WORK PLAN
REMEDIAL INVESTIGATION
AND
FEASIBILITY STUDY
FORMER PAUL MILLER DRY CLEANERS SITE
(Site No.: 2-43-018)
Port Richmond, New York

Prepared for

New York State Department of Environmental Conservation
Investigation and Design Engineering Services
Standby Contract No. D004437
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Section 1
Introduction

This Work Plan for the former Paul Miller Dry Cleaners (Paul Miller) site located at 1465 Forest Avenue, Port Richmond, Richmond County, NY was prepared by Camp Dresser & McKee (CDM) for the New York State Department of Environmental Conservation (NYSDEC) under the Engineering Services for Investigation and Design, Standby Contract No. D004437-23. The Work Plan was developed in accordance with the "*Draft Division of Environmental Remediation (DER)-10 Technical Guidance for Site Investigation and Remediation, dated December 2002*".

In addition, NYSDEC has provided historical information about the site vicinity and has made requests and observations during a January 7, 2008 site reconnaissance visit with CDM representatives. The major focus of this Work Assignment is to conduct a Remedial Investigation/Feasibility Study to evaluate monitored natural attenuation and to determine the most effective remedial alternatives to address groundwater contamination. Additionally, a soil gas survey will be conducted to assess potential soil vapor migration pathways and appropriate IRM measures and mitigation alternatives.

The requested RI/FS scope of work includes:

- Public File Records Search
- A geophysical survey
- Collection and analysis of Subsurface Soil samples
- Installation and sampling of sub slab soil vapor probes and indoor air samples
- Installation, development and sampling of groundwater monitoring wells
- Survey of all new soil borings/monitoring wells and site features to produce a site plan with scale of 1" equals 50;
- Report of findings

Detailed descriptions of each scope task are presented in Section 2 of this Work Plan.

This Work Plan is comprised of the following sections:

- Section 1 – "Introduction" - This section presents the site description and history, containing the location, operational and remedial history, project objectives, and fate and transport information for PCE.
- Section 2 – "Scope of Work" - This section presents the scope of work for the following four tasks of this work assignment:

1. Task 1: Work Plan Develop
2. Task 2: Scope of Field Work
3. Task 3A: Field Documentation and Reporting
4. Task 3B: Feasibility Study

- Section 3 – "Project Schedule" - The project schedule for the performance of the above three tasks is presented in this section.

- Section 4 – "Budget Estimate" - A detailed work assignment budget is presented in this section, itemized by tasks and sub-tasks utilizing schedule 2.11 in accordance with the contract's budget reporting requirements.

- Section 5 – "Staffing Plan" - The staffing plan identifies the roles and responsibilities of the CDM project team. CDM has assembled a team of environmental engineers and scientists experienced in conducting the scope of work tasks effectively and efficiently.

- Section 6 – "Subcontracting" - This section identifies the services provided by subcontractors on this work assignment. The name and location of each proposed subcontractor is also presented in this section.

- Section 7- "MBE/WBE Utilization Plan" - The Minority Business Enterprise (MBE) and Woman Business Enterprise (WBE) Utilization Plan is presented in this section. CDM's subcontractors have been carefully selected to provide the most reasonable cost-effective services while achieving the contract-specific MBE/WBE utilization goals.

The following appendices are also included in this Work Plan:

- Appendix A – " Generic Quality Assurance Project Plan" - The Generic QAPP presents methods that will be used to collect field data including project samples, and focuses on the analytical methods and quality assurance/quality control (QA/QC) procedures that will be used to analyze project samples, ensure the data are of known and acceptable quality, and manage the resultant data

- Appendix B – "Health and Safety Plan" - The site-specific Health and Safety Plan (HASP) specifies the health and safety procedures to ensure safe work practices are employed.

- Appendix C – "Citizen Participation Plan" – The CPP provides the primary contacts for the site as well as various public entities and provides ways for citizens to be involved in the project.

- Appendix D – "Schedule 2.11" - Contains a detailed cost estimate by task and subtask of all work elements contained in this work assignment.

- Appendix E – "Subcontractor Backup" - contains individual quotes for drilling, laboratory and validation services to provide documentation for reasonable competitive costs.

1.2 Site Description and Background

1.2.1 Site Description

Located at 1465 Forest Avenue, Port Richmond, NY the former Paul Miller site occupies a 0.4 acre parcel in a commercial area in the Forest Avenue Shopping Center. The former dry cleaner building is currently occupied by Boston Market Corporation and is being used as a restaurant. The site is relatively flat with its surface area covered with concrete and/or asphalt. Review of the USGS Arthur Kill Quadrangle map indicates that ground surface elevations range from approximately 30 to 33 feet above mean sea level. General site conditions can be viewed in the aerial photograph presented as Figure 1-1.

1.2.2 Operational History

Only minor historical operations information for the former Paul Miller Dry Cleaners is available at the time of this writing. Information from the 2006 Leggette, Brashears & Graham, Inc. (LBG) "Remedial Investigation Report for the former Charlton Cleaners Facility," provided by NYSDEC, indicates that the former Paul Miller Dry Cleaners facility appears in the City Directory (EDR) from 1960 to 1995.

1.2.3 Remedial History

In 1994, the owner of the Forest Avenue Shopping Center conducted an environmental investigation at the former Paul Miller site. Subsequently, in May 2000, NYSDEC retained Lawler, Matusky & Skelly Engineers LLP (LMS) to conduct an Immediate Investigation Work Assignment (IIWA) of the former Paul Miller site. The objectives of the IIWA were to determine groundwater flow in the vicinity of the site, the identify the nature and extent of groundwater contamination as related to historic site activities, and to assess whether residual hazardous waste poses a threat to public health or the environment.

1.2.3.1 Soil Quality

Piezometers were installed and boring logs constructed by LMS. According to their logs, the site is underlain by heterogeneous soils characteristic of the glacial till that covers much of Staten Island. The soils were identified in LMS borings logs as being reddish to brown in color and being comprised of sands and silts to clays with some gravel.

No soil samples were collected for laboratory analysis, therefore no soil quality data exists to date. However, the presence of volatile organics (as detected with a photoionization detector or via olfactory or visual observations) was not noted in any of the three boring logs available from the LMS IIWA report (boring logs P-1 through P-3).

1.2.3.2 Groundwater Quality

During the course of the LMS 2000 IIWA, seven piezometers were installed and sampled. These seven wells supplemented previously existing monitoring wells installed by others. No additional information is available for these wells. During the CDM site visit, five piezometers and two monitoring wells were located on the Boston Market parcel. Two additional monitoring wells were noted to the north of the building in the Forest Avenue Shopping Center.

Groundwater results from the LMS IIWA identified the highest concentrations of chlorinated volatile organic compounds in groundwater immediately adjacent to the east side of the building. The contamination was determined to be migrating vertically downward as evidenced by higher PCE concentrations in the deeper piezometers.

Based on the results of this investigation, LMS recommended that a soil gas survey be conducted in the area to identify the potential impact of PCE contamination to indoor air at the former Paul Miller site, and the adjacent two buildings (Kentucky Fried Chicken restaurant to the east and the Northfield Savings Bank to the west). Additionally, LMS recommended that a deeper well be installed to vertically delineate groundwater contamination in the vicinity of P-3D on the east side of the site building and that continuous soil cores be collected to better characterize the subsurface stratigraphy in the vicinity of the former Paul Miller site.

1.3 Environmental Setting

The site is relatively flat with its surface area covered with concrete and/or asphalt. Review of the USGS Arthur Kill Quadrangle map indicates that ground surface elevations range from approximately 30 to 33 feet above mean sea level.

1.3.1 Geology

The site is located within the Atlantic Coastal Plain Physiographic Province. A history of coastal submergence and emergence spanning the Cretaceous Period, significant differential erosion during the Cenozoic, and glaciation during the Quaternary Period is reflected in the present day geology of Staten Island.

As identified in *The glacial geology of New York City and Vicinity* by Sanders and Merguerian (1994), at the site the Newark Supergroup (approximately 120 feet below ground surface at this location) is unconformably overlain by the Harbor Hill formation, a widespread Quaternary ground moraine deposits comprised of reddish-brown glacial till and outwash. This unconsolidated sequence is representative of the subsurface materials that immediately underlie the site.

1.3.2 Hydrogeology

No groundwater contour map was constructed during the LMS IIWA; difficulty was encountered in determining groundwater flow. Initial CDM review of LMS boring logs revealed that the subsurface materials at the site consist of the unsorted sands,

silts, clays, gravel and boulders that are characteristic of the Harbor Hill formation. The deposit in the area of the site is approximately 100 to 150 feet thick. Groundwater in these deposits occurs under water-table or confined conditions depending on the nature of the subsurface at any given location. Based on review of USGS Report 87-4048, *Geologic and Geohydrologic Reconnaissance of Staten Island, New York*, the general flow of groundwater in the unconsolidated glacial till is to the northwest-north towards Kill van Kull, locally, and according to discussions with NYSDEC, groundwater flow may be in a northerly direction. From the LMS investigation groundwater (or potentially perched water-bearing intervals) is expected to be encountered at depths between four and nine feet below grade. Planned work for this investigation is expected to yield more specific information on groundwater flow direction.

The consolidated rock units of the Newark Supergroup and the overlying unconsolidated deposits are hydraulically connected, and groundwater flows both vertically and horizontally within. However, the majority of the groundwater flows occurs within the glacial unconsolidated deposits due to it greater hydraulic conductivities.

Section 2
Scope of Work

2.1 Task 1 - Work Plan Development

This Work Plan references procedures detailed in the CDM Generic Quality Assurance Project Plan (QAPP), provided as Appendix A, revised July 2007 which has been provided to NYSDEC for Contract Number D-004437. The Generic QAPP presents methods that will be used to collect field data including project samples, and focuses on the analytical methods and quality assurance/quality control (QA/QC) procedures that will be used to analyze project samples, ensure the data are of known and acceptable quality, and manage the resultant data.

This Work Plan also includes a site specific Health and Safety Plan (HASP) presented in Appendix B and a Citizen Participation Plan (CPP) presented in Appendix C. The HASP describes the site health and safety for the field activities that will be performed and includes a community air monitoring plan (CAMP). The CPP provides the primary contacts for the site as well as various public entities and provides ways for citizens to be involved in the project.

2.2 Task 2 – Remedial Investigation

The scope of work for the Remedial Investigation phase of this Work Assignment is described below. The reader is advised that this Work Plan is a flexible and evolving document. Scope changes may be necessary based upon field conditions, observations, weather and a myriad of factors. Any changes to the approved scope of work will be communicated to the NYSDEC on-site representative for approval prior to implementation. Cost impacts will also be identified at the time approved scope changes are implemented. The planned scope of work is presented below.

All work will be conducted in accordance with the "*Draft DER-10, Technical Guidance for Site Investigation and Remediation dated 12/25/02*" or the most current version of the document when available.

2.2.1 Records Search

A records search will be conducted to meet the requirements of NYSDEC's *Draft DER-10 Technical Guidance for Site Investigation and Remediation* dated December 2002. Information collected during the records/background search will be summarized in a Record Search Report and utilized to gain insight into previous operational activities any subsequent remedial activities conducted at the site. The Record Search Report will be provided to NYSDEC as a stand alone document, submitted soon after submittal of the Draft Work Plan.

2.2.2 Utility Mark-out and Geophysical Survey

Prior to outdoor intrusive work, a private utility locating firm will be subcontracted to mark out subsurface structures and utilities at the proposed locations. Their work will be conducted in addition to the general utility markout (One-Call) to limit the

potential for encountering subsurface utilities and structures during the intrusive work.

CDM will oversee and supervise the performance of a geophysical survey which is expected to cover an area of 30 feet by 100 feet along the eastern side of the present structure (Boston Market). Specifically, proposed monitoring well and soil boring locations will be geophysically surveyed for the presence of underground utilities, tanks, dry wells, and/or obstacles. Additionally, the area to the east of the former Paul Miller site building will be surveyed via geophysical techniques to help confirm the presence of a reported former sump. It is anticipated that ground-penetrating radar (GPR) will be used in this survey and that the perimeter of the facility will be surveyed.

2.2.3 Groundwater Monitoring Well Installation

Based on the findings of the LMS IIWA, chlorinated solvent contamination consisting predominantly of tetrachloroethylene (PCE), trichloroethylene (TCE), 1,2-dichloroethene (1,2-DCE), and vinyl chloride (VC) was identified at concentrations exceeding the New York Ambient Groundwater Quality Standards of 5 µg/L for PCE, TCE, and 1,2-DCE and 2 µg/L for VC. The greatest concentrations of these contaminants were identified in the east-central portion of the site building at the location of P-3S and P-3D. Concentrations exhibit a decreasing trend outward from this location and decrease even more rapidly to the north and south.

Review of available data indicates that chlorinated volatile organic contamination is greatest immediately to the east of the site building, at an approximate depth of 20 feet below ground surface. It is suspected at this time that this is the location of a potential former sump, to which spent dry cleaning chemicals were discharged during historic dry cleaning activities. Observations made during a January site visit indicate the presence of some sort of floor drain/structure and associated, but currently disconnected, piping leading from the first floor of the site building to the area of the observed floor drain/structure.

It should be noted that five currently operating dry cleaning facilities are located within a mile to the northeast of the site. One site in particular, the former Charlton Cleaners located at 24 Barrett Avenue (currently a Michaels Store), has a known groundwater problem caused by historic Charlton Cleaners dry cleaning operations. In part, data gathered during this RI will be used to assess the potential impact of off-site contaminant sources on the site and/or the potential that the groundwater contamination plume associated with the site is co-mingling with groundwater contamination plumes from off-site sources.

For the purpose of this RI, installation of 13 monitoring wells is proposed: four monitoring well clusters (MW-9S/D, MW-10S/D, MW-11S/D, and MW-13S/D), four additional shallow monitoring wells (MW-8S, MW-12S, MW-15S, and MW-16S), and one additional deep monitoring well (MW-14D). Shallow monitoring wells will be installed to an approximate depth of 35 and deep monitoring wells to an approximate

depth of 70 feet below ground surface. In each case the well will be screened across the interval demonstrating the greatest amount of contamination as evidenced by elevated photoionization readings, visual or olfactory cues, hydrophobic dye and/or ultraviolet light. Monitoring wells will not be screened across potential confining units. CDM proposes to install the wells as follows:

- **MW-8S**: Shallow well to the west of the site, in westernmost portion of large driveway between site building and Northfield Savings Bank building, west of LMS P-1 to delineate the extent of groundwater contamination in the shallow portion of the unconsolidated unit in this direction and to assess groundwater flow direction. Access agreement will need to be obtained from property owner.

- **MW-9S/9D**: Shallow and deep cluster north of existing MW-2, in parking lot of Forest Avenue Shopping Center to delineate the extent of groundwater contamination in both the shallow and deeper portion of the unconsolidated unit in this direction and to assess groundwater flow direction. Access agreement will need to be obtained from property owner.

- **MW-10S/10D:** Shallow and deep cluster northeast of existing MW-4, in parking lot of Forest Avenue Shopping Center to delineate the extent of groundwater contamination in both the shallow and deeper portion of the unconsolidated unit in this direction and to assess groundwater flow direction. Access agreement will need to be obtained from property owner.

- **MW-11S/11D**: Shallow and deep cluster northeast of LMS P-2 and site building's basement, in parking lot to delineate the extent of groundwater contamination in the shallow portion of the unconsolidated unit in this direction and to assess groundwater flow direction. This location is located approximately half-way between the site building to the former Charlton Cleaners building (Michaels Store) and is on the Kentucky Fried Chicken property. Access agreement will need to be obtained from property owner.

- **MW-12S**: Shallow well that is deeper than existing LMS P-2, to the east of the suspected sump on the east side of the site building. This location will be installed to determine extent of potential groundwater contamination due to suspected historic discharges to sump or similar feature. Well will additionally detail conditions between site building and MW-11 and MW-13 clusters to the northeast and approximate east, respectively.

- **MW-13S/13D**: Shallow and deep cluster to north-northeast of LMS P-4D and P-4S on Kentucky Fried Chicken property parking lot to delineate the extent of groundwater contamination in the shallow and deep portions of the unconsolidated unit in this direction and to assess groundwater flow direction. Access agreement will need to be obtained from property owner.

- **MW-14D**: Deep well immediately east of site building, in vicinity of LMS P-3S and P-3D/location of historically highest concentrations of chlorinated VOCs in

groundwater. Install to delineate the vertical extent of groundwater contamination in the unconsolidated unit at the site and to assess groundwater flow direction.

- **MW-15S:** East of proposed monitoring well cluster MW-14D and on Kentucky Fried Chicken property. Install to delineate extent of groundwater contamination in the shallow portion of the unconsolidated unit in this direction and to assess groundwater flow direction. Access agreement will need to be obtained from property owner.

- **MW-16S**: South of building and slightly southeast of existing MW-1, adjacent to sidewalk along Forest Avenue to delineate the extent of groundwater contamination in both the shallow and deeper portion of the unconsolidated unit in this direction, to assess groundwater flow direction, and to determine upgradient groundwater conditions.

The proposed monitoring well locations are shown on Figure 2-1. The final well locations will be determined in consultation with the NYSDEC Project Manager. The drilling logs for the new off-site wells will be evaluated along with existing well logs to determine if there are preferential layers of groundwater migration. Field documentation, well installation, decontamination, and IDW sampling procedures are provided in the Generic QAPP.

All new monitoring wells will be drilled via 4 ¼-inch hollow stem augering techniques, and split-spoon soil samples will be collected. The monitoring wells will be constructed of 2-inch diameter Schedule 40 PVC flush-joint blank riser pipe with ten feet of 2-inch diameter Schedule 40 0.01-inch flush-joint machine-slot screens. Monitoring well sand filter medium will consist of #0 Quartz-silica sand and will be installed to a depth of 2 feet above the top of the screen. A bentonite pellet seal will be installed to a depth of 2 feet above the top of the sand filter pack. The remaining annular space will be grouted to grade via tremie pipe method with Cement/Bentonite Grout.

All wells will be completed as flushmount and provided with a locking compression cap or locking cover, drain hole, and concrete apron. Upon completion of monitoring well installation, wells will be allowed to rest for a period of 24 hours before being developed, to allow the grout to set. Well development will be accomplished by a combination of surging (with appropriate surge blocks) and purging or air lifting techniques so as to thoroughly cleanse the well screen. Wells will be developed until purged water runs visibly clear and free of fines and debris and surging no longer produces substantial turbidity.

2.2.4 Subsurface Soil Collection

Continuous split spoon samples will be collected at all shallow wells. Split spoon sampling at the deep wells will commence at the depth interval at which split spoon sampling terminated at the respectively paired shallow wells. All split-spoon soil

samples will be field screened for the presence of contamination via visual and olfactory indicators, a photoionization detector (PID), and hydrophobic dye and/or ultraviolet light where PID readings are elevated (above background concentrations).

Should evidence of contamination be identified in the soil cores, a soil sample will be collected. The sample exhibiting the highest level of contamination will be sent to the laboratory for analysis. Only one sample per borehole is expected to be sent for analysis.

In general, soil samples will be sent to an off-site laboratory to be analyzed for VOC by EPA Method 8260B and SVOC by EPA Method 8270C. Additionally, three of the soils samples collected during this investigation will be analyzed for the Full List TCL/TAL+30. Results will be compared to the *6 NYCRR Sub-Part 375-6 Soil Cleanup Objectives*. All samples will be analyzed by an ELAP certified laboratory. A NYSDEC ASP Category B data deliverable will be provided for these analyses. Table 2-1 presents a summary of the analytical program for the site.

2.2.5 Groundwater Sample Collection

Groundwater samples will be collected from all of the existing wells (MW-1 through MW-7 and P-1 through P-5, provided that the wells are accessible and structurally sound) and all proposed wells (MW-8S through MW-15) following completion of monitoring well installation activities. This is a total of up to 27 groundwater sampling locations. Prior to sampling, depth-to-water and product thickness measurements will be collected from all wells using an oil-water interface probe. Purging will be accomplished via low-flow methods. Final determination of well purging and sampling protocols will be developed in consultation with NYSDEC. During purging, pH, temperature, conductivity, oxidation-reduction potential (ORP), dissolved oxygen, and turbidity will be measured. Groundwater samples will be collected from each of these wells using a disposable bailer or alternate apparatus/methodology approved by NYSDEC.

Groundwater samples and QA/QC samples will be collected in accordance with the procedures outlined in the Generic QAPP. Purge water will be containerized and staged in a secure location on-site until waste characterization can be completed. IDW sampling procedures are detailed in the Generic QAPP.

In general, groundwater samples will be sent to an off-site laboratory to be analyzed for VOC by EPA Method 8260B and SVOC by EPA Method 8270C. Three (3) of the groundwater samples collected during this investigation will be analyzed for the Full List TCL/TAL+30. Table 2-1 summarizes analytical program for the site. Groundwater sample results will be compared to the New York Ambient Groundwater Quality Standards. All groundwater samples will be analyzed by an ELAP certified laboratory. A NYSDEC ASP Category B data deliverable will be provided for these analyses.

2.2.6 Soil Vapor and Indoor Air Sample Collection

Sub-slab soil vapor and indoor air sampling will be conducted at up to three (3) structures along Forest Avenue, to determine the extent of VOC contaminated soil vapor in the vicinity of the site. The proposed locations are identified on Figure 2-2. These samples will be collected in accordance with the NYSDOH "*Final Guidance for Evaluating Soil Vapor Intrusion in the State of New York, dated October 2006*" and the NYSDEC "*Draft Division of Environmental Remediation (DER)-10 Technical Guidance for Site Investigation and Remediation, dated December 2002*". This task will include:

- Collect one sub-slab soil vapor sample at basement level or first floor (if not underlain by basement) at each structure,
- Collect an indoor air sample at the basement level or first floor (if not underlain by basement) at each structure, and
- Collect one outdoor ambient air sample at each structure; where two structures are located within close proximity to each other, one ambient air sample will be collected to represent both locations.

2.2.6.1 Sub-Slab Soil Vapor Sample Collection

At each structure, sub-slab soil vapor samples will be collected from the basement level (if present), the first floor of the building (where not underlain by basement), and from any sumps identified during RI activities. A duplicate sub-slab soil vapor sample will also be collected at one of the three structures along Forest Avenue. Sample port installation and vapor sample collection will be conducted in accordance with the NYSDOH "*Final Guidance for Evaluating Soil Vapor Intrusion in the State of New York, dated October 2006*" and the NYSDEC "*Draft Division of Environmental Remediation (DER)-10 Technical Guidance for Site Investigation and Remediation, dated December 2002*".

After the slab has been inspected, the location of any subsurface utilities determined, and the ambient air surrounding the proposed sampling location screened with a PID, a temporary sub-slab soil sampling implant will be hand drilled to approximately one foot, piercing the concrete slab. The implant installation and soil vapor sampling procedures are detailed in Section 3.8 of the Generic QAPP. The selected soil vapor sample locations shall be placed away from floor penetrations and co-located with their respective indoor air sample locations. Three borehole volumes will be purged from the subsurface at a rate less than 200ml per minute and captured in a Tedlar™ bag using the low-flow pump. PID readings will be observed from this sample and the highest reading shall be recorded on the appropriate field form.

The sample shall be collected with a 6 Liter, laboratory-certified summa canister with an 8-hour regulator and an initial vacuum of 38 inches Hg +/- 2 inches. A vacuum of 5 inches Hg +/- 1 inch must be present when the sample collection is completed. The sub-slab sample will be collected concurrently with the indoor and outdoor air samples.

The sub-slab samples will be analyzed for volatiles using EPA Method TO-15 by a NYSDOH approved ELAP certified lab. The holding time is fourteen (14) days from

the verified time of sample collection. The analysis will achieve detected limits of 1 µg/m^3 for each compound except for TCE, VC and carbon tetrachloride, which will have a detection limit of 0.25 µg/m^3.

2.2.6.2 Indoor Air Sample Collection

Indoor air samples will be collected on the basement level (if present) of the building of the three (3) structures and on the first floor of structures at which part of the slab is not underlain by basement. Indoor air samples will be co-located with any respective sub-slab sample(s). A duplicate indoor air sample will also be collected at one of the locations. The New York State Department of Health *Indoor Air Quality Questionnaire and Building Inventory* shall be completed for each structure where indoor air testing is being conducted. Field documentation and sampling procedures are provided in the QAPP. A copy of the NYSDOH questionnaire is also provided as Attachment 1 to the QAPP.

All indoor air samples will be collected with a laboratory-certified summa canister regulated for a 24-hour sample collection. The summa canister will be placed in such a location as to collect a representative sample from the breathing zone at three feet above the floor.

2.2.6.3 Outdoor (Ambient) Air Sample Collection

An outdoor ambient air sample will be collected when indoor air sampling is being conducted. Where two structures are located within close proximity to each other, one ambient air sample will be collected from between the two structures to represent both locations. All outdoor air samples will be collected with a laboratory-certified summa canister regulated for a 24-hour sample collection. The summa canister will be placed upwind of the structures in such a location as to collect a representative sample from the breathing zone at four or six feet above the ground. Field documentation and sampling procedures are provided in the Generic QAPP.

The sub-slab soil vapor and indoor and outdoor air samples will be sent to an off-site laboratory for VOC analysis via EPA Method TO-15. All samples will be analyzed by an ELAP certified laboratory. A NYSDEC ASP Category B data deliverable will be provided for these analyses. Table 2-1 presents a summary of the analytical program for the site.

2.2.7 Investigative Derived Waste

Soil cuttings will be used as backfill to the extent possible; however, soil cuttings generated during monitoring well installation and soils demonstrating evidence of contamination will be containerized in 55-gallon drums, labeled as investigative derived waste (IDW), and staged on pallets at an appropriate location approved by the property owner and NYSDEC. Monitoring well development and purge water will be containerized in closed-top 55-gallon drums and staged in the same location as drums containing soil cuttings..

IDW will be sampled for TCLP and RCRA characteristics as per the procedures outlined in the Generic QAPP. Samples will be sent to an off-site laboratory to be analyzed for Full TCLP and RCRA Characteristics to determine appropriate disposal methods. IDW samples will be collected at a rate of one sample per location for soils and two cumulative samples for groundwater/purge water.

Investigation derived waste to be staged on-site will be arranged to be picked up within approximately one week of receiving the expedited results from the first week's worth of IDW. Subsequent pick ups will occur on a weekly basis thereafter.

2.2.8 Decontamination Procedures

All non-dedicated equipment and tools used to collect samples for chemical analysis will be decontaminated prior to and between each sample interval using an Alconox rinse and potable water rinse prior to reuse. Additional cleaning of the equipment with steam may be needed under some circumstances. Decontamination fluids will be containerized and staged at the drum-staging location.

2.3 Task 3A – Field Documentation and Reporting

2.3.1 Field Documentation Procedures

Field notebooks will be used during all on-site work. A dedicated field notebook will be maintained by the field technician overseeing the site activities. In addition to the notebook, any and all original sampling forms, and purge forms used during the field activities, will be submitted to the NYSDEC as part of the final report. Field and sampling procedures, including installation of the sample boreholes, existing monitoring wells, etc., will be photo-documented.

2.3.2 Sample Identification

Each sample collected will be designated by an alphanumeric code that will identify the type of sampling location, matrix sampled, and the specific sample designation (identifier).

2.3.3 Sample Location

The newly installed monitoring wells will be surveyed by a subcontracted New York State licensed surveyor to identify the location (NAD83, New York State Plane 3102 coordinate system) and elevation (NAVD68 vertical datum) of the wells. Subsequently, these data will be used to create the site maps. Additional costs are reflected to include survey of existing monitoring wells and topographic survey of site building and surrounding properties.

2.3.4 Reporting

A total of four copies of a draft report will be submitted that documents the work conducted and presents the results of the sample analysis for review and comment by NYSDEC and NYSDOH. Upon receipt of the comments, CDM will revise the draft report and print the four final copies and submit to NYSDEC. One copy of the final

report; text, tables, maps, photos, etc., will be submitted as a single pdf file. All electronic files will be submitted to NYSDEC on a compact disc. The site investigation data will be submitted in the most recent version of the NYSDEC Electronic Data Deliverable (EDD) with the final report submission. Currently this is the USEPA Region 2 EDD dated December 2003.

2.3.5 Laboratory Analysis and Validation

All sub-slab soil vapor and indoor air samples will be analyzed by a NYSDOH approved ELAP certified laboratory. Air samples will be analyzed for VOC using EPA Method TO-15. The analysis for air samples will achieve detection limits of 1 $\mu g/m^3$ for each compound. For specific parameters identified by the NYSDOH, where the selected parameters may have a higher detection limit (e.g., acetone), and the higher detection limits will be designated by the NYSDOH.

Groundwater and soil samples will be sent to an off-site laboratory to be analyzed for VOC by EPA Method SOM01.2-Trace and SVOC by EPA Method OLM04.3. Three (3) of these groundwater and soil samples collected will be analyzed for the Full List CLP-TCL/TAL+30, which includes VOC by EPA Method SOM01.2-Trace, SVOC and Pesticides/PCBs by EPA Method OLM04.3, Inorganics (metals), Mercury or Total Cyanide by EPA Method ILM04.2. The analysis for groundwater samples will achieve the detection limits discussed in the QAPP. A NYSDEC ASP Category B data deliverable will be provided for these analyses (Table 2-1).

All samples collected will be validated in accordance with NYSDEC Data Usability Summary Report (DUSR) guidance by a party that is independent of the laboratory which performed the analyses and CDM. A usability analysis will be conducted by a qualified data validator and a DUSR will be submitted to the NYSDEC.

2.4 Task 3B –Feasibility Study

Following the implementation of the RI, CDM will evaluate the need for IRM and conduct a feasibility study (FS) to evaluate remedial action alternatives using the data collected during the RI. Should a sub-slab depressurization system be deemed the most appropriate measure to address soil vapor mitigation at the site and/or the neighboring two buildings investigated during the RI, the system will be installed as an IRM in accordance with the Radon Mitigation Standards (EPA 402-R-93-078, or the most current version) and NYSDOH SVI guidance document.

The objective of the FS will be to evaluate the most appropriate remedial alternative to address site soil and/or groundwater contamination so as to eliminate or mitigate threats to public health and the environment as a result of former site activities. Such remedial alternatives to be evaluated will include but will not be limited to full-monitored natural attenuation including groundwater sampling events and soil vapor extraction and/or groundwater recovery system installation.

In accordance with DER-10, Remedial Action Objectives (RAOs) will be developed based on contaminant-specific SCGs. Once established, up to four remedial actions

will be identified and evaluated based on the following eight criteria set forth in Section 4.1 of DER-10:

1. Overall Protection of Public Health and the Environment. This criterion is an evaluation of the remedy's ability to protect public health and the environment, assessing how risks posed through each existing or potential pathway of exposure are eliminated, reduced or controlled through removal, treatment, engineering controls or institutional controls. The remedy's ability to achieve each of the RAOs is evaluated. [see 6 NYCRR § 375- 1.10(c)(2)]

2. Compliance with Standards, Criteria, and Guidance (SCGs). Compliance with SCGs addresses whether or not a remedy will meet applicable environmental laws, regulations, standards, and guidance. All SCGs for the site will be listed along with a discussion of whether or not the remedy will achieve compliance. For those SCGs that will not be met, provide a discussion and evaluation of the impacts of each, and hether waivers are necessary. [see 6 NYCRR § 375-1.10(c)(1)] DRAFT DER-10 Technical Guidance for Site Investigation and Remediation December 2002 Page 69 of 103

3. Long-term Effectiveness and Permanence. This criterion evaluates the long-term effectiveness of the remedy after implementation. If wastes or treated residuals remain on-site after the selected remedy has been implemented, the following items are evaluated:

4. Reduction of Toxicity, Mobility or Volume with Treatment. The remedy's ability to reduce the toxicity, mobility or volume of site contamination is evaluated. Preference should be given to remedies that permanently and significantly reduce the toxicity, mobility, or volume of the wastes at the site. [see 6 NYCRR § 375- 1.10(c)(5)]

5. Short-term Effectiveness. The potential short-term adverse impacts and risks of the remedy upon the community, the workers, and the environment during the construction and/or implementation are evaluated. A discussion of how the identified adverse impacts and health risks to the community or workers at the site will be controlled, and the effectiveness of the controls, should be presented. Provide a discussion of engineering controls that will be used to mitigate short term impacts (i.e. dust control measures). The length of time needed to achieve the remedial objectives is also estimated. [see 6 NYCRR § 375-1.10(c)(3)]

6. Implementability. The technical and administrative feasibility of implementing the remedy is evaluated. Technical feasibility includes the difficulties associated with the construction and the ability to monitor the effectiveness of the remedy. For administrative feasibility, the availability of the necessary personnel and material is evaluated along with potential difficulties in obtaining specific operating approvals, access for construction, etc. [see 6 NYCRR § 375-1.10(c)(6)]

7. Cost. Capital, operation, maintenance and monitoring costs are estimated for the remedy and presented on a present worth basis. [see 6 NYCRR § 375-1.10(c)(6)]

8. Community Acceptance. Provide a summary of the public participation program that was followed for the project, see section 1.10 for requirements. The public's comments, concerns and overall perception of the remedy are evaluated in a format that responds to all questions that are raised (i.e. responsiveness summary). [see 6 NYCRR § 375-1.10(c)(7)] technical feasibility, cost, overall protection of human health and the environment, and duration.

The combined RI/FS report will detail the findings and results of the RI in accordance with DER-10, discuss the need for and scope of any additional investigation activities recommended, and discuss the conceptual plan for the recommended remedial strategies and/or systems identified during the FS in sufficient detail so as to facilitate procession to the development of a Record of Decision (ROD).

Section 3
Project Schedule

The following tabulation provides the proposed project schedule and key milestones for this work assignment. As currently planned, field work will be initiated within two weeks of written receipt of final work plan approval. The duration of initial field activities (geophysical survey, monitoring well installation, completion and development, and groundwater sampling) for the Remedial Investigation activities is estimated to be eight weeks assuming no delays are experienced due to inclement weather, site access problems, or for other unforeseen reason. Sub-slab and indoor air sampling is estimated to take five days.

The scheduled submittal dates for deliverables are based on standard laboratory turnaround times of four weeks, and turnaround for data validation of three weeks.

Project Milestone	**Date**
Issue Work Assignment (WA)	December 13, 2007
Work Assignment Acceptance	January 7, 2008
Submit Task 1 Draft Work Plan, HASP, CPP	February 8, 2008
DEC/DOH Comment on Draft Work Plan	March 21, 2008
Submit Task 1 (Final Work Plan) Deliverables	March 14, 2008
Notice to Proceed (NTP)	March 21, 2008
Commence Task 2 Field Work	March 24, 2008
Task 2 Field Work Completed	May 31, 2008
Task 3 and Task 4 Submit Draft Report and Final Feasibility Study	July 31, 2008
Approve Draft Report	35 Days after Draft Report Submitted
Task 3 and Task 4 Submit Final Report and Final Feasibility Study	45 Days after Approval of Draft Report

Section 4
Budget Estimates

Estimated Budget and Level of Effort (LOE) Summary
Former Paul Miller Dry Cleaners
Port Richmond, Staten Island, New York
Site No. 2-43-018

Task Items	Description/Cost	Dollars
1	Work Plan Development	$14,042.81
2	Remedial Investigation	$176,947.11
3	Field Documentation and Reporting	$61,297.84
	Total Estimate Budget (Tasks 1 - 3)	**$252,287.76**

Appendix D presents the detailed costs by task and subtask on the NYSDEC schedule 2.11.

General Assumptions:

- Work will be performed from April 2008 to mid-November 2008 (7.5 months).
- All costs are based upon the scope and schedule provided in this Work Plan. Costs associated with project delays or expedited schedules beyond CDM's control are not assumed.
- CDM will provide four hard copies by mail and one electronic file (pdf) by e-mail for each report submitted to the NYSDEC.

Task 1 - Work Plan Development:

- Only one site visit is assumed for this phase.
- Only one round of comments received concurrently is anticipated on draft deliverables. The review comments will be consolidated by NYSDEC. It is assumed that comments are minimal in nature and no re-evaluation is required. It is assumed that all comments can be addressed in 8 hours.
- Project management, subcontractor procurement, scheduling, budgeting, administrative activities are included in this task.
- A comprehensive Work Plan will be delivered to the Department submitted as a separate document.

- The Work Plan should include the description of the major tasks and sub-tasks to be performed including pertinent information to conduct field activities, potential areas of concern, analytical methods and sampling methods, a staffing plan identifying key and technical staff, identification of areas of subcontracting, work assignment budget, generic Health and Safety Plan, and Citizen participation Plan

- CDM's Generic QAPP has been previously submitted to NYSDEC; a copy of this document will not be submitted with the Work Plan.

Task 2 – Remedial Investigation:

- The Records Search report will identify potential sources of contamination (i.e. the reported sump and UST) and identify sample locations for follow up site characterization/remedial investigations.

- A notice to proceed must be received at least two (2) weeks prior to mobilization.

- Drilling, analytical, surveying (land and geophysical), data validation, and IDW disposal will be subcontracted.

- CDM will provide oversight during all field activities.

- CDM will implement the buddy system at all time during field activities (2 CDM personnel or 1 CDM personnel and subcontractor).

- No schedule delays are assumed due to inclement weather or equipment failure.

- Delays due to the site owner or public are not assumed.

- Only one mobilization/demobilization for drilling is assumed to be required.

- CDM assumes that all material and equipment staged in access areas will be removed to allow easy access to all sampling locations by the drilling equipment.

- Based on review of investigation report at adjacent former Charlton Cleaners property, it is assumed that groundwater monitoring wells will not require double casing, as no confining unit (greater than 15 feet thick) is expected to be encountered during hollow-stem augering.

- CDM assumes that monitoring well installation will take three (3) weeks.

- CDM assumes that well installation activities will not require permits, however, should it be determined that it is indeed necessary, CDM will make provisions to retain all necessary permits.

- No continuous air monitoring has been included in this cost estimate. One PID and one QRAE unit will be utilized for air monitoring purposes. A dust meter will be staged at each sub-slab soil vapor sampling point.

- For costing purposes, CDM assumes that soil samples will be collected from each of the 13 proposed monitoring well locations.

- Costs include one comprehensive round of synoptic water level measurements and groundwater sampling at the 13 proposed and up to 14 existing groundwater monitoring wells/piezometers.

- CDM assumes that groundwater sampling will take five (5) days.

- Groundwater and soil samples will be sent to an off-site laboratory to be analyzed for VOC by EPA Method 8260B and SVOC by EPA Method 8270C. Three (3) of these groundwater and soil samples collected will be analyzed for the Full List TCL/TAL+30, which includes VOC by EPA Method 8260B, SVOC by 8270C, Pesticides/PCBs by EPA Method 8081A/8082, and Metals by EPA Method ILM04.2. Should an alternate analytical method be requested by NYSDEC, requests should be made at least 10 working days before the scheduled sampling to avoid or minimize costs impacts.

- Costs include one sub-slab, indoor air, and indoor sump air sampling event in three (3) structures. It is assumed that no outdoor sumps will be identified during investigation activities.

- It is assumed that all three (3) structures sampled during the annual sub-slab and indoor air sampling event can be accessed during the same week.

- It is assumed that sub-slab and indoor air sampling will take place during the peak heating season or as deemed acceptable by the NYSDOH.

- CDM assumes that the sub-slab soil vapor and indoor air sampling will take no more than five (5) days.

- It is assumed that laboratory-grade helium will not be required for tracer testing conducted at the temporary sub-slab sampling ports.

- All sub-slab soil gas and indoor air samples will be analyzed by a NYSDOH approved ELAP certified laboratory. Air samples will be analyzed for VOC using EPA Method TO-15. Should an alternate analytical method be requested by NYSDEC, requests should be made at least ten (10) working days before the scheduled sampling to avoid or minimize costs impacts.

- It is assumed that up to 70 55-gallon drums of non-hazardous waste will be generated from field activities and require off-site disposal.

- It is assumed that NYSDEC will assist with arranging access to locations to stage IDW until characterization and disposal can be completed.

Task 3A and 3B - Field Documentation and Reporting:

- Only conference calls are anticipated to be necessary for this phase. Meetings are not assumed to be required for this task.

- Only one round of comments received concurrently is anticipated on draft deliverables. The review comments will be consolidated by NYSDEC. It is assumed that comments are minimal in nature and no re-evaluation is required. It is assumed that all comments can be addressed within 8 hours.

- During site work, digital photographs and field notes will be kept.

- It is assumed that no more than four (4) remedial alternatives will be evaluated and recommended.

- A combined Remedial Investigation/Feasibility Study Report will be developed including the finding of the Records Search, description of work conducted with field notes, photos, validated analytical data, figures, field measurements, summary tables, any recommendations for additional investigation, and outcome of feasibility study.

- Only one round of comments received concurrently is anticipated on draft deliverables. The review comments will be consolidated by NYSDEC. It is assumed that comments are minimal in nature and no re-evaluation is required. It is assumed that all comments can be addressed within one (1) week.

- It is assumed that the combined RI/FS Report will be sufficient to proceed to development of a Record of Decision.

Section 5
Staffing Plan

This project management organization for this project is to provide a clear delineation of functional responsibility and authority.

5.1 Program Manager – Michael A. Memoli, P.E., DEE

The primary responsibilities for program management activities rest with the Program Manager (PRM). The Program Manager, Mr. Memoli, will have ultimate contract responsibility for the project, including responsibility for the technical content of all engineering work. Mr. Memoli will direct, review and approve all project deliverables, schedule staff and resources, resolve scheduling conflicts and identify and solve potential program problems. He will be directly accountable to NYSDEC's Division of Hazardous Waste Remediation for program execution. He has authority to assign staff, negotiate and execute contracts and amendments, as well as execute subcontracts. The PRM will communicate directly with CDM's Project Manager.

5.2 Project Manager – David Keil, P.G.

The Project Manager, Mr. David Keil, will have the overall responsibility for the technical and financial aspects of this project. He will assign technical staff, maintain control of the project budget and schedule, prepare monthly progress reports, review and approve project invoices, evaluate the technical quality of the project deliverables as well as the adherence to QA/QC procedures and manage subcontractors. He will serve as CDM's point of contact for this project.

5.3 Program Quality Assurance Manager – Jeniffer M. Oxford

The Program Quality Assurance Officer, Ms. Jeniffer Oxford, will monitor QC activities of program management and technical staff, as well as identify and report needs of corrective action to the Program Manager. He will also conduct an internal review of all project deliverables prepared by CDM staff and sign off on the final investigation reports.

5.4 Health and Safety Officer – Christopher S. Marlowe, C.I.H., Q.E.P

The Program Health and Safety Officer, Mr. Chris Marlow, will review and make recommendations to the Subcontractors on health and safety plans for compliance with OSHA requirements. He will develop a Health and Safety plan for CDM and NYSDEC employees, handle over-sight activities, evaluate the performance of health and safety officers and maintain required health and safety records. He will report to the Program Manager

5.5 Project Geologist – Cristina Ramacciotti

The Project Geologist, Ms. Cristina Ramacciotti, will assist the Project Manager with the work plan draft and final, as well as general geologic tasks related to field work, subcontractor coordination, reporting, etc. She is directly accountable to the Project Manager.

5.6 Field Manager/Health and Safety Site Supervisor/Coordinator – Shawna Martinelli

The Field Manager, Ms. Shawna Martinelli, will be responsible for overseeing and coordinating field activities. This will include, but is not limited to: overseeing the installation of monitoring wells, coordinating drill work, coordinating work with other subcontractors and monitoring health and safety conditions in accordance with the approved Health and Safety Plan. She is directly accountable to the Project Manager.

As the Health and Safety Site Supervisor/Coordinator, she will be responsible for ensuring that the Health and Safety Plan is implemented during field activities and that a copy of the site-specific Health and Safety Plan are maintained at the site at all times. He/she is also responsible for upgrading or downgrading personnel protection based on actual conditions at the time of the investigation. The Coordinator must also present an overview of the Health and Safety Plan to field personnel prior to initiating any field activities and is responsible for insuring that field personnel sign off on this plan. She will contact the Program Health and Safety Officer if any questions or issues arise during the field activities that she cannot answer.

Section 6
Subcontracting

AppendixE presents a comparison of quotes from various subcontractors. CDM proposes to engage subcontractors to provide the following services for this work assignment:

6.1 Geophysical Survey (Utility Markout) – Naeva Geophysics, Inc.

At this time, CDM is proposing to use Naeva Geophysicas, Inc. to perform the geophysical survey work. They are located at 50 N. Harrison Street, Suite 11, Congers, New York, 10920.

6.2 Well Installation – Aztech Technologies, Inc.

At this time, CDM is proposing to use Aztech Technologies, Inc. (WBE) as the well installation subcontractor. They are located at 5 McCrea Hill Road, Ballston Spa, New York 12020.

6.2 Analytical Laboratory – ChemTech

At this time, CDM is proposing to use ChemTech (MBE) as the analytical laboratory subcontractor. They are located at 284 Sheffield Street, Mountainside, New Jersey, 07092.

6.3 Data Validation – Nancy Potak

At this time, CDM is proposing to use Nancy Potak (WBE) as the data validation subcontractor. She is located at 1796 Craftsbury Road, Greensboro, Vermont 05841.

6.4 M/WBE Reporting – Kenneth Shider

At this time, CDM is proposing to utilize Ken Shider (M/WBE consultant) to prepare the quarterly M/WBE reports that are required by NYSDEC.

6.5 Site and Topographic Survey – YEC, Inc

At this time, CDM is proposing to utilize YEC, Inc. (MBE) as the field technical support subcontractor. They are located at 612 Corporate Way, Valley Cottage, New York 10989. They will perform a site and topographic survey and is directly accountable to the Project Manager.

6.6 IDW Disposal – SeaCoast Environmental Services, Inc.

At this time, CDM is proposing to utilize SeaCoast Environmental Services, Inc. as the IDW disposal subcontractor. They are located at 716 Newman Springs Rd, PMB 292, Lincroft, NJ 07738.

Section 7
MBE/WBE Utilization Plan

To meet the requirements of the MBE/WBE program, CDM has prepared the following utilization plan:

Total Dollar Value of the work assignment	**$252,287.76**
MBE Percentage Goal	15%
MBE Dollar Value Goal	$37,843.16
WBE Percentage Goal	5%
WBE Dollar Value Goal	$12,614.39
Combined MBE/WBE Percentage Goal	20%
Combined MBE/WBE Dollar Value Goal	$50,457.55

Minority and woman-owned firms are expected to participate as follows:

Services to be Provided	Description of Services	Subcontractor Name and Contact Information	Proposed Subcontract Price
WBE - Drilling	Well Installation	Aztech Technologies, Inc. Matthew Darcangelo (518) 885-5383	$50,624.36
MBE - Laboratory Analysis	Vapor, Water and Soil Sample Analysis	ChemTech Joe Dockery (908) 789-8900	$29,564.85
M/WBE Quarterly Reports	M/WBE Quarterly Reports	Kenneth Shider (518) 269-2207	$600.00
MBE - Survey	Site and Topographic Survey	YEC, Inc Ed Chen (845) 268-3203	$11,703.58
WBE - Data Validation	DUSR	Nancy Potak (802) 533-9206	$3,028.20
		TOTAL	$95,520.96

TABLES

Table 2-1
Analytical Program Summary
former Paul Miller Dry Cleaners Site
Port Richmond, New York

Analytical Parameter	Sample Matrix	Number of Samples	Analytical Method	Field Duplicates (b)	MS/ MSDs	Field Blank/ Ambient Air Blank (b)	Trip Blanks (c)	Container	Sample Preservation	Holding Time
GROUNDWATER SAMPLES										
Volatile Organic Compounds	Groundwater	23	EPA 8260B	2	0	5	3	3 - 40ml clear glass vial with Teflon septum	HCl to pH <2; Cool to 4°C	14 days
Semi-volatile Organic Compounds	Groundwater	23	EPA 8270C	2	0	5	0	1000 ml amber glass bottle with teflon lined cap	Cool to 4°C	7/40 days
Full List CLP-TCL/TAL+30	Groundwater	3	EPA 8260B EPA 8270C EPA 8081A/8082 EPA SOW ILM04.2	0	1	0	0	3 - 40ml clear glass vial with Teflon septum; 1000 ml amber glass bottle with teflon lined cap; 1-500 ml plastic with plastic cap	HNO_3 < 2	180 days
SOIL SAMPLES										
Volatile Organic Compounds	Soil	9	EPA 8260B	1	0	12	12	3 - 40 ml glass VOC with plastic cap with Teflon septum with 25 ml methanol (prepared by lab)	Cool to 4°C	14 days
Semi-volatile Organic Compounds	Soil	9	EPA 8270C	1	0	12	0	1 - 8 ounce glass jar with plastic cap	Cool to 4°C	14 days
Full List CLP-TCL/TAL+30	Soil	3	EPA 8260B EPA 8270C EPA 8081A/8082 EPA SOW ILM04.2	0	1	0	0	3 - 40 ml glass VOC with plastic cap with Teflon septum with 25 ml methanol (prepared by lab); 1 - 8 ounce glass jar with plastic cap; 1 - 2 ounce glass jar with plastic cap	Cool to 4°C	180 days
SOIL VAPOR SAMPLES										
Volatile Organic Compounds (VOCs)	Air	12	EPA TO-15	2	0	2	0	1.4L SUMMA canisters with flow regulators		30 days

Notes:
(a) A minimum of 5% of all samples will be collected in duplicate.
(b) Field blanks are collected at a frequency of 1 per day.
(c) Trip blanks are collected at a frequency of 1 per sample cooler or 1 per every five days.

FIGURES

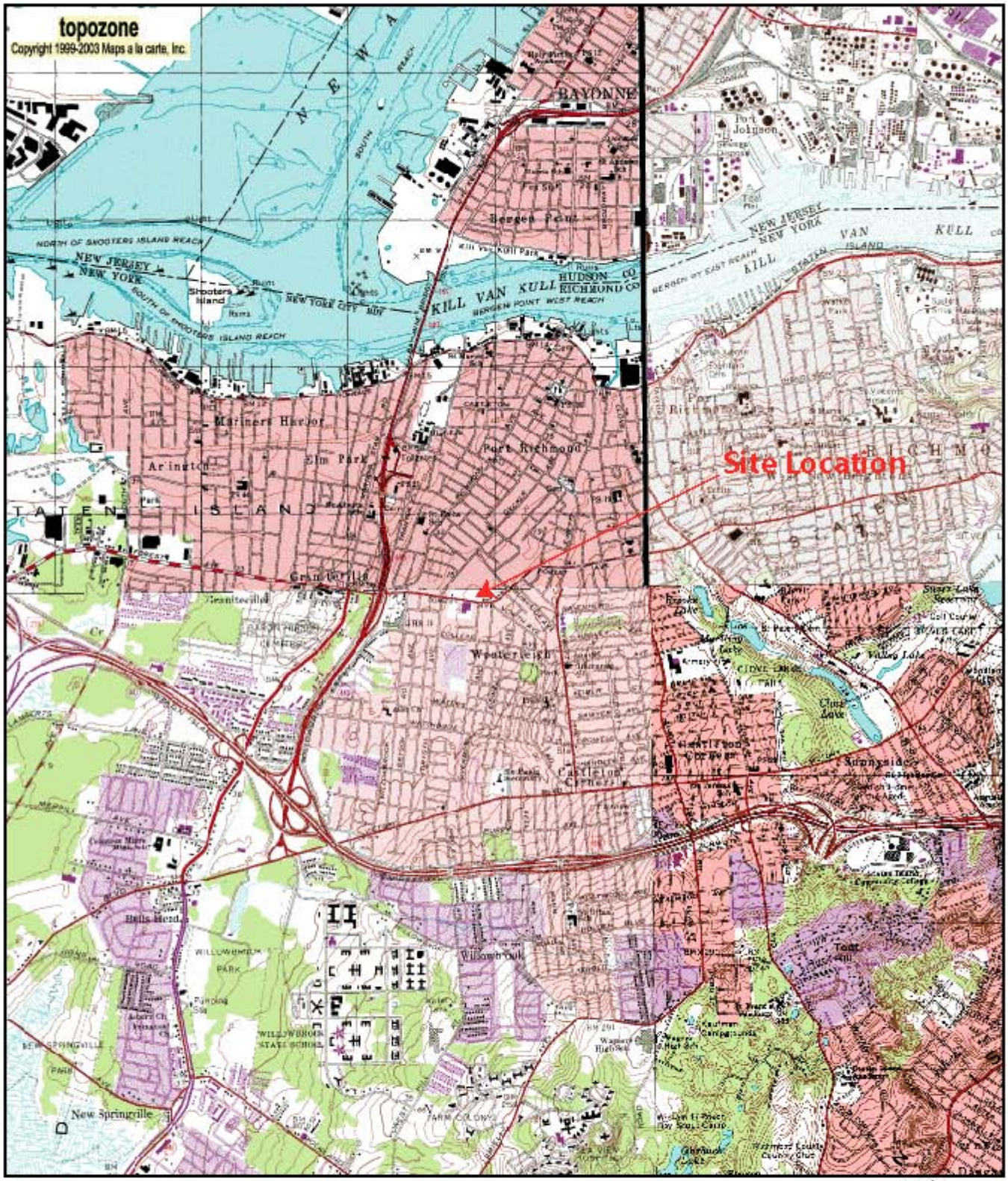


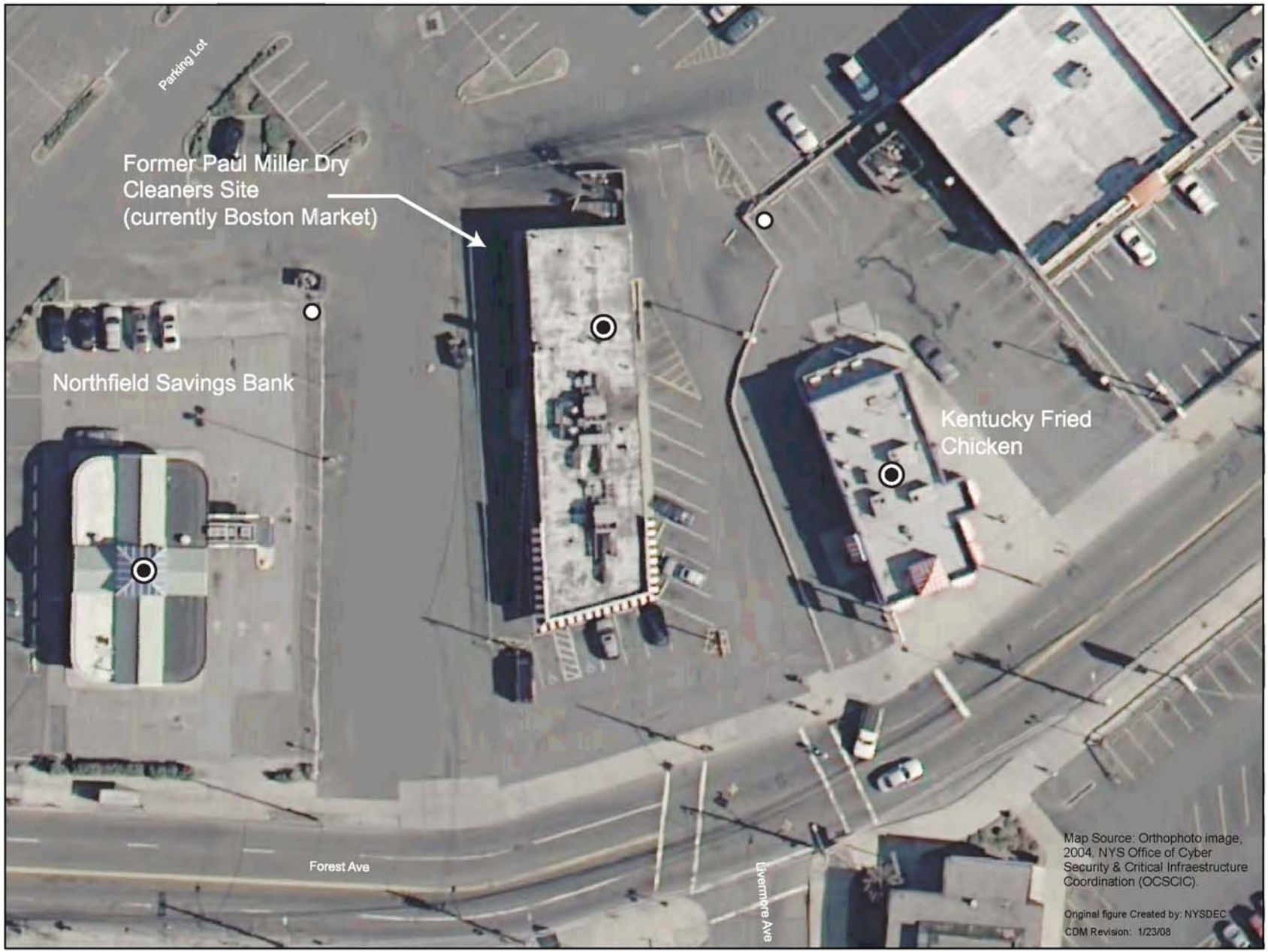
Figure 1-1
Site Location Map

0 0.6 1.2 1.8 2.4 3 km
0 0.4 0.8 1.2 1.6 2 mi

M=-13.046
G=0.562

UTM 18 573024E 4497258N (NAD27)
USGS Arthur Kill (NY,NJ) Quadrangle
Projection is UTM Zone 18 NAD83 Datum
www.topoozone.com

FIGURE 2-1
Proposed Monitoring Well Locations


Parking Lot
Former Paul Miller Dry Cleaners Site (currently Boston Market)
Northfield Savings Bank
Kentucky Fried Chicken
Forest Ave
Livermore Ave
Map Source: Orthophoto image, 2004. NYS Office of Cyber Security & Critical Infraestructure Coordination (OCSCIC)
Original figure Created by: NYSDEC
CDM Revision: 1/23/08
N
W
E
S
FIGURE 2-2
Proposed Vapor Intrusion Investigation Sampling Locations
Site No.:
243018
Site Name:
Former Paul Miller Dry Cleaners
Site Address:
1465 Forest Avenue
Staten Island, NY 10301
LOCATIONS NOT TO SCALE
Outdoor Ambient Air Locations
Sub-Slab Soil Vapor/ Indoor Air/ Sump Sample Locations
0
50
Feet