REMEDIAL INVESTIGATION WORK PLAN
BROWNFIELD CLEANUP PROGRAM SITE NO, C902019
FORMER ALLEGANY BITUMENS BELMONT ASPHALT PLANT
5392 STATE ROUTE 19
TOWN OF AMITY, ALLEGANY COUNTY, NEW YORK

JULY 2010

Prepared for:

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
270 MICHIGAN AVENUE
BUFFALO, NEW YORK 14203

Prepared on Behalf of:

BLADES HOLDING COMPANY, INC.
P.O. BOX 12
ARKPORT, NY 14807

Prepared by:

STANTEC CONSULTING SERVICES INC.
2250 BRIGHTON HENRIETTA TOWN LINE ROAD
ROCHESTER, NEW YORK 14623

Stantec

Stantec Consulting Services Inc.
2250 Brighton-Henrietta Town Line Road
Rochester NY 14623-2706
Tel: (585) 475-1440
Fax: (585) 424-5951

Stantec

July 16, 2010
File: 190500593

New York State Department of Environmental Conservation
Division of Environmental Remediation
270 Michigan Avenue
Buffalo, NY 14203-2999

Attention: **Mr. William P. Murray, P.E.**

Dear Bill:

Reference: **Remedial Investigation Work Plan**
Brownfield Cleanup Program Site No. C902019
Former Allegany Bitumens Belmont Asphalt Plant
5392 State Route 19
Town of Amity, Allegany County, New York

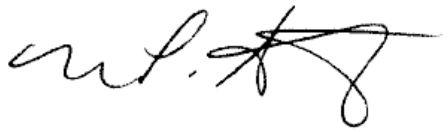
On behalf of Blades Holding Company, Inc., please find enclosed the Remedial Investigation (RI) Work Plan for the Former Allegany Bitumens Belmont Asphalt Plant located at 5392 State Route 19 in the Town of Amity, Allegany County, New York (Site).

This RI Work Plan has been prepared by Stantec Consulting Services Inc. in connection with a BCP Application for the site that is being submitted to the Department by Blades Holding Co., Inc. The scope of the RI proposed in the Work Plan covers the issues and concerns identified during our recent discussions and correspondence with your office.

Please do not hesitate to call should you have any questions or require further information.

Sincerely,

STANTEC CONSULTING SERVICES INC.



Michael P. Storonsky
Managing Senior Associate
Tel: (585) 413-5620
Fax: (585) 424-5951
Mike.Storonsky@stantec.com

Attachment: RI Work Plan

c: M. Doster (NYSDEC DER, Region 9)
S. Heigel (NYSDEC DER, Site Control Section)
R. Blades (Blades Holding Company)
T. Tuori (Harter Secrest & Emery, LLP)

CERTIFICATION

I, Michael E. Hopkins, certify that I am currently a NYS registered professional engineer and that this Remedial Investigation Work Plan was prepared in accordance with all applicable statutes and regulations and in substantial conformance with the DER Technical Guidance for Site Investigation and Remediation (DER-10).

Signature

7/16/2010

Date

TABLE OF CONTENTS

Section ***Page***

Table of Contents (Continued)

Figures

Tables

Appendices

1.0 Introduction

This Remedial Investigation (RI) Work Plan (Work Plan) is being submitted to the New York State Department of Environmental Conservation (NYSDEC) in combination with a Brownfield Cleanup Program (BCP) Application for the Former Allegany Bitumens Belmont Asphalt Plant located at 5392 State Route 19 in the Town of Amity, Allegany County, New York (Site) (Figure 1). As part of the BCP, Blades Holding Company, Inc. (Blades) proposes to implement this RI Work Plan. This Work Plan identifies the remedial investigation tasks to be completed in accordance with the BCP and with NYSDEC's DER-10 Technical Guidance for Site Investigation and Remediation (May 3, 2010) (DER-10).

1.1 Purpose

The purposes of the RI are to determine surface and subsurface characteristics of the site, assess the source(s) and determine the nature and extent of contamination on or migrating from the Site, and identify migration pathways and potential receptors. The information to be developed by the RI is needed to allow for the selection of the remedial measures that will attain conditions at the Site which are protective of commercial or industrial use of the Site and are protective of public health, the environment, and fish and wildlife resources in on- and off-site areas affected by contamination and its migration.

1.2 Site Background

1.2.1 Location and Description

The Site is a 4.9$^{\pm}$ acre parcel located at 5392 State Route 19 in the Town of Amity, Allegany County, New York (see Figure 1). The property (Tax Parcel No. 171-1-60) is currently occupied by a non-operational asphalt plant. Operations at this asphalt plant ceased in 2005. Redevelopment of the site is anticipated to involve a commercial or industrial use.

1.2.2 Physical Setting

According to the United States Geological Survey (USGS) Belmont Quadrangle 7.5 Minute topographic map of the area, the subject property elevation ranges from approximately 1,385 feet above mean sea level (amsl) along Route 19 to approximately 1365 ft amsl on the eastern property line along the Tucker's Creek embankment. Surface water drainage from the asphalt manufacturing area is towards a basin adjacent to the feeder hoppers for the asphalt plant aggregate conveyor, and this basin acts as a detention pond. An embankment several to 15 feet high along the northern and eastern property lines limits runoff to the creek from the remaining, gravel-surfaced areas of the site.

Based on the topographic gradient at the site and the presence of the northeast-flowing segment of Tuckers Creek along the eastern site boundary, the direction of groundwater flow at the subject property is expected to be to the east or northeast.

According to mapping prepared by the United States Department of Agriculture (USDA) Soil Conservation Service, as reported by Environmental

Data Resources (EDR), the majority of the native soils on the subject property are identified as Chenango gravelly loam. This soil is described as deep, well drained to excessively drained sands and gravels. The Surficial Geologic Map of New York - Niagara Sheet (Cadwell, and others, 1986) maps the overburden deposits beneath the subject property as fluvial sand and/or gravel along the western property line and recent alluvial deposits of the Genesee River floodplain beneath the eastern two thirds of the property. A significant thickness of fill is likely present above the native soils and sand and gravel overburden deposits at the site, since the ground surface at the site is elevated by several feet or more relative to the ground surface along the valley floor on the east side of Tucker's Creek.

According to the Geologic Map of New York (Rickard and Fisher, 1970), bedrock underlying the subject property is identified as shale and siltstone of the Canadaway group.

The site is located in the Genesee River valley approximately 1200 feet west of the river. The site is elevated approximately 15 feet above the valley floor, and is separated from the current flood plain of the river by a levee and railroad embankment located approximately 750 feet east of the property. The FEMA flood zone designation for the property indicates that the property is outside the 500 year flood zone and is protected from 100 year floods by levee. The channelized segment of Tucker's Creek that is located adjacent to the eastern boundary of the property is designated as being subject to a 1% annual chance of flooding within the stream channel. Surface water bodies in the area of the site are shown on Figure 4.

No significant natural resources, federal or state wetlands, or critical wildlife habitats of threatened or endangered species are known to be present within ½ mile of the property.

1.2.3 Current Site and Surrounding Land Uses

The subject property is improved with a non-operational asphalt plant, control tower, truck scale, scale house, office and laboratory building, oil storage house, and maintenance garage. A gravel-surfaced aggregate stockpile area is located south of the asphalt manufacturing plant structures. Paved parking and staging areas are provided adjacent to the asphalt plant and the laboratory and maintenance garage buildings. These features are shown on Figure 2 – Site Plan.

The site is accessible from and to existing local and regional infrastructure including highways and gas and electric service. Public water supply and municipal sewer services are not currently available in the immediate area of the property. However, the 2008 Allegany County Comprehensive Plan shows the corridor along Route 19 north of Belmont which includes the property as a proposed future water service area and proposed future sewer service area.

The site has a water well that supplied water for site operations and on-site domestic uses until plant operations ceased in 2005. The well is located in the approximate center of the north half of the site adjacent to the northeast

corner of the asphalt plant structure. It is presumed that surrounding properties rely on private wells for their water supply. Additional information on water supply wells located in the vicinity of the Site is presented below in Section 1.2.5.

Land use in the surrounding area is dominated by agricultural uses. Agricultural fields occupy the adjacent property to the east. Agricultural farm houses and barns and single family non-farm residences are located along Route 19 to the north and southeast of the property and along Friendship Hill Road (Tuckers Corner Road) to the west of the property. The property located immediately opposite form the site on the west side of Route 19 is also owned by Blades, and is the site of a vehicle and equipment maintenance shop and small office building which are both currently not in use.

The northern limits of the Village of Belmont are located approximately one-half mile southeast of the property. Undeveloped wooded property is located to the southwest of the property along Tucker's Creek and its small tributaries. These land uses are all visible on the aerial photographic image presented in Figure 3.

No schools or federal, state, county, municipal or community parks or recreational areas are known to be present in the immediate vicinity of the property.

1.2.4 Past Uses of the Site and Adjoining Properties

Detailed information on and documentation of past site and property uses can be found in Stantec's December 2009 Phase I Environmental Site Assessment (ESA) report presented as an attachment to the BCP Application for the site.

The site was used for agricultural purposes or was undeveloped prior to 1960. In March 1960, Blades acquired the property then conveyed the property to its affiliate Allegany Bitumens, Inc.

An asphalt plant was constructed at the site by Allegany Bitumens, Inc. circa 1960 and was operated by Allegany Bitumens, Inc. and, after a 1995 merger, by Blades until Blades discontinued the asphalt plant operations in 2005. Since 2005, the facility has been vacant.

1.2.5 Water Supply in the Surrounding Area

There is no public water supply service for the immediate area of the site. The property is just north of the service area for the Village of Belmont public water supply service. It is therefore presumed that surrounding properties rely on private wells for their water supply.

Based on the information available at this time, it appears unlikely that private wells that are likely to be present on adjacent properties would be impacted by the groundwater contamination identified at the site (see Section 1.2.6 for a description of the groundwater contamination). The

direction of groundwater flow at the subject property is expected to be to the east or northeast towards areas that are undeveloped meadows and agricultural fields. It is therefore likely that the area of groundwater contamination identified on the property is downgradient or cross-gradient from private wells on adjacent properties.

No designated wellhead protection or groundwater recharge areas are known to be located in proximity to the Site. However, the Site and surrounding area is within the footprint of a "principal aquifer" identified by NYSDEC. Available information on mapping of primary and principal aquifers in the area by NYSDEC and the USGS indicate that the aquifer is a confined aquifer in deep gravel deposits that occur in the Genesee River valley. Nevertheless, as described below, currently available information indicates that there are no off-site water supply wells located in areas likely to be downgradient of the area of contamination identified at the site.

A map showing the location of water supply wells listed in government databases and located within one-half mile of the Site is presented on Figure 4. As shown on that map, the wells are located either to the east of the site on the far side of the Genesee River or at locations to the northwest or southeast that are likely to be upgradient of the Site.

Available database information indicates that the Village of Belmont public water supply service operates several other water supply wells at locations to the east and southeast of the site. The available information appears to indicate that the closest wells to the east (the closest well is located on the opposite side of the Genesee River approximately 1600 feet east of the northeast corner of the site) are screened to depths of up to 24 feet in a shallow unconfined aquifer. Based on topographic information it appears that this aquifer would be recharged from upslope areas to the east of the wells. The other water supply wells located east and southeast of the site appear to be deeper wells (90 to 202 feet deep) screened in the confined aquifer that underlies the site. However, the topography of the area suggests that the recharge areas for these wells would also be located to the east or southeast, and therefore these wells appear to be located upgradient of the Belmont Asphalt Plant site.

A search of NYSDEC's online database of water well information was also made. (The search was performed using a search radius of 2 minutes of latitude and longitude.) The search identified three wells, all located ¼ mile or more west of the site along Tuckers Corner Road. These wells are 36 to 161 ft deep wells screened in overburden sand and gravel. Topographic information indicates that each of these wells is located upgradient of the site.

Currently available information and the sampling data collected to date therefore indicate that it is unlikely that the contamination detected on the property would impact the documented water supply wells present in the area surrounding the site.

1.2.6 Previous Investigations and Activities

A Phase I ESA was completed by Stantec in December 2009 in connection with real estate due diligence activities. The Phase I ESA identified one recognized environmental condition associated with the subject property:

- A former on-site laboratory is located in the northwest corner of the Site The laboratory was used for testing of aggregate and asphalt materials manufactured on site to determine whether the materials complied with NYSDOT or customer specifications. Trichloroethylene (TCE) was reportedly used as a solvent in the testing operations. Regular use of TCE at the site was reported to have been discontinued approximately 10 years ago; however, a drum containing approximately 10 gallons of fresh (unused) TCE was present in the laboratory at the time of the Phase I ESA site visit.

  The laboratory building has its own septic system, which reportedly received waste from the sinks and toilet in the laboratory. At the time of the site visit, several empty small- to medium-sized containers were present on an outdoor asphalt-paved pad attached to the east end of the laboratory building. Plant personnel indicated that the pad had not been used for outdoor storage of solvent or waste containers.

  No records or knowledge of releases were identified during the Phase I ESA. However, given the potential for historic releases of TCE, it was recommended that a soil boring program be conducted in the area of the septic system.

Stantec conducted a Phase II ESA in December 2009. Four soil test borings and four temporary monitoring wells were installed for the purposes of collecting soil and groundwater samples adjacent to and downgradient from the former laboratory building and its septic system. The Phase II ESA test boring and monitoring locations are shown on Figure 2. Results indicated the presence of TCE and related volatile organic compounds (VOCs) in an area northeast of the laboratory building. These VOCs were detected in shallow soil and groundwater at levels above NYSDEC's soil cleanup objectives and groundwater standards. Indications of soil contamination were encountered at depths of 5 to 10 feet below ground surface (bgs) in test borings BS-2 and BS-4, and TCE was detected in soil samples from these borings at concentrations of up to 37.5 parts per million (ppm). The water table at the site was encountered at depths of 9 to 10 feet below ground surface, and TCE was detected in BS-2 and BS-4 groundwater samples at concentrations of 0.6 to 2.1 ppm, respectively. Traces of TCE (0.001 to 0.008 ppm) were detected in the groundwater samples from the BS-1 and BS-3 locations.

1.3 Objectives of the Remedial Investigation

The objectives of this Remedial Investigation are:

- to determine the nature and extent of contamination of soil and shallow groundwater in and migration from the area where VOC contamination was identified in the Phase II ESA in the vicinity of the laboratory building.
- to investigate potential soil and/or groundwater impacts in areas not previously sampled, including:
  - deep groundwater at the existing on-site water supply well;
  - soil near electrical transformers;
  - soil and shallow groundwater near the oil house and maintenance garage;
  - soil and shallow groundwater near the asphalt tanks;
  - soil and shallow groundwater near the asphalt plant;
  - soil in the basin below the aggregate hoppers;
  - soil in the berm along the north and east property boundary;
  - surface and subsurface soil across the site; and
  - shallow groundwater around the perimeter of the site.
- to investigate the following areas and concerns with a second phase of field work, the scope of which will be determined based on the results of the activities listed above:
  - deep groundwater impacts;
  - impacts to the surface water pond to the northeast of the laboratory building; and
  - impacts to the surface water, sediment and surface soil in and along Tucker's Creek.
- to investigate the potential for soil vapor intrusion and contamination of indoor air and sub-slab air in and beneath the laboratory building if and when the building is reoccupied.

1.4 Additional Plans

Additional complimentary plans, including a Quality Assurance Project Plan (QAPP), Health and Safety Plan (HASP), Citizen Participation Plan (CPP), and Community Air Monitoring Plan (CAMP), have been prepared to supplement this RI Work Plan. All work to be performed for this investigation will be performed in accordance with this work plan and each of the complimentary plans. Appendices A through D of this Work Plan present these additional plans:

- **QAPP:** Outlines the procedures to be used to assure that analytical results obtained from the investigation meet data quality objectives (Appendix A).
- **HASP:** Describes personal safety protection standards and procedures to be followed by Stantec personnel during the planned investigation activities at

the Site (Appendix B). Material Safety Data Sheets (MSDS) for the chemicals suspected to be encountered at the Site are provided as an appendix to the HASP.

- **CPP:** Describes the procedure for informing and involving the public during the remedial investigation. The Citizen Participation Plan (CPP) provides summary information regarding the history of the Site, a chronology of environmental investigations conducted to date, the primary contacts for various state and local agencies, as well as private entities involved in environmental investigation and investigation activities being conducted at the Site. The CPP is included as Appendix C.

- **CAMP:** Describes procedures for monitoring and controlling VOC and particulate air quality issues that may arise during intrusive drilling, excavating, and sampling activities planned at the Site (Appendix D).

2.0 Field Investigation

The RI will involve the following field activities:

- Passive soil gas surveys
- Test borings with soil sampling
- Shallow overburden monitoring well installations with well development and groundwater sampling
- Groundwater level measurement
- Inspection of and deep groundwater sampling from the existing site water supply well
- Surface soil sampling
- Test pit excavations with subsurface soil sampling
- Design and implementation of a deep groundwater monitoring well installation program
- Aquifer testing
- Sampling of surface water, sediment, and surface soil in and along surface water bodies
- Sampling point location and elevation survey

Sampling locations will include sampling points at and downgradient from the laboratory building, underneath the electrical transformers, near the oil house and maintenance garage, near the asphalt tanks, near the asphalt plant, in the basin adjacent to the aggregate hoppers, from the berm along the north and east site boundary, and points for characterizing sitewide soil and site perimeter groundwater conditions.

The proposed sampling activities in each area are summarized in Table 1. Proposed sampling locations are depicted on Figure 5.

The RI will be conducted using a phased approach such that initial work will help to determine the details or specific locations of the later work. During Phase 1, passive soil gas (PSG) surveys will be performed. With the concurrence of NYSDEC, PSG results will be used to finalize locations for soil boring and shallow monitoring well locations. Soil borings and shallow monitoring wells will be installed, and surface soil sampling and test pit excavation with subsurface soil sampling will be conducted. (Surface soil sampling will be conducted before other field activities as necessary to avoid disturbance of surface soils prior to sampling.) Monitoring wells will be developed and sampled. The on-site water supply well will be inspected and sampled. A location and elevation survey will be performed, and water levels in existing wells and wells installed during Phase 1 will be measured.

Phase 2 of the RI will be developed based on the Phase 1 data. It is currently anticipated that Phase 2 may include:

- The installation of a deep groundwater well beyond the downgradient limit of the shallow groundwater source area to the depth of the on-site water supply well.

- An off-site sampling program for surface water from the pond located northeast of the laboratory building and from Tuckers Creek and for sediment and surface soils in and along Tuckers Creek.
- Aquifer testing and a second groundwater sampling and water-level measurement event that will include existing, Phase 1 and Phase 2 shallow and deep wells.

2.1 Mobilization

This task includes all preparation and pre-field work activities including obtaining access to neighboring properties, subcontract preparation, equipment rental, acquisition of necessary supplies, and underground utility notification.

2.2 General Sampling Considerations

Sampling will be performed during several investigative activities described in the following sections (Section 2.3, for example). Soil borings will be installed with continuous soil sampling to the top of native soil or the water table, whichever is deeper. Soil borings for monitoring well installations will be installed with continuous soil sampling to approximately eight feet below the water table. Where possible using a backhoe, test pits will also be advanced to native soil and/or the water table.

Soil samples will be screened with a calibrated photoionization detector (PID), such as the miniRAE 2000, for the presence of volatile organic vapors. Soil samples will also be visually observed for indications of staining, oils, fill, etc. PID readings, odors, visual observations and lithologic information will be logged for each location.

Except where noted below, at each boring and test pit a minimum of one soil sample will be selected for laboratory analysis. Intervals exhibiting the strongest evidence of contamination or non-native fill deposits will be selected for analysis. Sample selection will be based on field observation and field screening results. If no impacts or fill are observed, soil samples will be collected at the water table, if it is reached. If it is not reached, a sample will be collected from the deepest interval attained. If significant impacts are observed in soil borings or test pits, a second soil sample may be collected at those locations to assist in delineating the vertical extent of impacts.

Samples will be submitted to an environmental laboratory for the analysis of various chemical parameters specified below. Among all the soil (including surface soils [see Section 2.3], subsurface soils from test pits [see Section 2.4], and subsurface soils from borings [see Section 2.6]) and groundwater samples to be collected during the RI, 20% to 30% of the samples of both media will be analyzed for a full suite of parameters, including:

- Target Compound List (TCL) VOCs by EPA SW846 Method 8260;
- TCL Semivolatile Organic Compounds (SVOCs) by EPA Method 8270;

- TCL Pesticides/Polychlorinated biphenyls (PCBs) by EPA Methods 8081/8082; and
- Target Analyte List (TAL) Metals by EPA Methods 6010 or 7000-series.

2.3 Surface Soil Sampling

Five surface soil samples will be collected from locations distributed across the site (SS-1 through SS-5) and one surface soil sample will be collected from the basin adjacent to the aggregate hoppers (SS-6). Surface soil samples will be collected from 0 to 2 inches below the vegetative cover.

Two surface soil samples will be analyzed for the full suite of TCL/TAL parameters minus VOCs, unless VOCs or odors are noted during sampling. Each of the remaining samples will be analyzed for polycyclic aromatic hydrocarbons (PAHs) by United States Environmental Protection Agency (EPA) Method 8270. If staining or odors are observed or if field screening indicates contamination, additional parameters will be added, as appropriate.

2.4 Test Pit Investigation and Subsurface Soil Sampling

Five test pits (TP-1 through TP-5) will be excavated from locations distributed across the site (at the locations of the surface soil samples SS-1 though SS-5 described above) and seven test pits (TP-6 through TP-12) will be excavated from the berms along the north and east boundary of the site.

As indicated in Section 2.2, where possible test pits will be advanced to native soil and/or the water table. The test pits in the perimeter berms will be excavated at least to the base of the berm and, if possible, through underlying fill material. Test pit dimensions, orientation, and a lithologic description will be recorded and photographs will be taken at each test pit location.

One subsurface soil sample will be collected from each test pit locations distributed across the site (TP1 to TP-5) and a mimimum of three soil samples will be collected from the test pit locations along the berms (TP-6 through TP-12) . If significant impacts are observed in the test pits in the field, a second soil sample may be collected per location to assist in delineating the vertical extent of impacts at those locations.

Three of the test pit samples will be submitted for analysis of the full suite of TCL/TAL parameters. Each of the remaining samples will be analyzed for PAHs by EPA Method 8270. If staining or odors are observed or if field screening indicates contamination, additional parameters will be added, as appropriate.

2.5 Soil Gas Surveys

PSG surveys will be conducted in three areas, including two areas surrounding and downgradient from the laboratory building and one surrounding the oil house and maintenance garage. The PSG surveys will be performed to map the distribution of VOCs in shallow soil gas. The results will provide indirect information on: 1) the

location of potential sources for the TCE impacts at the lab building, 2) the extent of the contamination in shallow groundwater around and downgradient from the lab building, and 3) the presence or absence and extent, if present, of contamination in the vicinity of the oil house and maintenance garage.

The first PSG survey near the laboratory building will consist of eight PSG modules placed in a grid pattern. It will focus on the area immediately surrounding the laboratory building and the container storage pad at the east end of the building to map the soil contamination source area. The second PSG survey will include 12 PSG modules in a grid pattern that will extend beyond the likely source area to the areas north, east and south of the BS-2 and BS-4 test borings to attempt to determine the downgradient extent of contamination in shallow groundwater.

The third PSG survey area will cover the area of the oil storage house and maintenance garage. It will consist of eight PSG modules in a grid pattern.

It is anticipated that the surveys will be performed using PSG sampling modules provided by Beacon Environmental Services Inc. of Bel Air, Maryland (Beacon) or a similar PSG sampling methodology. Modules will be installed and retrieved per the manufacturer's instructions. The modules are typically placed and allowed to passively absorb compounds for approximately two weeks prior to retrieval. For the laboratory building area survey, chlorinated VOCs will be targeted and for the oil house/maintenance garage area, chlorinated and petroleum VOCs will be targeted. The samplers will be analyzed using EPA Method 8260.

Portions of the PSG survey areas near the laboratory building are on a neighboring property. Once the Remedial Investigation Work Plan has been approved by the State, access from the neighboring landowner will be sought to allow for installation of the PSG samplers and later test borings and monitoring wells. If permission for access cannot be obtained, Blades will approach NYSDEC and request assistance with this effort.

2.6 Monitoring Well Installations and Subsurface Soil Sampling

Once the results of the PSG survey have been evaluated, a drilling program will be performed to collect soil samples and install shallow groundwater monitoring wells. Groundwater sampling and groundwater elevation monitoring will be performed to assess the extent of contamination and direction of groundwater flow at the water table.

Soil borings and monitoring wells will be installed in the areas listed below. The approximate locations are depicted on Figure 5; however, these are subject to change based on the results of the PSG surveys. The soil sampling in the lab building and oil house/maintenance garage areas will focus on potential source areas identified by the PSG survey results. Shallow monitoring wells will be installed both within and beyond the apparent plume area(s) identified by the PSG results.

- Eight borings will be installed in the vicinity of the laboratory building to define the source area (B/MW-5 through B/MW-8 and B-15 through B-18). Shallow monitoring wells will be installed at four of these locations (B/MW-5 through B/MW-8). The locations of these borings and wells will be finalized

after the evaluation of the PSG survey in this area. Some of these locations will be off-site and access permission will need to be obtained from the neighboring property owner.

- One boring will be installed near the pole-mounted electrical transformers located east of the laboratory building (B-17).
- Four borings will be installed in the vicinity of the oil house and maintenance garage (B/MW-9 and B-19 through B-21). A shallow monitoring well will be installed in one of these locations in the expected downgradient direction (B/MW-9). As discussed above in Section 2.4, the locations of these borings and wells will be finalized after the evaluation of the PSG survey in this area.
- One boring will be installed near the asphalt tanks with a shallow monitoring well installed in this boring (B/MW-10).
- One boring will be installed near the asphalt plant with a shallow monitoring well installed in this boring (B/MW-11).
- Three shallow wells will be installed around the perimeter of the site, including near the center of the western boundary (B/MW-12), at the south end (B/MW-13), and in the northeast corner (B/MW-14).

The borings will be installed with either a direct push rig and Macrocore® samplers or a rotary drill rig using either Macrocore® samplers or split spoon samplers. All monitoring wells will be installed with a rotary drill rig using 4¼-inch hollow stem augers. The shallow monitoring wells will be screened across the water table, which is estimated to be nine to ten feet below ground surface (ft bgs).

Soil samples from one of the lab area borings, one of the oil house/maintenance garage borings, the transformer boring, the asphalt tanks boring, and one of perimeter well borings will be analyzed for the full suite of TCL/TAL parameters. The remaining soil samples collected in the vicinity of the laboratory building will be analyzed for TCL VOCs by EPA Method 8260. The other soil samples from the borings will be analyzed for PAHs by EPA Method 8270. If staining or odors are observed or if field screening indicates contamination, additional parameters will be added, as appropriate. Tables 1 and 2 summarize the analytical parameters and methods.

At the completion of the boring for each groundwater monitoring well, a well will be constructed using 2-inch diameter, schedule-40 PVC with 10-ft. of 0.010-inch slot well screen. Sand packs will consist of fine sand extending up to 24 inches above the well screens. The sand packs will be capped with bentonite seals and the remaining annulus will be grouted to the surface. A protective casing held in place with a Portland cement concrete mix will be installed at the surface grade. An inner cap will be installed on the well riser.

2.7 Groundwater Monitoring Well Development

After allowing the bentonite seals to expand for a minimum of 48 hours, the monitoring wells will be developed in an effort to cleanse them of suspended

sediments so that turbidities are reduced to the maximum extent practicable. Turbidity will be monitored during well development.

2.8 Upgrade of Phase II ESA Monitoring Wells

Protective casings will be installed on Phase II ESA monitoring wells BS-2 though BS-4.

2.9 Groundwater Elevation Measurement

Prior to purging and sampling during both rounds of ground water sampling (see Section 2.8), the static water level will be measured in each well previously installed and those newly installed under this program. The water level measurements will be used to develop a groundwater table contour map and provide groundwater flow directions. Water levels will be measured from surveyed PVC well risers using an audible water level indicator.

2.10 Groundwater Sampling

Two rounds of groundwater sampling will be performed. During the first round of sampling, groundwater sampling will occur a minimum of two weeks after the completion of well development to ensure that the groundwater conditions have stabilized sufficiently. In this first round of sampling, the three previously installed wells (wells BS-2 though BS-4) and all newly installed monitoring wells (MW-5 through MW-14) will be purged and sampled utilizing EPA Region 2 low stress/low flow methods and a flow through cell, provided there is enough water in the wells to carry out these procedures. General water quality field parameters (i.e., pH, temperature, specific conductance, oxidation reduction potential, dissolved oxygen and turbidity) will be monitored during purging. If there is not sufficient water in a well for low flow sampling procedures, the well will be purged and sampled with a dedicated polyethylene bailer. The well will be purged until three well volumes are removed, or until the well goes dry. Specific conductance, temperature and pH will be monitored and stabilized (10% over three well volumes) prior to sampling. Turbidity need not be stable, but a value of 50 NTU or less will be attempted prior to collection of metals samples. Should this prove unobtainable, Stantec will discuss methods of reducing sample turbidity with the NYSDEC (e.g., field filtering) that are consistent with DER-10.

It is currently anticipated that samples from one lab building area well, the oil house/maintenance garage well, and the asphalt plant area well will be analyzed for the full suite of TCL/TAL parameters. Each remaining groundwater sample will be analyzed for TCL VOCs using EPA Method 8260 and, with the exception of the remaining wells in the laboratory building area, for PAHs by EPA Method 8270.

During the second round of sampling, which will occur during Phase 2 of the RI, the same procedures will be employed; however, the results of the first round of sampling will be used to determine the wells to be sampled and parameters to be analyzed during Round 2.

2.11 Water Supply Well Inspection and Sampling

The Site has a water supply well that has been out of use since operations at the Site were discontinued in 2005. As shown on Figure 5, the well is located approximately 200 feet east-southeast of the laboratory. No information on well construction is available. A video inspection of the well will be conducted to determine its depth and construction. The groundwater from the well will also be sampled. If possible, the existing pumping system in the well will be used to purge at least three well volumes. Purge water will be discharged to the ground surface near the well. Specific conductance, temperature and pH will be monitored and stabilized (10% over three well volumes) prior to sampling. Turbidity need not be stable, but a value of 50 NTU or less will be attempted prior to collection of metals samples. Should this prove unobtainable, Stantec will discuss methods of reducing sample turbidity with the NYSDEC (e.g., field filtering) that are consistent with DER-10. The groundwater sample will be analyzed for the full suite of parameters described in Section 2.2.

The data obtained from the inspection and sampling will be used in concert with the Round 1 shallow monitoring well sampling results to determine a deep groundwater investigation program (see Section 2.10).

2.12 Phase 2 Groundwater Investigation

After the above activities described in Sections 2.1 through 2.11 have been completed, as part of Phase 2 of the RI, a test boring and well installation program will be designed and implemented to evaluate the vertical extent of deeper groundwater impacts below the shallow (water table) horizon. The Phase 2 groundwater activities may also include, if appropriate, an evaluation of the potential viability of monitored natural attenuation (MNA) as a remedial approach. NYSDEC will be provided with the data from Phase 1 and will be asked to approve the proposed Phase 2 plan prior to its implementation.

At present, it is anticipated that a deep test boring will be drilled in the area east or northeast of the laboratory building at a location beyond the apparent downgradient limits of the source area identified by the soil and shallow groundwater water sampling program described above. The test boring will be performed with continuous soil sampling and field screening for VOCs to evaluate the stratigraphy of the sand and gravel deposits at the Site and determine whether and at what depths confining or low-permeability layers (aquitards) may be present that would affect the potential distribution and vertical migration of contamination. The boring will be used to install a deep monitoring well in the horizon that would be most likely to be impacted by downward vertical migration of contaminants. The depth of the boring and well will be determined by the conditions encountered; however, it is anticipated the boring will be drilled and the well may be installed to the same depth as the on-site water supply well. Soil and groundwater samples will be collected with analyses to be determined based on shallow groundwater monitoring well and water supply well analytical results. Monitoring well installation, development, and sampling procedures will be as described in Sections 2.5, 2.6, and 2.8. Roto-sonic drilling methods may be used for the test boring and monitoring well installations.

2.13 Aquifer Testing

Hydraulic conductivity tests (slug tests) will be performed on approximately six newly installed wells at locations across the site and in various depth intervals. The tests will consist of the addition and/or removal of a slug in order to determine the hydraulic conductivity of the aquifer in the immediate vicinity of each well. The test will be accomplished by recording water level changes with a pressure transducer (e.g., LevelTROLL 700) following the insertion (falling head test) and/or withdrawal (rising head test) of a solid slug. After field tests are completed, the slug test data will be analyzed with commercially available software (i.e. AQTESOLV) in order to determine approximate hydraulic conductivity values.

If the results of the deep groundwater investigation indicate the presence of contamination in deeper groundwater, a pumping test using the existing water supply well may be necessary to characterize the impacted aquifer. The need for and methods of pump testing will be reviewed with NYSDEC at the appropriate time.

2.14 Surface Water Investigation

Based on Phase 1 shallow groundwater monitoring results, a surface water investigation may be conducted during Phase 2 of the investigation. As shown on Figure 5, surface water bodies are located off-site on adjacent properties to the north and east of the site. A pond is located approximately 200 feet northeast of the laboratory building, and Tuckers Creek flows northeast along the eastern Site boundary. The results of the shallow groundwater sampling program described above will be evaluated to determine whether discharge of contaminated groundwater to either of the surface water bodies is likely. If a potential for discharge of contaminated groundwater to either surface water body is identified, sampling of surface water from the pond and Tucker's Creek will be performed. The number of samples and analytical parameters will be determined based on the shallow groundwater sampling results. NYSDEC will be provided with the data from Phase 1 and will be asked to approve the proposed Phase 2 plan.

2.15 Sediment and Surface Soil Sampling Along Tucker's Creek

Based on Phase 1 soil and groundwater sampling results, a sediment and surface soil sampling program for Tuckers Creek may be conducted during Phase 2 of the investigation. Sediment and surface soil sampling will be performed in and along Tuckers Creek if the Phase I results indicate that a potential exists either for discharge of contaminated groundwater to the creek or for erosion of contaminated soil towards the creek from higher-elevation on-site areas above the west bank of the creek. NYSDEC will be provided with a sampling plan for approval prior to implementation.

2.16 Soil Vapor Sampling

The Site is currently unoccupied. There is a chance that the existing laboratory building will not be reused and would be torn down in connection with remediation and/or redevelopment of the Site. However, if a plan to reoccupy the laboratory building develops in the future, indoor air and sub-slab vapor sampling will be performed in advance of its being used to determine whether there would be a potential for intrusion of soil vapor with VOCs at the laboratory building. Sampling

and analysis would be performed in accordance with applicable NYSDEC and NYSDOH guidance.

2.17 Decontamination

Sampling methods and equipment have been chosen to minimize the need for decontamination. All non-dedicated equipment will be decontaminated prior to and following each use. Decontamination of drilling and test pit excavation equipment will be accomplished with high pressure washer. Decontamination of smaller equipment (such as Macrocore® samplers, split spoons and dredges) will consist of a wash with Alconox (or equivalent) solution and a water rinse. Following decontamination, direct contact between sampling equipment and the ground surface will not be permitted.

2.18 Investigation Derived Waste (IDW)

IDW will be handled and disposed of in accordance with DER-10. Where permitted by DER-10, IDW from uncontaminated areas may be discharged or replaced on site.

2.19 Sampling Location Survey

Subsequent to field work, each newly installed monitoring well will be surveyed for horizontal and vertical control by a licensed surveyor. Other sampling locations will be surveyed for horizontal control by a licensed surveyor or with a handheld GPS unit, such as the GeoXT, with sub-meter accuracy.

2.20 Field Quality Control Samples

Table 2 summarizes the field quality control (QC) samples to be collected during the field investigation. Field QC samples to be collected include field duplicates, trip blanks, rinsate blanks, and matrix spike/matrix spike duplicate analyses. As per Table 2, field duplicates and matrix spike/matrix spike duplicates will be collected at a rate of one per 20 field samples. Trip blanks will be used for aqueous matrices only and will consist of deionized water. A trip blank will accompany each shipment of VOCs. One rinsate blank will be collected for each piece of non-dedicated sampling equipment used. It will be collected by pouring deionized water over decontaminated equipment. The non-dedicated equipment planned for this project may include split spoon samplers, a backhoe or excavator bucket, and a sediment sampling device, such as a dredge or dipper.

3.0 Analytical Program

Sampling and analytical activities will be conducted in accordance with standard environmental sampling and analytical guidelines and protocols contained in the Quality Assurance Project Plan (QAPP) as presented in Appendix A.

Laboratory analyses will be performed by a laboratory accredited pursuant to the New York State Department of Health Environmental Laboratory Accreditation Program (ELAP). Table 2 summarizes the proposed sampling and analysis for each medium. Analytical reports will be prepared in accordance with the NYSDEC Analytical Services Protocol (ASP) Category B requirements.

All analytical data will undergo a data usability evaluation (DUSR). The data usability evaluation will be performed in accordance with the NYSDEC's "Guidance for the Development of Data Usability Summary Reports," revised 1997 and DER-10. Analytical summary tables will be prepared which summarize the data and compare them to New York State Standards, Objectives and Guidance. This will include, as applicable: NYSDEC Class C Water Quality Standards and Guidance Values for surface water; NYSDEC 6 NYCRR Part 375 Commercial Restricted Use Soil Cleanup Objectives for subsurface soil and sediment; NYSDEC Class GA Water Quality Standards and Guidance Values for groundwater; and the NYSDOH Guidance for Evaluating Soil Vapor Intrusion in the State of New York (October 2006).

4.0 Qualitative Exposure Assessment

A qualitative exposure assessment addressing potential impacts to human health and fish and wildlife resources will be performed in accordance with DER-10 as part of the RI. At this time, based on available information, the need for a Fish and Wildlife Resource Impact Analysis (FWRIA) has not yet been determined. The need for an FWRIA will be determined by NYSDEC.

5.0 Documentation and Reporting

Detailed documentation of site activities will be maintained during the field work. Reporting will include submission of a final written report to NYSDEC. The written report will be provided to the DEC in both hard copy and electronically on compact disk.

5.1 Field Documentation

Documentation of the field activities and environmental sampling will include the following:

Field Notebook - Field personnel will maintain a bound field notebook which will document dates, times and duration of pertinent field occurrences. Notebook entries will be made on consecutive pages.

Project Photographs - Photographs will be taken of field activities.

Calibration Records - Calibration records for field instrumentation will be maintained in the field notebook.

Geologic Logs - Observations pertaining to site geology and hydrogeology made during subsurface drilling will be recorded in the field notebook or on field data sheets. Construction logs of monitoring well installations will also be recorded.

Safety Forms - Sign-in forms, air monitoring results, and other safety related documentation will be maintained.

Chain-of-Custody Forms - Sample handling will be recorded on chain-of-custody forms with associated labels and custody seals.

5.2 Remedial Investigation Report

Upon receipt and review of the full set of analytical data generated by the RI, a report will be prepared which summarizes the methods, field findings, lab results, interpretations, conclusions and recommendations. The RI report will be prepared in accordance with the requirements of DER-10.

6.0 Project Organization

A multi-disciplined team is proposed to perform the activities described in this document. The project team will include experienced Stantec staff and qualified subcontractors that are appropriately trained for their assigned duties and are acceptable to the NYSDEC.

6.1 Project Personnel

The Stantec personnel selected to perform the activities included in this document are presented below along with a brief description of their duties. Qualifications of principal personnel who will participate in the RI are presented in Appendix E.

Michael Storonsky - Project Manager

- Provides overall project management;
- Provides managerial guidance to technical group;
- Serves as liaison between technical group and client;
- Serves as liaison with NYSDEC; and
- Prepares and reviews reports.

Michael Hopkins, P.E. – Professional Engineer

- Provides managerial guidance to technical group; and
- Prepares remediation plans.

Thomas Wells - Project Geologist

- Provides management of technical aspects of project;
- Provides technical guidance;
- Serves as liaison with NYSDEC; and
- Prepares and reviews reports.

Stephanie Reynolds-Smith/Dorothy Bauch-Barker - Hydrogeologists

- Investigation task leaders;
- Site Safety Officers
- Review and interpret hydrogeological data and contaminant plume geometry;
- Provide the geological and hydrogeological description of the site;
- Provide immediate supervision of on-site activities, including site preparation, borehole and monitoring well installations, sample collection, aquifer testing and health and safety;
- Ensure that samples are properly collected, stored and subjected to the appropriate chain-of-custody protocols;
- Maintain field equipment;
- Prepare field logs;
- Provide technical representation at meetings; and
- Prepare reports.

Third Party Data Validator (to be determined)

- Project QA director;

- Assists in review of data;
- Prepares DUSR report;

Erin McCormick

- Health and Safety Coordinator;
- Coordinates project Health and Safety; and
- Coordinates the Community Air Monitoring Plan.

Barbara Wagner, Travis Money, and Luann Meyer – Environmental Scientists/Engineers

- Performs community air monitoring; and
- Provides field and office support as needed.

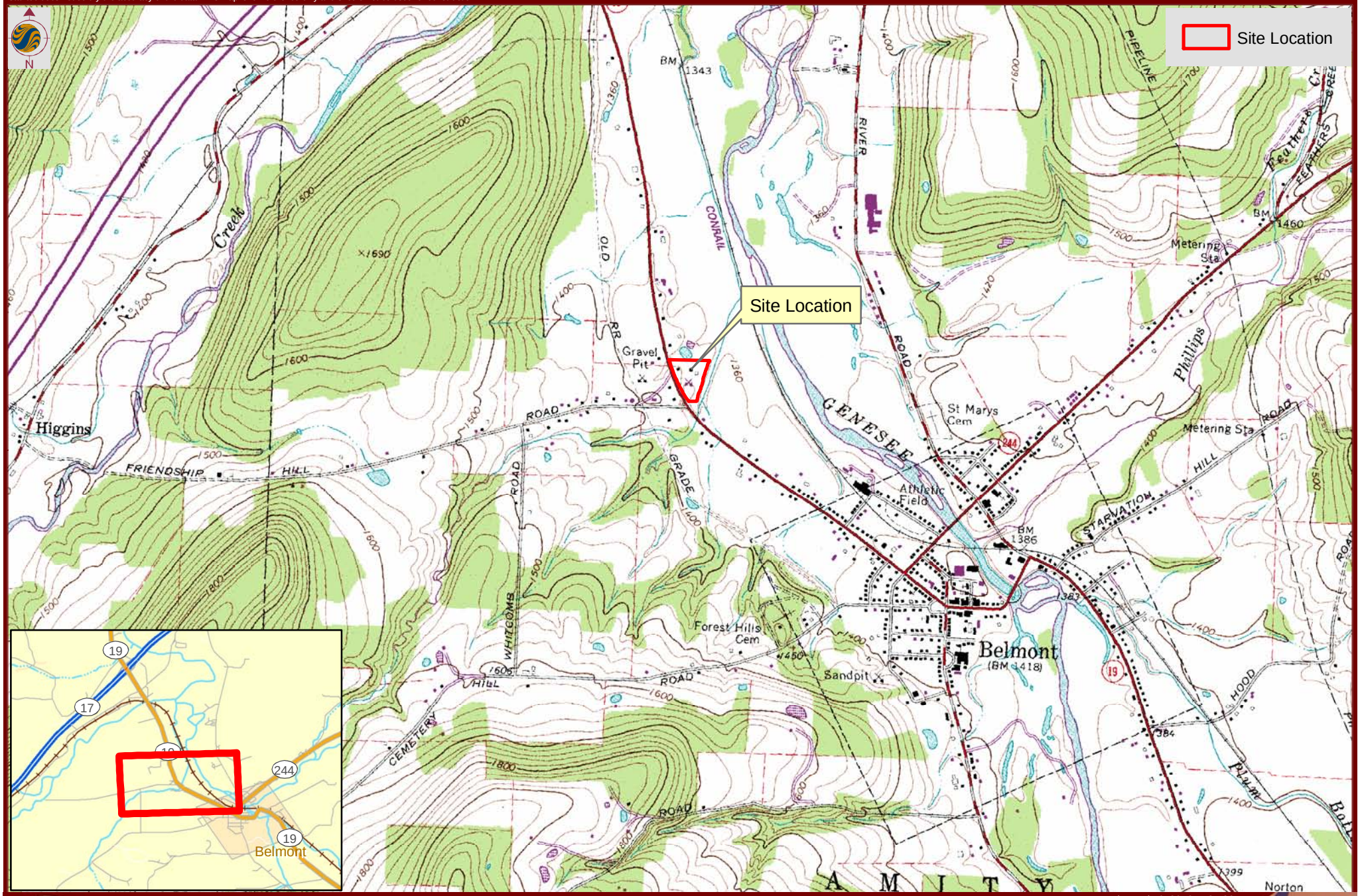
6.2 Subcontractors

Qualified, experienced, and licensed or certified subcontractors will be retained to perform monitoring well installations and sample analyses. All subcontractors are subject to the approval of the NYSDEC.

7.0 Project Schedule

The investigation activities proposed in this Work Plan will be initiated upon approval to proceed from the NYSDEC. A proposed task summary and associated schedule is presented in Table 3.

Figures



Geographic Information Systems

Map Source : NYSGIS Clearinghouse Web Site

Cartographic Design By: Andrew Less

Tuesday, July 6, 2010 1:21:32 PM
U:\190500593\drawing\Work Plan Figures\Figure 1_Site Location Map.mxd

Stantec Consulting
2250 Brighton Henrietta Townline Road
Rochester, NY 14623
Phone 585.475.1440 Fax 585.424.5951
www.stantec.com

1 inch = 2,000 feet

0 1,000 2,000 4,000 Feet

Allegany Bitumens Belmont Asphalt Plant Site

FIGURE 1 : Site Location Map Showing USGS Topographic Information

Stantec Consulting Services Inc.
2250 Brighton-Henrietta Townline Rd.
Rochester NY U.S.A.
14623-2706
Tel. 585.475.1440
Fax. 585.424.5951
www.stantec.com

Stantec

Consultants

Legend

- ● PREVIOUS TEST BORING / SHALLOW WELL
- Ⓦ EXISTING WATER SUPPLY WELL

Notes

1. MAP REFERENCE : INFORMATION ON THIS MAP IS REFERENCED FROM MAP ENTITLED "PLAN OF LANDS OWNED BY: ALLEGANY BITUMENS, INC , SITUATE IN THE TOWN OF AMITY, COUNTY OF ALLEGANY, STATE OF NEW YORK, AND BEING A PORTION OF GREAT LOT # 18, TOWNSHIP #3, RANGE #2 OF THE ROBERT MORRIS RESERVE.

2. AERIAL MAPPING OBTAINED FROM THE NEW YORK STATE CLEARINGHOUSE GIS WEB SITE. PHOTO DATED 2007.

Issued	By	Appd.	YY.MM.DD

File Name: Figure 2- Site Plan - Previous 07_06_2010.dwg	DWN	CHKD	DSGN	DATE
	Dwn.	Chkd.	Dsgn.	YY.MM.DD

Permit-Seal

Project/ Client

ALLEGANY BITUMENS
BELMONT ASPHALT PLANT

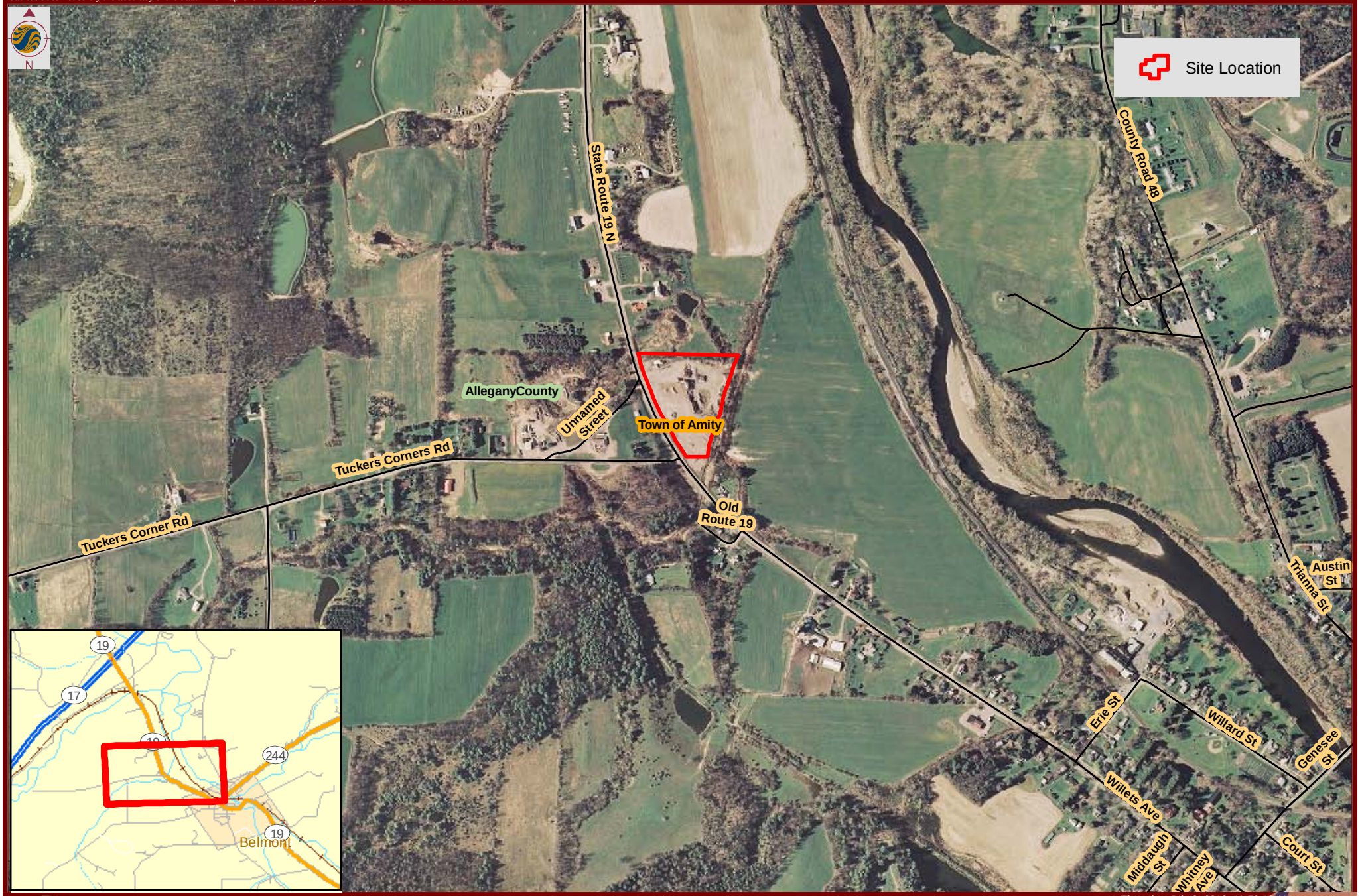
BLADES HOLDING COMPANY, INC.

Title

SITE PLAN AND PREVIOUS SAMPLING LOCATION PLAN

Project No.	Scale	
190500593	AS SHOWN	
Drawing No.	Sheet	Revision
FIG. 2	of	

ORIGINAL SHEET - 22 X 34



Geographic Information Systems

Aerial Photo Map Source : NYSGIS Clearinghouse Web Site Dated 2007

Cartographic Design By: Travis Money

Thursday, July 8, 2010 11:50:10 AM
U:\190500593\drawing\Work Plan Figures\Figure 3-Aerial Photo Showing Site

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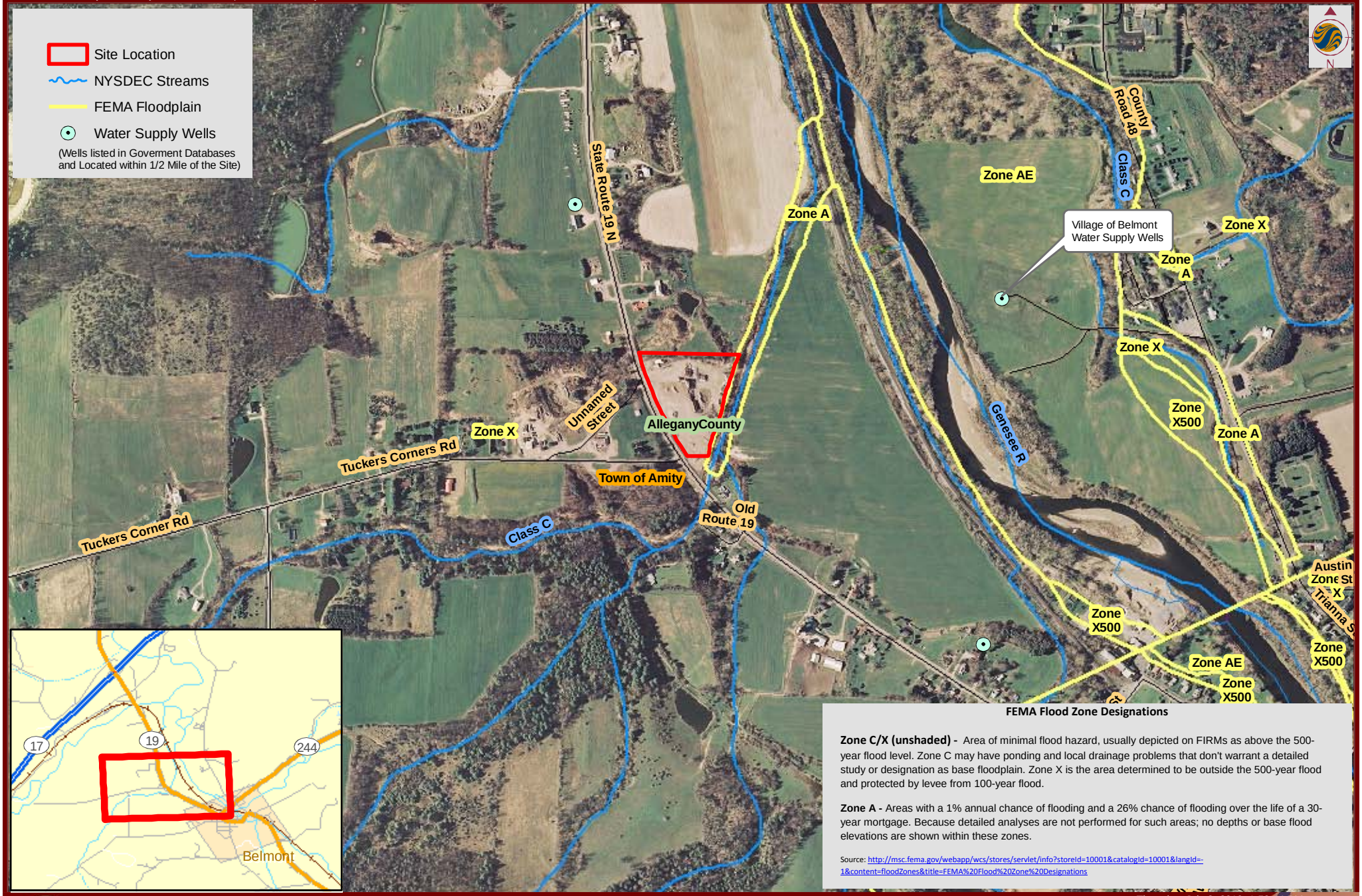
2250 Brighton Henrietta Townline Road
Rochester, NY 14623
Phone 585.475.1440 Fax 585.424.5951
www.stantec.com

1 inch = 800 feet

0 400 800 1,600 Feet

Allegany Bitumens Belmont Asphalt Plant Site

FIGURE 3: Aerial Photo showing Site Location



FEMA Flood Zone Designations

Zone C/X (unshaded) - Area of minimal flood hazard, usually depicted on FIRMs as above the 500-year flood level. Zone C may have ponding and local drainage problems that don't warrant a detailed study or designation as base floodplain. Zone X is the area determined to be outside the 500-year flood and protected by levee from 100-year flood.

Zone A - Areas with a 1% annual chance of flooding and a 26% chance of flooding over the life of a 30-year mortgage. Because detailed analyses are not performed for such areas; no depths or base flood elevations are shown within these zones.

Source: http://msc.fema.gov/webapp/wcs/stores/servlet/info?storeId=10001&catalogId=10001&langId=-1&content=floodZones&title=FEMA%20Flood%20Zone%20Designations

Geographic Information Systems

Cartographic Design By: Andrew Less

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U:\190500593\drawing\Work Plan Figures\Figure 4 Watercourses and Wa

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2250 Brighton Henrietta Townline Road
Rochester, NY 14623
Phone 585.475.1440 Fax 585.424.5951
www.stantec.com

1 inch = 800 feet

0 400 800 1,600 Feet

Former Allegany Bitumens Belmont Asphalt Plant Site

FIGURE 4: Location of Watercourses and Waterwells in Area

Stantec Consulting Services Inc.
2250 Brighton-Henrietta Townline Rd.
Rochester NY U.S.A.
14623-2706
Tel. 585.475.1440
Fax. 585.424.5951
www.stantec.com

Consultants

Legend

- PREVIOUS TEST BORING / SHALLOW WELL
- (W) EXISTING WATER SUPPLY WELL
- PROPOSED TEST BORING
- PROPOSED TEST BORING / SHALLOW MONITORING WELL
- PROPOED SURFACE SOIL SAMPLE
- PROPOSED SURFACE SOIL SAMPLE AND TEST PIT
- PROPOSED TEST PIT
- PSG PASSIVE SOIL GAS

Notes

1. MAP REFERENCE : INFORMATION ON THIS MAP IS REFERENCED FROM MAP ENTITLED "PLAN OF LANDS OWNED BY: ALLEGANY BITUMENS, INC , SITUATE IN THE TOWN OF AMITY, COUNTY OF ALLEGANY, STATE OF NEW YORK, AND BEING A PORTION OF GREAT LOT # 18, TOWNSHIP #3, RANGE #2 OF THE ROBERT MORRIS RESERVE.

2. AERIAL MAPPING OBTAINED FROM THE NEW YORK STATE CLEARINGHOUSE GIS WEB SITE. PHOTO DATED 2007.

Issued	By	Appd.	YY.MM.DD

File Name: Figure 5 Proposed Sampling Location – 07_06_2010.dwg

DWN	CHKD	DSGN	DATE
Dwn.	Chkd.	Dsgn.	YY.MM.DD

Permit-Seal

Project/ Client

ALLEGANY BITUMENS
BELMONT ASPHALT PLANT

BLADES HOLDING COMPANY, INC.

Title

PROPOSED SAMPLE LOCATION PLAN

Project No.	Scale
190500593	AS SHOWN

Drawing No.	Sheet	Revision
FIG. 5	of	

Tables

TABLE 1
SUMMARY OF PROPOSED SAMPLING PLAN
Remedial Investigation
Former Allegany Bitumens Belmont Asphalt Plant
Amity, New York

Investigation area Investigation activity/target media	**Scope**	**Locations (see Figure 5)**	**Number of samples (see note 3)**	**Analytical Parameters (See Table 2 for Methods)**	**Sampling rationale and/or additional explanation**	**On- or Off-Site**
PHASE 1						
TCE contamination at Laboratory Building						
Passive soil gas (PSG) survey	8 PSG modules	Grid surrounding lab building	8 PSG samplers	VOCs	Map source area	On and off
	12 PSG modules	Grid in suspected plume area	12 PSG samplers	VOCs	Map shallow GW plume	On and off
Soil	8 test borings	B/MW-5 to B/MW-8 and B-15 to B-18	8 soil	1 Full Suite, 7 TCL VOCs	Define source area	On and off
Shallow groundwater	4 new wells	B/MW-5 to B/MW-8	4 groundwater	1 Full Suite, 6 TCL VOCs	Install in 4 of the 8 Lab area test borings	On and off
	Resample 3 existing wells	BS-2 to BS-4	3 groundwater			On-site
Deep groundwater	Assess existing well	Existing water supply well	1 groundwater	Full Suite	Sound well, perform video inspection and sample	On-site
Electrical transformers						
Soil	1 test boring	B-17	1 soil	Full Suite	(Doubles as Lab building area boring)	On-site
Oil House and Maintenance Garage						
PSG survey	8 PSG modules	Grid in area surrounding buildings	8 PSG samplers	VOCs	Identify hot spots if any	On-site
Soil	4 borings	B/MW-9 and B-19 thought B-21	3 to 4 soil	1 Full Suite, 2 to 3 PAHs	Minimum of 3 borings to be sampled	On-site
Shallow groundwater	1 shallow well	B/MW-9	1 groundwater	Full Suite	In 1 of the 4 garage area borings, downgradient	On-site
Asphalt Tanks						
Soil	1 boring	B/MW-10	1 soil	Full Suite		On-site
Shallow groundwater	1 well	B/MW-10	1 groundwater	TCL VOCs, PAHs	(install in Asphalt Tanks test boring)	On-site
Asphalt Plant						
Soil	1 boring	B/MW-11	1 soil	PAHs		On-site
Shallow groundwater	1 well	B/MW-11	1 groundwater	Full Suite	(install in Asphalt Plant test boring)	On-site
Basin below aggregate hoppers						
Surface Soil	1 surface soil sample	SS-6	1 surface soil	Full Suite minus VOCs	VOCs are not expected in 0-2" bgs interval	On-site
Berm along north and east boundary						
Soil	7 test pits	TP-6 to TP-12	3 to 7 soil	2 Full Suite, 1 to 5 PAHs	Minimum of 3 test pits to be sampled	On-site
Sitewide soil						
Surface soil	5 surface soil samples	SS-1 to SS-5	5 surface soil	1 Full Suite minus VOCs, 4 PAHs	VOCs are not expected in 0-2" bgs interval	On-site
Subsurface soil and fill	5 test pits	TP-1 to TP-5	5 soil	1 Full Suite, 4 PAHs	Same locations as surface soil	On-site
Perimeter Groundwater						
Soil	3 borings	B/MW-12 to B/MW-14	3 soil	1 Full Suite, 2 PAHs	In NE corner, S end, and center of W boundary	
Shallow groundwater	3 shallow wells	B/MW-12 to B/MW-14	3 groundwater	TCL VOCs, PAHs	In NE corner, S end, and center of W boundary	On-site
PHASE 2						
The scope of additional Phase 2 investigations of deep groundwater and surface water in the Lab building area, and surface water, sediment and surface soil in and along Tucker's Creek will be determined following completion of the Phase 1 investigations described above. Phase 2 activities will also include a second groundwater sampling event, with analytical parameters to be determined on the basis of Phase 1 groundwater analysis results.						

Notes:
1. All soil gas samples (PSG samplers) will be analyzed for VOCs only.
2. Approximately 20% to 30% of Phase 1 samples of each medium except soil gas will be analyzed for the full suite of EPA's TCL/TAL parameters (VOCs, SVOCs, pesticides, PCBs, and metals). Locations have been specified, but are subject to change based on field screening and observations.
   - All remaining Lab Building area soil and groundwater samples will be analyzed for VOCs only.
   - The balance of soil samples will be analyzed for PAHs only unless VOCs, odors or staining are indicated by field screening, in which case VOCs and/or other appropriate parameters will be added.
   - The balance of groundwater samples will be analyzed for VOCs and PAHs only.

3. Except where noted above, at each boring and test pit a minimum of one soil sample will be selected for laboratory analysis. All locations exhibiting evidence of contamination or non-native fill deposits will be sampled. Sample selection will be based on field observation and field screening results. If significant impacts are observed in soil borings or test pits, a second soil sample may be collected at those locations to assist in delineating the vertical extent of impacts.

Key:

Full Suite = TCL VOCs, TCL SVOCs, TCL Pesticides/PCBs, TAL Metals
PAHs = Poly-cyclic aromatic hydrocarbons.
PCBs = Polychlorinated biphenyls.
SVOCs = Semivolatile organic compounds.
TAL =Target analyte list.
TCL = Target compound list.
VOCs = Volatile organic compounds.

Table 2 - Sampling and Analytical Summary

Remedial Investigation
Former Allegany Bitumens Belmont Asphalt Plant
Amity, New York

Analysis	Method (USEPA SW846 method number)	Estimated Number of Site Samples	QA/QC Samples			
			Field Duplicates	Trip Blanks	Rinsate Blanks	MS/MSD
PHASE 1						
Passive Soil Gas - 28 Sampling Locations						
VOCs	8260	28	0	1	0	0
Soil Sampling - 31 Sampling Locations						
TCL VOCs	8260	15	1	0	up to 4	1/1
PAHs	8270	14-19	1	0	up to 4	
TCL SVOCs	8270	10	1	0	up to 4	1/1
TCL Pesticides/PCBs	8081/8082	10	1	0	up to 4	1/1
TAL Metals	6010/7000-series	10	1	0	up to 4	1/1
Groundwater Sampling (1st event) - 14 Sampling Locations						
TCL VOCs	8260	14	1	3	0	1/1
PAHs	8270	4	0-1	0	0	1/1
TCL SVOCs	8270	4	1	0	0	1/1
TCL Pesticides/PCBs	8081/8082	4	1	0	0	1/1
TAL Metals	6010/7000-series	4	1	0	0	1/1
PHASE 2 - Sampling locations, sample numbers and analytical parameters to be determined based on Phase 1 results						
Groundwater Sampling (2nd event) - Sampling locations to include both shallow and deep wells						
Surface water sampling - Locations in pond north of Lab building and along Tuckers Creek						
Sediment and surface soil sampling - Locations along Tuckers Creek						

Key:

MS/MSD = Matrix spike/matrix spike duplicate.
PAHs = Poly-cyclic aromatic hydrocarbons.
PCBs = Polychlorinated biphenyls.
QA/QC =Quality assurance/quality control.
SVOCs = Semivolatile organic compounds.
TAL =Target analyte list.
TCL = Target compound list.
VOCs = Volatile organic compounds.

Notes:

1. Refer to Table 1 for additional information.

TABLE 3
PROPOSED SCHEDULE
Remedial Investigation
Former Allegany Bitumens Belmont Asphalt Plant
Amity, New York

Event/Task	Notes	Estimated Start
Work Plan Review:		
Brownfield Cleanup Program (BCP) Application and RI Work Plan submitted to NYSDEC		July 2010
NYSDEC determines that application is complete	Within 10 Day of Receipt of Application	July 2010
Application and Draft RI Work Plan Placed in Document Repository, notice published in ENB and local newspaper, notice and RI Work Plan Fact Sheet mailed to site contact list, 30-day public comment period on complete Application and draft RI Work Plan begin	After determination that Application is complete	July 2010
30-Day Public comment period ends		August 2010
NYSDEC comments on application and RI Work Plan	Within 60 days of receipt, after end of public comment period	September 2010
Response to NYSDEC comments submitted		October 2010
NYSDEC approves RI Work Plan		October 2010
Phase 1 Activities:		
Install passive soil gas modules		October 2010
Retrieve PSG modules	Approximately 2 weeks after installation	October 2010
Obtain PSG analytical data, analyze data to finalize boring and shallow monitoring well plan, submit plan and obtain approval of plan from NYSDEC		November 2010
Shallow Boring and Monitoring Well Installations	After NYSDEC approval of plan	November 2010
Monitoring Well Development	Two or more days after completion of new wells	November 2010
On-Site Water Supply Well Inspection		November 2010
Surface Soil Sampling		November 2010
Test Pit Investigation and subsurface soil sampling		November 2010
Location/elevation survey of Phase 2 locations		November 2010
Water Level Measurements	Just prior to groundwater sampling	December 2010
Groundwater sampling - 1st event	Including previously installed shallow wells, newly installed shallow wells and deep water supply well. A minimum of two weeks after completion of well development	December 2010
Validate and evaluate Phase 1 data and develop Phase 2 plan for additional investigation of deep groundwater, surface water, and sediment/surface soil. Submit plan and obtain approval from NYSDEC.		January, February 2011
Phase 2 Activities:		
Deep groundwater Investigation		March 2011
Groundwater sampling - 2nd event	Includes previously sampled wells and newly installed deep well(s)	March or April 2011
Surface water and sediment/surface soil investigation		March or April 2011
Aquifer Testing		March or April 2011
Location/elevation survey of Phase 2 locations		March or April 2011
Validation of Phase 2 data		April or May 2011
Reporting:		
Evaluate Phase 1 and 2 data, perform qualitative exposure assessment, prepare draft RI Report		May 2011
Submit Draft Report to NYSDEC		June 2011

Appendix A

APPENDIX A

QUALITY ASSURANCE PROJECT PLAN
REMEDIAL INVESTIGATION
FORMER ALLEGANY BITUMENS BELMONT ASPHALT PLANT
5392 STATE ROUTE 19
TOWN OF AMITY, ALLEGANY COUNTY, NEW YORK

JULY 2010

Prepared for:

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
270 MICHIGAN AVENUE
BUFFALO, NEW YORK 14203

Prepared on Behalf of:

BLADES HOLDING COMPANY, INC.
P.O. BOX 12
ARKPORT, NY 14807

Prepared by:

STANTEC CONSULTING SERVICES INC.
2250 BRIGHTON HENRIETTA TOWN LINE ROAD
ROCHESTER, NEW YORK 14623

QUALITY ASSURANCE PROJECT PLAN
FOR
REMEDIAL INVESTIGATION WORK PLAN
FORMER ALLEGANY BITUMENUS BELMONT ASPHALT PLANT
5392 STATE ROUTE 19
TOWN OF AMITY, ALLEGANY COUNTY, NEW YORK

TABLE OF CONTENTS

LIST OF TABLES

Tables

LIST OF FIGURES

Figures

1.0 Introduction

This Quality Assurance Project Plan (QAPP) is to be used in conjunction with the Remedial Investigation (RI) Work Plan (Work Plan) for the Former Allegany Bitumens Belmont Asphalt Plant located at 5392 State Route 19 in the Town of Amity, Allegany County, New York (Site) (Figure 1). This QAPP presents the policies, organization, objectives, functional activities, and specific quality assurance and quality control activities to ensure the validity of data generated in the completion of the investigation. The purpose of this QAPP program is to ensure that all technical data generated are accurate and representative.

Quality assurance (QA) is a management system for ensuring that all information, data, and decisions resulting from investigation and environmental monitoring programs are technically sound, and properly documented. Quality control (QC) is the functional mechanism through which quality assurance achieves its goals. Quality control programs, for example, define the frequency and methods of checks, audits, and reviews necessary to identify problems and dictate corrective actions to resolve these problems, thus ensuring high quality data. As such, a quality assurance and quality control program pertains to all data collection, evaluation, and review activities which are part of the investigation.

All QA/QC procedures will be in accordance with applicable professional technical standards, government regulations and guidelines, and specific project goals and requirements. This QAPP has been prepared in accordance with New York State Department of Environmental Conservation (NYSDEC) and United States Environmental Protection Agency (EPA) Region II guidance documents.

The QAPP incorporates the following activities:

- Sample collection, control, chain-of-custody, and analysis;
- Document control;
- Laboratory instrumentation, analysis, and control; and
- Review of project reports.

Laboratory analysis of all project samples will be performed by an independent laboratory with the experience and certifications appropriate to the analyses to be performed. All analyses will be performed by laboratories accredited pursuant to the NYSDOH Environmental Laboratory Accreditation Program (ELAP) for the category of parameters to be analyzed by the laboratory. The specific environmental laboratory or laboratories to be used will be determined at the time the monitoring activities are scheduled.

Duplicates, replicates, and spiked samples will be used to identify the quality of the analytical data. Field audits may be conducted to verify that proper sampling techniques and chain-of-custody procedures are followed. Field data compilation, tabulation, and analysis will be checked for accuracy. Calculations and other post-field tasks will be reviewed by senior project personnel. Equipment used to take field measurements will be maintained and calibrated in accordance with established procedures. Records of calibration and maintenance will be kept by assigned personnel. Field testing and data acquisition will be performed following strict guidelines as described herein.

Document control procedures will be used to coordinate the distribution, coding, storage, retrieval, and review of all data collected during all sampling tasks.

A Data Usability Summary Report (DUSR) will be prepared for analytical results from each monitoring activity. The DUSR will be prepared by an independent consultant with the required experience, in accordance with NYSDEC's "Guidance for the Development of Data Usability

Summary Reports," revised 1997 and NYSDEC's DER-10 "Technical Guidance for Site Investigation and Remediation," May 2010 (DER-10).

2.0 Project Description

This QAPP pertains to the completion of field activities and subsequent laboratory and data analysis associated with the RI of the Former Allegany Bitumens Belmont Asphalt Plant located at 5392 State Route 19 in the Town of Amity, Allegany County, New York. The investigation elements are described in detail in the Work Plan.

Blades Holding Company, Inc. has submitted an application for an agreement with the NYSDEC to conduct a Brownfield Cleanup Program (BCP) Investigation of the facility due to the presence of chlorinated volatile organic compounds in the site's soils and groundwater. The purposes of the RI are to determine surface and subsurface characteristics of the site, assess the source(s) and determine the nature and extent of contamination on or migrating from the Site, and identify migration pathways and potential receptors. The information to be developed by the RI is needed to allow for the selection of the remedial measures that will attain conditions at the Site which are protective of commercial or industrial use of the Site and are protective of public health, the environment, and fish and wildlife resources in on- and off-site areas affected by contamination and its migration.The purpose of the RI is to determine surface and subsurface characteristics of the site and further investigate and assess the source(s), migration pathways, extent, and potential receptors of contamination on or migrating from the Site such that the remedial measures necessary to attain conditions at the Site which are protective of commercial or industrial use can be implemented and to attain conditions which are protective of public health, the environment, and fish and wildlife resources in on- and off-site areas affected by contamination and its migration.

2.1 Site Description

The Site is a 4.9± acre parcel located at 5392 State Route 19 in the Town of Amity, Allegany County, New York (see Figure 1). The property (Tax Parcel No. 171-1-60) is currently occupied by a non-operational asphalt plant. Operations at this asphalt plant ceased in 2005. Redevelopment of the site is anticipated to involve a commercial or industrial use.

2.2 Previous Investigations

A Phase I ESA was completed by Stantec in December 2010 in connection with real estate due diligence activities. The Phase I ESA identified one recognized environmental condition associated with the subject property:

- A former on-site laboratory is located in the northwest corner of the Site. The laboratory was used for testing of aggregate and asphalt materials manufactured on site to determine whether the materials complied with NYSDOT or customer specifications. Trichloroethylene (TCE) was reportedly used as a solvent in the testing operations. Regular use of TCE at the site was reported to have been discontinued approximately 10 years ago; however, a drum containing approximately 10 gallons of fresh (unused) TCE was present in the laboratory at the time of the Phase I ESA site visit.

  The laboratory building has its own septic system, which reportedly received waste from the sinks and toilet in the laboratory. At the time of the site visit, several empty small- to medium-sized containers were present on an outdoor asphalt-paved pad attached to the east end of the laboratory building. Plant personnel indicated that the pad had not been used for outdoor storage of solvent or waste containers.

No records or knowledge of releases were identified during the Phase I ESA. However, given the potential for historic releases of TCE, it was recommended that a soil boring program be conducted in the area of the septic system.

Stantec conducted a Phase II ESA in December 2010. Four soil test borings and four temporary monitoring wells were installed for the purposes of collecting soil and groundwater samples adjacent to and downgradient from the former laboratory building and its septic system. The Phase II ESA test boring and monitoring locations are shown on Figure 2. Results indicated the presence of TCE and related volatile organic compounds (VOCs) in an area northeast of the laboratory building. These VOCs were detected in shallow soil and groundwater at levels above NYSDEC's soil cleanup objectives and groundwater standards. Indications of soil contamination were encountered at depths of 5 to 10 feet below ground surface (bgs) in test borings BS-2 and BS-4, and TCE was detected in soil samples from these borings at concentrations of up to 37.5 parts per million (ppm). The water table at the site was encountered at depths of 9 to 10 feet below ground surface, and TCE was detected in BS-2 and BS-4 groundwater samples at concentrations of 0.6 to 2.1 ppm, respectively. Traces of TCE (0.001 to 0.008 ppm) were detected in the groundwater samples from the BS-1 and BS-3 locations.

3.0 Project Organization and Responsibility

This QAPP provides for designated qualified personnel to review products and provide guidance on QA matters. This QAPP also outlines the approach to be followed to ensure that products of sufficient quality are obtained. Figure 2 illustrates the QA program organization. This structure will provide for direct and constant operational responsibility, clear lines of authority, and the integration of QA activities. The various QA functions of the project positions are explained in the following subsections.

Project Manager
The project manager will have overall responsibility for ensuring that the project meets the objectives and quality standards as presented in the RI Work Plan and this QAPP. He/She will be responsible for implementing the project and will have the authority to commit the resources necessary to meet project objectives and requirements. The project manager's primary function is to ensure that technical, financial, and scheduling objectives are achieved successfully. The project manager will provide the major point of contact and control for matters concerning the project. In addition, he/she will be responsible for technical quality control and project oversight.

Team Leaders
The project manager will be supported by a team leader or leaders who will be responsible for leading and coordinating the day-to-day activities of the various resource specialists under their supervision. The team leader is a highly experienced environmental professional who will report directly to the project manager.

Technical Staff
The technical staff (team members) for this project will be drawn from corporate resources and appropriately qualified subcontractors. The technical team staff will be used to gather and analyze data, and to prepare various task reports and support materials. All of the designated technical team members will be experienced professionals who possess the degree of specialization and technical competence required to effectively and efficiently perform the required work.

Project QA Director
The Project QA Director will be responsible for maintaining QA for the project.

Laboratory Director
The laboratory director will be responsible for all analytical work and works in conjunction with the QA unit. He/She maintains liaison with the QA officer regarding QA and custody requirements.

Laboratory Manager
The laboratory manager will maintain liaison with the laboratory director regarding QA elements of specific sample analyses tasks. He/She will report to the laboratory director and work in conjunction with the laboratory QA unit.

Laboratory QA Coordinator
The Laboratory QA officer will be responsible for overseeing the QA program within the laboratory and for maintaining all QC documentation. He/She reports directly to the laboratory director.

Laboratory Staff
Each member of the laboratory staff will perform an assigned QA or analytical function that is pertinent to and within the scope of his or her knowledge, experience, training, and aptitude. An individual will be assigned the responsibility for checking, reviewing, or otherwise verifying that a sample analysis activity has been correctly performed.

Laboratory Facilities

All laboratory work will be performed in accordance with guidelines established by NYSDEC, United States Environmental Protection Agency (USEPA), the Water Pollution Control Federation, and/or the American Society for Testing and Materials (ASTM). In case of conflict, these guidelines and protocols will be considered in the order shown (i.e., NYSDEC criteria is of primary precedence). In addition, QA and QC programs will be maintained for the instruments and the analytical procedures used. A NYSDOH ELAP certified laboratory capable of providing (NYSDEC Analytical Services Protocol (ASP) Category B deliverables will be identified to provide laboratory services for this project. The laboratory's preventative maintenance procedures will be provided and outlined in their Laboratory Quality Assurance Manual.

4.0 QA Objectives for Data Measurement

All measurements will be made to ensure that analytical results are representative of the media and conditions measured. Unless otherwise specified, all data will be calculated and reported in units consistent with other organizations who report similar data to allow comparability of databases among organizations.

The key considerations for the QA assessment of generated data are accuracy, precision, completeness, representativeness, and comparability. These characteristics are defined below:

Accuracy: Accuracy is the degree of agreement of a measurement or average of measurements with an accepted reference or "true" value and is a measure of bias in the system.

Precision: Precision is the degree of mutual agreement among individual measurements of a given parameter.

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

Representativeness: Representativeness expresses the degree to which data accurately and precisely represent a characteristic of a population, parameter variations at a sampling point, a process condition, or an environmental condition.

Comparability: Comparability expresses the confidence with which one data set can be compared to another.

4.1 Goals

The QA/QC goal will focus on controlling measurement error within the limits established and will ultimately provide a database for estimating the actual uncertainty in the measurement data.

Target values for detection limit, percent spike recovery and percent "true" value of known check standards, and RPD of duplicates/replicates are provided in the referenced analytical procedures. It should be noted that target values are not always attainable. Instances may arise where high sample concentrations, non-homogeneity of samples, or matrix interferences preclude achievement of target detection limits or other quality control criteria. In such instances, the laboratory will report reasons for deviations from these detection limits or noncompliance with quality control criteria.

5.0 Sampling Procedures

The sampling of various environmental media will be completed as part of the Remedial Investigation activities. Table 1 presents the location, type, and analytical requirements of samples to be collected as part of the Remedial Investigation Activities.

5.1 Sampling Protocol

The sampling and field procedures for the following activities are described in the RI Work Plan:

- Passive soil gas surveys;
- Test borings with soil sampling;
- Shallow overburden monitoring well installations with well development and groundwater sampling;
- Groundwater level measurement;
- Inspection of and deep groundwater sampling from the existing site water supply well;
- Surface soil sampling;
- Test pit excavations with subsurface soil sampling;
- Design and implementation of a deep groundwater monitoring well installation program;
- Aquifer testing;
- Sampling of surface water, sediment, and surface soil in and along surface water bodies; and
- Sampling point location and elevation survey.

A map of the sampling locations is also provided in the RI Work Plan. The sample containers that will be used are identified in Table 2. The sample containers will be labeled in accordance with Section 6.2. Sample handling, packaging and shipping procedures are presented in Section 6.3.

5.2 Field Quality Control Samples

Field quality control samples will consist of trip blanks, field blanks, field duplicates, matrix spikes and matrix spike duplicates, as shown on Table 3.

5.2.1 Field Duplicates

Field quality control samples will be collected to verify reproducibility of the sampling and analytical methods. Field duplicates will be obtained at a rate of one per 20 original field samples, as outlined in Table 3.

5.2.2 Trip Blanks

Trip blanks will be used to assess whether groundwater or surface water, has been exposed to volatile constituents during sample storage and transport. The trip blanks for water samples will consist of a container filled by the laboratory with analyte-free water. The trip blanks will remain unopened throughout the sampling event and will only be analyzed for volatile organics. The trip blanks will be collected as outlined in Table 3.

5.2.3 Matrix Spike/Matrix Spike Duplicates

Matrix Spike/Matrix Spike Duplicates (MS/MSD) will be obtained to determine if the matrix is interfering with the sample analysis. MS/MSDs will be collected at a rate of one per 20 original field samples, as outlined on Table 3.

5.2.4 Rinsate Blanks

Rinsate blanks will be used to ensure proper decontamination procedures of non-dedicated equipment. Rinse blanks will be collected as outlined in Table 3.

5.2.5 Laboratory Quality Control Checks

Internal laboratory quality control checks will be used to monitor data integrity. These checks include method (equipment) blanks, spike blanks, internal standards, surrogate samples, calibration standards, and reference standards.

5.3 Sample Containers

The volumes and containers required for the sampling activities are included in Table 2. Pre-washed sample containers will be provided by the laboratory. All bottles are to be prepared in accordance with EPA bottle washing procedures.

5.4 Decontamination

Dedicated and/or disposable sampling equipment will be used to the extent possible to minimize decontamination requirements and the possibility of cross-contamination.

Split spoon samplers, hand augers, and sediment samplers are examples of sampling equipment to be used at more than one location. The water level indicator will be decontaminated between locations by using the following decontamination procedures:

- Initial cleaning of any foreign matter with paper towels, if needed;
- Low phosphate detergent wash;
- De-ionized water rinse; and
- Air dry.

The Geoprobe, Geoprobe rods, and Macrocore® samplers utilized to install borings will be decontaminated with a bucket wash consisting of a low phosphate detergent wash followed by water rinse. The backhoe bucket, drill rig, augers, rods, split spoon samplers, and other related downhole equipment will be decontaminated using high pressure steam prior to initiating the soil boring program. This decontamination procedure will also be used on the downhole equipment between each boring. Steam cleaning will be performed in a designated on-site decontamination area. Throughout and after the cleaning processes, direct contact between the equipment and the ground surface will not be permitted. Decontamination waste water will be collected in 55-gallon drums. The drill rig and associated equipment will also be cleaned upon completion of the investigation prior to departure from the site using the following methods:

- Initial cleaning of all foreign matter; and
- Wash down with high pressure, high temperature spray to remove and/or volatilize organic contamination.

5.5 Levels of Protection/Site Safety

All sampling will be conducted under a documented Health and Safety Plan. On the basis of air monitoring, the level of protection may be downgraded or upgraded at the discretion of the site safety officer. Crew members will stand upwind of open boreholes or wellheads during the collection of samples, when possible.

All work will initially be conducted in Level D (refer to Site Specific Health and Safety Plan). Air purifying respirators (APRs) will be available if monitoring indicates an upgrade to Level C is appropriate.

6.0 Sample Custody

This section describes standard operating procedures for sample identification and chain-of-custody to be used for all field activities. The purpose of these procedures is to ensure that the quality of the samples is maintained during collection, transportation, storage, and analysis. All chain-of-custody requirements comply with standard operating procedures indicated in USEPA and NYSDEC sample-handling protocol.

Sample identification documents must be carefully prepared so that sample identification and chain-of-custody can be maintained and sample disposition controlled. Sample identification documents include:

- Field records,
- Sample label,
- Custody seals, and
- Chain-of-custody records.

6.1 Chain-Of-Custody

The primary objective of the chain-of-custody procedures is to provide an accurate written or computerized record that can be used to trace the possession and handling of a sample from collection to completion of all required analyses.

6.1.1 Sample Labels

Sample labels attached to, or affixed around, the sample container must be used to properly identify all samples collected in the field. To the extent possible, the sample labels are to be placed on the bottles so as not to obscure any QA/QC lot numbers on the bottles. Sample information must be printed in a legible manner using waterproof ink. Field identification must be sufficient to enable cross-reference with the field sampling records or sample logbook. For chain-of-custody purposes, all QC samples are subject to exactly the same custodial procedures and documentation as "real" samples.

6.1.2 Custody Seals

Custody seals are preprinted adhesive-backed seals often with security slots which are designed to break if the seals are disturbed. Sample shipping containers (coolers, cardboard boxes, etc., as appropriate) are sealed in as many places as necessary to ensure security. Seals must be signed and dated before use. On receipt at the laboratory, the custodian must check (and certify, by completing logbook entries) that seals on shipping containers are intact. Strapping tape should be placed over the seals to ensure that seals on shipping containers are not accidentally broken during shipment.

6.1.3 Chain-Of-Custody Record

The chain-of-custody record must be fully completed at least in duplicate by the field technician who has been designated by the project manager as being responsible for sample shipment to the appropriate laboratory for analysis. In addition, if samples are known to require rapid turnaround in the laboratory because of project time constraints or analytical concerns (e.g., extraction time or sample retention period limitations, etc.), the person completing the chain-of-

custody record should note these constraints in the "Remarks" section of the custody record.

6.1.4 Field Custody Procedures

- As few persons as possible should handle samples.
- Sample bottles will be obtained pre-cleaned by the laboratory and shipped to the sampling personnel in charge of the field activities. Coolers or boxes containing cleaned bottles should be sealed with a custody tape seal during transport to the field or while in storage prior to use.
- The sample collector is personally responsible for the care and custody of samples collected until they are transferred to another person or dispatched properly under chain-of-custody rules.
- The sample collector will record sample data in a controlled field notebook and/or on appropriate field sampling records.
- The site team leader will determine whether proper custody procedures were followed during the fieldwork and decide if additional samples are required.

6.2 Documentation

6.2.1 Sample Identification

All containers of samples collected from the project will be identified using the following format on a label or tag fixed to the sample container:

BA-XX-Y

- BA - This set of initials indicates the Former Allegany Bitumens Belmont Asphalt Plant project.
- XX - These initials identify the sample. Actual sample locations will be recorded on the sampling record. Field duplicates, field blanks and rinsate blanks will be assigned unique sample numbers.
- Y - These initials identify the sample matrix in accordance with the following abbreviations:

W – Water Sample
S – Soil or Sediment Sample
A – Air

Each sample will be labeled, chemically preserved, if required, and sealed immediately after collection. To minimize handling of sample containers, labels will be filled out prior to sample collection to the extent possible. The sample label will be filled out using waterproof ink and will be firmly affixed to the sample containers. The sample label will give the following information:

- Name or initials of sampler;
- Date (and time, if possible) of collection;

- Sample number;
- Intended analysis; and
- Preservation performed.

6.2.2 Daily Logs

Daily logs and data forms are necessary to provide sufficient data and observations to enable participants to reconstruct events that occurred during the project. All daily logs will be kept in a notebook and consecutively numbered. All entries will be made in waterproof ink, dated, and signed. Sampling data will be recorded in the sampling records. All information will be completed in waterproof ink. Corrections will be made according to the procedures given at the end of this section.

6.3 Sample Handling, Packaging, and Shipping

The transportation and handling of samples must be accomplished in a manner that not only protects the integrity of the sample, but also prevents any detrimental effects due to the possible hazardous nature of samples. Regulations for packaging, marking, labeling, and shipping hazardous materials are promulgated by the United States Department of Transportation (DOT) in the Code of Federal Regulations, 49 CFR 171 through 177.

All chain-of-custody requirements must comply with standard operating procedures in the NYSDEC and USEPA sample handling protocol. Field personnel will make arrangements for transportation of samples to the laboratory. When custody is relinquished to a shipper, field personnel will ensure that the laboratory custodian or project manager is aware of the expected time of arrival of the sample shipment and of any time constraints on sample analysis(es). All samples will be delivered to the laboratory in a timely manner to help ensure that holding times are followed.

7.0 Calibration Procedures and Frequency

All instruments and equipment used during sampling and analysis will be operated, calibrated, and maintained according to the manufacturer's guidelines and recommendations as well as criteria set forth in the applicable analytical methodology references.

7.1 Field Instruments

A calibration program will be implemented to ensure that routine calibration is performed on all field instruments. Field team members familiar with the field calibration and operations of the equipment will maintain proficiency and perform the prescribed calibration procedures outlined in the Operation and Field Manuals accompanying the respective instruments. Calibration records for each field instrument used on the project will be maintained on-site during the respective field activities and a copy will be kept in the project files.

7.1.1 Portable Total Organic Vapor Monitor

Any vapor monitor used will undergo routine maintenance and calibration prior to shipment to the project site. Daily calibration and instrument checks will be performed by a trained team member at the start of each day. Daily calibrations will be performed according to the manufacturer's specifications and are to include the following:

Battery check: If the equipment fails the battery check, recharge the battery.

- Gas standard: The gauge should display an accurate reading when a standard gas is used.

- Cleaning: If proper calibration cannot be achieved, then the instrument ports must be cleaned.

7.1.2 pH and Specific Conductance

The following steps should be observed by personnel engaged in groundwater sampling for pH and specific conductance:

- The operation of the instrument should be checked,and calibrated if needed, with fresh standard buffer solution (pH 4, pH 7 and pH 10) prior to each day's sampling.
- The specific conductance meter should be calibrated prior to each sampling event using a standard solution of known specific conductance.

More frequent calibrations may be performed as necessary to maintain analytical integrity. Calibration records for each field instrument used on the project should be maintained and a copy kept in the project files.

7.2 Laboratory Instruments

Laboratory calibration procedures are addressed in detail in the laboratory Quality Assurance Manual (QAM), which can be provided upon selection of a laboratory. All calibration procedures will be consistent with the method used for analysis.

8.0 Analytical Procedures

8.1 Field

On-site procedures for analysis of total organic vapor and other field parameters are addressed in the Remedial Investigation Work Plan.

8.2 Laboratory

Specific analytical methods for constituents of interest in soil and groundwater are listed in Table 2. The laboratory will maintain and have available for the appropriate operators standard operating procedures relating to sample preparation and analysis according to the methods stipulated in Table 2.

9.0 Data Reduction and Reporting

QA/QC requirements will be strictly adhered to during sampling and analytical work. All data generated will be reviewed by comparing and interpreting results from chromatograms (responses, stability of retention times), accuracy (mean percent recovery of spiked samples), and precision (reproducibility of results). Refer to Section 10 for a discussion of QA/QC protocol.

Data storage and documentation will be maintained using logbooks and data sheets that will be kept on file. Analytical QC will be documented and included in the analytical testing report. A central file will be maintained for the sampling and analytical effort after the final laboratory report is issued.

All calculations and data manipulations are included in the appropriate methodology references. Control charts and calibration curves will be used to review the data and identify outlying results. Prior to the submission of the report to the client, all data will be evaluated for precision, accuracy, and completeness. Sections 4.0, 8.0, and 13.0 of this document include some of the QC criteria to be used in the data evaluation process.

Laboratory reports will be reviewed by the laboratory supervisor, the QA officer, laboratory manager and/or director, and the project manager. Analytical reports will contain a data tabulation including results and supporting QC information will be provided. Raw data will be available for later inspection, if required, and maintained in the control job file.

All data will be reported to NYSDEC in electronic format in accordance with DER-10 and the NYSDEC's Environmental Data Submission requirements.

10.0 Internal Quality Control Checks

QC data are necessary to determine precision and accuracy and to demonstrate the absence of interferences and/or contamination of glassware and reagents. The procedures to be followed for internal quality control checks are consistent with NYSDEC ASP protocols.

11.0 Performance and System Audits

11.1 Field Audits

The Project QA Director may conduct episodic audits of the operations at the site to ensure that work is being performed in accordance with the work plan and associated standard operating practice. The audit will cover, but not necessarily be limited to, such areas as:

- Conformance to standard operating procedures
- Completeness and accuracy of documentation
- Chain of custody procedures
- Construction specifications

11.2 Laboratory Audits

In addition to any audits required by the NYSDEC, the Project QA Director may chose to audit the laboratory. These additional audits may take the form of performance evaluation samples or on-site inspections of the laboratory. Performance evaluation samples may be either blind samples or samples of known origin to the laboratory. Reasonable notice will be provided if the audit is to include an on-site inspection of the laboratory.

12.0 Preventive Maintenance

12.1 Field

Field personnel assigned to complete the work will be responsible for preventative maintenance of all field instruments. The field sampling personnel will protect the portable total organic vapor monitors, water quality meter, etc. by placing them in portable boxes and/or protective cases.

All field equipment will be subject to a routine maintenance program, prior to and after each use. The routine maintenance program for each piece of equipment will be in accordance with the manufacturer's operations and maintenance manual. All equipment will be cleaned and checked for integrity after each use. Necessary repairs will be performed immediately after any defects are observed, and before the item of equipment is used again. Equipment parts with a limited life (such as batteries, membranes and some electronic components) will be periodically checked and replaced or recharged as necessary according to the manufacturer's specifications.

12.2 Laboratory

The laboratory's preventative maintenance procedures can be provided as outlined in their Laboratory Quality Assurance Manual.

13.0 Data Assessment Procedures

Performance of the following calculations will be completed to evaluate the accuracy, precision and completeness of collected measurement data.

13.1 Precision

Precision of a particular analysis is measured by assessing its performance with duplicate or replicate samples. Duplicate samples are pairs of samples taken in the field and transported to the laboratory as distinct samples. Their identity as duplicates is sometimes not known to the laboratory and usually not known to bench analysts, so their usefulness for monitoring analytical precision at bench level is limited. For most purposes, precision is determined by the analysis of replicate pairs (i.e., two samples prepared at the laboratory from one original sample). Often in replicate analysis the sample chosen for replication does not contain target analytes so that quantification of precision is impossible. Replicate pairs of spiked samples, known as matrix spike/matrix spike duplicate samples, are used for precision studies. This has the advantage that two real positive values for a target analyte can be compared.

Precision is calculated in terms of Relative Percent Difference (RPD), which is expressed as follows:

$$RPD = \frac{(X_1 - X_2)}{(X1 + X2)/2} \times 100$$

where X_1 and X_2 represent the individual values found for the target analyte in the two replicate analyses or in the matrix spike/matrix spike duplicate analyses.

RPDs must be compared to the method RPD for the analysis. The analyst or his supervisor must investigate the cause of RPDs outside stated acceptance limits. This may include a visual inspection of the sample for non-homogeneity, analysis of check samples, etc. Follow-up action may include sample re-analysis or flagging of the data as suspect if problems cannot be resolved.

13.2 Accuracy

Accuracy of a particular analysis is measured by assessing its performance with "known" samples. These "knowns" can take the form of EPA or NBS traceable standards (usually spiked into a pure water matrix), or laboratory prepared solutions of target analytes into a pure water or sample matrix; or (in the case of GC or GC/MS analyses) solutions of surrogate compounds which can be spiked into every sample and are designed to mimic the behavior of target analytes without interfering with their determination. In each case the recovery of the analyte is measured as a percentage, corrected for analytes known to be present in the original sample if necessary, as in the case of a matrix spike analysis. For EPA or NBS supplied known solutions, this recovery is compared to the published data that accompany the solution. For prepared solutions, the recovery is compared to EPA-developed data or historical data as available. For surrogate compounds, recoveries are compared to USEPA CLP acceptable recovery tables. If recoveries do not meet required criteria, then the analytical data for the batch (or, in the case of surrogate compounds, for the individual sample) are considered potentially inaccurate.

For highly contaminated samples, recovery of matrix spike may depend on sample homogeneity. As a rule, analyses are not corrected for recovery of matrix spike or surrogate compounds.

13.3 Completeness

Completeness is a measure of the amount of valid data obtained from a measurement system compared to the total amount expected to be obtained under normal conditions. Completeness for each parameter is calculated as:

$$\text{Completeness} = \frac{\text{Number of successful analyses} \times 100}{\text{Number of requested analyses}}$$

Target value for completeness for all parameters is 100%. A completeness value of 95% will be considered acceptable. Incomplete results will be reported to the client project officer.

13.4 Representativeness

The characteristic of representativeness is not quantifiable. Subjective factors to be taken into account are as follows:

- The degree of homogeneity of a site;
- The degree of homogeneity of a sample taken from one point in a site; and
- The available information on which a sampling plan is based.

To maximize representativeness of results, sampling techniques and sample locations will be carefully chosen so that they provide laboratory samples representative of the site and the specific area.

14.0 Corrective Action

Corrective actions can be initiated as a result of performance and system audits, laboratory and interfield comparison studies, data validation, and/or a QA program audit. They may also be required as a result of a request from project representatives. All corrective action necessary to resolve analytical problems will be taken. Success or failure of corrective actions will be reported with an estimate of effect on data quality, if any.

Corrective actions may include altering procedures in the field, conducting subsequent audits, or modifying project protocol. Time and type of corrective action, if needed, will depend on the severity of the problem and relative overall project importance. The project manager is responsible for initiating corrective action and the team leader is responsible for its implementation in the correction of field non-conformance corrective actions.

15.0 Quality Assurance Reports

Upon completion of a project sampling effort, analytical and QC data will be included in a Data Usability Summary Report (DUSR) that summarizes the work and provides a data evaluation. A discussion of the usability of the results in the context of QA/QC procedures will be made, as well as a summation of the QA/QC activity. The DUSR will be performed in accordance with the DEC's "Guidance for the Development of Data Usability Summary Reports," revised 1997 and DER-10.

Serious analytical problems will be reported. Time and type of corrective action, if needed, will depend on the severity of the problem and relative overall project importance. Corrective actions may include altering procedures in the field, conducting an audit, or modifying laboratory protocol. All corrective action will be implemented after notification of the project representatives.

TABLES

TABLE 1
SUMMARY OF PROPOSED SAMPLING PLAN
Remedial Investigation
Former Allegany Bitumens Belmont Asphalt Plant
Amity, New York

Investigation area Investigation activity/target media	**Scope**	**Locations (see Figure 5)**	**Number of samples (see note 3)**	**Analytical Parameters (See Table 2 for Methods)**	**Sampling rationale and/or additional explanation**	**On- or Off-Site**
PHASE 1						
TCE contamination at Laboratory Building						
Passive soil gas (PSG) survey	8 PSG modules	Grid surrounding lab building	8 PSG samplers	VOCs	Map source area	On and off
	12 PSG modules	Grid in suspected plume area	12 PSG samplers	VOCs	Map shallow GW plume	On and off
Soil	8 test borings	B/MW-5 to B/MW-8 and B-15 to B-18	8 soil	1 Full Suite, 7 TCL VOCs	Define source area	On and off
Shallow groundwater	4 new wells	B/MW-5 to B/MW-8	4 groundwater	1 Full Suite, 6 TCL VOCs	Install in 4 of the 8 Lab area test borings	On and off
	Resample 3 existing wells	BS-2 to BS-4	3 groundwater			On-site
Deep groundwater	Assess existing well	Existing water supply well	1 groundwater	Full Suite	Sound well, perform video inspection and sample	On-site
Electrical transformers						
Soil	1 test boring	B-17	1 soil	Full Suite	(Doubles as Lab building area boring)	On-site
Oil House and Maintenance Garage						
PSG survey	8 PSG modules	Grid in area surrounding buildings	8 PSG samplers	VOCs	Identify hot spots if any	On-site
Soil	4 borings	B/MW-9 and B-19 thought B-21	3 to 4 soil	1 Full Suite, 2 to 3 PAHs	Minimum of 3 borings to be sampled	On-site
Shallow groundwater	1 shallow well	B/MW-9	1 groundwater	Full Suite	In 1 of the 4 garage area borings, downgradient	On-site
Asphalt Tanks						
Soil	1 boring	B/MW-10	1 soil	Full Suite		On-site
Shallow groundwater	1 well	B/MW-10	1 groundwater	TCL VOCs, PAHs	(install in Asphalt Tanks test boring)	On-site
Asphalt Plant						
Soil	1 boring	B/MW-11	1 soil	PAHs		On-site
Shallow groundwater	1 well	B/MW-11	1 groundwater	Full Suite	(install in Asphalt Plant test boring)	On-site
Basin below aggregate hoppers						
Surface Soil	1 surface soil sample	SS-6	1 surface soil	Full Suite minus VOCs	VOCs are not expected in 0-2" bgs interval	On-site
Berm along north and east boundary						
Soil	7 test pits	TP-6 to TP-12	3 to 7 soil	2 Full Suite, 1 to 5 PAHs	Minimum of 3 test pits to be sampled	On-site
Sitewide soil						
Surface soil	5 surface soil samples	SS-1 to SS-5	5 surface soil	1 Full Suite minus VOCs, 4 PAHs	VOCs are not expected in 0-2" bgs interval	On-site
Subsurface soil and fill	5 test pits	TP-1 to TP-5	5 soil	1 Full Suite, 4 PAHs	Same locations as surface soil	On-site
Perimeter Groundwater						
Soil	3 borings	B/MW-12 to B/MW-14	3 soil	1 Full Suite, 2 PAHs	In NE corner, S end, and center of W boundary	
Shallow groundwater	3 shallow wells	B/MW-12 to B/MW-14	3 groundwater	TCL VOCs, PAHs	In NE corner, S end, and center of W boundary	On-site
PHASE 2						
The scope of additional Phase 2 investigations of deep groundwater and surface water in the Lab building area, and surface water, sediment and surface soil in and along Tucker's Creek will be determined following completion of the Phase 1 investigations described above. Phase 2 activities will also include a second groundwater sampling event, with analytical parameters to be determined on the basis of Phase 1 groundwater analysis results.						

Notes:
1. All soil gas samples (PSG samplers) will be analyzed for VOCs only.
2. Approximately 20% to 30% of Phase 1 samples of each medium except soil gas will be analyzed for the full suite of EPA's TCL/TAL parameters (VOCs, SVOCs, pesticides, PCBs, and metals). Locations have been specified, but are subject to change based on field screening and observations.
   - All remaining Lab Building area soil and groundwater samples will be analyzed for VOCs only.
   - The balance of soil samples will be analyzed for PAHs only unless VOCs, odors or staining are indicated by field screening, in which case VOCs and/or other appropriate parameters will be added.
   - The balance of groundwater samples will be analyzed for VOCs and PAHs only.

3. Except where noted above, at each boring and test pit a minimum of one soil sample will be selected for laboratory analysis. All locations exhibiting evidence of contamination or non-native fill deposits will be sampled. Sample selection will be based on field observation and field screening results. If significant impacts are observed in soil borings or test pits, a second soil sample may be collected at those locations to assist in delineating the vertical extent of impacts.

Key:

Full Suite = TCL VOCs, TCL SVOCs, TCL Pesticides/PCBs, TAL Metals
PAHs = Poly-cyclic aromatic hydrocarbons.
PCBs = Polychlorinated biphenyls.
SVOCs = Semivolatile organic compounds.
TAL =Target analyte list.
TCL = Target compound list.
VOCs = Volatile organic compounds.

TABLE 2
REQUIRED SAMPLE CONTAINERS, VOLUMES, PRESERVATION, AND HOLDING TIMES
Remedial Investigation
Former Allegany Bitumens Belmont Asphalt Plant
Amity, New York

Media	Type of Analysis	Method	Required Container(s)	Preferred Sample Volume	Preservation	Maximum Holding Time
Soil	TCL VOCs	EPA 8260	4 oz.cwm	4 oz.	Cool 4°C	VTSR* + 10 days
	PAHs	EPA 8270	4 oz.cwm	4 oz.	Cool 4°C	VTSR* + 5 days
	TCL SVOCs	EPA 8270	4 oz.cwm	4 oz.	Cool 4°C	VTSR* + 5 days
	TCL Pesticides/PCBs	EPA 8081/8082	4 oz.cwm	4 oz.	Cool 4°C	VTSR* + 5 days
	TAL Metals	EPA 6010	4 oz.cwm	4 oz.	Cool 4°C	VTSR* + 6 Months
Water	TCL VOCs	EPA 8260	(2-3) 40 ml glass vials	80 ml	pH<2, HCl	VTSR* + 10 days
	PAHs	EPA 8270	(2) 1000 ml amber glass jar	2000 ml	Cool 4°C	VTSR* + 7 day/40 day**
	TCL SVOCs	EPA 8270	(2) 1000 ml amber glass jar	2000 ml	Cool 4°C	VTSR* + 7 day/40 day**
	TCL Pesticides/PCBs	EPA 8081/8082	(2) 1000 ml amber glass jar	2000 ml	Cool 4°C	VTSR* + 7 day/40 day**
	TAL Metals	EPA 6010	500 ml plastic or glass jar	500 ml	pH<2, HNO_3	VTSR* + 6 Months
	Ca, Mg, Mn***	EPA 6010	500 ml Plastic	500 ml	pH<2, HNO_3	180 Days
	Chloride, Sulfate***	EPA 300.0	500 ml Plastic	500 ml	Cool 4°C	28 Day
	Nitrate***	EPA 353.2	500 ml Plastic	500 ml	Cool 4°C	48 hours
	Chemical Oxygen Demand***	EPA 410.4	250 ml Plastic	250 ml	pH<2, H2SO4	28 Days
	Total Hardness***	EPA 130.2	250 ml Plastic	250 ml	pH<2, HNO_3	180 Days
	Total Alkalinity***	EPA 310.2	500 ml Plastic	500 ml	Cool 4°C, Zero Headspace	28 Days
Soil Gas	VOCs	EPA 8260	Passive Soil Gas Module	N/A	N/A	28 Days

Notes:
*Samples have to be received by the lab within 48 hours of the first sample being taken.
**Holding time is 7 days from collection to extraction and 40 days from extraction to analysis.
***Potential Monitored natural attenuation parameter.

Key:

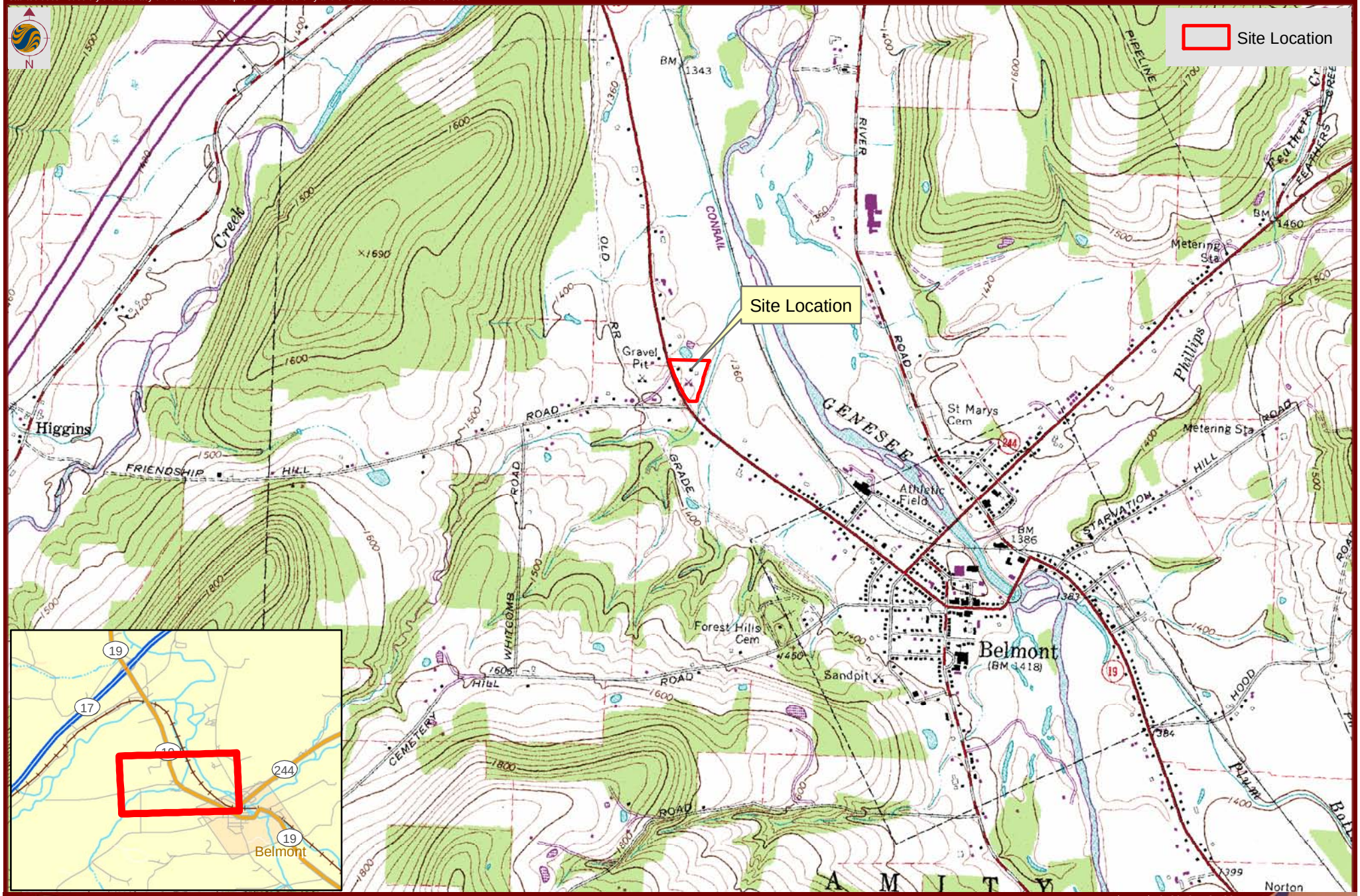
Ca = Calcium.
cwm =clear wide mouth jar.
EPA = U.S. Environmental Protection Agency.
Mg = Magnesium
ml = milliliter.
Mn = Manganese
PAHs = Poly-cyclic aromatic hydrocarbons.
PCBs = Polychlorinated biphenyls.
SVOCs = Semivolatile organic compounds.
TAL =Target analyte list.
TCL = Target compound list.
VOCs = Volatile organic compounds.
VTSR = Verified Time of Sample Receipt at laboratory

TABLE 3
SUMMARY OF QUALITY CONTROL CHECKS

Remedial Investigation
Former Allegany Bitumens Belmont Asphalt Plant
Amity, New York

Type of QC Check	Frequency	Min. Number Required	Remarks
Laboratory Quality Control Guidelines			
Method Blanks	1 per sample batch	1 or 5% of batch size	Batch may include samples from other projects
Reagent/Solvent Blanks	1 per lot	1	
Standard Reference Blanks	1 per sample batch	1 or 5% of batch size	Batch may include samples from other projects
Matrix Spike Blanks	1 per sample batch	1 or 5% of batch size	Batch may include samples from other projects
Matrix Spike/Matrix Spike Duplicate	1 per 20 field samples per media	1	
Field Quality Control Guidelines			
Field Duplicates	1 per 20 field samples per media	1	Sample to be selected based on field screening
Trip Blanks	1 per shpiment for each cooler in which aqueous samples for VOC analysis are shipped	1	
Rinsate Blanks	1 per non-dedicated equipment set	1	
Laboratory Replicates	1 per batch	1	None planned but may be required to perform additional analyses on a sample

FIGURES



Geographic Information Systems

Map Source : NYSGIS Clearinghouse Web Site

Cartographic Design By: Andrew Less

Tuesday, July 6, 2010 1:21:32 PM
U:\190500593\drawing\Work Plan Figures\Figure 1_Site Location Map.mxd

Stantec Consulting
2250 Brighton Henrietta Townline Road
Rochester, NY 14623
Phone 585.475.1440 Fax 585.424.5951
www.stantec.com

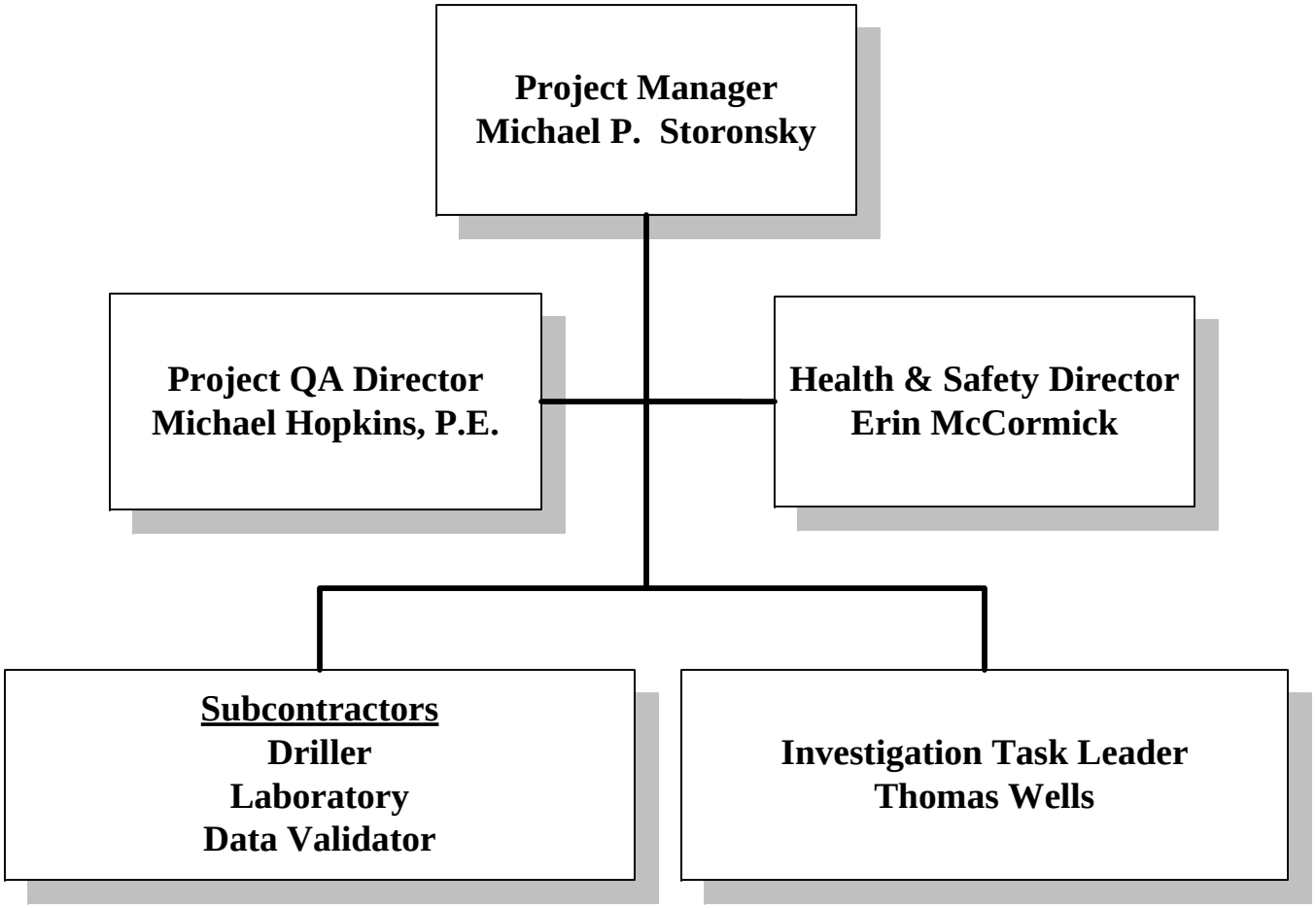
1 inch = 2,000 feet

0 1,000 2,000 4,000 Feet

Allegany Bitumens Belmont Asphalt Plant Site

FIGURE 1 : Site Location Map Showing USGS Topographic Information

FIGURE 2
PROJECT ORGANIZATIONAL CHART



Appendix B

APPENDIX B

HEALTH AND SAFETY PLAN
REMEDIAL INVESTIGATION
FORMER ALLEGANY BITUMENS BELMONT ASPHALT PLANT
5392 STATE ROUTE 19
TOWN OF AMITY, ALLEGANY COUNTY, NEW YORK

JULY 2010

Prepared for:

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
270 MICHIGAN AVENUE
BUFFALO, NEW YORK 14203

Prepared on Behalf of:

BLADES HOLDING COMPANY, INC.
P.O. BOX 12
ARKPORT, NY 14807

Prepared by:

STANTEC CONSULTING SERVICES INC.
2250 BRIGHTON HENRIETTA TOWN LINE ROAD
ROCHESTER, NEW YORK 14623

Stantec

TABLE OF CONTENTS

Section ***Page***

TABLE OF CONTENTS (continued)

Tables

Figures

Appendices

1.0 INTRODUCTION

The following Health and Safety Plan (HASP) describes personal safety protection standards and procedures to be followed by Stantec staff during planned Remedial Investigation activities at the Former Allegany Bitumens Belmont Asphalt Plant site located in the Town of Amity, Allegany County, New York (Figure 1). This work will include drilling activities and associated soil sampling and monitoring well installation, groundwater sampling, test pit excavation with soil sampling, surface soil sampling, sediment and surface water sampling, and soil vapor sampling.

This HASP establishes mandatory safety procedures and personal protection standards pursuant to the Occupational Safety and Health Administration (OSHA) regulations 29 Code of Federal Regulations (CFR) 1910.120. The HASP applies to all Stantec personnel conducting any site work, as defined in 29 CFR 1910.120(a). All personnel involved in the mentioned activities must familiarize themselves with this HASP, comply with its requirements and have completed the required health and safety training and medical surveillance program participation pursuant to 29 CFR 1910.120 prior to beginning any work on site.

THIS HASP IS FOR THE EXPRESS USE OF STANTEC EMPLOYEES. ALL OTHER CONTRACTORS TO BE WORKING IN THE EXCLUSION AREAS ARE REQUIRED BY LAW TO DEVELOP THEIR OWN HASP, AS WELL TO MEET ALL PERTINENT ASPECTS OF OSHA REGULATIONS. STANTEC RESERVES THE RIGHT TO STOP ANY SITE WORK WHICH IS DEEMED TO POSE A HEALTH AND SAFETY THREAT TO ITS STAFF.

1.1 Background

This project is being performed as part of a Brownfield Cleanup Program. The objectives of the proposed project include investigation of site soil, groundwater and soil vapor; utilizing the results from this investigation in order to perform a qualitative exposure assessment; establishing appropriate remedial objectives; and selecting effective remedial alternatives. The evaluation of remedial alternatives will be consistent with the planned commercial or industrial use of the site.

Site Background

The Former Allegany Bitumens Belmont Asphalt Plant is a 4.9± acre parcel located at 5392 State Route 19 in the Town of Amity, Allegany County, New York. A hot-mix asphalt plant started operations at this location in approximately 1960. From about 1960 to 1995, Allegany Bitumens, Inc operated the site. Allegany Bitumens was merged into Blades in 1995. Blades operated the site from 1995 till 2005, when operation at the site ceased. The operations at the asphalt plant included quality control testing at an on-site laboratory.

The subject property is currently improved with a non-operational asphalt plant, control tower, truck scale, scale house, office and laboratory building, oil storage buildings, maintenance shop and maintenance garage. A gravel-surfaced aggregate stockpile area is located south of the asphalt manufacturing plant structures. Paved parking and staging areas are provided adjacent to the asphalt plant and the laboratory and maintenance shop buildings.

Land use in the surrounding area is dominated by agricultural uses. The northern limits of the Village of Belmont are located approximately one-half mile southeast of the property. Undeveloped wooded property is located to the southwest of the property along Tucker's Creek and its small tributaries.

Phase I and II Environmental Site Assessments were performed at the site in 2009. These revealed the presence of volatile organic compounds (VOCs) in soil and groundwater at levels exceeding applicable NYSDEC cleanup objectives and standards or guidance values.

1.2 Site-Specific Chemicals of Concern

The primary compounds of concern that are documented to be present in the soil and groundwater at the Former Allegany Bitumens Belmont Asphalt Plant Site are listed in Table 1. Material Safety Data Sheets (MSDSs) for these compounds are presented in Appendix A. The air monitoring action levels will be based on one-half of the current Threshold Limit Valve (TLV) or Permissible Exposure Limit (PEL) for 1,1-dichloroethene (1,1-DCE) with a margin of safety built into the action levels to account for the non-specificity of the field monitoring instruments. Exposure limits for less hazardous compounds will be satisfied by meeting the more stringent exposure limits for 1,1-DCE. Table 1 summarizes health and safety data for the compounds of primary concern.

Table 1
Health and Safety Data for Contaminants of Concern

Compound	PEL/ TWA	Physical Description	Odor Threshold	Route of Exposure	Symptoms	Target Organs
1,1-Dichloroethane (1,1-DCA)	100 ppm	Colorless, oily liquid with a chloroform-like odor.	255 ppm	inhalation, ingestion, skin and/or eye contact	irritation skin; central nervous system depression; liver, kidney, lung damage	Skin, liver, kidneys, lungs, central nervous system
1,1-Dichloroethene (1,1-DCE)	1 ppm	Colorless liquid or gas (above 89°F) with a mild, sweet, chloroform-like odor.	35.5 ppm	inhalation, skin absorption, ingestion, skin and/or eye contact	irritation eyes, skin, throat; dizziness, headache, nausea, dyspnea (breathing difficulty); liver, kidney disturbance; pneumonitis; [potential occupational carcinogen]	Eyes, skin, respiratory system, central nervous system, liver, kidneys
cis- 1,2-Dichloroethene (cis-1,2-DCE)	200 ppm	Colorless liquid (usually a mixture of the cis & trans isomers) with a slightly acrid, chloroform-like odor.	19.1 ppm	inhalation, ingestion, skin and/or eye contact	Irritation eyes, respiratory system; central nervous system depression	Eyes, respiratory system, central nervous system
1,1,1-trichloroethane (1,1,1-TCA)	350 ppm	Colorless liquid with a mild, chloroform-like odor.	22.4 ppm	inhalation, ingestion, skin and/or eye contact	irritation eyes, skin; headache, lassitude (weakness, exhaustion), central nervous system depression, poor equilibrium; dermatitis; cardiac arrhythmias; liver damage	Eyes, skin, central nervous system, cardiovascular system, liver
Trichloroethylene (TCE)	100 ppm	Colorless liquid with a chloroform-like odor.	1.36 ppm	inhalation, skin absorption, ingestion, skin and/or eye contact	Irritation eyes, skin; headache, visual disturbance, lassitude (weakness, exhaustion), dizziness, tremor, drowsiness, nausea, vomiting; dermatitis; cardiac arrhythmias, paresthesia; liver injury; [potential occupational carcinogen]	Eyes, skin, respiratory system, heart, liver, kidneys, central nervous system

Notes:
PEL - permissible exposure limits
TWA - time weighted average, 8-hour workday
mg/m^3 - milligrams per cubic meter.
ppm - parts per million, in air

2.0 STANTEC PERSONNEL ORGANIZATION

The following Stantec personnel will be involved in health and safety operations at the Former Allegany Bitumens Belmont Asphalt Plant Site:

2.1 Project Manager

Mr. Michael Storonsky, Senior Associate, is the Project Manager. Mr. Storonsky is responsible for ensuring that all Stantec procedures and methods are carried out, and that all Stantec personnel abide by the provisions of this Health and Safety Plan.

2.2 Site Safety Officer/Field Team Leader

Ms. Stephanie Reynolds-Smith and/or Ms. Dorothy Bauch-Barker will serve as the field team leader (FTL) and Site Safety Officer (SSO) during this project. The FTL/SSO will report directly to the Project Manager and will be responsible for the implementation of this HASP as well as daily calibration of Stantec's safety monitoring instruments. The FTL/SSO will keep a log book of all calibration data and instrument readings for the Site.

2.3 Health and Safety Coordinator

Ms. Erin McCormick will be the Health and Safety Coordinator. Ms. McCormick will be responsible for overall coordination of Health and Safety issues on the project.

2.4 Daily Meetings

All Stantec personnel and contractors working within the exclusion zone will be required to read this document and sign off on the daily safety meeting form presented in Appendix B.

3.0 MEDICAL SURVEILLANCE REQUIREMENTS

3.1 Introduction

A. Hazardous waste site workers can often experience high levels of physical and chemical stress. Their daily tasks may expose them to toxic chemicals, physical hazards, biologic hazards, or radiation. They may develop heat stress while wearing protective equipment or working under temperature extremes, or face life-threatening emergencies such as explosions and fires. Therefore, a medical program is essential to: assess and monitor worker's health and fitness both prior to employment and during the course of the work; provide emergency and other treatment as needed; and keep accurate records for future reference. In addition, OSHA requires a medical evaluation for employees that may be required to work on hazardous waste sites and/or wear a respirator (29 CFR Part 1910.120 and 1910.134), and certain OSHA standards include specific medical surveillance requirements (e.g., 29 CFR Part 1926.62, Part 1910.95 and Parts 1910.1001 through 1910.1045).

3.2 Medical Examinations

A. All Stantec personnel working in areas of the site where site-related contaminants may be present shall have been examined by a licensed physician as prescribed in 29 CFR Part 1910.120, and determined to be medically fit to perform their duties for work conditions which require respirators. Employees will be provided with medical examinations as outlined below:

- Pre-job physical examination
- Annually thereafter if contract duration exceeds 1 year;
- Termination of employment;
- Upon reassignment in accordance with CFR 29 Part 1910.120(e)(3)(i)(C);
- If the employee develops signs or symptoms of illness related to workplace exposures;
- If the physician determines examinations need to be conducted more often than once a year; and
- When an employee develops a lost time injury or illness during the Contract period.

B. Examinations will be performed by, or under the supervision of a licensed physician, preferably one knowledgeable in occupational medicine, and will be provided without cost to the employee, without loss of pay and at a reasonable time and place. Medical surveillance protocols and examination and test results shall be reviewed by the Occupational Physician.

4.0 ON-SITE HAZARDS

4.1 Chemical Hazards

The primary potential chemical hazards on-site are expected to be exposure to the VOCs detailed in Table 1. Material safety data sheets for the documented VOCs are presented in Appendix A.

The soil and groundwater contaminants are volatile; therefore, any activity at the site which causes physical disturbance of the soil can potentially allow the release of contaminants into the air. For volatiles, this can include release of organic vapors into the air. Such an occurrence may be recognized by noticeable chemical odors. Field personnel should be aware of the odor threshold for these chemicals and their relation to the action levels and Permissible Exposure Limits.

Symptoms of overexposure to primary compounds of concern are detailed in Table 1. To prevent exposure to these chemicals, dermal contact will be minimized by using disposable surgical gloves with work gloves (as appropriate) when handling soil, groundwater equipment or samples. Real time, breathing zone levels of total VOCs will be monitored using a portable photoionization detector (PID). If ambient levels exceed action levels, all site activities will be performed using level C personal protection until ambient concentrations dissipate. Where levels exceed 50 ppm, work will cease and the project manager will be notified immediately. Intrusive work may also be halted where required by action levels detailed in the Community Air Monitoring Plan (CAMP), Appendix D of the RI Work Plan.

In addition, depending on seasonal conditions, disturbance of the site soils may cause the particulate contaminants to become airborne as dust. Therefore, particulates will be monitored as discussed in Section 6.1 and dust-suppression methods used where appropriate as discussed in Section 6.2, or in the CAMP.

Finally, aeration of the groundwater may cause volatilization of chemicals into the air, particularly VOCs. Table 2 summarizes first aid instructions for exposure pathways for the compounds of concern.

Table 2
Exposure Pathways and First Aid Response for Contaminants of Concern

Substance	Exposure Pathways	First-Aid Instructions
VOCs listed in Table 1	Eye	irrigate immediately
	Dermal	soap wash promptly (soap flush immediately for 1,1-DCE)
	Inhalation	respiratory support
	Ingestion	medical attention immediately

4.2 Physical Hazards

Hazards typically encountered at construction sites with drilling and excavation activities will be a concern at this site. These hazards include slippery ground surfaces, holes, and operation of heavy machinery and equipment. Field team members will wear the basic safety apparel such as steel-toed shoes, hard hat and safety glasses during all appropriate activities.

Under no circumstances will Stantec personnel approach the borehole during active drilling operation. All field personnel working around the rig will be shown the location and operation of kill switches, which are to be tested daily.

Multi-purpose fire extinguishers, functional and within annual inspection period, will be staged and readily accessible for use.

The use of electrical equipment in any established exclusion zones will be limited to areas verified as containing non-explosive atmospheres (<10% LEL) prior to operation, unless the equipment has been previously demonstrated or designed to be FM or UL rated as intrinsically safe. Care will be taken to avoid an ignition source while working in the presence of vapors.

The driller shall make all necessary contacts with utilities and/or underground utility locator hotlines prior to drilling, and shall meet OSHA requirements for distances between the drilling rig and overhead utilities. No drilling work will be carried out where the drill rig chassis has not been stabilized and the rig is not to be moved between locations with its boom in a vertical position.

4.2.1 Noise

The use of heavy machinery/equipment and operation may result in noise exposures, which require hearing protection. Exposure to noise can result in temporary hearing losses, interference with speech communication, interference with complicated tasks or permanent hearing loss due to repeated exposure to noise.

During the investigative activities, all Stantec field team members will use hearing protection when sound levels are in excess of 90 dB TWA.

4.2.2 Heat and Cold Stress Exposure

Heat is a potential threat to the health and safety of site personnel. The Site Safety Officer under the direction of the Project Manager will determine the schedule of work and rest. These schedules will be employed as necessary so that personnel do not suffer adverse effects from heat. Table 3 summarizes exposure symptoms and first aid instructions for heat stress. Non-caffeinated, thirst replenishment liquids will be available on-site.

Cold stress is also a potential threat to the health and safety of site personnel. Symptoms of cold stress include, shivering, blanching of the extremities, numbness or burning sensations, blue, purple or gray discoloration of hands and feet, frostbite, hypothermia, and loss of consciousness. Cold stress can be prevented by acclimatizing one's self to the cold, increasing fluid intake, avoiding caffeine and alcohol, maintaining proper salt and electrolyte intake, eating a well-balanced diet, wearing proper clothing, building heated enclosures to work in, and taking regular breaks to warm up. If any of the above symptoms are encountered the person should be removed from the cold area. Depending on the severity of the cold stress, 911 should be contacted and first aid administered. No fluids should be given to an unconscious person.

Table 3
Exposure Symptoms and First Aid for Heat Exposure

Hazard	Exposure Symptoms	First-Aid Instructions
Heat Stress	Fatigue, sweating, irritability	rest; take fluids
	Dizziness, disorientation, perspiration ceases, loss of consciousness	remove from hot area, activate 911, administer first aid, no fluids to be administered to unconscious victim.

4.2.3 Roadway Hazards

Field activities are planned to take place near active roadways. Where such work zones are established, personnel shall assure that protective measures including signage, cones, and shielding through use of vehicles parked at workmen perimeter, are in place. All contractors shall be responsible for meeting signage requirements of DOT. Fluorescent safety vests shall be worn by all personnel during activities in or adjacent to roadways and driveways.

4.2.4 Electrical Work

Site work involving electrical installation or energized equipment must be performed by a qualified electrician. All electrical work will be performed in accordance with the OSHA electrical safety requirements found in 29 CFR 1926.400 through 1926.449. Workers are not permitted to work near electrical power circuits unless the worker is protected against electric shock by de-energizing and grounding the circuit or by guarding or barricading the circuit and providing proper personal protective equipment. All electrical installations must comply with NEC regulations. All electrical wiring and equipment used must be listed by a nationally recognized testing laboratory.

All electrical circuits and equipment must be grounded in accordance with the NEC regulations. The path to ground from circuits, equipment, and enclosures will be permanent and continuous. Ground fault circuit interrupters (GFCIs) are required on all 120-volt, single phase, 15- and 20-amp outlets in work areas that are not part of the permanent wiring of the building or structure. A GFCI is required when using an extension cord. GFCIs must be tested regularly with a GFCI tester.

Heavy-duty extension cords will be used; flat-type extension cords are not allowed. All extension cords must be the three-wire type, and designed for hard/extra hard usage. Electrical wire or cords passing through work areas must be protected from water and damage. Worn, frayed, or damaged cords and cables will not be used. Walkways and work spaces will be kept clear of cords and cables to prevent a tripping hazard. Extension cords and cables may not be secured with staples, hung from nails, or otherwise temporarily secured. Cords or cables passing through holes in covers, outlet boxes, etc., will be protected by bushings or fittings.

All lamps used in temporary lighting will be protected from accidental contact and breakage. Metal shell and paper-lined lamp holders are not permitted. Fixtures, lamp holders, lamps, receptacles, etc. are not permitted to have live parts. Workers must not have wet hands while plugging/unplugging energized equipment. Plugs and receptacles will be kept out of water (unless they are approved for submersion).

4.2.5 Lock-Out/Tag-Out

Before a worker sets up, services, or repairs a system where unexpected energizing (or release of stored energy) could occur and cause injury or electrocution, the circuits energizing the parts must be locked-out and tagged. Only authorized personnel will perform lock-out/tag-out procedures. All workers affected by the lock-out/tag-out will be notified prior to, and upon completion of, the lock-out/tag-out procedure.

Lock-out/tag-out devices must be capable of withstanding the environment to which they are exposed. Locks will be attached in such a way as to prevent other personnel from operating the equipment, circuit, or control, or from removing the lock unless they resort to excessive force. Tags will identify the worker who attached the device, and contain information, which warns against the hazardous condition that will result from the system's unauthorized start-up. Tags must be legible and understood by all affected workers and incidental personnel. The procedures for attaching and removing lock-out/tag-out devices include the steps outlined in the following table.

If maintenance work is required, the electrical supply to the equipment must be disconnected. Turning off the MAIN breaker using the disconnect switch will disconnect all power to the system. Once the disconnect switch has been turned off, the switch will be locked-out using the steps outlined below.

STEP	LOCK-OUT/TAG-OUT PROCEDURES
1	Disconnect the circuits and/or equipment to be worked on from all electrical energy sources.
2	Ensure that the system is completely isolated so that it cannot be operated at that shut-off point or at any other location.
3	Release stored electrical energy.
4	Block or relieve stored non-electrical energy.
5	Place a lock on each shut-off or disconnect point necessary to isolate all potential energy sources. Place the lock in such a manner that it will maintain the shut-off/disconnect in the off position.
6	Place a tag on each shut-off or disconnect point. The tag must contain a statement prohibiting the unauthorized re-start or re-connect of the energy source and the removal of the tag, and the identity of the individual performing the tag and lock-out.
7	Workers who will be working on the system must place their own lock and tag on each lock-out point.
8	A qualified person must verify the system cannot be re-started or re-connected, and de-energization of the system has been accomplished.

Once the service or repairs have been made on the system:	
1	A qualified person will conduct an inspection of the work area, to verify that all tools, jumpers, shorts, grounds, etc., have been removed so that the system can then be safely re-energized.
2	All workers stand clear of the system.
3	Each lock and tag will be removed by the worker who attached it. If the worker has left the site, then the lock and tag may be removed by a qualified person under the following circumstances:
	a. The qualified person ensures the worker who placed the lock and tag has left the site; and
	b. The qualified person ensures the worker is aware the lock and tag has been removed before the worker resumes work on-site.

4.2.6 Ladders

One-third of worker deaths in construction result from falls. Many falls occur because ladders are not placed or used safely. Ladder use will comply with OSHA 1926.1053 through 1926.1060, including the following safety requirements.

STEP	PROPER LADDER USE PROCEDURE
1	Choose the right ladder for the task--the proper type and size, with a sufficient rating for the task.
2	Check the condition of the ladder before climbing. • Do not use a ladder with broken, loose, or cracked rails or rungs. • Do not use a ladder with oil, grease, or dirt on its rungs. • The ladder should have safety feet.
3	Place the ladder on firm footing, with a four-to-one pitch.
4	Support the ladder by: • Tying it off; • Using ladder outrigger stabilizers; or • Have another worker hold the ladder at the bottom. If another worker holds the ladder, they must: • Wear a hard hat; • Hold the ladder with both hands; • Brace the ladder with their feet; and • Not look up.
5	Keep the areas around the top and bottom of the ladder clear.
6	Extend the top of the ladder at least 36 inches (3 feet) above the landing.
7	Climb the ladder carefully - facing it - and use both hands. • Use a tool belt and hand-line to carry material to the top or bottom of the ladder. • Wear shoes in good repair with clean soles.
8	Inspect the ladder every day, prior to use, for the following problems: • Rail or rung damage • Broken feet • Rope or pulley damage • Rung lock defects or damage • Excessive dirt, oil, or grease If the ladder fails inspection, it must be removed from service and tagged with a "Do Not Use" sign.

Ladders with non-conductive side rails must be used when working near electrical conductors, equipment, or other sources. Ladders will not be used horizontally for platforms, runways, or scaffolds.

4.2.7 Hand and Power Tools

All hand and power tools will be maintained in a safe condition and in good repair. Hand and power tools will be used in accordance with 29 CFR 1926, Subpart I (1926.300 through 1926.307). Neither Stantec or its subcontractors will issue unsafe

tools, and workers are not permitted to bring unsafe tools on-site. All tools will be used, inspected, and maintained in accordance with the manufacturer's instructions. Throwing tools or dropping tools to lower levels is prohibited. Hand and power tools will be inspected, tested, and determined to be in safe operating condition prior to each use. Periodic safety inspections of all tools will be conducted to assure that the tools are in good condition, all guards are in place, and the tools are being properly maintained. Any tool that fails an inspection will be immediately removed from service and tagged with a "Do Not Use" sign.

Workers using hand and power tools, who are exposed to falling, flying, abrasive, or splashing hazards will be required to wear personal protective equipment (PPE). Eye protection must always be worn when working on-site. Additional eye and face protection, such as safety goggles or face shields, may also be required when working with specific hand and power tools. Workers, when on-site, will wear hard hats. Additional hearing protection may be required when working with certain power tools. Workers using tools, which may subject their hands to an injury, such as cuts, abrasions, punctures, or burns, will wear protective gloves. Loose or frayed clothing, dangling jewelry, or loose long hair will not be worn when working with power tools.

Electric power-operated tools will be double insulated or grounded, and equipped with an on/off switch. Guards must be provided to protect the operator and other nearby workers from hazards such as in-going nip points, rotating parts, flying chips, and sparks. All reciprocating, rotating and moving parts of tools will be guarded if contact is possible. Removing machine guards is prohibited.

Abrasive wheels will only be used on equipment provided with safety guards. Safety guards must be strong enough to withstand the effect of a bursting wheel. Abrasive wheels will not be operated in excess of their rated speed. Work or tool rests will not be adjusted while the wheel is in motion. All abrasive wheels will be closely inspected and ring tested before each use, and any cracked or damaged wheels will be removed immediately and destroyed.

Circular saws must be equipped with guards that completely enclose the cutting edges and have anti-kickback devices. All planer and joiner blades must be fully guarded. The use of cracked, bent, or otherwise defective parts is prohibited. Chain saws must have an automatic chain brake or kickback device. The worker operating the chain saw will hold it with both hands during cutting operations. A chain saw must never be used to cut above the operator's shoulder height. Chain saws will not be re-fueled while running or hot. Power saws will not be left unattended.

Only qualified workers will operate pneumatic tools, powder-actuated tools, and abrasive blasting tools.

4.2.8 Manual Lifting

Back injuries are among the leading occupational injuries reported by industrial workers. Back injuries such as pulls and disc impairments can be reduced by using proper manual lifting techniques. Leg muscles are stronger than back muscles, so workers should lift with their legs and not with their back. Proper manual lifting techniques include the following steps:

STEP	PROPER MANUAL LIFTING PROCEDURE
1	Plan the lift before lifting the load. Take into consideration the weight, size, and shape of the load.
2	Preview the intended path of travel and the destination to ensure there are no tripping hazards along the path.
3	Wear heavy-duty work gloves to protect hands and fingers from rough edges, sharp corners, and metal straps. Also, keep hands away from potential pinch points between the load and other objects.
4	Get the load close to your ankles, and spread your feet apart. Keep your back straight and do not bend your back too far; instead bend at your knees.
5	Feel the weight; test it.
6	Lift the load smoothly, and let your legs do the lifting. If you must pivot, do not swing just the load; instead, move your feet and body with the load.

If the load is too heavy, then do not lift it alone. Lifting is always easier when performed with another person. Assistance should always be used when it is available.

4.2.9 Weather-Related Hazards

Weather-related hazards include the potential for heat or cold stress, electrical storms, treacherous weather-related working conditions, or limited visibility. These hazards correlate with the season in which site activities occur. Outside work will be suspended during electrical storms. In the event of other adverse weather conditions, the Site Safety Officer will determine if work can continue without endangering the health and safety of site personnel.

5.0 SITE WORK ZONES

The following work zones will be physically delineated by Stantec during the investigation activities.

5.1 Control Zones

Control boundaries will be established within the areas of site activities. Examples of boundary zones include the exclusion and decontamination zone. All boundaries will be dynamic, and will be determined by the planned activities for the day. The Field Team Leader will record the names of any visitors to the site.

5.2 Exclusion Zone

The controlled portion of the site will be delineated to identify the exclusion zone, wherein a higher level of personal protective equipment may be required for entry during intrusive activities. The limits of the exclusion zone will be designated at each work location appropriately. A decontamination zone will be located immediately outside the entrance to the exclusion zone. All personnel leaving the exclusion zone will be required to adhere to proper decontamination procedures.

A "super exclusion" zone will be established around the borehole which will not be entered by Stantec personnel at any time during any active drilling, slambar, cathead, silica sand dumping, or other related activities. The drilling contractor will be directed to stop such activity when Stantec site team members have a need to enter this zone.

5.3 Decontamination Zone

The decontamination zone will be located immediately outside the entrance to the exclusion zone on its apparent upwind side, if feasible, and will be delineated with caution tape and traffic cones as needed. This zone will contain the necessary decontamination materials for personnel decontamination. Decontamination procedures are outlined in Section 8.0 of this plan.

6.0 SITE MONITORING/ACTION LEVELS

6.1 Site Monitoring

Field activities associated with drilling, excavation, and sampling may create potentially hazardous conditions due to the migration of contaminants into the breathing zone. These substances may be in the form of mists, vapors, dusts, or fumes that can enter the body through ingestion, inhalation, absorption, and direct dermal contact. Monitoring for VOCs and particulates will be performed to ensure appropriate personal protective measures are employed during site activities.

A separate Community Air Monitoring Plan (CAMP) has also been developed (Appendix D of the Work Plan) to protect the surrounding neighborhood.

Although the concentrations of anticipated contaminants in soil/groundwater should not present an explosive hazard, explosive environments or conditions may be encountered unexpectedly during the course of this project. Monitoring for explosivity in the atmosphere will be routinely conducted during site activities as a precautionary measure to ensure site personnel are not subjected to any dangerous conditions.

The following describes the conditions that will be monitored for during the investigation activities. All background and site readings will be logged, and all instrument calibrations, etc., will be logged.

Organic Vapor Concentrations - Organic vapors will be monitored continuously in the breathing zone in the work area with a portable photoionization detector (PID), such as a miniRAE Model 2000 with a 10.2 eV lamp. The instrument will be calibrated daily or as per the manufacturer's recommendations. PID readings will be used as the criteria for upgrading or downgrading protective equipment and for implementing additional precautions or procedures.

Split spoons or other soil sampling devices will be monitored using the PID at the time they are opened, with appropriate PPE to be used where soils exhibit measurable volatile organic compound levels.

Explosivity - Explosivity will be monitored continuously during active drilling operations. Measurements obtained from this monitoring instrument will also be used as criteria for implementation of work stoppage or site evacuation. A combination combustible gas/oxygen (CGO_2) instrument, calibrated per manufacturer's recommendations, will be used.

Particulates - Should subsurface conditions be observed to be dry, Stantec will perform particulate monitoring with a MIE PDM-3 Miniram aerosol monitor, within the work area to

monitor personal exposures to particulates and to compare work area readings with downwind and upwind readings. The first readings of the day will be obtained prior to the commencement of work to obtain a daily background reading, and the instrument will be zeroed daily and calibrated to manufacturer's specifications. Readings will be recorded every 30 minutes thereafter. If the work area particulate levels exceed the background levels by more than 0.15 mg/m^3, the Contractor will be instructed to implement dust suppression measures.

6.2 Action Levels

During the course of any activity, as long as PID readings in the breathing zone are less than 5 ppm above background, Level D protection will be considered adequate. Level C protection will be required when VOC concentrations in ambient air in the work zone exceed 5 ppm total VOCs above background but remain below 50 ppm total VOCs.

If concentrations in the work zone exceed 50 ppm for a period of 5 minutes or longer, work will immediately be terminated by the Site Safety Officer. Options to allow continued drilling would then be discussed amongst all parties. Supplied-air respiratory protection is generally required for drilling to resume under these conditions. If Level B protection is not used, work may resume in Level C once monitoring concentrations have decreased below 50 ppm and conditions outlined in the CAMP are met.

If the monitoring of fugitive particulate levels within the work area exceeds 0.15 mg/m^3 above background, then the drilling Contractor will be directed to implement fugitive dust control measures which may include use of engineering controls such as water spray at the borehole.

7.0 PERSONAL PROTECTIVE EQUIPMENT

Based on an evaluation of the hazards at the site, personal protective equipment (PPE) will be required for all personnel and visitors entering the drilling exclusion zone(s). It is anticipated that all Stantec oversight work will be performed in Level D. All contractors will be responsible for selection and implementation of PPE for their personnel.

7.1 Protective Clothing/Respiratory Protection:

Protective equipment for each level of protection is as follows:

If PID readings are above 50 ppm, requiring an upgrade to Level B, site work will be halted pending review of conditions and options by Stantec and other involved parties.

When PID readings range between 5 and 50 ppm, upgrade to Level C:

Level C

- Full face, air purifying respirator with organic/HEPA cartridge;
- Disposable chemical resistant one-piece suit (Tyvek or Saranex, as appropriate);
- Inner and outer chemical resistant gloves;
- Hard hat;
- Steel-toed boots; and
- Disposable booties.

When PID readings range between background and 5 ppm use Level D:

Level D

- Safety glasses;
- Steel-toed boots;
- Protective cotton, latex or leather gloves depending on site duties;
- Hard hat; and
- Tyvek coverall (optional).

8.0 DECONTAMINATION

8.1 Personnel Decontamination

For complete decontamination, all personnel will observe the following procedures upon leaving the exclusion zone:

1. Remove outer boots and outer gloves and place in disposal drum.

2. If using a respirator, remove respirator, dispose of cartridges if necessary, and set aside for later cleaning.

3. Remove disposable chemical resistant suits and dispose of in drum.

4. Remove and dispose of inner gloves.

Decontamination solutions shall be supplied at the decontamination zone. The wash solution will consist of water and detergent such as Alconox or trisodium phosphate (TSP), and the rinse solution will consist of clean water.

Contaminated wash solutions shall be collected in drums for disposal. All other disposable health and safety equipment will be decontaminated and disposed of as non-hazardous waste.

8.2 Equipment Decontamination

If equipment is used during field activities, it will be properly washed or steam-cleaned prior to exiting the decontamination zone. Pre- or post-use rinsing using solvents will be done wearing appropriate PPE.

Monitoring instruments will be either wrapped in polysheeting or carried by personnel not involved in handling contaminated materials, to reduce the need for decontamination. All instruments will be wet-wiped prior to removal from the work zone.

9.0 EMERGENCY PROCEDURES

The Site Safety Officer will coordinate emergency procedures and will be responsible for initiating emergency response activities. Emergency communications at the site will be conducted verbally and by means of an air or vehicle horn. All personnel will be informed of the location of the cellular telephone and horn. Three blasts on the air or vehicle horn will be used to signal distress.

9.1 List of Emergency Contacts

Ambulance: 911
Hospital: Jones Memorial Hospital, Wellsville, NY: (585) 593-1100
Fire Department: 911
Police: 911
Poison Control Center: (585) 222-1222

RG&E Utility Emergency: 911 or (800) 743-1702

9.2 Directions to Hospital

A map presenting directions to the hospital is included in the back of the document (Figure 2). The route shall be reviewed at the initial site safety meeting on site.

9.3 Accident Investigation and Reporting

A. All accidents requiring first aid, which occur incidental to activities onsite, will be investigated. The investigation format will be as follows:

- interviews with witnesses,
- pictures, if applicable, and
- necessary actions to alleviate the problem.

B. In the event that an accident or some other incident such as an explosion or exposure to toxic chemicals occurs during the course of the project, the Project Health and Safety Officer will be telephoned as soon as possible and receive a written notification within 24 hours. The report will include the following items:

- Name of injured;
- Name and title of person(s) reporting;
- Date and time of accident/incident;
- Location of accident/incident, building number, facility name;
- Brief summary of accident/incident giving pertinent details including type of operation ongoing at the time of the accident/incident;
- Cause of accident/incident;
- Casualties (fatalities, disabling injuries), hospitalizations;
- Details of any existing chemical hazard or contamination;
- Estimated property damage, if applicable;
- Nature of damage; effect on contract schedule;
- Action taken to insure safety and security; and
- Other damage or injuries sustained (public or private).

Where reportable injuries, hospitalizations or fatalities occur amongst Stantec personnel, the necessary document required by OSHA will be submitted within timeframes allowed by law.

The accident report form is illustrated in Table 4.

TABLE 4
ACCIDENT REPORT

Project__Allegany Bitumens Belmont Asphalt Plant Site__ Date of Occurrence_____

Location __5392 State Route 19, Amity, NY, 14813_____
_____

Type of Occurrence: (check all that Apply)

☐Disabling Injury	☐Other Injury
☐Property Damage	☐Equip. Failure
☐Chemical Exposure	☐Fire
☐Explosion	☐Vehicle Accident

☐Other (explain)_____
_____

Witnesses to Accident/Injury:

_____ _____
_____ _____
_____ _____

Injuries:
Name of Injured _____

What was being done at the time of the accident/injury?

_____
_____

What corrective actions will be taken to prevent recurrence? _____
_____
_____

SIGNATURES

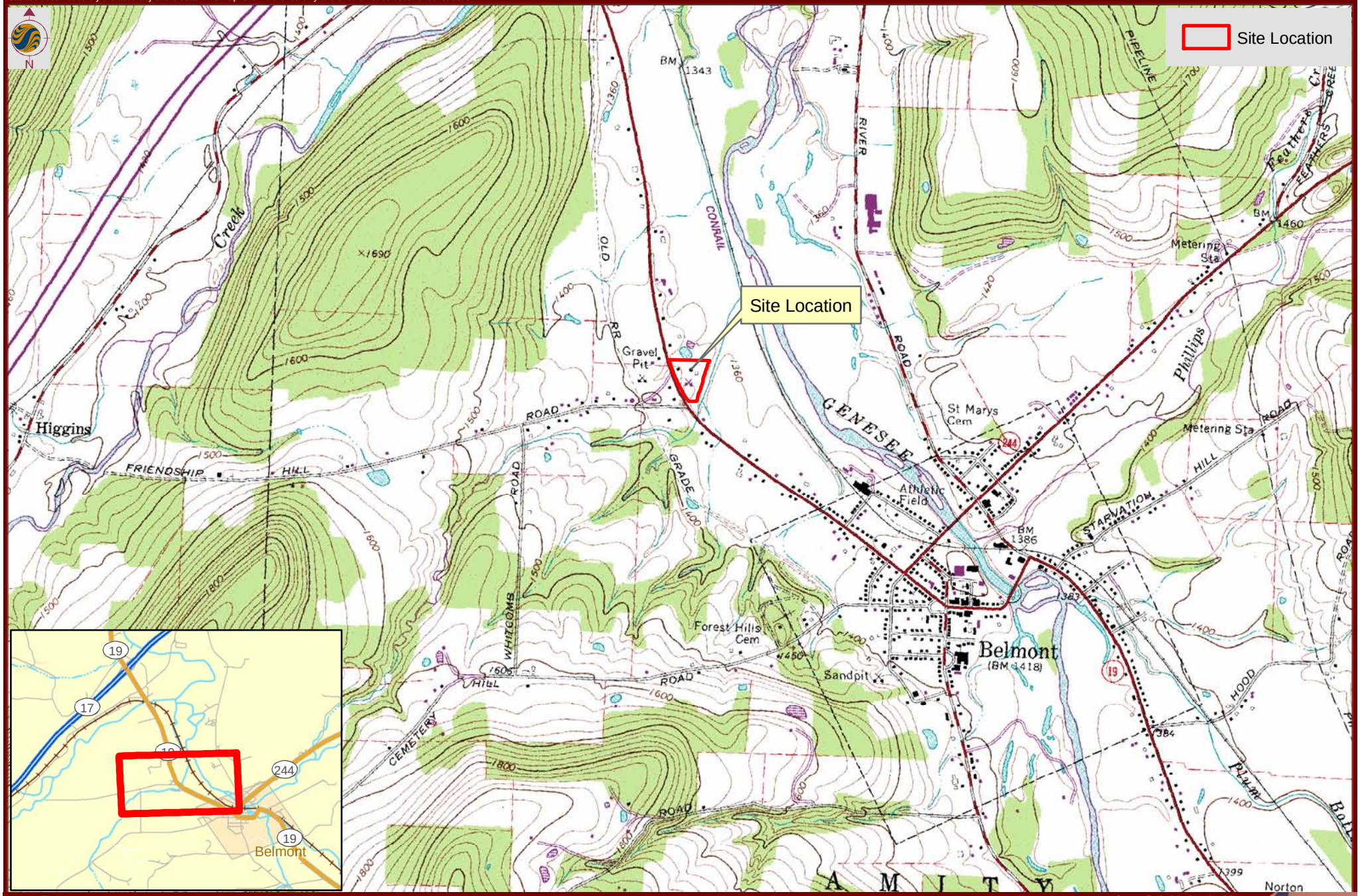
Health and Safety Officer _____ Date _____

Project Manager _____ Date _____

Reviewer _____ Date _____

Comments by reviewer _____
_____
_____

FIGURES



Geographic Information Systems

Map Source : NYSGIS Clearinghouse Web Site

Cartographic Design By: Andrew Less

Tuesday, July 6, 2010 1:21:32 PM
U:\190500593\drawing\Work Plan Figures\Figure 1_Site Location Map.mxd

Stantec Consulting
2250 Brighton Henrietta Townline Road
Rochester, NY 14623
Phone 585.475.1440 Fax 585.424.5951
www.stantec.com

1 inch = 2,000 feet

0 1,000 2,000 4,000 Feet

Allegany Bitumens Belmont Asphalt Plant Site

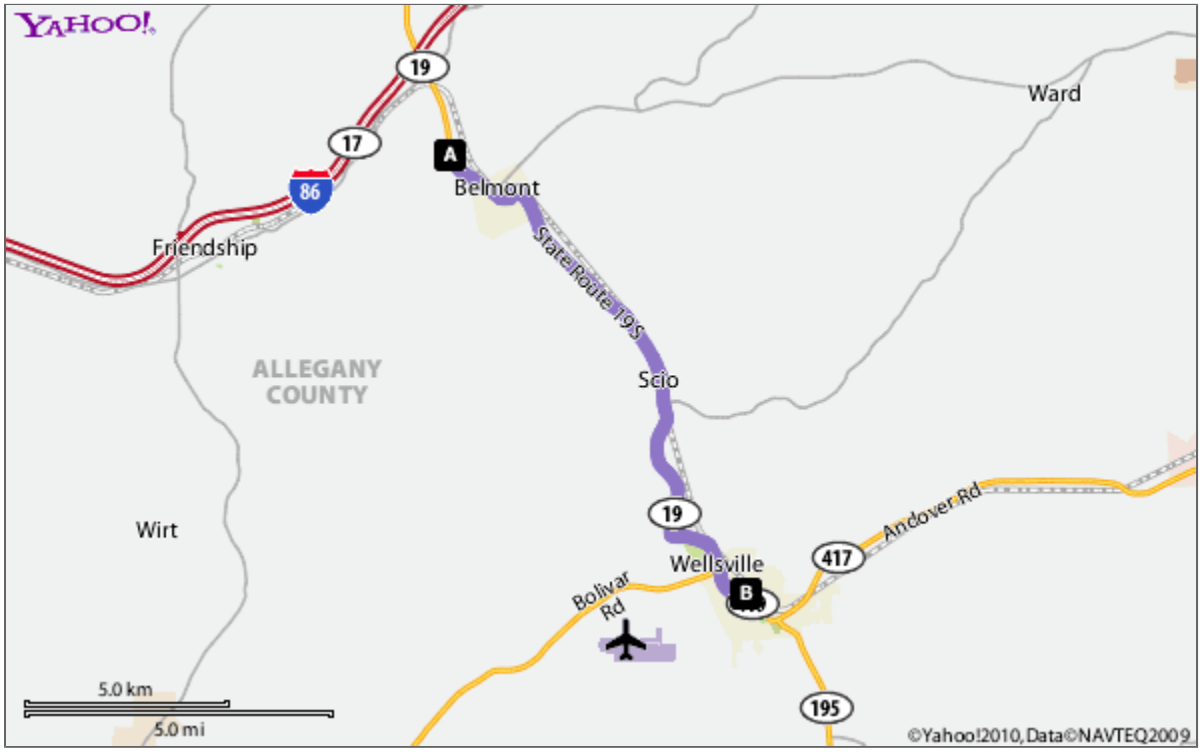
FIGURE 1 : Site Location Map Showing USGS Topographic Information

Directions to 191 N Main St, Wellsville, NY 14895-1150

Total Time: 19 mins, Total Distance: 11.03 mi

		Distance
A	1. **Start at 5392 RT-19, AMITY going toward TUCKERS CORNER RD**	go **0.74** mi
	2. Continue on **RT-19**	go **10.09** mi
	3. Turn L on **W MADISON ST**	go **75** ft
	4. Turn L on **PARK AVE**	go **0.12** mi
	5. Continue on **W PEARL ST**	go **197** ft
	6. Turn L on **N MAIN ST**	go **125** ft
B	7. **Arrive at 191 N MAIN ST, WELLSVILLE, on the L**	

Time: 19 mins, Distance: 11.03 mi



When using any driving directions or map, it's a good idea to do a reality check and make sure the road still exists, watch out for construction, and follow all traffic safety precautions. This is only to be used as an aid in planning.

Figure 2 - Directions and Map from the site to Jones Memorial Hospital, Wellsville, NY

APPENDIX A
MATERIAL SAFETY DATA SHEETS

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1,1-Dichloroethane

Synonyms & Trade Names Asymmetrical dichloroethane; Ethylidene chloride; 1,1-Ethylidene dichloride

CAS No. 75-34-3	**RTECS No.** KI0175000	**DOT ID & Guide** 2362 130
Formula $CHCl_2CH_3$	**Conversion** 1 ppm = 4.05 mg/m³	**IDLH** 3000 ppm See: 75343
Exposure Limits **NIOSH REL** : TWA 100 ppm (400 mg/m³) See Appendix C (Chloroethanes) **OSHA PEL** : TWA 100 ppm (400 mg/m³)		**Measurement Methods** **NIOSH** 1003 ; **OSHA** 7 See: NMAM or OSHA Methods

Physical Description Colorless, oily liquid with a chloroform-like odor.

MW: 99.0	**BP:** 135°F	**FRZ:** -143°F	**Sol:** 0.6%	**VP:** 182 mmHg	**IP:** 11.06 eV
Sp.Gr: 1.18	**Fl.P:** 2°F	**UEL:** 11.4%	**LEL:** 5.4%		

Class IB Flammable Liquid: Fl.P. below 73°F and BP at or above 100°F.

Incompatibilities & Reactivities Strong oxidizers, strong caustics

Exposure Routes inhalation, ingestion, skin and/or eye contact

Symptoms irritation skin; central nervous system depression; liver, kidney, lung damage

Target Organs Skin, liver, kidneys, lungs, central nervous system

Personal Protection/Sanitation (See protection codes) **Skin:** Prevent skin contact **Eyes:** Prevent eye contact	**First Aid** (See procedures) **Eye:** Irrigate immediately **Skin:** Soap flush promptly

Wash skin: When contaminated **Remove:** When wet (flammable) **Change:** No recommendation	**Breathing:** Respiratory support **Swallow:** Medical attention immediately

Respirator Recommendations

NIOSH/OSHA

Up to 1000 ppm:
(APF = 10) Any supplied-air respirator

Up to 2500 ppm:
(APF = 25) Any supplied-air respirator operated in a continuous-flow mode

Up to 3000 ppm:
(APF = 50) Any self-contained breathing apparatus with a full facepiece
(APF = 50) Any supplied-air respirator with a full facepiece

Emergency or planned entry into unknown concentrations or IDLH conditions:

(APF = 10,000) Any self-contained breathing apparatus that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode
(APF = 10,000) Any supplied-air respirator that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode in combination with an auxiliary self-contained positive-pressure breathing apparatus

Escape:
(APF = 50) Any air-purifying, full-facepiece respirator (gas mask) with a chin-style, front- or back-mounted organic vapor canister
Any appropriate escape-type, self-contained breathing apparatus

Important additional information about respirator selection

See also: INTRODUCTION See ICSC CARD: 0249

Page last reviewed: February 3, 2009
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Vinylidene chloride

Synonyms & Trade Names 1,1-DCE; 1,1-Dichloroethene; 1,1-Dichloroethylene; VDC; Vinylidene chloride monomer; Vinylidene dichloride

CAS No. 75-35-4	**RTECS No.** KV9275000	**DOT ID & Guide** 1303 130P (inhibited)
Formula $CH_2=CCl_2$	**Conversion**	**IDLH** Ca [N.D.] See: IDLH INDEX
Exposure Limits **NIOSH REL** : Ca See Appendix A **OSHA PEL** †: none		**Measurement Methods** **NIOSH** 1015 ; **OSHA** 19 See: NMAM or OSHA Methods

Physical Description Colorless liquid or gas (above 89°F) with a mild, sweet, chloroform-like odor.

MW: 96.9	**BP:** 89°F	**FRZ:** -189°F	**Sol:** 0.04%	**VP:** 500 mmHg	**IP:** 10.00 eV
Sp.Gr: 1.21	**Fl.P:** -2°F	**UEL:** 15.5%	**LEL:** 6.5%		

Class IA Flammable Liquid: Fl.P. below 73°F and BP below 100°F.

Incompatibilities & Reactivities Aluminum, sunlight, air, copper, heat [Note: Polymerization may occur if exposed to oxidizers, chlorosulfonic acid, nitric acid, or oleum. Inhibitors such as the monomethyl ether of hydroquinone are added to prevent polymerization.]

Exposure Routes inhalation, skin absorption, ingestion, skin and/or eye contact

Symptoms irritation eyes, skin, throat; dizziness, headache, nausea, dyspnea (breathing difficulty); liver, kidney disturbance; pneumonitis; [potential occupational carcinogen]

Target Organs Eyes, skin, respiratory system, central nervous system, liver, kidneys

Cancer Site [in animals: liver & kidney tumors]

Personal Protection/Sanitation (See protection codes)
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contaminated
Remove: When wet (flammable)
Change: No recommendation
Provide: Eyewash, Quick drench

First Aid (See procedures)
Eye: Irrigate immediately
Skin: Soap flush immediately

Breathing: Respiratory support
Swallow: Medical attention immediately

Respirator Recommendations

NIOSH

At concentrations above the NIOSH REL, or where there is no REL, at any detectable concentration:
(APF = 10,000) Any self-contained breathing apparatus that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode
(APF = 10,000) Any supplied-air respirator that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode in combination with an auxiliary self-contained positive-pressure breathing apparatus

Escape:
(APF = 50) Any air-purifying, full-facepiece respirator (gas mask) with a chin-style, front- or back-mounted organic vapor canister
Any appropriate escape-type, self-contained breathing apparatus

Important additional information about respirator selection

See also: INTRODUCTION See ICSC CARD: 0083

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NIOSH Pocket Guide to Chemical Hazards

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1,2-Dichloroethylene

CAS

540-59-0

RTECS

KV9360000

CICH=CHCl

Synonyms & Trade Names

DOT ID & Guide

Acetylene dichloride, cis-Acetylene dichloride, trans-Acetylene dichloride, sym-Dichloroethylene 1150 130P

Exposure Limits

NIOSH REL: TWA 200 ppm (790 mg/m^3)

OSHA PEL: TWA 200 ppm (790 mg/m^3)

IDLH

1000 ppm See: 540590

Conversion

1 ppm = 3.97 mg/m^3

Physical Description

Colorless liquid (usually a mixture of the cis & trans isomers) with a slightly acrid, chloroform-like odor.

MW: 97.0	BP: 118-140°F	FRZ: -57 to -115°F	Sol: 0.4%
VP: 180-265 mmHg	IP: 9.65 eV		Sp.Gr(77°F): 1.27
Fl.P: 36-39°F	UEL: 12.8%	LEL: 5.6%	

Class IB Flammable Liquid: Fl.P. below 73°F and BP at or above 100°F.

Incompatibilities & Reactivities

Strong oxidizers, strong alkalis, potassium hydroxide, copper [Note: Usually contains inhibitors to prevent polymerization.]

Measurement Methods

NIOSH 1003; OSHA 7
See: NMAM or OSHA Methods

Personal Protection & Sanitation

(See protection)
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contaminated
Remove: When wet (flammable)
Change: No recommendation

First Aid

(See procedures)
Eye: Irrigate immediately
Skin: Soap wash promptly
Breathing: Respiratory support
Swallow: Medical attention immediately

Respirator Recommendations

NIOSH/OSHA
Up to 2000 ppm:
(APF = 25) Any supplied-air respirator operated in a continuous-flow mode£
(APF = 25) Any powered, air-purifying respirator with organic vapor cartridge(s)£
(APF = 50) Any chemical cartridge respirator with a full facepiece and organic vapor cartridge(s)
(APF = 50) Any air-purifying, full-facepiece respirator (gas mask) with a chin-style, front- or back-mounted organic vapor canister
(APF = 50) Any self-contained breathing apparatus with a full facepiece
(APF = 50) Any supplied-air respirator with a full facepiece
Emergency or planned entry into unknown concentrations or IDLH conditions:
(APF = 10,000) Any self-contained breathing apparatus that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode
(APF = 10,000) Any supplied-air respirator that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode in combination with an auxiliary self-contained positive-pressure breathing apparatus
Escape:
(APF = 50) Any air-purifying, full-facepiece respirator (gas mask) with a chin-style, front- or back-mounted organic vapor canister/Any appropriate escape-type, self-contained breathing apparatus
Important additional information about respirator selection

Exposure Routes

inhalation, ingestion, skin and/or eye contact

Symptoms

Irritation eyes, respiratory system; central nervous system depression

Target Organs

Eyes, respiratory system, central nervous system

See also: INTRODUCTION See ICSC CARD: 0436

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Methyl chloroform

Synonyms & Trade Names Chlorothene; 1,1,1-Trichloroethane; 1,1,1-Trichloroethane (stabilized)					
CAS No. 71-55-6	**RTECS No.** KJ2975000			**DOT ID & Guide** 2831 160	
Formula CH_3CCl_3	**Conversion** 1 ppm = 5.46 mg/m³			**IDLH** 700 ppm See: 71556	
Exposure Limits **NIOSH REL** : C 350 ppm (1900 mg/m³) [15-minute] See Appendix C (Chloroethanes) **OSHA PEL** †: TWA 350 ppm (1900 mg/m³)				**Measurement Methods** **NIOSH** 1003 See: NMAM or OSHA Methods	
Physical Description Colorless liquid with a mild, chloroform-like odor.					
MW: 133.4	**BP:** 165°F	**FRZ:** -23°F	**Sol:** 0.4%	**VP:** 100 mmHg	**IP:** 11.00 eV
Sp.Gr: 1.34	**Fl.P:** ?	**UEL:** 12.5%	**LEL:** 7.5%		
Combustible Liquid, but burns with difficulty.					
Incompatibilities & Reactivities Strong caustics; strong oxidizers; chemically-active metals such as zinc, aluminum, magnesium powders, sodium & potassium; water [Note: Reacts slowly with water to form hydrochloric acid.]					
Exposure Routes inhalation, ingestion, skin and/or eye contact					
Symptoms irritation eyes, skin; headache, lassitude (weakness, exhaustion), central nervous system depression, poor equilibrium; dermatitis; cardiac arrhythmias; liver damage					
Target Organs Eyes, skin, central nervous system, cardiovascular system, liver					
Personal Protection/Sanitation (See protection codes) **Skin:** Prevent skin contact				**First Aid** (See procedures) **Eye:** Irrigate immediately	

Eyes: Prevent eye contact **Wash skin:** When contaminated **Remove:** When wet or contaminated **Change:** No recommendation	**Skin:** Soap wash promptly **Breathing:** Respiratory support **Swallow:** Medical attention immediately

Respirator Recommendations

NIOSH/OSHA

Up to 700 ppm:
(APF = 10) Any supplied-air respirator*
(APF = 50) Any self-contained breathing apparatus with a full facepiece

Emergency or planned entry into unknown concentrations or IDLH conditions:

(APF = 10,000) Any self-contained breathing apparatus that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode
(APF = 10,000) Any supplied-air respirator that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode in combination with an auxiliary self-contained positive-pressure breathing apparatus

Escape:
(APF = 50) Any air-purifying, full-facepiece respirator (gas mask) with a chin-style, front- or back-mounted organic vapor canister
Any appropriate escape-type, self-contained breathing apparatus

Important additional information about respirator selection

See also: INTRODUCTION See ICSC CARD: 0079 See MEDICAL TESTS: 0141

Page last reviewed: February 3, 2009
Page last updated: February 3, 2009
Content source: National Institute for Occupational Safety and Health (NIOSH) Education and Information Division

Centers for Disease Control and Prevention 1600 Clifton Rd. Atlanta, GA 30333, USA
800-CDC-INFO (800-232-4636) TTY: (888) 232-6348, 24 Hours/Every Day - cdcinfo@cdc.gov

NIOSH Publication No. 2005-149: **September 2005**

NIOSH Pocket Guide to Chemical Hazards

Trichloroethylene

CAS

79-01-6

RTECS

KX4550000

DOT ID & Guide

1710 160

CICH=CCl$_2$

Synonyms & Trade Names

Ethylene trichloride, TCE, Trichloroethene, Trilene

Exposure Limits

NIOSH REL: Ca See Appendix A See Appendix C

OSHA PEL†: TWA 100 ppm C 200 ppm 300 ppm (5-minute maximum peak in any 2 hours)

IDLH

Ca [1000 ppm] See: 79016

Conversion

1 ppm = 5.37 mg/m^3

Physical Description

Colorless liquid (unless dyed blue) with a chloroform-like odor.

MW: 131.4	BP: 189°F	FRZ: -99°F	Sol(77°F): 0.1%
VP: 58 mmHg	IP: 9.45 eV		Sp.Gr: 1.46
Fl.P: ?	UEL(77°F): 10.5%	LEL(77°F): 8%	

Combustible Liquid, but burns with difficulty.

Incompatibilities & Reactivities

Strong caustics & alkalis; chemically-active metals (such as barium, lithium, sodium, magnesium, titanium & beryllium)

Measurement Methods

NIOSH 1022, 3800; OSHA 1001

See: NMAM or OSHA Methods

Personal Protection & Sanitation

(See protection)
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contaminated
Remove: When wet or contaminated
Change: No recommendation
Provide: Eyewash, Quick drench

First Aid

(See procedures)
Eye: Irrigate immediately
Skin: Soap wash promptly
Breathing: Respiratory support
Swallow: Medical attention immediately

Respirator Recommendations

NIOSH
At concentrations above the NIOSH REL, or where there is no REL, at any detectable concentration:
(APF = 10,000) Any self-contained breathing apparatus that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode
(APF = 10,000) Any supplied-air respirator that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode in combination with an auxiliary self-contained positive-pressure breathing apparatus
Escape:
(APF = 50) Any air-purifying, full-facepiece respirator (gas mask) with a chin-style, front- or back-mounted organic vapor canister/Any appropriate escape-type, self-contained breathing apparatus
Important additional information about respirator selection

Exposure Routes

inhalation, skin absorption, ingestion, skin and/or eye contact

Symptoms

Irritation eyes, skin; headache, visual disturbance, lassitude (weakness, exhaustion), dizziness, tremor, drowsiness, nausea, vomiting; dermatitis; cardiac arrhythmias, paresthesia; liver injury; [potential occupational carcinogen]

Target Organs

Eyes, skin, respiratory system, heart, liver, kidneys, central nervous system

Cancer Site

[in animals: liver & kidney cancer]

See also: INTRODUCTION See ICSC CARD: 0081 See MEDICAL TESTS: 0236

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APPENDIX B
ON-SITE SAFETY MEETING FORMS

ON-SITE SAFETY MEETING

Project: Allegany Bitumens Belmont Asphalt Plant Site
Date:_____ Time:_____ Job No.: 190500593
Address: 5392 State Route 19, Amity, NY, 14813

Scope of Work:_____

Weather Temp:_____ Wind direction/speed: _____
Sky Conditions:_____ Humidity:_____
Weather Conditions affecting work: _____

Safety Topics Discussed

Protective Clothing/Equipment: Level D (steel toe boots, hard hat with overhead hazards, etc.)
Chemical Hazards:_____
Physical Hazardous: Slip/trip/fall; weather/heat/cold; overhead hazards during drilling rig and excavator Operation; and noise during drilling
Personnel/Equipment Decontamination: Alconox solution and water rinse or high pressure wash
Personnel/Job Functions: _____
Emergency Procedures: Emergency will be signaled verbally or with air or vehicle horn. Appropriate authorities will be contacted and after event, accident reporting procedures will be followed, as appropriate.
Special Equipment: _____
Other: _____

Emergency Phone Numbers/Addresses

Ambulance: 911
Hospital: Jones Memorial Hospital (585) 593-1100
Police: 911
Fire Department: 911

On-Site Safety Meeting
ATTENDEES

Name Printed	Signature	Job Function
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

Meeting Conducted By: _____ _____
Name Printed Signature

Site Safety Officer _____ _____

Team Leader _____ _____

Appendix C

New York State Department of Environmental Conservation

Brownfield Cleanup Program

Citizen Participation Plan

for

Former Allegany Bitumens Belmont Asphalt Plant

5392 State Route 19
Town of Amity
Allegany County, New York

July 2010

Contents

* * * * *

Note: The information presented in this Citizen Participation Plan was current as of the date of its approval by the New York State Department of Environmental Conservation. Portions of this Citizen Participation Plan may be revised during the site's investigation and cleanup process.

Applicant: **Blades Holding Company, Inc. ("Applicant")**
Site Name: **Former Allegany Bitumens Belmont Asphalt Plant ("Site")**
Site Address: **5392 State Route 19, Town of Amity, New York**
Site County: **Allegany County**
Site Number: **C902019**

1. What is New York's Brownfield Cleanup Program?

New York's Brownfield Cleanup Program (BCP) works with private developers to encourage the voluntary cleanup of contaminated properties known as "brownfields" so that they can be reused and developed. These uses include recreation, housing, and business.

A *brownfield* is any real property that is difficult to reuse or redevelop because of the presence or potential presence of contamination. A brownfield typically is a former industrial or commercial property where operations may have resulted in environmental contamination. A brownfield can pose environmental, legal, and financial burdens on a community. If a brownfield is not addressed, it can reduce property values in the area and affect economic development of nearby properties.

The BCP is administered by the New York State Department of Environmental Conservation (NYSDEC) which oversees Applicants that conduct brownfield site investigation and cleanup activities. An Applicant is a person who has requested to participate in the BCP and has been accepted by NYSDEC. The BCP contains investigation and cleanup requirements, ensuring that cleanups protect public health and the environment. When NYSDEC certifies that these requirements have been met, the property can be reused or redeveloped for the intended use.

For more information about the BCP, go online at: http://www.dec.ny.gov/chemical/8450.html .

2. Citizen Participation Activities

Why NYSDEC Involves the Public and Why It Is Important

NYSDEC involves the public to improve the process of investigating and cleaning up contaminated sites, and to enable citizens to participate more fully in decisions that affect their health, environment, and social well being. NYSDEC provides opportunities for citizen involvement and encourages early two-way communication with citizens before decision makers form or adopt final positions.

Involving citizens affected and interested in site investigation and cleanup programs is important for many reasons. These include:

- Promoting the development of timely, effective site investigation and cleanup programs that protect public health and the environment

- Improving public access to, and understanding of, issues and information related to a particular site and that site's investigation and cleanup process

- Providing citizens with early and continuing opportunities to participate in NYSDEC's site investigation and cleanup process

- Ensuring that NYSDEC makes site investigation and cleanup decisions that benefit from input that reflects the interests and perspectives found within the affected community

- Encouraging dialogue to promote the exchange of information among the affected/interested public, State agencies, and other interested parties that strengthens trust among the parties, increases understanding of site and community issues and concerns, and improves decision making.

This Citizen Participation (CP) Plan provides information about how NYSDEC will inform and involve the public during the investigation and cleanup of the site identified above. The public information and involvement program will be carried out with assistance, as appropriate, from the Applicant.

Project Contacts

Appendix A identifies NYSDEC project contact(s) to whom the public should address questions or request information about the site's investigation and cleanup program. The public's suggestions about this CP Plan and the CP program for the site are always welcome. Interested people are encouraged to share their ideas and suggestions with the project contacts at any time.

Locations of Reports and Information

The locations of the reports and information related to the site's investigation and cleanup program also are identified in Appendix A. These locations provide convenient access to important project documents for public review and comment. Some documents may be placed on the NYSDEC web site. If this occurs, NYSDEC will inform the public in fact sheets distributed about the site and by other means, as appropriate.

Site Contact List

Appendix B contains the site contact list. This list has been developed to keep the community informed about, and involved in, the site's investigation and cleanup process. The site contact list will be used periodically to distribute fact sheets that provide updates about the status of the project. These will include notifications of upcoming activities at the site (such as fieldwork), as well as availability of project documents and announcements about public comment periods. The site contact list includes, at a minimum:

- chief executive officer and planning board chairperson of each county, city, town and village in which the site is located;
- residents, owners, and occupants of the site and properties adjacent to the site;
- the public water supplier which services the area in which the site is located;
- any person who has requested to be placed on the site contact list;
- the administrator of any school or day care facility located on or near the site for purposes of posting and/or dissemination of information at the facility;
- location(s) of reports and information.

The site contact list will be reviewed periodically and updated as appropriate. Individuals and organizations will be added to the site contact list upon request. Such requests should be submitted to the NYSDEC project contact(s) identified in Appendix A. Other additions to the site contact list may be made at the discretion of the NYSDEC project manager, in consultation with other NYSDEC staff as appropriate.

CP Activities

The table at the end of this section identifies the CP activities, at a minimum, that have been and will be conducted during the site's investigation and cleanup program. The flowchart in Appendix D shows how these CP activities integrate with the site investigation and cleanup process. The public is informed about these CP activities through fact sheets and notices distributed at significant points during the program. Elements of the investigation and cleanup process that match up with the CP activities are explained briefly in Section 5.

- **Notices and fact sheets** help the interested and affected public to understand contamination issues related to a site, and the nature and progress of efforts to investigate and clean up a site.

- **Public forums, comment periods and contact with project managers** provide opportunities for the public to contribute information, opinions and perspectives that have potential to influence decisions about a site's investigation and cleanup.

The public is encouraged to contact project staff at any time during the site's investigation and cleanup process with questions, comments, or requests for information.
This CP Plan may be revised due to changes in major issues of public concern identified in Section 3 or in the nature and scope of investigation and cleanup activities. Modifications may include additions to the site contact list and changes in planned citizen participation activities.

Technical Assistance Grant

NYSDEC must determine if the site poses a significant threat to public health or the environment. This determination generally is made using information developed during the investigation of the site, as described in Section 5.

If the site is determined to be a significant threat, a qualifying community group may apply for a Technical Assistance Grant (TAG). The purpose of a TAG is to provide funds to the qualifying group to obtain independent technical assistance. This assistance helps the TAG recipient to interpret and understand existing environmental information about the nature and extent of contamination related to the site and the development/implementation of a remedy.

An eligible community group must certify that its membership represents the interests of the community affected by the site, and that its members' health, economic well-being or enjoyment of the environment may be affected by a release or threatened release of contamination at the site.

For more information about TAGs, go online at http://www.dec.ny.gov/regulations/2590.html

Note: The table identifying the citizen participation activities related to the site's investigation and cleanup program follows on the next page:

Citizen Participation Requirements (Activities)	Timing of CP Activity(ies)
Application Process:	
• Prepare Citizen Participation (CP) Plan • Prepare RI Work Plan • Prepare site contact list • Establish document repositories	At time of preparation of application to participate in the BCP (before start of Remedial Investigation)
• Publish notice in Environmental Notice Bulletin (ENB) announcing receipt of application and 30-day public comment period • Publish above ENB content in local newspaper • Mail above ENB content to site contact list • Distribute fact sheet to site contact list about proposed RI activities and announcing 30-day public comment period about draft RI Work Plan • Conduct 30-day public comment period	When NYSDEC determines that BCP application is complete. The 30-day public comment period begins on date of publication of notice in ENB. End date of public comment period is as stated in ENB notice. Therefore, ENB notice, newspaper notice, notice to the site contact list, and RI work plan fact sheet should be provided to the public at the same time. Thirty-day public comment period begins/ends as per dates identified in fact sheet, ending before NYSDEC approves RI Work Plan.
After Applicant Completes Remedial Investigation:	
• Distribute fact sheet to site contact list that describes RI results	Before NYSDEC approves RI Report
Before NYSDEC Approves Remedial Work Plan (RWP):	
• Distribute fact sheet to site contact list about proposed RWP and announcing 45-day public comment period • Public meeting by NYSDEC about proposed RWP (if requested by affected community or at discretion of NYSDEC project manager) • Conduct 45-day public comment period	Before NYSDEC approves RWP. Forty-five day public comment period begins/ends as per dates identified in fact sheet. Public meeting would be held within the 45-day public comment period.
Before Applicant Starts Cleanup Action:	
• Distribute fact sheet to site contact list that describes upcoming cleanup action	Before the start of cleanup action.
After Applicant Completes Cleanup Action:	
• Distribute fact sheet to site contact list that announces that cleanup action has been completed and that summarizes the Final Engineering Report • Distribute fact sheet to site contact list announcing issuance of Certificate of Completion (COC)	At the time NYSDEC approves Final Engineering Report. These two fact sheets are combined if possible if there is not a delay in issuing the COC.

3. Major Issues of Public Concern

This section of the CP Plan identifies major issues of public concern that relate to the site. Additional major issues of public concern may be identified during the course of the site's investigation and cleanup process.

The major issue of public concern is potential exposure to on-site contamination by the chlorinated solvent compound known as trichloroethylene (TCE) which has been identified in soil and groundwater at the site. The presence of TCE could affect the indoor air of site buildings through soil vapor intrusion, or migrate off-site in groundwater or through surface water drainage along the boundaries of the site. This would be of concern to owners and users of adjacent properties, to local residents, and to the Town of Amity.

Since the site obtains drinking water from a private water supply well, it is presumed that surrounding properties also use well water. Based on the information available at this time, it appears unlikely that private wells that may be present on adjacent properties would be impacted by the groundwater contamination identified at the site. The expected direction of groundwater flow at the site is to the east or northeast towards areas that are undeveloped meadows and agricultural fields. It is therefore likely that the area of groundwater contamination identified on the property is downgradient or cross-gradient from private wells on adjacent properties.

Available records indicate that there are public water supply wells located on non-adjacent properties on the far side of the Genesee River to the east and southeast of the site. Currently available information indicate that it is unlikely that the contamination detected on the property would impact the documented water supply wells present in the area surrounding the site.

The remedial activities selected and carried out during the Brownfield process will be appropriate to enable commercial or industrial use of the site and will significantly decrease or eliminate the migration of contaminants. This will be accomplished though such possible means as contaminated soil removal, treatment of residual contaminants to reduce their levels, installation of sub-slab depressurization systems in future on-site buildings, and periodic monitoring to ensure contaminant levels are decreasing over time. These activities will minimize the potential for concerns with public health and the environment.

4. Site Information

Appendix C contains a map identifying the location of the site.

Site Description

The Former Allegany Bitumens Belmont Asphalt Plant is a 4.885 acre parcel located at 5392 State Route 19 in the Town of Amity, Allegany County, New York. It is located in a predominantly rural/agricultural area with some industrial, commercial, and residential land usage. Agricultural farm houses and barns and single family non-farm residences are located

along Route 19 to the north and southeast of the property and along Friendship Hill Road (Tuckers Corner Road) to the west of the property. Undeveloped wooded property is located to the southwest of the property along Tucker's Creek and its small tributaries. Agricultural fields are located to the east, and an unused vehicle maintenance shop and office building are located to the west across Route 19.

History of Site Use, Investigation, and Cleanup

Prior to March 1960, the site had a series of owners and was used for agricultural purposes or was undeveloped. In March 1960, A.L. Blades and Sons, Inc. (now known as Blades Holding Company, Inc.) purchased the site, but, based on available documentation, did not operate at the site. The site was sold to Allegany Bitumens, Inc., an affiliate of Blades, in May 1960. A hot-mix asphalt plant was constructed on the site in approximately 1960. A laboratory for quality control testing of aggregate and asphalt products was also constructed at the site, along with a weigh scale and scale house. Blades merged with Allegany Bitumens, Inc. in 1995 and Blades operated the site from that time through 2005, when site operations ceased.

A Phase I Environmental Site Assessment (ESA), performed in connection with real estate due diligence activities in December 2009 and consisting of a regulatory database search, a historical search, and a site visit, found that until approximately 1999, the laboratory used TCE in sample testing operations. The laboratory building had its own septic system which reportedly received waste from the sinks and toilet in the laboratory, and although discharges of TCE to the septic system were not reported to have occurred, the Phase I ESA identified the potential for historic releases of TCE through the septic system as a potential environmental concern. An investigation program in the vicinity of the septic system leach field was recommended.

During December 2009 Phase II ESA site investigations, contamination by chlorinated solvent compounds, principally TCE, was detected in shallow soil and groundwater. The laboratory building and the four soil and groundwater test borings sampled during the site investigations are located in the northwest corner of the Site, near the property line. The contamination was found in the area of an outdoor container storage pad associated with the laboratory. Indications of soil contamination were encountered at depths of 5 to 10 feet below ground surface (bgs) in two test borings, and TCE was detected in soil samples from these borings at concentrations above the Department's soil cleanup objectives. The water table at the site was encountered at depths of 9 to 10 feet below ground surface, and TCE and related compounds were detected in three groundwater samples at concentrations above groundwater standards. To date, no off-site investigations have been performed to determine whether impacts extend beyond the property line.

5. Investigation and Cleanup Process

Application

The Applicant has applied for acceptance into New York's Brownfield Cleanup Program as a Participant. This means that the Applicant was the owner of the site at the time of the disposal or

discharge of contaminants or was otherwise liable for the disposal or discharge of the contaminants. The Participant must fully characterize the nature and extent of contamination onsite, as well as the nature and extent of contamination that has migrated from the site. The Participant also must conduct a "qualitative exposure assessment", a process that characterizes the actual or potential exposures of people, fish and wildlife to contaminants on the site and to contamination that has migrated from the site.

The Applicant in its Application proposes that the site will be used for restricted commercial purposes.

To achieve this goal, the Applicant will conduct investigation and cleanup activities at the site with oversight provided by NYSDEC. The Brownfield Cleanup Agreement executed by NYSDEC and the Applicant sets forth the responsibilities of each party in conducting these activities at the site.

Investigation

The Applicant has completed a partial site investigation before it entered into the BCP. For the partial investigation, NYSDEC will determine if the data are useable.

The Applicant will conduct an investigation of the site officially called a "remedial investigation" (RI). This investigation will be performed with NYSDEC oversight. The Applicant must develop a remedial investigation workplan, which is subject to public comment.

The site investigation has several goals:

1) define the nature and extent of contamination in soil, surface water, groundwater and any other parts of the environment that may be affected;
2) identify the source(s) of the contamination;
3) assess the impact of the contamination on public health and the environment; and
4) provide information to support the development of a proposed remedy to address the contamination or the determination that cleanup is not necessary.

When the investigation is complete, the Applicant will prepare and submit a report that summarizes the results. This report also will recommend whether cleanup action is needed to address site-related contamination. The investigation report is subject to review and approval by NYSDEC.

NYSDEC will use the information in the investigation report to determine if the site poses a significant threat to public health or the environment. If the site is a "significant threat", it must be cleaned up using a remedy selected by NYSDEC from an analysis of alternatives prepared by the Applicant and approved by NYSDEC. If the site does not pose a significant threat, the Applicant may select the remedy from the approved analysis of alternatives.

Remedy Selection

When the investigation of the site has been determined to be complete, the project likely would proceed in one of two directions:

1. The Applicant may recommend in its investigation report that no action is necessary at the site. In this case, NYSDEC would make the investigation report available for public comment for 45 days. NYSDEC then would complete its review, make any necessary revisions, and, if appropriate, approve the investigation report. NYSDEC would then issue a "Certificate of Completion" (described below) to the Applicant.

or

2. The Applicant may recommend in its investigation report that action needs to be taken to address site contamination. After NYSDEC approves the investigation report, the Applicant may then develop a cleanup plan, officially called a "Remedial Work Plan". The Remedial Work Plan describes the Applicant's proposed remedy for addressing contamination related to the site.

When the Applicant submits a proposed Remedial Work Plan for approval, NYSDEC would announce the availability of the proposed plan for public review during a 45-day public comment period.

Cleanup Action

NYSDEC will consider public comments, and revise the draft cleanup plan if necessary, before approving the proposed remedy. The New York State Department of Health (NYSDOH) must concur with the proposed remedy. After approval, the proposed remedy becomes the selected remedy.

The Applicant may then design and perform the cleanup action to address the site contamination. NYSDEC and NYSDOH oversee the activities. When the Applicant completes cleanup activities, it will prepare a final engineering report that certifies that cleanup requirements have been achieved or will be achieved within a specific time frame. NYSDEC will review the report to be certain that the cleanup is protective of public health and the environment for the intended use of the site.

Certificate of Completion

When NYSDEC is satisfied that cleanup requirements have been achieved or will be achieved for the site, it will approve the final engineering report. NYSDEC then will issue a Certificate of Completion (COC) to the Applicant. The COC states that cleanup goals have been achieved, and relieves the Applicant from future liability for site-related contamination, subject to certain conditions. The Applicant would be eligible to redevelop the site after it receives a COC.

Site Management

Site management is the last phase of the site cleanup program. This phase begins when the COC is issued. Site management may be conducted by the Applicant under NYSDEC oversight, if contamination will remain in place. Site management incorporates any institutional and engineering controls required to ensure that the remedy implemented for the site remains protective of public health and the environment. All significant activities are detailed in a Site Management Plan.

An institutional control is a non-physical restriction on use of the site, such as a deed restriction that would prevent or restrict certain uses of the property. An institutional control may be used when the cleanup action leaves some contamination that makes the site suitable for some, but not all uses.

An engineering control is a physical barrier or method to manage contamination. Examples include: caps, covers, barriers, fences, and treatment of water supplies.

Site management also may include the operation and maintenance of a component of the remedy, such as a system that is pumping and treating groundwater. Site management continues until NYSDEC determines that it is no longer needed.

Appendix A
Project Contacts and Locations of Reports and Information

Project Contacts

For information about the site's investigation and cleanup program, the public may contact any of the following project staff:

New York State Department of Environmental Conservation (NYSDEC):

William Murray
Project Manager
NYSDEC Region 9
Division of Environmental Remediation
270 Michigan Avenue
Buffalo NY 14203-2999
716-851-7220
wpmurray@gw.dec.state.ny.us

Mark Baetzhold
Citizen Participation Specialist
NYSDEC Region 9
270 Michigan Avenue
Buffalo NY 14203-2915
716-851-7220
mtbaetzh@gw.dec.state.ny.us

New York State Department of Health (NYSDOH):

{insert name of project manager}
Project Manager
NYSDOH
{insert central or regional office address}
{insert a contact telephone number}
{Email}

Participant Contact Information

Blades Holding Company, Inc.
c/o Robert U. Blades, Jr. or Christopher L. Blades
P.O. Box 12
Arkport, New York 14807
607-324-3636
rublades@alblades.com
clblades@alblades.com

Environmental Consultant

Stantec Consulting Services Inc.
Michael Storonsky
2250 Brighton Henrietta Town Line Road
Rochester, New York 14623
Telephone: 585-413-5620
mike.storonsky@stantec.com

Locations of Reports and Information

The facilities identified below are being used to provide the public with convenient access to important project documents:

Belmont Literary & Historical Society Free Library
2 Willets Avenue
Belmont, NY 14813
Attn: Carrie Jefferds, Library Director
Phone: 585-268-5308
Hours: Tues 1 pm - 7 pm
Thurs 9 am - 1 pm
Fri 1 pm - 7 pm
Sat 1 pm - 5 pm

NYSDEC Region 9
270 Michigan Avenue
Buffalo NY 14203-2999
Attn: William Murray
Phone: 716-851-7220
Hours: Mon-Fri 8:00 am - 4:30 pm
(call for appointment)

Appendix B – Site Contact List

Allegany County Officials

John E. Margeson
County Administrator
7 Court Street
Belmont, New York 14813

Allegany County Planning Board
Ron Stuck, Chairman
Crossroads Commerce & Conference Center
6087 NYS Route 19 North
Belmont, NY 14813

Town of Amity Officials

Lois Reynolds
Town Supervisor
5115 Noble St.
Belmont, NY 14813

Richard E. Winterhalter
Town Clerk
1 Schuyler Street
Belmont, NY 14813

John Clouse
Town Code Enforcement
1 Schuyler Street
Belmont, NY 14813

Adjacent Property Owners and Occupants

Blades Holding Company, Inc. (formerly A.L. Blades and Sons, Inc.)
(Owner - 5652 Tuckers Corners Rd. and 5379 Belvidere Rd.)
Attn.: Robert Blades
PO Box 12
Arkport NY 14807

Ralph W. Keesler
(Owner, Tax parcel 171.-1-59)
5305 St Rte 19 N
Belmont, NY 14813

Edward Hanchett
(Owner - 5418 Belvidere Rd.)
5418 NYS Route 19
Belmont, NY 14813

Theodore and Lana Phillips
(Owner - 5344 Belvidere Rd.)
5344 NYS Route 19
Belmont, NY 14813

Phyllis J. Benjamin
(Owner - 5324 Old State Rd.)
5324 Old State Rd
Belmont NY 14813

Angela M. Newberry
(Owner - 5407 Belvidere Rd.)
5407 NYS Route 19N
Belmont NY 14813

News Media Contacts

News Director
WUHF
201 Humboldt St.
Rochester, New York 14610

News Director
WGRZ-TV
259 Delaware Ave.
Buffalo, NY 14202

News Director
WKBW-TV
7 Broadcast Plaza
Buffalo, NY 14202

News Director
WIVB / WNLO-TV
2077 Elmwood Ave
Buffalo, NY 14207

News Director
WLSV-AM
82 Railroad Avenue
Wellsville, NY 14895

News Director
WJQZ-FM
82 Railroad Avenue
Wellsville, NY 14895

John Anderson – News Editor
Wellsville Daily Reporter
159 North Main Street
Wellsville, NY 14895

News Editor
Cuba Patriot
25 W. Main Street
Cuba, NY 14727

Dave Snyder
Alfred Sun
764 Route 244
Alfred, NY 14802

Public Water Supplier

Dorr Glover
Village of Belmont Water Department
Erie Street and Willard Street
Belmont, NY

Persons who have requested being included on the contact list

Mike Storonsky
Stantec Consulting Services Inc.
2250 Brighton Henrietta Townline Road
Rochester NY 14623

Paul Sylvestri, Esq.
Harter Secrest and Emery LLP
1600 Bausch and Lomb Place
Rochester NY 14604

Nearby School and Day Care Facility Administrators

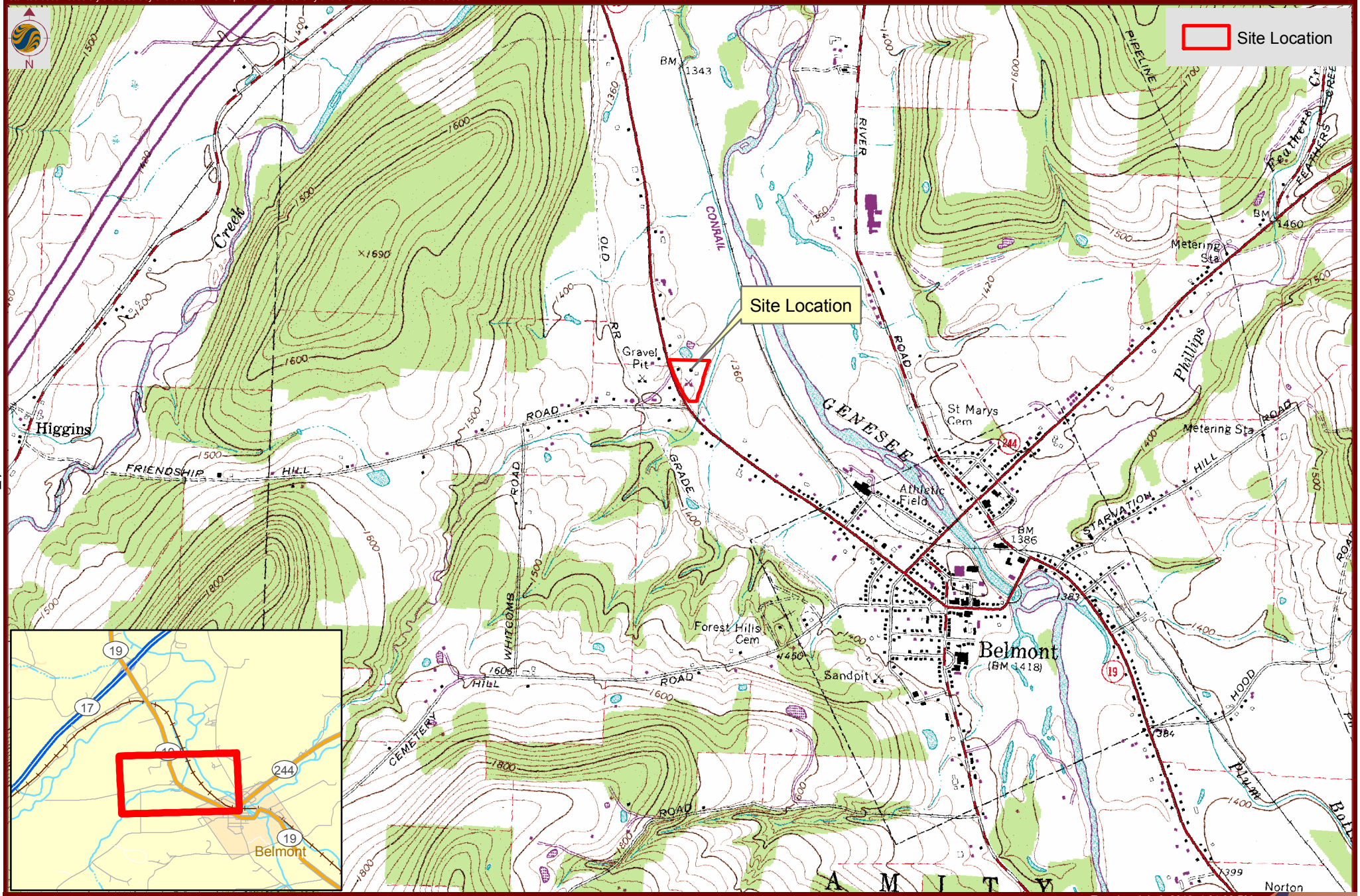
No schools or day-care centers are known to be present within one-half mile of the property boundary.

Document Repository

The document repository for the project will be Belmont Literary and Historical Society Free Library located in the Village of Belmont.

Belmont Literary & Historical Society Free Library
Attn: Carrie Jefferds, Library Director
2 Willets Avenue
Belmont, NY 14813

Appendix C – Site Location Map



17

Geographic Information Systems

Map Source : NYSGIS Clearinghouse Web Site

Cartographic Design By: Andrew Less

Tuesday, July 6, 2010 1:21:32 PM
U:\190500593\drawing\Work Plan Figures\Appendix C - Site Location Map.mxd

Stantec Consulting
2250 Brighton Henrietta Townline Road
Rochester, NY 14623
Phone 585.475.1440 Fax 585.424.5951
www.stantec.com

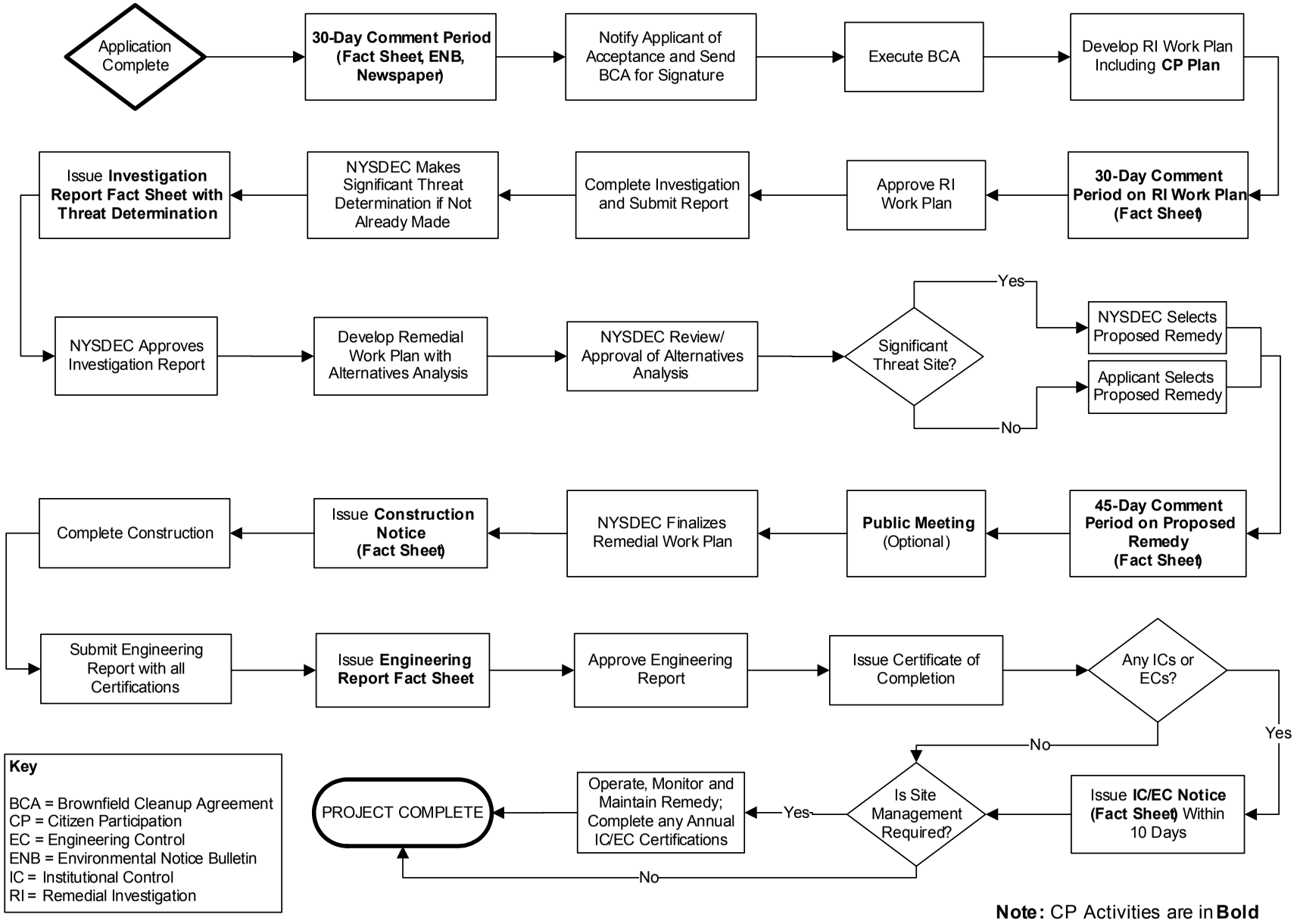
1 inch = 2,000 feet

0 1,000 2,000 4,000 Feet

Allegany Bitumens Belmont Asphalt Plant Site

Appendix C - Site Location Map

Appendix D– Brownfield Cleanup Program Process



Appendix D

Appendix D

Community Air Monitoring Plan

Appendix 1A
New York State Department of Health
Generic Community Air Monitoring Plan

Overview

A Community Air Monitoring Plan (CAMP) requires real-time monitoring for volatile organic compounds (VOCs) and particulates (i.e., dust) at the downwind perimeter of each designated work area when certain activities are in progress at contaminated sites. The CAMP is not intended for use in establishing action levels for worker respiratory protection. 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 investigative and remedial work activities. The action levels specified herein require increased monitoring, corrective actions to abate emissions, and/or work shutdown. Additionally, the CAMP helps to confirm that work activities did not spread contamination off-site through the air.

The generic CAMP presented below will be sufficient to cover many, if not most, sites. Specific requirements should be reviewed for each situation in consultation with NYSDOH to ensure proper applicability. In some cases, a separate site-specific CAMP or supplement may be required. Depending upon the nature of contamination, chemical- specific monitoring with appropriately-sensitive methods may be required. Depending upon the proximity of potentially exposed individuals, more stringent monitoring or response levels than those presented below may be required. Special requirements will be necessary for work within 20 feet of potentially exposed individuals or structures and for indoor work with co-located residences or facilities. These requirements should be determined in consultation with NYSDOH.

Reliance on the CAMP should not preclude simple, common-sense measures to keep VOCs, dust, and odors at a minimum around the work areas.

Community Air Monitoring Plan

Depending upon the nature of known or potential contaminants at each site, real-time air monitoring for VOCs and/or particulate levels at the perimeter of the exclusion zone or work area will be necessary. Most sites will involve VOC and particulate monitoring; sites known to be contaminated with heavy metals alone may only require particulate monitoring. If radiological contamination is a concern, additional monitoring requirements may be necessary per consultation with appropriate DEC/NYSDOH staff.

Continuous monitoring will be required for all ground intrusive activities and during the demolition of contaminated or potentially contaminated structures. Ground intrusive activities include, but are not limited to, soil/waste excavation and handling, test pitting or trenching, and the installation of soil borings or monitoring wells.

Periodic monitoring for VOCs will be required during non-intrusive activities such as the collection of soil and sediment samples or the collection of groundwater samples from existing monitoring wells. “Periodic” monitoring during sample collection might reasonably consist of taking a reading upon arrival at a sample location, monitoring while opening a well cap or

overturning soil, monitoring during well baling/purging, and taking a reading prior to leaving a sample location. In some instances, depending upon the proximity of potentially exposed individuals, continuous monitoring may be required during sampling activities. Examples of such situations include groundwater sampling at wells on the curb of a busy urban street, in the midst of a public park, or adjacent to a school or residence.

VOC Monitoring, Response Levels, and Actions

Volatile organic compounds (VOCs) must be monitored at the downwind perimeter of the immediate work area (i.e., the exclusion zone) on a continuous basis or as otherwise specified. Upwind concentrations should be measured at the start of each workday and periodically thereafter to establish background conditions, particularly if wind direction changes. The monitoring work should be performed using equipment appropriate to measure the types of contaminants known or suspected to be present. The equipment should be calibrated at least daily for the contaminant(s) of concern or for an appropriate surrogate. The equipment should be capable of calculating 15-minute running average concentrations, which will be compared to the levels specified below.

1. 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) above background for the 15-minute average, work activities must 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.

2. 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 less than 25 ppm, work activities must 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 in no case less than 20 feet, is below 5 ppm over background for the 15-minute average.

3. If the organic vapor level is above 25 ppm at the perimeter of the work area, activities must be shutdown.

4. All 15-minute readings must be recorded and be available for State (DEC and NYSDOH) personnel to review. Instantaneous readings, if any, used for decision purposes should also be recorded.

Particulate Monitoring, Response Levels, and Actions

Particulate concentrations should be monitored continuously at the upwind and downwind perimeters of the exclusion zone at temporary particulate monitoring stations. The particulate monitoring should be performed using real-time monitoring equipment capable of measuring particulate matter less than 10 micrometers in size (PM-10) and capable of integrating over a period of 15 minutes (or less) for comparison to the airborne particulate action level. The equipment must be equipped with an audible alarm to indicate exceedance of the action level. In addition, fugitive dust migration should be visually assessed during all work activities.

1. If the downwind PM-10 particulate level is 100 micrograms per cubic meter (mcg/m^3) greater than background (upwind perimeter) for the 15-minute period or if airborne dust is observed leaving the work area, then dust suppression techniques must be employed. Work may continue with dust suppression techniques provided that downwind PM-10 particulate levels do not exceed 150 mcg/m^3 above the upwind level and provided that no visible dust is migrating from the work area.

2. If, after implementation of dust suppression techniques, downwind PM-10 particulate levels are greater than 150 mcg/m^3 above the upwind level, work must be stopped and a re-evaluation of activities initiated. Work can resume provided that dust suppression measures and other controls are successful in reducing the downwind PM-10 particulate concentration to within 150 mcg/m^3 of the upwind level and in preventing visible dust migration.

3. All readings must be recorded and be available for State (DEC and NYSDOH) and County Health personnel to review.

December 2009

Appendix 1B
Fugitive Dust and Particulate Monitoring

A program for suppressing fugitive dust and particulate matter monitoring at hazardous waste sites is a responsibility on the remedial party performing the work. These procedures must be incorporated into appropriate intrusive work plans. The following fugitive dust suppression and particulate monitoring program should be employed at sites during construction and other intrusive activities which warrant its use:

1. Reasonable fugitive dust suppression techniques must be employed during all site activities which may generate fugitive dust.

2. Particulate monitoring must be employed during the handling of waste or contaminated soil or when activities on site may generate fugitive dust from exposed waste or contaminated soil. Remedial activities may also include the excavation, grading, or placement of clean fill. These control measures should not be considered necessary for these activities.

3. Particulate monitoring must be performed using real-time particulate monitors and shall monitor particulate matter less than ten microns (PM10) with the following minimum performance standards:

(a) Objects to be measured: Dust, mists or aerosols;
(b) Measurement Ranges: 0.001 to 400 mg/m3 (1 to 400,000 :ug/m3);
(c) Precision (2-sigma) at constant temperature: +/- 10 :g/m3 for one second averaging; and +/- 1.5 g/m3 for sixty second averaging;
(d) Accuracy: +/- 5% of reading +/- precision (Referred to gravimetric calibration with SAE fine test dust (mmd= 2 to 3 :m, g= 2.5, as aerosolized);
(e) Resolution: 0.1% of reading or 1g/m3, whichever is larger;
(f) Particle Size Range of Maximum Response: 0.1-10;
(g) Total Number of Data Points in Memory: 10,000;
(h) Logged Data: Each data point with average concentration, time/date and data point number
(i) Run Summary: overall average, maximum concentrations, time/date of maximum, total number of logged points, start time/date, total elapsed time (run duration), STEL concentration and time/date occurrence, averaging (logging) period, calibration factor, and tag number;
(j) Alarm Averaging Time (user selectable): real-time (1-60 seconds) or STEL (15 minutes), alarms required;
(k) Operating Time: 48 hours (fully charged NiCd battery); continuously with charger;
(l) Operating Temperature: -10 to 50^{o} C (14 to 122^{o} F);
(m) Particulate levels will be monitored upwind and immediately downwind at the working site and integrated over a period not to exceed 15 minutes.

4. In order to ensure the validity of the fugitive dust measurements performed, there must be appropriate Quality Assurance/Quality Control (QA/QC). It is the responsibility of the remedial party to adequately supplement QA/QC Plans to include the following critical features: periodic instrument calibration, operator training, daily instrument performance (span) checks, and a record keeping plan.

5. The action level will be established at 150 ug/m3 (15 minutes average). While conservative,

this short-term interval will provide a real-time assessment of on-site air quality to assure both health and safety. If particulate levels are detected in excess of 150 ug/m3, the upwind background level must be confirmed immediately. If the working site particulate measurement is greater than 100 ug/m3 above the background level, additional dust suppression techniques must be implemented to reduce the generation of fugitive dust and corrective action taken to protect site personnel and reduce the potential for contaminant migration. Corrective measures may include increasing the level of personal protection for on-site personnel and implementing additional dust suppression techniques (see paragraph 7). Should the action level of 150 ug/m3 continue to be exceeded work must stop and DER must be notified as provided in the site design or remedial work plan. The notification shall include a description of the control measures implemented to prevent further exceedances.

6. It must be recognized that the generation of dust from waste or contaminated soil that migrates off-site, has the potential for transporting contaminants off-site. There may be situations when dust is being generated and leaving the site and the monitoring equipment does not measure PM10 at or above the action level. Since this situation has the potential to allow for the migration of contaminants off-site, it is unacceptable. While it is not practical to quantify total suspended particulates on a real-time basis, it is appropriate to rely on visual observation. If dust is observed leaving the working site, additional dust suppression techniques must be employed. Activities that have a high dusting potential--such as solidification and treatment involving materials like kiln dust and lime--will require the need for special measures to be considered.

7. The following techniques have been shown to be effective for the controlling of the generation and migration of dust during construction activities:

(a) Applying water on haul roads;
(b) Wetting equipment and excavation faces;
(c) Spraying water on buckets during excavation and dumping;
(d) Hauling materials in properly tarped or watertight containers;
(e) Restricting vehicle speeds to 10 mph;
(f) Covering excavated areas and material after excavation activity ceases; and
(g) Reducing the excavation size and/or number of excavations.

Experience has shown that the chance of exceeding the 150ug/m3 action level is remote when the above-mentioned techniques are used. When techniques involving water application are used, care must be taken not to use excess water, which can result in unacceptably wet conditions. Using atomizing sprays will prevent overly wet conditions, conserve water, and provide an effective means of suppressing the fugitive dust.

8. The evaluation of weather conditions is necessary for proper fugitive dust control. When extreme wind conditions make dust control ineffective, as a last resort remedial actions may need to be suspended. There may be situations that require fugitive dust suppression and particulate monitoring requirements with action levels more stringent than those provided above. Under some circumstances, the contaminant concentration and/or toxicity may require additional monitoring to protect site personnel and the public. Additional integrated sampling and chemical analysis of the dust may also be in order. This must be evaluated when a health and safety plan is developed and when appropriate suppression and monitoring requirements are established for protection of health and the environment.

Appendix E

Appendix E

Qualifications for Principal Personnel

MICHAEL STORONSKY
Project Manager

Stantec

With 30 years of experience from consulting and regulatory perspectives, Mr. Storonsky is Stantec's Tri-State Region Environmental Management Managing Leader. He regularly works with public and private sector clients and agencies to investigate and remediate hazardous waste and petroleum contaminated properties, including New York State Brownfield Cleanup Program sites, Environmental Restoration Program sites, Voluntary Cleanup Program sites, Inactive Hazardous Waste Sites, and Petroleum Spill sites.

EDUCATION

Bachelor of Science, Wildlife Biology, SUNY College of Environmental Science and Forestry, Syracuse, New York, 1979

Associate in Applied Science, Fish and Wildlife Technology, SUNY Agricultural and Technical College, Cobleskill, New York, 1976

EXPERIENCE

ERP, Former APCO Property, Rochester, New York (Project Manager) Managed a $4.05-million ERP for the City of Rochester of two adjoining former contractor's yard on 7 acres of land surrounded on all four sides by 43 houses. Activities completed included Site Characterization (SC), Remedial Investigation (RI), Feasibility Study (FS), Interim Remedial Measures (IRM) involving the removal of six USTs, 13 ASTs and numerous miscellaneous smaller containers of hazardous substances and petroleum products, Design Phase Investigation (DPI), Remedial Design (RD), Engineering Services during Remedial Construction (RC), QA/QC development and implementation, Site Management (SM), Citizen Participation Program activities (CPP), HASP development and implementation, and soil vapor intrusion (SVI) investigations. The CPP involved regularly scheduled meetings with the neighborhood association and their members, conducting a Design Charrette with reference to site redevelopment options, meeting individually with impacted neighbors to explain proposed activities and assist the city with obtaining access agreements. RC activities included the excavation and disposal of 26,000+ tons of SVOC, heavy metal and pesticide contaminated soils, construction and demolition debris, and asbestos containing materials; installation of an oxygen injection system to conduct in-situ bioremediation of two petroleum contaminated groundwater plumes which extended onto neighboring residential properties; and construction of a 5,200 cu.yd. ex-situ bioremediation cell to treat petroleum-contaminated soil. Operations, monitoring and maintenance activities were successfully completed for the two remedial systems with groundwater reaching drinking water standards. This urban site was redeveloped as a 27-unit single-family residential market rate subdivision with lots selling out during a two weekend open house. The project won one local award and two state awards for environmental engineering excellence from the American Public Works Association and the American Council of Engineering Consultants.

BCAs, Ward Street and 8-28 Ward Street Sites, Rochester, New York (Project Manager) Managed two adjacent BCA sites at the Germanow-Simon Corporation manufacturing facility involving PCE, TCE, Stoddard Solvent, and petroleum soil and groundwater contamination in both overburden and bedrock. Activities completed included SC, RI, FS, IRM involving the removal of nine USTs, Pilot Study, RD, RC, QA/QC, SM, CPP activities, HASP, and SVI investigation and mitigation.

The SC and RI identified chlorinated solvents and petroleum compounds in soil vapor, soil and both overburden and fractured bedrock groundwater beneath an active manufacturing building, within parking areas, and extending off-site into the public right-of-way. A Multi Phase Vacuum Extraction (MPVE) Pilot Study verified the suitability of this technology for the site. The RC involved a 50 hp MPVE system to remove the source, remove contaminants from both overburden and bedrock groundwater, and control off-site migration. Certificates of completion were obtained in December 2006 and December 2008 for these two adjacent sites. SM operations, monitoring and maintenance (OM&M) activities have been performed for the past three years and the system is proposed to be operated in cyclic mode during 2010 to maximize contaminant removal. Since the MPVE system went operational, chlorinated solvent concentrations in the most contaminated well has decreased from 205 ppm to 5 ppm.

To eliminate SVI a sub-slab depressurization system was installed and will be operated during periods of MPVE system shutdown. Stantec has completed bench scale testing of the use of enhanced reductive dechlorination on soil and groundwater samples from this site in our in-house laboratory. This testing successfully demonstrated that the addition of sodium lactate, which will serve as an electron donor, should enhance reductive dechlorination and further reduce residual groundwater concentrations through biodegradation once the MPVE system reaches asymptotic conditions. It is proposed to use the MPVE system to introduce and circulate the sodium lactate solution within the affected areas.

VCA, Finger Lakes Laundry and Cleaners, Geneva, New York (Project Manager) Managed the investigation and cleanup of this former dry cleaner pursuant to a VCA. Activities completed included SC, RI, FS, DPI, RD, RC, QA/QC, SM, HASP, and SVI investigations. Chlorinated solvent and Stoddard solvent contamination was remediated using source removal of the most significantly impacted soils (VOC concentrations in excess of 200 ppm) and installation of a 200 ft. long permeable reactive barrier comprised of zero valent iron and sand to prevent off-site migration of chlorinated VOC contaminated groundwater (at concentrations up to 70 ppm) towards the single family homes located directly across the street. Following successful implementation of the remedial measures, as demonstrated by the marked decreases in contaminant concentrations in groundwater (post-remediation chlorinated VOC concentrations upgradient of the PRB remain less than 1 ppm and downgradient they are non-detect), the groundwater monitoring program has been decreased from quarterly to bi-annual.

VCA, Rochester Technology Park Sub-Slab Depressurization Systems (SSDSs), Gates, New York (Project Manager) Managed the investigation, design, installation and OM&M of two SSDSs at a 600,000 sq. ft. former Kodak facility to mitigate TCE SVI. Activities completed included DPI, IRM Design, Engineering Services during IRM Construction, QA/QC, SM and HASP. The DPI included pressure extension testing, concrete testing, and SVI surveys. OM&M activities are ongoing.

BCA, Buell Automatics, Rochester, New York (Project Manager) Managing this BCA at an active manufacturing facility involving TCE and 1,1,1-TCA soil and groundwater contamination. Activities completed included SC, RI, FS, IRM, QA/QC, CPP, HASP, and off-site SVI surveys. The IRM involved removal of grossly impacted soils (14,000 PPM TCE) from beneath the building during a holiday shutdown period. An in-house bench scale treatability study of enhanced reductive dechlorination identified that the injection of an organic acid mixture as an electron donor should successfully promote biodegradation within the saturated interval. The FS recommended a limited soil removal in the 1,1,1-TCA outdoor source area, injection and circulation of an organic acid mixture, sub-slab depressurization systems in several buildings, and SVE in the IRM area to address residual vadose zone impacts that could not be addressed due to structural limitations. A Remedial Work Plan was submitted and is undergoing final revisions.

VCA, Shoporama Shopping Center, Rotterdam, New York (Project Manager) Managed the SC, RI, FS, RD, RC, QA/QC, SM, and HASP for an air sparging/soil vapor extraction system that successfully cleaned up PCE contaminated soil and groundwater from a former dry cleaning facility. This was accomplished within one year, pursuant to a VCA with New York State on behalf of the nation's largest retail chain.

ERP, 1 Liberty Avenue, Buffalo, New York (Project Manager) Managed an ERP site cleanup of a 1.9 acre former industrial facility involving RD, RC, QA/QC, and HASP services. The clean up involved the segregation and disposal of approximately 1,200 tons of surface debris, 550 tires, 4 tons of asbestos siding decommissioning of two railroad sidings, excavation and segregation of 4,000 cubic yards of subsurface soil based on field screening methods and off-site disposal of 1,400 tons of impacted soil.

VCA, Gonsenhauser Farm, Brighton, New York (Project Manager) Managed SC, RD, RC, QA/QC, SM and HASP activities for the Town of Brighton to address petroleum soil and groundwater impacts from three former underground storage tanks at an abandoned farm. The groundwater monitoring which was recently discontinued successfully demonstrated MNA with the site returning to drinking water standards. The site has been transformed into a public park.

BCA, Former AB Dick Facility, Henrietta, New York (Project Manager) Managed SC, RI, RD, RC and Third Party Oversight services at this 12 acre, 167,000 sq. ft. former copier manufacturing facility. Activities performed included Asbestos Pre-Demolition Survey, Asbestos Abatement and Building Demolition RD and RC and third-party oversight of remedial cleanup activities of caustic baths and spray paint booths by a former tenant. The BCA RI identified chlorinated VOC impacts of up to 1,415 ppm in soil and up to 700 ppm in groundwater across three horizons on-site with impacts extending off-site.

EPA Brownfield Cleanup, 151-191 Mt. Hope Ave., Rochester, New York (Project Manager) Managed the preparation and implementation of an EPA-funded petroleum spill site Corrective Action Plan for the City of Rochester at a park site that formerly housed three gas stations. Services included RD, RC, QA/QC, SM, HASP and CPP activities. Excavations in excess of 20 ft. were conducted within 5-10 ft. of a 12 story apartment building and a section of active storm sewer needed to be removed and replaced to facilitate contaminant removal. Differential GPS was used to provide daily real-time reports to the client. One year of groundwater monitoring demonstrated MNA resulting in spill file closure for this 4,500-ton soil cleanup program.

BCA, Former Davidson Collision, Rochester, New York (Project Manager) Managed the RI, FS, RDI, RD, RC, QA/QC, SM, CPP, HASP, and SVI activities for the City of Rochester at this 0.46 acre former auto body repair facility

previously listed on the IHWDS. SVI services included performing off-site soil vapor intrusion surveys, an on-site soil vapor survey and incorporating provisions for a sub-slab depressurization system for future restricted residential redevelopment of the site in the FER. Waste paint related VOC and metals impacted soils were removed from three areas of concern and a bioremediation additive, ORC-A, was placed in the VOC excavation to stimulate bioremediation of residual on- and off-site groundwater impacts. The groundwater monitoring program has demonstrated successful MNA with the last two quarterly rounds of results below groundwater standards.

Spill Site, Brooks Landing, Rochester, New York (Project Manager) Managed the SC, FS, RDI, RD, RC, SM, HASP, QA/QC, and SVI services for the City of Rochester and Christenson Development Corporation. The remedial programs included vacuum extraction of residual petroleum contamination at a former gas station, removal of 1,040 tons of TCE-impacted carbon fill, application of 3,000 pounds of HRC™ to promote in-situ bioremediation of TCE groundwater impacts, installation of a Liquid Boot vapor barrier, and design, installation, testing and monitoring of a sub-slab depressurization system to prevent SVI, and implementation of a site management plan at this former canal and rail spur site. This allowed the VOC-impacted, cinder-filled waterfront property, to be redeveloped with a new hotel and obtain spill file closure.

Spill Site, 1064 Scottsville Rd., Chili, New York (Project Manager) Managed SC, RI, RD, RC, QA/QC, IRM, SM, and HASP involving removal of a UST and excavation and treatment of 2,200 cubic yards of petroleum impacted soil in an ex-situ bioremediation cell and MNA of groundwater impacts resulting in spill file closure.

Spill Site, Corn Hill Landing, Rochester, New York (Project Manager) Managed SC, RD, RC, QA/QC, SM, and HASP activities for the City of Rochester and Mark IV Development at this six acre former rail yard. The remedial activities involved removal of hazardous waste lead-impacted soil from a former lead works facility and petroleum impacted soil from a former leaking underground tank, and implementation of a SMP. This resulted in spill file closure and allowed the riverfront, cinder-filled, former railroad yard to be redeveloped into a $20 million mixed residential-retail complex.

Spill Site, 1 Rochester St., Scottsville, New York (Project Manager) Managed the SC, IRM, RC, QA/QC, SM and HASP activities at a former gas station site that was redeveloped with a bank. Remedial activities involved tank removal, impacted soil removal, application of in-situ bioremediation agent to promote groundwater treatment, implementation of a groundwater monitoring program which demonstrated enhanced MNA, and preparation of a SMP resulting in spill file closure

VCA, Former Dinaburg Distributing Facility, Rochester, New York (Project Manager) Managed SC, RI, and FS activities at this former dry cleaning chemical distribution facility which identified on-site and off-site PCE and TCE soil and groundwater contamination. Recommended installation of a two phase vacuum extraction system which was subsequently installed by NYSDEC.

IHWDS, Emerson Power Systems, Ithaca, New York (Project Manager) Managed the SM activities involving OM&M of a two-phase vacuum extraction system designed to remediate chlorinated solvent impacts in bedrock at an inactive hazardous waste site.

EPA Brownfield, Kennedy Valve Railroad Spur, Elmira, New York (Project Manager) Managed an EPA Brownfield SC of a two-mile long railroad spur for the City of Elmira which identified impacts form an on-site petroleum spill site which was subsequently closed following a MNA monitoring program, the Former Matt Brewer Oil site which is now in the ERP program, and the NSYEG Madison Ave. MGP site.

IHWDS, Carter Street Site, Rochester, NY (Project Manager) Managed the SC of an apartment complex constructed on the site of a former municipal incinerator ash landfill, which resulted in de-listing of the site from New York State's IHWDS.

VCA, Chase Pitkin, Big Flats, New York (Project Manager) Managed the SC, DPI, RD, RC, QA/QC, and HASP of two former light industrial facilities with PCB and metals soil and groundwater impacts pursuant to the first VCA completed in New York State.

VCA, Bud-Mill Drive, Buffalo, New York (Project Manager) Managed SC, IRM, RC, QA/QC, and HASP activities at this former railroad yard which was occupied by a vacant warehouse. Inactive underground storage tanks and associated petroleum contaminated soils were removed. The site was re-sold and reused by a wholesale supply company.

Spill Site, Hammer Lithograph, Brighton, New York (Project Manager) Managed S**C**, RD, RC, QA/QC, SM, and HASP to address an 800 gallon Stoddard solvent spill from an above ground storage tank. Activities included design of a soil vapor extraction and groundwater extraction and treatment system which resulted in achieving groundwater standards and successful closure of the spill file.

Spill Site, 1650 Elmwood Avenue, Brighton, New York (Project Manager) Managed the SC, RC, QA/QC, and HASP involving the investigation and cleanup of a former Texaco gas station to facilitate redevelopment of the site as a drug store and obtain spill file closure.

Order on Consent, Heritage Cutlery, Bolivar, New York (Project Manager) Managed the SC, RI, FS, RD, RC, QA/QC, SM, and HASP involving investigation and closure of lagoons impacted with chlorinated solvents, the design and construction of an industrial wastewater treatment plant, and a OM&M program under the terms and conditions of a Consent Order.

Spill Site, Former Hess Station, Balta Drive, Henrietta, New York (Project Manager) Managed the SC, RI, FS, RD, RC, QA/QC, SM, PRP, and HASP activities at this former gasoline service station with impacts extending onto a neighboring residence and into the right-of-way. 4,300 tons of petroleum impacted soil were removed and petroleum fingerprinting techniques were used to allow the owner to recoup the majority of the cleanup costs from the prior owner for the.

CERCLIS, Marathon Battery Site, Foundry Cove, New York (Environmental Scientist) Assisted in the RI work plan preparation, implementation, evaluation and report preparation for the $600,000 NYSDEC/USEPA NPL Superfund Remedial Investigation at the cadmium and nickel contaminated Marathon Battery Site. This program involved the collection, analysis and interpretation of sediment, surface water, aquatic vegetation, and wildlife samples and the resultant data. These data were used for the evaluation, development and eventual successful implementation of the selected remedial alternative.

MICHAEL HOPKINS PE, LEP, LSP

Professional Engineer, Project QA Director

Stantec

Mr. Hopkins has 29 years of engineering and project management experience, with a primary emphasis on contaminated site assessment, characterization and remediation. He regularly works with both public and private sector clients to investigate and remediate hazardous waste and petroleum contaminated properties. He has direct experience evaluating and implementing a wide range of remedial technologies and has prepared deliverable packages under various regulatory programs in New York and adjoining states.

EDUCATION

B.S. Civil Engineering, SUNY at Buffalo, Buffalo, NY, 1981

B.S. Forest Engineering, SUNY College of Environmental Science and Forestry, Syracuse, NY, 1980

REGISTRATIONS

State of New York Licensed Professional Engineer #64389
State of CT Licensed Environmental Professional #153
State of Massachusetts, Licensed Site Professional #9599

EXPERIENCE

Brownfield and CT Transfer Act (TA) Remediation, Brilco II, 1560 Barnum Avenue, Bridgeport, CT Project Manager (PM) and Licensed Environmental Professional (LEP) for the assessment and remediation of an abandoned metal recycling and chemical waste recovery facility. The project included the closure of inactive RCRA treatment units, excavation of more than 10,000 cubic yards of contaminated soil, debris and/or scrap metal, material separation to allow metals recycling to the extent possible, off-site disposal of hazardous and/or PCB contaminated wastes and on-site encapsulation of residual soils with metals concentrations above the CT Direct Exposure Criteria. Engineering Controls (ECs) and Environmental Land Use Restrictions (ELURs) were be used to reduce the amount of waste requiring off-site disposal. The project involved the collection and analysis of more than 1,400 environmental samples. The project included Site Characterization (SC), Remedial Investigation (RI), Feasibility Study (FS), Remedial Design (RD), Engineering Services During Remedial Construction (RC), Site Management (SM), a Citizen Participation Program (CPP) and the development of a site specific Health and Safety Plan (HASP) and Quality Assurance Project Plan (QAPP). The remediation addressed TSCA, CT TA and RCRA corrective action requirements. It was the first federally funded Brownfield project delegated to be performed under the supervision of a CT Licensed Environmental Professional. The project has a total budget of $6.7 million, of which $2.6 million was for direct environmental remediation. The remediation was funded by the largest Brownfield revolving loan fund award approved in the United States as of August 2007.

Massachusetts Contingency Plan (MCP) Remediation, Former Commercial Laundry Facility, Brook Street, Lawrence, MA PM and Licensed Site Professional (LSP) for the $1.5 remediation of a former commercial laundry facility located off Brook Street in Lawrence, MA. The remediation included the excavation of 2,250 cubic yards of metals and petroleum contaminated soil, MCP risk assessment, ECs and Activity, Use Restrictions (AUL), and obtaining a Covenant Not to Sue (CNS) from the MA Attorney General's office. The project included the MCP equivalents of SC, RI, FS, Interim Remedial Measures (IRM), RD, RC, QA/QC, SM, CPP and HASP deliverables. The remedial activities were integrated into on-going civil construction work associated with the redevelopment of the site, including building demolition, historical river wall reconstruction, utility construction and site work. Upon completion of the remediation, the site was transferred to the City of Lawrence, which redeveloped it in 2006 in conjunction Groundwork-Lawrence as the new Dr. Nino Scanito Park, which now forms part of the Pickett River Greenway.

IHWS Remediation, Skidmore College, Saratoga Springs, NY Professional Engineer (PE) of record for the remediation of soil impacted with elemental mercury discovered in a utility excavation adjacent to a water pumping station. The excavation of mercury impacted soil was performed entirely within an engineered negative pressure enclosure approved by the NYSDOH. The project included SC, RI, FS, IRM, RC, QA/QC, SM, CPP and HASP deliverables. Work was performed under a NYSDEC consent order.

CT TA Remediation, Former Dry Cleaning Facility, 122 Main Street, Old Saybrook, CT PM for a series of investigations and remedial actions at a former dry cleaning facility. The SC was performed is a phased manner using both traditional and expedited (Triad) methods. Aquifer testing and contaminant modeling were included in the SC activities. The project included the CT equivalents of SC, RI/FS, RD, RC, remedial system operation and maintenance (O&M), QA/QC, SM and HASP deliverables. Remedial technologies included groundwater extraction and treatment, air sparging and monitored natural attenuation (MNA). Treated groundwater was discharged to the CT River under a NPDES permit. An alternative water supply was provided to one downgradient

residence. Groundwater monitoring is still in progress. Additional soil vapor intrusion (SVI) investigation and long term groundwater monitoring are currently proposed. Work was performed in accordance with CT TA requirements under direct CTDEP oversight.

Brownfield Remediation, Jerome Harrison School, 335 Foxon Road, North Branford, CT PM for the remediation and demolition of an historic vehicle repair facility, a former service station and a former elementary school to facilitate the construction of a new public school complex. The remediation included asbestos abatement, underground tank removal, free phase oil recovery and soil remediation (petroleum, metals, chlorinated VOCs and PCBs). Extensive groundwater investigations (including conventional monitoring wells and soil vapor surveys) were performed. Groundwater remediation was performed by monitored natural attenuation (MNA). The project included the CT equivalents of SC, RI, FS, IRM, RD, QA/QC, SM and HASP deliverables. All environmental work was performed under a CTDEP Urban Sites Program consent order, with expedited approvals by the CTDEP.

NJ ECRA Remediation, Former Concrete Block Plant, Route 17, Paramus, NJ PM for the Environmental Cleanup Responsibility Act (ECRA) remediation a former concrete block manufacturing plant. The remediation included decommissioning an inactive wastewater treatment system, removal of nine underground fuel oil tanks and soil remediation in fourteen areas of concern. The contaminants of concern included VOCs, SVOCs, metals and petroleum hydrocarbons. The project included New Jersey equivalents of SC, RI, FS, RD, RC, QA/QC, SM, CPP and HASP deliverables. The remediation was completed in seven months and was approved by the New Jersey Department of Environmental Protection (NJDEP). The nine acre site was subsequently redeveloped with a 140,000 square foot shopping plaza.

CT TA Remediation, Basement Systems, Inc., 720 Woodend Road, Stratford, CT PM and LEP for the assessment and remediation of petroleum and chlorinated solvent contamination from a former metal goods manufacturing facility (now a vehicle fleet service facility and warehouse). The release sources included historical floor drains, building footer drains and pits within the building. The CT equivalents of SC, SVI, RI/FS, RD, RC, QA/QC, SM, CPP and HASP deliverables were prepared. Remedial technologies included excavation, active and passive free phase product recovery and MNA.

CT TA Remediation, Industrial Facility, 40-50 McDermott Road, North Haven, CT PM and LEP for the assessment and remediation at a former metal forming plant (now a coated wire plant). Contaminants of concern included chlorinated and non-chlorinated VOCs and petroleum hydrocarbons from historical operations. Remedial technologies included excavation, off-site disposal, air sparging, oxidant injection, SVI investigation and MNA. Groundwater monitoring is still in progress.

MCP Remediation, Stillwater Fasteners, 25 Gurney Road, East Freetown, MA PM and LSP for the investigation and remediation of intermingled gasoline and fuel oil plumes from active and former USTs on an industrial property located within a drinking water supply area. The MCP equivalents of SC, SVI, RI/FS, RD, QAPP, CPP and HASP documents were prepared. The remedy included UST closure, excavation (with dewatering), enhanced natural attention (including two rounds of oxygen release compound addition) and manual sheen removal. Both releases were remediated as Immediate Response Actions in accordance with the MCP with one source being remediated prior to tier classification and the other remediated after classification as a Tier IC site. The MCP case has been closed with a Class A-2 Response Action Outcome (a condition of "no significant risk" exists but further remediation to background conditions is not practical).

UST Remediation, 21 former Fleet Bank facilities in NY and NJ PM for the closure and assessment of underground heating oil and emergency generator tanks from 21 bank facilities. Groundwater investigations were performed at nine facilities, RIs were performed at six facilities and remedial actions were taken at four facilities. All closures and remedial actions were performed as voluntary actions with reports being submitted to the NYDEC Spills Unit. All spill cases have been closed.

UST Remediation, 650 residential properties in NY, NJ and CT PM for residential underground tank closures, with assessment and remediation as required. Remedial actions (as either IRMs or permanent remedies) typically included contaminated soil removal, with SVI and groundwater investigations as necessary. Soil venting systems were installed where indicated by SVI testing results. Agency reporting was prepared in accordance with the appropriate state requirements.

CT TA Remediation, Industrial Facility, 40 Scitico Road, Somers, CT PM and LEP for the investigation, characterization and closure of a multiple tenant industrial facility. Areas of concern included active and former USTs, floor drain discharges, indoor and outdoor drum storage areas and industrial discharges to a septic system. The case was closed after CTDEP approval of a groundwater reclassification petition (GA to GB) without additional remediation after the LEP's verification of compliance with the Remediation Standard Regulations (RSR).

CT TA Remediation, Industrial Facility, 45 Northeast Industrial Road, North Branford, CT PM and LEP for the assessment and remediation of a former electronic components manufacturing facility (now occupied by a pharmaceutical research and development facility). Remedial actions included excavation (inside and outside the building), free phase petroleum recovery, enhanced natural attenuation (with ORC additions) and long-term groundwater monitoring. Site characterization activities include extensive soil vapor surveys inside and outside the building.

CT TA Remediation, Beauvais Printing Company, 61-63 Soundview Road, Guilford, CT PM and LEP for the assessment and characterization of potential solvent and photographic wastewater discharges to a septic system from a commercial printing facility. The investigation included extensive groundwater investigations, long term monitoring, soil vapor surveys and exhumation of a previously remediated septic leaching area. The site characterization was used as the basis for an LEP's verification of compliance with the RSRs without additional groundwater investigation. A CT TA "Form II" certification (all releases remediated to RSR criteria and verified by an LEP) was submitted. The LEP verification was subsequently used as the basis for the removal of the site from the federal CERCLIS and the CT Inactive Hazardous Waste Site Inventory.

UST Program Corrective Active, Former Golf Gasoline Station, 1309 Boston Post Road, Westbrook, CT PM for the design, installation, operation, maintenance and monitoring of an air sparging and soil vapor extraction system at a former gasoline station. The remedial system was initially installed as a conventional air sparging system and was converted to a pure oxygen biosparge system after two years of operation. The work was performed under a CTDEP consent order with partial reimbursement from the CT Underground Storage Tank Remediation Trust Fund.

RCRA Closure and Corrective Action, Medallic Arts Company, Old Ridgebury Road, Danbury, CT PM for RCRA surface impoundment closure, Part B permitting and RCRA corrective action. Actions included waste removal, impoundment in-place closure, building and wastewater treatment system decontamination, groundwater investigation and monitoring. Work was performed under a CTDEP consent order.

RCRA Closure and Corrective Action CT Waste Oil, 1250 Old Colony Road, Wallingford, CT PM and PE of record for the RCRA closure and corrective actions associated with a 250,000 gallon tank farm and associated processing equipment, including the preparation of closure plans and corrective action work plans. All work was performed under a CTDEP consent order. Corrective actions were only partially completed due to bankruptcy of the client.

CT TA Remediation, Former J.C. Coggins Foundry Complex, 5 Cross Street, Meriden, CT PM for the remediation of an historical non-ferrous foundry and electroplating facility in Meriden, CT. The remediation included surface impoundment closure, drum removal, electroplating line decommissioning, contaminated soil removal, groundwater investigation and monitoring. The remediation included the removal of 250 tons of hazardous wastewater treatment and electroplating sludge and 75 tons of dust with hazardous metals concentrations. Contaminants of concern included VOCs, SVOCs, metals, cyanides and petroleum hydrocarbons. The site is listed on the CT Hazardous Waste Site Inventory.

CT TA Remediation, ABB Industrial Services, 88 Marsh Hill Road, Orange, CT PM for the assessment and remediation of a former helicopter maintenance facility. Site characterization activities included borings, groundwater investigation, aquifer testing, soil vapor surveys, ground penetrating radar surveys, magnetometer surveys and drain system evaluations. Remedial actions included underground tank closure, underground piping removal, contaminated soil excavation and groundwater extraction and treatment. The CT equivalents of SC, SVI, RI/FS, RD, QAPP, CPP and HASP documents were prepared. Upon completion of the remediation, the buildings were demolished and the property was incorporated into an adjoining industrial facility operated by Bauer Pharmaceuticals. The site is listed in the CT Hazardous Waste Site Inventory.

Spill Response, Wallingford Electric Division, Pierce Generating Station, John Street, Wallingford, CT PM and PE for immediate response actions and long-term remediation of an estimated 250,000 gallon No. 4 fuel oil release from a partially contained aboveground storage tank. Emergency response actions included recovery of more than 200,000 gallons of petroleum product and emergency reinforcement and raising of the existing earthen berms. Long term remediation included excavation and on-site treatment of approximately 35,000 cubic yards of petroleum contaminated soil, groundwater investigation and extended groundwater monitoring.

NJ Site Remediation, Materials Technology, Inc., 220 Churchill Street, Somerset, NJ PM for the characterization and remediation of mercury, chromium and copper contamination at an electroplating and copper foil manufacturing facility. Tasks included a preliminary assessment, site investigation, RI/FS, production equipment decommissioning, excavation, off-site disposal and restoration.

Due to the presence of elemental mercury, the contaminated soil removal was performed under negative pressure secondary containment. Groundwater remediation is pending. All work was performed under a NJDEP Memorandum of Agreement.

UST Remediation, SNET, Harbor Garage, New Haven, CT PM and PE for UST closures and remedial actions at a large utility company fleet maintenance facility. The remedial action included excavation, multi-phase extraction and SVI investigations, followed by MNA. All reports were submitted to and approved by CTDEP as a voluntary remediation. The associated spill case has been closed.

UST Remediation, SNET, Danbury Garage, Danbury, CT PM and PE engineer for the remediation of a free-phase gasoline plume beneath a vehicle service garage and warehouse. The remedial action included vacuum enhanced free product recovery (within the building) and ground extraction and treatment via a downgradient recovery trench located outside the building. Extensive groundwater investigation, soil vapor surveys, SVI testing and post-remediation groundwater testing were performed. All reports were submitted to and approved by CTDEP as a voluntary remediation. The associated spill case has been closed

CT TA Remediation, Former Industrial Facility, 130 Grove Street, New Milford, CT PM and LEP for the assessment and remediation of a former industrial insulator manufacturing facility (subsequently converted to a health and fitness club). The remediation included UST and drywell (UIC) closures, contaminated soil removal, underground piping assessment, groundwater investigation, storm sewer cleanout and long term groundwater monitoring. No groundwater remediation was required. Compliance with the RSRs was verified by the LEP and the TA case has been closed.

CT TA Remediation, KX Industries, 55 Railroad Street, West Haven, CT PM and LEP for the assessment and remediation of a former wire drawing and electroplating facility (now used to manufacture air filters). Areas of concern included former equipment pits, sumps and floor drains, indoor and outdoor drum storage and alleged illegal dumping. Soil and groundwater investigations were performed along with an evaluation of pits, sumps, drains and underground piping. No evidence of illegal dumping was identified. Remedial actions included UST closures, pit decontamination, drum and sludge removal and limited contaminated soil removal.

CT TA Remediation, Former Industrial Facility, 54 Boston Post Road, Orange, CT PM and Licensed Environmental Professional for the decommissioning and decontamination of former industrial wastewater treatment system and electroplating lines, RCRA closure of hazardous waste drum storage areas, demolition of a former industrial building and a former truck and bus body repair and painting facility, design construction and operation of a 50 gpm groundwater extraction and treatment facility, and excavation and removal of petroleum and hazardous waste impacted soil. Verified full RSR compliance for one of two parcels and partial ("Form IV") compliance for the second parcel. O&M is still in progress.

RCRA Closure and Corrective Action, Former Homer D. Bronson Company, Main Street, Beacon Falls, CT PM and LEP for the interim status closure of a RCRA surface impoundment and other RCRA corrective actions at an historical mill complex that historically included a foundry, machine shops, electroplating lines, other metal finishing processes and an industrial wastewater treatment system. The impoundment was clean closed and capped. Other corrective actions included interior decontamination, limited soil removal and storage tank closures.

PA Land Recycling Program ("Act 2"), Kane Magnetics, Oak Street, Kane, PA PM for the site characterization and RI/FS at an industrial magnet manufacturing facility impacted by industrial solvent releases and on-site petroleum exploration activities. The SC investigations included groundwater and soil vapor investigation on off-site residential properties. Remediation is anticipated to commence in 2010.

Site Characterization and Plume Delineation, Naval Underwater Weapons Systems Center, Newport, RI PM for the characterization and delineation of soil and groundwater impacts from sudden release of 40,000 barrel of a proprietary fuel mixture. The field investigation was performed on an emergency basis and included approximately 200 Geoprobe borings. A conceptual remedial action plan and bid documents, including excavation, dewatering and wastewater treatment system plans were prepared. The remediation was implemented by another firm.

THOMAS WELLS
Project Geologist

Stantec

Mr. Wells has more than 20 years of experience in environmental consulting. As an environmental geologist and project manager, he has been responsible for the development, implementation and management of remedial investigation, feasibility study, and remedial action projects regulated under New York's Inactive Hazardous Waste Disposal Site, RCRA, Brownfields and Spills programs.

EDUCATION

Bachelor of Arts, Geology, Williams College, Williamstown, Massachusetts, 1978

EXPERIENCE

RI/FS, Former GM Delco Chassis Site, Rochester, NY
Senior Geologist and Project Manager for a $1.5 million Remedial Investigation and Feasibility Study of this automotive plant on the NYSDEC IHWS Registry. As project manager, he was involved with RI/FS consent-order negotiation support, RI/FS work plan preparation, implementation of the remedial investigation, a risk assessment, preparation of the feasibility study, and preparation of an interim remedial measures work plan. Site issues include construction and manufacturing debris disposal areas, past leakage of fuel and solvent USTs, widespread ash and cinders layers, cutting-oil and petroleum-solvent LNAPL plumes, petroleum-product and chlorinated-solvent plumes in groundwater, chromium contamination of soil, and vapor intrusion concerns. Performed project manager role on three other similar long-term due-diligence/RI/FS projects for General Motors or Delphi Corporation in NY, NJ, and CT with budgets ranging from $700,000 to $2,600,000.

RI and AA/RWP, Buell Automatics BCP Site, Rochester, NY Project geologist responsible for a December 2007 RI report, December 2008 Alternatives Analysis, October 2009 Remedial Work Plan and related support documents and public notice fact sheets. Site issues include chlorinated VOC source areas and petroleum-product LNAPL under active manufacturing areas, on- and off-site groundwater contamination by chlorinated solvents, and potential need for mitigation of off-site vapor intrusion concerns. The proposed remedy incoproates limited soil excavation, enhanced in-situ bioremediation using an organic acids mix as a carbon source, soil-vapor extraction, and MNA.

Remedial Investigation Reports, Brownfield Cleanup Program Sites, Active Manufacturing Facilities, Rochester, NY (Project Geologist) Prepared the RI reports and NYSDEC public notice fact sheets for two Brownfield Cleanup Program sites located in Rochester. Site issues include VOC and LNAPL contaminant source areas under active manufacturing buildings, on- and off-site groundwater contamination by chlorinated solvents, petroleum-product LNAPL, and potential need for mitigation of off-site vapor intrusion concerns at one of the sites. Remediation by MPVE with OM&M reporting is ongoing at one site. A Remedial Work Plan that proposes enhanced in-situ bioremediation as one component of a complex remedy has been prepared and is approaching approval by the NYSDEC for the second site.

IRM Work Plan, Sub-Slab Depressurization System, Building 4, Rochester Technology Park, Gates, NY (Project Geologist) Prepared the May 2009 IRM work plan for implementation of SVI mitigation at the former Kodak Elmgrove facility. The work plan was prepared pursuant to a Voluntary Cleanup Agreement between the site owner and NYSDEC.

Delisting Petition, Former Emerson Street Landfill Parcel at 500 Lee Road, Rochester, NY (Project Manager/Project Geologist) Prepared the delisting petition submitted on behalf of the site owner (General Motors) that successfully sought the removal of the former landfill parcel from the New York State Registry of Inactive Hazardous Waste Sites.

Consent Order Negotiation Support, Industrial Facility, Lakewood, NY (Senior Geologist) Prepared a comprehensive report presenting the history and results of previous investigations and remedial actions at a small manufacturing facility site facing state registry listing. Prior to agency involvement, an enhanced bioremediation remedy had been implemented to address a chlorinated solvent plume. The report served to promote agency acceptance of the remedy at the beginning of consent order negotiations.

Petroleum Spill Cleanup Program, Scottsville, NY (Project Geologist) Implemented an Oxygen Release Compound (ORC) application for supplemental groundwater treatment as part of an on-going groundwater monitoring program for a former gasoline station site that was redeveloped with a bank and resulted in spill file closure.

Environmental Investigation, Management, and Remediation, Ryan Center, Rochester, NY (Project Geologist) On behalf of the City of Rochester, implemented a site management plan to manage potential subsurface contamination during construction of a new library and community center at a public school. Also implemented a Phase II ESA of the site and implemented separate remedial actions to address residual soil contamination at former locations of two former underground fuel-oil storage tanks.

STEPHANIE REYNOLDS-SMITH
Hydrogeologist

Stantec

Ms. Reynolds-Smith has more than eleven years of experience in environmental consulting with much of this experience involving the NYS Engineering Standby Contract. This experience includes work on, and management of, a variety of environmental site investigation and remediation projects. She has worked on all stages of these projects, including: project costing; formulation of work plans; interaction with clients, regulators, and subcontractors; and overseeing and performing field work, data analysis, and report preparation. Examples of these projects include Phase II ESAs for the USEPA, Remedial Investigation/Feasibility Studies (RI/FSs) for the NYSDEC, and Remedial Design (RD) of, and Operations and Maintenance (O&M) on, treatment systems for clients like the United States Air Force and commercial clients at federal superfund sites.

EDUCATION

Master of Science, Geological Sciences, The Ohio State University, Columbus, Ohio, 1999

Bachelor of Arts, Geological Sciences, State University of New York College at Geneseo, Geneseo, New York, 1997

REGISTRATIONS

API WorkSafe, WorkSafe Safety Key #76040016

EXPERIENCE

Former Adirondack Steel, Colonie, NY (Project Manager) While conducting the RI/FS for the NYSDEC Standby Engineering contract, Ms. Reynolds-Smith was responsible for project planning, scheduling, cost control, and report preparation. The prime components of this former steel foundry site were a manufacturing area, a 9-acre foundry landfill, and soils contaminated with PCBs as a result of a spill of PCB-containing transformer oil. Ms. Reynolds-Smith lead the field team, whose activities included installing monitoring wells, direct-push boreholes, collecting surface soil samples to delineate the PCB contamination, additional surface soil sampling, surface water/sediment sampling, manhole/sump sampling, conducting a geophysical survey, performing waste drum inventory and sampling, well development and sampling, and aquifer testing. All field activities were performed pursuant to a site-specific Quality Assurance Project Plan (QAPP) and Health & Safety Plan (HASP). Subsequent to field activities, she performed data analysis and prepared and oversaw the preparation of the RI report.

National Lead Industries (Task Manager) For an immediate investigation work assignment (IIWA) for the NYSDEC, Ms. Reynolds-Smith planned and conducted site characterization (SC) activities, including surface soil sampling at approximately 76 properties. The high-visibility project involved careful attention to public and political concerns. Ms. Reynolds-Smith was responsible for project scheduling, cost control, public relations, field team leadership, QAPP and HASP implementation, and report preparation.

Former Bright Outdoors Site, Johnson City, NY Ms. Reynolds-Smith contributed to SC activities during the PSA report for this NYSDEC program site, then was a field team leader for the RI/FS. She served as Site Health & Safety Officer during on- and off-site (in the adjacent residential area) soil vapor intrusion (SVI) investigation. She led the aquifer testing, water level measurement, and sampling of wells, implemented the QAPP, and assisted in report preparation.

Spaulding Fibre, Tonawanda, NY After assisting with project planning, Ms. Reynolds-Smith served as field team leader for the NYSDEC for a remedial design (RD) investigation at a former industrial site. This investigation involved much field-based decision making and included test pitting, installation of direct-push boreholes for subsurface soil sampling and monitoring and extraction well installation, and implementation of a site specific QAPP and HASP.

Steuben County Sites, Bath and Hornell, NY Field team leader for 6 RIs for NYSDEC, she lead a fast-paced multi-media sampling (subsurface soil, groundwater and active soil gas) effort at several former dry cleaner sites.

Rose Valley Landfill, Utica, NY For NYSDEC, Ms. Reynolds-Smith supervised the drilling and development of overburden wells, groundwater sampling, and surface water and sediment sampling for analysis for VOCs, SVOCs, metals, pesticides, PCBs, cyanide, and leachate indicators for this RI/FS. She also led aquifer testing, participated in soil-gas surveys, and helped prepare the RI report.

Luzerne Road Site, Queensbury, NY Under a standby contract with NYSDEC Ms. Reynolds-Smith was field team leader for the drilling, development, and sampling of overburden wells for the RI.

Fourth Street Site, Buffalo, NY For the NYSDEC, Ms. Reynolds-Smith led the sampling of on-site wells and assisted in groundwater flow modeling via capture zone analysis for the pre-design investigation.

Sweden Landfill Site, Sweden, NY Under a standby contract with NYSDEC Ms. Reynolds-Smith used gINT software to prepare drill logs.

Mr. C's Dry Cleaners Site, East Aurora, NY For the NYSDEC, Ms. Reynolds-Smith was Site Health & Safety Officer for active soil-gas air sampling and helped prepare the groundwater sampling work plan.

Former Davis Howland Oil Recycling Facility, Rochester, New York For the NYSDEC, Ms. Reynolds-Smith contributed to work plan preparation.

Frontier Chemical Site, NY Under a standby contract with NYSDEC Ms. Reynolds-Smith produced an extensive table comparing historical and recent data and responded to client comments.

Union Tools, Frankfort, NY For NYSDEC, she was field team leader for SC activities during an IIWA involving the subsurface investigation of a chlorinated solvent plume. She led the installation of soil borings, collection of subsurface samples, and the installation and sampling of 25 temporary groundwater monitoring points.

811 Jefferson Road, Henrietta, NY From 1955 to 2005, the 12.2 acre site was utilized for manufacturing photocopy equipment. Chlorinated VOC impacts were discovered across three horizons in two main source areas as delineated by 73 wells and borings. Ms. Reynolds-Smith prepared the combined Phase I and II ESA report, the BCP Application, and the RI Work Plan (including QAPP and HASP); served as Field Team Leader during the RI (including soil sampling, test pitting, boring and monitoring well installations, aquifer testing, and surface water sampling), and assisted in preparation of the RI Report pursuant to the BCA for this site.

GK Management, Buffalo, Rome, Rochester, and Syracuse, NY Prepared RI work plans; performed RI fieldwork, including soil boring installation, monitoring well installation, well development and sampling, water level measurement, and aquifer testing; prepared RI reports; and designed and implemented RD Investigations for these four petroleum spill sites.

Former Heritage Cutlery, Bolivar, NY Performed semiannual sampling for chlorinated VOCs pursuant to an Order on Consent and performed oversight during a property transfer investigation, including borehole and temporary monitoring well installations and waste stream sampling.

Rochester Tech Park, Rochester, NY Performed sub-slab soil vapor sampling during a SVI investigation, concrete chip sampling for chlorinated VOCs, and pressure extension testing in a 600,000 sq. ft. industrial facility to fulfill the requirements of a VCA and address the requirements of the NYSDOH SVI guidance document.

Foster Wheeler, Mountaintop, PA For the USEPA, Ms. Reynolds-Smith served as Field Team leader during multimedia sampling, including groundwater, surface soil, sediment, soils, subslab air, soil gas, and wastewater. She was often responsible for client and residential/public relations and third party oversight.

South Main Street, Newark, NY Based on a geophysical survey, performed a Phase II investigation at a printing facility and former gas station including borehole and monitoring well installation and soil and groundwater sampling.

Dessault Foundry, Lockport, NY Completed site geophysical survey for Niagara County.

Niagara Falls International Airport-Air Reserve Station, Niagara Falls, NY Base wide groundwater monitoring program and Site 5 interim corrective measure (IRM) under contract with the USAF. Responsible for project planning, scheduling, cost control, and report preparation. Supervised the installation and aquifer testing of bedrock and overburden piezometers and recovery wells. Oversaw the inspection and maintenance of 137 monitoring and pumping wells, the semiannual measurement of water levels in the wells and piezometers, and the semiannual sampling of up to 70 monitoring wells (in overburden and fractured bedrock) and 10 surface water locations for VOC analysis. She assisted with monthly OM&M at three groundwater extraction and treatment systems. In addition, she helped design the grid for—then oversaw implementation of—bioremediation projects (HRC injection and installation of ORC socks). Prepared and implemented task specific HASPs and QAPPs.

Blades & Sons Phase II and Corrective Action Plan (CAP) Implementation, Milo, NY Performed a Phase II Environmental Site Assessment (ESA), including water supply well sampling, test pit investigation and subsurface soil sampling. Based on the results of the ESA, she oversaw a 1,700 ton petroleum impacted soil removal and obtained site closure by the NYSDEC.

Brownfields Cleanup Agreement, Ward Street, Rochester, NY Performed weekly multi-phase vacuum extraction (MPVE) system monitoring, quarterly groundwater sampling and annual report preparation pursuant to a Brownfields Cleanup Agreement with New York State. Remediation of the site is ongoing. Certificates of completion were obtained for this site and the adjoining 8-28 Ward Street site allowing for the applicable refundable tax credits.

McCormick and Baxter Creosoting Site, Portland, OR For the Oregon Department of Environmental Protection, oversaw remedial construction activities during the capping of a stretch of the Willamette River bed.

Schilling Farm, MI Updated the MODFLOW groundwater flow model to investigate the possible effects of different proposed remedial alternatives.

Liberty Industrial Finishing Superfund Site Helped prepare the field sampling plan, determined the drilling methodology, and performed 3D groundwater flow modeling using MODFLOW for the off-site groundwater extraction and treatment system. Also served as field team leader or managed field teams during drilling of vertical profile borings, well inspections and groundwater sampling. Responsible for preparing several data analysis reports after these field events.

Griffiss Air Force Base (GAFB), Rome, NY For the USACE, Ms. Reynolds-Smith developed, sampled, and aquifer tested groundwater monitoring wells. She helped develop a treatability study work plan, was Site Health & Safety Officer for a Geoprobe investigation, and helped oversee the implementation of a chemical oxidation program. To support the 3-Mile Creek RD at GAFB, she used the USDA's TR-55 model to calculate peak discharge during selected storm events; then applied the results to the USACE HEC-RAS model to calculate 1D flow.

Finger Lakes Laundry and Cleaners, Geneva, NY Investigation and cleanup (via a permeable reactive barrier) of this former dry cleaner were conducted pursuant to a NYSDEC Voluntary Cleanup Agreement. Performed annual groundwater sampling and aquifer testing and designed a passive diffusion bag (PDB) groundwater sampling program.

Chautauqua Wind Project, Western NY Performed 3D groundwater flow modeling using MODFLOW to determine the impact of proposed wind turbines on regional groundwater flow.

NYSAES Grape Research Site, Ithaca, NY Performed field investigation, including pesticide surface soil sampling, and prepared report that resulted in on-site management (berming) of affected surface soil.

Military Reservations, Georgia and South Carolina

For the USACE Savannah District, she was Site Health & Safety Officer for a field program at Fort Gordon, Georgia, that included installation (with sonic drilling techniques), development, and sampling of 18 deep overburden wells, in addition to sampling of already existing wells and soil at numerous hand auger borings. She also helped compile investigation reports for Fort Gordon, as well as for Fort Jackson in South Carolina.

Monitor Devices, Wall Township, NJ For the Kansas City District of the USACE, Ms. Reynolds-Smith served as Field Team leader during rotosonic and hollow stem auger drilling for subsurface soil sampling and monitoring well installation.

West Commercial Street, E. Rochester, NY Designed and implemented a Phase II investigation at a former industrial facility. The program involved borehole and monitoring well installations, soil and groundwater sampling at this petroleum spill site.

Rush Landfill, Industry, NY For the New York State Office of General Services, led and participated in quarterly groundwater sampling for 15 wells, as well as surface water and sediment sampling at eight locations on the 48-acre site. Organized data and wrote or reviewed quarterly reports based on the analytical results.

Western New York Nuclear Service Center, West Valley, NY Obtained water elevation measurements and performed groundwater sampling and monitoring of 21 wells and piezometers at the closed, state-licensed disposal area (SDA) for commercial low-level radioactive waste. The samples collected were analyzed for volatile organic compounds (VOCs), tritium, alpha, beta, strontium-90, carbon-14, iodine-129, technetium-99, pH, specific conductivity, temperature, and turbidity. A trained Radiological Worker II, she conducted field activities in a radiological work area.

Hudson River PCB Cleanup, New York State For EPA Region 2 and the USACE Kansas City District, a member of multidisciplinary performance standards team for the EPA-required dredging action on the historic Hudson River. The $500-million program included construction of sediment processing and water treatment facilities, installation of rail and barge loading facilities, and development/use of innovative dredging techniques. The team identified best locations for sediment processing facilities via Phase II Environmental Site Assessments, determining the most appropriate quality of life performance standards to gauge project success, and determining how that success will be measured.

Cincinnati Refinery, Hooven, OH To help Chevron U.S.A. Products Company obtain requisite discharge permits for a planned retention pond and constructed treatment wetland, Ms. Reynolds-Smith completed the applications for both the State of Ohio Permit to Install and the EPA NPDES permit to enable discharge from the wetland into the nearby river.