Work Plan

Brownfield Cleanup Program
Remedial Investigation
Downtown Yonkers
River Park Center Project
City of Yonkers
Westchester County,
New York

BCP Site #C360083

January 2007

S&W Redevelopment
of North America, LLC

WORK PLAN

BROWNFIELD REMEDIAL INVESTIGATION
DOWNTOWN YONKERS RIVER PARK CENTER PROJECT
CITY OF YONKERS
WESTCHESTER COUNTY, NEW YORK

Prepared for

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Project No N6007

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SECTION 1 - INTRODUCTION

This document presents a Remedial Investigation (RI) Work Plan for multiple contiguous parcels located in the City of Yonkers, New York, which have been combined under the New York State Brownfield Cleanup Program (BCP) into a single BCP site (Site No. C360083). Figure 1-1 shows the location of the site.

The site is comprised of 57 separate tax parcels (Figure 1-2), virtually all of which have been the subject of either an area-wide Phase I Environmental Site Assessments (ESA), or an individual parcel Phase I ESA. The Phase I ESAs indicate that a variety of potential contaminants are likely to be present across the site. Historic industrial use within the site boundary includes several hat factories, leather factories, and chemical dye manufacturers. Smaller interspersed facilities, some still present, include auto repair, dry cleaners, and gasoline service stations.

It has been proposed that the site be redeveloped into a mixed use retail, residential, office and baseball stadium complex. Struever Bros. Eccles & Rouse, Inc. has created an LLC, Struever Fidelco Cappelli LLC, to lead this redevelopment effort, which was officially named the "Downtown Yonkers River Center Project". The completed project will include a 6,500 seat minor league baseball park with adjacent retail space. Parking will be accommodated on and off site.

The site's long history of industrial use, which spans over 150 years, raises the prospect that contaminants are present, which potentially complicate the planned redevelopment of the site. Because contamination may have migrated by groundwater across the boundaries of individual parcels within the site, the few historically undeveloped or non-industrial parcels within the site boundary may also have been contaminated by neighboring industrial sites.

This RI Work Plan has been prepared in accordance with the Brownfield Cleanup Agreement (BCA) between the volunteer/developer Struever Fidelco Cappelli, LLC, who are in the process of acquiring all of the parcels within the BCP Site boundary, and the New York State Department of Environmental Conservation (NYSDEC). NYSDEC's BCP is promulgated in Article 27, Title 14 of the Environmental Conservation Law (ECL). Under the BCP, a Brownfield Site Investigation must be completed in

accordance with NYSDEC's draft *Brownfield Cleanup Program Guidance* and *Technical Guidance for Site Investigation and Remediation* (DER-10), to provide a systematic assessment of environmental conditions on the property. In accordance with BCP guidance, the volunteer's objective of the investigation is to define the nature and extent of contamination on-site, identify contaminant source areas, and produce data of sufficient quantity and quality to complete on- and off-site exposure assessment.

The completed RI will support the development of an acceptable Remedial Action Work Plan (RAWP), which will select a remedy for the site that is protective of public health and the environment, taking into account the current, intended, and reasonably anticipated future use of the site.

SECTION 2 - PROJECT BACKGROUND

2.1 - SITE DESCRIPTION

The BCP site consists of approximately 12 acres, within a wedge-shaped area bounded by New Main Street (west), Palisade Avenue (north), and Nepperhan Avenue (south and east). New School Street bisects the site north-to-south, connecting Palisade and Nepperhan Avenues.

One- and two-story buildings, occupied by various retail businesses, restaurants, and offices, line New Main Street and Palisade Avenue, west of School Street. Behind these buildings, toward the interior of the site, is primarily open paved space used for parking. East of School Street are several commercial/industrial buildings, which include an automotive repair facility, a gasoline service station, construction equipment/vehicle storage, and the city's Engine No. 1 Fire Department Headquarters. The Sawmill River bisects the site east of School Street, and is channeled below the portion of the site west of School Street.

Site topography is generally flat. A 1998 USGS 7.5 minute topographic map of the Yonkers quadrangle reveals that the site elevation is approximately 40 feet above mean sea level.

2.2 - SITE GEOLOGY/HYDROGEOLOGY

Unconsolidated soil ("overburden") in the general vicinity of Yonkers consists of a mixture of glacial till, sand, gravel, and clay deposits. Limited site-specific information is obtained from a previous subsurface investigation completed at a nearby property at 78 and 90-92 Elm Street (Warren and Panzer, November 2004). Soils encountered in soil borings consisted of brown to black fine to medium sand mixed with variable amounts of gravel.

A geotechnical investigation indicates that bedrock at the site is approximately 30 feet below ground surface (bgs) across much of the site, but visible outcrops are also present which indicates depth to bedrock is generally variable. The principal bedrock types of the area include schist, limestone, and gneiss.

The site-specific hydrogeology will be determined by the RI. Preliminary information from the geotechnical boring investigation indicates groundwater exists at 6 to 9 feet bgs. It is anticipated that overburden groundwater flows locally towards the Saw Mill River channel. The presence of mixed historical fill and building foundations is likely to cause localized departures from this presumed flow pattern.

2.3 – SITE HISTORY

The site has been developed since at least the mid 1850s. From 1889 until the present, the perimeter properties have been occupied by 1 and 2 story wood framed and brick retail/commercial type buildings. The interior portion of the site that is presently a parking lot was at one time occupied by larger industrial businesses including hat factories, a brewery, and a contractor's yard. Other smaller buildings within the interior of the site consisted of garages, carpenter shops, auto repair businesses, wagon sheds, a laundry business, a bakery, etc. Most of these structures were demolished sometime between 1942 and the late 1950's and replaced with the current parking lot.

There is little current quantitative information for the site relative to the presence of contamination, but due to the site's history it is anticipated that there are areas of contamination present with respect to various organic and inorganic contaminants. In particular, mercury contamination may be present from historic hat factory operations. Aside from this general history of industrial use, previous Phase I Environmental Site Assessments performed by Advanced Cleanup Technologies, Inc. and S&W Redevelopment of North America, LLC, indicate past incidents involving petroleum spills that may have potentially caused contamination. These Phase I reports have been provided to NYSDEC, as an appendix to the Volunteer's BCP application for the site.

Past petroleum spills were identified at 127-129 New Main Street as well as spills at adjacent properties on Palisade Avenue. The Yonkers Fire Station located at 5-7 New School Street also has a history of petroleum spills. In addition to spill data, visual evidence of USTs (fill and vent pipes) was identified during Phase I site inspections.

SECTION 3 - REMEDIAL INVESTIGATION SCOPE

The Remedial Investigation (RI) completed for this site will balance the need to systematically investigate numerous potential sources of contamination with that of providing a site-wide "big picture" understanding of its nature and extent. The RI approach takes into account that an Interim Remedial Measure (IRM) will also be undertaken at the site during RI activities, pursuant to an NYSDEC-approved IRM Work Plan. Conducting the IRM concurrent with the RI will supplement the findings of the RI, and will also improve site conditions to facilitate the RI. For example, a significant amount of historic fill and rubble is present in the upper 10 to 12 feet of the site, which may be removed in some instances by the IRM and enable the RI to proceed.

The RI will be focused on a broad-based evaluation of the nature and extent of contamination, particularly for on-site groundwater. Concurrent with the RI, the IRM will be conducted in areas where contaminant sources are either known to be present or likely to exist. The IRM objective will be to remove contaminant sources and contaminated media that are easily addressed without the need for further investigation. This may include underground storage tanks, former pump islands, drums, and grossly contaminated soil and groundwater that may be present. Following RI and IRM activities, other areas that may require remediation will be addressed in a Remedial Action Work Plan (RAWP).

Since there are likely to be multiple contaminant sources at the site, the IRM Work Plan will establish a methodology for dealing with each source or area of contaminated soil as site work for construction is carried out. The IRM Work Plan describes control measures that will be taken, including community air monitoring, sediment and erosion control, and storm water management, as IRM work takes place.

The IRM will verify and remove known contaminant sources within the site boundary along with contaminated soil, and those that are discovered during the RI as appropriate to prevent, mitigate, or remedy environmental damage or consequences of environmental damage attributable to the site. The main objectives of the RI will be to:

- Determine the nature and extent of contamination in soil and groundwater;

- Establish the direction of groundwater flow across the site in order to evaluate the potential for off-site migration and exposure;
- Evaluate potential contamination to the Saw Mill River that may have occurred historically from the site;
- Determine if remedial action beyond the completed IRM will be necessary.

3.1 - SOIL AND GROUNDWATER INVESTIGATION

Groundwater monitoring wells will be installed around the site boundary and within its interior. The proposed approach will be to install perimeter monitoring wells first, to verify the direction of groundwater flow and provide an initial characterization of potential groundwater contaminants. This will be followed by a phase of groundwater monitoring wells installed in the interior of the site. Figure 2-1 shows the proposed locations of groundwater monitoring wells. Note that the locations and number of proposed interior groundwater monitoring wells may be subject to change based on the findings from the first phase of perimeter installations.

Previous field investigation efforts have revealed an extensive boulder field underlying much of the site. The prevalence of boulders precludes traditional hollow stem auger or direct push methods for soil boring and monitoring well installation. Drilling for the monitoring wells will be completed by air rotary methods. Descriptions of drill cuttings, which are expected to be primarily rock fragments, will be recorded by a hydrogeologist in a soil boring log, including descriptions of color, moisture content, apparent rock type, and PID readings.

The air rotary drilling method will not permit the collection of soil samples for analysis. However, the most of the subsurface material at the majority of drilling locations is expected to be rock. If drilling at a particular location indicates unconsolidated soil is primarily present, then soil samples may be collected from those particular areas either by means of test pits or by hollow stem auger methods. These supplemental test pits and/or soil borings will be completed as necessary following the installation of the monitoring wells, with NYSDEC concurrence.

Soil samples that are collected for laboratory analysis from test pits or hollow stem auger borings will be selected based on field screening observations, including visual observation, a determination of odor, and screening with a PID.

Monitoring wells will be constructed in each soil boring, and consist of 2-inch diameter PVC, with a sand filter pack, bentonite seal, and a bolt-down protective cover cemented in place at ground surface. Following well completion, each monitoring well will be developed to reduce suspended sediments (i.e. turbidity) by removing a minimum of ten (10) volumes of water.

Groundwater samples will be collected from each monitoring well at least one week following installation. Prior to sampling, the depth to groundwater will be measured and recorded, and each well will then be purged of three (3) volumes of water. Field parameters will be measured, including pH, Eh, turbidity, and specific conductance.

The soil and groundwater samples collected will be analyzed for volatile organic compounds (VOCs by 8260), semivolatile organic compounds (SVOCs by 8270), PCBs (by 8082), pesticides (by 8081), and target analyte list (TAL) metals (6010/7471/7470).

Groundwater that is purged from groundwater monitoring wells during wells development and prior to sampling, and storm water that may occasionally collect in test pits, will be appropriately managed during the RI as necessary to prevent the spread of groundwater contamination and to facilitate removal of contaminated soil or contaminant sources that may exist below the water table.

If any test pits are dug as part of the RI, the objective will be to backfill immediately after confirmatory samples are collected, to minimize the time of open excavation. Water that accumulates in the bottom of excavations will be removed as it accumulates by means of vaccum trucks for immediate off-site transport and disposal, or by a transfer pump for temporary on-site storage in a skid-mounted tank. The use of either a vacuum truck or a storage tank will be determined as the RI is conducted.

3.2 - CONTINGENCY SOIL BORINGS/MONITORING WELLS

Additional soil borings and/or monitoring wells may be installed based on field observations, as needed to further delineate soil and/or groundwater contamination. Up to ten (10) contingency borings or wells may be installed if field observations indicate the presence of contamination which cannot be adequately defined based on the specifically proposed number of borings/wells. The need for and locations of the proposed contingency soil borings/wells will be mutually determined by the Volunteer, NYSDEC, and SWRNA.

3.3 - RIVER INVESTIGATION

The Saw Mill River is a tributary of the Hudson River that flows through the city of Yonkers. It flows south from marshlands upstream of Yonkers, paralleling the Saw Mill River Parkway for much of its length. It empties into the Hudson River at Dock Street in Yonkers after traveling underground for approximately 2000 feet.

Approximately 990 feet of the Saw Mill River flows through the BCP site. Of this stretch, approximately 230 feet of the upstream segment, east of School Street, is open, and the 760 foot segment downstream of School Street is bridged and covered.

Potential sources of pollution to the river include runoff from residential and commercial development and roads such as the Saw Mill Parkway, Saw Mill River Road and public streets; sewage overflows from the Saw Mill River Pump Station of Mount Kisco; and numerous untreated discharges from residential, commercial and industrial facilities in the watershed. The BCP site probably has caused contamination to the river on a more localized scale.

The river will be investigated as part of the RI, by collecting water and sediment samples from along its course through the BCP site. Seven sampling locations are proposed along the river's course across the site (Figure 2-1). One surface water and one sediment sample will be taken from each location, concurrent with soil, groundwater, and soil vapor sample are collection, which is to occur in the winter of 2007. Locations include upstream water and sediment samples collected adjacent to Elm Street, a downstream water/sediment sample at Palisade Avenue where the river exists the site, and five

midstream samples as indicated on Figure 2-1. The water and sediment samples collected will be analyzed for VOCs (8260), SVOCs (8270), PCBs (8082), pesticides (8081), and TAL metals (6010/7471/7470).

In addition to this sampling program, groundwater monitoring wells positioned around the river will assist in determining groundwater-surface water interactions at the site, and the potential for groundwater contaminants to impact the river.

The impact of site contamination on the river water and sediment will be evaluated by comparing upstream, midstream, and downstream river data. These impacts will also take into account the presence of groundwater contamination data to determine whether groundwater seepage, or surface runoff, or both, appear to contribute to river water and sediment quality at the site.

3.4 - SOIL VAPOR SURVEY

A soil vapor survey will be completed to determine whether soil vapor contamination exists at the site boundary and evaluate its potential to migrate off site. Figure 2-1 shows the proposed soil vapor survey locations.

The soil vapor survey will be conducted in accordance with the NYSDOH *Guidance for Evaluating Soil Vapor Intrusion in the State of New York* (February 2005). The soil vapor sampling program will utilize a 1 microgram per cubic meter detection limit for VOCs, by USEPA method TO-15.

3.5 - HUMAN HEALTH EXPOSURE ASSESSMENT

A qualitative human health exposure assessment will be performed to qualitatively evaluate whether the site poses a potential hazard to the surrounding population. The Exposure Assessment will be completed in accordance with the New York State Department of Health's Qualitative Human Health Exposure Assessment guidance document. Sampling data will be reviewed along with the physical conditions of the contaminant sources or physical hazards near the site, which may pose a health risk to the community. Potential on-site and off-site exposures will be evaluated. The Exposure Assessment will describe the nature and size of the population exposed, or potentially

exposed, to the contaminants that are present at, or migrating from, the site and will characterize the exposure setting, identify exposure pathways, and evaluate contaminant fate and transport.

Site contaminants will be selected for further evaluation based upon consideration of concentrations of contaminants in environmental media both on-site and off-site, field data quality, laboratory data quality and sampling design, and comparison of on-site and off-site contaminant concentrations in environmental media with typical background levels.

Several objectives will be met by the exposure assessment. First, applicable site information and characterization data for environmental media of concern will be evaluated. Applicable NYSDEC guidance, including NYSDEC TAGM 4046 for soil and Class GA groundwater regulations for groundwater, will be used for purposes of identifying site contaminants of concern (COCs).

An assessment of current and future site activities and site use will be conducted in relation to potential human exposure. Next, potential exposure pathways will be identified, and each element of the exposure pathway will be evaluated. Soil and groundwater contamination will be addressed.

3.6 - FISH AND WILDLIFE IMPACT ANALYSIS

A Fish and Wildlife Impact Analysis (FWIA) will be completed to evaluate contaminant migration pathways and identify fish and wildlife exposure pathways, if any exist. The FWIA will identify fish and wildlife resources that may potentially come into contact with site contaminants. The FWIA will qualitatively determine the route, intensity, frequency, and duration of actual or potential exposures to chemicals, describe the nature and size of the population exposed to the contaminants that are present at or migrating from the site and characterize the exposure setting, identify exposure pathways, and evaluate contaminant fate and transport.

3.7 - DUSR

Following the completion of the laboratory analysis program, a Data Usability Summary Report (DUSR) will be completed, and included as part of the RI Report. The DUSR will include available datasets from previous investigations, as well as data from this phase of site characterization. The DUSR is carried out as specified in DER-10 to evaluate the quality control measures that were implemented during the field and laboratory analytical programs, with the objective of determining whether the reported analytical data are representative and usable for decision making. The DUSR will evaluate whether the data are technically defensible (i.e. were all analytical requirements met and documented). Data usability analysis reviews the site data to determine whether they are adequate to draw conclusions regarding the nature and extent of contamination.

The items that will be reviewed as part of the DUSR will include the following:

- Completeness (number of samples collected and analyzed compared to plans)
- Chain of custody complete and accurate
- Holding times
- Instrument calibration
- Relative percent difference between field duplicates
- Reasonableness of data (e.g. relationships between total and soluble analytes)
- Blank contamination

The DUSR will be conducted in accordance with guidelines provided under Appendix 2B of DER-10.

3.8 - RI REPORT

Following the completion of the proposed sampling, analysis, and data evaluation, a Remedial Investigation (RI) Report will be prepared that presents the findings of the investigation. The following information will be included in the RI Report.

- Technical overview describing objectives and methods of the RI and site characteristics

- Discussion of standards, criteria, and guidance (SCGs) that pertain to the sampled site media
- Discussion of contaminant sources identified and the nature and extent of contamination
- Discussion of migration and fate of contamination
- Human health exposure assessment
- Fish and wildlife impact analysis
- Discussion of IRM work will be summarized in the RI Report
- Conclusions and recommendations

SECTION 4 – PROJECT SCHEDULE

The following is a schedule of activities for completing the RI and IRM programs, and the subsequent preparation of a Remedial Action Work Plan (RAWP).

BCP Task	Jan	Feb	Mar	Apr	May	Jun
RI/IRM Work Plan Approval [1]						
RI Field Sampling Program [2]						
IRM Field Work						
Laboratory Analysis and DUSR						
Prepare RI and IRM Reports						
Prepare RAWP [3]						
Public Comment Period & NYSDEC Approval						

Notes:

1. Work Plan approval subject to 30 day public comment period.
2. Scope of work defined in Sections 3.1 through 3.4 of RI Work Plan.
3. RAWP approval subject to 45 day public comment period.

SECTION 5 - PROJECT ORGANIZATION

Name	Company	Project Position	Address	Phone Number
Terence W. Maliga	S&W Redevelopment	Brownfield Project Manager	430 East Genesee Street, Syracuse NY 13202	(315) 422-4949
David W. Stoner	S&W Redevelopment	Brownfield Project Principal	430 East Genesee Street, Syracuse NY 13202	(315) 422-4949
Daniel P. Ours	S&W Redevelopment	Remedial Investigation Program Manager	430 East Genesee Street, Syracuse NY 13202	(315) 422-4949
Allison Menges	S&W Redevelopment	Remedial Investigation Field Team Leader	430 East Genesee Street, Syracuse NY 13202	(315) 422-4949
Joseph Apicella	Struever Fidelco Cappelli LLC	Volunteer Contact	115 Stevens Ave Valhalla, NY 10595	(914) 769-6500
Matthew Hubicki	NYSDEC	Project Manager	625 Broadway, 11th Floor Albany, NY 12233	(518) 402-9564
Anthony Peretta	NYSDOH	Project Manager	547 River Street, Room 300 Troy, NY 12180	(518) 402-7850

SECTION 6 - QUALITY ASSURANCE / QUALITY CONTROL

Quality Assurance and Quality Control (QA/QC) is addressed in the Quality Assurance Project Plan (QAPP) included as Appendix A. The QAPP outlines procedures to be followed for sampling and analysis to ensure quality of the results. A DUSR will be prepared with the final reports to document the reliability of the sample results.

SECTION 7 - HEALTH AND SAFETY

A site-specific HASP has been prepared for S&W Redevelopment employess involved in RI field work, and is included as Appendix B. The respective employers of all on-site personnel and visitors involved in the RI will be required to provide a HASP for their employees, to be read prior to entry of the Site.

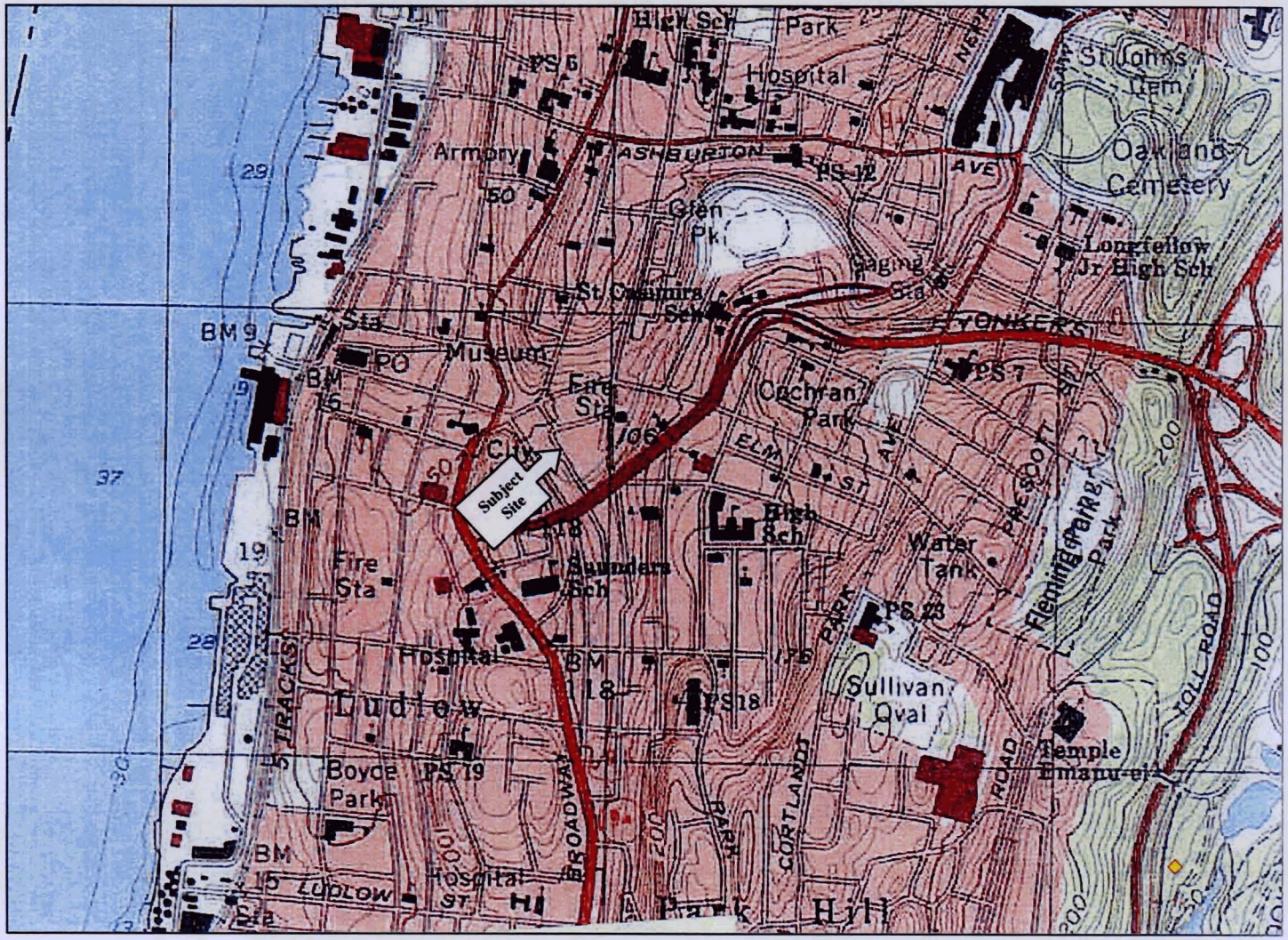
SECTION 8 - COMMUNITY AIR MONITORING

A Community Air Monitoring Plan (CAMP) is provided as Appendix C, in accordance with DER-10 requirements for remedial investigation. The CAMP sets forth air monitoring procedures that will be utilized to measure airborne emissions during the RI, in order to minimize the release of contaminants to off site areas.

SECTION 9 - CITIZEN PARTICIPATION

Citizen participation activities will be performed pursuant to the Citizen Participation Plan (CPP) and throughout the RI and IRM process to involve and inform the public of planned site activities. The specific citizen participation activities to be performed are outlined in the CPP, which has been submitted as a separate document.

Figures



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BCP SITE # C360083
CITY OF YONKERS, NEW YORK

FIGURE 1-1
SITE LOCATION

Types of Contaminants By Tax Parcel

- Petroleum
- Solvents
- Metals
- USTs (known or suspected)

PALISADE AVE
ELM ST
SCHOOL STREET
JOHN ST
ANN ST
NEW MAIN STREET
NEPPERHAN AVENUE
NEPPERHAN AVENUE

Tire Shop (1956, 1957, 1971, 1973, 1978)
Tinsmith (1886)
Gasoline USTs (1951, 1956)
EPA Mobile Lab Metals
Gas Station USTs
Hat Factory Dye House (1886)
Leather Factory (1886, 1889) Hat Factory (1917, 1942) Cotton Processing (1951, 1956)
Leather Factory with Coal House (1886, 1889, 1917)
Hat Factory (1886)
Laundry (1886)
Bottling Factory (1886, 1898, 1917)
Chemical Dye Manufacturing Plant (1971, 1973, 1978, 1989, 1991)
Industrial Canal (1886)
Auto Repair Gasoline Tanks (1951, 1956)
Brewery (1898, 1917)
Fire Dept.
Print Factory (1917)
Leather Factory (1886)
Print Shop

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FIGURE 1-2
BCP SITE BOUNDARY

Note: Up to 10 additional monitoring wells/borings may also be installed, in addition to ones depicted in Figure, as contingency wells/borings in accordance with RI Work Plan.

Legend

0 250 ft

- BCP Site Boundary
- Proposed Perimeter Monitoring Well (First Phase)
- Proposed Interior Monitoring Well (Second Phase)
- Proposed Water/Sediment Sample
- Proposed Soil Vapor Sample
- Potential Contamination (see Figure 1-2)

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FIGURE 2-1
BROWNFIELD INVESTIGATION SAMPLING PLAN

APPENDICES

Appendix A
Quality Assurance Project Plan

SECTION 1

PROJECT DESCRIPTION

A Remedial Investigation (RI) will be completed at fifty five (55) contiguous parcels located in the city of Yonkers, New York. The parcels have been combined under the New York State Brownfield Cleanup Program (BCP) into a single BCP site (Site No. C360083. See Figure 2-1 of RI Work Plan). It has been proposed that the site be redeveloped into a mixed use retail/housing/hotel and baseball stadium complex. Struever Bros. Eccles & Rouse, Inc. has created an LLC, Struever Fidelco Yonkers LLC, to lead this redevelopment effort, which has been named the "Downtown Yonkers Ballpark Project". The completed project will include a 6,500 seat minor league baseball park with adjacent retail space. Parking will be accommodated on- and off-site.

Phase I Environmental Site Assessments (ESAs) that were done at several of the parcels indicate that a variety of potential contaminants are likely to be present across the BCP site. An RI Work Plan has been prepared, in accordance with the Brownfield Cleanup Agreement (BCA) between the volunteer/developer Struever Fidelco Yonkers, LLC and the New York State Department of Environmental Conservation (NYSDEC), to provide a systematic assessment of environmental conditions on the property. This Quality Assurance Project Plan (QAPP) is presented as part of the RI Work Plan to define the methods, operating procedures, and quality control measures that will govern the conduct of the RI.

SECTION 2

PROJECT ORGANIZATION

The RI will be conducted by S&W Redevelopment of North America, LLC (SWRNA), on behalf of the BCP volunteer/applicant, Struever Fidelco Yonkers, LLC. The organization of SWRNA's key project management and field staff, and respective areas of responsibility, is presented below.

Project Principal	David W. Stoner, C.P.G.	Provide technical and administrative oversight and guidance throughout the project, assist in securing company resources, participate in technical review of deliverables, and attend key meetings as needed.
Principal Engineer	Damian J. Vanetti, P.E.	Provide technical guidance and review of reports, analytical data. Will have key involvement in screening and development of remedial alternatives.
Project Manager	Terence W. Maliga	Responsible for maintaining the day-to-day schedule for completing the fieldwork and deliverables according to BCP program requirements and client expectations.
Remedial Investigation Program Manager	Daniel P. Ours	Responsible for coordinating and directing field efforts of SWRNA staff and subcontractors, and for maintaining that work is done according to QAPP specifications.
Field Team Leader	Allison Menges	Responsible for overseeing field work during the RI, including observing subcontractors, maintaining filed notes, and collecting samples of various environmental media, in accordance with the NYSDEC-approved Work Plan.

SECTION 3

QA/QC OBJECTIVES FOR MEASUREMENT OF DATA

In cases where NYSDOH ELAP Certification exists for a specific group or category of parameters, the laboratories performing analysis in connection with this project will have appropriate NYSDOH ELAP Certification. For analysis of samples where Analytical Service Protocol (ASP, June 2000) Category B deliverables are required, NYSDOH ELAP CLP certification is required.

Detection limits set by NYSDEC-ASP (June 2000) will be used for all sample analyses unless otherwise noted. If NYSDEC-ASP-dictated detection limits prove insufficient to assess project goals (i.e., comparison to drinking water standards or attainment of ARARs), then ASP Special Analytical Services (SAS) or other appropriate methods will be utilized.

The quality assurance/quality control objectives for all measurement data include completeness, representativeness, comparability, precision and accuracy.

COMPLETENESS

The analyses performed must be appropriate and inclusive. The parameters selected for analysis are chosen to meet the objectives of the study.

Completeness of the analyses will be assessed by comparing the number of parameters intended to be analyzed with the number of parameters successfully determined and validated. Data must meet QC acceptance criteria for 100 percent or more of requested determinations.

REPRESENTATIVENESS

Samples must be taken of the population and, where appropriate, the population will be characterized statistically to express the degree to which the data accurately and precisely represent a characteristic of a population, parameter variations at a sampling point, a process, or environmental condition.

Non-dedicated sampling devices will be cleaned between sampling points by washing and rinsing with pesticide-grade methanol, followed by a thorough rinse with distilled water. Specific cleaning techniques are described in the Field Sampling Procedure. Two types of blank samples will accompany each sample set where Target Compound List (TCL) volatiles are to be analyzed (water matrix only). A trip blank, consisting of a 40 ml VOA vial of organic-free water prepared by the laboratory, will accompany each set of sample bottles from the laboratory to the field and back. This bottle will remain sealed throughout the shipment and sampling process. This blank will be analyzed for TCL volatile organic compounds along with the groundwater samples to ensure that contamination with TCL volatile compounds has not occurred during the bottle preparation, shipment and sampling phase of the project. In order to check for contaminant carryover when non-dedicated sampling equipment is used, a rinsate blank will be submitted to the laboratory. This blank will also be analyzed for TCL volatile organic compounds. The TCL compounds are identified in the United States Environmental Protection Agency (USEPA) Contract Laboratory Program dated 7/85 or as periodically updated.

The analysis results obtained from the determination of identical parameters in field duplicate samples can be used to further assess the representativeness of the sample data.

COMPARABILITY

Consistency in the acquisition, preparation, handling and analysis of samples is necessary in order for the results to be compared where appropriate. Additionally, the results obtained from analyses of the samples will be compared with the results obtained in previous studies, if available.

To ensure the comparability of analytical results with those obtained in previous or future testing, all samples will be analyzed by NYSDEC-approved methods. The NYSDEC-ASP mandated holding times for various analyses will be strictly adhered to.

PRECISION AND ACCURACY

The validity of the data produced will be assessed for precision and accuracy. Analytical methods which will be used include gas chromatography/mass spectrometry (GC/MS), gas chromatography (GC), colorimetry, atomic spectroscopy, gravimetric and titrametric techniques. The following outlines the procedures for evaluating precision and accuracy, routine monitoring procedures, and corrective actions to maintain analytical quality control. All data evaluations will be consistent with NYSDEC-ASP procedures (June 2000). Data will be 100 percent compliant with NYSDEC-ASP requirements.

The requirements of QA/QC are both method specific and matrix dependent. The procedures to be used are described on this basis in Sections 6 and 9. The number of duplicate, spiked and blank samples analyzed will be dependent upon the total number of samples of each matrix to be analyzed, but there will be at least one split per matrix. The inclusion and frequency of analysis of field blanks and trip blanks will be on the order of one per each site. Samples to be analyzed for volatile organic compounds will be accompanied by trip and field blanks (water matrix) or field blanks (soil, sediment matrice).

Quality assurance audit samples will be prepared and submitted by the laboratory QA manager for each analytical procedure used. The degree of accuracy and the recovery of analyte to be expected for the analysis of QA samples and spiked samples is dependent upon the matrix, method of analysis, and compound or element being determined. The concentration of the analyte relative to the detection limit is also a major factor in determining the accuracy of the measurement. The lower end of the analytical range for most analyses is generally accepted to be five times the detection limit. At or above this level, the determination and spike recoveries for metals in water samples will be expected to range from 75 to 125 percent. The recovery of organic surrogate compounds and matrix spiking compounds determined by GC/MS will be compared to the guidelines for recovery of individual compounds as established by the United States Environmental Protection Agency Contract Laboratory Program dated 7/85 or as periodically updated.

The quality of results obtained for inorganic ion and demand parameters will be assessed by comparison of QC data with laboratory control charts for each test.

SECTION 4

SAMPLING PROCEDURES

SAMPLING PROGRAM

The sampling program for this project will include surface water, groundwater, soil, sediment, and soil vapor. Soil samples will be collected from split spoon sampling devices retrieved from soil borings. Groundwater samples will be collected from groundwater monitoring wells. Sediment and surface water samples will be collected as grab samples from pre-determined locations along the Saw Mill River, which bisects the site. Soil vapor samples will be collected from soil vapor monitoring wells.

A. **Drilling/Sampling Procedures.** Groundwater and soil vapor samples will be collected by installing groundwater and soil vapor monitoring wells in soil borings. Field reconnaissance indicates an extensive boulder field exists across the majority of the site, which prohibits conventional hollow stem auger or direct push drilling methods. Accordingly, air rotary drilling methods will be used to complete the soil borings.

In direct rotary air drilling, air is pumped down a drill pipe and escapes into the borehole through holes in the bit. As the bit turns, it grinds the cuttings into small pieces, which the compressed air carries to the top of the borehole.

Drill cuttings returned to the surface that are comprised primarily of rock fragments will not undergo laboratory analysis. However, the cuttings will be examined in the field by a SWRNA hydrogeologist and descriptions will be recorded in a soil boring log.

Soil samples may be collected in specific areas following the installation of the monitoring wells, if it determined that specific site areas are not underlain by boulders. These soil samples would be collected using either hollow stem auger methods or from test pits, as jointly determined by SWRNA and NYSDEC (see Subsection E below).

A soil profile description will created by the SWRNA field geologist based on the subsurface material that is encountered at each boring location, following the New York State Soil Description Procedure.

The drilling contractor will be responsible for obtaining accurate and representative samples, informing the geologist of changes in drilling pressure, keeping a separate general log of soils encountered.

B. Monitoring Well Completion. Monitoring wells will be constructed of 10 feet of .010-inch slot size PVC well screen and riser casing. Other materials utilized for completion will be washed silica sand (Q-Rock No. 4 or approved equivalent) bentonite grout, Portland cement, and a protective steel locking well casing and cap with locks.

The monitoring well installation method for wells installed within unconsolidated sediments shall be to place the screen and riser assembly into the casing once the screen interval has been selected. At that time, a washed silica sand pack will be placed around the well screen if required to prevent screen plugging. If a sand pack is not warranted, the auger string will be pulled back to allow the native aquifer material to collapse 2 to 3 feet above the top of the screen. Bentonite pellets will then be added to the annulus between the casing and the inside auger to insure proper sealing. Cement/bentonite grout will continue to be added during the extraction of the augers until the entire aquifer thickness has been sufficiently sealed off from horizontal and/or vertical flow above the screened interval. During placement of sand and bentonite pellets, frequent measurements will be made to check the height of the sand pack and thickness of bentonite layers by a weighted drop tape measure.

A bolt-down protective curb box will be installed, flush with the ground, and secured by a Portland cement seal. The cement seal shall extend laterally at least 1 foot in all directions from the protective casing and shall slope gently away to drain water away from the well.

C. Well Development. All monitoring wells will be developed or cleared of all fine-grained materials and sediments that have settled in or around the well during installation so that the screen is transmitting representative portions of the groundwater. The development will be by one of two methods, pumping or bailing groundwater from the well until it yields relatively sediment-free water.

A decontaminated pump or bailer will be used and subsequently decontaminated after each use following procedures outlined in the Decontamination Protocol. Pumping or bailing will cease when the turbidity falls below 50 NTUs or until specific conductivity, pH, and temperature are stable (i.e., consecutive readings are within 10 percent with no overall upward or downward trends in measurements). The decision to stop well development at a turbidity level above 50 NTUs is made only after consultation with the NYSDEC. Well development water will be disposed of on the ground surface at each well location or contained in drums as conditions warrant.

D. Decontamination. All drilling equipment and associated tools including augers, drill rods, sampling equipment, wrenches and any other equipment or tools that have come in contact with contaminated materials will be decontaminated before any drilling on site begins, between each well, and prior to removing any equipment from the site. The preferred decontamination procedure will be to use a high pressure steam cleaner to remove soils and volatile organics from the equipment. The water used for this procedure will be contained and shall come from a controlled source, preferably a municipal drinking supply. Representative samples of the contained decontamination water and well development water will be screened in the field to determine the proper method of disposal. Every effort will be made to minimize the generation of contaminated water.

E. Soil Sampling Program.

The majority of subsurface material is expected to be rock, primarily boulders, based on field observations from preliminary site investigations. The drilling method chosen to complete soil borings for well installation (air rotary) will not permit the collection of intact soil samples for laboratory analysis. If particular site areas are identified during the drilling program in which subsurface material appears to be primarily soil, soil samples may be collected by either test pits, or by hollow stem auger drilling.

Soil samples collected by either method will be selected for laboratory analysis based on field screening criteria. For each test pit, one composite soil sample will be collected. Each composite sample will consist of three to five individual grab samples collected from within a single test pit, based on visual, olfactory, or PID evidence of contamination.

For hollow stem auger borings, the sampling method employed shall be ASTM D-1586/Split Barrel Sampling using a standard 2-foot long, 2-inch outside diameter split- spoon sampler with a 140-pound hammer.

Upon retrieval of the soil sample, the collected sample shall be placed in glass jars and labeled, stored on site (on ice in a cooler if necessary), and transmitted to the appropriate testing laboratory or storage facility. Chain-of-custody procedures will be practiced following Section 15, EPA-600/4-82-029, Handbook for Sampling and Sample Preservation of Water and Waste Waters.

F. Groundwater Sampling Program.

1. **Well Evacuation.** Prior to sampling a monitoring well, the static water level will be recorded and the wells evacuated to assure that the water in the well is truly representative of the groundwater. All well data will be recorded on a field sampling record. For shallow wells or deep wells with a relatively low static water level, evacuation will be accomplished by using a stainless steel or teflon bailer with a ball check valve at its lower end. A bladder may be used to evacuate the deeper wells at a rate of approximately 1 gpm. Water samples to be analyzed for volatile and/or semi-volatile organics must be sampled by bailer.

2. **Sampling Procedure.** Groundwater samples will be collected using either stainless steel, teflon, or disposable polyethylene bailers with a ball check valve at the lower end. Incorporation of a check valve onto the bailers assures that a sample is representative of the depth to which the bailer is lowered. All samples will be removed from a depth just above the well screen to further assure a representative groundwater sample. Before and after sampling, the sampling device will be cleaned inside and out with soapy water, methanol, and then rinsed with distilled deionized water. Sampling procedures are summarized on Table 4.2.

In addition to water samples collected from the monitoring wells, two types of "blanks" will be collected and submitted to the chemical laboratory for analyses. The blanks will consist of 40 ml VOA vials, as follows:

A trip blank will be prepared before the sample bottles are sent by the laboratory. It consists of a sample of distilled, deionized water which accompanies the other sample bottles into the field and back to the laboratory. A trip blank will be included with each shipment of samples where

sampling and analysis for TCL volatiles is planned (water matrix only). The trip blank will be analyzed for TCL volatile organic compounds as a measure of the internal laboratory procedures and their effect on the results.

G. Soil Vapor Sampling.

Soil vapor sampling will be conducted in accordance with NYSDOH Guidance for Evaluating Indoor Air Intrusion in New York State (February 2005). Soil vapor samples will be collected in the vadose zone from shallow (5 feet) well points. Each well point will be installed in a shallow boring drilled either by hand-operated equipment (e.g. hand auger or percussion hammer drill), or by a small truck-mounted drill rig. Drilling equipment used shall be based on soil conditions, and the method that provides the most practical approach.

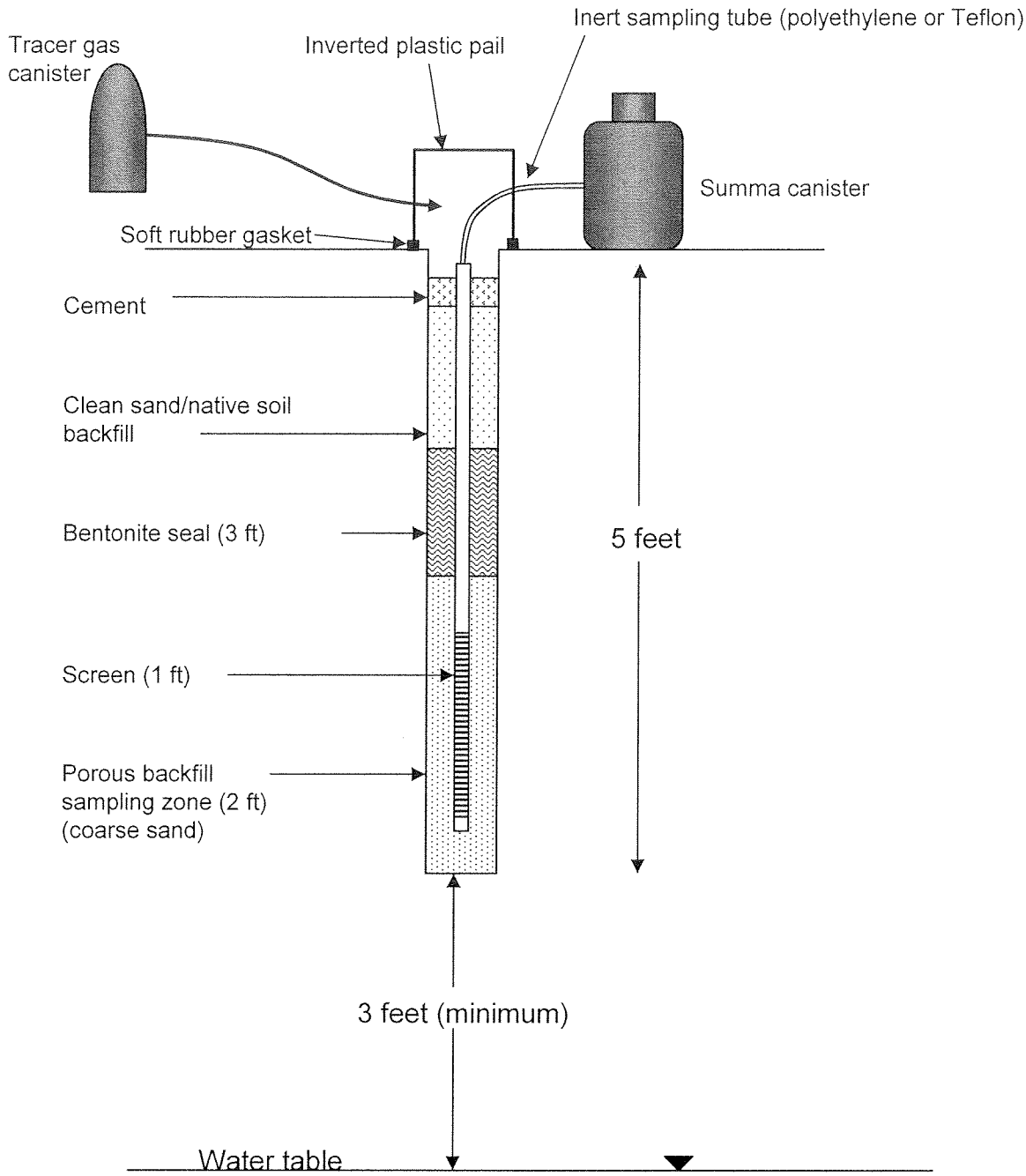
Each well point will consist of an inert sampling tube (polyethylene, stainless steel, or Teflon®) with a 6-inch screened section at the bottom through which soil vapors can be sampled. The screen slot size will be 0.0075 inches. A sampling zone will be created around the screened section by backfilling with 1 to 2 feet of porous course sand or glass beads, and at least three feet of bentonite will be placed above the porous sampling zone to form a seal from the surface. Native clean soil will be packed around the remaining annulus to the ground surface. Figure Q.4-1 shows a schematic of the soil vapor well design.

Each designated soil vapor sampling location will be purged of a minimum of three volumes using a low volume pump, and then attached to a regulator, and secured with a clamp. The regulator will then be attached to a 1-liter summa canister.

The regulator will be set to collect a soil vapor sample at a flow rate of less than 0.2 liters per minute. After the summa canister is filled, the valve will be closed.

Each canister will be listed according to a specific sample I.D. on a chain of custody form. Sample canisters will be delivered to the laboratory within 24 hours, and analyzed for VOCs by method TO-15. The detection limit for VOCs will be 1 $\mu g/m^3$ or less.

The soil vapor sampling effort will include the use inert helium tracer gas to verify that the soil vapor samples are not diluted by ambient air. The atmosphere around the sampling tube will be enriched



S&W Redevelopment
of North America, LLC
Syracuse, New York

REMEDIAL INVESTIGATION (RI) WORK PLAN
RIVER PARK CENTER
YONKERS, NEW YORK

FIGURE Q.4-1
SOIL VAPOR SAMPLING WELL

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with the tracer gas, and the soil vapor sample will be collected in the presence of the enriched tracer atmosphere. This will be accomplished by placing an inverted plastic pail over the sampling point, and filling the pail with the tracer gas via a small tube penetrating the site of the pail. Figure Q.4-1 includes the tracer gas setup.

Weather conditions in the 48 hours prior to the test, and during the test, will be noted, including average wind speed, precipitation, temperature, and barometric pressure.

H. Surface Water Sampling

Surface water samples will be collected directly into the sample bottle or by using a Wheaton grab sampler. The equipment will be cleaned before each sample with soapy water, followed by methanol and a rinse with distilled deionized water.

After filling of the sample bottles, a beaker is filled with the surface water sample. The sample is immediately analyzed for temperature (°C), specific conductance (umhos/cm) and pH. Specific conductance and pH are measured with electronic probe. Temperature will be measured by probe or with a thermometer. All equipment is cleaned and calibrated before each sample. During the sampling and field testing, field surface sampling records are completed.

I. Sediment Sampling

Sediment samples will be collected from the upper 6 inches of the bed using a stainless steel spoon. Rocks and vegetative material should be discarded. Care should be exercised to avoid losing the fine materials which tend to disperse when disturbed. The supernatant, or native water, on top of the final sample should not be removed.

The temperature, specific conductance and pH of any supernatant will be measured as described above where possible. This information, along with a sample description, will be recorded on the field surface sampling record. The sampling equipment will be washed before each sample with soapy water, followed by methanol, and finally distilled deionized water.

SAMPLE PRESERVATION AND SHIPMENT

Since all bottles will contain the necessary preservatives as shown in Table 4.1, they need only be filled. The 40 ml VOA vials must be filled brim full with no air bubbles. The other bottles should be filled to within about 1 inch from the top.

The bottles will be sent from the laboratory in coolers which will be organized on a per site basis. Following sample collection, the bottles should be placed on ice in the shipping cooler. The samples will be cooled to 4°C, but not frozen.

Final packing and shipment of coolers will be performed in accordance with guidelines outlined in the "User's Guide to the CLP".

SECTION 5

SAMPLE CUSTODY

The program for sample custody and sample transfer is in compliance with the NYSDEC-ASP, as periodically updated. If samples may be needed for legal purposes, chain-of-custody procedures, as defined by NEIC Policies and Procedures (USEPA-330/9-78-001-R, Revised June 1988) will be used. Sample chain-of-custody is initiated by the laboratory with selection and preparation of the sample containers. To reduce the chance for error, the number of personnel handling the samples should be minimized.

FIELD SAMPLE CUSTODY

A chain-of-custody record accompanies the sample from initial sample container selection and preparation at the laboratory, shipment to the field for sample containment and preservation, and return to the laboratory. Two copies of this record follow the samples to the laboratory. The laboratory maintains one file copy and the completed original is returned to the site inspection team. Individual sample containers provided by the laboratory are used for shipping samples. The shipping containers are insulated and chemical or ice water is used to maintain samples at approximately 4°C until samples are returned and in the custody of the laboratory. All sample bottles within each shipping container are individually labeled and controlled. Samples are to be shipped to the laboratory within 24-48 hours of the day of collection.

Each sample shipping container is assigned a unique identification number by the laboratory. This number is recorded on the chain-of-custody record and is marked with indelible ink on the outside of the shipping container. The field sampler will indicate the sample designation/location number in the space provided on the appropriate chain-of-custody form for each sample collected. The shipping container is closed and a seal provided by the laboratory is affixed to the latch. This seal must be broken to open the container, and this indicates possible tampering if the seal is broken before receipt at the laboratory. The laboratory will contact the site investigation team leader and the sample will not be analyzed if tampering is apparent.

LABORATORY SAMPLE CUSTODY

The site investigation team leader or Project Quality Assurance Officer notifies the laboratory of upcoming field sampling activities and the subsequent transfer of samples to the laboratory. This notification will include information concerning the number and type of samples to be shipped as well as the anticipated date of arrival.

The laboratory sample program meets the following criteria:

1. The laboratory has designated a sample custodian who is responsible for maintaining custody of the samples and for maintaining all associated records documenting that custody.

2. Upon receipt of the samples, the custodian will check the original chain-of-custody documents and compare them with the labeled contents of each sample container for correctness and traceability. The sample custodian signs the chain-of-custody record and records the date and time received.

3. Care is exercised to annotate any labeling or descriptive errors. In the event of discrepant documentation, the laboratory will immediately contact the site investigation team leader as part of the corrective action process. A qualitative assessment of each sample container is performed to note any anomalies, such as broken or leaking bottles. This assessment is recorded as part of the incoming chain-of-custody procedure.

4. The samples are stored in a secured area at a temperature of approximately 4°C until analyses are to commence.

5. A laboratory chain-of-custody record accompanies the sample or sample fraction through final analysis for control.

6. A copy of the chain-of-custody form will accompany the laboratory report and will become a permanent part of the project records.

FINAL EVIDENCE FILES

Final evidence files include all originals of laboratory reports and are maintained under documented control in a secure area.

A sample or an evidence file is under custody if:

- It is in your possession; it is in your view, after being in your possession.
- It was in your possession and you placed it in a secure area.
- It is in a designated secure area.

SECTION 6

CALIBRATION PROCEDURES

Instruments and equipment used to gather, generate or measure environmental data will be calibrated with sufficient frequency and in such a manner that accuracy and reproducibility of results are consistent with the appropriate manufacturer's specifications or project specific requirements. The procedures for instrument calibration, calibration verification, and the frequency of calibrations are described in the NYSDEC-CLP. The calibration of instruments used for the determination of metals will be as described in the appropriate CLP standard operating procedures.

Calibration of other instruments required for measurements associated with these analyses will be in accordance with the manufacturer's recommendations and the standard operating procedures of the laboratory.

SECTION 7

ANALYTICAL PROCEDURES

Analytical procedures shall conform to the most recent revision of the NYSDEC-ASP (June 2000) and are summarized on Table 7.1. In the absence of USEPA or NYSDEC guidelines, appropriate procedures shall be submitted for approval by NYSDEC prior to use.

The procedures for the sample preparation and analysis for organic compounds are as specified in the NYSDEC-ASP. Analytical cleanups are mandatory where matrix interferences are noted. No sample shall be diluted any more than 1 to 5. The sample shall be either re-extracted, re-sonicated, re-stream distilled, etc. or be subjected to any one analytical cleanup noted in SW846 or a combination thereof. The analytical laboratory shall expend such effort and discretion to demonstrate good laboratory practice and demonstrate an attempt to best achieve the method detection limit.

VOLATILE ORGANICS (VOA)

For the analysis of water samples for Target Compound List (TCL), volatile organic compounds (VOCs), no sample preparation is required. The analytical procedure for volatiles is detailed in NYSDEC-ASP (Volume I, Section D-I). A measured portion of the sample is placed in the purge and trap apparatus and the sample analysis is performed by gas chromatography/mass spectrometry for the first round. USEPA Method 8260 will be used, plus tentatively identified compounds (TICs). USEPA Methods 8010 or 8020 (gas chromatography with different detectors) will be used if subsequent rounds with lower limits of detection are warranted.

SEMI-VOLATILE ORGANIC COMPOUNDS

The extraction and analytical procedures used for preparation of water, soil and sediment samples for the analysis of the TCL semi-volatile organic compounds are described in NYSDEC-ASP Volume I, Section D-III. USEPA Method 8270 will be used, plus tentatively identified compounds (TICs).

Instrument calibration, compound identification, and quantitation are performed as described in Section 6 of this document and in the NYSDEC-ASP.

PESTICIDE AND PCB COMPOUNDS

The sample preservation procedures for gas chromatography for pesticides and PCB's will be as described in the NYSDEC-ASP methods (Section D-IV). The analysis of standard mixes, blanks and spiked samples will be performed at the prescribed frequency with adherence to the 72-hour requirement described in the method.

METALS

Water, soil and waste samples will be analyzed for the metals listed in Table 7.1. The detection limits for these metals are as specified in the NYSDEC-ASP, Section D-V. The instrument detection limits will be determined using calibration standards and procedures specified in the NYSDEC-ASP. The detection limits for individual samples may be higher due to the sample matrix. The procedures for these analyses will be as described in the NYSDEC-ASP.

The digestion procedures for water samples are not recommended for samples requiring analysis for mercury, arsenic or selenium. The aliquot of sample analyzed for As and Se will be prepared using the modifications described in USEPA Methods 206.2 CLP-M and 270.2 CLP-M, respectively. Analysis for mercury requires a separate digestion procedure (245.1 CLP-M, or 245.2 CLP-M).

The analyses for metals will be performed by atomic absorption spectroscopy (AAS) or inductively-coupled plasma emission spectroscopy (ICPES), as specified in the ASP with regard to AAS flame analysis.

SITE SPECIFICITY OF ANALYSES

Work plans prepared for remedial investigation waste sites contain recommendations for the chemical parameters to be determined for each site. Thus, some or all of the referenced methods will apply to the analysis of samples collected at the individual waste sites. Analyses of Target Compound List (TCL) analytes will be performed on all samples.

TABLE 4.1

SAMPLE CONTAINERIZATION

ANALYSIS	NO.	BOTTLE TYPE	PRESERVATIVE[1]	HOLDING TIME[2]
Water Samples				
GC/MS (extractable) and pesticides/PCBs	2	1-liter glass bottle	None	5 days (until extraction, 40 days extracted)
GC/MS (VOA)	2	40 mil, glass vial with septum cap	None	7 days
Metals[3]	1	1 liter, plastic bottle	Nitric acid to pH <2	6 months Mercury: 26 days
Soil, Sediment, Solid Waste				
TCL organics		Wide mouth, plastic or glass	None	7 days (until extraction, 40 days extracted)
TCL inorganics		Wide mouth, plastic or glass	None	6 months Cyanide: 12 days Mercury: 28 days

(1) All samples will be preserved with ice during collection and shipment.
(2) From verified time of sample receipt by the analytical laboratory (within 24 to 48 hours of collection).
(3) Metals refers to the 24 metals and cyanide in the Target Compound List (NYSDEC-CLP 11/87).

TABLE 4.2

SAMPLING PROCEDURE FOR MONITORING WELLS

1. Initial static water level recorded with an electric contact probe accurate to the nearest 0.1 foot.
2. Sampling device and electric contact probe decontaminated.
   - Sampling device and probe are rinsed with pesticide-grade methanol and distilled water.
   - Methanol is collected into a large funnel which empties into a five- gallon container.
3. Sampling device lowered into well.
   - Bailer lowered by dedicated PVC or polypropylene line.
4. Sample taken.
   - Sample is poured slowly from the open end of the bailer and the sample bottle tilted so that aeration and turbulence are minimized.
   - Duplicate sample is collected when appropriate.
5. Samples are capped, labeled and placed in laboratory coolers with ice packs or bagged ice.
6. All equipment is cleaned with successive rinses of pesticide-grade methanol and distilled water.
   - Dedicated line is disposed of or left at well site.
7. Equipment/wash blanks are collected when non-dedicated sampling equipment is used.
8. Chain-of-custody forms are completed in triplicate.
   - The original and one carbon copy are put into a zip-lock bag and placed into the cooler. The original will be returned following sample analysis.
   - A second carbon copy is kept on file.
9. Cooler is sealed with strapping tape and chain-of-custody seals to assure integrity and to prevent tampering of sample.

TABLE 7-1

CONTRACT-REQUIRED QUANTITATION LEVELS AND
ANALYTICAL METHODS
ASP INORGANICS, ASP VOLATILES, ASP SEMI-VOLATILES.
ASP PESTICIDES, AND PCBS

Superfund Target Compound List (TCL) and Contract-Required Quantitation Limit

SECTION 1 - ASP INORGANICS
Method: NYSDEC-ASP-91-4

PARAMETER		CONTRACT-REQUIRED DETECTION LEVEL* (µg/l)
1.	Aluminum	200
2.	Antimony	60
3.	Arsenic	10
4.	Barium	200
5.	Beryllium	5
6.	Cadmium	5
7.	Calcium	5000
8.	Chromium	10
9.	Cobalt	50
10.	Copper	25
11.	Iron	100
12.	Lead	3
13.	Magnesium	5000
14.	Manganese	15
15.	Mercury	0.2
16.	Nickel	40
17.	Potassium	5000
18.	Selenium	5
19.	Silver	10
20.	Sodium	5000
21.	Thallium	10
22.	Vanadium	50
23.	Zinc	20
24.	Cyanide	10

*Matrix: groundwater. For soil matrix, multiply CRDL by 100.

TABLE 7-1 (continued)

SECTION I - ASP ORGANICS
Method: NYSDEC-ASP-91-1

VOLATILE	CONTRACT-REQUIRED QUANTITATION LIMIT (µg/l)*
1. Chloromethane	10
2. Bromomethane	10
3. Vinyl chloride	10
4. Chloroethane	10
5. Methylene chloride	10
6. Acetone	10
7. Carbon disulfide	10
8. 1,1-Dichloroethylene	10
9. 1,1-Dichloroethane	10
10. 1,2-Dichloroethylene (total)	10
11. Chloroform	10
12. 1,2-Dichloroethane	10
13. 2-Butanone	10
14. 1,1,1-Trichloroethane	10
15. Carbon tetrachloride	10
16. Bromodichloromethane	10
17. 1,1,2,2-Tetrachloroethane	10
18. 1,2-Dichloropropane	10
19. cis-1,3-Dichloropropene	10
20. Trichloroethene	10
21. Dibromochloromethane	10
22. 1,1,2-Trichloroethane	10
23. Benzene	10
24. Trans-1,3-Dichloropropene	10
25. Bromoform	10
26. 2-Hexanone	10
27. 4-Methyl-2-pentanone	10
28. Tetrachloroethylene	10
29. Toluene	10
30. Chlorobenzene	10
31. Ethylbenzene	10

TABLE 7-1 (continued)

32.	Styrene	10
33.	Total xylenes	10

*Quantitation limit for medium-level soil is 1200 µg/kg (wet weight basis).

TABLE 7-1 (continued)

SECTION I - ASP ORGANICS
Method: NYSDEC-ASP-91-2

SEMI-VOLATILES	CONTRACT-REQUIRED QUANTITATION LIMIT (µg/l)
34. Phenol	10
35. Bis(2-chloroethyl) ether	10
36. 2-Chlorophenol	10
37. 1,3-Dichlorobenzene	10
38. 1,4-Dichlorobenzene	10
39. 1,2-Dichlorobenzene	10
40. 2-Methylphenol	10
41. 2,2' oxybis(1-Chloropropane)	10
42. 4-Methylphenol	10
43. N-Nitroso-dipropylamine	10
44. Hexachloroethane	10
45. Nitrobenzene	10
46. Isophorone	10
47. 2-Nitrophenol	10
48. 2,4-Dimethylphenol	10
49. bis(2-Chloroethoxy) methane	10
50. 2,4-Dichlorophenol	10
51. 1,2,4-Trichlorobenzene	10
52. Naphthalene	10
53. 4-Chloroaniline	10
54. Hexachlorobutadiene	10
55. 4-Chloro-3-methylphenol	10
56. 2-Methylnaphthalene	10
57. Hexachlorocyclopentadiene	10
58. 2,4,6-Trichlorophenol	10
59. 2,4,5-Trichlorophenol	25
60. 2-Chloronaphthalene	10
61. 2-Nitroaniline	25
62. Dimethyl phthalate	10
63. Acenaphthylene	10
64. 2,6-Dinitrotoluene	10

TABLE 7-1 (continued)

65.	3-Nitroaniline	25
66.	Acenaphthene	10
67.	2,4-Dinitrophenol	25

TABLE 7-1 (continued)

SECTION I - ASP ORGANICS
Method: NYSDEC-ASP-91-2

SEMI-VOLATILES		CONTRACT-REQUIRED QUANTITATION LIMIT (µg/l)
68.	4-Nitrophenol	25
69.	Dibenzofuran	10
70.	Dinitrotoluene	10
71.	Diethylphthalate	10
72.	4-Chlorophenyl phenyl ether	10
73.	Fluorene	10
74.	4-Nitroanile	25
75.	4,6-Dinitro-2-methylphenol	25
76.	N-nitrosodiphenylamine	10
77.	4-Bromophenyl phenyl ether	10
78.	Hexachlorobenzene	10
79.	Pentachlorophenol	25
80.	Phenanthrene	10
81.	Anthracene	10
82.	Carbazole	10
83.	Di-n-butyl phthalate	10
84.	Fluoranthene	10
85.	Pyrene	10
86.	Butyl benzyl phthalate	10
87.	3,3'-Dichlorobenzidine	10
88.	Benz(a) anthracene	10
89.	Chrysene	10
90.	bis(2-ethylhexyl)phthalate	10
91.	Di-n-octyl phthalate	10
92.	Benzo(b)fluoranthene	10
93.	Benzo(k)fluoranthene	10
94.	Benzo(a)pyrene	10
95.	Indeno(1,2,3-cd)pyrene	10
96.	Dibenz(a,h)anthracene	10
97.	Benzo(g,h,i)perylene	10

TABLE 7-1 (continued)

SECTION I - ASP ORGANICS
Method: NYSDEC-ASP-91-3

	PESTICIDES/PCBS	CONTRACT-REQUIRED QUANTITATION LIMIT (µg/l)
98.	alpha-BHC	0.05
99.	beta-BHC	0.05
100.	delta-BHC	0.05
101.	gamma-BHC (lindane)	0.05
102.	Heptachlor	0.05
103.	Aldrin	0.05
104.	Heptachlor epoxide	0.05
105.	Endosulfan I	0.05
106.	Dieldrin	0.10
107.	4,4'-DDE	0.10
108.	Endrin	0.10
109.	Endosulfan II	0.10
110.	4,4'-DDD	0.10
111.	Endosulfan sulfate	0.10
112.	4,4'-DDT	0.10
113.	Methoxychlor	0.5
114.	Endrin ketone	0.10
115.	Endrin aldehyde	0.10
116.	alpha-Chlordane	0.05
117.	gamma-Chlordane	0.05
118.	Toxaphene	5.0
119.	AROCLOR-1016	1.0
120.	AROCLOR-1221	1.0
121.	AROCLOR-1232	1.0
122.	AROCLOR-1242	1.0
123.	AROCLOR-1248	1.0
124.	AROCLOR-1254	1.0
125.	AROCLOR-1260	1.0

Appendix B
Health and Safety Plan

APPENDIX B
SITE HEALTH AND SAFETY PLAN

B.1. SITE DESCRIPTION

Date ..... Date: September 2006 Revised: _____
Location .....New Main Street & Nepperhan Ave, city of Yonkers Westchester County, NY
Potential Hazards .....Volatile and semivolatile organic compounds, metals, pesticides in soil and groundwater
Area Affected .....Subsurface soils, groundwater, and surface water, sediments and soil vapor
Surrounding Population ..... Urban, commercial/residantial
Topography .....Flat
Weather Conditions ..... Usually partly sunny to overcast, south winds

B.2 ENTRY OBJECTIVES: The objective of site entry is to investigate potential source areas of contamination, including petroleum storage tanks and other potential historic sources, under the Brownfield Cleanup Program.

B.3 ON-SITE ORGANIZATION AND COORDINATION. The following S&W Redevelopment personnel are designated to carry out the stated job functions on site. (Note: One person may carry out more than one job function.)

RI Program Manager: ..... Daniel Ours or designee (315) 422-4949
Field Team Leader:..... Allison Menges or designee (315) 422-4949

B.4 ON-SITE CONTROL. Struever Fildelco Yonkers, LLC or its designated agent will coordinate access control and security for the work area for each day of on site work. No unauthorized personnel should be within the established work area.

B.5 HAZARD EVALUATION.

A. Chemical Hazards. The following substances are known or suspected to be on site. The primary hazards of each are identified, associated primarily with direct skin contact and inhalation.

SUBSTANCE	PRIMARY HAZARDS
Volatile Organics	
Trichloroethene	Eye & skin irritation, nausea, vomiting, headache
1,1 Dichloroethane	Skin irrit., liver, kidney, lung damage
1,2 Dichloroethene	Eye irrit, respiratory irrit, central nervous system
Vinyl chloride	Eye irrit, soar throat, dizziness, headache, nausea
Benzene	Cough, wheezy, pulmonary function, dermatological

SUBSTANCE	PRIMARY HAZARDS
	irritation
Xylenes	Dizziness, drowsiness, eye/nose/throat irritation,
Toluene	Eye, skin, nose irritation, drowsiness
Ethylbenzene	Eye and skin irrit, headache, dermatitis
Trimethylbenzene	Eye, skin, nose irritation, resp. irrit., headache, fatigue
SUBSTANCE	**PRIMARY HAZARDS**
Semi-Volatile Organics*	
Acenaphthene	Skin irritation, mucous membrane irritation, vomiting
Benzo(a)pyrene	Skin tumors, carcinogen
Chrysene	Carcinogen
Fluoranthene	Possible carcinogen
Naphthalene	Headache, nausea, sweating

*Compounds listed above are PAHs. A number of other PAHs have been tentatively identified which do not have reported short-term exposure effects, but which are suspected carcinogens. These other PAHs are not included in the above table.

Metals	
Chromium	Eye & skin irrit, lungs
Nickel	Dermatitis, allergic asthma
Mercury	Cough, weakness, eye irrit, chest pain, tremor, insom
Zinc	Eye & skin irrit, nausea, muscle aches, chills, throat irrit

B. Physical Hazards. Physical hazards for this project relate to mechanical exposure associated with working around heavy equipment and vehicles, noise exposure, and heat or cold stress. Basic safety guidelines for the above noted main physical hazards are included below.

1. **Excavation and Backfilling.** Site activities will involve excavation and trenching of impacted material. The estimated location of all underground utilities must be determined before digging begins. Necessary clearances must be observed. Appropriate engineering controls will be implemented during excavation to maintain road stability and protect the public.

   The standard operating procedure (SOP) for excavation and construction work will follow New York State Department of Labor (NYSDOL), Division of Safety and Health, Industrial Code Rules (Part 23).

2. **Utility Clearances.** Prior to any intrusive activities (e.g. drilling, excavating, probing) New York State Dig Safe shall be contacted to mark underground lines before any work is started.

   Personnel directly involved in intrusive work shall determine the minimum distance from marked utilities which work can be conducted with the assistance of the locator line service.

3. **Heavy Lifting Method.** Personnel conducting work that may require lifting of heavy objects should use the following proper lifting techniques:
   - Feet must be parted, with one foot alongside the object being lifted and one foot behind. When the feet are comfortably spread a more stable lift can occur and the rear foot is in a better position for the upward thrust of the lift.
   - Use the squat position and keep the back straight. A straight back means the spine, back muscles, and organs of the body in correct alignment.
   - To grip the item being lifted, the fingers and the hand are extended around the object being lifted, using the full palm. Fingers have very little power – use the strength of the entire hand.
   - The load must be drawn close, and the arms and elbows must be tucked into the side of the body. Holding the arms away from the body increases the strain on the arms and elbows. Keeping the arms tucked in helps keep the body weight centered.

   The body must be positioned so that the weight of the body is centered over the feet. This provides a more powerful line of thrust and also ensures better balance. Start the lift with a thrust of the rear foot. Do not twist.

4. **Slip/Trip/Hit/Fall.** These injuries are the most frequent of all injuries to workers. They occur for a wide variety of reasons, but can be minimized by the following practices:
   - Spot-check the work area to identify hazards;
   - Establish and utilize pathways that are most free of slip and trip hazards. Avoid pathways that are more hazardous;
   - Beware of trip hazards such as wet floors, slippery floors, and uneven terrain;
   - Carry only loads you can see over;
   - Keep work areas clean and free of clutter, especially in storage areas and walkways;
   - Communicate observed hazards to site personnel.

5. **Heat Stress.** All field personnel engaged in site work shall have completed training to recognize and avoid heat related illness. Proper training and preventive measures will aid in averting loss of worker productivity and serious illness. Heat stress prevention is particularly important because once a person suffers from heat stroke or heat exhaustion, that person may be predisposed to additional heat-related illness. To avoid heat stress, the following steps may be taken:

    - Adjust work schedules.

      Modify work/rest schedules according to monitoring requirements.

      Mandate work slowdowns as needed.

      Perform work during cooler hours of the day if possible or at night if adequate lighting can be provided.

    - Provide shelter (air conditioned, if possible) or shaded areas to protect personnel during rest periods.

    - Maintain worker's body fluids at normal levels. This is necessary to ensure that the cardiovascular system functions adequately. Daily fluid intake must approximately equal the amount of water lost in sweat, i.e., eight fluid ounces (0.23 liters) of water must be ingested for approximately every eight ounces (0.23 kg) of weight lost. The normal thirst mechanism is not sensitive enough to ensure that enough water will be drunk to replace lost sweat. When heavy sweating occurs, encourage the worker to drink more. The following strategies may be useful:

    - Members of each Work Crew shall be properly trained by each Crew's respective employer to recognize the symptoms of heat-related illnesses.

6. **Adverse Weather Conditions.** The Field Leader for each Work Crew will be responsible for deciding on the continuation or discontinuation of work for his/her Crew based on current and pending weather conditions. Electrical storms, tornado warnings, and strong winds are examples of conditions that would call for the discontinuation of work and evacuation of the site. Site operations should not be permitted during an electrical storm.

7. **Vehicle Traffic.** As the scope of work includes the transport and disposal of material, there is a potential to encounter a temporarily high volume of vehicular

traffic. Project Work Crews that have the potential to be exposed to vehicle traffic should wear a high visibility safety vest. The excavation Work Crew will provide proper signage, flagging, and barricades to maintain a safe flow of traffic.

POTENTIAL HAZARD	PREVENTATIVE MEASURES
Slip/Trip/Falls	Use three points of contact to mount and dismount equipment. Continuously inspect work areas for slip, trip, & fall hazards. Be aware of surroundings. Practice good housekeeping.
Noise	Wear appropriate hearing protection.
Pinch Points	Keep hands, feet, & clothing away from moving parts/devices.
Utilities	Maintain proper utility clearances. All utilities should be properly located and marked out prior to start of work.
Heavy Lifting	Follow safe lifting practices. Lift items within your capabilities and assigned project role. Ask for assistance if necessary.
Proximity to Heavy Equipment and Vehicles	Maintain adequate distance from trucks/equipment. Obey barriers and/or signage
Heat/Cold Stress	Dress appropriately and follow HASP guidelines
Dangerous Weather Conditions	Consult local weather reports daily, watch for signs of severe weather, etc. Suspend or reduce work during severe weather.
Chemical hazards	Use PID as indicated in HASP. Wear specified PPE. No smoking.
Biological Hazards – Insects, Snakes, Poison Plants, etc.	Wear appropriate PPE and keep necessary first aid supplies readily available. Use insect repellant and snake chaps as needed. Learn to identify poisonous plants.

B.6 PERSONAL PROTECTIVE EQUIPMENT. Based on evaluation of potential hazards, the following levels of personal protection have been designated for the applicable work areas or tasks:

LOCATION	JOB FUNCTION	LEVEL OF PROTECTION
Work zone	Site investigation	A B C (D) Other

Specific protective equipment for each level of protection is as follows:

Level A	Fully-encapsulating suit

	SCBA (disposable coveralls)
Level B	Splash gear (saranax-coated Tyvek suit) SCBA or airline respirators
Level C	Splash gear (Tyvek suit) Half-face canister respirator Safety glasses Boots Gloves Hard hat
Level D	**Work boots** **Gloves (latex)** **Hard hat**

Action Levels. Action levels shall be determined by monitoring of work zone breathing space with a portable photoionization detector (PID) or comparable instrument. Measurement of a sustained concentration above ambient (background) conditions shall initiate action. The following criteria shall be used to determine appropriate action:

VOLATILE ORGANICS IN BREATHING ZONE (SUSTAINED AND ABOVE BACKGROUND)	LEVEL OF RESPIRATORY PROTECTION
0-5 ppm	Level D
5-200 ppm	Level C
200-1000 ppm	Level B - air line
1000+ ppm	Level B - SCBA

% LOWER EXPLOSIVE LIMIT (LEL)	ACTION
Above 10	Discontinue work and take remedial action

NO CHANGE TO THE SPECIFIED LEVELS OF PROTECTION SHALL BE MADE WITHOUT THE APPROVAL OF THE SITE SAFETY OFFICER AND THE PROJECT TEAM LEADER.

If the above criteria indicate the need to increase from Level D to a higher level of personal protection, work will be immediately suspended in that particular site area until the required personal protective equipment is made available, or until Level D conditions return.

B.7 ON-SITE WORK PLANS. The following personnel or designated alternate(s) will perform the field investigation.

Field Team Leader: ..... Allison Menges or designee
Work Party ..... Designated as needed to support field effort

The work party was briefed on the contents of this plan prior to commencement of work.

B.8 COMMUNICATION PROCEDURES. The Project Manager should remain in communication with the Field Team Leader. A cellular phone will be used in the field.

Continuous horn blast is the emergency signal to indicate that all personnel should leave the Work Zone.

In the event that radio communications are used, the following standard hand signals will be used in case of failure of radio communications:

Hand gripping throat	Out of air; can't breathe
Grip partner's wrist or both hands around waist	Leave area immediately
Hands on top of head	Need assistance
Thumbs up	OK; I am all right; I understand
Thumbs down	No; negative

B.9 SITE HEALTH AND SAFETY PLAN.

A. The designated Site Safety Officer will be directly responsible for safety recommendations on site. The Field Team Leader will be responsible for carrying out the Site Health and Safety Plan, and for enforcing it on all SWRNA employees engaged in site work.

B. **Emergency Medical Care.** St Joseph's Medical Center is located less than 1 mile south of the site, at 127 South Broadway. A map to this facility will is attached. Directions are provided below:

- From NEPPERHAN AVE, Turn LEFT on US-9/ S BROADWAY/ NY-9A
- Go to 127 S BROADWAY

First aid equipment is available on site at the following locations:

First aid kit Field vehicle

List of emergency phone numbers:

AGENCY/FACILITY	PHONE NUMBER
Police (Yonkers Police Department)	911 or (914) 377-7900
Fire	911
Ambulance	911
Saint Joseph's Medical Center	(914) 378-7000

C. **Environmental Monitoring.** The following environmental monitoring instruments shall be used on site at the specified intervals:

- MiniRAE photoionization detector (PID). Continuous during installation of soil borings and soil gas monitoring probes.
- Dust (particulate) monitor. Continuous during installation of soil borings per Community Air Monitoring Plan (CAMP)

D. **Emergency Procedures.** The following standard procedures will be used by on-site personnel. The Site Safety Officer shall be notified of any on-site emergencies and be responsible for ensuring that the appropriate procedures are followed:

1. **Personnel Injury in the Work Zone.** Upon notification of an injury in the Work Zone, the designated emergency signal, a continuous horn blast, shall be sounded. A rescue team will enter the Work Zone (if required) to remove the injured person to safety. Appropriate first aid shall be initiated and contact should be made for an ambulance and with the designated medical facility (if required). No persons shall re-enter the Work Zone until the cause of the injury or symptoms is determined.

2. **Fire/Explosion.** Upon notification of a fire or explosion on site, the designated emergency signal, a continuous horn blast, shall be sounded and all site personnel assembled at the decontamination line. The fire department shall be alerted and all personnel moved to a safe distance from the involved area.

3. **Personal Protective Equipment Failure.** If any site worker experiences a failure or alteration of protective equipment that affects the protection factor, that person and his/her buddy shall immediately leave the Work Zone. Re-entry shall not be permitted until the equipment has been repaired or replaced.

4. **Other Equipment Failure.** If any other equipment on site fails to operate properly, the Project Team Leader and Site Safety Officer shall be notified and then determine the effect of this failure on continuing operations on site. If the failure affects the safety of personnel or prevents completion of the Work Plan tasks, all personnel shall leave the Work Zone until the situation is evaluated and appropriate actions taken.

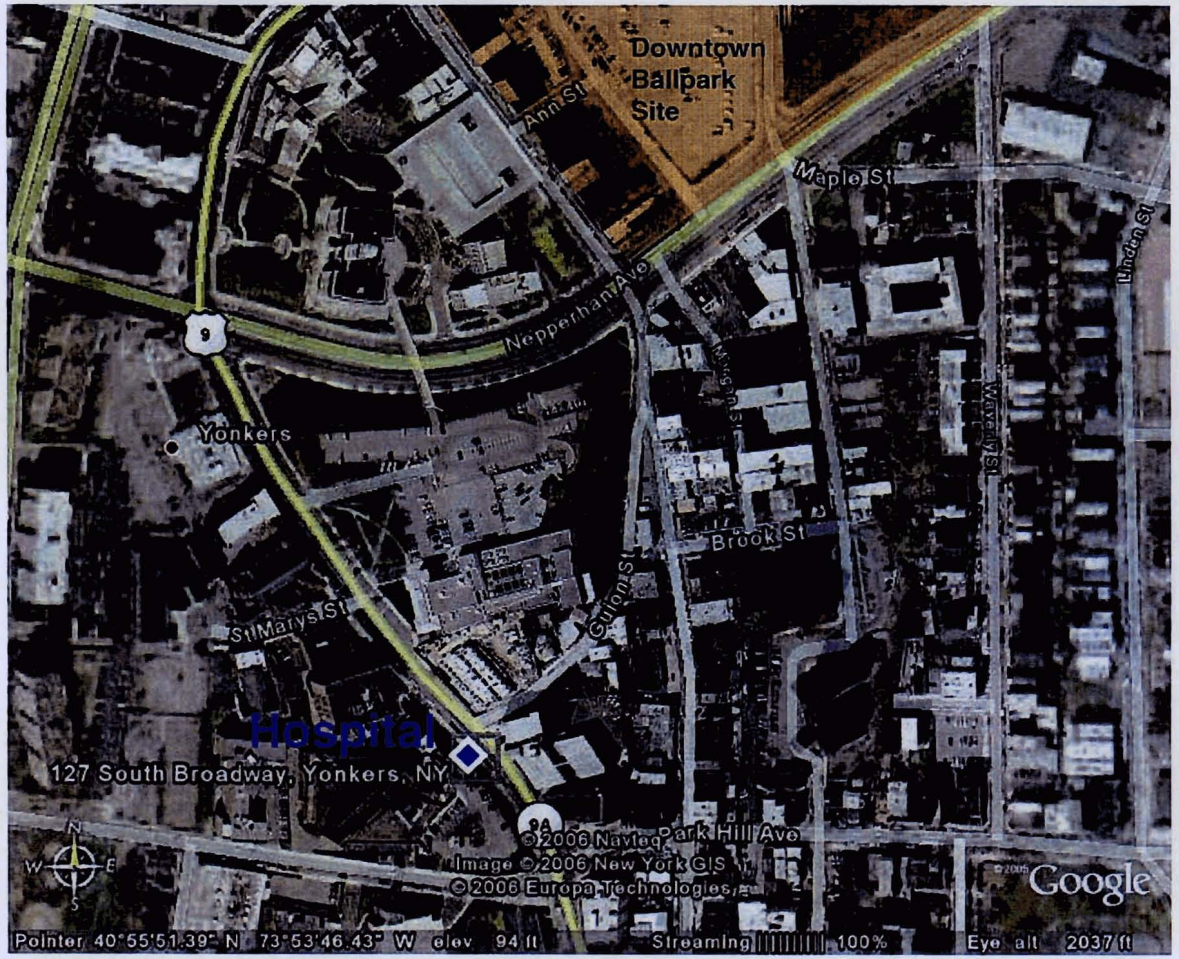
In all situations, when an on-site emergency results in evacuation of the Work Zone, personnel shall not re-enter until:

a. The conditions resulting in the emergency have been corrected.
b. The hazards have been reassessed.
c. The Site Health and Safety Plan has been reviewed.
d. Site personnel have been briefed on any changes in the Site Health and Safety Plan.

E. **Personal Monitoring.** The following personal monitoring will be in effect on site:

Personal exposure sampling: MiniRAE PID screening, sampling pumps/tubes , or organic vapor monitors.

Medical monitoring: The expected air temperature will be less than 70EF. If it is determined that heat stress monitoring is required (mandatory if over 70EF), the following procedures shall be followed: Monitoring body temperature, body weight, pulse weight.



Location of Hospital: Saint Joseph's Medical Center
127 South Broadway, Yonkers, NY
(914) 387-7000

Appendix C
Community Air Monitoring Plan

APPENDIX C

COMMUNITY AIR MONITORING PLAN

C.1 - INTRODUCTION

The site is comprised of 55 separate tax parcels that will be redeveloped into a mixed use residential/retail/hotel/baseball stadium complex. Struever Bros. Eccles & Rouse, Inc. has created an LLC, Struever Fidelco Yonkers LLC, to lead this redevelopment effort. The completed project will include a 6,500 seat minor league baseball park with approximately adjacent retail space. Parking will be accommodated on- and off-site.

In order to support the proposed future use of the property, a voluntary Remedial Investigation (RI) will be completed at the site in accordance with a Brownfield Cleanup Agreement (BCA). Under the terms of the BCA, the Volunteers must define the nature and extent of site contamination in a manner that enables the selection of an appropriate remediation strategy to support the site's contemplated future use. S&W Redevelopment of North America, LLC (SWRNA) will complete the site investigation on behalf of the Volunteers. This Community Air Monitoring Plan (CAMP) describes the measures that will be undertaken during field work to monitor ambient air at the downwind site perimeter.

C.2 - OBJECTIVES

The objective of this CAMP is to provide a measure of protection for the downwind community from potential airborne contaminant releases that might arise as a result of the planned field work, which will include test pits and soil borings.

C.3 - METHODS

The CAMP will include monitoring for volatile organic compounds (VOCs) and particulate matter (e.g. airborne "dust"). Readings will be recorded and will be available for State (DEC and DOH) personnel to review, as requested.

A. VOC MONITORING

A MiniRAE photoionization detector (PID) will be used to measure VOCs in air. VOCs will be monitored at the downwind perimeter of the site, based on the prevailing wind direction as determined at the beginning of each workday. The site perimeter is defined as the existing property boundary.

Upwind concentrations of VOCs will be measured at the beginning of every workday to establish background conditions. VOC concentrations will be measured continuously at the property boundary directly downwind of the work area. Downwind data will be checked as needed to provide a measure of assurance that contaminants are not being spread off site through the air. The PID will continuously record and store VOC measurements such that a 15-minute running average can be computed for the data each time the PID is checked.

- If the ambient air concentration for total organic vapors at the downwind property boundary exceeds 5 parts per million (ppm) above background for a 15-minute average, work activity will be halted and monitoring will continue until levels decline to below 5 ppm over background. At this point, work will resume and monitoring will continue.

- If total organic vapor levels at the downwind property boundary persist at levels above 5 ppm over background but less than 25 ppm, work activities will be halted, the source of the vapors will be identified, and corrective actions will be taken to abate emissions. Work will resume after organic vapor levels fall to below 5 ppm over background at the downwind property boundary.

- If organic vapor levels exceed 25 ppm at the downwind property boundary activities will be shut down. An appropriate course of action to abate emissions in order to resume work will be discussed with NYSDEC personnel.

B. PARTICULATE MONITORING

Particulate (e.g. "dust") emissions will be measured continuously at the upwind and downwind property boundaries. Real time monitoring equipment (e.g. MiniRAM or equivalent), with audible alarms and capable of measuring particulate matter less than 10 micrometers in size, will be used.

- If the downwind particulate level is 100 micrograms per cubic meter (ug/m^3) greater than background (upwind) for a 15-minute period, then dust suppression techniques will be employed. Work will continue with dust suppression provided that downwind particulate levels do not exceed 150 ug/m^3 above upwind levels and provided that no visible dust is migrating from the work area.

- If, after dust suppression techniques, downwind particulate levels are greater than 150 ug/m^3 above upwind levels, work will be stopped and a re-evalaution of activities will be initiated. Work will resume provided that dust suppression measures and other controls are successful in reducing downwind particulate concentrations to within 150 ug/m^3 of the upwind level and in preventing visible dust migration.