February 14, 2014

Michael MacCabe
New York State Department of Environmental Conservation
Division of Environmental Remediation
625 Broadway
Albany, NY 12233-7020

**RE: Submittal of Supplemental Remedial Investigation Work Plan for the Capital Center Brownfield Cleanup Site, Broadway and Spencer Street, Albany, NY**
**Site No. C401070**
**BCA Index No.: C401070-10-13**
**CHA Project No. 27160**

Dear Mike:

Enclosed please find a copy of the Supplemental Remedial Investigation Work Plan for the Capital Center Brownfield Cleanup Project located on Broadway in the City of Albany, New York.

If you have any comments or questions, please do not hesitate to contact me at (518) 453-2899.

Sincerely,

Keith E. Cowan, C.P.G.
Market Segment Director – Environmental
Vice President

SDB/

CC: Christopher Bette, First Columbia, LLC
Dean Sommer, Young, Sommer LLC
Sarah Benson, CHA
Mark Sergott, NYSDOH

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# SUPPLEMENTAL REMEDIAL INVESTIGATION WORK PLAN

## Capital Center
## BCP Site # C401070
## Broadway and Spencer Street
## City of Albany, New York

*CHA Project Number: 27160*

***Prepared for:***

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&

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*February 2014*

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# LIST OF ACRONYMS & ABBREVIATIONS

| | |
|---|---|
| AAI | All Appropriate Inquiry |
| ACM | Asbestos Containing Material |
| AMSL | Above Mean Sea Level |
| AST | Aboveground Storage Tank |
| ASTM | American Society for Testing and Materials |
| BCP | Brownfield Cleanup Program |
| BGS | Below Ground Surface |
| CAMP | Community Air Monitoring Program |
| CHA | Clough, Harbour & Associates LLP |
| CPP | Citizen Participation Plan |
| DOH | Department of Health |
| ELAP | Environmental Laboratory Accreditation Program |
| ENSR | ENSR/AECOM |
| EPA | Environmental Protection Agency |
| ERP | Environmental Restoration Program |
| ESA | Environmental Site Assessment |
| FSP | Field Sampling Plan |
| HASP | Health and Safety Plan |
| IDW | Investigation Derived Waste |
| NYCRR | New York Code, Rules and Regulations |
| NYS | New York State |
| NYSDEC | New York State Department of Environmental Conservation |
| NYSDOT | New York State Department of Transportation |
| NWI | National Wetlands Inventory |
| PID | Photoionization Detector |
| PPE | Personal Protection Equipment |
| PPM | Parts Per Million |
| QA/QC | Quality Assurance/Quality Control |
| RI | Remedial Investigation |
| SVOC | Semi-Volatile Organic Compound |
| TAGM | Technical and Administrative Guidance Memorandum |
| TCL | Target Compound List |
| TCLP | Toxicity Leaching Characteristic Procedure |
| TMP | Tax Map Parcel |
| TOGS | Technical & Operational Guidance Series |
| US | United States |
| USDOT | United States Department of Transportation |
| USEPA | United States Environmental Protection Agency |
| USGS | United States Geologic Survey |
| UST | Underground Storage Tank |
| VOC | Volatile Organic Compound |
| WP | Work Plan |

# 1.0 INTRODUCTION

First Columbia, LLC and FC 705 Broadway LLC (First Columbia) have entered into a Brownfield Cleanup Agreement (BCA) and will conduct a Supplemental Remedial Investigation (RI) at the proposed Capital Center Site (Property or Site), located at Broadway and Spencer Streets in Albany, New York, through the New York State Department of Environmental Conservation's (NYSDEC) Brownfield Cleanup Program (BCP). The site location is shown in Figure 1. The purpose of the program is to encourage voluntary remediation of brownfield sites for reuse and development. This includes conducting a complete characterization of the Site. CHA has been retained by First Columbia to conduct the Supplemental RI, which will identify environmental concerns, and provide and evaluate remedial alternatives, if necessary.

CHA has prepared this Work Plan to be consistent with the guidance provided in the NYSDEC's "DER-10 Technical Guidance for Site Investigation and Remediation" (May 2010). This Work Plan has been prepared to outline the procedures and protocols that will be utilized to conduct a comprehensive environmental RI that will provide the necessary field data to develop a remedial alternative for the Site that will best address the environmental conditions associated with the Site. The primary objectives of the RI include the following:

- Further define the nature/extent of contamination,
- Identify any additional potential source areas,
- Assess impacts; and
- Provide additional data necessary for a Remedial Alternatives Analysis (RAA).

The data derived from the RI will facilitate an evaluation of the migration or possible future migration of identified contamination, identify potential routes of exposure and populations at risk, and provide the data necessary to develop remedial plans for the Site.

To facilitate performance of the field investigation and Site characterization activities in a manner consistent with NYSDEC protocols, CHA has also prepared the following Site specific documents, which make up the RI Work Plan Documents Package:

1. Field Sampling Plan (FSP) (Appendix A);
2. Quality Assurance Project Plan (QAPP) (Appendix B)
3. Health and Safety Plan (HASP) (Appendix C); and
4. Community Air Monitoring Plan (CAMP) (Appendix D).

These documents are integral to this Work Plan and are referenced throughout this report. A Citizen Participation Plan (CPP) has previously been submitted to the NYSDEC under separate cover.

# 2.0 SITE BACKGROUND

## 2.1 Site Description

The Site is located approximately 900 feet west of the Hudson River and is approximately 20 to 30 feet above mean sea level. The Site topography gently slopes uphill to the northwest from Montgomery Street towards Broadway. The Site is almost entirely covered with buildings or paved surfaces, except for an untended vegetated and treed area along the Broadway side of the Site.

The Site is located in an urban area of mixed uses, including commercial and residential. The Site is currently unoccupied and is covered by vacant lots and deteriorated commercial buildings. A portion of the Site is currently utilized for vehicle parking, but the Site is otherwise unused.

Existing Site structures include three 2-story brick and concrete buildings (one of which contains a basement), two single-story framed buildings adjacent to one of the 2-story buildings, and two single-story brick and concrete buildings, all of which were formerly utilized in connection with historical commercial and industrial Site operations. The buildings are mostly located on the eastern portion of the Site, with only the gas station located on the western portion of the Site (as shown on Figure 2). The buildings comprise a total footprint area of approximately 17,000 square feet. All of the buildings are currently unoccupied and continue to deteriorate.

The site is located within a New York State "En-Zone" pursuant to Tax Law § 21(b)(6), identified as Albany County Census Tract 001100. There are currently no environmental permits associated with Site.

## 2.2 Utilities

Utilities present at the site include underground electrical service, natural gas, water, sewer, and storm sewer.

Each of the Site parcels is subject to utility easements. The parcel at 56-46 Spencer St. is subject to an easement to Swift and Co. to use the (no longer existing) railroad or siding running along the easterly side of the premises. Several of the other parcels are subject to easements for party walls. However, the buildings are all planned to be demolished. The sales contracts provide that the property is to be conveyed free and clear of any encumbrances.

## 2.3 Site History

A Phase I Environmental Site Assessment (ESA) was prepared in 2005 by SPECTRA Environmental Group, Inc. in general accordance with the American Society for Testing and Materials (ASTM) Standard Practice E 1527-00. This report has been previously provided to the NYSDEC; additional copies can be provided upon request. The Phase I ESA identified the Site as having been used for a variety of commercial and industrial purposes between 1892 and the present. Historic uses have included multiple meat packing and processing companies, a box factory, coal storage operations, produce storage, railroad rights of way, roofing suppliers, a tin shop, whole meat suppliers, an insecticide factory, gasoline filling, and auto repair activities. Based on historic use and conditions observed during the Phase I ESA, recognized environmental

concerns were identified and subsequent investigation activities were completed. A complete description of the previous environmental investigations is provided in Section 4.0.

The Capital Center site has a long history of industrial use and some characterization of the site (see Sections 3 and 4 for details) has been previously completed. A portion (7 tax parcels) of the proposed Project Site was previously part of a BCP agreement ("BCA") between Albany SOMA Project, LLC (current site owner) and the NYSDEC (Index # A4- 0574-1106, dated October 12, 2007). However, an additional eight (8) tax parcels located along Spencer Street (Spencer Street parcels) now make up the current Capital Center Project BCP Site.

Though the Spencer Street parcels were included in the original BCP Application submitted by Albany SOMA Project LLC, it was NYSDEC's determination that, based upon the available data at the time, their environmental condition did not warrant inclusion in the BCP and they were therefore not included. Additional investigation has since been conducted, demonstrating that the nature and concentrations of contaminants present on Spencer Street parcels warranted inclusion in the BCP due to the fact that documented contamination on the entire parcel establishes that the area either has actual contamination or the potential for the continued discovery of further contamination and that such contaminant condition complicates development.

First Columbia, LLC and FC 705 Broadway LLC (First Columbia) entered into a Brownfield Cleanup Agreement (BCA) on December 19, 2013. As previously noted, the Capital Center BCP Site includes the original seven (7) tax parcels as well as the Spencer Street parcels, all of which need additional characterization in light of the data that now exists. A detailed description of the current information regarding nature and extent of contamination is provided in Section 4.

## 2.4 Proposed Site Re-Use

First Columbia is now planning to complete the characterization of the entire 15 parcels that make up the Site, remediate the Site as necessary, establish appropriate institutional/engineering controls (as necessary), and redevelop the Site. After the Site actions are complete and First Columbia receives a Certificate of Completion (COC) from the NYSDEC, First Columbia proposes to develop the Site as the "Capital Center". The proposed project consists of land uses including office space, restaurant, commercial retail space, hotel, apartments and parking, as would be consistent with neighboring land uses.

# 3.0 SITE SETTING

## 3.1 Surface Features

Existing Site structures include the building footprints shown on Figure 2 (seven [7] total buildings), a refueling station canopy, a subsurface hydraulic automotive repair lift, and a gasoline fueling pump island. Chain link fencing is also present on the Site. The Site is primarily covered by existing buildings, pavement, and some unpaved areas (primarily gravel and grass).

## 3.2 Site Geology/Hydrogeology

The following description is excerpted from the previous RI Report by Spectra Engineering, Architecture, and Surveying (Spectra) (September 2011).

### 3.2.1 Local Surficial Geology

According to the US Department of Agriculture ("USDA") Soil Conservation Service "Soil Survey of Albany County, New York", the BCP Site and Other Lands are situated on urban land. This classification of surficial soils is a mix of non-hydric loamy sand, silt loam, sandy loam, and fine sandy loam.

According to the Geological Survey Map of Unconsolidated Glacial Deposits and Spectra's geotechnical borings completed at the Site, the top layer of the soil is fill comprised of varying quantities of sand, silt, clay, and gravel mixed with brick, ash, wood, small roots and metal debris. This material extends to a depth of 4 to 12 feet below ground surface (bgs). This material is loose to medium-dense with varying moisture content (dry to wet).

The native soil immediately below the fill is a lacustrine (lake bottom) varved (layered) silt with clay that was deposited under glacial lake Albany, which flooded much of the Hudson River Valley during retreat of the most recent glacier. This deposit includes a stiffer brown crust of silt and clay overlying soft, wet, grey silt and clay. This stratum extends to a depth of 16 to 37 feet bgs, being generally thicker to the west toward Broadway. This stratum is soft to very stiff.

Beneath the varved silt and clay stratum, there is a stratum of sand with varying amounts of clay, silt, and gravel. The layer extends to depths of 32 to 47 feet bgs. This stratum is loose to dense and is wet. This layer is either a glacial outwash deposit, an alluvial floodplain, or a river delta deposit. This layer has zones of loose and possibly liquefiable material.

Beneath this sand layer is a glacial till stratum that is comprised of varying amounts of silt, clay, sand, and gravel in a compact matrix. The glacial till layer extends to a depth of 45 to 50 feet bgs. The stratum is very dense and is dry to moist.

### 3.2.2 Local Bedrock Geology

Spectra did not encounter bedrock during completion of the RI soil borings. However, according to the Bedrock Geological Map of New York State "Upper Hudson Sheet", the Site is underlain by the Devonian-Age Snake Hill formation, which consists of soft to medium hard gray to dark gray shale with interbedded

siltstone. Geotechnical investigations have documented bedrock to be at depths of 50 to 80 feet bgs across the Site.

### 3.2.3 Local Hydrogeology and Groundwater Flow

Groundwater generally occurs within the unconsolidated sediments at average depths of 2.76 feet to 16.56 feet bgs. Depths to groundwater measured during the original RI conducted by Spectra and associated groundwater contours indicate that groundwater generally flows in a southeasterly direction across the Site. However, based on the groundwater contour map, it appears that the groundwater is being diverted to the south by subsurface features. Spectra's report suggested that the concrete basement wall, extending to depths of 8 to 12 feet bgs and located at the northwesterly boundary of parcel 76.27-1-7, is acting as a barrier and redirecting groundwater flow.

## 3.3 Surrounding Properties

Surrounding property uses include a visitor's center, two restaurants (Le Canard and the Albany Pump Station), parking lots and a parking garage, and several high-rise office buildings including the 677 Broadway office building, the Progressive Insurance Building, and the New York State Department of Environmental Conservation's headquarters. The Leo W. O'Brien Federal Building is located west of the Site, while several entertainment venues are located just south and west of the Site. The Site, although dilapidated and largely abandoned, is in a prominent location, visible from Interstate 787 and an associated off-ramp.

# 4.0 PREVIOUS INVESTIGATIONS AND REPORTS

## 4.1 Previous Interim Remedial Measures (IRMS)

Circa 2001, eight underground storage tanks (USTs) were removed from the Site. These USTs included one 275-gallon waste oil, one 1,500-gallon gasoline, one 500-gallon waste oil, two 4,000-gallon diesel/gasoline, one 2,000-gallon diesel, one 3,000-gallon fuel/oil/motor oil, and one 500-gallon fuel oil tank. During removal actions, elevated soil vapor measurements from a photoionization detector (PID) were obtained for soils collected adjacent to the USTs. In addition, significant staining, petroleum sheens, and liquid hydrocarbons were observed on the groundwater, thus resulting in the opening of multiple NYSDEC spill numbers (98-01349, 96-01740 and 00-08939). Former UST locations are shown on Figure 3. Four separate soil excavations were also completed in connection with these spills and a total of approximately 1,680 tons of contaminated soils were removed in an effort to remediate soil and groundwater impacts. Two subsurface investigations have also been completed under NYSDEC spill number 98-01349, as detailed below. All excavations and investigations were limited to some extent by the property boundaries, underground utilities, and existing buildings and, as such, have left contamination in place at the Site.

In 2010, another five (5) previously unregistered tanks (each a 4,000-gallon gasoline UST) were discovered, registered, removed, and closed in accordance with 6 NYCRR Part 613.9. During removal actions, approximately 5,089 gallons of mixed water and fuel were removed and recovered. In addition, the IRM resulted in the removal and proper disposal of approximately 750 tons of petroleum-impacted soils from the Site. The results of the IRM, documented in the "Interim Remedial Measure Report" prepared by Spectra Engineering, Architecture and Surveying, Inc. in November 2010, established that residual VOCs, SVOCs and metals are still present in post-excavation samples.

## 4.2 Phase I Environmental Site Assessment

A Phase I Environmental Site Assessment (ESA) was prepared in 2005 by Spectra Environmental Group, Inc. in general accordance with the American Society for Testing and Materials (ASTM) Standard Practice E 1527-00. The Phase I ESA identified the Site as having been used for a variety of commercial and industrial purposes between 1892 and the present. Historic uses have included multiple meat packing and processing companies, a box factory, coal storage operations, produce storage, railroad rights of way, roofing suppliers, a tin shop, whole meat suppliers, an insecticide factory, gasoline filling, and auto repair activities. Based on historic use and conditions observed during the Phase I ESA, recognized environmental concerns were identified and subsequent investigation activities were completed.

## 4.3 Subsurface Investigations

As described below, several soil and groundwater investigations have been previously completed at the Site.

**October 2005 Phase II Subsurface Investigation**

Soil samples were collected from four test pit locations (TP-1 through TP-4) and two hand auger locations (HA-1 and HA-2) in October 2005. Sample locations are shown on Figure 3. Soil analytical results indicate measurable concentrations of VOCs, SVOCs and metals above NYSDEC soil standards.

**June - July 2006 Limited Phase II Investigation**

A second subsurface investigation was completed at 705 Broadway in July 2006 to investigate an on-site floor drain and its discharge point. Six soil borings were completed downgradient of the floor drain to determine if soil impacts extended beyond the building foundation. Sample locations are shown on Figure 3. This investigation revealed free phase product and VOCs, SVOCs and metals above NYSDEC soil and groundwater standards.

**2008-2009 Remedial Investigation**

Remedial Investigation (RI) activities were completed in accordance with the NYSDEC-approved Remedial Investigation Work Plan (RIWP), dated November 2007, and its subsequent addendum, dated March 2008. The purpose of the RI was to investigate existing environmental conditions, to begin to address "data gaps" from prior investigations, provide an evaluation of the nature and extent of contamination on the original BCP Site, and identify source areas of contaminants on the original BCP Site. Additionally, the RIWP investigated the other 9 adjacent parcels (Spencer Street parcels) that make up the Capital Center project as part of the RI.

Although numerous soil excavations have been conducted at the original BCP Site in connection with UST removals, recent soil and groundwater analytical testing (2005, 2006 and 2008 RI results) indicate that the Site still contains contamination in the form of petroleum products, VOCs, SVOCs, and metals in excess of NYSDEC soil and groundwater standards.

### 4.4 Sampling Data

As previously noted, numerous soil and groundwater samples have been collected from the Site during previous environmental investigations. The samples have been analyzed for a variety of parameters including VOCs, SVOCs, pesticides, PCBs, and metals. The sampling data has confirmed the presence of VOCs, SVOCs, pesticides, PCBs, and metals in the soil beneath the Site. In addition, the sampling data has confirmed the presence of VOCs, SVOCs and metals in the groundwater beneath the Site. Previous investigations have also confirmed that petroleum-related contaminants are present in the soil gas beneath the Site.

Based on the investigations that have been completed to date, the contaminants that are known to present at the site include the following:

| Contaminant Type | Soil | Groundwater | Surface Water | Sediment | Soil Gas |
|---|---|---|---|---|---|
| Petroleum | ✓ | ✓ | NA | NA | ✓ |
| Chlorinated Solvents | | | NA | NA | ✓ |
| Other VOCs | ✓ | ✓ | NA | NA | |
| SVOCs | ✓ | ✓ | NA | NA | |
| Metals | ✓ | ✓ | NA | NA | |
| Pesticides | ✓ | | NA | NA | |
| PCBs | ✓ | | NA | NA | |

A detailed summary of the results of the previous investigations is provided in the following sections.

### 4.4.1 Soil

As demonstrated by the 2007 RI Report, nearly all soil samples collected from the Site, including the Spencer Street parcels, contained one or more parameters at concentrations above soil standards. Previous soil sample locations are shown on Figure 3. The results of the 2007 RI and other previous investigations suggest that metals, VOC, and SVOCs are widespread in soil throughout the Site. In addition, PCBs are present at concentration above soil standards on the Spencer Street parcels.

The primary VOC of concern is xylenes, which was detected at sample locations RIWP-4 and RIWP-18 at concentrations exceeding soil standards. Though VOC soil contamination is not significantly widespread across the Site, the soil data is inconsistent when compared to the groundwater data for VOCs. It is unclear if a soil source of VOC contamination remains, warranting further investigation.

The primary SVOCs of concern are PAHs consisting of benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthrene, benzo(k)fluoranthene, indeno(1,2,3-cd)pyrene and chrysene, all of which were detected at sample location RIWP-16 at concentrations exceeding soil standards, including industrial soil cleanup objectives at one or more locations.. Eleven additional SVOCs (benzo(a)anthracene, chrysene acenaphthene, anthracene, benzo(ghi)anthracene, carbazole, dibenzofuran, bis(2-ethylhexyl)phthalate, fluoranthene, fluorene, 2-methylnaphthalene, phenanthrene, and pyrene) were detected across seven (RIWP-3, RIWP-5, RIWP-6, RIWP-9, RIWP-11, RIWP-16 and RIWP-19) subsurface soil sample locations during the RI.

The primary metals that were detected above soil standards during the 2007 RI include cadmium, chromium, copper, lead, mercury, nickel, and zinc. Of particular concern is lead, which was detected at seven (7) RI sample locations: RIWP-3, RIWP-6, RIWP-8, RIWP-11, RIWP-13, RIWP-15, and RIWP-18. In addition, mercury was detected at levels above standards at multiple RI sample locations: RIWP-6, RIWP-8 , RIWP-9, RIWP-10, RIWP-11, RIWP-13, RIWP-15, RIWP-18, and RIWP-20. As shown on Figure 3, these detections are widespread across the Site, including the Spencer Street parcels.

PCBs were detected at concentrations above soil standards at RI sample locations RIWP-13 (located on the northernmost parcel 76.27-1-19) and RIWP-3 (located on the southeastern-most portion of the Site, parcel 76.27-1-9). Both detections were in shallow soil and therefore represent a potential exposure risk that should be further delineated.

In addition to those parameters detected above soil standards, soil sampling data from location RIWP-3 indicate the presence of pesticides in surface soil at levels exceeding standards. Based on the 2007 RI Report, soil sampling in this area was limited to only this location. Additional soil investigation is warranted to further define the extent of contaminants in this area, as well as determine if there is a potential source remaining on site.

In summary, it is apparent that soil at the Site, including the Spencer Street parcels, has been impacted by VOCs, SVOCs, metals, PCBs, and pesticides. Additional characterization is needed to determine the full nature and extent of the contamination, as well as to further define potential on-Site sources.

### 4.4.2 Groundwater

As demonstrated by the 2007 RI Report, nearly all groundwater samples collected from both the original BCP parcels and from the Spencer Street parcels contained one or more parameters at concentrations above groundwater standards. Groundwater sample locations are shown on Figure 3.

The results of the RI and other previous investigations suggest that VOCs are widespread in groundwater throughout the Site, including the Spencer Street parcels. The primary VOCs detected above groundwater standards are benzene and MTBE.

At the location of RIWP-9 on the southern portion of the Site, benzene was detected in groundwater at a concentration of 120 µg/L, significantly above the TOGS 1.1.1 groundwater standard of 1 µg/L. Analytical data for a groundwater sample collected at nearby location RIWP-4 indicate the presence of benzene at RIWP-4 at a concentration of 42 µg/L, indicating the potential migration of benzene-contaminated toward the property boundary in this area.

The source of the benzene impacts may be the former insecticide manufacturing facility, as benzene was/is a common chemical used in the manufacture of pesticides. The lack of other petroleum related contaminants also suggests that the source would be related to the former insecticide factory. Based on review of the 2007 RI Report, there is no groundwater data for the southeastern portion of the Site. This lack of data represents a significant data gap on the southeastern-most Spencer Street parcels. Additional groundwater investigation is warranted to further define the extent of contaminants in this area, notably benzene on the Spencer Street parcels, based on the above-referenced groundwater sampling data.

At the location of RIWP-8 on the western portion of the Site, MTBE was initially identified in groundwater at a concentration of 17,000 µg/L during June 2008. The concentration of MTBE in groundwater at this location increased to 22,000 µg/L during October 2009, indicating the potential for a significant remaining source area on site. Additionally, given this monitoring location's proximity to the property boundary, and the inferred direction of groundwater flow, it is potential that off-site impacts have occurred as a result of the MTBE present at this location. Additional groundwater investigation is warranted to further define the extent of contaminants in this area, notably MTBE, based on the above-referenced data.

In addition to the dissolved VOC contaminants, LNAPL has been observed in groundwater monitoring well SPMW-3 during past groundwater gauging events. SPMW-3 is located at the southern corner of the former auto repair facility. Although LNAPL is present in monitoring well SPMW-3, LNAPL has not been detected in any of the adjacent soil boring or groundwater monitoring wells (TP-4, SPMW-2, SPMW-5 or PES-5) during any groundwater gauging or soil sampling events. As such, the documented LNAPL at SPMW-3 appears to be limited and localized to the immediate SPMW-3 location.

The results of the RI and other previous investigations suggest that metal contamination is also widespread in groundwater throughout the Site, including the Spencer Street parcels. Four metals (iron, lead, manganese, and sodium) were detected at concentrations above groundwater standards. Lead was reported above the standard at monitoring wells RIWP-5 and RIWP-13 during the RI. Iron was detected above the groundwater standard eight (8) sample locations while manganese and sodium were detected above their respective groundwater standard at seven (7) and eight (8) sample locations, respectively.

There were no pesticides/herbicides detected in any of the groundwater samples collected as part of the 2007 RI, though it is noted that only two samples (both collected from RIWP-9) were analyzed for these parameters. To date, no monitoring wells have been installed and no groundwater samples collected in the area that was formerly used as a pesticide manufacturing facility. This lack of data represents a data significant data gap on the eastern-most Spencer Street parcels.

Only two samples contained SVOCs above the reporting limits, and only one of those (RIWP-5) contained SVOCs about standards. It is not anticipated that SVOCs represent a major contaminant of concern in groundwater.

In summary, it is apparent that groundwater at the Site, including the Spencer Street parcels, has been impacted by VOCs and metals. Additional characterization is needed to determine the full nature and extent of the contamination, as well as to further define potential remaining sources. In addition, on-Site groundwater has not been properly investigated for the presence of PCBs and pesticides, thereby warranting further investigation.

### 4.4.3 Soil Vapor

Of the seven (7) soil vapor samples collected at the Site, all contained VOC constituents at concentrations above the relevant regulatory guidance values. Five (5) of the seven (7) samples were collected from the original BCP site while the remaining two (2) were collected from the Spencer Street parcels.

Elevated concentrations of acetone, carbon tetrachloride, 1,4-dichlorobenzene, ethylbenzene, tetrachloroethene (PCE), toluene, trichloroethene (TCE), o-xylene and m&p-xylene were identified above background values published by NYSDOH in all seven (7) vapor sample locations.

The results also suggest that vapor intrusion is a potential concern in any future on-site buildings.

# 5.0 PROPOSED REMEDIAL INVESTIGATION

The supplemental RI will be performed in accordance with this RI Work Plan and will involve fieldwork necessary to complete the site characterization. Based on a review of previous environmental investigation reports for the Capital Center Site, several data gaps have been identified that require additional investigation. These include the following:

- Additional characterization needed to more fully characterize several parcels across the Site as identified in the BCP application (Figure 3);
- Additional characterization for PCBs and pesticides found in soils in the area of the RIWP-3 soil boring location on the south end of the site and PCBs in the surface soil near RIWP-13 located in the northern most property parcel;
- Delineation of NAPL found in monitoring well SPMW-3 located south of the auto maintenance shop;
- Additional site-wide characterization of groundwater; and,
- Characterization of soils for determination of offsite disposal requirements during site preparation.

The supplemental RI will provide sufficient information to allow for identification of remedial alternatives that satisfy the proposed redevelopment plan as well as the NYSDEC requirements for the site based on the future use. All data will be obtained in such a manner to ensure sufficient quality to support subsequent decisions. The proposed investigation activities to be conducted consist of the installation of a series of soil borings and groundwater monitoring wells, and the collection and analysis of soil and groundwater samples for parameters of concern.

The investigation activities are briefly summarized in the following sections and described in further detail in the FS). Samples will be collected and analyzed in accordance with field sampling procedures and protocols are described in the FSP (Appendix A). Quality Assurance/Quality Control (QA/QC) samples will be collected and analyzed in accordance with the QAPP (Appendix B).

## 5.1 Soil Boring Installation and Soil Sampling

As part of the Supplemental RI, CHA will install fifteen (15) borings to refusal or twenty feet bgs, whichever is encountered first, using track-mounted Geoprobe hydraulic-push equipment. Soil samples will be collected based on field observations during sampling (i.e., soil odors, soil discoloration) or elevated photoionization detector (PID) field screening results. In the absence of elevated PID readings or biased field observations, a sample will be collected at the six-inch interval above groundwater. Proposed sampling points are shown on Figure 3.

During advancement of each soil boring, continuous samples will be collected. Once the soil sample has been extracted from the ground, the core tube will be cut along the length to expose the soil. Soils will be logged in the field using a modified soil classification method.

One soil sample from each soil boring location will be submitted to an off-site laboratory certified through the New York State Department of Health (NYSDOH) Environmental Laboratory Accreditation Program (ELAP) for analysis of the following:

- Target Compound List volatile organic compounds (TCL VOCs) at all 15 soil boring locations;
- Target Analyte List (TAL) metals at all 15 soil boring locations;
- TCL semi-volatile organic compounds (SVOCs) at eight soil boring locations;
- Pesticides at three soil borings installed along the southern property boundary; and,
- PCBs at five soil boring locations.

Specific analytes for each proposed soil boring are detailed on Table 5-1, below.

CHA will also collect five samples for characterization of soils for determination of offsite disposal requirements. These samples will be analyzed for full TCLP analyses and PCBs. This data will support the remedial alternative for offsite disposal of contaminated soils as required during site preparation, which is considered a potential alternative for soil removal needed as part of foundation construction for the proposed redevelopment.

## 5.2 Soil Vapor Investigation

CHA's preliminary review of available soil vapor information indicates elevated concentrations of acetone, carbon tetrachloride, 1,4-dichlorobenzene, ethylbenzene, tetrachloroethene (PCE), toluene, trichloroethene (TCE), o-xylene and m&p-xylene were identified above background values published by NYSDOH in all seven (7) vapor samples previously analyzed. The results suggest that vapor intrusion is a potential concern in any future on-site buildings, regardless of whether they are located on the original seven (7) BCP Site parcels or on the Spencer Street parcels.

There are no additional soil vapor analyses proposed at this time. Soil vapor remediation for building foundations will be addressed in the Alternatives Analysis and as part of the Remedial Work Plan.

## 5.3 Surface Soil Investigation

A total of six (6) surface soil samples will be collected from areas on the site outside of the proposed foundation excavation footprint and in areas that are expected to remain grassed. These samples will help assess remedial alternatives needed to address potential exposure to surface soils. All six (6) samples will be analyzed for TCL VOCs and SVOCs, TAL metals, pesticides, and PCBs.

## 5.4 Groundwater Investigation

A maximum of four (4) of the soil borings installed at the site will be converted to permanent groundwater monitoring wells. Once the wells are installed, each well will be developed using a combination of pumping and surging.

It is anticipated that four proposed wells, in addition to the eight monitoring wells that exist on the site, will be sufficient to characterize the nature and extent of onsite groundwater contamination. The new wells will be installed in the vicinity of areas of concern across the project site. It is anticipated that the wells will be a maximum of 15 feet deep based on information in the 2007 RI.

After groundwater levels have reached equilibrium, the depth to groundwater will be measured to confirm groundwater flow direction. One (1) round of samples will be collected from the eight (8) existing and four (4) newly installed wells.

Samples will be analyzed for a one or more of the following analyte lists: VOCs, SVOCs, TAL metals, pesticides, and PCBs. Specific analytes for each proposed monitoring well are detailed on Table 5-1, below.

## 5.5 Proposed Sampling and Analysis

Table 5-1 presents a summary of the proposed sampling and analysis plan, including the sample identifications, depths (if applicable), analytical parameters, and detailed sampling rationale. QA/QC samples will be collected according to the QAPP, included as Appendix B. Proposed sample locations are presented on Figure 3.

## Table 5-1: Sampling Rationale

| Sample ID | Matrix | Sample Depth(s) | Sample Location | Analytical Parameters | Rationale |
|---|---|---|---|---|---|
| RIWP-21 | Soil | Interval which indicates the highest potential for the presence of contamination | Northern portion of Site (Tax Parcel 76.27-1-19) | VOCs, SVOCs, TAL Metals, PCBs | RIWP-21 is placed to further characterize potential impacts from former metal working/tin shop and machine/equipment storage and repair operations on this parcel. |
| RIWP-22 | Soil | Interval which indicates the highest potential for the presence of contamination | Northeastern portion of Site (Tax Parcel 76.27-1-1) | VOCs, TAL Metals, PCBs | RIWP-22 is placed to further characterize potential impacts from former metal working/tin shop and machine/equipment storage and repair operations on this parcel. |
| RIWP-23 RIWP-24 | Soil | Interval which indicates the highest potential for the presence of contamination | Eastern portion of Site (Tax Parcel 76.27-1-7) | VOCs, SVOCs, TAL Metals | RIWP-23 and RIWP-24 are placed to further characterize impacts from past operations on this parcel (metals and PAH impacts previously documented). |
| RIWP-25 RIWP-26 | Soil | Interval which indicates the highest potential for the presence of contamination | Southeastern portion of Site (Tax Parcel 76.27-1-9) | VOCs, SVOCs, TAL Metals | RIWP-25 and RIWP-26 are placed to further characterize impacts from past operations on this parcel. |
| RIWP-27 RIWP-28 | Soil | Interval which indicates the highest potential for the presence of contamination | Southern portion of Site (Tax Parcel 76.27-1-10) | VOCs, TAL Metals PCBs, Pesticides | RIWP-27 and RIWP-28 are placed to further characterize impacts from former pesticide manufacturing facility operations on adjacent parcel; documented pesticide contamination adjacent to parcel. |

| Sample ID | Matrix | Sample Depth(s) | Sample Location | Analytical Parameters | Rationale |
|---|---|---|---|---|---|
| RIWP-29 | Soil | Interval which indicates the highest potential for the presence of contamination | Southernmost portion of Site (Tax Parcel 76.27-1-12.22) | VOCs, SVOCs, TAL Metals, PCBs, Pesticides | RIWP-29 is placed to further characterize impacts on this parcel, based on previously documented benzene impacts and the proximity of the parcel to a former vehicle servicing facility and the former pesticide manufacturing facility. |
| RIWP-30 | Soil | Interval which indicates the highest potential for the presence of contamination | Southern portion of Site (Tax Parcel 76.27-1-12.22) | VOCs, SVOCs, TAL Metals | RIWP-30 is placed to further characterize impacts on this parcel, based on previously documented benzene impacts and the proximity of the parcel to a former vehicle servicing facility, the former pesticide manufacturing facility and documented petroleum contamination on the adjacent parcel to the northwest. |
| RIWP-31<br>RIWP-32 | Soil | Interval which indicates the highest potential for the presence of contamination | Southwestern portion of Site (Tax Parcel 76.27-1-12.1) | VOCs, SVOCs, TAL Metals | RIWP-31 and RIWP-32 are placed to further define previously documented petroleum contamination on this parcel (several USTs formerly located on this parcel). |
| RIWP-33<br>RIWP-34<br>RIWP-35 | Soil | Interval which indicates the highest potential for the presence of contamination | Western portion of Site (Tax Parcel 76.27-1-17) | VOCs, TAL Metals | RIWP-33, RIWP-34 and RIWP-35 are placed to further define impacts associated with former gas station operations (LNAPL previously documented on the parcel). |
| SS-1 through SS-6 | Surface Soil | Surface (0 to 2 inches) | Outside proposed building footprint | VOCs, SVOCs, TAL Metals, Pesticides, PCBs | Surface samples will be collected to evaluate remedial alternatives for soil that remains outside the proposed building footprint. |
| Waste Soil 1 through Waste Soil 5 | Soil | Composite | Composite | Waste Characterization Parameters (Full TCLP and PCBs) | Waste Soil 1 through Waste Soil 5 will be collected to characterize soil for waste disposal purposes. |

| Sample ID | Matrix | Sample Depth(s) | Sample Location | Analytical Parameters | Rationale |
|---|---|---|---|---|---|
| RIWP-4<br>RIWP-5<br>RIWP-6<br>RIWP-8<br>RIWP-9<br>RIWP-10<br>RIWP-13<br>RIWP-15 | Groundwater | N/A | Previously installed monitoring wells | VOCs, TAL Metals | Groundwater samples will be collected from the previously installed monitoring wells to further evaluate groundwater conditions across the site and to compare current and previous analytical data. |
| RIWP-28 (Groundwater) | Groundwater | N/A | RIWP-28 soil boring converted to monitoring well | VOCs, TAL Metals, PCBs, Pesticides | A groundwater sample will be collected at RIWP-28 to evaluate groundwater impacts near the southeastern boundary of the Site, based on former pesticide manufacturing facility and documented pesticide and PCB impacts on the adjacent parcel. |
| RIWP-30 (Groundwater) | Groundwater | N/A | RIWP-30 soil boring converted to monitoring well | VOCs, TAL Metals | A groundwater sample will be collected at RIWP-30 to further evaluate impacts to groundwater based on previously documented elevated benzene levels in this area of the Site. |
| RIWP-32 (Groundwater) | Groundwater | N/A | RIWP-32 soil boring converted to monitoring well | VOCs, TAL Metals | A groundwater sample will be collected at RIWP-32 to further define and evaluate impacts to groundwater near the western boundary of the Site, based on previously documented petroleum contamination on this parcel. |
| RIWP-33 (Groundwater) | Groundwater | N/A | RIWP-33 soil boring converted to monitoring well | VOCs, TAL Metals | A groundwater sample will be collected at RIWP-33 to further define and evaluate impacts to groundwater, based on previously documented LNAPL in this area of the parcel. |

## 5.6 Decontamination Procedure

Decontamination procedures related to the investigative activities at the Site are described in the FSP, included as Appendix A.

## 5.7 Investigation Derived Waste

Investigation Derived Waste (IDW) generated during the investigation will include soil cuttings, samples not submitted for analysis, purge water, and decontamination water, as well as empty soil jars, personal protective equipment (PPE) and other project-related waste. Handling procedure for the IDW has been outlined in the FSP, included as Appendix A.

## 5.8 Reporting

A Supplemental RI Report will be prepared summarizing the information generated during implementation of this Work Plan. The report will be prepared in accordance with the New York State Department of Environmental Conservation's "DER-10 Technical Guidance for Site Investigation and Remediation" (May 2010).

The report will also include the following information and data pertaining to the Site:

1. Boring/ monitoring well installation/field sampling logs.
2. Tables summarizing the analytical data for soil and groundwater samples collected including comparisons to appropriate standards, criteria, and guidance (e.g., 6 NYCRR Subpart 375-6 Remedial Program Soil Cleanup Objectives and NYSDEC Groundwater Standards)
3. A discussion regarding the existence or non-existence of surficial and/or subsurface contamination.
4. A narrative that summarizes the results of the investigation including a discussion of the physical and analytical results.
5. A characterization of the soil and groundwater of the site to allow for the confirmation of the source(s) of the contamination, movement of the contamination, and possible receptors at risk.
6. Groundwater contour maps, assuming groundwater is encountered, to show the direction of the local groundwater flow.
7. Figures showing the locations of the borings, surficial soil samples, and monitoring wells at the site.
8. A qualitative exposure assessment for contamination, if any, emanating from the Site.
9. Conclusions and recommendations regarding the environmental status of the site.

# 6.0 FIELD SAMPLING PLAN

The work described in this Work Plan for the Supplemental RI will be performed in accordance with the Field Sampling Plan (FSP) that has been developed for this project. The FSP details the specific sampling objectives, procedures, and protocols associated with this project.

A copy of the FSP is provided in Appendix A.

# 7.0 QUALITY ASSURANCE PROJECT PLAN

A Quality Assurance Project Plan (QAPP) has also been prepared for the site investigation activities. The QAPP presents the policies, organization, objectives, functional activities and specific Quality Assurance (QA) and Quality Control (QC) activities designed to achieve the specific data quality goals associated with the Supplemental Remedial Investigation (RI) that will be conducted at the Site.

A copy of the QAPP is provided in Appendix B.

# 8.0 HEALTH AND SAFETY PROTOCOLS

A site-specific Health and Safety Plan (HASP) was prepared following an assessment of known physical and chemical hazards present at the site and an evaluation of the risks associated with the assessment and remedial actions. Available site information was examined and adequate warnings and safeguards for field personnel were selected and implemented. All CHA field personnel are required to review and sign the HASP before entering the field. Subcontractors to CHA are required to develop and implement their own HASP.

A copy of the site-specific HASP is provided in Appendix C.

# 9.0 COMMUNITY AIR MONITORING PROGRAM

A Community Air Monitoring Plan (CAMP) has been prepared to provide a measure of protection for the downwind community (i.e. off-site receptors including residences and businesses and on-site workers not directly involved with the subject work activities) from potential airborne contaminant releases as a direct result of the proposed remedial investigation activities. Air monitoring will be conducted in general accordance with the New York State Department of Health (NYSDOH) *Generic Community Air Monitoring Plan (CAMP).*

A copy of the site-specific CAMP is provided in Appendix D.

# 10.0 CITIZEN PARTICIPATION ACTIVITIES

The Brownfield Program includes an active role for Citizen Participation during the execution of the project. As part of that effort, CHA has developed a Citizen Participation Plan (CPP). The CPP enables citizens to become informed and participate more fully in the decision making process that may affect their neighborhood. NYSDEC requires several opportunities for citizen involvement during the investigation and cleanup of Brownfield sites. The CPP has previously been provided under separate cover.

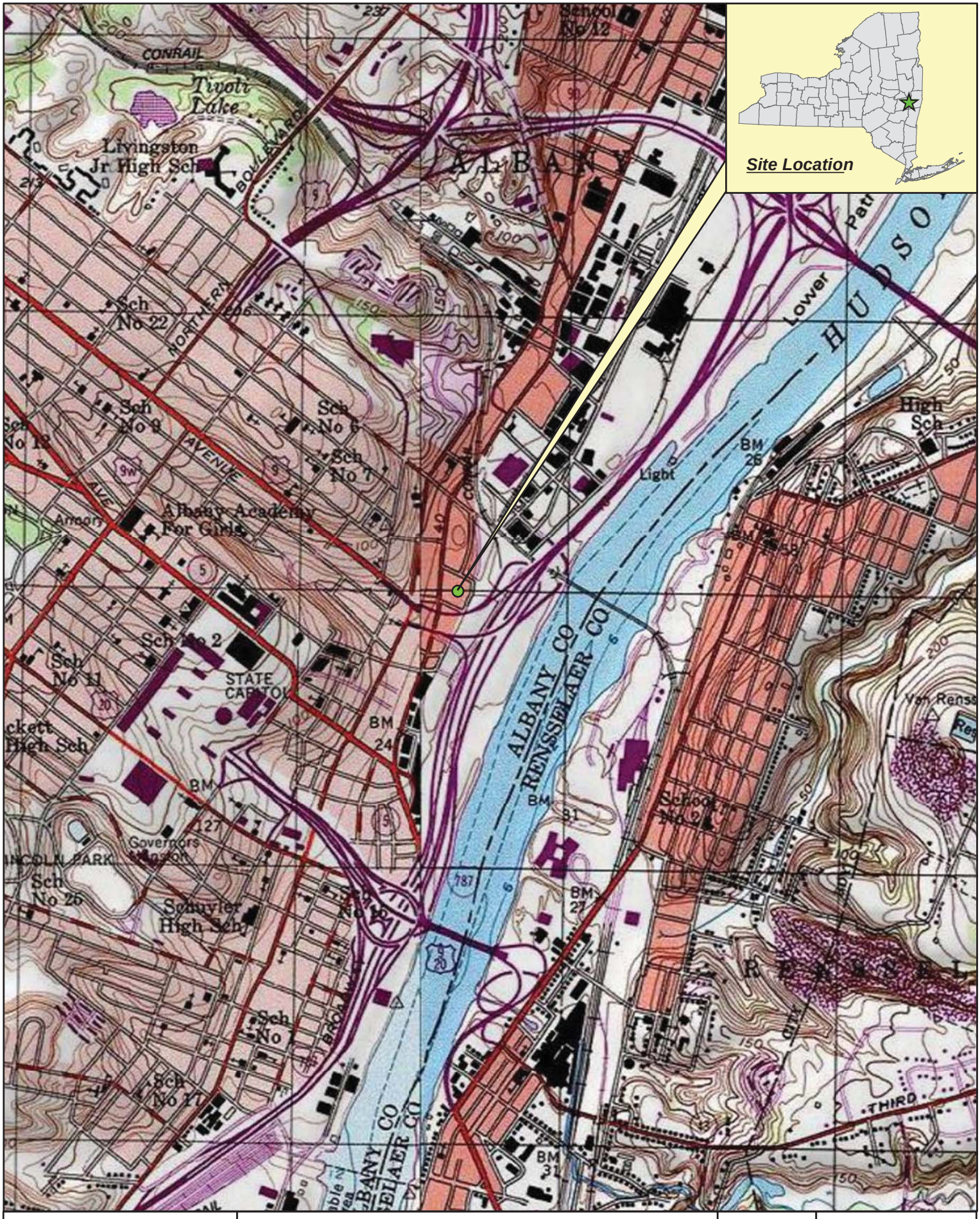
# 11.0 SCHEDULE

The following table provides an estimated schedule for completion of the Capital Center BCP Project. The overall progress of the project will be dependent upon a number of factors including, but not limited to, NYSDEC review and approval timeframes, time of year at which the final design documents are complete, weather conditions at the time of remedial construction, etc.

**Table 11-1: Project Schedule**

| DESCRIPTION | ESTIMATED START | ESTIMATED FINISH |
|---|---|---|
| Execution of BCP Agreement | October 2013 | November 2013 |
| Remedial Investigation Work Plan Submission | January 2014 | February 2014 |
| Comment Period & Review of Work Plan | February 2014 | March 2014 |
| Demolition of existing site buildings in advance of RI | April 2014 | June 2014 |
| Remedial Investigation | July 2014 | July 2014 |
| Supplemental Remedial Investigation Report / Remedial Alternatives Analysis | July 2014 | August 2014 |
| Review & Approval of Investigation Report / Remedial Alternatives Analysis | August 2014 | September 2014 |
| NYSDEC Selection of Proposed Remedy | September 2014 | October 2014 |
| Public Comment Period on Proposed Remedy | October 2014 | December 2014 |
| ROD Issued & Remedial Design Completed | December 2014 | January 2015 |
| Review & Approval of Remedial Design | February 2015 | February 2015 |
| Remediation | March 2015 | June 2015 |
| Final Engineering Report | July 2015 | July 2015 |
| Certificate of Completion | September/October 2015 | |

# FIGURES




CHA

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*Capital Center Project*

**Site Location Map**

*Albany County* *New York*

N W E S

1 inch = 2,000 feet

Figure 1

Date : August 2013

0 1,000 2,000 Feet


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*Capital Center Project*

**City of Albany Tax Map**

*Albany County* *New York*

N W E S

1 inch = 100 feet

Figure 2

Date : August 2013

0 50 100 Feet

File: V:\PROJECTS\ANY\K3\27160\CADD\FIGURES\FIG3_PR_RMDL_INV-2014-27160.DWG Saved: 2/13/2014 9:40:12 AM Plotted: 2/13/2014 9:41:10 AM User: Harden, Jason LastSavedBy: 1709

LIMITS OF BCP SITE

- Former machine and equipment storage and repair.
- Metal working/tin shop
- Heavy metal impacts documented above unrestricted soil.
- PCB's detected above unrestricted VSC SCO.
- Mercury impacts above restricted residential SCOs

- Former gas station and vehicle service facility.
- Documented soil contamination VOCs impacts in soil at levels above SCOs.

- Former gas station and vehicle service facility.
- Documented VOC impacts in soil above SCOs.
- LNAPL identified in sample location SPMW-3.

- Former Cool Storage area
- PAH Impacts at levels above Industrial SCOs
- Heavy metal impacts above soil SCOs

- Former coal storage and tin shop
- PAH Soil impacts above Commercial AND Industrial SCOs
- Heavy metal impacts above SCOs

- Former pesticide manufacturing
- Documented pesticide levels include DDT above SCOs
- PCBs & Metals exceed SCOs

- Former gas station and auto repair shop.
- MTBE contamination in groundwater at downgradient property line (22,000 UG/L vs. GW standard of 10 UG/L).
- MTBE levels observed to increase from 2008 to 2009 even after IRM was performed to remove tanks.

- Former petroleum USTs.
- Documented petroleum contamination.

- Benzene levels in groundwater exceed groundwater standards near downgradient properly boundary

- Parcel associated with former pesticide manufacturing.
- Documented pesticide contamination immediately adjacent to parcel.
- Parcel associated w/loading dock for pesticide mfg. facility.

- Former pesticide manufacturing.

- Former vehicle servicing facility.
- Adjacent to and potentially associated w/former pesticide manufacturing facility.
- Documented benzene contamination in groundwater at more than 100 times standard.
- Benzene impacts potentially related to pesticide mfg given the absence of other petroleum related compounds.

SPENCER STREET
BROADWAY
QUACKENBUSH STREET
(FORMERLY) MONTGOMERY STREET
PARCEL 76.27-1-19
PARCEL 76.27-1-18
PARCEL 76.27-1-17
PARCEL 76.27-1-15
PARCEL 76.27-1-1
PARCEL 76.27-1-12.1
PARCEL 76.27-1-13.5
PARCEL 76.27-1-12.22
PARCEL 76.27-1-11
PARCEL 76.27-1-11.2
PARCEL 76.27-1-12.21
PARCEL 76.27-1-10
PARCEL 76.27-1-25.2
PARCEL 76.27-1-7 1 STORY BRICK BLDG W/BASEMENT
PARCEL 76.27-1-8 2 STORY BRICK BLDG.
PARCEL 76.27-1-9 2 STORY BRICK BLDG.
1 STORY FRAME BLDG.
1 STORY FRAME BLDG.
1 STORY BRICK BLDG.
1 STORY BRICK BLDG.
1 STORY BRICK BLDG.
AMBIENT SAMPLE

## LEGEND

- EXISTING SOIL BORING
- EXISTING TEST PIT
- EXISTING MONITORING WELL
- EXISTING VAPOR POINT
- EXISTING HAND AUGER LOCATION
- PROPOSED SURFACE SOIL SAMPLE LOCATION
- PROPOSED SOIL BORING
- PROPOSED SOIL BORING/MONITORING WELL
- FORMER USTS

*Map reprinted from Remedial Investigation Report; prepared by SPECTRA; 2008



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# PROPOSED SAMPLE LOCATIONS

SUPPLEMENTAL REMEDIAL INVESTIGATION
CAPITAL CENTER PROJECT
BROADWAY AND SPENCER ST.
ALBANY NY

PROJECT NO. 27160

DATE: 02/11/14

FIGURE 3

# APPENDIX A

# FIELD SAMPLING PLAN

## Capital Center
## BCP Site #C401070
## Broadway and Spencer Street
## City of Albany, New York

*CHA Project Number: 27160*

***Prepared for:***

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*Latham, NY 12110*

&

*FC 705 Broadway LLC*
*22 Century Hill Drive, Suite 301*
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*February 2014*

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## TABLES



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# 1.0 INTRODUCTION

This Field Sampling Plan (FSP) has been prepared for the Capital Center Site (Site), located at Broadway and Spencer Streets in Albany, New York, and is to be utilized during the Supplemental Remedial Investigation (RI) at the Site. The Capital Center Site is a part of the New York State Department of Environmental Conservation's (NYSDEC) Brownfield Cleanup Program (BCP). The site location is shown in Figure 1. A site plan is provided as Figure 2.

This Plan outlines the protocols which will be followed during the following activities and has been prepared as an appendix to the Supplemental Remedial Investigation (RI) Work Plan for the project. In general, the following activities will be conducted as part of the site investigation activities:

- Installation of soil borings and monitoring wells;
- Collection of surface and subsurface soil samples;
- Sampling of monitoring wells;
- Equipment cleaning; and
- Waste handling.

# 2.0 GENERAL SAMPLING PROTOCOLS

The sampling approach and rationale for sample collection is described in the Supplemental RI Work Plan. The Data Quality Objectives for the project and the quality assurance and quality control procedures for the project are described in the Quality Assurance Project Plan (QAPP), found in Appendix B of the Supplemental RI Work Plan. Sampling activities will be conducted in a manner to protect both workers and the general public in accordance with the Health and Safety Plan (HASP), found in Appendix C of the Supplemental RI Work Plan.

## 2.1 SAMPLE DESIGNATION

Subsurface soil samples will be identified with the following designation: RIWP-(##) (depth interval in feet below grade) (e.g., RIWP-21 (2-4')). To avoid confusion, numbering of the borings will start where the previous numbering ended and numbers will begin with RIWP-21.

Monitoring wells will be identified with the following designation: MW-(##) and labeled sequentially.

## 2.2 SAMPLE HANDLING

A new pair of disposable latex gloves will be used at each location to be sampled for chemical analyses. Additional glove changes will be undertaken as conditions warrant.

Sample containers will be new and delivered from the laboratory prior to the sampling event. Sample containers will come with the proper volume of chemical preservative appropriate for the type of analysis.

After sample collection, the sample containers will be logged onto a chain of custody record described in the Quality Assurance Project Plan. The sample containers will be placed on ice and/or ice packs in laboratory- supplied rigid coolers after collection and labeling. Remaining space will be filled with packing material to cushion the containers during transportation or shipment.

The cooler will then be sealed with packing tape. Coolers will be shipped via an overnight carrier to an off-site New York State Department of Health (NYSDOH) Environmental Laboratory Accreditation Program (ELAP)-certified laboratory for analysis. For this project CHA staff will hand deliver the sample coolers to the TestAmerica Albany Service Center located in Albany, New York.

Samples will remain under the control of CHA's field representative until relinquished to the laboratory or commercial courier under chain-of-custody (see QAPP).

## 2.3 FIELD DOCUMENTATION

Pertinent field survey and sampling information shall be recorded in a logbook or on field logs during each day of the field effort. Detailed soil boring and monitoring well installation logs will be completed.

At a minimum, entries in a logbook shall include:

- Date and time of starting work;
- Names of all personnel at site;
- Weather conditions
- Purpose of proposed work effort;
- Sampling equipment to be used and calibration of equipment;
- Description of work area;
- Location of work area, including map reference;
- Details of work effort, particularly any deviation from the field operations plan or standard operating procedures;
- Field observations;
- Field measurements (e.g., pH);
- Field laboratory analytical results;
- Daily health and safety entries, including levels of protection;
- Type, number, and location of samples;
- Sampling method, particularly deviations from the standard operating procedures;
- Sample location and number; and
- Sample handling, packaging, labeling, and shipping information (including destination).

In addition to keeping logs, photographs will be taken to provide a physical record to augment the fieldworker's written observations. For each photograph taken, several items shall be recorded in the field logbooks:

- Date and time;
- Name of photographer;
- General direction faced and description of the subject

Additional protocols specific to each sampling method are presented in the following sections.

# 3.0 INVESTIGATION ACTIVITIES

## 3.1 Soil Borings

As part of the RI, fifteen (15) borings will be installed using track-mounted Geoprobe hydraulic-push equipment. Proposed soil boring locations are shown on Figure 3. The soil borings will be advanced to a depth of twenty feet below ground surface (bgs) or to refusal, whichever is encountered first. The depth and location of each boring may vary depending upon geologic conditions.

Soil cores will be collected continuously from grade to final depth using a Macrocore® sampling device. The soil core will then be screened in the field for visual, olfactory, and photoionic evidence of contamination. Soils will be logged in the field using a modified soil classification method. Immediately upon opening the macro-core soil sampler, a PID or equivalent meter will be used to obtain readings along the length of the soil sample. Soil samples for laboratory analysis will be collected from each borehole in accordance with the following protocols:

1. A sample will be collected from the unsaturated interval which indicates the highest potential for the presence of contamination as determined by the highest PID or equivalent meter reading, and/or visual observation, or,

2. In the instance where elevated PID meter readings, or visible contamination are not present, a sample from the interval immediately above the water table may be collected for laboratory analysis.

One soil sample from each soil boring location will be submitted to an off-site NYSDOH ELAP-certified laboratory for a select set of parameters as described in Table 3-1. Subsurface soil samples analyzed for the presence of volatile organic compounds (VOCs) will be collected using an En Core™ sampler or equivalent. The sampling device will be inserted into the undisturbed soil from the Geoprobe® Macrocore tube. The 5-gram plug of soil will be capped and sent to the laboratory where it will be preserved, extracted, and analyzed. The remaining sample volume will be homogenized by the following process:

1. Remove rocks, twigs, leaves and other debris from the sampling device
2. Place the sample into a stainless steel bowl and thoroughly mix using a stainless steel spoon
3. Scrape the sample from the sides, corners and bottom of bowl, roll to the middle of the bowl and mix.
4. Quarter the sample and move to the four corners of the bowl. Each quarter will be individually mixed and rolled to the center of the bowl and then the entire sample will be mixed again.
5. Place the sample into an unpreserved 8 ounce glass jar for SVOC (base/neutral fraction), metal, and PCB analysis

Subsurface soil samples will be identified with the following designation: RIWP-(##) (depth interval in feet below grade) (e.g., RIWP-22 (8'-10')). Sample container requirements, preservation

measures, and handling procedures are presented in the QAPP. QA/QC samples will be collected in accordance with the QAPP.

Before drilling at each boring location and after drilling at the last location, the drilling equipment and all sampling equipment will be decontaminated in accordance with the protocols established in Section 4. Drill cuttings will be managed as described in Section 5.

### 3.2 Surface Soil Sampling

The proposed surface soil sample locations are illustrated by Figure 3. After removing any vegetative cover, six (6) surficial soil samples will be collected from an interval of zero to two inches bgs using a decontaminated stainless steel trowel or single use disposable scoop. Subsurface soil samples analyzed for the presence of VOCs will be collected using an En Core™ sampler or equivalent. The sampling device will be inserted into the undisturbed soil from the Geoprobe® Macrocore tube. The 5-gram plug of soil will be capped and sent to the laboratory where it will be preserved, extracted, and analyzed.

Each sample analyzed for SVOCs, TAL metals, pesticides and PCBs will be a homogenization of five samples collected from a two square foot (one from each corner and one from the center) area. Rocks, twigs, leaves and other debris will be removed from the sampling device and the individual samples from each corner and from the center will then be homogenized in a stainless steel bowl and thoroughly mixed using a stainless steel spoon. The sample will be scraped from the sides, corners and bottom of bowl, rolled to the middle of the bowl and mixed. The sample will then be quartered and moved to the four corners of the bowl. Each quarter will be individually mixed and rolled to the center of the bowl and then the entire sample will be mixed again. The composite sample will be submitted to a qualified laboratory and analyzed for the presence of SVOCs, TAL metals, pesticides and PCBs.

Surface soil samples will be identified with the following designation: SS-(##) (e.g., SS-01). Sample container requirements, preservation measures, and handling procedures are presented in the QAPP. QA/QC samples will be collected in accordance with the QAPP.

### 3.3 Monitoring Well Installation Procedures

A maximum of four (4) of the soil borings installed at the site will be converted to groundwater monitoring wells, constructed with one-inch diameter PVC riser pipe and well screen. The wells screens will have a slot opening size of 0.010-inches. The screen will be installed to straddle the water table. A sand pack, consisting of a minimum thickness of one (1) inch, will be placed within the annulus between the borehole and the well screen. A 2-foot bentonite seal will then be placed above the screen. The remaining borehole between the bentonite seal and the ground surface will be backfilled with bentonite-cement grout. Standpipe or flush-mounted steel protective casings will be installed at each well location to protect the riser pipes.

Once the wells are installed, each well will be developed using a combination of pumping and surging. The newly installed wells will be developed until the turbidity of the groundwater is less

than 50 NTUs, or for a maximum of two hours each, whichever comes first. The locations of the proposed wells are shown on Figure 3.

### 3.4 Survey

After installation, the elevation of the top of the casing and the ground surface elevations at the new well locations will be surveyed by CHA personnel and tied into the existing site survey data. The survey data is necessary to determine the overall direction of groundwater flow in the vicinity of the groundwater collection trench.

### 3.5 Groundwater Sampling

Groundwater samples will be collected from proposed wells, as well as all existing on-site monitoring wells (RIWPs 4, 5, 6, 8, 9, 10, 13, and 15). These samples will be collected a minimum of 24 hours after the well installation activities are completed. Bottle requirements and handling procedures are presented in the QAPP. Sampling protocols are presented in the following sub-sections.

#### 3.5.1 Water Level Measurements

Groundwater level measurements will be collected on at least two (2) separate occasions following installation and development: once immediately following development, and once immediately prior to groundwater sampling. During one round of measurements, groundwater levels will also be collected from available wells at the site. Groundwater elevation measurements will be used with well elevation data to determine direction of groundwater flow.

The water level in all monitoring wells will be measured to the nearest 0.01-foot using a Solinst electronic water level meter and recorded prior to the collection of any samples. Using the well riser elevations and depth to groundwater measurements, CHA will record the water level elevations and construct a groundwater potentiometric surface map. The well depth and depth to water data will be used to calculate the volume of water in the well casing. Water level measuring equipment that comes in contact with well water will be cleaned in accordance with Section 5.0 to minimize the potential for cross-contamination.

#### 3.5.2 Well Sampling

Monitoring well sampling will be carried out according to the following protocol:

1. Personnel involved in well purging will wear a new pair of disposable latex gloves for each well.

2. Purging will be considered complete when three (3) to five (5) well volumes have been evacuated from the monitoring well. In the event that recharge is insufficient to conduct the purging protocol described, the well will be bailed/pumped to dryness and a sample will be collected when the monitoring well has sufficiently recovered.

3. Acceptable methods of water extraction during purging include bailers, peristaltic pumps, bladder pumps, Waterra® pumps, and centrifugal pumps. The purging method selected will be based upon the well depth, the water level in the well, and the recharge characteristics.

4. Water extraction equipment will be cleaned in accordance with the protocols presented in Section 4.0.

5. Monitoring wells will be sampled using either a bottom filling, dedicated polyethylene bailer attached to a nylon or polypropylene rope or a peristaltic pump. A new, disposable bailer and length of rope will be used at each well. If a peristaltic pump is used, new tubing (poly and silicone) will be used at each well. Samples for VOC analysis will be collected using a bailer, not via the peristaltic pump.

6. Groundwater samples will be analyzed for a select set of parameters as described in Table 3-1.

7. Sample preservation details are presented in the QAPP. Sample containers will be prepared by the laboratory, and will be pre-labeled and pre-preserved.

8. Calibration of all field instruments will be conducted in accordance with the manufacturer's instructions.

9. QA/QC samples will be collected in accordance with the QAPP.

10. Non-disposable sampling equipment will be decontaminated in accordance with the protocols established in Section 4. Purge water will be managed as described in Section 5.

## Table 3-1: Sampling Rationale

| Sample ID | Matrix | Sample Depth(s) | Sample Location | Analytical Parameters | Rationale |
|---|---|---|---|---|---|
| RIWP-21 | Soil | Interval which indicates the highest potential for the presence of contamination | Northern portion of Site (Tax Parcel 76.27-1-19) | VOCs, SVOCs, TAL Metals, PCBs | RIWP-21 is placed to further characterize potential impacts from former metal working/tin shop and machine/equipment storage and repair operations on this parcel. |
| RIWP-22 | Soil | Interval which indicates the highest potential for the presence of contamination | Northeastern portion of Site (Tax Parcel 76.27-1-1) | VOCs, TAL Metals, PCBs | RIWP-22 is placed to further characterize potential impacts from former metal working/tin shop and machine/equipment storage and repair operations on this parcel. |
| RIWP-23 RIWP-24 | Soil | Interval which indicates the highest potential for the presence of contamination | Eastern portion of Site (Tax Parcel 76.27-1-7) | VOCs, SVOCs, TAL Metals | RIWP-23 and RIWP-24 are placed to further characterize impacts from past operations on this parcel (metals and PAH impacts previously documented). |
| RIWP-25 RIWP-26 | Soil | Interval which indicates the highest potential for the presence of contamination | Southeastern portion of Site (Tax Parcel 76.27-1-9) | VOCs, SVOCs, TAL Metals | RIWP-25 and RIWP-26 are placed to further characterize impacts from past operations on this parcel. |
| RIWP-27 RIWP-28 | Soil | Interval which indicates the highest potential for the presence of contamination | Southern portion of Site (Tax Parcel 76.27-1-10) | VOCs, TAL Metals PCBs, Pesticides | RIWP-27 and RIWP-28 are placed to further characterize impacts from former pesticide manufacturing facility operations on adjacent parcel; documented pesticide contamination adjacent to parcel. |

| Sample ID | Matrix | Sample Depth(s) | Sample Location | Analytical Parameters | Rationale |
|---|---|---|---|---|---|
| RIWP-29 | Soil | Interval which indicates the highest potential for the presence of contamination | Southernmost portion of Site (Tax Parcel 76.27-1-12.22) | VOCs, SVOCs, TAL Metals, PCBs, Pesticides | RIWP-29 is placed to further characterize impacts on this parcel, based on previously documented benzene impacts and the proximity of the parcel to a former vehicle servicing facility and the former pesticide manufacturing facility. |
| RIWP-30 | Soil | Interval which indicates the highest potential for the presence of contamination | Southern portion of Site (Tax Parcel 76.27-1-12.22) | VOCs, SVOCs, TAL Metals | RIWP-30 is placed to further characterize impacts on this parcel, based on previously documented benzene impacts and the proximity of the parcel to a former vehicle servicing facility, the former pesticide manufacturing facility and documented petroleum contamination on the adjacent parcel to the northwest. |
| RIWP-31<br>RIWP-32 | Soil | Interval which indicates the highest potential for the presence of contamination | Southwestern portion of Site (Tax Parcel 76.27-1-12.1) | VOCs, SVOCs, TAL Metals | RIWP-31 and RIWP-32 are placed to further define previously documented petroleum contamination on this parcel (several USTs formerly located on this parcel). |
| RIWP-33<br>RIWP-34<br>RIWP-35 | Soil | Interval which indicates the highest potential for the presence of contamination | Western portion of Site (Tax Parcel 76.27-1-17) | VOCs, TAL Metals | RIWP-33, RIWP-34 and RIWP-35 are placed to further define impacts associated with former gas station operations (LNAPL previously documented on the parcel). |
| SS-1 through SS-6 | Surface Soil | Surface (0 to 2 inches) | Outside proposed building footprint | VOCs, SVOCs, TAL Metals, Pesticides, PCBs | Surface samples will be collected to evaluate remedial alternatives for soil that remains outside the proposed building footprint. |
| Waste Soil 1 through Waste Soil 5 | Soil | Composite | Composite | Waste Characterization Parameters (Full TCLP and PCBs) | Waste Soil 1 through Waste Soil 5 will be collected to characterize soil for waste disposal purposes. |

| Sample ID | Matrix | Sample Depth(s) | Sample Location | Analytical Parameters | Rationale |
|---|---|---|---|---|---|
| RIWP-4<br>RIWP-5<br>RIWP-6<br>RIWP-8<br>RIWP-9<br>RIWP-10<br>RIWP-13<br>RIWP-15 | Groundwater | N/A | Previously installed monitoring wells | VOCs, TAL Metals | Groundwater samples will be collected from the previously installed monitoring wells to further evaluate groundwater conditions across the site and to compare current and previous analytical data. |
| RIWP-28 (Groundwater) | Groundwater | N/A | RIWP-28 soil boring converted to monitoring well | VOCs, TAL Metals, PCBs, Pesticides | A groundwater sample will be collected at RIWP-28 to evaluate groundwater impacts near the southeastern boundary of the Site, based on former pesticide manufacturing facility and documented pesticide and PCB impacts on the adjacent parcel. |
| RIWP-30 (Groundwater) | Groundwater | N/A | RIWP-30 soil boring converted to monitoring well | VOCs, TAL Metals | A groundwater sample will be collected at RIWP-30 to further evaluate impacts to groundwater based on previously documented elevated benzene levels in this area of the Site. |
| RIWP-32 (Groundwater) | Groundwater | N/A | RIWP-32 soil boring converted to monitoring well | VOCs, TAL Metals | A groundwater sample will be collected at RIWP-32 to further define and evaluate impacts to groundwater near the western boundary of the Site, based on previously documented petroleum contamination on this parcel. |
| RIWP-33 (Groundwater) | Groundwater | N/A | RIWP-33 soil boring converted to monitoring well | VOCs, TAL Metals | A groundwater sample will be collected at RIWP-33 to further define and evaluate impacts to groundwater, based on previously documented LNAPL in this area of the parcel. |

# 4.0 EQUIPMENT DECONTAMINATION

Prior to mobilization, the drill rig shall be thoroughly cleaned to remove oil, grease, mud, and other foreign matter. Subsequently, before initiating drilling at each boring location, samplers, drill steel, and associated equipment will be cleaned to prevent cross-contamination. All cleaning will be conducted at a predetermined on-site location. Cleaning will be accomplished using the procedures outlined in the following sections.

### 4.1.1 Small Equipment

For soil and groundwater sampling, dedicated sampling equipment is preferred. However, if non-dedicated equipment is used (i.e. Macrocore barrel), the required decontamination procedure for all manual sampling equipment used to collect samples for chemical analysis is:

1. Disassemble equipment, as required.
2. Remove gross contamination from the equipment by brushing and then rinsing with tap water.
3. Wash with Alconox and tap water.
4. Rinse with tap water.
5. Rinse with distilled water.
6. Air dry equipment.

Decontaminated equipment will be placed on polyethylene sheeting in order to avoid contacting a contaminated surface prior to use.

Field personnel will use a new pair of outer gloves before handling sample equipment after it is cleaned.

### 4.1.2 Large Equipment

The permanent components of the drill rig (body, tracks, etc.) are not expected to come into contact with contaminated soils since the work will be performed primarily in an area covered by asphalt and, therefore, will not require decontamination.

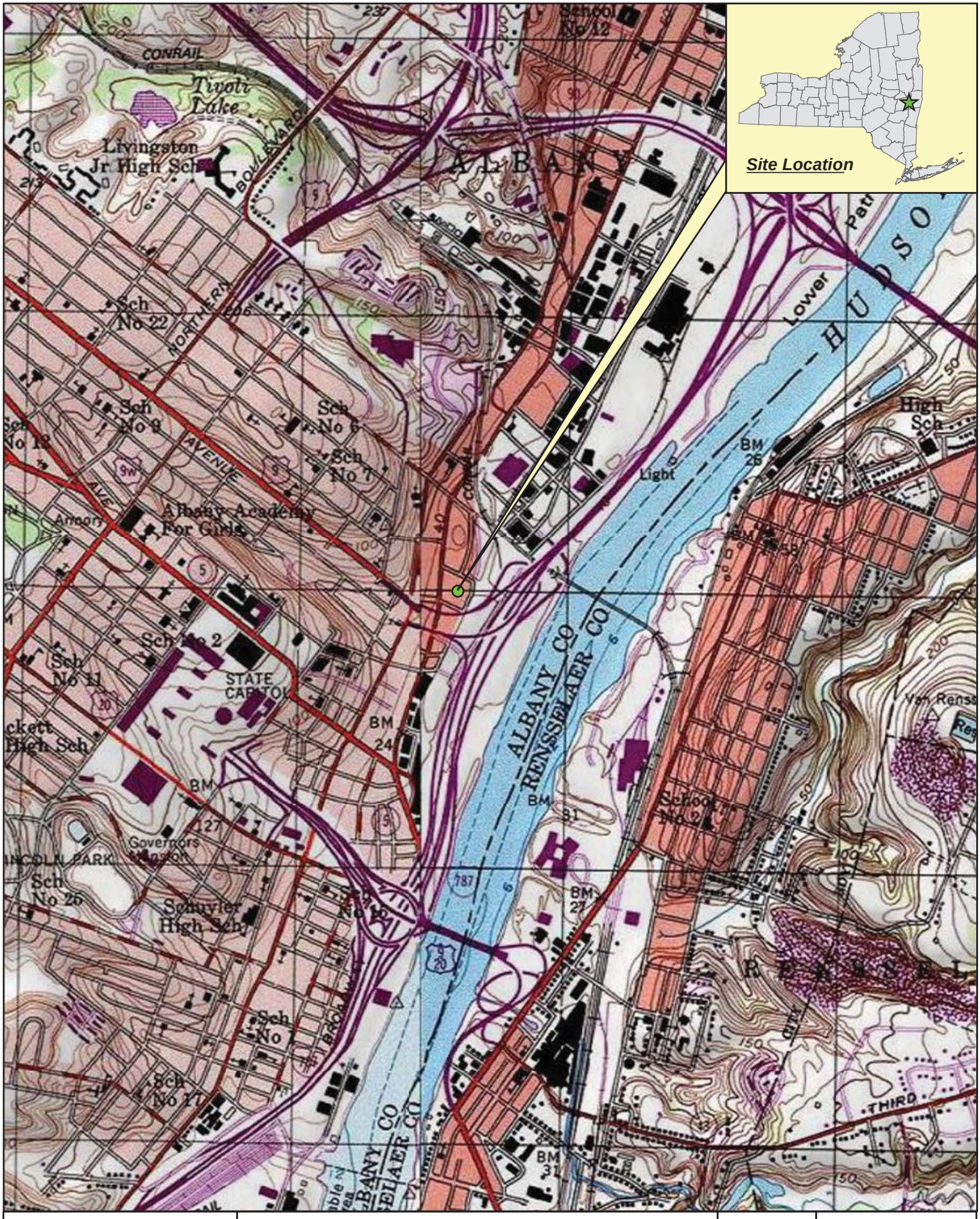
# 5.0 INVESTIGATION DERIVED WASTE

It is anticipated that excavated soils will be used to backfill each borehole (with the exception of the monitoring wells). However, in the event that gross contamination is identified, soil will be stockpiled on polyethylene sheeting and covered in a predetermined staging area. In the event that the quantity of material is relatively small, potentially impacted soils will be placed in 55-gallon DOT approved drums and stored on-Site for future disposal/treatment.

Purge water that does not indicate the presence of contamination based on visual and olfactory characteristics will be discharged to the ground surface immediately adjacent to the monitoring well from which it was extracted. In the event that the purge water exhibits physical evidence of contamination (e.g. odor, sheen, etc.), it will be collected and stored for future disposal/treatment.

Gloves, personal protection equipment, sampling materials, etc. will be collected daily and disposed of as solid waste.

# FIGURES

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*Capital Center Project*

**Site Location Map**

*Albany County* *New York*

N W E S

1 inch = 2,000 feet

Figure 1

Date : August 2013

0 1,000 2,000 Feet


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*Capital Center Project*

**City of Albany Tax Map**

*Albany County* *New York*

N W E S

1 inch = 100 feet

Figure 2

Date : August 2013

0 50 100 Feet

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LIMITS OF BCP SITE

- Former machine and equipment storage and repair.
- Metal working/tin shop
- Heavy metal impacts documented above unrestricted soil.
- PCB's detected above unrestricted VSC SCO.
- Mercury impacts above restricted residential SCOs

- Former gas station and vehicle service facility.
- Documented soil contamination VOCs impacts in soil at levels above SCOs.

- Former gas station and vehicle service facility.
- Documented VOC impacts in soil above SCOs.
- LNAPL identified in sample location SPMW-3.

- Former Cool Storage area
- PAH Impacts at levels above Industrial SCOs
- Heavy metal impacts above soil SCOs

- Former coal storage and tin shop
- PAH Soil impacts above Commercial AND Industrial SCOs
- Heavy metal impacts above SCOs

- Former pesticide manufacturing
- Documented pesticide levels include DDT above SCOs
- PCBs & Metals exceed SCOs

- Former gas station and auto repair shop.
- MTBE contamination in groundwater at downgradient property line (22,000 UG/L vs. GW standard of 10 UG/L).
- MTBE levels observed to increase from 2008 to 2009 even after IRM was performed to remove tanks.

- Former petroleum USTs.
- Documented petroleum contamination.

- Benzene levels in groundwater exceed groundwater standards near downgradient properly boundary

- Parcel associated with former pesticide manufacturing.
- Documented pesticide contamination immediately adjacent to parcel.
- Parcel associated w/loading dock for pesticide mfg. facility.

- Former pesticide manufacturing.

- Former vehicle servicing facility.
- Adjacent to and potentially associated w/former pesticide manufacturing facility.
- Documented benzene contamination in groundwater at more than 100 times standard.
- Benzene impacts potentially related to pesticide mfg given the absence of other petroleum related compounds.

SPENCER STREET
BROADWAY
QUACKENBUSH STREET
(FORMERLY) MONTGOMERY STREET
PARCEL 76.27-1-19
PARCEL 76.27-1-18
PARCEL 76.27-1-17
PARCEL 76.27-1-15
PARCEL 76.27-1-1
PARCEL 76.27-1-12.1
PARCEL 76.27-1-13.5
PARCEL 76.27-1-12.22
PARCEL 76.27-1-11
PARCEL 76.27-1-11.2
PARCEL 76.27-1-12.21
PARCEL 76.27-1-10
PARCEL 76.27-1-25.2
PARCEL 76.27-1-7 1 STORY BRICK BLDG W/BASEMENT
PARCEL 76.27-1-8 2 STORY BRICK BLDG.
PARCEL 76.27-1-9 2 STORY BRICK BLDG.
1 STORY FRAME BLDG.
1 STORY FRAME BLDG.
1 STORY BRICK BLDG.
1 STORY BRICK BLDG.
1 STORY BRICK BLDG.
AMBIENT SAMPLE

## LEGEND

- EXISTING SOIL BORING
- EXISTING TEST PIT
- EXISTING MONITORING WELL
- EXISTING VAPOR POINT
- EXISTING HAND AUGER LOCATION
- PROPOSED SURFACE SOIL SAMPLE LOCATION
- PROPOSED SOIL BORING
- PROPOSED SOIL BORING/MONITORING WELL
- FORMER USTS

*Map reprinted from Remedial Investigation Report; prepared by SPECTRA; 2008



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# PROPOSED SAMPLE LOCATIONS

SUPPLEMENTAL REMEDIAL INVESTIGATION
CAPITAL CENTER PROJECT
BROADWAY AND SPENCER ST.
ALBANY NY

PROJECT NO. 27160

DATE: 02/11/14

FIGURE 3

# APPENDIX B

# QUALITY ASSURANCE PROJECT PLAN

## Capital Center
## BCP Site # C401070
## Broadway and Spencer Street
## City of Albany, New York

*CHA Project Number: 27160*

***Prepared for:***

*First Columbia, L.L.C.*
*22 Century Hill Drive*
*Latham, NY 12110*

*&*

*FC 705 Broadway LLC*
*22 Century Hill Drive, Suite 301*
*Latham, NY 12110*

***Prepared by:***

*III Winners Circle*
*Albany, NY 12205*
*Phone: (518) 453-4500*
*Fax: (518) 453-4773*

*February 2014*

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# 1.0 INTRODUCTION

This Quality Assurance Project Plan (QAPP) presents the policies, organization, objectives, functional activities and specific Quality Assurance (QA) and Quality Control (QC) activities designed to achieve the specific data quality goals associated with the Supplemental Remedial Investigation (RI) that will be conducted at the Capital Center Brownfield Cleanup Program Site (BCP Site # C401070) located in Albany, New York. The scope of work associated with the investigation activities and specific areas of concern that will be addressed are summarized in the Supplemental Remedial Investigation Work Plan (Work Plan).

This QAPP has been prepared to identify procedures for sample preparation and handling, sample chain-of-custody, laboratory analyses, and reporting to be implemented during this investigation to ensure the accuracy and integrity of the data generated during the investigation. This QAPP has been prepared in accordance with the New York State Department of Environmental Conservation's "DER-10 Technical Guidance for Site Investigation and Remediation".

## 1.1 Site Description

The Capital Center Site (Site) is located approximately 900 feet west of the Hudson River and is approximately 20 to 30 feet above mean sea level. The Site topography gently slopes uphill to the northwest from Montgomery Street towards Broadway. The Site is almost entirely covered with buildings or paved surfaces, except for an untended vegetated and treed area along the Broadway side of the Site.

The Site is located in an urban area of mixed uses, including commercial and residential. The Site is currently unoccupied and is covered by vacant lots and defunct deteriorated commercial buildings. A portion of the Site is currently utilized for vehicle parking, but the Site is otherwise unused. The proposed project consists of land uses including office space, restaurant, commercial retail space, hotel, apartments and parking, and as such would be consistent with neighboring land uses.

Surrounding property uses include a visitor's center, two restaurants (Le Canard and the Albany Pump Station), parking lots and a parking garage, and several high-rise office buildings including the 677 Broadway office building, the Progressive Insurance Building, and the New York State Department of Environmental Conservation's headquarters. The Leo W. O'Brien Federal Building is located west of the Site, while several entertainment venues are located just south and west of the Site. The Site, although dilapidated and largely abandoned, is in a prominent location, visible from Interstate 787 and an associated off-ramp as well as being located just steps away from Albany's growing downtown area. A property base map is provided as Figure 2.

Existing Site structures include three 2-story brick and concrete buildings (one of which contains a basement), two single-story framed buildings adjacent to one of the 2-story buildings, and two single-story brick and concrete buildings, all of which were formerly utilized in connection with historical commercial and industrial Site operations. The building locations are shown on Figure 2, and comprise a total footprint area of approximately 17,000 square feet. All of the buildings are currently unoccupied and continue to deteriorate.

The site is located within a New York State "En-Zone" pursuant to Tax Law § 21(b)(6), identified as Albany County Census Tract 001100. There are currently no environmental permits associated with Site.

The Capital Center site has a long history of industrial use and some characterization of the site has been previously completed. FC 705 Broadway LLC (First Columbia) is now planning to complete the characterization of the entire 16 parcels that make up the Site, remediate the Site as necessary, establish appropriate institutional/engineering controls (as necessary), and redevelop the Site. After the Site actions are complete and First Columbia receives a Certificate of Completion (COC) from the NYSDEC, First Columbia proposes to develop the Site as the "Capital Center".

## 1.2 Scope of Work

This QAPP has been prepared in accordance with DER-10 *Technical Guidance for Remedial Investigation and Remediation* issued by the NYSDEC Division of Environmental Remediation (May 2010) to outline the procedures and protocols that will be utilized to conduct a Supplemental RI that will provide the necessary data to develop a remedial alternative for the Site that will best address the environmental conditions associated with the Site. The primary objectives of this Supplemental RI Work Plan include the following:

- Define the Nature/Extent of Contamination,
- Identify Additional Potential Source Areas,
- Assess Impacts; and
- Provide Additional Data Necessary for a Remedial Alternatives Analysis.

In general, the Supplemental Remedial Investigation program will include the following activities:

- Soil boring installation using direct push soil sampling (e.g. Geoprobe®) techniques and associated subsurface soil sampling;
- Conversion of select soil borings to groundwater monitoring wells;
- Groundwater sampling of both new and existing monitoring wells;
- Surface soil sampling; and
- Waste characterization sampling.

The data derived from the supplemental RI will facilitate an evaluation of the migration or possible future migration of identified contamination, identify potential routes of exposure and populations at risk, and provide the data necessary to develop remedial plans for the Site.

# 2.0 PROJECT ORGANIZATION AND RESPONSIBILITY

The supplemental remedial investigation activities are being conducted by First Columbia under the supervision of the First Columbia Project Manager, who is the prime contact for communication with the NYSDEC. Engineering oversight and coordination are to be provided by CHA. The CHA Project Manager is responsible for the delivery of CHA services. Resumes for CHA staff providing environmental services are included in Attachment A.

**First Columbia**

**Christopher Bette, P.E. – First Columbia Project Manager**

- Responsible for the overall program management of the Capital Center Supplemental Remedial Investigation.

**CHA**

**Keith Cowan, CPG – CHA Project Manager**

- Responsible for following the approved QAPP, notifying the NYSDEC of any deficiencies, and obtaining approval by the NYSDEC for all modifications to the project;
- Provide overall and day-to-day project management;
- Ensure all resources of CHA are available on an as-required basis;
- Participate in key technical negotiations with the NYSDEC, as necessary;
- Provide managerial guidance to CHA's technical group;
- Evaluate data; and,
- Prepare and coordinate the issuance of reports.

**Dr. Christopher Burns, PG - CHA Quality Assurance/ Quality Control (QA/QC)**

- Conduct internal audit of field investigation and sampling;
- Review laboratory activities;
- Determine laboratory data corrective action;
- Perform analytical data validation and assessment;
- Review laboratory QA/QC;
- Assist in preparation and review of final report; and,
- Provide technical representation for analytical activities.

**Sarah Benson - Technical Manager/ Project Coordinator**

- Provide immediate supervision of all on-site activities;
- Provide field management of sample collection and field QA/QC;
- Assist in preparation and review of final report;
- Provide technical representation for field activities; and,
- Responsible for maintenance of the field equipment.

**Scott Rosecrans, Field Oversight and Quality Control Coordinator**

- Will serve as Field Team Leader;

- Work with field crew to prepare for field activities and conduct investigations; and,
- Will be on Site to
    1. Provide oversight and coordination of field activities.
    2. Ensure that required QC procedures are followed for soil boring and monitoring well installation activities, material handling, and sample collection.
    3. Initiate informal and/or formal corrective actions as necessary.
    4. Maintain and report QC records (i.e. chain-of-custody, field equipment calibration, etc.).
    5. Report to the Project Manager.

**Laboratory**

TestAmerica Laboratories, Inc. is the analytical laboratory chosen to perform the proposed work and is certified by the New York State Department of Health (NYSDOH) Environmental Laboratory Approval Program (ELAP) to perform the required analyses in accordance with the most recent version of the New York State Department of Environmental Conservation (NYSDEC) Analytical Services Protocol (ASP).

**Project Manager, Analytical Contractor**

- Ensure resources of laboratory are available on an as-required basis;
- Coordinate laboratory analyses;
- Supervise laboratory's in-house chain-of-custody;
- Schedule analyses of samples;
- Oversee review of data;
- Oversee preparation of analytical reports; and,
- Approve final analytical reports prior to submission to CHA.

**Quality Assurance/ Quality Control Officer, Analytical Contractor**

- Overview laboratory QA/QC;
- Overview QA/QC documentation;
- Conduct detailed data review;
- Decide laboratory corrective actions, if required; and,
- Provide technical representation for laboratory QA/QC procedures.

**Sample Custodian, Analytical Contractor**

- Receive and inspect the sample containers;
- Record the condition of the sample containers;
- Sign appropriate documents;
- Verify chain-of-custodies and their correctness;
- Notify laboratory project manager and laboratory QA/QC Officer of sample receipt and inspection;
- Assign a unique laboratory identification number correlated to CHA's sample identification number, and enter each into the sample receiving log;

- Initiate transfer of the samples to the appropriate lab sections with assistance from the laboratory project manager; and,
- Control and monitor access to and storage of samples and extracts.

**Michael MacCabe, NYSDEC Project Manager**

- Approve this QAPP and any modifications to the project

Table 1 below identifies key personnel assigned to the project and provides contact information.

**Table 1: Key Project Personnel**

| Name | Address | Responsibilities |
|---|---|---|
| Michael MacCabe<br>NYSDEC<br>NYSDEC Project Manager | 625 Broadway, 12th Floor<br>Albany, New York<br>(518) 402-9687<br>mdmaccab@gw.dec.state.ny.us | Mr. MacCabe will represent the NYSDEC in its review and oversight function, in its financial sponsorship, and as arbiter on technical matters |
| Christopher Bette, P.E.<br>First Columbia, LLC and FC 705 Broadway LLC | 22 Century Hill Drive<br>Latham, NY 12110<br>(518) 213-1000<br>cbette@firstcolumbia.com | Mr. Bette will represent First Columbia in the review and oversight of the project, participate in citizen participation activities, and serve as the point of contact for First Columbia. |
| Keith W. Cowan, CPG<br>CHA<br>*Project Manager* | 3 Winners Circle<br>Albany, NY 12205<br>(518) 453-2899<br>kcowan@chacompanies.com | Mr. Cowan will oversee the project, provide quality control on documents and determinations and mentor the daily task manager. |
| Sarah D. Benson<br>CHA<br>*Technical Manager/ Project Coordinator* | 3 Winners Circle<br>Albany, NY 12205<br>(518) 453-2899<br>sbenson@chacompanies.com | Ms. Benson will provide immediate supervision of all on-site activities, provide field management of sample collection and field QA/QC, assist in preparation and review of final report, and provide technical representation for field activities. |
| Scott Rosecrans<br>CHA<br>*Field Leader & Health and Safety Officer* | 3 Winners Circle<br>Albany, NY 12205<br>(518) 339-7748<br>srosecrans@chacompanies.com | Mr. Rosecrans will supervise field investigation activities and will also serve as database manager. Mr. Rosecrans will serve as the Health and Safety point of contact for CHA staff. |
| Dr. Christopher Burns, P.G.<br>CHA<br>*CHA Quality Assurance/ Quality Control Officer* | 9020 Stony Point Parkway<br>Suite 160<br>Richmond, VA 23235-4700<br>(804) 897-0954 ext. 248<br>cburns@chacompanies.com | Dr. Burns will act as CHA's QA/QC Officer, which will include providing an internal audit of field sampling procedures, a review of laboratory activities and QA/QC, assistance in the preparation and review of final reports. |
| Peggy Gray-Erdmann<br>TestAmerica<br>*Laboratory Project Manager* | 10 Hazelwood Drive, Suite 106<br>Amherst, NY 14228<br>(716) 504-9829 | Ms. Gray-Erdmann will act as CHA's point of contact with the contracted laboratory. |

# 3.0 QUALITY ASSURANCE OBJECTIVES FOR MEASUREMENT DATA

The overall QA objective is to develop and implement procedures for sample preparation and handling, sample chain-of-custody, laboratory analyses and reporting, which will provide accurate data. Specific procedures to be followed for sampling, sample custody and document control, calibration, laboratory analyses and data reduction, validation, assessment and reporting are presented in Sections 5.0 through 8.0 of this QAPP.

The purpose of this Section is to define the goals for the level of QA effort; namely, accuracy; precision and sensitivity of analyses; and completeness, representativeness and comparability of measurement data from the analytical laboratories. QA objectives for field measurements are also discussed.

## 3.1 Level of QA Effort

To assess the quality of data resulting from the field sampling program, field duplicate samples, field blank samples, samples for laboratory matrix spike/matrix spike duplicate (MS/MSD) analyses, and trip blank samples will be collected (where appropriate) and submitted to the contract laboratory.

For field samples collected, field duplicate samples will be submitted at a frequency of one per 20 investigative samples or in the event that a sampling round consists of less than 20 samples, one field duplicate will be collected. MS/MSD samples will be analyzed at a minimum frequency of one per 20 investigative samples. In the event that a sampling event consists of less than 20 samples, one MS/MSD sample will be collected. Trip blanks will be submitted with each cooler containing aqueous samples to be analyzed for volatile organic compounds (VOCs).

The sampling and analysis program is summarized below and lists the specific parameters to be measured, the number of samples to be collected and the level of QA effort required for each matrix.

Groundwater and soil samples will be analyzed for all or some of the following:

- Target compound list volatile organic compounds (TCL VOCs);
- TCL semi-volatile organic compounds (TCL SVOCs);
- Polychlorinated biphenyls (PCBs);
- Target Analyte List (TAL) metals; and/or,
- Pesticides.

In addition, several waste characterization soil samples will be collected for the determination of off-site disposal requirements, if determined to be required. These samples will be analyzed for full toxicity characteristic leaching procedure (TCLP) analyses and PCBs.

Field duplicate samples for subsurface soil matrices will be collected and analyzed as a check on the aggregate analytical and sampling protocol precision. Matrix spike and matrix spike duplicate samples will be analyzed as a check on the analytical method's accuracy and precision. Trip blank samples (for VOC determinations only) will be shipped by the laboratory to the Site and back to the laboratory without opening in the field. The trip blank will provide a measure of potential

cross-contamination of samples resulting from shipment, handling and/or ambient conditions at the Site.

### 3.2 Accuracy, Precisions and Sensitivity of Analyses

The fundamental QA objective with respect to the accuracy, precision and sensitivity of analytical data is to achieve the QC acceptance of each analytical protocol. The method(s) precision (relative percent difference of duplicate analysis) will be determined from the duplicate analyses of matrix spike samples. A minimum of one sample will be spiked and analyzed in duplicate. Analysis will compare with the criteria presented in the appropriate methods identified in Section 4.0.

The method(s) accuracy (percent recovery) for water and soil samples will be determined by spiking selected samples (matrix spikes) with test compounds. Accuracy will be reported as the percent recovery of the test compound and will compare with the criteria given in the appropriate methods as identified in Section 4.0.

Project-specific accuracy and precision goals are identified in Section 10.0.

### 3.3 Completeness, Representativeness and Comparability

It is expected that all analyses conducted in accordance with the selected methods will provide data meeting QC acceptance criteria for 80 percent of all samples tested. Any reasons for variances will be documented.

The sampling program has been designed to provide data representative of Site conditions. During development of these networks, consideration was given to location of historic activities, existing data from past studies completed for the Site and the physical Site setting. The extent to which existing and planned analytical data will be comparable depends on the similarity of sampling and analytical methods. The procedures used to obtain the planned analytical data are documented in this QAPP. However, it may be necessary to verify similar documentation from previous analytical data to adequately establish comparability. Comparability of laboratory analyses will be ensured by the use of consistent units. Following completion of data collection, the existing data base will be evaluated for representativeness.

Project-specific completeness, representativeness and comparability goals are identified in Section 10.

### 3.4 Field Measurements

Field measurements and observations will assist in the interpretation of analytical results obtained. Therefore, it is important that these measurements and observations be as complete as possible. For each sample collected, the following shall be recorded in indelible ink on the field log sheet:

1) Site location identification;
2) Depth interval of sample;
3) Unique sample identification number;

4) Date and time of sample collection;
5) Designation as to the type of sample (soil, sediment, etc.);
6) Designation as to the means of collection (split spoon, etc.);
7) Brief description of the sample, including pH, specific conductivity and temperature of water samples;
8) Name of sampler;
9) Analyses to be performed on sample; and
10) Any other relevant comments such as odor, staining, texture, size of area sampled, etc.

The general QA objective for measurement data is to obtain reproducible and comparable measurements to a degree of accuracy consistent with the use of standardized procedures.

# 4.0 SAMPLING PROCEDURES

The sampling program to be implemented will include the collection and analyses of groundwater, surface soil, and subsurface soil samples. Details regarding specific sampling activities are provided in the project Supplemental RI Work Plan and the procedures for collecting samples and for performing related field activities are described in detail in the Field Sampling Plan. Analytical methods, sample volumes, preservation techniques and holding times are provided in Table 2, below.

## Table 2: Analytical Methods/Quality Assurance Summary

| Matrix (Sample Type) | Type of Sample | Analysis | Parameter/ Fraction | Number of Primary Samples | Number of Duplicates / MS/MSD | Number of Trip Blanks | Sampling Locations | Sample Volume/Container | Sample Preservation | Reporting Limits | Technical Holding Time |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Soil | Subsurface Soil | EPA Method 8260C | TCL VOCs | 15 | 1/1 | 0 | RIWP-21 through RIWP-35 | 5 grams | En Core™ sampler or equivalent | Compound Specific (5 - 25 µg/kg) | 14 days |
| | Subsurface Soil | EPA Method 8270D | TCL SVOCs | 8 | 1/1 | 0 | RIWP-23 through RIWP-26, RIWP-29 through RIWP-32 | 4 oz glass wide | Cool to 4°C | Compound Specific (170 - 330 µg/kg) | 14 days extract; 40 days analyze |
| | Subsurface Soil | EPA Method 8082A | PCBs | 5 | 1/1 | 0 | RIWP-21, RIWP-22, RIWP-27, RIWP-28, RIWP-29 | 4 oz glass wide | Cool to 4°C | 16.7 µg/kg | 14 days extract; 40 days analyze |
| | Subsurface Soil | EPA 6010C, 7471B | TAL Metals | 15 | 1/1 | 0 | RIWP-21 through RIWP-35 | 4 oz glass wide | Cool to 4°C | Compound Specific (.02 - 50 mg/kg) | 6 months |
| | Subsurface Soil | EPA 8081A | Pesticides | 3 | 1/1 | 0 | RIWP-27 through RIWP-29 | 4 oz glass wide | Cool to 4°C | 1.67 µg/kg | 14 days extract; 40 days analyze |

| Matrix (Sample Type) | Type of Sample | Analysis | Parameter/ Fraction | Number of Primary Samples | Number of Duplicates / MS/MSD | Number of Trip Blanks | Sampling Locations | Sample Volume/Container | Sample Preservation | Reporting Limits | Technical Holding Time |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Soil | Surface Soil | EPA Method 8260C | TCL VOCs | 6 | 1/1 | 0 | SS-1 through SS-6 | 5 grams | En Core™ sampler or equivalent | Compound Specific (5 - 25 µg/kg) | 14 days |
| | Surface Soil | EPA Method 8270D | TCL SVOCs | 6 | 1/1 | 0 | SS-1 through SS-6 | 4 oz glass wide | Cool to 4°C | Compound Specific (170 - 330 µg/kg) | 14 days extract; 40 days analyze |
| | Surface Soil | EPA Method 8082A | PCBs | 6 | 1/1 | 0 | SS-1 through SS-6 | 4 oz glass wide | Cool to 4°C | 16.7 µg/kg | 14 days extract; 40 days analyze |
| | Surface Soil | EPA 6010C, 7471B | TAL Metals | 6 | 1/1 | 0 | SS-1 through SS-6 | 4 oz glass wide | Cool to 4°C | Parameter Specific (.02 - 50 mg/kg) | 6 months |
| | Surface Soil | EPA 8081A | Pesticides | 6 | 1/1 | 0 | SS-1 through SS-6 | 4 oz glass wide | Cool to 4°C | 1.67 µg/kg | 14 days extract; 40 days analyze |

| Matrix (Sample Type) | Type of Sample | Analysis | Parameter/ Fraction | Number of Primary Samples | Number of Duplicates / MS/MSD | Number of Trip Blanks | Sampling Locations | Sample Volume/Container | Sample Preservation | Reporting Limits | Technical Holding Time |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Water | Groundwater | EPA Method 8260C | TCL VOCs | 12 | 1/1 | 2 | RIWP-4 through RIWP-6, RIWP-8 through RIWP-10, RIWP-13, RIWP-15, RIWP-28, RIWP-30, RIWP-32, RIWP-33 | 2- 40 ml VOC vial with Teflon lined septum. | 1:1 HC1 to pH<2; Cool to 4°C | Compound Specific (1 - 10 µg/L) | 14 days |
| | Groundwater | EPA 6010C, 7470A | TAL Metals | 12 | 1/1 | 0 | RIWP-4 through RIWP-6, RIWP-8 through RIWP-10, RIWP-13, RIWP-15, RIWP-28, RIWP-30, RIWP-32, RIWP-33 | 1- 500 mL plastic | Cool to 4°C HNO3 to pH<2 | Compound Specific (5 - 10 µg/L) | 6 months |
| | Groundwater | EPA 8082A | PCBs | 1 | 1/1 | 0 | RIWP-28 | 1-1 liter amber | Cool to 4°C | 0.05 µg/L | 7 days extract; 40 days analyze |
| | Groundwater | EPA 8081A | Pesticides | 1 | 1/1 | 0 | RIWP-28 | 1 – 1 liter amber | Cool to 4°C | Parameter Specific (0.0002 to 1.0 mg/L) | 7 days extract; 40 days analyze |

| Matrix (Sample Type) | Type of Sample | Analysis | Parameter/ Fraction | Number of Primary Samples | Number of Duplicates / MS/MSD | Number of Trip Blanks | Sampling Locations | Sample Volume/Container | Sample Preservation | Reporting Limits | Technical Holding Time |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Solid | Waste Soil | EPA Method 1311/ 8260C | TCLP VOCs | 5 | 0/0 | 0 | Representative locations across Site, to be determined in the field | 4 oz. glass jar | Cool to 4°C | Compound Specific (0.001 to 0.005 mg/L) | 7 days |
| | Waste Soil | EPA Method 1311/ 8270D | TLCP SVOCs | 5 | 0/0 | 0 | | 16 oz. glass jar | Cool to 4°C | Compound Specific (0.005 to 0.025 mg/L) | 7 days extract; 40 days analyze |
| | Waste Soil | EPA Method 8082A | PCBs | 5 | 0/0 | 0 | | 16 oz. glass jar | Cool to 4°C | 0.0167 mg/kg | 14 days extract; 40 days analyze |
| | Waste Soil | EPA Method 8081B | TCLP Herbicides | 5 | 0/0 | 0 | | 16 oz. glass jar | Cool to 4°C | 0.002 mg/L | 7 days extract; 40 days analyze |
| | Waste Soil | EPA Method 8151 | TCLP Pesticides | 5 | 0/0 | 0 | | 16 oz. glass jar | Cool to 4°C | Compound Specific (0.002 to 0.0002 mg/L) | 7 days extract; 40 days analyze |
| | Waste Soil | EPA Method 6010C, 7470A | TCLP Metals | 5 | 0/0 | 0 | | 16 oz. glass jar | Cool to 4°C | Parameter Specific (0.0002 to 0.015 mg/L) | 180 days (6010) 28 days (mercury) 14 days (cyanide) |

# 5.0 SAMPLE CUSTODY AND DOCUMENT CONTROL

## 5.1 Chain-Of-Custody

A Chain-of-Custody will be maintained to document the transfer of all samples. Each sample container will be properly sealed. Sample container labels will include sample number, place of collection and date and time of collection. Sample containers will be shipped to the Contract Laboratory at 4°C (±2°C) in sealed coolers.

Each sample cooler being shipped to the Contract Laboratory will contain an appropriately completed Chain-of-Custody form. One copy will be returned to CHA upon receipt of the samples by the laboratory. One copy will be returned to CHA with the data deliverables package.

Upon receipt of the cooler at the laboratory, it will be inspected by the designated sample custodian. The condition of the cooler and sample containers will be noted on the Chain-of-Custody record sheet by the sample custodian. The sample custodian will also document the date and time of receipt of the container and sign the form.

If damage or discrepancies are noticed, they will be recorded in the remarks column of the record sheet, and be dated and signed. Any damage or discrepancies will be reported to the lab supervisor who will inform the lab manager, QA Officer and CHA Project Manager.

## 5.2 Sample Documentation in the Laboratory

Each sample or group of samples shipped to the laboratory for analysis will be given a unique identification number. The laboratory sample custodian will record the client name, number of samples and date of receipt of samples in the Sample Control Log Book.

The Contract Laboratory will be responsible for maintaining analytical log books and laboratory data as well as sample inventory on hand for submittal to CHA on an "as required" basis. Samples will be maintained by the laboratory for a period of 30 days, under the conditions prescribed by the appropriate USEPA methods, for additional analyses, if necessary. Raw laboratory data files will be inventoried and maintained by the Contract Laboratory for a period of five years, at which time CHA will advise them as to the need for additional storage.

## 5.3 Storage of Samples

Evidentiary files for the entire project will be inventoried and maintained by CHA and will consist of the following:

1) Project related plans;
2) Project log books;
3) Field data records;
4) Sample identification documents;
5) Chain-of-Custody records;
6) Report notes, calculations, etc.;

7) References, literature;
8) Miscellaneous - photos, maps, drawings, etc.; and
9) Copies of all final reports pertaining to the project.

The project file materials will be the responsibility of CHA's Project Manager with respect to document maintenance and management.

# 6.0 CALIBRATION PROCEDURES AND FREQUENCY

## 6.1 Instrument Calibration and Tuning

Calibration of instrumentation is required to ensure that the analytical system is operating correctly and functioning at the proper sensitivity to meet established reporting limits. Each instrument is calibrated with standard solutions appropriate to the type of instrument and the linear range established for the analytical method. The frequency of calibration and the concentration of calibration standards is determined by the manufacturer's guidelines, the analytical method, or the requirements of special contracts.

## 6.2 Field Instrument Calibration

Calibration of the field instruments will be completed prior to each day's use in accordance with the manufacturer's instructions. During groundwater sampling activities if the data indicates a change (>±10 percent) in pH and/or conductivity from the last location sampled, the field equipment will be recalibrated. The field equipment will be maintained, calibrated and operated in a manner consistent with the manufacturer's guidelines and United States Environmental Protection Agency (USEPA) standard methods. However, since the majority of field measurements will be limited to organic vapor readings (photoionization detector (PID) readings), pH, conductivity, turbidity, and depth (water level) the calibration procedures will be conducted at a minimum frequency of once per day. Records of calibration, repair or replacement will be filed and maintained by the Field Team Leader.

# 7.0 DATA REDUCTION, VALIDATION, ASSESSMENT AND REPORTING

## 7.1 General

The Contract Laboratory will perform analytical data reduction and validation in-house under the direction of the laboratory QA Officer. The laboratory's QA Officer will be responsible for assessing data quality and advising of any data which were rated "preliminary" or "unacceptable" or other qualifications based on the QC criteria outlined in the methods, which would caution the data user of possible unreliability.

Assessment of analytical and field data will include checks for data consistency by looking for comparability of duplicate analyses, laboratory QA procedures, adherence to accuracy and precision criteria, transmittal errors and anomalously high or low parameter values. The results of these data validations will be reported to the project managers, noting any discrepancies and their effect upon acceptability of the data.

## 7.2 Field Data

Raw data from field measurements and sample collection activities that are used in project reports will be appropriately identified and appended to the report. Where data have been reduced or summarized, the method of reduction will be documented in the report. Field data will be reviewed for anomalously high or low values that may appear to be inconsistent with other data.

Field sampling data will be reviewed by the CHA Quality Assurance/Quality Control Officer in order to ensure the following information has been properly documented:

- Sample identification;
- Source;
- Date and time of sampling;
- Sampling equipment;
- Person(s) collecting the sample; and
- Results of field monitoring and/or observations.

In addition, the field sampling data will be evaluated to ensure:

- The use of approved sampling and sample handling procedures;
- Proper packing/shipping procedures were used; and
- Proper Chain-of-Custody was maintained.

## 7.3 Laboratory Reporting

Reporting and deliverables for groundwater and soil samples will be in accordance with NYSDEC July 2005 ASP, Category B. Reports will be received by CHA within 30 days of the last day of sampling. Sample data and its corresponding QA/QC data shall be maintained accessible to CHA either in hard copy or on disk. All other reporting and deliverables (i.e. waste characterization samples) will be in accordance with Standard Laboratory Procedure.

## 7.4 Electronic Data

The laboratory will also provide the analytical data in an electronic format. The data will be added into the existing database maintained by CHA staff. From there the data can be processed and compared to existing standards using the existing software. An electronic copy of the analytical data in Category B format and in EQuIS format will be provided to NYSDEC.

## 7.5 Data Validation

A qualified third party will conduct an independent evaluation of the Category B data reduction and reporting by the laboratory. The data validation will be performed in accordance with the following documents: "USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review EPA 540/R-99-008, October 1999" and "USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review EPA 540/R-04-004, October 2004". Data analyzed using methods not covered in these documents will be validated using the general principles used in these documents, and the analytical requirements specified in the methods pertaining to USEPA Region 2 Data Validation.

# 8.0 INTERNAL QUALITY CONTROL CHECKS AND FREQUENCY

## 8.1 Field QC

Quality control procedures for field measurements will be limited to checking the reproducibility of the measurement in the field by obtaining multiple readings and by calibrating the instruments (where appropriate).

Quality control of field sampling will involve collecting field duplicates and trip blanks with the applicable site activities described in the Supplemental RI Work Plan/Field Sampling Plan. Field QC samples are also discussed in Section 4.0.

## 8.2 Laboratory QC

Specific procedures related to internal laboratory QC samples (namely blanks, MS/MSD, surrogates and QC check samples) are described in the following subsections.

### 8.2.1 Blank Samples

A reagent blank will be analyzed by the laboratory at a frequency of one blank per 10 analyses, or in the event that an analytical round consists of less than 10 samples, one reagent blank will be analyzed. The reagent blank, an aliquot of analyte-free water or solvent, will be carried through the entire analytical procedure.

### 8.2.2 Matrix Spike/Matrix Spike Duplicates

An MS/MSD sample will be analyzed at a minimum frequency one sample for every 20 investigative samples that are collected. For sampling events consisting of less than 20 investigative samples, one MS/MSD sample will be collected. Acceptable criteria and compounds that will be used for matrix spikes are identified in the appropriate methods. Percent spike recoveries will be used to evaluate analytical accuracy while percent relative standard deviation or the relative percent difference (RPD) between matrix spike analyses will be used to assess analytical precision.

### 8.2.3 Surrogate Analyses

Surrogates are organic compounds which are similar to the analytes of interest, but which are not normally found in environmental samples. Surrogates are added to samples to monitor the effect of the matrix on the accuracy of the analysis. Every blank, standard and environmental sample analyzed by GC or GC/MS, including MS/MSD samples, will be spiked with surrogate compounds prior to sample preparation.

Surrogates will be spiked into samples according to the appropriate analytical methods. Surrogate spike recoveries will be compared with the control limits set by procedures specified in the method (or from laboratory specific control limits) for analytes falling within the quantification limits without dilution. Dilution of samples to bring the analyte concentration into the linear range of

calibration may dilute the surrogates out of the quantification limit; assessment of analytical quality in these cases will be based on the quality control embodied in the check and MS/MSD samples.

# 9.0 PROCEDURES USED TO ASSESS PERFORMANCE

## 9.1 Precision

Precision will be assessed by comparing the analytical results between duplicate spike analyses. Precision as RPD will be calculated as follows:

$$\text{Precision} = \frac{[D_2 - D_1]}{(D_1 + D_2)/2} \times 100$$

$D_1$ = matrix spike recovery
$D_2$ = matrix spike duplicate spike recovery

Acceptance criteria for duplicate soil samples will be ≤30% RPD. Acceptance criteria for duplicate water samples will be ≤20% RPD between field and laboratory data.

Percent relative standard deviation or the RPD between matrix spike analyses will be used to assess laboratory analytical precision. Acceptable criteria and compounds that will be used are identified in the appropriate EPA methods.

## 9.2 Accuracy

Accuracy will be assessed by comparing a set of analytical results to the accepted or "true" values that would be expected. In general, MS/MSD and surrogate spike recoveries will be used to assess accuracy. Accuracy as percent recovery will be calculated as follows:

$$\text{Accuracy} = \frac{A-B}{C} \times 100$$

A = The analyte determined experimentally from the spike sample.
B = The background level determined by a separate analysis of the unspiked sample.
C = The amount of spike added.

Percent spike recoveries in MS/MSD and surrogate spike recoveries will be used to evaluate analytical accuracy. Acceptable criteria and compounds that will be used for matrix spikes are identified in the appropriate EPA methods.

The evaluation of accuracy of field measurements will be limited to checking the reproducibility of the measurement in the field by obtaining multiple readings and by calibrating the instruments (where appropriate).

## 9.3 Representativeness, Completeness and Comparability

Completeness is a measure of the amount of valid data obtained from a measurement system compared with the amount that was expected to be obtained under normal conditions.

To be considered complete, the data set must contain all QC check analyses verifying precision and accuracy for the analytical protocol. In addition, all data are reviewed in terms of stated goals in order to determine if the database is sufficient.

When possible, the percent completeness for each set of samples will be calculated as follows:

$$\text{Completeness} = \frac{\text{valid data obtained}}{\text{total data planned}} \quad X\ 100 \text{ percent}$$

A completeness goal of 100 percent has been established for this project. However, if the completeness goal is not met, site decisions may be based on any, or all of, the remaining, validated data. Representativeness will be addressed by collecting the samples as described in this document. Comparability will be addressed by collecting, analyzing, and reporting the data as described in this document.

## 9.4 Outliers

Procedures discussed previously will be followed for documenting deviations. In the event that a result deviates significantly from method established control limits, this deviation will be noted and its effect on the quality of the remaining data will be assessed and documented.

## 10.0 QUALITY ASSURANCE REPORT TO MANAGEMENT

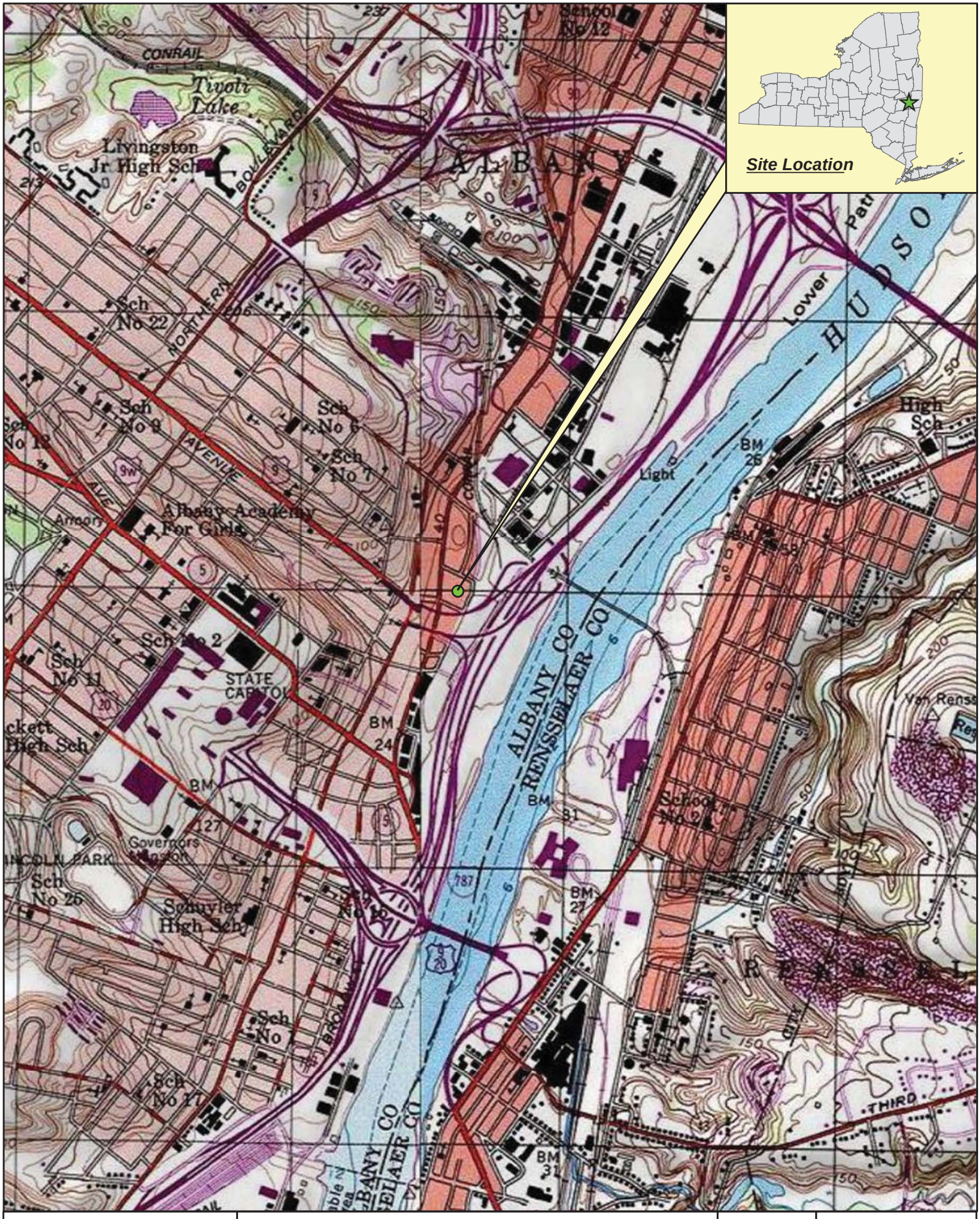
The CHA Project Manager will receive reports on the performance of the measurement system and the data quality following each sampling round and at the conclusion of the project.

At a minimum, these reports will include:

1) Assessment of measurement quality indicators; (i.e. data accuracy, precision and completeness);
2) Results of systems audits; and
3) QA problems and recommended solutions.

CHA's QA/QC Officer will be responsible within the organizational structure for preparing these periodic reports. The final report for the project will also include a separate QA section which will summarize data quality information contained in the periodic QA/QC reports to management, and present an overall data assessment and validation in accordance with the data quality objectives outlined in this QAPP.

# FIGURES




CHA

III Winners Circle, P.O. Box 5269 • Albany, NY 12205-0269
Main: (518)453-4500 • www.cloughharbour.com

*Capital Center Project*

**Site Location Map**

*Albany County* *New York*

N W E S

1 inch = 2,000 feet

Figure 1

Date : August 2013

0 1,000 2,000 Feet

# ATTACHMENT A

# RESUMES

**Keith Cowan – CHA Project Manager**

Education: University at Buffalo, B.A. Geology
Certified Professional Geologist

Mr. Cowan has over 14 years experience in the environmental consulting industry. His experience includes remedial investigations and feasibility studies (RI/FS), solid and hazardous waste landfill investigations and closure projects, environmental site characterizations and hazardous materials assessments for large facility decommissioning projects, environmental compliance projects, public and private Brownfield projects, as well as site remediation.

**Dr. Christopher A. Burns, PG - CHA Quality Assurance/Quality Control Officer**

Education: University of Delaware, Ph.D. in Geology
University of Delaware, M.S. in Geology
Colgate University, B.A. in Geology

Dr. Burns has 25 years' experience in managing a broad range of geological and environmental projects. He has serves as Project Manager of remedial investigations/feasibility studies at CERCLA sites, hydrogeologic investigations at leaking UST sites, Phase I and II site assessments, siting studies for new solid waste management facilities and of water resource protection and supply projects.

**Sarah Benson – CHA Technical Manager/Project Coordinator**

Education: Union College, B.S. Geology
University of Florida, M.S. Geology

Ms. Benson is a Project Manager and Project Geologist in our Environmental Group with nearly 8 years of experience. Her experience includes Phase I Environmental Site Assessments, Phase II Subsurface Investigations, remedial investigations and feasibility studies (RI/FS), and site remediation for both municipal and industrial clients. Ms. Benson has an extensive background in environmental regulatory compliance and experience with both public and private Brownfield projects.

**Scott Rosecrans – CHA Field Oversight and Quality Control Coordinator**

Education: SUNY College of Environmental Science and Forestry

Mr. Rosecrans is an Environmental Scientist in our Environmental Group with nearly 14 years of consulting experience. His experience includes conducting Phase I Environmental Site Assessments, Phase II Subsurface Investigations, vapor intrusion investigations, and hazardous material assessments.

# APPENDIX C

# HEALTH & SAFETY PLAN

## Capital Center
## BCP Site #C401070
## Broadway and Spencer Street
## City of Albany, New York

*CHA Project Number: 27160*

***Prepared for:***

*First Columbia*
*First Columbia, L.L.C.*
*22 Century Hill Drive*
*Latham, NY 12110*

&

*FC 705 Broadway LLC*
*22 Century Hill Drive, Suite 301*
*Latham, NY 12110*

***Prepared by:***

*3 Winners Circle*
*Albany, New York 1220*
*Phone: (518) 453-4500*
*Fax: (518) 453-4773*

*February 2014*

*V:\Projects\ANY\K3\27160\Reports\Work Plans\HASP\Capital Center HASP.doc*

## DISCLAIMER

This Site Health & Safety Plan (HASP) has been written for the use of CHA and its employees. Properly trained and experienced CHA subcontractors may also use it as a guideline document. However, CHA does not guarantee the health and safety of any person entering the site.

Due to the potentially hazardous nature of the project and the activity occurring thereon, it is not possible to discover, evaluate and provide protection for all possible hazards, which may be encountered. Strict adherence to the health and safety guidelines set forth herein will reduce, but not eliminate, the potential for injury at the project. The health and safety guidelines in this plan were prepared specifically for this project and should not be used on any other project without prior research by trained health and safety specialists.

CHA claims no responsibility for the use of this Plan by others. The Plan is written for the specific site conditions; purpose, dates, and personnel specified and must be amended if these conditions change.

# TABLE OF CONTENTS

## FIGURES

# LIST OF ACRONYMS & ABBREVIATIONS

| | |
|---|---|
| AMSL | Above Mean Sea Level |
| CAMP | Community Air Monitoring Program |
| CFR | Code of Federal Regulations |
| CHA | Clough Harbour & Associates LLP |
| CNS | Central Nervous System |
| CVS | Cardiovascular System |
| HASP | Health and Safety Plan |
| HAZWOPER | Hazardous Waste Operations & Emergency Response |
| HSC | Health & Safety Coordinator |
| IDLH | Immediately Dangerous to Life and Health |
| MSDS | Material Safety Data Sheet |
| MSHA | Mine Safety and Health Administration |
| NIOSH | National Institute for Occupational Safety and Health |
| NYSDEC | New York State Department of Environmental Conservation |
| NYSDOH | New York State Department of Health |
| OSHA | Occupational Safety and Health Administration |
| PCB | Polychlorinated Biphenyl |
| PEL | Permissible Exposure Level |
| PID | Photoionization Detector |
| PPE | Personal Protective Equipment |
| PPM | Parts per Million |
| REL | Recommended Exposure Limit |
| RI | Remedial Investigation |
| SCBA | Self-Contained Breathing Apparatus |
| SHSO | Site Health & Safety Officer |
| TLV | Threshold Limit Value |
| TWA | Time Weighted Average |
| USEPA | United States Environmental Protection Agency |
| VOC | Volatile Organic Chemical |

# 1.0 INTRODUCTION

The following Health and Safety Plan (HASP) has been created for the protection of CHA staff on the Capital Center Brownfield Cleanup Program Site (BCP Site #C401070) located at Broadway and Spencer Street in the City of Albany, Albany County, New York (Site or Property), as shown on Figures 1 and 2. The assignments associated with this project require CHA employees to perform tasks where personal safety could be compromised due to chemical, physical, and biological hazards. While conducting fieldwork, CHA employees may be exposed to chemical contaminants including a wide variety of organic compounds and heavy metals. Additionally, CHA employees may be exposed to physical hazards, including but not limited to, heavy machinery, excavations, and trip/fall hazards.

The requirements and guidelines in this HASP are based on a review of available information and an evaluation of potential on-site hazards from previous studies and information available to date. The plan procedures will be updated as additional information becomes available with regard to the actual site conditions.

This HASP will be discussed with site personnel and will be available on-site for review while work is underway. Personnel conducting site activities must be familiar with the procedures, requirements and provision of this plan, and in the event of conflicting plans/requirements, personnel must implement those safety practices which afford the highest level of protection. CHA personnel will report to the CHA Health and Safety Coordinator (HSC) in matters of health and safety. While the HSC is responsible for ensuring compliance with this HASP and stopping work when necessary, the Field Team Leader is responsible for implementation of this HASP into daily site activities.

Non-intrusive activities within CHA's scope of work are those that do NOT have the potential to jeopardize the health and safety of site workers, the public, or the environment with respect to site contaminants. Intrusive activities within CHA's scope of work are those that have the potential to cause health and safety concerns to site workers, the public, or the environment. These activities and any non-intrusive activities conducted in an Exclusion Zone require training per 29 CFR 1910.120 *Hazardous Waste Operations and Emergency Response, Final Rule*, which govern work on hazardous waste sites.

## 2.0 GENERAL SITE INFORMATION

| | | |
|---|---|---|
| CHA Project Number: | 27160 | |
| Client | First Columbia, LLC / FC 705 Broadway LLC (First Columbia) | |
| Client Contact: | Mr. Christopher Bette, P.E.<br>22 Century Hill Drive, Suite 301<br>Latham, New York 12110<br>Phone: (518) 213-1000<br>e-mail: cbette@firstcolumbia.com | |
| Site Name: | Capital Center | |
| Site Address: | Broadway and Spencer Street, Albany, New York | |
| Work Tasks/Duration: | -Subsurface Investigation(s) | July 2014 |
| | -Soil Borings/Soil Sampling/ Monitoring Well Installation | Approximately 3 days |
| | -Groundwater sampling | Approximately 1 day |
| Subcontractor(s): | A subcontractor will be utilized to provide drilling services related to the installation of borings and monitoring wells for the site investigation. | |

## 3.0 EMERGENCY CONTACTS

| | |
|---|---|
| Ambulance: | **911** |
| Police Department: | **911** |
| Fire Department: | **911** |
| Hazardous Materials Response: | **911** |
| Poison Control: | 1-800-336-6997 |
| Utility Clearance: | 1-800-DIG-SAFE (1-800-344-7233) |
| NYSDEC Spills Hotline: | 1-800-457-7362 (24 hours a day) |
| CHA Contact: | Mr. Keith Cowan, C.P.G.<br>(518) 453-3899 – Office<br>(518) 466-8157 – Cell<br>e-mail: kcowan@chacompanies.com |
| Client Contact: | Mr. Christopher Bette, P.E.<br>(518) 213-1000 – Office<br>e-mail: cbette@firstcolumbia.com |

| | |
|---|---|
| Nearest Hospital: | Albany Medical Center<br>43 New Scotland Avenue<br>Albany, NY 12208<br>(518) 262-3125 |

Directions to Hospital:

1. Head **south** on **Broadway**.
2. Turn **right** onto **Clinton Avenue**.
3. Turn **left** onto **Lark Street**.
4. Turn **right** onto **Madison Avenue**.
5. Turn **left** onto **New Scotland Avenue** and follow 0.2 miles to Albany Medical Center.

**NOTE: Map to the hospital provided as Figure 3.**

# 4.0 KEY PERSONNEL

## 4.1 Off-Site Personnel

| | |
|---|---|
| Title: | **Project Manager** |
| Description: | Responsible for defining project objectives, allocating resources, determining the chain of command, and evaluating program outcome. |
| Contact: | Keith Cowan, C.P.G. @ (518) 453-2899 |

| | |
|---|---|
| Title: | **Technical Manager/Project Coordinator** |
| Description: | Reports to upper level management, has authority to direct response operations, assumes total control over site activities. Guides the Project in scientific matters. |
| Contact: | Sarah Benson @ (518) 453-8749 |

| | |
|---|---|
| Title: | **CHA Director of Environmental Health & Safety** |
| Description: | Overall responsibility for implementing company-wide health and safety standards, procuring appropriate personal protective clothing and equipment, staff training, etc. |
| Contact: | Margaret Rudzinski, @ (518) 453-2830 |

## 4.2 On-Site Personnel

The proposed scope of work includes the installation of soil borings and monitoring wells, surface soil sampling, and groundwater sampling to further characterize the Site. The following individual is responsible for on-site health and safety.

| | |
|---|---|
| Title: | **Site Health & Safety Officer (SHSO) / Field Team Leader** |
| Description: | Advises the field team on all aspects of health and safety issues. |
| Contact: | Scott Rosecrans @ (518) 453-8782 (Office), (518) 339-7748 (Cell) |

Any CHA employee who observes unsafe conditions has the authority to issue a stop work order for the Site.

# 5.0 SITE ENTRY

## 5.1 Objectives

The objectives of site entry are to complete site investigation activities at the Capital Center Site in Albany, NY. The tasks previously identified (subsurface drilling, soil sampling, surface soil sampling groundwater monitoring well installation, and groundwater sampling.) require entry to the Site by CHA personnel.

## 5.2 Safety Meetings

To ensure that the HASP is being followed, the SHSO shall conduct a safety meeting prior to entry to the site or the initiation of any site activity, if any conditions change, and before each work day.

## 5.3 Safety Training

The SHSO will confirm that every person assigned to a task has had adequate training for that task and that the training is up-to-date by checking with the CHA Director of Environmental Health and Safety (EHS). On-site CHA staff working on this project shall have a minimum of a 40-hour initial Hazardous Waste Operations and Emergency Response (HAZWOPER) training and a current 8-hour refresher course. Additionally, CHA will confirm that subcontractor's on-site personnel have the HAZWOPER training and a current 8-hour refresher course.

Training will have been conducted and certified in accordance with the Occupational Safety and Health Administration (OSHA) regulations as outlined in 29 Code of Federal Regulations (CFR) 1910.120.

## 5.4 Medical Surveillance

On-site CHA personnel (including CHA subcontractors) will have had a medical surveillance physical consistent with OSHA regulations in 29 CFR 1910.120 and performed by a qualified occupational health physician. The SHSO shall confirm prior to initiation of work on this Site that every person assigned to a task has had an annual physical, has passed the medical examination and has been determined medically fit by the occupational health physician for this type of work.

## 5.5 Site Mapping

The Site location is shown on Figure 1. An aerial photograph of the site is included as Figure 2.

# 6.0 SITE CHARACTERIZATION

## 6.1 Site Description

The Site is an approximately 1.8-acre urban site that is comprised of 15 separate commercial tax parcels located at Broadway and surrounded by Spencer Street and Quackenbush Square, approximately 900 feet west of the Hudson River, in the City of Albany, New York. Existing Site structures include three 2-story brick and concrete buildings (one of which contains a basement), two single-story framed buildings adjacent to one of the 2-story buildings, and two single-story brick and concrete buildings, all of which were formerly utilized in connection with historical commercial and industrial Site operations. The buildings are located on the eastern and southeastern portions of the Site, as shown on Figure 2, and comprise a total footprint area of approximately 17,000 square feet. All of the buildings are currently unoccupied and continue to deteriorate. First Columbia plans to demolish the buildings in 2014.

## 6.2 Neighboring Properties

Surrounding property uses include a visitor's center, two restaurants, (Le Canard Bistro and the Albany Pump Station); parking lots and a parking garage; and the Progressive Insurance Building. The site and neighboring properties are currently located in a Central Business District (C-3) in downtown Albany according to the City of Albany Department of Development and Planning.

Neighboring property uses are summarizes as follows:

**North:** The Site is bordered to the north by Spencer Street, beyond which are parking lots and a multi-story office building occupied by Progressive Insurance.

**East:** The Site is bordered to the east by Montgomery Street, beyond which is a parking lot.

**South:** The Site is bordered to the south by commercial buildings occupied by the Albany Pump Station restaurant and C.H Evans Brewing Company (between the Site and Quackenbush Street).

**West:** The Site is bordered to the west by Broadway, beyond which is a multi-story office building (Leo W. O'Brien Federal Building) occupied by the U.S. Government.

## 6.3 Site Topography

The Site is approximately 20 to 30 feet above mean sea level, and the Site topography gently slopes uphill to the northwest from Montgomery Street toward Broadway. The Site is almost entirely covered with buildings or paved surfaces, except for an untended vegetated and treed area along the Broadway side of the Site. Local groundwater flow beneath the site is inferred to be generally in an easterly direction.

## 6.4 Meteorological Data

The field work is expected to be conducted during the late spring/early summer 2014. Prior to each day's activities, the daily forecast will be monitored for indications of adverse work conditions and/or sever weather. If poor weather hinders the continuation of the day's activities or poses unsafe work conditions, the Field Team Leader may stop work for the day.

# 7.0 HAZARD EVALUATION

## 7.1 Physical Hazards

Physical hazards such as the following may be encountered on site:

- Slip/trip/fall (e.g. from mud, debris, steep topography, ice, etc.)
- Ultraviolet rays
- Lifting strains (e.g. from generators, drums, equipment)
- Heavy machinery and vehicles (e.g. drill rigs)
- Flying debris (e.g. debris from drilling equipment)
- Noise (e.g. elevated noise levels associated with drilling equipment)
- Heat/cold stress

## 7.2 Biological Hazards

- Biological hazards are not expected to pose a risk to employees on the site.

## 7.3 Chemical Hazards

Hazardous Material Types: Liquid _X_ Solid _X__ Sludge _____ Gas ____

### 7.3.1 Dispersion Pathways

The potential exposure mechanism that can transport particulates and contaminants of concern from the areas of the investigation and monitoring activities to other areas of the Site as well as beyond the boundaries of the Site are:

- Contact with contaminated groundwater or soil
- Projection of contaminated material in air
- Failure to adhere to decontamination procedures
- Failure to adhere to Standard Operating Procedures

Nuisance dust can be a problem at any site that involves intrusive investigation activities. However, soil disturbance during the subsurface investigation will be minimal. Therefore, no significant migration of fugitive dust is expected. If necessary, dust will be controlled to the extent feasible to prevent the public from being unnecessarily concerned and to further reduce the nuisance dust hazard to Site personnel. Nuisance dust will be controlled by utilizing appropriate dust suppression techniques. The primary effect of nuisance dust is irritation of the eyes, nose, and throat when concentrations approach the OSHA exposure limits. Exposure limits are not anticipated to be exceeded during this project.

## 7.4 Hazard Identification & Control

Hazard controls generally consist of the following specific safety procedures: training, engineering controls, air monitoring, and personal protection equipment (PPE) selection. CHA employees are required to use the PPE appropriate to their work task and potential exposures as outlined in the

HASP. The levels of PPE assigned to each activity are based on available information on the estimation of potential exposure associated with each work task.

| AFFECTED PERSONNEL | TASK/ OPERATION | HAZARDS | HAZARD CONTROL |
|---|---|---|---|
| Exclusion Zone Personnel | Boring/monitoring well installation & sampling of soil and groundwater | Vehicular Traffic Mechanical Drill Rig | - Wear reflective vest<br>- Use cones & signs to delineate work zone |
| Exclusion Zone Personnel | Boring/monitoring well installation & sampling of soil and groundwater | Potential Exposure to VOCs, SVOCs, heavy metals, polychlorinated biphenyls (PCBs), pesticides. | Exposure to chemical hazards:<br>- Stand upwind when possible<br>- Minimize direct contact<br>- Avoid walking through discolored areas, puddles, leaning on drums or contacting anything that may; be contaminated.<br>- Don appropriate PPE<br>- Level D PPE work as a minimum<br>- >10 parts per million (ppm) organic vapor for 5 minutes, upgrade to Level C.<br>- >200 ppm organic vapor for 5 minutes upgrade to Level B |
| Exclusion Zone Personnel | Boring/monitoring well installation & sampling of soil and groundwater | Miscellaneous physical hazards including noise and physical contact hazards | - Don appropriate PPE when working around drilling equipment<br>• Hard Hat<br>• Safety Glasses<br>• Hearing Protection |
| Exclusion Zone Personnel | Boring/monitoring well installation & sampling of soil and groundwater | Inclement weather | - Cease site activities during electrical storm<br>- Cease site activities in extreme temps |
| Exclusion Zone Personnel | Boring/monitoring well installation & sampling of soil and groundwater | Back Injury | - Use mechanical lifting device when possible<br>- Use buddy system when lifting heavy or awkward objects<br>- Do not jerk or twist body while lifting |

# 8.0 HAZARD/TASK ANALYSIS

## 8.1 Site Activities

Potential hazards that may be associated with potential on-site activities are listed in the following table:

| Hazards: | Precaution |
|---|---|
| 1) Skin and/or eye contact with contaminated soil and/or groundwater, decontamination solutions, and sample preservation agents.<br><br>2) The inhalation of volatile organic vapors during site activities.<br><br>3) The inhalation of contaminated dusts and other airborne particles during Site activities. | - Wear the required PPE when conditions or activities indicate the need for it.<br><br>- Avoid walking through puddles, and contacting other potential sources of contaminants such as drums.<br><br>- Keep airborne dust levels to a minimum by wetting down surfaces. |
| Physical injuries, such as abrasions, insect bites, back injuries, slips, trips, falls. | - Avoid slippery surfaces when possible.<br>- Practice safe lifting techniques.<br>- Know the location of other Site workers at all times, especially before moving and/or starting up heavy equipment such as a drill rig or truck.<br>- Be observant of possible insect nesting areas.<br>- Have a first aid kit on hand. |
| Heat and cold stress | - Dress appropriately, wear dry clothing.<br>- Take frequent breaks during extreme weather conditions.<br>- Refer to the section on heat stress or cold stress, as appropriate for additional precautions. |
| Fire | - Have a fire extinguisher on hand.<br>- Keep ignition sources away from flammable materials and atmospheres. |
| Security | - Stay alert to neighborhood activities |

## 8.2 Specific Tasks

The hazards associated with specific Site tasks are described below:

| Hazards: | Precaution |
|---|---|
| **Soil Boring/Monitoring Well Installation & Sample Collection** | |
| Inhalation of and skin contact with contaminants in soil and groundwater. | - Conduct air monitoring specified in Section 9.0 and abide by all action levels.<br>- Stand upwind to reduce inhalation hazard.<br>- Wear respiratory protection when conditions indicate the need for it.<br>- Wear chemical resistant gloves and safety glasses to prevent skin/eye contact. |
| Contact with overhead power lines and/or buried utilities/debris while drilling. | - Do not move drill rig when mast is up.<br>- Do not drill within 20 feet of overhead power lines.<br>- Call a utility locator to check for location of underground utilities.<br>- Use common sense when choosing drilling locations. |
| Noise exposure and contact with moving parts of drill rig and/or flying debris | - Wear hearing protection if you must shout to hear someone who is standing one foot or less away.<br>- Do not stand unnecessarily close to the drill rig when it is operating.<br>- Know the location of the emergency shut-off switch.<br>- Wear a hard hat |

# 9.0 AIR MONITORING & ACTION LEVELS

## 9.1 Air Monitoring Equipment

The following environmental monitoring instruments shall be used on site at the specified intervals.

Photoionization Detector (PID)

A PID with a 10.6 eV lamp shall be used during tasks that require any intrusive activities and/or as ordered by CHA personnel. The PID will be utilized at the start of all intrusive activities, whenever obvious contamination is noted, and at least every 15 to 30 minutes through the duration of the intrusive activities. PID measurements shall be taken in the breathing zone of on-Site personnel, in low areas where flammable vapor may accumulate and in the headspace of soil and water samples. Measurements will be collected downwind of intrusive activities as described in the Community Air Monitoring Plan (Section 9.3).

The PID shall be calibrated daily following manufacturers recommendations. Calibration data shall be recorded in daily logs.

Dust

Dust levels shall be visibly monitored. If it appears dust levels are increasing, a particulate meter shall be utilized following the manufacturer's recommendations.

Temperature

Ambient temperature should be monitored throughout the work day for potential heat stress or cold stress conditions. Based upon observed weather forecasts, a thermometer shall be utilized to monitor on-site temperatures whenever the expected low temperature for the day is anticipated to be less than 20 degrees Fahrenheit or the anticipated high temperature is anticipated to be in excess of 90 degrees Fahrenheit.

## 9.2 Action Levels

An action level is a point at which increased protection is required due to the concentration of contaminants in the work area or other environmental conditions. Each action level is determined by the concentration level (above background level) and the ability of the PPE to protect against that specific contaminant. The action levels are based on concentrations in the breathing zone.

Should action levels be reached, work operations shall cease until further evaluation is performed and safe levels are prevalent. If ambient levels are measured which exceed the action levels in areas accessible to the public or unprotected personnel, necessary site control measures (barricades, warning signs, and mitigative actions, etc.) must be implemented before commencing activities at the specific work site. If through engineering controls and monitoring, safe levels (below action levels) cannot be achieved, an upgrade in PPE shall be mandated by the task SHSO, or operations shall cease in that portion of the site. The action levels at the Site are as follows:

- VOCs (PID monitor) = consistent readings of >5 ppm sustained for 5 minutes
- Atmospheric gases (Quad Alarm)
  - Combustible gases = >10% lower explosive limit (LEL), requires a Self-Contained Breathing Apparatus (SCBA)
  - Oxygen = 19.5%-23.5%, above or below requires a SCBA
  - Carbon Monoxide = >35ppm, requires a SCBA
  - Hydrogen Sulfide = >10ppm, requires a SCBA
- Temperature = body core temperature of < 36ºC (96.8ºF) for cold stress

### 9.3 Community Air Monitoring Requirements

Community air monitoring is outlined in the Community Air Monitoring Plan included as Appendix D to the Supplemental RI Work Plan.

### 9.4 Environmental Sampling

Environmental Sampling is fully discussed in the Supplemental RI Work Plan and associated Field Sampling Plan associated with this project.

# 10.0 PERSONAL PROTECTIVE EQUIPMENT

## 10.1 General Information

The purpose of personal protective clothing and equipment is to shield or isolate individuals from the chemical and physical hazards that may be encountered during work activities. The level of protection required must correspond to the level of hazard known, or suspected, in the specific work area.

There are four basic levels (A, B, C, and D) of personal protection as established by the United States Environmental Protection Agency (USEPA). Level A provides the highest level of protection and Level D provides the lowest.

- ***Level D*** will consist of field clothes, outer gloves (if soil/water contact is likely), steel toe and shank safety boots, safety glasses (for splash hazards), and a hard hat (if overhead hazards are present).

- ***Modified Level D*** will consist of Tyvek© coverall, safety glasses (for dust/splash hazards) outer gloves with disposable inner gloves, steel toe and shank work boots, overboots if free product is encountered or as otherwise specified, hearing protection and, if overhead hazards are present, such as during drilling, a hard hat. Safety glasses must also be worn.

- ***Level C*** will consist of the same equipment as listed for modified Level D with the addition of a full-faced air purifying cartridge equipped respirator.

- ***Level B***, if required for working on this project site, consists of the same equipment as listed for Level C with the substitution of a full-faced SCBA in place of a full-faced air purifying respirator.

- ***Level A*** is not anticipated for this project.

When wearing Level C, B, or A, all junctures between the chemical protective coverall (i.e., Tyvek© suit) and boots, gloves, and respirator must be taped. The suit must be placed over the boots and gloves. When taping, remember to leave a tab for easy removal. Stress spots in the suit must also be taped, such as under the arms, down the zipper, and up or across the back.

PPE has been selected consistent with the hazards associated with the expected field activities. PPE is available in various sizes to provide a good fit for all personnel. PPE must be stored in a clean location with access by Site workers. Site workers are responsible for maintenance and storage of equipment at the Site.

## 10.2 Task Specific Requirements

Based on evaluation of the potential hazards for the Site, the initial levels of PPE have been designated as a Level D based on the potential route of contact and the potential contaminants. In

this plan, Modified Level D is presented as a modified protection level which consists of, at a minimum, hard hat, safety glasses, work boots, long pants, latex/nitrile gloves, and other weather appropriate clothing. Respiratory protection and an upgrade in PPE to Level C shall be incorporated only where required by Site conditions. CHA notes the following additional requirements:

- A hard hat is required when personnel are working around heavy machinery or vehicle (e.g. drilling operations) or when working in the right-of-way or an adjacent roadway and increased visibility is necessary.
- Safety glasses are required when personnel are working around heavy machinery or vehicle (e.g. drilling operations) where there is a potential for debris to fly into worker's eyes.
- A reflective safety vest must be worn while working within the right-of-way or an adjacent roadway or when increased visibility is necessary.
- Latex/nitrile gloves are only required to be worn during intrusive activities when soil and water samples are being handled. Tyvek© suits and gloves are not required for non-intrusive activities.
- Hearing protection shall be required at the discretion of the SHSO, but at a minimum, must be utilized by on-Site personnel when the drill rig hammer is being utilized to advance the soil sampler.
- No changes to the specified levels of PPE shall be made without first obtaining approval of the SHSO. If action levels are reached, work shall cease and the SHSO and his advisors shall perform further evaluations. If necessary, an upgrade in PPE shall be mandated.
- If an upgrade to Level C PPE is required, air purifying respirators equipped with organic vapor/acid gas/HEPA cartridges will be utilized. Organic vapor/acid gas/HEPA cartridges are the appropriate canister for use with the involved substances. Respirators used will be approved by the National Institute for Occupational Safety and Health (NIOSH) and/or the Mine Safety and Health Administration (MSHA) and their use shall be consistent with OSHA regulations in 29 CFR 1910.134. On-site personnel wearing a respirator shall have respirator clearance from a qualified occupational health physician. In addition, the respirator wearers on site shall perform qualitative fit tests to ensure proper fit of the face seal of the respirator. Inspection logs shall be completed, signed and kept with the HASP. Filter cartridges used shall be of the same manufacturer as the respirator and shall be changed on a daily basis at a minimum and/or if breathing becomes difficult. Air purifying respirators shall not be used if any of the following conditions exist:

    - Oxygen deficiency
    - Immediately Dangerous to Life or Health (IDLH) concentrations of specific substances
    - Entry into an unventilated or confined area which has not been characterized
    - Presence or potential presence of unidentified contaminants
    - Contaminant concentrations are unknown or exceed designated maximum use specifications
    - Identified gases or vapors have inadequate warning properties
    - High relative humidity, may reduce protection offered by sorbent

- The need for Level A, Level B or Level C PPE is not anticipated for tasks covered by this HASP. Should Level D PPE be deemed insufficient based upon the conditions encountered in the field, work activities will temporarily cease and the HASP will be updated prior to continuing on-Site activities.

Personnel should also be able to upgrade or downgrade their level of protection with the concurrence of the SHSO and task manager based upon air monitoring results and the following.

***Reasons to upgrade:***

- Known or suspected presence of dermal hazards.
- Occurrence or likely occurrence of gas, vapor or dust emission.
- Change in work task that will increase the exposure or potential exposure with hazardous materials.

***Reasons to downgrade:***

- New information indicating that the situation is less hazardous than was originally suspected.
- Change in site conditions that decrease the potential hazard.
- Change in work task that will reduce exposure to hazardous materials.

# 11.0 SITE CONTROL MEASURES

## 11.1 Work Zones

Site work zones will be clearly marked as applicable and discussed with on-Site personnel. CHA's subcontractor(s) will be responsible for delineating and maintaining the work zones. Site work zones shall consist of the exclusion, support, and contamination reduction zones as required.

The **exclusion zone** is the zone in which contamination is most likely to be encountered. For the drilling activities the exclusion zone is considered to be a 30 foot radius surrounding the drill rig. Flow of personnel and equipment into and out of the zone will be monitored throughout the investigation. While in the exclusion zone personnel must wear the specified PPE.

The **contamination reduction zone** will be outside the exclusion zone for any boring/well location. Personnel working inside the exclusion zone will decontaminate or dispose of soiled clothing in the contamination reduction zone each time the exclusion zone is exited, if the clothing worn becomes soiled. Appropriate equipment, supplies, and personal PPE will be made available in the contamination reduction zone to facilitate the protection and decontamination of personnel working in the exclusion zone.

A s**upport zone**, if necessary, will be established in close proximity to the contamination reduction zone. This area will be used for operational direction and support facilities, emergency response, supplies/equipment, and worker rest areas.

## 11.2 Communication

Communication shall be accomplished by a combination of person to person verbal correspondence, the use of cellular phones, and by verbal signals or hand signals depending on the pre-design programming task. Communication procedures will be reviewed at the Safety Meeting before entering the exclusion zone.

## 11.3 Site Security Measures

The contamination reduction zone and support zone shall be clearly marked as appropriate and reviewed at the Safety Meeting. Personnel shall report to the field team leader upon entering and exiting the Site so that everyone will be accounted for.

# 12.0 DECONTAMINATION

Decontamination activities will be performed on-site. No decontamination other than small hand tools/equipment is anticipated.

## 12.1 PPE

At minimum, non-disposable personnel protective clothing will be decontaminated by first washing the soiled items with a non-phosphate detergent and potable water mixture, followed by potable water and distilled water rinses. Disposable/expendable PPE and clothing will be placed into plastic trash bags for off-site disposal.

## 12.2 Small Equipment & Hand Tools

Small hand tools and equipment (e.g. hand augers, split spoon soil samplers, etc.) will be decontaminated as appropriate and prior to removal from the Site. The recommended decontamination procedure for equipment used during the project is outlined in the Field Sampling Plan, included as Appendix A to the Supplemental RI Work Plan.

## 12.3 Heavy Equipment

Heavy equipment anticipated to be utilized during the site investigation will be limited to direct-push type drilling equipment (Geoprobe). Tools and sampling equipment that come into contact with potentially contaminated materials will be decontaminated by the drilling subcontractor. The recommended decontamination procedure for equipment used during the project is outlined in the Field Sampling Plan, included as Appendix A to the Supplemental RI Work Plan. Wash water generated from the decontamination activities will be containerized for proper disposal.

## 13.0 HAZARD COMMUNICATION

In compliance with 29 CFR 1910.1200, hazardous materials brought on-site by any personnel (CHA or contractors) shall be accompanied with an appropriate Material Safety Data Sheet (MSDS). The SHSO provided by the Contractor shall be responsible for maintaining the MSDSs on-Site, reviewing them for hazards that working personnel may be exposed to, and evaluating their use on-Site with respect to compatibility with other materials including personal protective equipment, and their hazards. Should the SHSO deem the material too hazardous for use on-Site, the party responsible for bringing the material on-Site shall remove it from the Site.

## 14.0 CONFINED SPACE

Confined space entry is not anticipated during this project; however, in the event that a confined space entry is necessary then all confined space entry procedures, techniques, and equipment shall be consistent with OSHA regulations in 29 CFR 1910.146.

# 15.0 EMERGENCY PROCEDURES

On-site emergencies can range in intensity from minor to serious conditions. Various procedures for responding to Site emergencies are listed in this section. The designated SHSO is responsible for contacting local emergency services in emergency situations (however, others must assume responsibility if the situation warrants). An injured person shall be accompanied by another worker at all times.

The following emergency procedures will be used by on-Site personnel. The SHSO shall be notified of any on-Site emergencies and be responsible for ensuring that the appropriate measures are followed. Non-emergencies will be treated on site and documented and then directed to seek further medical attention. Occupational injuries and illnesses will be reported, recorded, and investigated.

CHA personnel will be equipped with a cellular telephone for communication. Other emergency equipment, including a first aid kit will be on-site at all times. In the case of a medical emergency, CHA personnel and contractor SHSO will communicate to determine the nature of the emergency and the location. After it is determined whether there is an actual emergency, he/she will instruct someone to call for an ambulance. Cellular telephones will to be used to place such a call.

If an emergency evacuation of the Site must take place, all personnel on-Site will immediately stop work, shut off all equipment, and assemble at the entrance to the Site. After assembly of all personnel, the Site will be evacuated using vehicles. If time permits, as determined by the SHSO, emergency decontamination will take place. This will consist of a wash and rinse of overboots, removal of disposable clothing, and washing of hands and face. If the roll call by the SHSO reveals someone is still on site, the SHSO and his/her assistant will look for the person(s), using appropriate personal protection.

## 15.1 Personnel Injury

Upon notification of personnel injury the nature of the injury will be assessed, the appropriate first aid shall be initiated and, if necessary, contact shall be made for an ambulance and with the designated medical facility. If the injury increases the risk to others, activities on-site will stop until the added risk is removed or minimized.

## 15.2 Fire/Explosion

Upon notification of fire or explosion, Site personnel shall assemble at a safe distance upwind of the involved area. The SHSO shall alert the appropriate fire department.

## 15.3 PPE Failure

If any Site worker experiences a failure or alteration of PPE that affects the protection factor, that person and his/her buddy shall immediately exit the exclusion zone. Re-entry shall not be permitted until the equipment has been repaired or replaced.

## 15.4 Chemical Exposure

If any site worker experiences adverse effects due to chemical exposure, the appropriate first aid procedures shall be followed according to the MSDS for that chemical. The person shall at a minimum be moved to fresh air. Whenever possible, personnel should be decontaminated before administering first aid.

Workers should go to the support zone as soon as any of the follow acute symptoms of exposure are experienced:

- Rotten egg odor (indicates hydrogen sulfide)
- Sweet almond-like odor (indicates cyanide presence)
- Headache
- Nausea or vomiting
- Fatigue
- Weakness
- Confusion
- Dizziness
- Irritation of eyes, nose, throat
- Dermatitis
- Chills
- Chest tightness
- Cough
- Muscle spasms
- Staggered gait
- Increased salivation
- Indigestion
- Diarrhea
- Irritability
- Metallic taste in mouth

## 15.5 Spill Containment

If on-site work results in the accidental spill or release of oil or hazardous materials, containment to the extent possible will be required by on-site personnel (in proper PPE). Containment should include the use of absorbent pads or materials, diking with soils, covering and/or diverting spills from sewers, drains, surface water bodies, etc. For spills that cannot be controlled by on-site personnel or are above the reportable quantities, the SHSO or designee will secure the area and notify the NYSDEC Spills hotline and notify appropriate emergency personnel through the 9-1-1 system.

# 16.0 EMERGENCY MEDICAL CARE

## 16.1 Nearest Hospital

See Section 3.0 for directions to the nearest hospital.

## 16.2 On-Site First Aid

A first aid kit shall be maintained and stored within the Contamination Reduction Zone. General first aid procedures are identified in the list below:

**Skin/Eye Contact:** Flush eyes and/or skin thoroughly with water for 15 minutes. Remove contaminated clothing. If skin was contacted with a dry material, brush it off first, then flush with water. Seek medical attention if irritation develops.

**Ingestion:** Do not induce vomiting. Call the Poison Control Center. Tell them what was swallowed, if possible. Follow instructions. Arrange for transport of the victim to the hospital by calling for an ambulance.

**Inhalation:** Remove person from contaminated environment without risking your own safety. DO NOT ENTER A CONFINED SPACE UNLESS WEARING LEVEL B AND A STANDBY PERSON IS PRESENT. DO NOT ENTER EXCLUSION ZONE UNLESS WEARING ONE LEVEL HIGHER PROTECTION THAN VICTIM WAS WEARING. Administer CPR, if necessary. Bring victim to hospital or call ambulance.

**Injuries:** Do not move a victim who may have a back injury. Cover them with coats, blankets, or other appropriate items to keep them warm. Call an ambulance.

Apply pressure to bleeding wounds. If the victim is able, have the victim apply pressure to the wound. If they are not able, wear gloves to protect from exposure to blood. Put gauze bandages or other clean cloth over the wound. Do not remove blood-soaked bandages or cloth - instead put additional bandages or cloths over the blood-soaked bandages. Elevate the limb with the injury above the heart.

Administer CPR if victim does not have a pulse and if you are currently certified in CPR. Have someone call for an ambulance immediately if there is any possibility that the victim is having or had a heart attack.

Shock is likely to develop in any serious injury or illness. The following are signals of shock: restlessness or irritability; altered consciousness; pale, cool, moist skin; rapid breathing; and/or rapid

pulse. In the event of shock, do the following: Immediately have someone call for an ambulance; have the victim lie down; elevate legs 12 inches unless you suspect head, neck, or back injuries; if victim is cool, cover the victim to prevent chilling; do not give the victim anything to drink, even if thirsty.

**Collapses:** If Site personnel have unexplainably collapsed, personnel must evacuate work area. Rescue personnel must don a level of protection higher than the victim was in before evacuating victim from work area. Confined space rescue always requires Level B protection. No one will re-enter the work area until the cause has been determined and the SHSO has determined that the area is safe to re-enter.

## 16.3 Heat & Cold Stress

### 16.3.1 Heat Stress

*Heat Stress Symptoms and Remedies*

Acclimatization and frequent rest periods must be established for conducting activities where heat stress may occur. Symptoms of heat stress and appropriate responses include:

- Heat Rash - redness of skin. Remedy - frequent rest and change of clothing.
- Heat Cramp - painful muscle spasms in hands feet, and/or abdomen. Remedy - administer lightly salted water (1/4 teaspoon per gallon) orally unless there are medical restrictions.
- Heat Exhaustion - clammy, moist, pale skin; dizziness, nausea rapid pulse, fainting. Remedy - remove to cooler area and administer fluids orally or have physician administer saline solution intravenously.
- Heat Stroke - hot dry skin; red, spotted or bluish; high body temperature of 104°F or greater, mental confusion, loss of consciousness, convulsions or coma. Remedy -immediately cool victim by immersion in cool water. Wrap in wet sheet while fanning, sponge with cool liquid. While fanning, treat for shock. Call for an ambulance. DO NOT DELAY TREATMENT. COOL BODY WHILE AWAITING AMBULANCE.

*Heat Stress – Precautions*

Precautions to take to reduce the possibility of heat stress include the following:

- Avoid caffeine and alcohol both during work hours and 24 hours before on-site activity.
- Drink water before feeling thirsty.
- Watch for signs and symptoms of heat stress.
- Rest in cool/dry areas, such as air conditioned vehicle or building or in the shade.
- Use cooling devices such as water sprays or fans to cool off.

### 16.3.2 Cold Stress

*Cold Stress Symptoms*

Cold Stress symptoms may include any or all of the following:

- Excessive fatigue
- Irritability
- Euphoria
- Drowsiness
- Uncontrollable shivering
- Frost nip
- Medical assistance is necessary if these symptoms persist.

*Cold Stress Treatment*

Cold stress and frostbite emergency care:

- Remove the patient to a warm, dry place.
- If clothing is wet, remove and replace with dry clothing.
- Keep patient warm. Re-warming of the patient should be gradual to avoid heat stroke symptoms.
- Dehydration or the loss of body fluids may result in cold injury due to a significant change in blood flow to the extremities. If patient is conscious and alert, warm sweet drinks should be provided.
- Extremities affected by frostbite should be gradually warmed up and returned to normal temperature. Moist compresses should be applied; begin with lukewarm compresses and slowly increase the temperature as changes in skin temperature are detected.
- Keep patient warm and calm, remove to a medical facility as soon as possible.

*Cold Stress – Prevention*

- Take breaks in heated shelters at frequent intervals when working in temperatures below 20°F, including wind chill.
- Remove outer layer of clothing when entering the shelter. Loosen other layers to allow sweat to evaporate.
- Drink warm, sweet liquids or soups to reduce possibility of cold injury. Avoid caffeine and alcohol.

## 17.0 STANDARD OPERATING PROCEDURES

The following standard operating procedures shall be implemented during this project:

- All construction activities shall be performed in compliance with all OSHA Construction Industry Standards and Regulations. Following the procedures, requirements, and provisions of this plan, personnel who may be potentially exposed to hazardous materials or wastes shall be in compliance with federal/state regulations, OSHA 29 CFR 1910.120.

- Horseplay will NOT be tolerated under any circumstances.

- Work conducted on-site shall be coordinated through the Project Manager and the SHSO.

- Minimize contact with hazardous substances.

- Use remote sampling, handling, and container-opening techniques whenever possible.

- Any drum or tank discovered on-site shall not be sampled, opened, or handled until an appropriate task-specific plan for unknown drum/tank sampling has been implemented.

- Samples from areas known, or suspected, to be contaminated with hazardous substances shall be handled with appropriate personal protective equipment.

- The discovery of any condition that would suggest the existence of a situation more hazardous than anticipated shall result in evacuation of site personnel and reevaluation of the hazards and the level of protection. Contact the Company Health and Safety Coordinator to determine the appropriate actions to take.

- Protect monitoring and sampling instruments by bagging.

- Wear disposable outer garments and use disposable equipment where appropriate.

- Use proper dressing procedures before entering the Exclusion Zone and use all fasteners (zippers, snaps, buttons, etc.).

- PPE and skin surfaces should be checked for cuts and/or punctures.

- Equipment used in Site operations shall be properly cleaned and maintained in good working order. Equipment shall be inspected for signs of defect and/or contamination before and after use.

- Do not eat, smoke, chew gum, or drink on site. Avoid any practice that may increase the probability of hand-to-mouth transfer and ingestion of material. Avoid any application of cosmetics. Personnel shall wash thoroughly before initiating any of the aforementioned activities.

- Avoid brushy areas to minimize allergic reactions to poison ivy, deer ticks, etc.

- Prescribed drugs should not be taken by personnel where the potential for absorption, inhalation, or ingestion of toxic substances exists unless specifically approved by a qualified person. Alcoholic beverages intake should be avoided.

- The "buddy system" must always be used and enforced. At a minimum, two persons who are in constant communication with each other shall be on site at all times during any activity conducted on-site in which the potential exists for exposure to hazardous materials, or accident or injury.

- Personnel entering the Contamination Reduction Zone and/or the Exclusion Zone must check in and out at the Access Control Points.

- Subcontractors shall abide by this Health & Safety Plan or provide one that is equivalent, at a minimum, to the conditions specified in this Health & Safety Plan.

- No workers with beards or heavy side burns are allowed to wear respirators.

## 18.0 CERTIFICATION & AGREEMENT

This agreement must be signed by all CHA employees, subcontractors, and visitors before conducting field activities at this site and/or entering the exclusion or decontamination zones.

*I have read this Health and Safety Plan and I understand the requirements of the Plan. I will conduct work at this site in accordance with the requirements of the Health and Safety Plan.*

| *Signature* | Date | Company |
|---|---|---|
| *Signature* | Date | Company |
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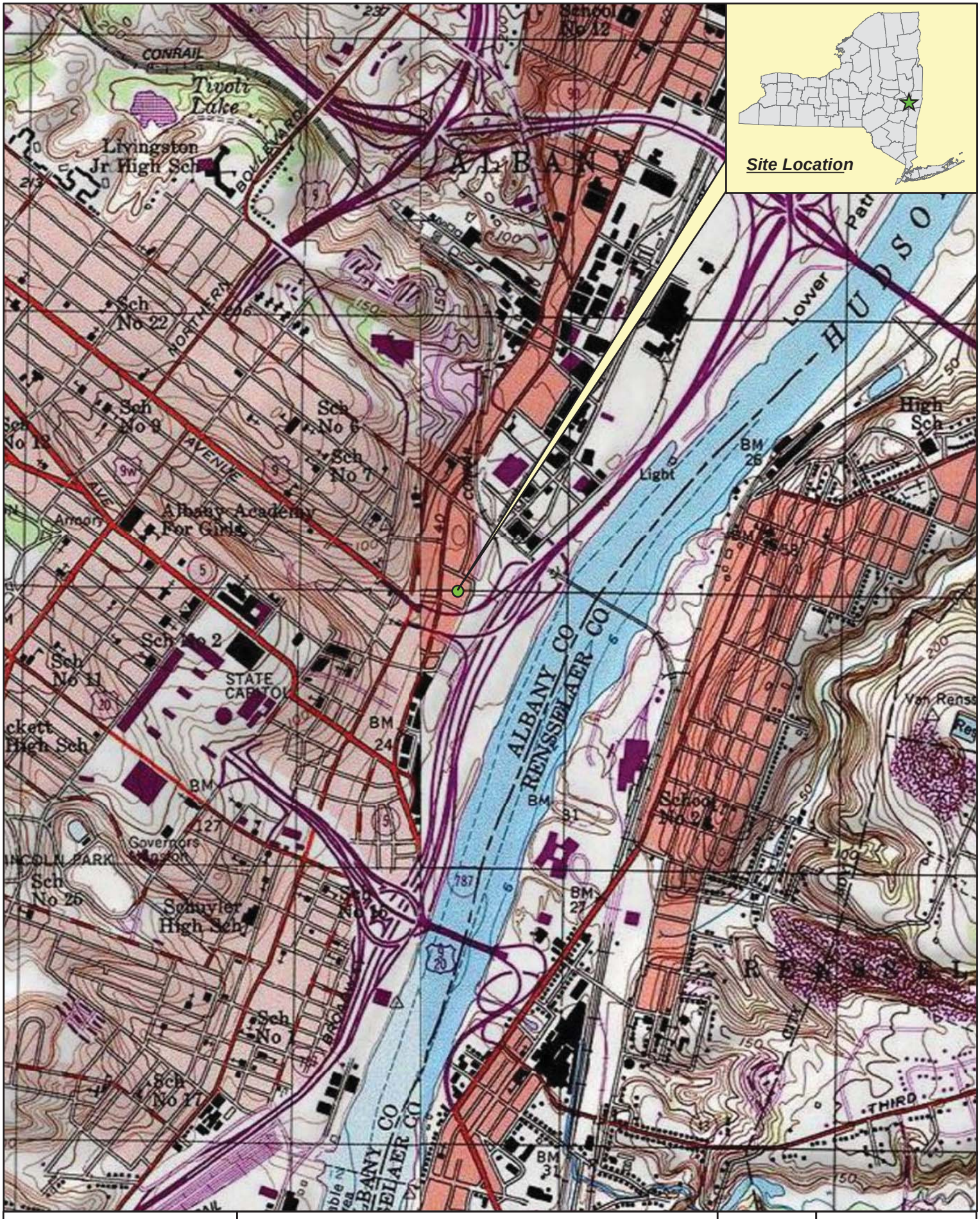
# FIGURES




CHA

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*Capital Center Project*

**Site Location Map**

*Albany County* *New York*

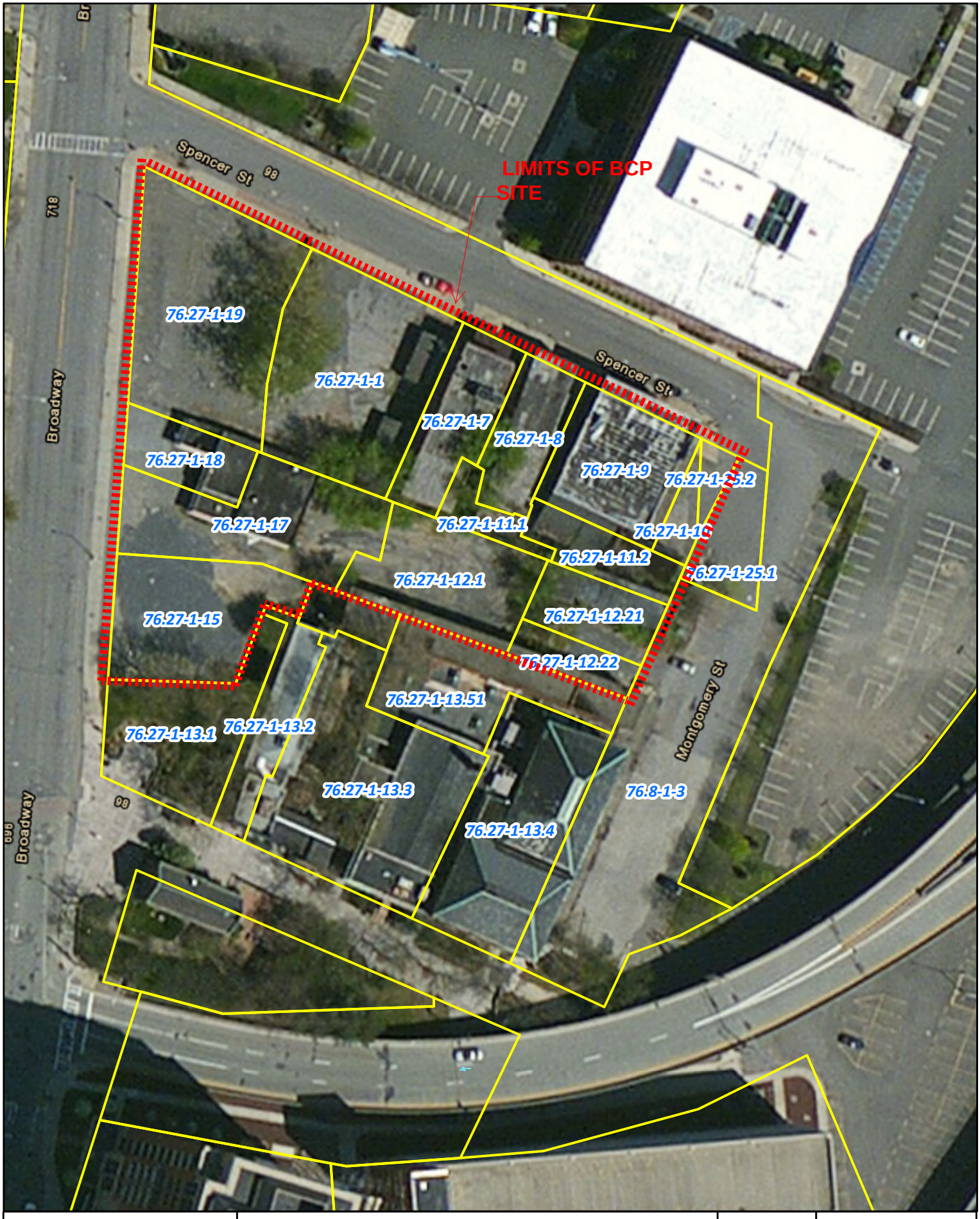
N W E S

1 inch = 2,000 feet

Figure 1

Date : August 2013

0 1,000 2,000 Feet

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*Capital Center Project*

**City of Albany Tax Map**

*Albany County* *New York*

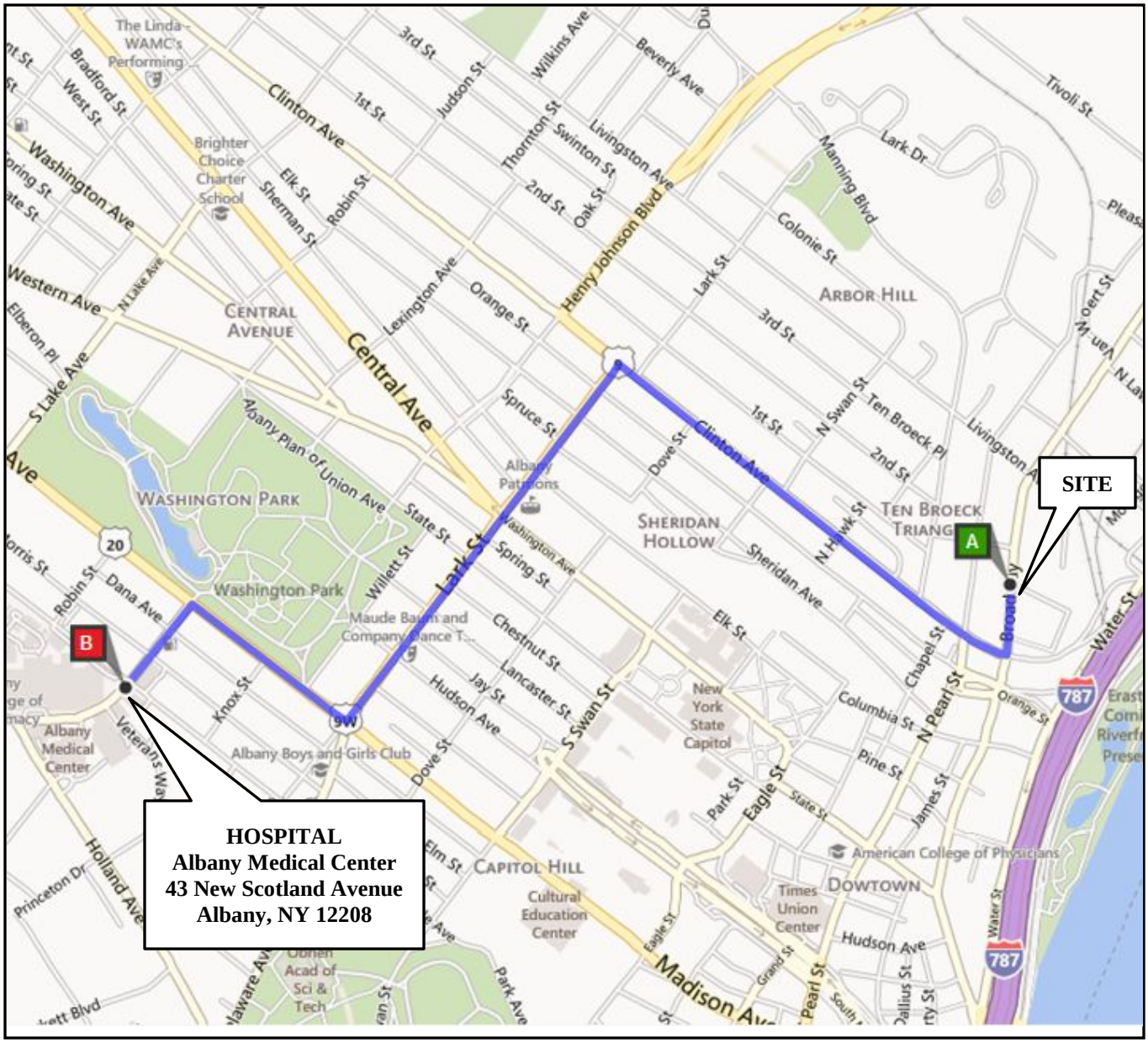
N W E S

1 inch = 100 feet

Figure 2

Date : August 2013

0 50 100 Feet




| | | |
|---|---|---|
| CHA | **Figure 3 – Route to Hospital**<br>**Capital Center Site**<br>**Albany, New York** | **Prepared For: First Columbia, LLC**<br>**CHA Project: 27160**<br>**Date: 2/7/14** |

# APPENDIX D

# Community Air Monitoring Plan (CAMP)

**Supplemental Remedial Investigation**
**Capital Center BCP Site**
**BCP Site #C401070**

The following Community Air Monitoring Plan (CAMP) will be implemented for the Supplemental Remediation Investigation activities to be performed at the Capital Center Brownfield Cleanup Program Site (BCP Site #C401070). Air monitoring will be conducted in general accordance with the New York State Department of Health (NYSDOH) *Generic Community Air Monitoring Plan (CAMP).* All air monitoring will be conducted on a real-time basis using hand-held field instruments. All air monitoring readings will be recorded in a logbook and made available for review.

This CAMP is not intended for use in establishing action levels for worker respiratory protection that is described in the site-specific Health and Safety Plan (HASP) included as Appendix C to the Supplemental Remediation Investigation (RI) Work Plan. Rather, its intent is to provide a measure of protection for the downwind community (i.e. off site receptors including residences and businesses and on-site workers not directly involved with the subject work activities) from potential airborne contaminant releases as a direct result of the proposed remedial investigation activities. Reliance on this CAMP should not preclude simple, common-sense measures to keep VOCs at a minimum around the work areas. The action levels specified herein require increased monitoring, corrective actions to abate emissions, and/or work shutdown. Additionally, this CAMP will help prevent the remedial investigation activities from spreading contamination off-site through the air.

## Fugitive Dust Monitoring and Control

No significant air monitoring is anticipated to be necessary to implement this Supplemental RI Work Plan. Soil disturbance during the subsurface investigation will be minimal. Borings advanced as part of the investigation are small in diameter and will not generate significant spoils. Therefore, no significant migration of fugitive dust is expected and no fugitive dust monitoring will be conducted. However, fugitive dust migration will be visually assessed during all investigation activities. Should there be visible evidence of fugitive dust leaving the Site, CHA will implement one or more techniques to control dust, in accordance with the New York State Department of Health's (NYSDOH's) *Generic Community Air Monitoring Plan (CAMP).*

## Organic Vapor Monitoring and Control

Based on the nature of the Site contaminants, it is anticipated that organic vapors may be emitted during supplemental remedial investigation activities. As a result, organic vapors

will be monitored on periodically. VOCs will be monitored at the downwind perimeter of the immediate work area (i.e. the exclusion zone). Upwind concentrations should be measured at the start of each workday and periodically thereafter to establish background conditions.

Periodic monitoring for VOCs consists of taking a reading upon arrival at a sample location, monitoring while opening a well cap or advancing a boring, monitoring during well bailing/purging, and taking a reading prior to leaving a sample location.

The monitoring work will be performed using equipment appropriate to measure the types of contaminants known or suspected to be present. The equipment will be calibrated at least daily for the contaminant(s) of concern or for an appropriate surrogate.

- If the ambient air concentration of total organic vapors at the downwind perimeter of the work area or exclusion zone exceeds 5 parts per million (ppm), work activities will be temporarily halted and monitoring continued. If the total organic vapor level readily decreases (per instantaneous readings) below 5 ppm over background, work activities can resume with continued monitoring.

- If total organic vapor levels at the downwind perimeter of the work area or exclusion zone persist at levels in excess of 5 ppm over background but are less than 25 ppm, work activities will be halted, the source of vapors identified, corrective actions taken to abate emissions, and monitoring continued. After these steps, work activities can resume provided that the total organic vapor level 200 feet downwind of the exclusion zone or half the distance to the nearest potential receptor or residential/commercial structure, whichever is less - but is no case less than 20 feet, is below 5 ppm over background.

- If the organic vapor level in the downwind work area perimeter exceeds the upwind perimeter concentration by more than 25 ppm, the following actions will be taken:

    1. All work will be halted.
    2. Air monitoring will be conducted at 15 minute intervals at a 20-foot offset from the exclusion zone. If two successive readings are measured by the field instrument and documented, the work may resume following the previously described monitoring plan.

All fifteen minute readings will be recorded and will be available onsite for State (NYSDEC and NYSDOH) personnel to review. Instantaneous readings, if any, used for decision purposes should also be recorded.