. Upon advancing to the desired depth, the boring rods and LB are removed from the borehole, the LB unthreaded from the rods, and an acetate liner containing the soil sample removed from the LB.

The soil samples will be inspected and classified in accordance with the Unified Soil Classification System by Apex personnel. The samples will be field screened utilizing a photo-ionization detector (PID) and by visual and olfactory inspection for the presence of impact. A graphic log of each soil boring will be prepared with appropriate stratification lines, lithologic descriptions, sample identifications, PID readings, sample depth intervals and dates.

At a minimum, the soil sample exhibiting the greatest suspect characteristics from each boring will be retained for laboratory analysis and a second sample collected from just above the water table will be submitted for analysis. The soil samples collected from near the surface and from just above the water table will be submitted for laboratory analysis in the event that no impacts are evident.

2.4.3 Groundwater Sampling Procedures

At each of eight (8) groundwater grab sample locations (i.e., SB/GW-1 through SB/GW-8), the following procedure will be utilized to collect groundwater samples from nominal depths of approximately 12-, 28- and 51-feet bgs in the exterior borings and from 12- and 20-feet bgs in the building interior boring.[3] It should be noted that these preliminary sampling intervals were selected based upon the groundwater sampling intervals associated with the Farrand Controls Site so that comparison between the groundwater quality underlying the

[3] *The interior soil borings will be conducted utilizing a natural-gas powered small Geoprobe rig which is not capable of achieving depths greater than estimated 20-feet bgs. Further, Apex has retained the services of the same drilling contractor who had conducted the sampling activities for the Farrand Controls Site RI; these sampling intervals should be achievable in the event that bedrock does not occur at a shallower depth below the Subject Property.*

two (2) sites can be made. The actual sampling depths may be altered after reviewing site specific topographic data and field records following acquisition of additional site and neighboring site records. Any changes to the sample locations or depths will be made in coordination with the NYSDEC.

In the event that drilling refusal occurs prior to 51-feet bgs, the sampling intervals will be adjusted to provide shallow, intermediate and deep data through the aquifer.

The multi-depth groundwater samples will be conducted utilizing the following procedures:

- A decontaminated Geoprobe well point will be advanced to a nominal terminal depth of the selected boring;
- Depending on the screen type utilized, the protective sheath may be withdrawn;
- The groundwater sample will be collected by inserting a length of pre-cleaned polyethylene tubing equipped with a check valve into the screened interval, vigorously oscillating the tubing (either by hand or utilizing a mechanical pump), thereby driving water to the surface and collecting the groundwater in appropriate laboratory-supplied glassware for analysis;
- Once the deeper sample is collected, the screened interval will be withdrawn to the next shallower sampling interval, a new length of polyethylene tubing will be inserted and oscillated allowing for the collection of a groundwater samples; and,
- The screen will be withdrawn to the final sampling depth and the aforementioned procedure repeated to collect the shallow groundwater sample.

2.4.4 Analytical Parameters and Rationale

All of the soil and groundwater samples collected utilizing the direct-push sampling methodology will be analyzed by a New York State Department of Health (NYSDOH) Environmental Laboratory Accreditation Program (ELAP)-certified laboratory (with appropriate chain-of-custody) for NYSDEC TCL VOCs, Freon 113, and ten (10) tentatively-identified compounds (TICs) by EPA Method 8260[4]. Additional information with respect to the proposed analyses is included in the QAPP.

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[4] Grab groundwater samples collected during Geoprobe sampling will be lab filtered using a 0.45 micron filter. Additional information is presented in the QAPP. Laboratory filtering will not be performed for groundwater samples collected from permanent monitoring wells that allow for proper well development and purging prior to sample collection.

In order to evaluate whether former activities conducted at the Subject Property could potentially have resulted in the release(s) of other contaminants, a selected number of the soil samples will also be analyzed for TCL semi-volatile organic compounds (SVOCs) plus 20 TICs by EPA Method 8270, Target Analyte List (TAL) metals by the EPA 6010 / 7471 Series, TCL pesticides by EPA Method 8081 and TCL polychlorinated biphenyls (PCBs) by EPA Method 8082. The rationale for selecting the soil samples for the additional analyses is included in ***Table 2-2***. Additional information with respect to the proposed analyses is included in the QAPP.

QA/QC sample collection and analysis including the collection of trip blanks, field blanks, duplicates, and matrix spike (MS) / matrix spike duplicate (MSD) samples will be conducted at the site as per the QAPP.

2.5 Permanent Monitoring Well Groundwater Investigation

As discussed in the NYSDEC RI Report for the adjacent Farrand Controls Site, groundwater flow direction and contaminant distribution patterns vary based upon the vertical location within the underlying aquifer materials. Additionally, groundwater is also present in a shallow bedrock fracture zone. For this reason, the grab groundwater sampling described in the prior sections is not sufficient to fully assess local groundwater conditions with respect to groundwater flow direction and gradients. Additionally, one-time grab sampling, while greatly enhancing the initial identification of possible AOCs, cannot be utilized for temporal sampling of groundwater as is required to fully understand groundwater quality issues. The following sections discuss the permanent monitoring well installations proposed for this SC / PRI.

2.5.1 Data Quality Objectives

DQOs for this portion of the work are to confirm the hydrogeologic conditions throughout the aquifer system underlying the Subject Property. Additionally, the installation of multi-depth cluster wells will allow for continued monitoring activities, if warranted. Currently, it is anticipated that three (3) clusters of three (3) wells each (total of 9 wells) with screened intervals of five-to-15-feet bgs, 30-to-35-fgeet bgs, and 50-to-55-feet bgs will be installed and sampled at the approximate locations indicated in ***Figure 2.2*** (i.e., MW-1, MW-2 and MW-3).

The purpose / DQOs of the three well clusters are to:

- Evaluate groundwater quality conditions at the southeast property line where VOC-impacted groundwater was reported in the NYSDEC RI Report for the Farrand Controls Site;
- Confirm upgradient groundwater conditions; and,

- Confirm groundwater conditions south (e.g., downgradient) of the on-site building and allow for the determination of the groundwater flow direction beneath the Subject Property.

In addition to the three well clusters, two shallow piezometers (e.g., five-to-15-foot screened intervals) (i.e., P-1 and P-2) will be placed in the southwestern portions of the parking lot to allow for a more accurate delineation of the shallow water table potentiometric surface which is critical to evaluating the impact of contamination on the Subject Property, if any, on the Farrand Controls site.

2.5.2 Well Installation Procedures

Each of the well clusters will consist of individual wells located approximately three-to-ten-feet apart. Each boring will be pre-cleared by hand to approximately five–feet bgs and then the borings will be advanced by 4 ¼-inch inside diameter (ID) hollow stem auger with split-spoon samples collected in the deepest overburden well location on nominal five-foot intervals.

All wells are to be screened with two-inch-diameter Schedule 40 PVC flush-joint #10 slot screen. The well annular spaces will be filled from one-foot below the screen to two-feet above the screen with a Morie #1 gravel pack. A fine sand seal of Morie #00 sand will be installed above the gravel pack and a flexible bentonite seal will be emplaced above the sand seal. The wells will be grouted from the top bentonite seal to grade with a neat cement / bentonite grout. All wells will be finished at grade with a locking J-plug, lock, and bolt down manhole.

All drill cuttings will be placed in 55-gallon drums and staged at a centralized location. Based upon review of the associated soil / groundwater analytical data and waste characterization analyses,[5] the soils will either be properly disposed in accordance with Federal, State and Local regulations. Soils that meet NYSDEC Unrestricted Use Soil Cleanup Objectives will be spread on the ground in the vicinity of the sampling location.

All augers, rods, and split-spoon samplers will be decontaminated prior to beginning the drilling services and between borings by Liquinox wash and rinse or by steam cleaning. The spent decontamination liquids will be containerized, characterized and disposed of in accordance with all prevailing regulations.

---

[5] *The actual suite of waste-characterization analytes is based upon the individual potential disposal facilities. The list of analytes will be consistent with all Federal, State and Local requirements to ensure that the drill cuttings are disposed of in accordance with all prevailing regulations.*

2.5.3 Well Development

Following installation, the groundwater monitoring wells will be developed. Development will consist of pumping groundwater from each monitoring well until pH, specific conductivity, and turbidity measurements stabilize. Stabilization will be achieved when three (3) consecutive pH, specific conductivity, and turbidity readings (recorded approximately five [5] minutes apart) are within ten percent (10%) of one another. If stability cannot be obtained, the wells will be developed for a minimum of ½ hour of continuous pumping.

If well yields are not sufficient to allow ½ hour of continuous pumping, the well will be fully evacuated (i.e., pumped dry) and allowed to fully recharge for a minimum of three (3) times.

Assuming that no light non-aqueous-phase liquids (LNAPL) are observed, development water generated from the shallow monitoring wells and piezometers will be discharged to the ground surface adjacent to the wellhead where it was generated in such a fashion as not to impact nearby surface waters or storm drains (i.e., it will be discharged where it can infiltrate the ground locally without overland flow). The development purge waters from the intermediate and deep wells will be containerized and staged at a centralized on-site location. Based upon review of the associated groundwater analytical data and waste characterization analyses, the water will either discharged at the site, again not so as to impact adjacent surface water or storm drains, or transported to and disposed of at an appropriate facility in accordance with applicable Federal, State and Local regulations.

2.5.4 Well Purging and Sampling

Subsequent to a minimum three-day equilibration period, groundwater samples will be collected from the newly-installed groundwater monitoring wells and submitted for laboratory analysis.

Prior to sampling, depth-to-water readings will be collected from each monitoring well and the newly installed piezometers with a decontaminated electronic interface probe (IP). Following the collection of depth-to-water measurements, a dedicated disposable polyethylene bailer will be lowered into each monitoring well and partially submerged into the groundwater. The groundwater in each bailer will be visually inspected for color, general appearance, odor, and presence or absence of a sheen on the surface or particulates in the water column.

Following the collection of the initial bailer groundwater sample at each monitoring well, each monitoring well will be purged until at least three (3) well volumes of groundwater are removed. Purge waters will be removed with a decontaminated submersible pump. The well-purge waters will be handled using the same protocols for the well-development waters provided above.

It should be noted that LNAPL is not anticipated based upon the information currently available. If LNAPL is encountered, wells will not be purged nor will dissolved phase sampling be completed. Only depth to product and depth to water gauging will be performed.

The groundwater sample aliquotes collected for TAL metals will be collected directly from the pump discharge in order to provide non-turbid samples.

2.5.5 Analytical Parameters and Rationale

All of the groundwater samples collected from the monitoring wells and piezometers will be analyzed for NYSDEC TCL VOCs, Freon 113, and ten (10) TICs by EPA Method 8260. The samples will be analyzed by a NYSDOH ELAP-certified laboratory (with appropriate chain-of-custody). Additional information with respect to the proposed analyses is included in the QAPP.

In order to evaluate whether former activities conducted at the Subject Property could potentially have resulted in the release(s) of other contaminants, a selected number of the groundwater samples will also be analyzed for TCL SVOCs plus 20 TICs by EPA Method 8270, TAL metals by the EPA 6010 / 7471 Series, TCL pesticides by EPA Method 8081 and TCL PCBs by EPA Method 8082. The rationale for selecting the groundwater samples for the additional analyses is included in ***Table 2-2***. Additional information with respect to the proposed analyses is included in the QAPP.

QA/QC sample collection and analysis including the collection of trip blanks, field blanks, duplicates, and MS / MSD samples will be conducted at the site as per the QAPP.

2.5.6 Surveying and Water Table Elevations

The top-of-casing elevation of each newly-installed well and piezometer will be surveyed into the site-reference datum defined by D&B for the adjacent Farrand Controls Site to an accuracy of 0.01 feet. Then a water-level survey that will consist of the collection of two (2) rounds of water-level data from each monitoring well / piezometer at the site will be conducted. Water-level elevations will then be calculated for each monitoring well / piezometer based on the surveyed elevation of each monitoring well and measured depths to water. A groundwater elevation contour map will then be plotted for each portion of the aquifer and inferred groundwater flow directions developed. Groundwater potentiometric surface maps will be developed for shallow, intermediate and deep overburden groundwater zones.

2.6 Identification of NYS Standards, Criteria, and Guidelines

In accordance with 6 NYCRR PART 375, Environmental Remediation Programs, Subpart 375-1, the soil analytical data will be compared to NYSDEC soil cleanup objectives (SCOs) (i.e., Unrestricted SCOs, commercial / industrial SCOs and NYSDEC TAGM 4046 Recommended Soil Cleanup Objectives (RSCOs).

Groundwater analytical data will be evaluated in conjunction with NYSDEC Class GA Groundwater Standards and Guidance Values set forth in the NYSDEC Division of Water Technical and Operational Guidance Series 1.1.1 Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations - Reissued June 1998 and April 2000 Addendum.

There are no applicable SCGs for the soil vapor samples analyzed by the GORE methodology. Rather, the analytical data will be compared qualitatively to building-exterior locations where no anthropogenic impacts are expected. Further, the soil vapor analytical data will be mathematically modeled to evaluate for the presence of areas of relatively elevated concentrations, if any, to represent areas of possible concern that warrant further evaluation. Soil vapor data will not require specific, quantitative evaluation.

2.7 SC / PRI Report

The SC / PRI Report prepared for this site will include at a minimum:

- Summary of previous NYSDEC and other study data;
- Description of work performed at the site (including site maps, boring logs, sampling descriptions and logs, well completion details, field screening data, etc.);
- Characteristics of the site area (including surface features, geology, hydrogeology, etc.);
- A summary of the analytical and physical data obtained to define possible source areas and groundwater quality at the site; and,
- Conclusions and recommendations.

3.0 PROJECT MANAGEMENT / STAFFING PLAN

Since the key element of any remedial investigation is the project team, a project team with extensive NYSDEC Inactive Hazardous Waste Disposal Site and USEPA Superfund site experience has been assembled. The proposed project team organization is presented in ***Figure 4-1***.

The project manager for this project will be ***Richard J. Baldwin, C.P.G., P.G.*** Mr. Baldwin is a hydrogeologist with more than 20 years of experience in the fields of environmental consulting, hydrogeology and geology with particular experience in conducting and supervising environmental investigations and remedial actions at industrial, private, Federal and publicly-owned facilities and sites. Additionally, Mr. Baldwin has experience in evaluating potential environmental impacts of projects including golf courses, housing developments, senior housing, schools and retail shopping centers. For the last several years, Mr. Baldwin's work has focused primarily on sites and facilities located in the Long Island, New York City and Upstate New York areas. A copy of Mr. Baldwin's resume is included in ***Appendix C***.

The Apex Project Director and Quality Assurance Officer (QAO) for the project will be **Daniel J. Smith, P.E.** Mr. Smith is a New York State-licensed Professional Engineer (PE) in Chemical Engineering with over 20 years of experience in the environmental consulting industry. Mr. Smith has been responsible for the implementation of investigations and remedial actions at numerous NYSDEC-regulated sites under the SPILLS and IHWDS program. The QAO's project responsibilities include conducting site audits to ensure that the QA/ QC procedures included in this Work Plan are being implemented. Additionally, the QAO will review all of the analytical data collected as part of the investigation to assure that the data are of sufficient quality to support the goals of the investigation. Mr. Smith is an officer of Apex and the Project Director for this project; thus he has the authority to ensure that appropriate staffing is available to complete the investigation. A copy of Mr. Smith's resume is included in ***Appendix C***.

Field sampling and oversight of contractors will be performed by personnel experienced in proper field sampling techniques. All analytical work will be performed by a NYSDOH ELAP-certified analytical laboratory and drilling services will be performed by experienced contractors with extensive NYSDEC regulated site experience.

4.0 PROJECT SCHEDULE

The preliminary project schedule is presented in ***Figure 4-1***. This schedule is contingent upon finalization of an acceptable Order on Consent and NYSDEC review and approval of the proposed scope of services. Please note that the schedule has been developed to allow for the review and evaluation of data on a task-by-task basis. For instance, the collection and analyses of multi-depth soil and groundwater samples will be conducted after the completion of the historic research and soil vapor sampling tasks as these early tasks will likely indicate the appropriate locations of the follow-on sampling activities.

5.0 CITIZEN PARTICIPATION PLAN

The following citizen participation (CP) activities are typically undertaken at the SC / PRI phase of a project in accordance with 6 NYCRR *Part 375-1.10 entitled "Citizen Participation"*:

- Identify a local public document repository;
- Develop a Contact List of interested parties;
- Develop a Project Fact Sheet for distribution to the Contact List;
- Populate the public repositories with project documents; and, potentially,
- Hold a Public Availability Session for any interested parties.

A NYSDEC compliant Citizen Participation Plan (CPP) is provided under a separate cover.

TABLES

Table 2-1
One Commerce Park Site
Preliminary Soil and Groundwater Sample Summary

Sample Identification Number	Sample		
	Matrix	No. of	Rationale
SB/GW-1	Soil Groundwater	2 3	Evaluate soil and groundwater conditions at property line. between the Subject Property and the Farrand Controls Site.
SB-GW-2	Soil Groundwater	2 3	Evaluate soil and groundwater conditions at property line between the Subject Property and the Farrand Controls Site.
SB-GW-3	Soil Groundwater	2 3	Evaluate soil and groundwater conditions at property line between the Subject Property and the Farrand Controls Site.
SB/GW-4	Soil Groundwater	2 3	Evaluate soil and groundwater conditions at dumpster and debris staging area / truck loading bay.
SB-GW-5	Soil Groundwater	2 2	Evaluate soil and groundwater conditions underlying interior groundwater sump pit.
SB/GW-6	Soil Groundwater	2 3	Evaluate soil and groundwater conditions at second truck loading bay.
SB-GW-7	Soil Groundwater	2 3	Evaluate soil and groundwater conditions at current empty drum staging area.
SB/GW-8	Soil Groundwater	2 3	Evaluate soil and groundwater conditions at concrete pad which may have been a former drum storage area.
MW-1	Groundwater	3	Confirm groundwater conditions at an upgradient portion of the Subject Property.
MW-2	Groundwater	3	Confirm groundwater conditions at the property line between the Subject Property and the Farrand Controls Site adjacent to where a VOC plume was identified in NYSDEC RI Report.
MW-3	Groundwater	3	Confirm groundwater conditions downgradient of the on-site building and allow for determination of multi-depth potentiometric surface.
P-1	Groundwater	1	Confirm shallow groundwater conditions in the western portion of the Subject Property and allow for determination of shallow potentiometric surface.
P-2	Groundwater	1	Confirm shallow groundwater conditions in the western portion of the Subject Property and allow for determination of shallow potentiometric surface.

Notes:
SB/GW-1 - Proposed sampling location for Geoprobe multi-depth soil and groundwater samples.
SB-9 - Proposed sampling location for Geoprobe multi-depth soil samples.
MW-1 - Proposed location for permanent multi-cluster groundwater monitoring well.
P-1 - Proposed location of permanent shallow groundwater piezometer.

Table 2-2
One Commerce Park Site
Soil Vapor, Soil and Groundwater Sample Analyte Selection Rationale

Sample				Analyte				
Type/ Methodology	**Identification Number**	**Matrix**	**Depth Interval**	**TCL VOCs plus Freon 113**	**TCL SVOCs**	**TCL Pesticides / PCBs**	**TAL Metals**	**Analyte Selection Rationale**
Soil Vapor	SV-1	Soil Vapor	Shallow	1				Analytical Methodology Limited to TCL VOCs plus Freon 113. It should be noted that GORE has confirmed that speciation of SVOCs is not available for all of the NYSDEC TCL parameters.
	SV-2	Soil Vapor	Shallow	1				
	SV-3	Soil Vapor	Shallow	1				
	SV-4	Soil Vapor	Shallow	1				
	SV-5	Soil Vapor	Shallow	1				
	SV-6	Soil Vapor	Shallow	1				
	SV-7	Soil Vapor	Shallow	1				
	SV-8	Soil Vapor	Shallow	1				
	SV-9	Soil Vapor	Shallow	1				
	SV-10	Soil Vapor	Shallow	1				
	SV-11	Soil Vapor	Shallow	1				
	SV-12	Soil Vapor	Shallow	1				
	SV-13	Soil Vapor	Shallow	1				
	SV-14	Soil Vapor	Shallow	1				
	SV-15	Soil Vapor	Shallow	1				
	SV-16	Soil Vapor	Shallow	1				
Direct Push Soil and Groundwater	SB/GW-1	Soil	Shallow	1				Not an Anticipated Source Area
			Deep	1				
		Groundwater	Shallow	1				
			Intermediate	1				
			Deep	1				
	SB/GW-2	Soil	Shallow	1	1	1	1	Center of Area of Concern / Not an Anticipated Source Area
			Deep	1	1	1	1	
		Groundwater	Shallow	1				
			Intermediate	1				
			Deep	1				
	SB/GW-3	Soil	Shallow	1				Not an Anticipated Source Area
			Deep	1				
		Groundwater	Shallow	1				
			Intermediate	1				
			Deep	1				
	SB/GW-4	Soil	Shallow	1	1	1	1	Evaluate Shallow Soil Conditions Associated w/ Potential Surface Source Area
			Deep	1				
		Groundwater	Shallow	1				
			Intermediate	1				
			Deep	1				
	SB/GW-5	Soil	Shallow	1				Evaluate Deeper Soil Conditions Associated w/ Sump Pit
			Deep	1	1	1	1	
		Groundwater	Shallow	1				
			Intermediate	1				
	SB/GW-6	Soil	Shallow	1	1	1	1	Evaluate Shallow Soil Conditions Associated w/ Potential Surface Source Area
			Deep	1				
		Groundwater	Shallow	1				
			Intermediate	1				
			Deep	1				
	SB/GW-7	Soil	Shallow	1				Confirm Deeper Soil Conditions along Northern Building Exterior
			Deep	1	1	1	1	
		Groundwater	Shallow	1				
			Intermediate	1				
			Deep	1				
	SB/GW-8	Soil	Shallow	1	1	1	1	Evaluate Shallow Soil Conditions Associated w/ Potential Surface Source Area
			Deep	1				
		Groundwater	Shallow	1				
			Intermediate	1				
			Deep	1				
Permanent Groundwater Monitoring Wells / Piezometers	MW-1	Groundwater	Shallow	1	1	1	1	Confirm Shallow and Intermediate Upgradient Groundwater Conditions
			Intermediate	1	1	1	1	
			Deep	1				
	MW-2	Groundwater	Shallow	1	1	1	1	Confirm Shallow, Intermediate and Deep Downgradient Groundwater Conditions
			Intermediate	1	1	1	1	
			Deep	1	1	1	1	
	MW-3	Groundwater	Shallow	1				
			Intermediate	1				
			Deep	1				
	P-1	Groundwater	Shallow	1				
	P-2	Groundwater	Shallow	1				

Notes:
SB/GW-1 - Proposed sampling location for Geoprobe multi-depth soil and groundwater samples.
MW-1 - Proposed location for permanent multi-cluster groundwater monitoring well.
P-1 - Proposed location of permanent shallow groundwater piezometer.

FIGURES

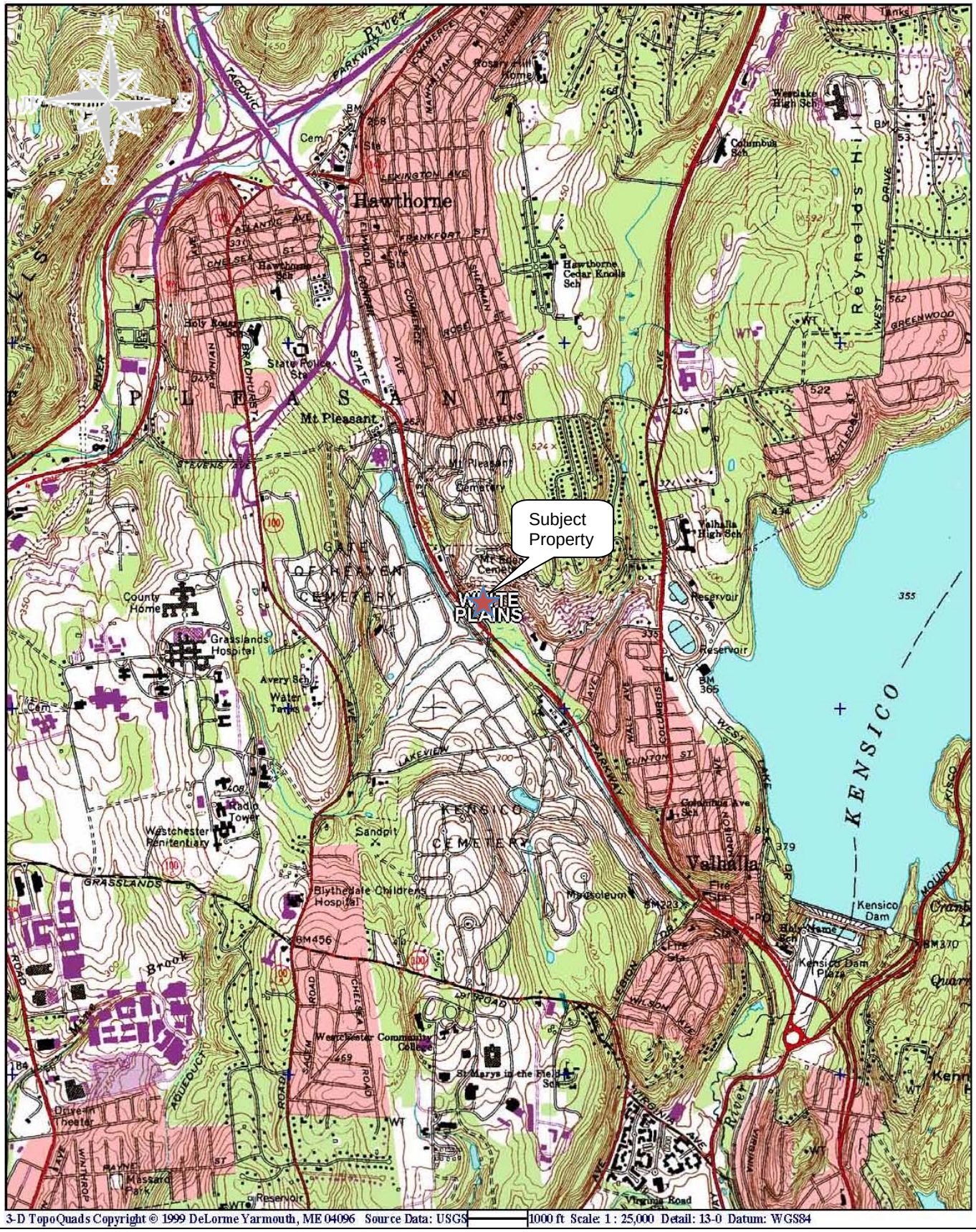
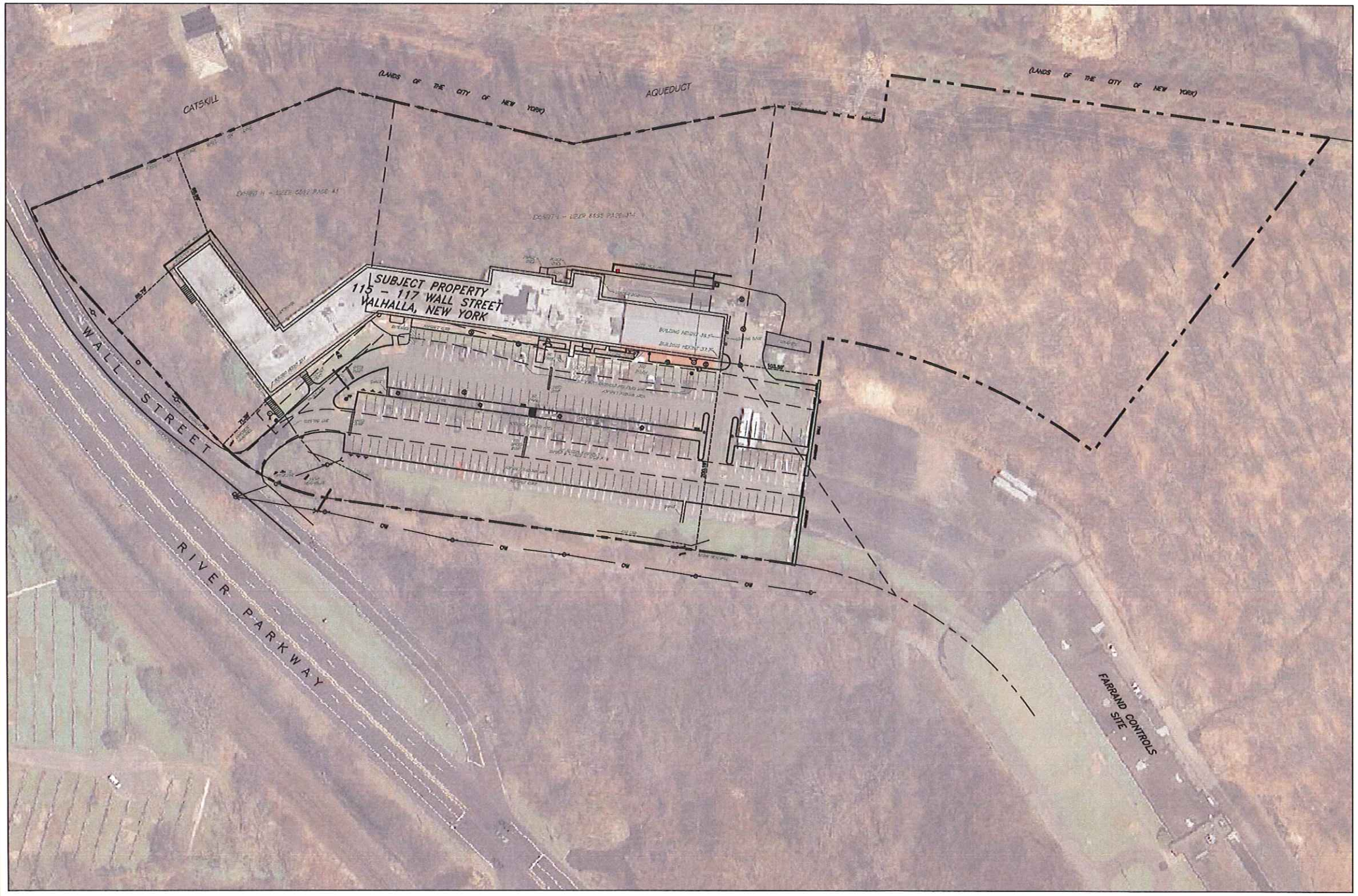


Figure 1-1
One Commerce Park Site
Site Location Map

Client:	DP 16, LLC
Project No.:	85144.003
Project Location:	Valhalla, NY
Date:	June 5, 2009



LEGEND

-o- UTILITY POLE

—OW— OVERHEAD WIRE

— - - — PROPERTY LINE

SOURCE: DP ALTA SURVEY CAD VERSION
DATE: MAY 22, 2008

N

0 120 240

SCALE FEET

Apex Companies, LLC
120-D Wilbur Place
Bohemia, N.Y. 11716
Phone: (631) 567-1777

REV. NO.:	DRAWING DATE:	ACAD FILE:
–	6/25/09	85144SITERI

SITE PLAN

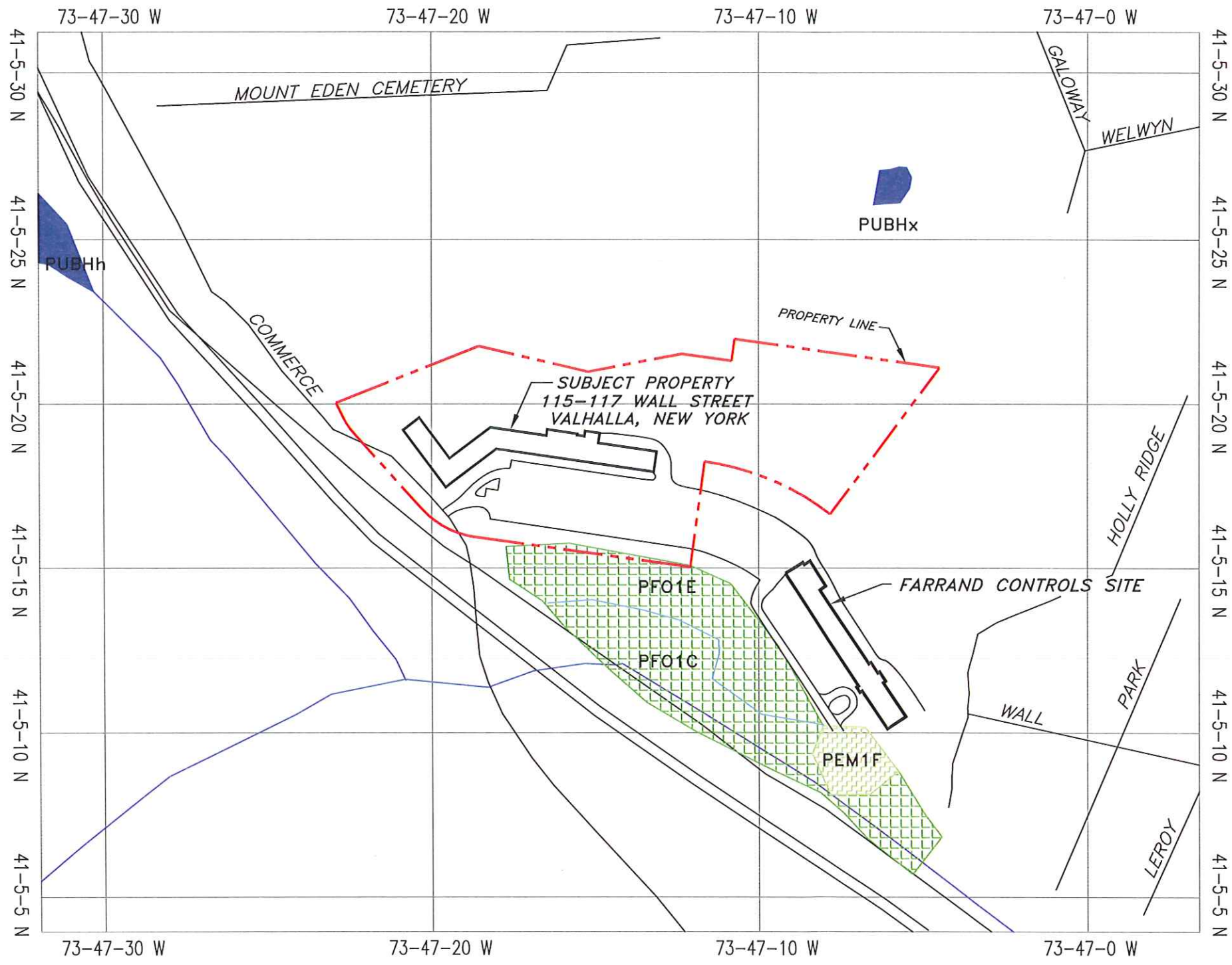
CLIENT:		PM:
SP&R		RB
LOCATION: 115-117 WALL STREET VALHALLA, NEW YORK		PE/RG:
DESIGNED: SEE SOURCE	DETAILED: TS	PROJECT NO.: 85144
		FIGURE: **1-2**

DRAWING FILE LOCATION: P:\ACTIVE PROJECTS...\UAL/8505-B56/Drawings & CAD

Apex Companies, LLC

Figure 1-3
One Commerce Park Site
Site Vicinity Map

Client:	DP 16, LLC
Project No.:	85144.003
Project Location:	Valhalla, NY
Date:	June 5, 2009



LEGEND

Ohio_wet_scan
- 0
- 1
- Out of range
- Interstate

Major Roads
- Other Road
- Interstate
- State highway
- US highway

Roads

Cities

USGS Quad Index 24K

Lower 48 Wetland Polygons
- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Other
- Riverine

Lower 48 Available Wetland Data
- Non-Digital
- Digital
- No Data
- Scan

NHD Streams

Counties 100K

States 100K

South America

North America

Apex Companies, LLC
120-D Wilbur Place
Bohemia, N.Y. 11716
Phone: (631) 567-1777

REV. NO.:	DRAWING DATE:	ACAD FILE:
–	6/23/09	WETLANDS MAP 85142

WETLANDS MAP

CLIENT:		PM:
SP&R		DS
LOCATION: 115-117 WALL STREET VALAHALLA, NEW YORK		PE/RG:
DESIGNED: SEE SOURCE	DETAILED: TS	PROJECT NO.: 85144
		FIGURE: 1-4

X-REF:

REPORT:

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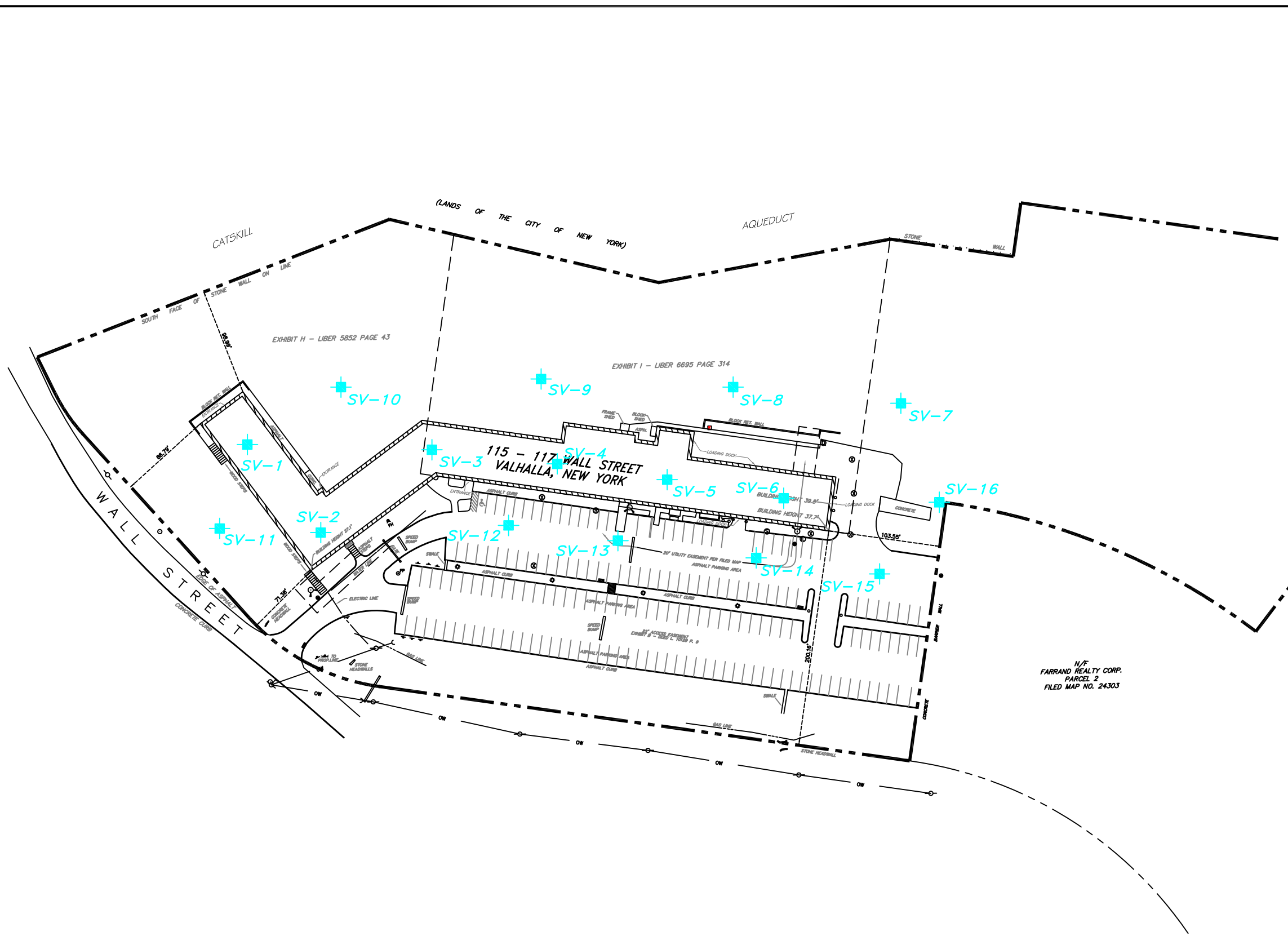

LEGEND

- PROPOSED SOIL VAPOR SAMPLE LOCATION
- UTILITY POLE
- OW — OVERHEAD WIRE
- PROPERTY LINE

SOURCE: DP ALTA SURVEY CAD VERSION
DATE: MAY 22, 2008

Apex Companies, LLC
120–D Wilbur Place
Bohemia, N.Y. 11716
Phone: (631) 567–1777

REV. NO.:	DRAWING DATE:	ACAD FILE:
–	7/16/09	85144PROPSVSL–2

PROPOSED SOIL VAPOR SAMPLE LOCATIONS

CLIENT:	PM:
SP&R	RB
LOCATION: 115–117 WALL STREET VALHALLA, NEW YORK	PE/RG:

DESIGNED:	DETAILED:	PROJECT NO.:	FIGURE:
SEE SOURCE	TS	85144	**2-1**

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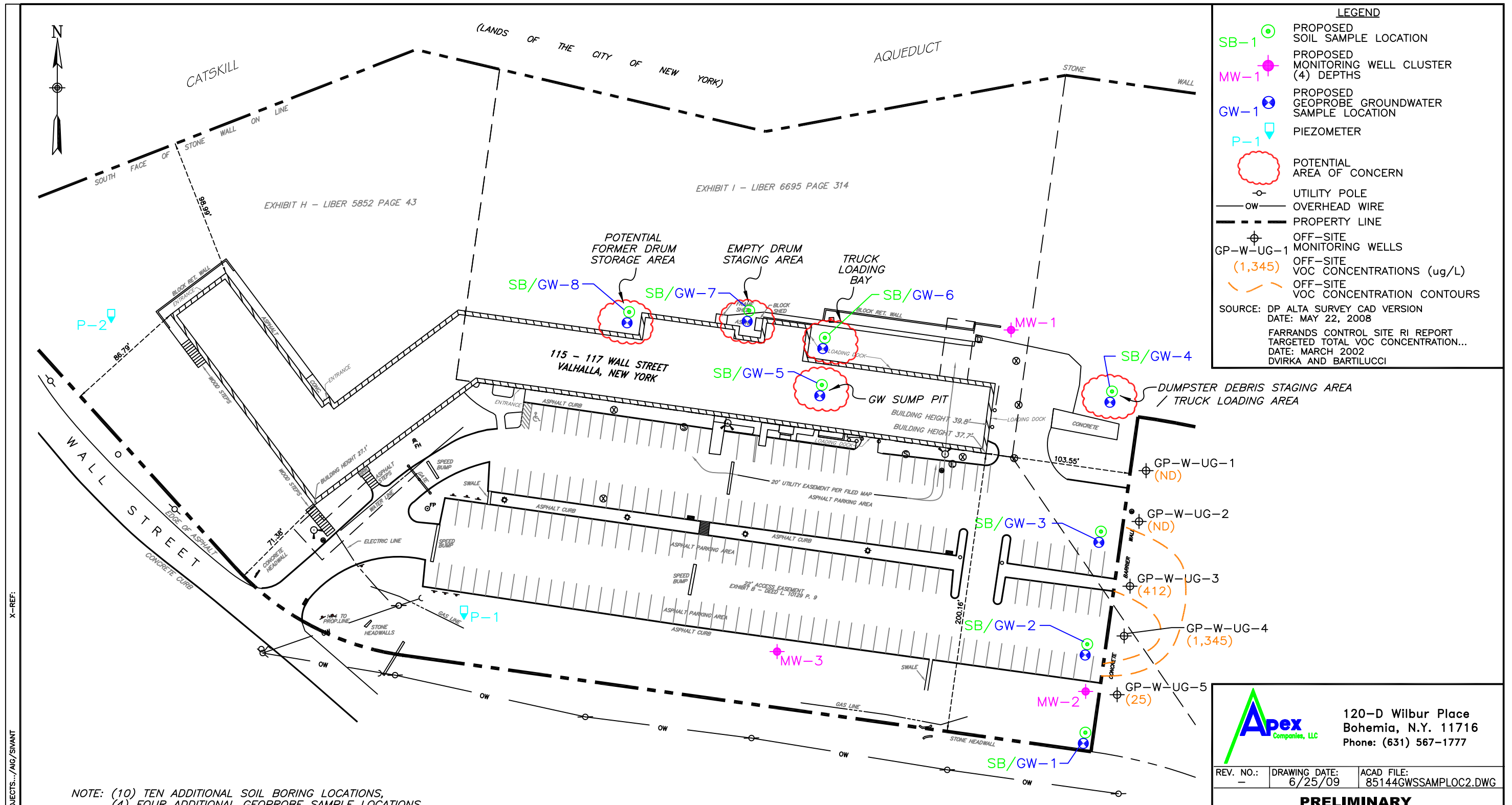

LEGEND

- SB–1 — PROPOSED SOIL SAMPLE LOCATION
- MW–1 — PROPOSED MONITORING WELL CLUSTER (4) DEPTHS
- GW–1 — PROPOSED GEOPROBE GROUNDWATER SAMPLE LOCATION
- P–1 — PIEZOMETER
- POTENTIAL AREA OF CONCERN
- UTILITY POLE
- OW — OVERHEAD WIRE
- PROPERTY LINE
- GP–W–UG–1 — OFF–SITE MONITORING WELLS
- (1,345) — OFF–SITE VOC CONCENTRATIONS (ug/L)
- OFF–SITE VOC CONCENTRATION CONTOURS

SOURCE: DP ALTA SURVEY CAD VERSION
DATE: MAY 22, 2008

FARRANDS CONTROL SITE RI REPORT
TARGETED TOTAL VOC CONCENTRATION...
DATE: MARCH 2002
DVIRKA AND BARTILUCCI

NOTE: (10) TEN ADDITIONAL SOIL BORING LOCATIONS, (4) FOUR ADDITIONAL GEOPROBE SAMPLE LOCATIONS, AND (1) ONE ADDITIONAL INTERIOR SAMPLE LOCATION TO BE FINALIZED AFTER SOIL VAPOR STUDIES.

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Phone: (631) 567–1777

REV. NO.:	DRAWING DATE:	ACAD FILE:
–	6/25/09	85144GWSSAMPLOC2.DWG

PRELIMINARY SOIL AND GROUNDWATER SAMPLE LOCATIONS

CLIENT:		PM:
SP&R		RB
LOCATION: 115–117 WALL STREET VALHALLA, NEW YORK		PE/RG:
DESIGNED: SEE SOURCE	DETAILED: TS	PROJECT NO.: 85144

FIGURE: **2-2**

DRAWING FILE LOCATION: P:\ACTIVE PROJECTS.../AIG/SIVANT X-REF:

Figure 3-1
Project Organization Chart
SC / PRI Team Organization Chart

New York State Department of Environmental Conservation

Quality Assurance Officer
Project Director
Daniel J. Smith, P.E.

- **Principal-in-Charge**
- **Quality Assurance / Quality Control**
- **Data Usability Summary Report**

Project Manager
Richard J. Baldwin, P.G., C.P.G.

- **In-Charge of Field Implementation**
- **Ensure Appropriate Data Collection**
- **Report Preparation**
- **NYSDEC Coordination**

Field Team Leader
Thomas Stolworthy

- **Implement SC / RI Work Plan**
- **Ensure Quality Data Acquisition**
- **Contractor Coordination**

Project Staff
Robert Bennett

- **Oversee Contractors**
- **Collection of Samples**
- **Data Summary Tables**

Project Staff
Greg Mendez-Chicas

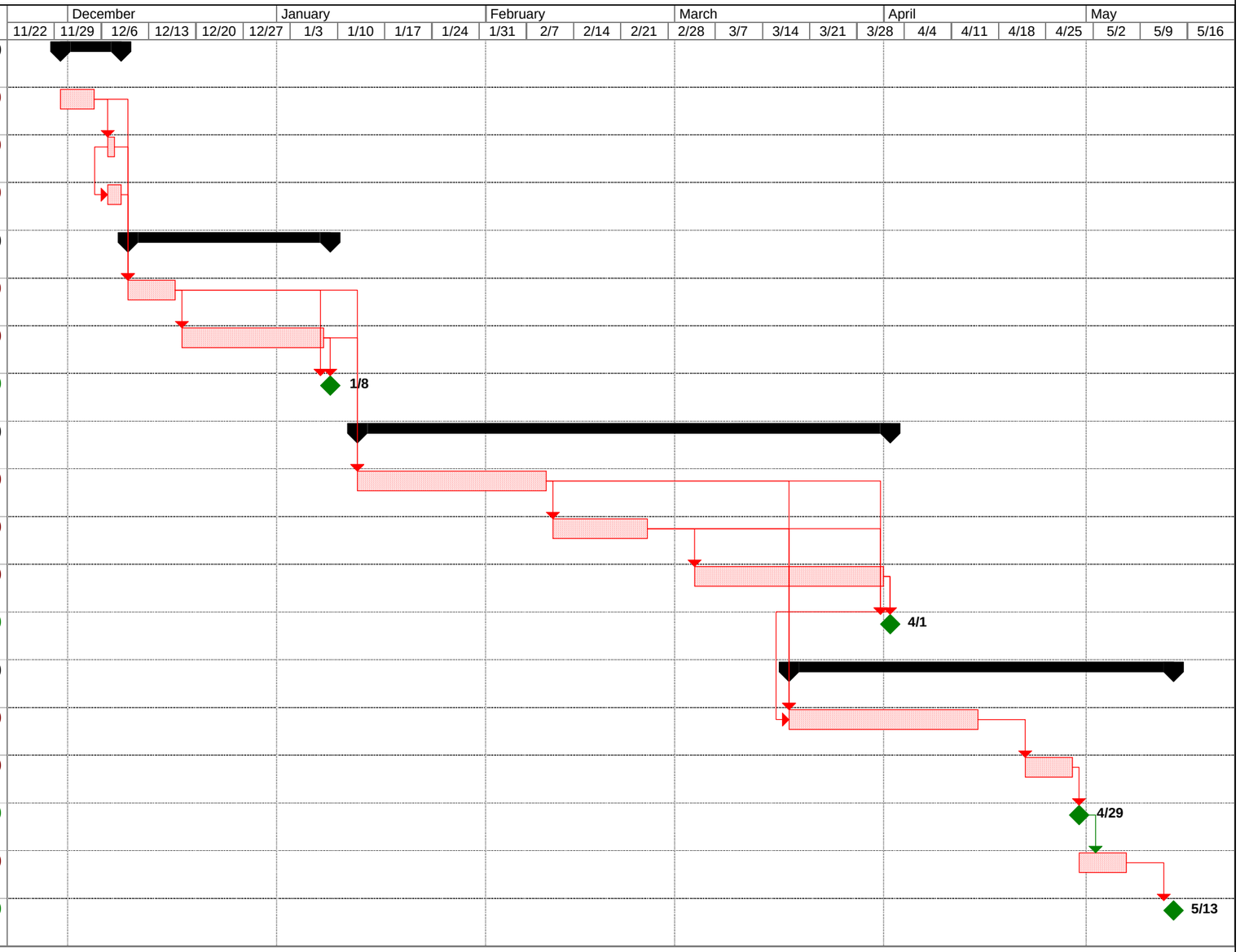
- **Oversee Contractors**
- **Collection of Samples**
- **Field Data Tabulation**

Project Support
Susan Russo

- **Contractor Coordination**
- **Data Management**
- **Data Table QA / QC**

Figure 4-1
Preliminary Project Schedule

ID	Task Name	Duration	Start	Finish
1	**Mobilization Tasks**	**7 days**	**Mon 11/30/09**	**Tue 12/8/09**
2	Historic Document Reviews	1 wk	Mon 11/30/09	Fri 12/4/09
3	Initial Site Inspections	1 day	Mon 12/7/09	Mon 12/7/09
4	Interviews w/ Occupants	2 days	Mon 12/7/09	Tue 12/8/09
5	**Initial Screening Surveys**	**22 days**	**Thu 12/10/09**	**Fri 1/8/10**
6	Geophysical Survey / Markouts	1 wk	Thu 12/10/09	Wed 12/16/09
7	Soil Vapor Screening / Analyses	3 wks	Fri 12/18/09	Thu 1/7/10
8	Screening Tasks Complete	0 days	Fri 1/8/10	Fri 1/8/10
9	**Soil and Groundwater Investigation**	**57 days**	**Wed 1/13/10**	**Thu 4/1/10**
10	Direct Push Sampling & Analyses	4 wks	Wed 1/13/10	Tue 2/9/10
11	Monitoring Well Installation and Devel	2 wks	Thu 2/11/10	Wed 2/24/10
12	Groundwater Sampling & Analyses	4 wks	Thu 3/4/10	Wed 3/31/10
13	Field Work Complete	0 days	Thu 4/1/10	Thu 4/1/10
14	**Site Characterization / Remedial Invest**	**41 days**	**Thu 3/18/10**	**Thu 5/13/10**
15	Draft Report	4 wks	Thu 3/18/10	Wed 4/14/10
16	Final Report	1 wk	Thu 4/22/10	Wed 4/28/10
17	NYSDEC Submittals	0 days	Thu 4/29/10	Thu 4/29/10
18	Revisions	1 wk	Fri 4/30/10	Thu 5/6/10
19	Final Approved Report	0 days	Thu 5/13/10	Thu 5/13/10



Project: Work Plan Schedule Figure 4-
Date: Fri 11/6/09

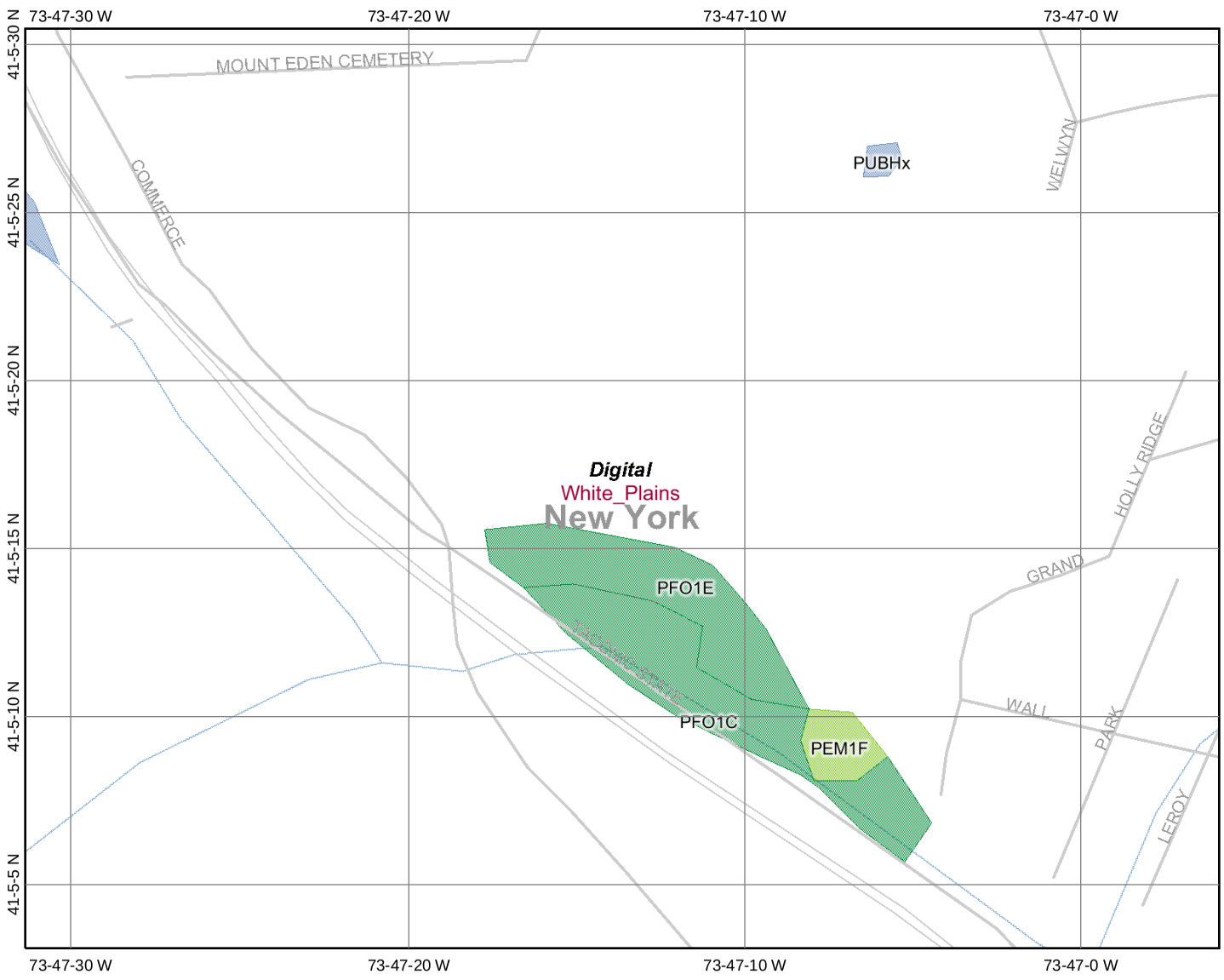
Critical Task | Split | Milestone | Project Summary | External Milestone
Task | Progress | Summary | External Tasks | Deadline

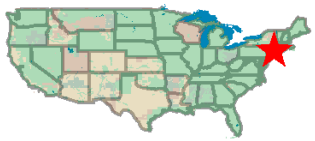
Based upon an assumed November 30, 2009 start date.
Actual staes will change if start date changes.

APPENDICES

Appendix A

Supporting Information Regarding Wetlands Delineation





Ohio_wet_scan
- 0
- 1
- Out of range

Interstate
Major Roads
- Other Road
- Interstate
- State highway
- US highway

Roads
Cities
USGS Quad Index 24K
Lower 48 Wetland Polygons
- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Other
- Riverine

Lower 48 Available Wetland Data
- Non-Digital
- Digital
- No Data
- Scan

NHD Streams
Counties 100K
States 100K
South America
North America

Wetlands and Deepwater Habitats Classification
National Wetlands Inventory Mapping Code Description

Wetlands Mapper / Download Wetlands Data / Home

Enter Code here: PFO1C
(case sensitive; ex. E2AB)

Length of descriptions: short (selected) / long / none — Submit

List plant species? Yes / No (selected)

(Map Codes Legend)

```
Error opening file


: No such file or directory
PFO1C:  P_FO1____C_______________
[P] Palustrine, [FO] Forested, [1] Broad-Leaved Deciduous, [C] Seasonally Flooded



[P] Palustrine - The Palustrine System includes all nontidal wetlands
                 dominated by trees, shrubs, emergents, mosses or lichens,
                 and all such wetlands that occur in tidal areas where
                 salinity due to ocean derived salts is below 0.5 ppt.
                 Wetlands lacking such vegetation are also included if they
                 exhibit all of the following characteristics:

                 1.  are less than 8 hectares ( 20 acres );

                 2.  do not have an active wave-formed or bedrock shoreline
                     feature;

                 3.  have at low water a depth less than 2 meters (6.6 feet)
                     in the deepest part of the basin;

                 4.  have a salinity due to ocean-derived salts of less than
                     0.5 ppt.


[FO] Forested - Characterized by woody vegetation that is 6 m tall or taller.

(1) Broad-leaved Deciduous - Woody angiosperms (trees or shrubs) with
                 relatively wide, flat leaves that are shed during the cold
                 or dry season; e.g., black ash (Fraxinus nigra).


[C] Seasonally Flooded - Surface water is present for extended periods
                         especially early in the growing season, but is
                         absent by the end of the growing season in most
                         years.  The water table after flooding ceases is
                         variable, extending from saturated to the surface
                         to a water table well below the ground surface.
```

Wetlands and Deepwater Habitats Classification
National Wetlands Inventory Mapping Code Description

Wetlands Mapper / Download Wetlands Data / Home

Enter Code here: PFO1E
(case sensitive; ex. E2AB)

Length of descriptions: short (selected) long none — Submit

List plant species? Yes No (selected)

(Map Codes Legend)

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Error opening file


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PFO1E:  P_FO1____E_______________
[P] Palustrine, [FO] Forested, [1] Broad-Leaved Deciduous, [E] Seasonally Flooded/



[P] Palustrine - The Palustrine System includes all nontidal wetlands
                 dominated by trees, shrubs, emergents, mosses or lichens,
                 and all such wetlands that occur in tidal areas where
                 salinity due to ocean derived salts is below 0.5 ppt.
                 Wetlands lacking such vegetation are also included if they
                 exhibit all of the following characteristics:

                 1.  are less than 8 hectares ( 20 acres );

                 2.  do not have an active wave-formed or bedrock shoreline
                     feature;

                 3.  have at low water a depth less than 2 meters (6.6 feet)
                     in the deepest part of the basin;

                 4.  have a salinity due to ocean-derived salts of less than
                     0.5 ppt.


[FO] Forested - Characterized by woody vegetation that is 6 m tall or taller.

(1) Broad-leaved Deciduous - Woody angiosperms (trees or shrubs) with
                 relatively wide, flat leaves that are shed during the cold
                 or dry season; e.g., black ash (Fraxinus nigra).


[E] Seasonally Flooded/Saturated - Surface water is present for extended
                                   periods especially early in the growing
                                   season and when surface water is absent,
                                   substrate remains saturated near the
                                   surface for most of the growing season.

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Wetlands and Deepwater Habitats Classification
National Wetlands Inventory Mapping Code Description

Wetlands Mapper / Download Wetlands Data / Home

Enter Code here: PEM1F
(case sensitive; ex. E2AB)

Length of descriptions: short (selected) / long / none — Submit

List plant species? Yes / No (selected)

(Map Codes Legend)

```
Error opening file


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PEM1F:  P_EM1____F_______________
[P] Palustrine, [EM] Emergent, [1] Persistent, [F] Semipermanently Flooded



[P] Palustrine - The Palustrine System includes all nontidal wetlands
                 dominated by trees, shrubs, emergents, mosses or lichens,
                 and all such wetlands that occur in tidal areas where
                 salinity due to ocean derived salts is below 0.5 ppt.
                 Wetlands lacking such vegetation are also included if they
                 exhibit all of the following characteristics:

                 1.  are less than 8 hectares ( 20 acres );

                 2.  do not have an active wave-formed or bedrock shoreline
                     feature;

                 3.  have at low water a depth less than 2 meters (6.6 feet)
                     in the deepest part of the basin;

                 4.  have a salinity due to ocean-derived salts of less than
                     0.5 ppt.


[EM] Emergent - Characterized by erect, rooted, herbaceous hydrophytes,
                excluding mosses and lichens. This vegetation is present for
                most of the growing season in most years. These wetlands are
                usually dominated by perennial plants.

(1) Persistent - Dominated by species that normally remain standing at least
                 until the beginning of the next growing season. This
                 subclass is found only in the Estuarine and Palustrine
                 systems.


[F] Semipermanently Flooded - Surface water persists throughout the growing
                              season in most years.  When surface water is
                              absent, the water table is usually at or very
                              near the land's surface
```

Wetlands and Deepwater Habitats Classification
National Wetlands Inventory Mapping Code Description

Wetlands Mapper / Download Wetlands Data / Home

Enter Code here: PUBHx
(case sensitive; ex. E2AB)

Length of descriptions: short (selected) / long / none — Submit

List plant species? Yes / No (selected)

(Map Codes Legend)

```
Error opening file


: No such file or directory
PUBHx:  P_UB_____H____x_________
[P] Palustrine, [UB] Unconsolidated Bottom, [H] Permanently Flooded, [x] Excavate



[P] Palustrine - The Palustrine System includes all nontidal wetlands
                 dominated by trees, shrubs, emergents, mosses or lichens,
                 and all such wetlands that occur in tidal areas where
                 salinity due to ocean derived salts is below 0.5 ppt.
                 Wetlands lacking such vegetation are also included if they
                 exhibit all of the following characteristics:

                 1.  are less than 8 hectares ( 20 acres );

                 2.  do not have an active wave-formed or bedrock shoreline
                     feature;

                 3.  have at low water a depth less than 2 meters (6.6 feet)
                     in the deepest part of the basin;

                 4.  have a salinity due to ocean-derived salts of less than
                     0.5 ppt.


[UB] Unconsolidated Bottom - Includes all wetlands and deepwater habitats
                             with at least 25% cover of particles smaller
                             than stones (less than 6-7 cm), and a
                             vegetative cover less than 30%.


[H] Permanently Flooded - Water covers the land surface throughout the year
                          in all years.


[x] Excavated - Lies within a basin or channel excavated by man.

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Appendix B

Supporting Information for Soil Vapor Sampling

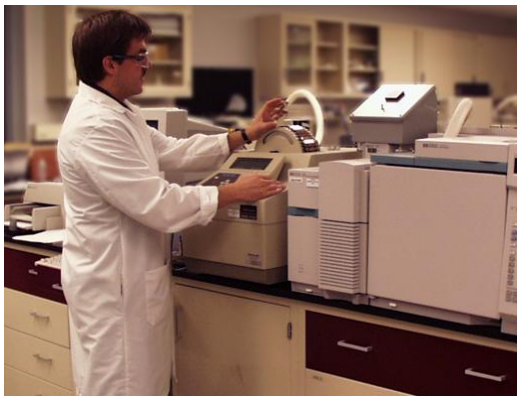
Analytical Method Summary & QA Procedures

Analytical Method Summary

Instrumentation consists of state of the art gas chromatographs equipped with mass selective detectors, coupled with automated thermal desorption units. Sample preparation involves cutting the tip off the bottom of the GORE™ Module and transferring one or more exposed sorbent containers (sorbers) to a thermal desorption tube for analysis. The adsorbent remains clean and requires no further sample preparation. The remaining unanalyzed sorbers are archived for a minimum of 15 days.

Quality Assurance Procedures

The analytical method employed is a modified US EPA method 8260/8270. Before each sequence, two instrument blanks, a sorber containing 5µg BFB (Bromofluorobenzene), and a method blank are analyzed. The BFB mass spectra must meet the criteria set forth in the method before GORE™ Modules can be analyzed. A method blank and a sorber containing BFB are also analyzed after every 30 Modules and/or trip blanks. Standards containing the selected target compounds at five calibration levels are analyzed at the beginning of each sequence. The criterion for each target compound is less than 25% RSD (relative standard deviation). If this criterion is not met for any target compound, the analyst has the option of generating second- or third-order standard curves, as appropriate. A second-source reference standard, at a level of 10µg per target compound, is analyzed after every ten modules and/or trip blanks, and at the end of the sequence. To minimize handling of the field-exposed modules, no surrogates or internal standards are used. Positive identification of target compounds is determined by 1) the presence of the target ion and at least two secondary ions; 2) retention time versus reference standard; and, 3) the analyst's judgment. As an option, data deliverables can be provided for all samples and blanks analyzed.



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Commonly Requested Analytes

Volatiles
Vinyl Chloride
Methyl t-butyl ether
Benzene
Toluene
Ethylbenzene
o-Xylene
m,p-Xylene
Octane
1,1-Dichloroethane
1,2-Dichloroethane
1,1,1-Trichloroethane
1,1,2-Trichloroethane
1,1,1,2-Tetrachloroethane
1,1,2,2-Tetrachloroethane
1,1-Dichloroethene
trans-1,2-Dichloroethene
cis-1,2-Dichloroethene
Trichloroethene
Tetrachloroethene
Chloroform
Carbon Tetrachloride
Chlorobenzene

Semi-volatiles
1,3,5-Trimethylbenzene
1,2,4-Trimethylbenzene
1,2-Dichlorobenzene
1,3-Dichlorobenzene
1,4-Dichlorobenzene
Undecane
Tridecane
Pentadecane
Naphthalene
2-Methyl naphthalene
Acenaphthene
Acenaphthylene
Fluorene
Phenanthrene
Anthracene
Fluoranthene
Pyrene

Explosives
Nitrobenzene
2-Nitrotoluene
3-Nitrotoluene
4-Nitrotoluene
1,3-Dinitrobenzene
2,4-Dinitrotoluene
2,6-Dinitrotoluene
1,3,5-Trinitrobenzene
2,4,6-Trinitrotoluene

Chemical Agents/Breakdown Products
Mustard (as a TIC)
1,4-dithiane
1,4-oxathiane
Benzothiozole
p-Chlorophenylmethylsulfide
p-Chlorophenylmethylsulfoxide
p-Chlorophenylmethylsulfone
Dimethyldisulfide
DIMP (Diisopropyl methylphosphonate)
DMMP (Dimethyl methylphosphonate)
4-chloroacetophenone
2-chloroacetophenone

Mercury (elemental),
Pesticides/Herbicides & PCB Cogeners
Capabilities demonstrated.

NOTE:
This is not a comprehensive list of detection or analytical capabilities.

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Analytical Options

The GORE™ Survey service includes:

- GORE™ Modules
- Analysis
- Data reporting
- Up to three contour maps (where applicable)
- Final Report (in duplicate)
- Pre- and post-survey consultation (as needed)

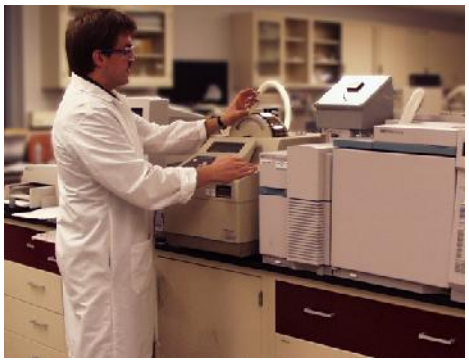
– Analysis is by thermal desorption, gas chromatography, and mass spectroscopy via modified US EPA methods 8260/8270.
– Contour maps in paper and PDF formats.
– The Final Report is issued in paper format (electronic format available upon request).
– The survey does not include field installation and retrieval costs, or shipping costs.

Standard (A1)	Fuels (A2)	Chlorinateds (A10)	VOCs, SVOCs, PAHs (A4)
MtBE	MtBE	1,1-DCE	*Standard (A1) List plus*
Benzene	Benzene	trans-1,2-DCE	Acenaphthylene
Toluene	Toluene	cis-1,2-DCE	Acenaphthene
Ethylbenzene	Ethylbenzene	TCE	Fluorene
m,p-xylene	m,p-xylene	PCE	Phenanthrene
o-xylene	o-xylene	1,1-DCA	Anthracene
Octane	Octane	1,2-DCA	Fluoranthene
Undecane	Undecane	1,1,2-TCA	Pyrene
Tridecane	Tridecane	1,1,1-TCA	
Pentadecane	Pentadecane	1,1,2,2-TetCA	
1,3,5-TMB	1,3,5-TMB	1,1,1,2-TetCA	
1,2,4-TMB	1,2,4-TMB	Chloroform	
Naphthalene	Naphthalene	Carbon tetrachloride	
2-Methylnaphthalene	2-Methylnaphthalene	Chlorobenzene	
1,1-DCE	TPH	1,2-DCB	
trans-1,2-DCE		1,3-DCB	
cis-1,2-DCE		1,4-DCB	
TCE			
PCE			
1,1-DCA			
1,2-DCA			
1,1,2-TCA			
1,1,1-TCA			
1,1,2,2-TetCA			
1,1,1,2-TetCA			
Chloroform			
Carbon tetrachloride			
Chlorobenzene			
1,2-DCB			
1,3-DCB			
1,4-DCB			
TPH			

Explosives (A6)	Chemical Agents (A8)
Standard (A1) List plus	*Standard (A1) List plus*
Nitrobenzene	1,4-Dithiane
2-Nitrotoluene	1,4-Oxathiane
3-Nitrotoluene	Thiodiglycol
4-Nitrotoluene	Benzothiozole
1,3-Dinitrotoluene	2-Chloroacetophenone
2,6-Dinitrotoluene	4-Chloroacetophenone
2,4-Dinitrotoluene	p-chlorophenylmethylsulfide
1,3,5-Trinitrotoluene	p-chlorophenylmethylsulfone
2,4,6-Trinitrotoluene	p-chlorophenylmethylsulfoxide
	Dimethyldisulfide
	Diisomethylphosphonate (DIMP)
	Dimethylmethylphosphonate (DMMP)

OPTIONS

- Custom analyte suites
  - A3 – any eight compounds from A1
  - A7 – custom list
- Vinyl chloride
- TPH only*
- GRO and DRO only*
- Expedited TAT (data table only)
  - 25%, ten business day
  - 50%, five business day
- QA Deliverables
  - BFB tune data
  - Initial calibration data
  - quantitation reports
  - extracted ion chromatograms
- Library searches
- Tentatively identified compounds



* - Compound specific reporting for the Fuels analyte list (A2) available – no additional sampling or analysis required.

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Appendix C

Resumes of Key SC / RI Personnel

Richard J. Baldwin, Baldwin, C.P.G., P.G
Apex Companies, LLC
Senior Project Director

Mr. Baldwin is a hydrogeologist/environmental scientist with over twenty years of experience in the fields of environmental consulting, hydrogeology and geology with particular experience in conducting and supervising environmental investigations and remedial actions at industrial, private, Federal and publicly-owned facilities and sites. Mr. Baldwin has extensive experience in evaluating and remediating gasoline and fuel oil releases, many of which included the contaminant methyl tertiary-butyl ether (MTBE). Additionally, Mr. Baldwin has experience in evaluating potential environmental impacts of projects including golf courses, housing developments, senior housing, schools and retail shopping centers. For the last several years, Mr. Baldwin's work has focused primarily on sites and facilities located in the Long Island, New York City and Upstate New York areas. He has extensive knowledge and experience pertaining to Long Island's federally-designated sole-source drinking water aquifer system.

Education

- *Graduate Course Work, San Jose State University, 1985-1988*
- *BA Geology, San Francisco State University, 1982*

Professional Registrations

- *Professional Geologist, PG-000552-G, Commonwealth of Pennsylvania*
- *Certified Professional Geologist, CPG #9158, Amer.Inst. of Prof. Geologists*
- *OSHA Certification, 40-hour Health and Safety Training at Hazardous Waste Sites*
- *OSHA Certification, 8-hou Refresher Health and Safety Training at Hazardous Waste Sites*
- *OSHA Certification, 8-hour Management Training*
- *OSHA Certification, 8-hour Radiation Safety Training*

Continuing Education

- *Princeton Groundwater Hydrogeology and Pollution course*
- *Environmental Law and Regulations Course, U.C. Berkeley Extension*
- *NGWA MODFLOW and MODPATH Modeling Course*
- *NGWA Visual MODFLOW Modeling Course*

General Project Experience

Mr. Baldwin has extensive experience in the selection, design, installation and maintenance of a wide range of soil and groundwater remediation systems. Remedial systems have included both active and passive free-product recovery, traditional groundwater pump and treat, soil-vapor extraction, air sparging, bioventing, bioremediation, excavation, impacted-soil management and natural attenuation. MTBE and other petroleum-related volatile organic compounds (VOCs) and semi-volatile organic compounds (SVOCs) were the contaminants of concern in many of these project sites.

Mr. Baldwin has been involved in hundreds of subsurface soil and groundwater investigations ranging from Phase I & II Environmental Site Assessments (ESAs) to Remedial Investigations. Investigation and delineation techniques have included soil borings, groundwater monitoring well networks, Hydropunch / GeoProbe sampling, surface and bore-hole geophysical methods, soil-gas surveys, aquifer testing, surface water and sediment sampling, waste characterization (soils piles, drums, USTs, aboveground storage tanks (ASTs), landfills, etc), test pits, and computer fate and transport modeling. Materials investigated have included petroleum products (heating/fuel oil and gasoline), PCB oils, coal tar, heavy metals, chlorinated solvents, explosives, pesticides, herbicides and buried medical waste.

Mr. Baldwin has evaluated the potential environmental impacts of proposed projects including golf courses, housing developments, senior housing, schools, automobile repair facilities and retail shopping centers. The potential impacts included those to groundwater quality from herbicide/pesticide application, disposal of sanitary waste and school laboratory waste and the impacts to soil quality from handling and disposal of hazardous materials, leaking petroleum underground storage tanks (USTs), historic disposal of hazardous waste and pesticide/herbicide application. These impacts were evaluated through a variety of means including the collection and analysis of soil and groundwater samples, geo- and organic-chemistry modeling, groundwater fate and transport modeling and basic research of materials, their uses and their potential migration pathways. Mr. Baldwin has provided expert witness services for various venues ranging from New York State Department of Environmental Conservation (NYSDEC) spill and hazardous waste sites to potential noise impacts.

Mr. Baldwin works closely with the U.S. Environmental Protection Agency (EPA), NYSDEC Region 1, Region 2, Region 3 and Central Office, New York State Department of Health (NYSDOH), Suffolk County Department of Health Services (SCDHS) and Nassau County Department of Health (NCDOH). Mr. Baldwin also works with local planning and review boards including the Town of East Hampton, Town of Southampton, Town of Babylon, Town of Brookhaven, Village of

Patchogue, Village of Great Neck and New York City on issues ranging from groundwater quality to historic resources to noise impacts.

Mr. Baldwin has been in the forefront of both evaluating and addressing shallow soils on Long Island which have been impacted by pesticides (particularly arsenic) and herbicides. This important issue is particularly of concern due to the re-development of agricultural lands for residential and educational end uses. Mr. Baldwin has work closely with the SCDHS and Town of Brookhaven to develop effective and easily implementable Soil Management Plans.

Mr. Baldwin's projects include supervising and performing Remedial Investigations/Feasibility Studies (RI/FSs), Interim Remedial Actions (IRMs), and implementation of selected remedies at NYSDEC Class 2 and 2a Inactive Hazardous Waste Disposal sites. Other work, conducted with the NYSDEC, includes evaluating and implementing large-scale groundwater and soil in-situ and ex-situ treatment systems to remediate MTBE.

Mr. Baldwin also has extensive experience in conducting other types of environmental work ranging from NYSDEC spill sites to remediating buried medical waste at a Long Island psychiatric center. Mr. Baldwin has extensive experience providing expert testimony/meeting presentation services in various venues. He has provided same in support of work being conducted in the Village of Greenport, Village of Lake Success, New Hyde Park, Dutchess County Supreme Court, South Farmingdale, Bay Shore, Brookhaven, Wassaic, Central Islip, Plainview and Amityville, New York. Before moving to the East Coast in 1993, Mr. Baldwin worked in the environmental industry in California. His work in the environmental industry consisted primarily of conducting large-scale environmental investigations at United States military and Department of Energy facilities

Selected Project Experience

Groundwater Evaluation and Treatment, Taconic Developmental Disabilities Services Office, Wassaic, NY

Worked on a public water supply site in New York conducting a full-scale groundwater investigation in the vicinity of the facility's supply wells which have been impacted by MTBE. Multiple well clusters were installed surrounding the high-capacity wells to evaluate subsurface conditions. One impacted well was converted to a remediation well to provide hydraulic capture of the MTBE plume prior to its impacting the remaining downgradient wells. A large-scale granulated-activated carbon (GAC) system was installed to treat the water extracted from the well. A 40,000-pound GAC unit was also installed in standby mode to address the facility's drinking water should the concentrations of MTBE ever warrant treatment. Several rounds of groundwater investigation were also conducted to confirm the MTBE source area as a nearby gasoline service station. Pilot testing was conducted and an on-site groundwater treatment system was being designed to provide source area remediation. Part of the pilot testing including evaluating specialized GAC manufactured specifically to address MTBE. Drawdown data associated with a long-term pumping well was utilized to accurately characterize aquifer/hydrogeologic conditions in order to evaluate well capture zones.

Potable Water Treatment System, Village of Brewster, NY

Designed and constructed a supplemental water treatment system at a public water supply plant to address MTBE contamination in the system prior to its distribution. The treatment system consisted of a large air stripping tower, installed in line with an existing air stripper to remove the MTBE to non-detectable concentrations. Additionally, a source area investigation was being conducted to determine the potential source(s) of the MTBE contamination.

Potable Water Treatment System, Sullivan Correctional Facility, Fallsburg, NY

Worked with the NYSDEC to evaluate, design and install a supplemental water treatment system to address MTBE present in a New York State Correctional Facility's drinking water. All four of the facility's wells were impacted. Several remedial options including utilizing GAC or air strippers were evaluated. The selected alternative was a 20,000-pound GAC system which was installed inline and in standby mode.

Former Fuel Terminal, Patchogue River, Patchogue, NY

Conducted a site investigation program at this former major fuel oil terminal site to evaluate the efficacy of same for residential re-development, which would have included a residence-use only marina. The site had been the subject of previous site remediation activities, and the NYSDEC had closed its spill file assuming that the site would only be utilized for commercial or industrial purposes. Soil, groundwater, soil vapor and outdoor ambient air samples were collected and analyzed as part of this evaluation. The results of the investigation indicated that, in part due to the presence of MTBE and other gasoline-related VOCs, additional soil remediation would have been required to make the property suitable for residential re-development. Additionally, the NYSDEC would have likely required the installation and operation of sub-slab depressurization systems for all on-site residential buildings prior to their approving the plans for the site.

Active Marina Facility, Hampton Bays, NY

The owner of this active marina facility was served with a Notice of Violation (NOV) by the NYSDEC for various environmental issues, mostly related to on-site petroleum storage/delivery systems, as well as impacts potentially associated with marine-activity uses such as vessel bottom paint removal and application, use of preserved woods, vessel maintenance activities, housing-keeping issues, etc. Apex was responsible, with input from the NYSDEC, for developing and implementing a Site Investigation Program to investigate potential soil and groundwater impacts associated with the aforementioned on-site practices. Based upon the results of the investigation, Apex was able to conclude that the fuel distribution system was not leaking and that groundwater was not deleteriously impacted. Minor concentrations of MTBE in groundwater were thought to represent ambient conditions typical for an active marina. Minor areas of impacted soil, likely from vessel bottom cleaning activities, were identified. Apex is currently assisting with negotiations with the NYSDEC to potentially allow for the implementation of engineering controls to address the impacted soils.

Aerospace Facility Superfund Site, Lake Success, NY

Managed large-scale site activities at a major Long Island aerospace facility. Activities included operations of on-going IRMs (soil vapor extraction and groundwater extraction and treatment systems); citizen participation activities; design and implementation of on-site remedies (drywell removal and soil excavation, installation of fencing and an 1,800 gallon per minute groundwater extraction and treatment system); on- and off-site RIs; regulatory compliance activities; client interactions; multi-task, multi-contractor scheduling and management; and general project management. As part of the RI, prepared a large three-dimensional groundwater flow and particle model utilizing Visual MODFLOW and MODPATH. The model was then utilized to design an optimum groundwater treatment system.

Prepared a scoping plan and RI report for an Inactive Hazardous Waste Disposal site in New York under the NYSDEC Superfund program

The work involved evaluating the nature and extent of halogenated solvents in soil and groundwater both on and off of the site. Was responsible for overseeing all phases of the report preparation, including communications with the NYSDEC and for implementing the citizen participation program. Also involved in the preparation of the FS report and selection of the final remedy which included the use of an innovative groundwater treatment technology, in-well air stripping

Former Manufacturing Facility Superfund Site, Central Islip, NY

Prepared an RI report for a Class 2 Inactive Hazardous Waste Disposal site under the NYSDEC Superfund program. The work involved evaluating the nature and extent of 1,2,3-trichloropropane (1,2,3-TCP) in soil, soil vapor and groundwater. Additionally, was responsible for evaluating the physical characteristics of this uncommon contaminant and determining potential human health effects as part of the Human Health Evaluation. Oversaw all phases of the report generation, including communications with the NYSDEC and for implementing the citizen participation program, including preparing and presenting the results of the RI at a public meeting.

Former Manufacturing Facility Superfund Site, Plainview, NY

Designed and managed targeted on-and off-site groundwater investigations, reporting and remedial design activities for a Class 2a Inactive Hazardous Waste site under the NYSDEC Voluntary Cleanup Program (VCP). By utilizing existing and recently acquired data, that resulted in a significant cost savings to the client. Oversaw the design of an air sparge/soil vapor extraction system to remediate halogenated volatile organic compounds in the site's source area unsaturated soils and underlying groundwater.

Psychiatric Facility, Islip, NY
Conducted all phases of an expedited buried medical waste program at a large New York State psychiatric hospital. Upon discovery of buried medical waste during the installation of a sewer main, a site investigation program was designed and implemented for the purpose of determining the extent of the buried waste. A successful remediation program was then implemented, which included a project-specific Health and Safety Plan dealing with medical "sharps" and potential blood-borne pathogens. The work was conducted under NYSDEC oversight.

Psychiatric Facility, Middletown, NY
Designed and implemented a subsurface investigation and oxygen release compound (ORC)/bio-venting pilot testing program at an upstate New York State psychiatric facility to remediate a No. 6 fuel oil spill. Due to the existence of on-site infrastructure, in-situ bioremediation techniques were required to remediate the petroleum without disrupting facility operations.

Former Marina Facility, Greenport, NY
Managed one of the few active NYSDEC Brownfield sites on Long Island utilizing New York State Environmental Bond Act funding. The work included evaluating the presence of undocumented USTs utilizing surface geophysical techniques, removing the USTs and associated impacted soils and preparing Site Investigation and Remedial Action reports. Responsible for all regulatory interactions, subcontractor management and Citizen Participation Plan implementation. The work was conducted concurrently with the redevelopment of the site for use as a public park.

General Environmental Planning Experience, NY
Responsible for preparing various chapters of Environmental Impact Statements (EISs) including Geology, Soil and Topography; Groundwater; Utilities, Open Space and Recreational Resources; and Project Alternatives. Reviewed other consultants' EISs for local municipalities to determine compliance with the State Environmental Quality Review Act (SEQRA) and to evaluate the potential impacts of proposed projects. Prepared potential environmental impact sections (e.g., groundwater, wetlands, air quality, visual quality, zoning, etc.) of New York Public Service Commission Article X pre-application packages for four proposed power plants.

General Military Base Experience, Nation-wide
Conducting large-scale environmental investigations at United States Military and Department of Energy facilities. Assignments included: evaluating the nature and extent of soil and groundwater contamination associated with landfills, fire training facilities and miscellaneous disposal areas on several military bases for the United States Army Corps of Engineers and the United States Navy; characterizing the nature and extent of unexploded ordnance; obtaining and interpreting surface and borehole geophysical surveys; conducting large-scale aquifer pumping tests; preparing Remedial Investigation and Site Investigation reports

Daniel J. Smith, P.E.
Apex Companies, LLC, New York Division Manager
National Remediation Group Coordinator

Mr. Smith is a licensed Professional Engineer (chemical engineering) with over 20 years of consulting, engineering, construction, and litigation support experience in the environmental industry. He serves as New York Division Director and National Remediation Group coordinator for Apex and is responsible for day-to-day operations in the metropolitan New York City market as well as coordination of remediation and litigation support projects nationwide. He has extensive experience in environmental compliance, investigation, remediation, and site construction at residential, commercial and industrial properties. Mr. Smith has managed several large national accounts and understands the business concepts that drive remediation and litigation support projects.

Selected Project Experience

Education

- *Case Western Reserve University, Biomedical Engineering*
- *Polytechnic University, Brooklyn, NY, B.S. Chemical Engineering, 1987*

Professional Registration

- *Professional Engineer, NYS*

Continuing Education

- *"Advanced Technologies for Cost-Effective Clean-up of Contaminated Properties," Regenesis, November 2008*
- *"Phase I and Phase II Environmental Site Assessment Process," ASTM, Oct/Nov. 2007*
- *"Property Condition Assessments," ASTM, October 2007*
- *"Erosion Control and Stormwater Management, Institute for Design Professionals," March 2006*
- *"Oxidation and Reduction Technologies for In-Situ Treatment of Soil and Groundwater", ORTs-4, Chicago, Illinois, October 2005*
- *"In-situ Thermal Treatment for Remediation of DNAPLS," United States Environmental Protection Agency, December 1999*
- *"Airport Fueling System Management," University of Wisconsin, October 1997*
- *"Airport Fuel Storage and Distribution Systems," Air Transport Association, March 1997*

Dry Cleaner Legal Support, Groundwater Monitoring Impacts and Soil Vapor Intrusion, Confidential Client, Suffolk County, NY

Completed a detailed evaluation of historic assessment and remediation activities at a former dry cleaner site in Suffolk County. Work included review of soil and groundwater data and implementation of a Soil Vapor Intrusion Evaluation at a NYSDE Inactive Hazardous Waste Disposal Site (i.e., State Superfund Site). Contaminants of concern focused on PCE and its degradation products. In addition, to technical evaluations, work also included coordination with counsel regarding reporting obligations to commercial tenants and impact of environmental conditions on real estate valuation.

Soil and Groundwater Pilot Test and Remediation, Confidential Environmental Risk Management Firm, Largo, Florida

Designed and implemented a comprehensive pilot test program to evaluate the use of *in-situ* enhanced reductive dechlorination at a former RCRA facility to remediate soil and groundwater impacted with chlorinated Volatile Organic Compounds (VOCs). Work was coordinated with FDEP, the local site owner, the risk management firm, and a major insurance company to expedite remediation under a "lump sum to closure" liability acquisition contract. Initial injections of Edible Oil Substrate (EOS®) and Hydrogen Reducing Compound (HRC®) indicated transformation of the subsurface to a reducing environment and significant reduction of contaminant levels in most wells within 6 months of injection. Work was coordinated with a hydraulic control system to address inorganic contaminants as the VOC remedy was implemented.

Groundwater Contaminant Fate & Transport Modeling, Public Water Supplier and NYSDEC Inactive Hazardous Waste Disposal Site (State Superfund), Nassau County, NY

Completed a QA/QC evaluation of a complex, three-dimensional groundwater flow and contaminant fate and transport model for a public water supplier in order to identify upgradient sources of chlorinated VOC contamination and to predict future impacts to public supply wells. QA/QC review included assessment of boundary conditions, research of geologic conditions, estimation of hydraulic properties, and evaluation of model calibration and sensitivity. Data generated from the review was used to determine possible long-term water treatment requirements and the need for a monitoring well network downgradient of the source area and upgradient of the public supply wells.

Remediation Cost Evaluation & Sensitivity Analysis, Confidential Manufacturing Facility, British Columbia, Canada

Completed a detailed cost evaluation that included evaluating potential environmental liabilities under multiple site expansion, reduction, and development scenarios. Cost estimates included excavation, *in-situ* remediation, dredging, and landfill alternatives. Sensitivity analyses were performed on all major unit costs driving total remediation costs. Socio-economic factors impacting site redevelopment were considered as part of the evaluation process.

UST System Evaluation, Ground Service Equipment Facility, SeaTac, Washington

Coordinated the evaluation of an existing UST and hydraulics system at an active Ground Service Equipment (GSE) maintenance facility where petroleum products had been detected in soils underlying the facility. Work included identification of source areas, development and implementation

Continuing Education (cont'd)

- *"Lead Symposium '94" Con-Test Educational Resource Center, February 1994*
- *"Soil Remediation Techniques - In-Situ and Ex-Situ Technologies," National Groundwater Association, December 1994*
- *Risk Assessment for Soil Contamination," University of Wisconsin, December 1992*
- *""Site Remediation - Source Control," University of Connecticut, April 1992*
- *"Bioremediation, State of Practice in Hazardous Remediation Operations," USEPA, January 1992*
- *Soil Vapor Extraction Short Course, University of Connecticut, Oct 1991*

Publications / Presentations

- *"Expedited Environmental Closure," AIG Environmental Department Meeting, August 2007*
- *"In-Situ Chemical Oxidation, A Case Study," Apex Companies Annual Project Managers Meeting, 2005*
- *"Horizontal Well Applications in Environmental Remediation," Suffolk County Bar Association, Environmental Committee Meeting, October 1999*
- *"Aggressive Remediation Approaches at JFK International Airport," IT Technical Exchange, Orlando, Florida, February 1999*
- *"Emulsified Oils with Dual Phase, High Vacuum Extraction," Fluor Daniel GTI Tech Notes, Volume I, No. 1, October 1997*
- *"Waste Minimization Cuts Compliance Costs," LI Environmental Expo, 1995*
- *"Solid Waste Minimization, Recycling & Reuse," Hauppauge Industrial Association, October 1995*

of soil delineation program and comparison of soil data to regulations and risk-based cleanup levels under Department of Ecology (DOE) Model Toxics Control Act and UST regulations.

Air Sparge/Soil Vapor Extraction System Design, Brookhaven National Laboratory, DOE CERCLA (Federal "Superfund") Facility

Completed the design of a large-scale air sparge/soil vapor extraction system to remediate a combination of fuel oils and chlorinated organics. The project included review of existing data to identify the extent of contamination followed by the design of over 40 air sparge wells, 20 soil vapor extraction wells, and a monitoring well network. The design package included 30%, 90%, and 100% design drawings and full CSI specifications for well construction, mechanical equipment, air emissions control, and system start-up and operation. Modeling of the air emissions was completed to predict control system loading rates and permitting requirements.

NYCTA and NYCOGS, Various City Property Remediation Systems, Multiple Boroughs, New York City, NY

Managed the remediation of several bus terminal and police station sites impacted by Underground Storage Tank (UST) systems within NYC. Remediation technologies included product recovery, total fluids recovery, bioventing, and soil vapor extraction. Work was completed following New York City Site-Specific Investigative Summary and Remedial Plan (ISRP) recommendations and guidelines under the NYSDEC Spills program.

Aviation Fueling System Investigation and Contaminant Delineation, Hydrant Fueling Line Study, SeaTac, Washington

Coordinated an investigation of a large-scale, high pressure fuel delivery system serving Seattle-Tacoma International Airport (SEATAC) in advance of a proposed terminal re-development project. The linear assessment included development of a cost-effective program to delineate several miles of underground fuel hydrant lines to identify areas of possible soil contamination and to develop a soil management plan to be implemented during future demolition activities. As part of the scope of work, contaminant data was compared to DOE evaluation criteria under the Model Toxics Control Act regulations and recommendations to prioritize remedial activities were made.

Horizontal Well, Dual Phase High Vacuum Extraction System, Major Airline Terminal, JFK Airport, NY

Work under the project included three major phases: negotiations with potentially responsible parties to structure a technical partnering agreement; remedial design of a DPHVE system with optional conversion to an air sparging / soil vapor extraction system; and operation and maintenance of the remediation system. Since the major impacted areas were located near gate operations, a horizontal well system was designed to minimize disruptions to gate operations. The horizontal well system design consisted of over 20 horizontal wells and an associated water treatment system including solids removal and VOC treatment. Bench-scale treatability and field pilot testing was performed as part of the technology evaluation phase of the project.

Bulk Fuel Farm UST and AST Evaluation, Soil and Groundwater Impacts, Confidential Airline, Portland, Oregon

Performed an evaluation of soil and groundwater remediation requirements and environmental liability assessments for a former bulk fuel farm at a major international airport. Work was performed to settle environmental claims as part of the bankruptcy proof of claim process. Work included evaluation of local UST area impacts as well as contaminant migration via stormwater systems and associated impacts to local surface waterways. As part of the project, cost estimates for environmental liability were prepared for settlement of claims.

Airline Hangar Investigation & Remediation, JFK Airport, Jamaica, NY

Completed a baseline environmental assessment at an active hangar facility. The assessment identified potential environmental liabilities and served as a basis for remedial design. The project was completed under a negotiated Stipulation Agreement with the NYSDEC's Region 2 Spills group. A feasibility study which included evaluation of real estate related factors (i.e., cost of maintaining a leasehold during long -term remediation v. expedited remediation to eliminated leasehold costs) identified several approaches that saved the customer at least $500,000. A

Publications / Presentations (cont'd)

- *"RCRA - Hazardous Waste Management Overview," International Facilities Managers Association (IFMA), LI Chapter Meeting, 1994*
- *"Site Remediation - A Cost Effective Approach," LI Environmental Expo, 1994*
- *"The NYSDEC Voluntary Cleanup Policy: How will it impact remediation projects in New York State?" NYWEA Spring 1995 technical meeting, Saratoga Springs, NY*
- *"Phase I Environmental Site Assessments," In-house seminar program, H2M Group, 1993*
- *"Proper Field Sampling Techniques for Soil and Groundwater," In-house seminar program, H2M Group, 1993*

Business Affiliations

- *Long Island Business Aviation Association*
- *Hauppauge Industrial Association - Inactive*

technology consisting of dual phase high vacuum extraction and steam injection was implemented to expedite remediation. The majority of closure goals were met within only 6 months from the onset of the design effort, ahead of schedule and under budget.

Soil Vapor Extraction Pilot Test Program, Retail Gasoline Station, Suffolk County, NY

Completed a pilot test program for a soil vapor extraction system at a former gasoline station where USTs had reportedly leaked. The pilot test program determined the radius of influence of extraction wells, likely contaminant emission concentrations and flow rates, vacuum profiles in subsurface soils, and possible adsorption system removal efficiencies. Contaminants of concern included benzene, toluene, ethylbenzene, xylenes (BTEX), naphthalene and MTBE.

Soil / Groundwater Investigation, Municipal Wastewater Treatment Facility, Wards Island, NY

Directed a comprehensive soil gas, soil, and groundwater investigation including the installation of over 50 soil borings and 10 monitoring wells. A soil gas survey was performed using a Geoprobe and soil and groundwater samples were collected to characterize the site prior to a planned expansion of the facility. On-site debris piles were screened for contaminants including volatile organic compounds and radioactive materials, and the piles sorted for cost-effective disposal. The investigation report identified several areas of concern to be addressed prior to the planned expansion. Work completed under this project also included development and implementation of Work Plans and QA/QC Plans.

Industrial Wastewater Treatment System Design, GAC Treatment and Filtration, Photographic Equipment Manufacturer, Suffolk County, NY

Designed a granular activated carbon (GAC) system for removal of acetone and other organics prior to on-site discharge in accordance with state pollutant discharge elimination system requirements. The upgrade included evaluation of adsorption isotherms, carbon regeneration requirements, and estimated time for breakthrough of contaminants. A complete cost evaluation was also included as part of the design effort.

Industrial Wastewater Treatment System Upgrade, Metal-Finishing Facility, Suffolk, NY

Designed a system upgrade for a 70,000-gallon per day wastewater treatment system. The upgrade included designing floc settling and sludge dewatering systems. Bench-scale treatability tests were performed as part of the design effort. As a result of the dewatering system, hazardous waste sludge generation has been decreased by more that 50 percent at the site. Regulatory negotiations regarding the applicability of RCRA TSDF requirements were included as part of the upgrade program.

Remedial Investigation, Risk Assessment, and Preliminary Feasibility Study, New York State Inactive Hazardous Waste Disposal Site (State Superfund), Queens, NY

Managed and oversaw QA/QC on a site impacted by VOC and TPH contamination in soil and groundwater. Remedies evaluated for possible implementation included soil vapor extraction (SVE), bioremediation, excavation, and thermal treatment. In addition, a baseline risk assessment was performed. The baseline risk assessment indicated that site controls would be a cost-effective mechanism for protection of human health.

Underground Storage Tank (UST) Removal and Remediation Program, Staten Island, New York

Designed and implemented a program consisting of work plan preparation, delineating the extent of contamination, groundwater modeling, evaluating remedial alternatives, pilot testing of a pump and treat groundwater remediation system, and evaluating possible dewatering schemes. The project was performed as part of the demolition and reconstruction of the maintenance area at a major New York City transportation hub.

Groundwater Modeling, New York City Marine Terminal, Staten Island, NY
Developed a groundwater model to predict contaminant migration pathways in a tidally influenced shallow aquifer with fill material. The model included estimating hydraulic parameters, reviewing tidal influence study data, evaluating the impacts of manmade structures, and a particle tracking analysis.

Multi-Media Pollution Prevention Audit - Electronics Manufacturing Facility
Completed a multi-media, pollution prevention (M2P2) audit for a Fortune 500 electronics manufacturing facility. The audit included review of hazardous waste management procedures; air emissions compliance; process wastewater collection, treatment, and disposal; secondary containment permit compliance; UST and AST management; SARA Title III compliance; employee training; corporate and departmental record keeping and tracking; and stormwater management. The audit was performed prior to a multi-agency audit. The findings of the audit allowed the company to remedy deficiencies prior to the State agency audits, thereby preventing fines of several hundred thousand dollars.

Environmental Compliance Audit - Metals Machining Facility
Completed an environmental compliance audit for an international machining company with headquarters in New Jersey. The audit focused on waste oil handling and compliance, but also considered wastewater discharges, air emissions, and Community Right-To Know compliance. New Jersey ISRA requirements as well as importer and exporter regulations were included in the auditing program. The audit report was submitted as a working database to improve facility environmental tracking procedures and to ensure that recommended actions were incorporated into the overall facility operations schedule and budget.

Compliance Documents, Various Customers and Locations
Prepared various environmental compliance documents including hazardous waste analysis plans, closure plans and certification reports, contingency plans, Best Management Practices (BMP) plans, Spill Prevention Control and Countermeasures (SPCC) Plans, discharge monitoring reports, Tier I and Tier II Community Right-to-Know forms, and Form R submittals.

Industrial Compliance Audit and Wastewater Study, Aircraft Parts Manufacturer
The environmental compliance audit focused on waste storage, treatment and disposal and wastewater handling. As a result of the audit a new process wastewater collection system was designed to ensure compliance with local and state discharge requirements. As part of the program, internal inspection and environmental compliance programs were developed to educate workers on proper record keeping techniques.

Litigation and Legal Support Experience

Legal Support, New York State Inactive Hazardous Waste Disposal Site (State Superfund), Filtration System Manufacturer, Nassau County, NY
Managed a groundwater investigation consisting of review of existing on-site and off-site data, installation of monitoring wells, determination of groundwater flow direction, and identification of possible upgradient sources of contamination through review of groundwater quality data and the nature of contaminants in the subsurface. The primary contaminants of concern included PCE, TCE, 111-TCA, DCE, Vinyl Chloride and Freon®. Assisted counsel in negotiations with third parties and regulatory agencies that focused on the differentiation of chlorinated organic plumes from multiple sources. As part of the legal support project, contaminant fate and transport models and a conceptual site model was developed to identify source areas and potential impacts to a downgradient municipal well field. Mr. Smith also worked with the client and potential purchasers of the facility to help facilitate a real estate transaction of the contaminated property.

Litigation Support for MTBE Class Action Suit Defense, Consolidated in NY
Recently retained as an expert witness in a national class action suit involving MTBE contamination of public supply wells. Work is just initiating (January 2009).

Litigation Support for Former Manufacturing Company, Cost Recovery Defense, Westchester County, NY
Served as a technical expert in the evaluation of historic and proposed remediation costs to address a chlorinated VOC plume underlying a former manufacturing building. Work has included preparation of expert reports, attendance and presentation at settlement meetings, and general coordination with counsel and the client. Work is currently underway to try to reach settlement between the two parties.

Litigation Support for Printing Company, Underground Injection Control and RCRA Closure, Nassau County, NY
Served as an expert witness in a dispute between a tenant and landlord related to alleged disposal of wastes (primarily inorganics including chromium and lead, and solvents) into drains and site underground structures. Work included evaluation of Underground Injection Control (UIC) program applicability and review of work completed by third parties to remedy historic contamination. The project focused on the costs and technical effectiveness of remediation and coordination of site remediation with RCRA closure requirements. Work included deposition preparation and reviews, affidavit reviews, and other litigation support tasks.

Litigation Support for Major Airline, Bankruptcy Proof of Claim Evaluations, Nationwide
Served as technical expert in the analysis of environmental Proof of Claims ranging from tank farm spill issues to multi-million dollar airport-wide cleanups. Work focused on detailed cost estimation for remediation scenarios for both *in-situ* and *ex-situ* remediation and development of presentations for airport authorities. Cost estimates included evaluation of union issues and complicating airport security factors. Work was performed for both environmental counsel and bankruptcy counsel.

Litigation Support for Major Airline, Miami International Airport Remediation, Miami Florida
Represented a major international air carrier in a litigation matter involving the remediation of soil and groundwater contaminated with petroleum products and chlorinated VOCs throughout the airport. Work included evaluation of remedial approaches taken, claimed environmental costs, cost-effectiveness, and schedule impacts on cost claims. Technical settlement scenarios were developed and presented, each with detailed cost backup. Work involved review of hundreds of file boxes spanning data from the 1950 to the present time. All work was also completed on an expedited schedule.

Litigation Support for Pesticide Manufacturer, Suffolk County, NY
Prepared investigation, damage assessment, and remediation feasibility reports to support litigation related to the impacts of pesticides on several public water supply wells. Records for over a decade of operations were reviewed and an engineering evaluation of a granular activated carbon treatment system was performed. In addition, a thorough QA/QC review of analytical data packages was completed for trial. Cost estimates for all remedial options considered were evaluated and a ranking system was used to recommend an alternative remedial / treatment approach.

Litigation Support for Regional Environmental Agency, Nassau County, NY
Evaluated site investigation procedures employed by a local environmental agency regarding a felony complaint that alleged illegal disposal of hazardous substances. Mr. Smith's role included preparation of an expert report rendering opinions on the applicability of RCRA and CERCLA and on the reliability of environmental quality data.

Litigation Support for National Petroleum Company, Suffolk County, NY
Represented a major petroleum company in litigation with the owner of a retail petroleum station property and an adjacent vacant parcel. Developed a technical report and corresponding professional opinion regarding the extent of contamination at the site, the source of contamination, and potential remedies that could be implemented in coordination with proposed site development plans. Remedial cost estimates were developed for multiple development scenarios.

Litigation Support, Major International Airline, Queens, NY
Reviewed and prepared documents for a Fortune 500 airline to support counsel. Work included identification of contaminated areas, evaluation of the extent of separate phase hydrocarbons, potential contaminant migration pathways, remedial technologies applicable at the site, and development of detailed cost estimates for remediation. Work also included differentiation of sources of contamination and a determination of potentially responsible parties for the Airline. Multiple experts were coordinated under the litigation support contract to provide comprehensive litigation support services with a focus on investigation, remediation, airport terminal construction, product and plume aging, and construction planning and scheduling.

Litigation Support, Printed Circuit Board Manufacturer Former NYS Superfund Site), Suffolk County, NY
Following the completion of a comprehensive RCRA Closure program, Mr. Smith represented the tenant of a site in Melville, NY in the defense of a Complaint made by the property owner pertaining to environmental conditions at the site of the Closure program. Litigation support work included preparation of a closure report documenting investigative and remedial activities at the site, and the extent of residual contamination remaining upon completion of closure.

Remediation Cost Evaluation & Technical Mediation, Confidential Airline Client, Philadelphia, Pennsylvania
Coordinated a technical mediation focusing on development of an independent cost estimate for remediation performed by a major airline. Work included review of actual cost documents submitted by the airline and the local aviation authority. Based upon review of the documents, a recommended cost allocation mechanism was presented to the parties.

Legal Support for Homeowners Association, Bronx, NY

Supported counsel in opposition of a planned housing development in the Riverdale section of the Bronx, NY. Work included technical evaluation of proposed and existing drainage systems, capacity analyses, and review of environmental impact documents developed by others.