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New York State Department of Environmental Conservation

SITE MANAGEMENT PLAN

Former Scolite Site, City of Troy, Rensselaer County, New York

Site No. E442037

January 2019

SITE MANAGEMENT PLAN

Former Scolite Site

Prepared for:

New York State Department of Environmental Conservation

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Date:

January 2019

Site Management Plan
Former Scolite Site,
Site Number E442037
Rensselaer County, City of Troy, New York
October 2018

I, Daniel J. Loewenstein, certify that I am currently a registered professional engineer in the State of New York and that this Site Management Plan was prepared in accordance with applicable statutes and regulations, and in substantial conformance with the DER Technical Guidance for Site Investigation and Remediation (DER-10).

SIGNATURE

10/12/18

DATE

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Acronyms and Abbreviations

AMSL – Above Mean Sea Level

BGS – Below Ground Surface

PID – Photoionization Detector

ROD – Record of Decision

SSAL – Site Specific Action Levels

SMP – Site Management Plan

PFAS – Perfluoroalkyl Substances

PFAA – Perfluoroalkyl Acid

HDPE – High-Density Polyethylene

1 Introduction

The Former Scolite Site (Site), Site No. E442037, was identified for remediation by the New York State Department of Environmental Conservation (NYSDEC or Department), in consultation with the New York State Department of Health (NYSDOH) in March 2011 due to the presence of hazardous substances that posed potential threats to human health and/or the environment. The Site is owned by the City of Troy (City or Owner).

1.1 Purpose of the Site Management Plan

The general purpose of this Site Management Plan (SMP) is to establish protocols for managing the Site following the completion of the remedy to address Semi-Volatile Organic Compounds (SVOCs), Inorganics (metals) and Polychlorinated Biphenyls (PCBs), in general accordance with the Record of Decision (ROD), as issued by the NYSDEC in March 2011. More specifically one objective of the SMP is to set guidelines for management of soil and groundwater during future activities at the Site. This plan is not intended to serve as a design document for potential construction activities related to Site redevelopment or reuse. The SMP is a portion of the overall remedy which addresses potential future disturbances or use of residually contaminated media remaining on the Site after other elements of the remedy have been implemented. This SMP addresses potential environmental concerns related to the management of Site soil and groundwater, and has been reviewed and approved by the NYSDEC. This SMP has been prepared by Arcadis CE, Inc., who provided design and construction phase engineering services for the remedial activities.

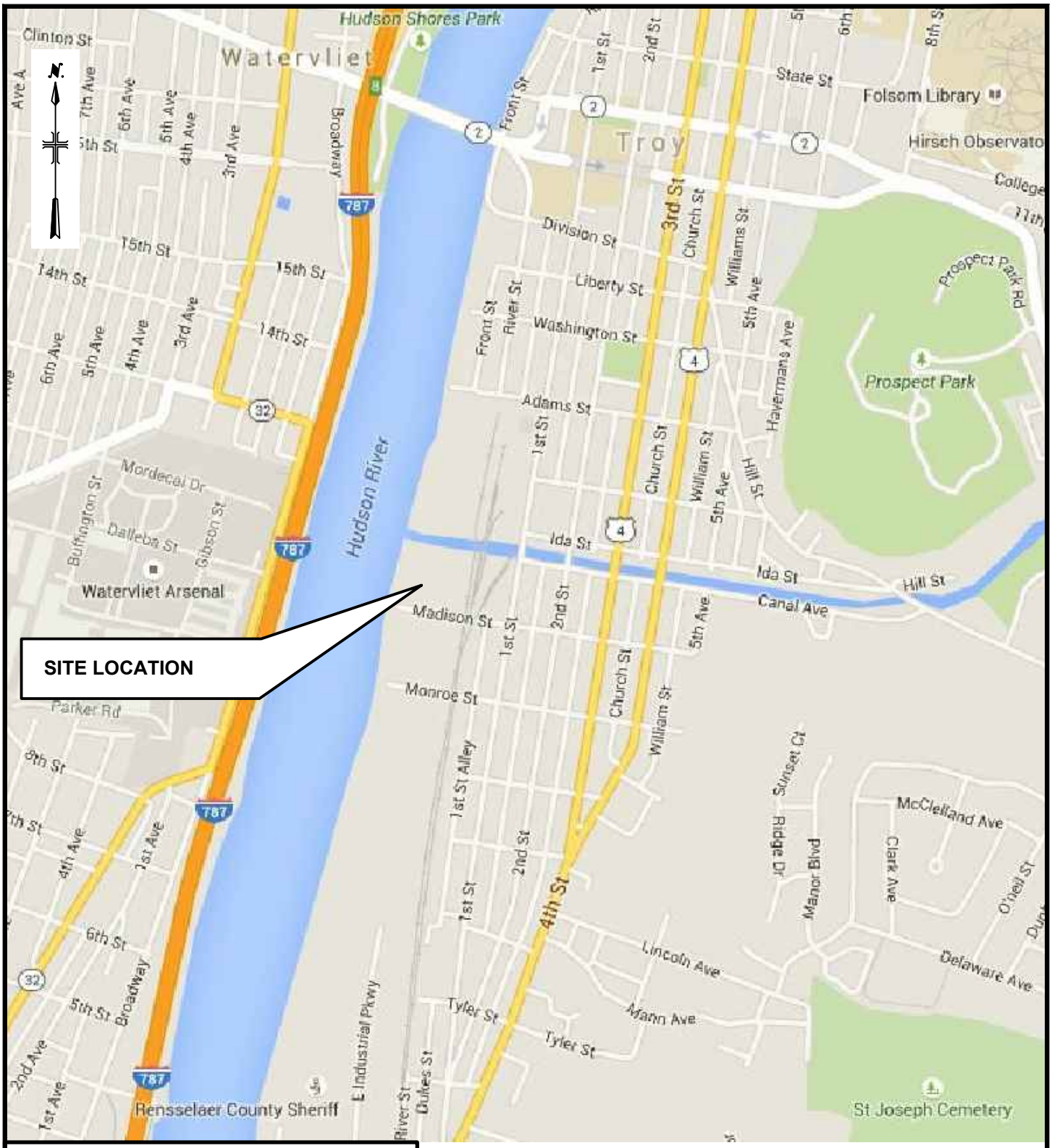
Summaries of previous environmental investigations have been restated in this SMP, where appropriate. The Owner should refer to the original, approved investigation reports for more detail, as needed. It remains the responsibility of future Site owners and potential Site developers to prepare and obtain appropriate approvals for all future engineering designs associated with the Site. Similarly, it is also their responsibility to conduct all future construction activities in a manner that incorporates and is compatible with the requirements for soil and groundwater management as set forth in this SMP.

1.2 Site Description

The Former Scolite Site is located in the City of Troy, Rensselaer County, New York at 2 Madison Street. The location of this Site can be found on Figures 1 (Site Location) and 2 (Preconstruction Site Map). The Site, as defined by the NYSDEC, consists of approximately 5.7 acres. The parcel is situated immediately south and east of the confluence of the Poesten Kill and the Hudson River. The Site is bounded by Madison Street to the south and an active railroad to the east, the Poesten Kill to the north and the Hudson River to the west. Future development scenarios allow commercial or industrial uses for the Site.

The eastern and central portions of the Site are generally flat with a gradual slope downward from east to west. The western portion of the site consists of a relatively flat terrace, approximately six feet lower than the balance of the Site. Large concrete blocks serve as a retaining wall separating the western terrace from the rest of the Site. Concrete and steel bulkheads are present on both the Hudson River and Poesten Kill shores. Most of the eastern portion of the Site is covered with concrete floor slabs remaining from former manufacturing buildings. A strip of land in the north, along the Poesten Kill, is vegetated.

Figure 1 Site Location



FORMER SCOLITE SITE
NYSDEC SITE NO. E442037
CITY OF TROY, RENSSELAER COUNTY, NEW YORK

SITE LOCATION

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FIGURE 1

USER: HAUSMANN FILENAME: C:\ACAD\PROJ\00266425.0000\FIGURES\SCOLITE\FIGURE 1-SITE LOCATION.DWG SAVE DATE: 4/10/2018 11:28 AM PLOT DATE: 4/10/2018 11:29 AM

Figure 2 Preconstruction Site Map

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NYSDEC SITE NO. E442037
CITY OF TROY, RENSSELAER COUNTY, NEW YORK

PRECONSTRUCTION SITE MAP

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FIGURE 2

1.3 Geology and Hydrogeology

Near-surface soil at the Site is mainly fill, the thickness of which varies from approximately 14 feet on the east side to greater than 20 feet trending towards the southwestern corner. The fill is comprised of stained soils, slag, ash and brick. The fill overlies native soils consisting of clay, sandy clay, or mixtures of clay, sand and pebbles. Bedrock in the area is thinly bedded and comprised of weathered shale from the Normanskill or Snake Hill Formations. No bedrock was encountered during the remedial investigation or remedial construction activities at the Site.

Groundwater at the Site is between 10 and 20 feet below ground surface (bgs). The direction of groundwater flow is generally towards the Hudson River, though a divide exists in the northeastern corner of the Site, where groundwater flows to the northeast, generally towards the Poesten Kill. Figure 3 depicts the groundwater flow at the Site in 2009.

There are no surface water features on the Site, and most precipitation infiltrates the ground on-site. However, due to the Site's topography and relatively low permeability concrete and asphalt surface materials, the potential exists for water to drain from the Site into the Hudson River or Poesten Kill. Some surface water also may run off to the storm sewers along Madison Street, which ultimately lead to the Hudson River.

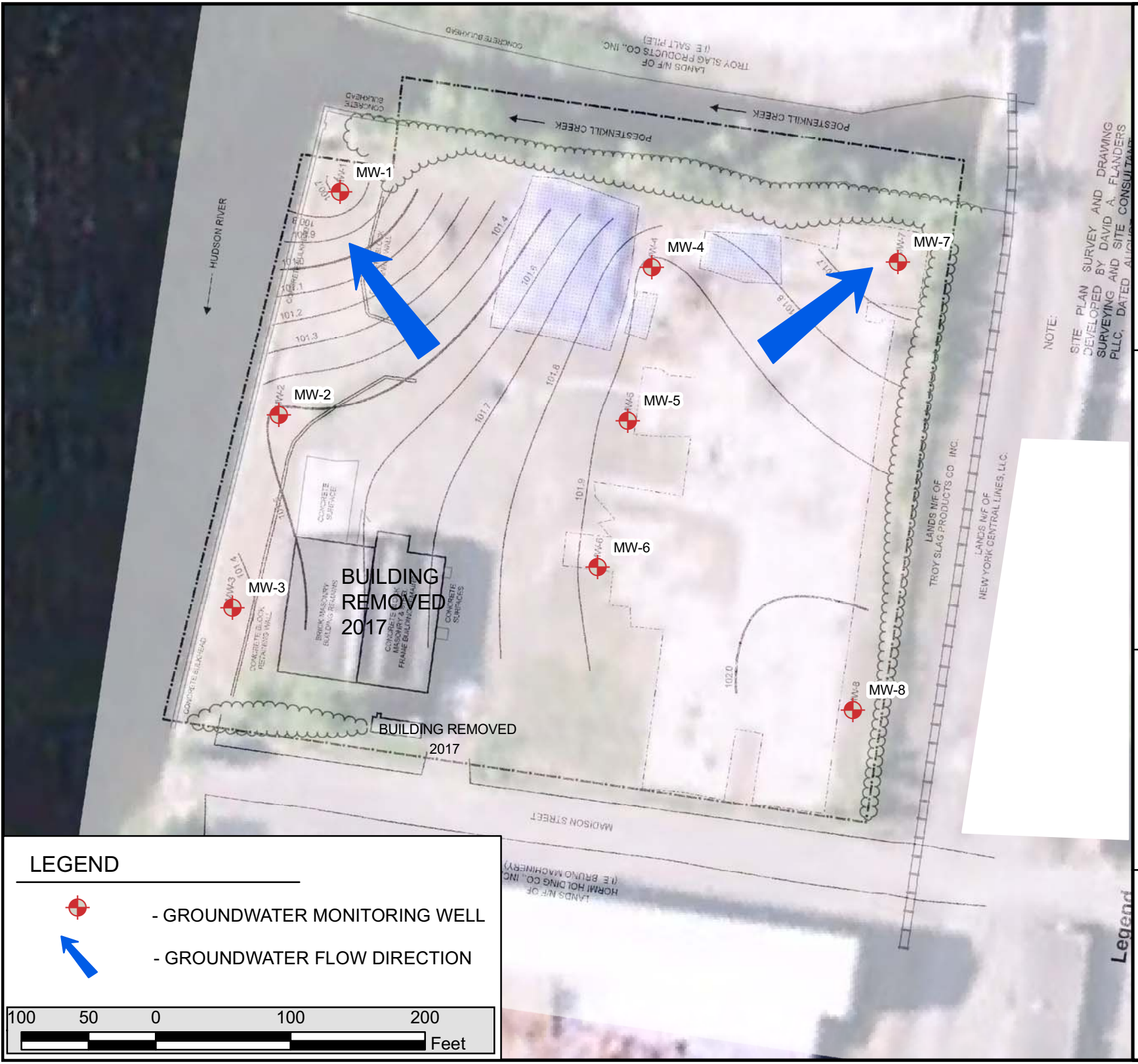
1.4 Site History

The Site was the locus of industrial operations for approximately one hundred and seventy years. Iron and steel industries occupied the Site from 1846 through 1971. Subsequent businesses on-site included Perlite manufacturing (Scolite International), commercial roofing, scrap metal salvaging and recycling, and automobile maintenance and storage. As mentioned previously, the near-surface Site soils consist mostly of fill, however, no indication of large-scale or widespread hazardous waste disposal was detected during the Site Investigation and no documentation of past disposal is known to exist.

After the iron and steel operations ceased and other industries occupied the Site, Site Investigation data indicate there was a presence of hazardous substances on-site. NYSDEC staff witnessed significant quantities of tar-like petroleum substances stored in various containers around the large foundry building on-site in 2006. The containers ranged in size and type from small buckets and 55-gallon drums to large tanker trucks, all of which were stored haphazardly under leaky roofs in an unsecured manner. In 2008, a fire occurred in the building where the majority of the tar materials were stored, causing some to be spilled or burned before they could be removed intact from the building. The fire resulted in large quantities of asbestos contaminated material (ACM) on-site, in the form of brick, mortar, roofing and other demolition debris left over from fighting the fire and razing the remaining buildings.

Prior to the fire, NYSDEC staff also witnessed and documented the presence of stained soil and surface water sheens on puddles in the areas occupied by scrap metal recycling operations. The observed contamination appeared to be consistent with petroleum-related spills, such as oily fluids or gasoline.

Figure 3 Groundwater Flow – August 2009



New York State Department of Environmental Conservation

Division of Environmental Remediation

Former Scolite, Troy

DEC Site No.: E4-42-037

FIGURE 3

Groundwater Flow August 2009

Map Details

Created in ArcMap 9.3

10.19.2010

North American Datum 1983
UTM Zone 18

1.5 Summary of the Remediation Objectives

The objectives for the remedial program have been established through the remedy selection process stated in 6 NYCRR Part 375. The goal for the remedial program is to restore the site to pre-disposal conditions to the extent feasible. At a minimum, the remedy shall eliminate or mitigate all significant threats to public health and the environment presented by the contamination identified at the site through the proper application of scientific and engineering principles.

The remedial objectives for this site are:

Public Health Protection:

Soil:

Prevent ingestion/direct contact with contaminated soil.

Prevent inhalation of contaminants volatilizing from the soil.

Surface water:

Prevent surface water contamination which may result in fish advisories.

Soil Vapor:

Mitigate impacts to public health resulting from existing, or the potential for, soil vapor intrusion into the indoor air of buildings at or near a site.

Environmental Protection:

Soil:

Prevent migration of contaminants that would result in groundwater or surface water contamination.

1.6 Summary of Remedial Activities

The City of Troy applied to the Environmental Restoration Program (ERP) in February 2006, and again in December 2006. The application for financial assistance for the investigation phase of the project was approved in August 2007. Approval of the application allowed the City to initiate a removal activity to address the potentially-hazardous materials that were present on-site at that time.

An investigation was performed prior to the parcel entering the ERP. The investigation, completed in 2006, was implemented under the South Troy Brownfields Assessment Demonstration Project, and was considered a Site Characterization with results adequate to supplement the ERP application.

The Site Standards, Criteria, and Guidance (SCGs) are based on Title 6 of the New York Code of Rules and Regulations (6NYCRR) Part 375 Restricted Soil Cleanup Objectives [SCOs] for Commercial Use, Table 375-6.8(b), NYSDEC's "Ambient Water Quality Standards and Guidance Values" and Part 5 of the New York State Sanitary Code for Water.

In 2016, an asphalt and gravel surface cover system was installed on the Site to supplement the pre-existing low-permeability concrete building floor slabs. The primary objective of this remedy was to eliminate or mitigate potential human health risks related to the presence of the identified contaminants present in surface and subsurface soil and fill by eliminating the potential for direct contact between

potential receptors and the contamination. In 2017, following the completion of the remedial action, the final two buildings (appearing in Figure 2) were demolished, and the resulting debris was removed from the site. The limits of the asphalt and gravel surface cover system are shown on Figure 4 and in Appendix A. The final surface grades are depicted on Figure 5 and the initial and final spot elevations in a grid pattern across the Site are shown in Appendix A. Please note that the official post-construction survey presented in Appendix A depicts the location of the final two buildings which were demolished after the survey was conducted.

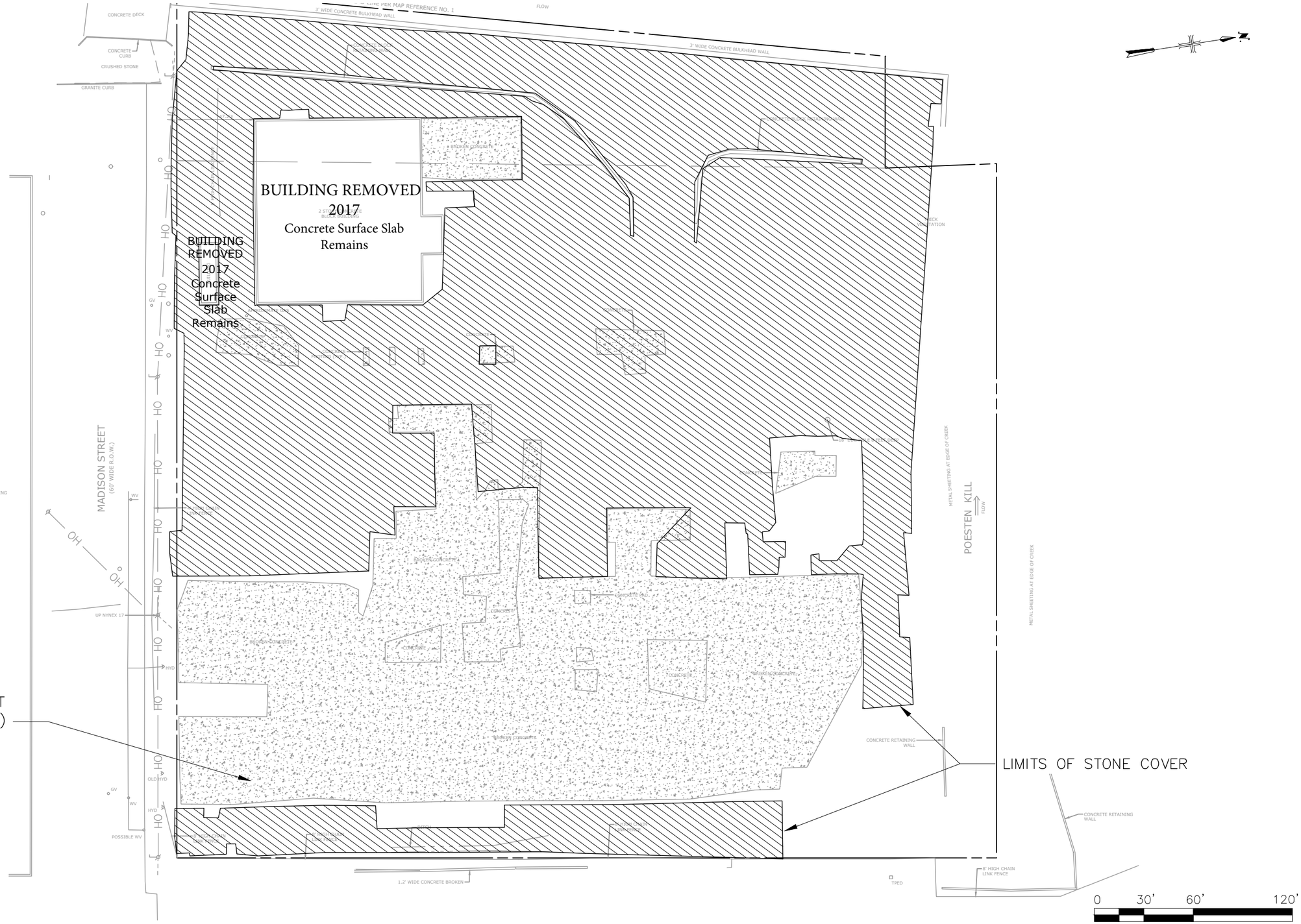
1.7 Contemplated Use

Potential future development scenarios allow commercial or industrial uses for the Site.

The Record of Decision for the Site requires that an institutional control (IC) be imposed in the form of an environmental easement that:

- Requires compliance with the approved Site Management Plan;
- Limits the use and development of the property to commercial or industrial activities;
- Prohibits agriculture or vegetable gardens on the Site;
- Requires the property owner to complete and submit a periodic certification of institutional and engineering controls to the NYSDEC at a frequency to be determined by the NYSDEC.

Figure 4 Limits of Cover



USER: HAUSMANN FILENAME: C:\ACAD\PROJ\00266425.0000\FIGURES\SCOLITE\FIGURE 3- LIMITS OF COVER.DWG SAVE DATE: 4/10/2018 12:33 PM PLOT DATE: 4/10/2018 12:34 PM

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SITE PLAN
LIMITS OF COVER

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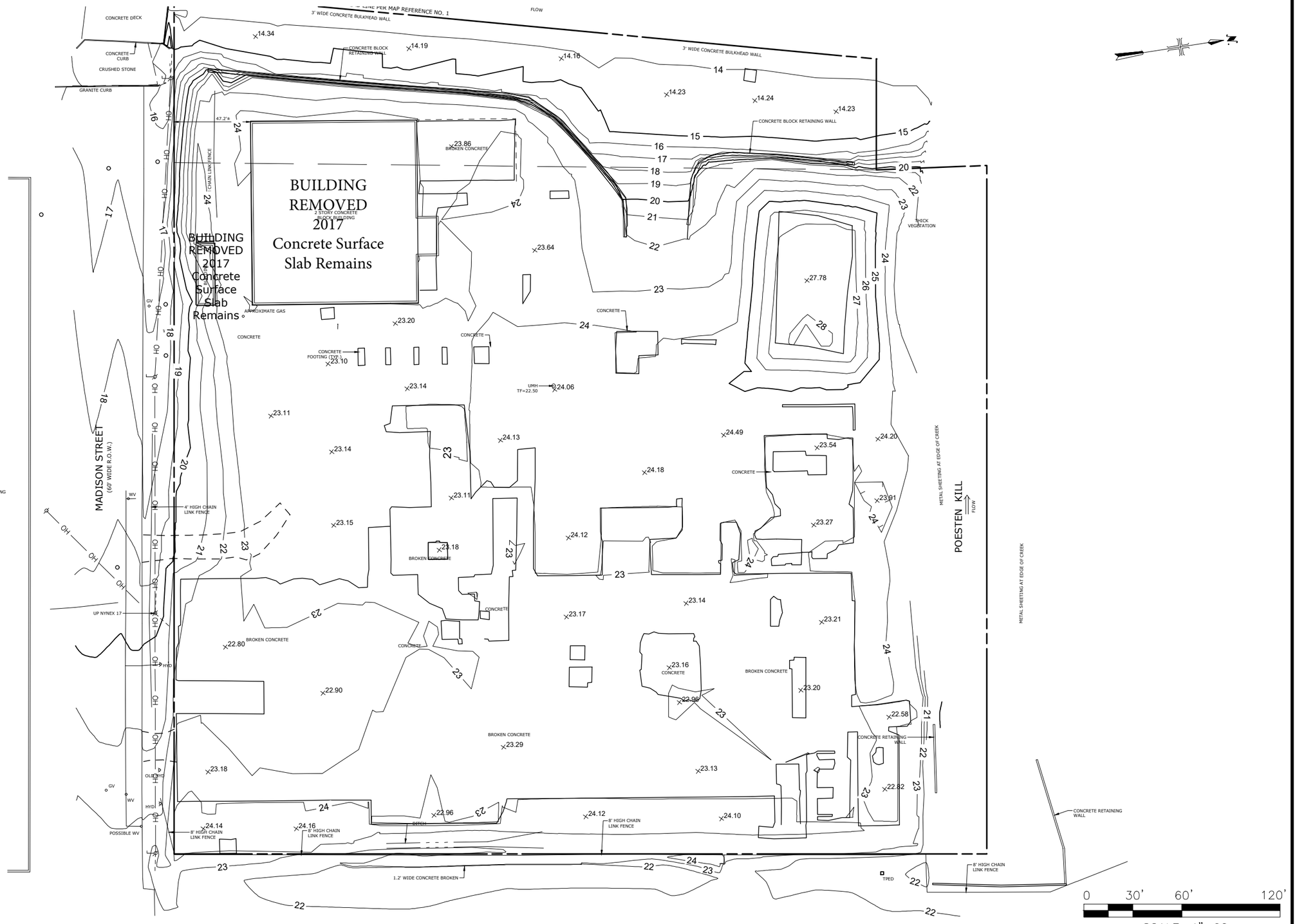
FIGURE 4

Figure 5 Final Topography of Cover



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FORMER SCOLITE SITE
NYSDEC SITE NO. E442037
CITY OF TROY, RENSSELAER COUNTY, NEW YORK

FINAL TOPOGRAPHY OF COVER

APRIL 2018

FIGURE 5

2 Site Management

2.1 Surface Cover

The primary purposes of the surface cover system are to minimize the potential for:

- Human contact with contaminated fill material; and
- Contaminated runoff from the property.

The cover system consists of the following:

- Type III Engineered Cover - 12 inches of stone cover underlain by separation fabric. This was installed throughout the Site on areas without pre-existing surface concrete slabs;
- Pre-existing concrete surface slabs, located generally in the central, southern and eastern portions of the Site; and
- Asphalt “patches” for holes in the pre-existing concrete surface slabs.

The limits of the engineered and stone cover, as well as the concrete surface slabs that were pre-existing at the Site are shown on Figure 4 and included in Appendix A. The final topography of the cover system is shown on Figure 5. The thickness of the cover system may be determined from the survey information contained in Appendix A.

2.2 Management of Soils/Fill and Long-Term Maintenance of Cover System

Contamination remains on-site below the cover system installed as the primary component of the remedial action. No significant Site-related groundwater contamination of concern was identified at the Former Scolite Site. Prior to remediation, the primary contaminants of concern were SVOCs, metals, and PCBs in surface soils. The installation of the surface cover system has successfully achieved soil cleanup objectives for commercial use. During the remedial activities, surface and subsurface soils were relocated on-site to shape the cover surface to promote runoff and drainage of precipitation and other surface water. Information from the ROD, and compiled by the NYSDEC, showing contaminant concentrations and their locations prior to the remedial activities is included in Appendix B.

The purpose of this section is to provide environmental guidelines for management of subsurface soils/fill and repair/replacement of the cover system during any future intrusive work which breaches the cover system. Prior to the initiation of such work, the NYSDEC will be notified and provided a certification. Any work done must be conducted in accordance with procedures defined in an applicable Work Plan, which shall include a Health and Safety Plan (HASP) and a Community Air Monitoring Program (CAMP).

2.2.1 Site Preparation

As part of future development or future intrusive on-site activities, the Site may require grading prior to cover system replacement. The fill material and debris disturbed during intrusive activities will be graded to the surface required for redevelopment. Trees, shrubs, roots, brush, rubbish, scrap, debris, slabs, pavement, curbs, fences, etc. will be removed and properly disposed off-site in accordance with

applicable solid waste regulations. Prior to cover system replacement, protruding material will be removed from the ground surface. Burning will not be allowed on the Site.

2.2.2 Excavation and Grading Below the Cover System

During construction activities at the Site, the excavation of soil/fill material may be necessary for the construction of foundations, utility corridors and other structures. For excavation work below the cover system, a Professional Engineer's representative with construction/remediation experience, representing the subject property owner or developer will monitor soil/fill excavations or disturbances. This Professional Engineer must also provide a stamped/signed certification that excavation work below the cover system and subsequent repair/replacement of the cover system was conducted in a manner consistent with this SMP.

During excavation performed to support development activities, the soil/fill will be inspected for staining, sampled to detect and quantify the presence of metals and field screened for the presence of VOCs with a photoionization detector (PID).

Excavated soil/fill may be used on-site as fill below the cover system. Soil/fill that is excavated as part of development which cannot be used as fill below the cover system will be further characterized prior to transportation off-site for disposal at an appropriate permitted facility.

2.2.2.1 Visibly Impacted Soils

Stained soil is soil that is observed to be discolored, tinted, dyed, unnaturally mottled, or has a sheen. Excavated soil/fill that is visibly stained or produces elevated PID readings (i.e., sustained 10 ppm or greater) will be considered potentially contaminated and stockpiled on the property for further assessment. The potentially contaminated soil/fill will be stockpiled (maximum 50 cubic yard piles) on and be completely covered with polyethylene sheeting to reduce the potential for contaminant migration or dispersion. Sampling and analysis will be completed in accordance with protocols delineated in 6 NYCRR Part 375 and DER-10. Visibly impacted soil/fill containing one or more constituents in excess of the Site-Specific Action Levels (SSALs) shown in 6 NYCRR Part 375 Table 375-6.8(b) for commercial or industrial use will be transported off-site to a permitted waste management facility.

2.2.2.2 Buried Debris, Drums or Tanks

If buried drums or underground storage tanks are encountered during soil excavation activities, excavation will cease and the NYSDEC will be immediately notified. All drums and/or underground storage tanks encountered will be evaluated and the contractor will submit a removal plan for NYSDEC approval. Appropriately trained personnel will excavate all the drums and/or underground storage tanks, while following all applicable federal, state, and local regulations. Removed drums, underground storage tanks, and associated materials will be properly characterized and disposed off-site. The soil/fill surrounding the buried drums or underground storage tanks will be considered to be potentially contaminated. The soil will be characterized and, as necessary, stockpiled and transported to an off-site permitted waste management facility for disposal.

2.2.3 Soil/Fill Characterization

2.2.3.1 Excavated Soil and Stockpiled Soil/Fill

Excavated soil/fill may be used on-site as fill below the cover system. Soil/fill that is excavated as part of development, which cannot be used as fill below the cover system, will be further characterized prior to transportation off-site for disposal at a permitted facility. For excavated soil/fill with visual evidence of contamination (i.e., staining or elevated PID measurements), one composite sample and a duplicate sample will be collected for each 100 cubic yards of stockpiled soil/fill. For excavated soil/fill that does not exhibit visual evidence of contamination but must be sent for off-site disposal, one composite sample and a duplicate sample will be collected for 2,000 cubic yards of stockpiled soil, and a minimum of 1 sample will be collected for volumes less than 2,000 cubic yards.

The composite sample will be collected from five locations within each stockpile. A duplicate composite sample will also be collected. PID measurements will be recorded for each of the five individual locations. One grab sample will also be collected from the five individual locations. The grab sample will be collected from the individual location with the highest PID measurement. If none of the five individual sample locations exhibit PID readings, one location will be selected at random. The composite sample will be analyzed by a NYSDOH ELAP-certified laboratory for pH (EPA Method 9045C), Target Compound List (TCL) SVOCs, pesticides, and PCBs, and TAL metals, and cyanide. The grab sample will be analyzed for TCL VOCs.

Soil samples will be composited by placing equal portions of fill/soil from each of the five composite sample locations into a pre-cleaned, stainless steel (or Pyrex glass) mixing bowl. The soil/fill will be thoroughly homogenized using a stainless-steel scoop or trowel and transferred to pre-cleaned jars provided by the laboratory. Sample jars will then be labeled, and a chain-of-custody form will be prepared.

2.2.3.2 Soil/Fill Disposal or Reuse

Visually impacted soil/fill that has been characterized and found to meet the SSALs, may be reused as subgrade or excavation subgrade backfill, if appropriate. On-site soil/fill may not be reused as backfill in landscaping berms to be used for the planting of trees and shrubs. If the analysis of the soil/fill samples reveals unacceptably high levels of any analytes, the soil may not be used as backfill on-site and additional analyses will be necessary to further classify the material for disposal purposes. The developer will be responsible for characterizing any material that is found to contain one or more constituents in excess of the SSALs. At a minimum, a duplicate sample may need to be analyzed for the toxicity characteristic, using the Toxicity Characteristic Leaching Procedure (TCLP), for the particular analytes that were detected at concentrations exceeding the SSALs. The duplicate sample may also be analyzed for the other RCRA Characteristics, including reactivity, corrosivity, and ignitability. If the analytical results indicate that concentrations exceed the standards for RCRA characteristics, the material will be considered a hazardous waste and must be properly disposed off-site at a permitted disposal facility within 90 days of excavation.

Additional characterization sampling for off-site disposal may be required by the disposal facility. To potentially reduce off-site disposal requirements and costs, the Owner or Site developer may also choose to characterize each stockpile individually. If the analytical results indicate that the soil is not a hazardous waste, the material will be properly disposed off-site at a non-hazardous waste facility. Stockpiled soil cannot be transported on or off-site until the analytical results are received.

2.2.4 Subgrade Material

Subgrade material used to backfill excavations or placed to increase Site grades or elevations shall meet the following criteria:

- Excavated on-site soil/fill which appears to be visually impacted shall be sampled and analyzed. Analytical results shall indicate that the contaminants, if any, are present at concentrations that do not exceed the SSALs.
- Off-site borrow soils will be documented as having originated from locations having no evidence of disposal or release of hazardous, toxic, or radioactive substances, wastes or petroleum products.
- Off-site materials intended for use as Site backfill cannot otherwise be defined as a solid waste in accordance with 6 NYCRR Part 360-2(a).
- If the contractor designates a source as “virgin” soil, it shall be further documented in writing to be native soil material from areas not having supported any known prior industrial or commercial development or agricultural use.
- Virgin soils should be subject to collection of one representative composite sample for each 500 cubic yards of material from each source area. The sample should be analyzed for TCL VOCs, SVOCs, pesticides, PCBs, arsenic, barium, cadmium, chromium, lead, mercury, selenium, silver, and cyanide. The soil will be acceptable for use as backfill provided that all parameters meet the SSALs.
- One composite sample for each 500 cubic yards of material from each source area of non-virgin soils will be collected and analyzed. If more than 1,000 cubic yards of soil are borrowed from a given off-site non-virgin soil source area and both samples of the first 1,000 cubic yards meet SSALs, the sample collection frequency will be reduced to one composite for every 2,500 cubic yards of additional soils from the same source, up to 5,000 cubic yards total. For borrow sources greater than 5,000 cubic yards, sampling frequency may be reduced to one sample for each 5,000 cubic yards, provided that all earlier samples met the SSALs.

Should the separation fabric underlying the stone cover be breached during excavations; the area will be excavated, the damaged geotextile will be cut to provide smooth edges, and a new geotextile of equal or greater quality will be installed to replace the breached area. The new geotextile will overlap the existing underlying separation fabric by a minimum of 24 inches on all sides.

2.2.5 Surface Cover System

The cover material shall meet the following criteria:

- Excavated on-site soil/fill shall not be used as cover material.
- Off-site borrow stone will be documented as having originated from locations having no evidence of disposal or release of hazardous, toxic or radioactive substances, wastes or petroleum products.
- Off-site stone materials intended for use as Site cover cannot otherwise be defined as a solid waste in accordance with 6 NYCRR Part 360-2(a).

2.2.5.1 Asphalt

Asphalt may be used for construction or development in areas that will become roads, sidewalks, and parking lots. Where asphalt will represent a cover in terms of remedial action, a minimum cross-sectional thickness of 6 inches of material (asphalt and clean subbase material) is required for protection from exposure to the underlying soil/fill material. The actual cross section of the asphalt cover (i.e. thickness of the asphalt and subbase material) will be determined based on the intended use of the area.

2.2.5.2 Concrete

Concrete may be used in areas that will become slab-on-grade structures, utilities, footings, foundations, sidewalks or signs. Concrete may also be used instead of asphalt for roads, sidewalks, and parking lots. Where concrete will represent a cover in terms of remedial action, a minimum cross-sectional thickness of 6 inches of material (concrete and clean subbase material) is required for protection from exposure to the underlying soil/fill material. A vapor barrier consisting of polyethylene sheeting with a minimum thickness of 8-millimeters will be installed under all structures. Type and thickness of concrete and subbase material will be determined based on intended use of the area.

2.2.6 Erosion Control

When the development or remedial actions at the Site require the disturbance of more than five acres of land, federal and state laws require that the project obtain coverage under the NYSDEC SPDES General Permit for Storm Water Discharges from Construction Activities that are classified as “Associated with Industrial Activity,” Permit #GP-93-10 (Construction Storm Water General Permit). It should be noted that after December 9, 2002, federal and state laws require that the project obtain coverage under the NYSDEC SPDES General Permit for Storm Water Discharges from Construction Activities for certain activities disturbing between one and five acres of land. Requirements for coverage under the Construction Storm Water General Permit include the submittal of a Notice of Intent form and the development of a Storm Water Pollution Prevention Plan (SWPPP). The SWPPP must fulfill all permit requirements and must be prepared in accordance with “Chapter Four: The Storm Water Management and Erosion Control Plan” in Reducing Impacts of Storm Water Runoff from New Development (NYSDEC,

1992). This Storm Water Management and Erosion Control Plan, in accordance with permit requirements, will provide the following information:

- A background discussion of the scope of the construction project.
- A statement of the storm water management objectives.
- An evaluation of post-development runoff conditions.
- A description of proposed storm water control measures.
- A description of the type and frequency of maintenance activities required to support the control measure.

The SWPPP will address issues such as erosion prevention, sedimentation control, hydraulic loading, pollutant loading, ecological protection, physical Site characteristics that impact design, and Site management planning. All descriptions of proposed features and structures at the Site will include a description of structure placement, supporting engineering data and calculations, construction scheduling, and references to established detailed design criteria. The SWPPP will conform to all requirements as established by applicable regulatory agencies.

Proven soil conservation practices will be incorporated in the construction and development plans to mitigate soil erosion, off-site sediment migration, and water pollution from erosion. The use of appropriate temporary erosion control measures such as silt fencing and/or hay bales will be required around all soil/fill stockpiles and soil surfaces which are unvegetated and not part of the stone and pavement cover during redevelopment activities. These methods are described below. Stockpiles shall be graded and compacted as necessary for positive surface water runoff and dust control. Stockpiles of soil/fill will be placed a minimum of 50 feet from the property boundaries.

Temporary Erosion Control Measures

Temporary erosion and sedimentation control measures and facilities will be employed during active construction stages. Prior to any construction activity, temporary erosion and sediment control measures shall be installed and maintained until such time that permanent erosion control measures are installed and effective. The following temporary measures will be incorporated into construction activities:

- Silt Fence
- Check Dams
- Hay Bales

As sediment collects along the erosion controls (silt fence, hay bales, check dams, etc.) they will be cleaned to maintain desired removal performance and prevent structural failure of the silt fence. Accumulated sediment will be removed when 10% of the storage capacity of the silt fence is full. Removed sediment will be stockpiled and characterized in accordance with Section 2. The perimeter silt fences will remain in place until construction activities in the area are completed and vegetative cover or other erosion control measures are adequately established. Silt fences will be provided and installed in accordance with the New York Guidelines for Urban Erosion and Sediment Control.

Permanent Erosion Control Measures

Permanent erosion control measures and facilities will be incorporated during cover construction and during Site redevelopment for long-term erosion protection. Permanent measures and facilities will be installed as early as possible during construction phases. Parking and building systems associated with redevelopment shall not include dry wells or other subsurface injection/disposal piping or facilities.

The remedial construction activities will involve the installation of a cover system including asphalt, concrete and stone over the Site. Permanent erosion control measures incorporate a combination of design features to limit overall erosion and sediment problems to practical design limits, and the placement of permanent facilities during Site restoration for long term erosion protection.

Design features incorporated into the construction plans to control erosion will include limiting steep slopes, routing runoff to surface water collection channels, limiting flow velocities in the collection channels to the extent practical, and lining collection channels, where appropriate. In areas where flow will be concentrated (i.e. collection channels), the channel slopes and configuration will be designed to maintain channel stability.

Any final slope greater than 33 percent will be reinforced and will have a demarcation layer under the clean cover materials to indicate if erosion has extended to the subgrade.

2.2.7 Dust Control

The surface of unvegetated or disturbed soil/fill areas will be wetted with water or other dust suppressive agents to control dust during construction. Any subgrade material left exposed during extended interim periods (greater than 90 days) prior to placement of final cover shall be covered with a temporary cover system (i.e. tarps, spray type cover system, etc.) to control fugitive dust to the extent practicable. Particulate monitoring will be performed along the downwind occupied perimeter of the parcel during subgrade excavation, grading, and handling activities in accordance with the Community Air Monitoring Plan further detailed in Section 2.3, and in accordance with NYSDEC's Fugitive Dust and Particulate Monitoring Program at Inactive Hazardous Waste Sites, which is included in Appendix C.

Dust suppression techniques will be employed at the Site in accordance with NYSDEC's Fugitive Dust and Particulate Monitoring Program. This document describes guidance for dust monitoring, and includes a list of effective dust suppression techniques. Dust suppression techniques that may be used at the Site include applying water on the stone or paved cover areas, wetting equipment, spraying water on buckets during excavation and dumping, hauling material in properly covered or watertight containers, covering excavated areas and material after excavation activity ceases, installing new cover immediately after placement of cover materials, and reducing the excavation size and/or number of excavations. The use of atomizing sprays is recommended so that excessively wet areas will not be created, but fugitive dust will be suppressed.

2.2.8 Construction Water Management

Pumping of water (i.e., groundwater and/or storm water that has accumulated in an excavation) from excavations, if necessary, will be done in such a manner as to prevent the migration of particulates, soil/fill, or unsolidified concrete materials, and to prevent damage to the existing subgrade. Water pumped from excavations will be managed properly in accordance with all applicable regulations to prevent endangerment of public health, property, or any portion of the construction.

In areas where groundwater may be contaminated, the groundwater in excavations will be field screened for VOCs and observed for any noticeable sheens. The water pumped from the excavations will be containerized and analyzed in accordance with the Surface Water and Ground Water Quality Standards set forth in 6 NYCRR Part 703.5 and the local sewer authority under a discharge permit. If the water quality is such that the local sewer authority will not approve the discharge to a sewer, it will be transported off-site for proper disposal or treated on Site via a treatment system that has been approved by the NYSDEC.

Runoff from surface discharges shall be controlled. No discharges shall enter a surface water body without proper permits.

2.2.9 Access Controls

Access to construction or development areas which disturb the existing cover on the property must be controlled until the final cover is placed to prevent direct contact with subgrade materials. Excavated subgrade material that is stockpiled on-site must be temporarily covered to limit access to that material.

2.2.10 Institutional Controls

A series of ICs is required by the March 2011 Record of Decision to:

1. Prevent future exposure to remaining contamination; and,
2. Limit the use and development of the site to commercial and industrial uses only.

Adherence to these ICs on the site is required by the environmental easement and will be implemented under this SMP. ICs identified in the environmental easement may not be discontinued without an amendment to or extinguishment of the environmental easement. The IC boundaries are shown on Figure 4 and described in Appendix A. These ICs are:

- The property may be used for commercial and industrial use;
- The use of groundwater underlying the property is prohibited without necessary water quality treatment as determined by the NYSDOH or the Rensselaer County Department of Health to render it safe for use as drinking water or for industrial purposes, and the user must first notify and obtain written approval to do so from the Department;
- Data and information pertinent to site management must be reported at the frequency and in a manner as defined in this SMP;
- All future activities that will disturb remaining contaminated material must be conducted in accordance with this SMP;

- Access to the site must be provided to agents, employees or other representatives of the State of New York with reasonable prior notice to the property owner to assure compliance with the restrictions identified by the environmental easement;
- The potential for vapor intrusion must be evaluated for any buildings developed in the area within the IC boundaries noted on Figure 4, and appropriate actions to address exposures must be implemented; and
- Vegetable gardens and farming on the site are prohibited.

2.2.11 Maintenance

Overall maintenance of the Site will be the responsibility of the Owner. Impacts or damage to remedial elements remaining at the Site following remedial construction will be reported to the NYSDEC, who will determine whether corrective actions are necessary to protect the environment or preserve the integrity of the remedy. Cover materials, fencing, signs, and gates will be inspected annually, and repaired as needed.

The main features of inspection are:

- Inspection procedures;
- Evaluation of the final cover system (i.e., stone cover, concrete slabs, asphalt patches, etc.) for sloughing, cracks, settlement, erosion, damaged fencing, gates or signs;
- Repair of deficiencies found; and
- Inspection reporting.

2.3 Health and Safety

Invasive work performed at the property will be performed in accordance with all applicable local, state, and federal regulations to protect worker health and safety.

If intrusive work is expected to breach the cover system at the Site, all contractors performing redevelopment or maintenance activities will be required to prepare a Site-specific, activity-specific Health and Safety Plan (HASP). The HASP must include certifications stating that the contractor's personnel have been 40-Hour OSHA HAZWOPER trained. The HASP must also include provisions for protection of the community as described further in this section.

2.3.1 Construction Personnel Protection

Contractors engaged in subsurface construction or maintenance activities (e.g., foundation and utility workers) will be required to implement appropriate health and safety procedures. These procedures will involve, at a minimum, donning adequate personal protective equipment, performing appropriate air monitoring, and implementing other engineering controls, as necessary, to mitigate potential ingestion, inhalation and contact with residual constituents in the soils. Recommended health and safety procedures include, but may not be limited to, the following:

- While conducting invasive work at the Site, contractors shall provide safe and healthful working conditions. Contractors shall comply with all of the New York State Department of Labor regulations, published recommendations and regulations promulgated under the Federal Occupational Safety and Health Act of 1970 and the Construction Safety Act of 1969, as amended, and with the laws, rules, and regulations of other authorities having jurisdiction. Compliance with governmental requirements is mandated by law and considered only a minimum level of safety performance. Contractors shall insure that all work performed is in accordance with recognized safe work practices.
- Contractors shall be responsible for the safety of the contractor's employees and the public. Contractors shall be solely responsible for the adequacy and safety of all construction methods, materials, equipment and safe prosecution of the work.
- Contractors are responsible for ensuring that all project personnel have been trained in accordance with 29 CFR 1910.120.
- Contractors shall have a HASP, written in accordance with 29 CFR 1926.65, prepared, signed and sealed by a safety professional, a safety professional and/or a trained safety representative(s) active on the job whenever the work is in progress, an effective and documented safety training program, and a safety work method check list system.
- Recognition as a safety professional shall be based on a minimum of certification by the Board of Certified Safety Professionals as a Certified Safety Professional and 5 years of professional safety management experience in the types of construction and conditions expected to be encountered on the Site.
- All personnel employed by a contractor or their subcontractors or any visitors whenever entering the job Site, shall be required to wear appropriate personal protective equipment required for that area.

2.3.2 Community Air Monitoring Program

Air monitoring will be performed during redevelopment activities in accordance with the New York State Department of Health (NYSDOH) Generic Community Air Monitoring Plan, which is included in Appendix D. All air monitoring readings will be recorded in a logbook and will be available for review by the NYSDEC and NYSDOH.

2.4 Notification and Reporting

There shall be no construction, use or occupancy of the property that results in the disturbance or excavation of soil which threatens the integrity of the cover system or which would result in human exposure to contaminated soils, unless prior written approval by the NYSDEC is obtained. Therefore, notification of NYSDEC at the address below should precede any such work by at least 60 days, to allow for review and any necessary revisions of a work plan. The following minimum notification and reporting requirements shall be followed by the property owner prior to and following Site development:

- If buried drums or underground storage tanks are encountered during soil excavation activities, excavation will cease and the NYSDEC will be immediately notified.
- The Owner shall complete an Annual Report containing documentation that the institutional controls put in place, pursuant to the ROD, are still in place, have not been altered and are still effective; that the remedy and protective cover have been maintained; and that the conditions at the Site are fully protective of public health and the environment.

If the cover system has been breached during the year, the Owner shall provide the following to the NYSDEC for subsequent inclusion in the corresponding annual report:

- A certification that all work was performed in accordance with this SMP.
- Plans showing areas and depth of fill removal.
- Copies of daily inspection reports for soil-related construction.
- Description of erosion control measures.
- A text narrative describing the excavation activities performed, health and safety monitoring performed (both Site-specific and Community Air Monitoring), quantities and locations of soil/fill excavated, disposal locations for the soil/fill, soil sampling locations and results, a description of any problems encountered, location and acceptability test results for backfill sources, and other pertinent information necessary to document that the Site activities were carried out properly.

If the disturbed area exceeds one acre, the following must also be reported to the NYSDEC:

- Plans showing the before and after survey elevations on a 100-foot grid system to document the thickness of the stone cover system.

New York State Department of Environmental Conservation
Division of Environmental Remediation
625 Broadway
Albany, New York 12233-7011

3 Site Monitoring Plan

3.1 Introduction

3.1.1 General

This SMP describes the measures for evaluating the performance and effectiveness of the remedy to reduce or mitigate contamination at the Site, the stone cover system, and all affected Site media identified below. Monitoring of other Engineering Controls is described in Section 4, Operation and Maintenance Plan. This SMP may only be revised with the approval of NYSDEC.

3.1.2 Purpose and Schedule

This Monitoring Plan describes the methods to be used for:

- Sampling and analysis of groundwater and stormwater;
- Assessing compliance with applicable NYSDEC standards, criteria and guidance, particularly ambient groundwater standards;
- Assessing achievement of the remedial performance criteria;
- Evaluating Site information periodically to confirm that the remedy continues to be effective in protecting public health and the environment; and
- Preparing the necessary reports for the various monitoring activities.

To adequately address these issues, this Monitoring Plan provides information on:

- Sampling locations, protocol, and frequency;
- Information on all designed monitoring systems;
- Analytical sampling program requirements;
- Reporting requirements;
- Quality Assurance/Quality Control (QA/QC) requirements;
- Inspection and maintenance requirements for monitoring wells;
- Monitoring well decommissioning procedures; and
- Annual inspection and documentation of Site conditions.

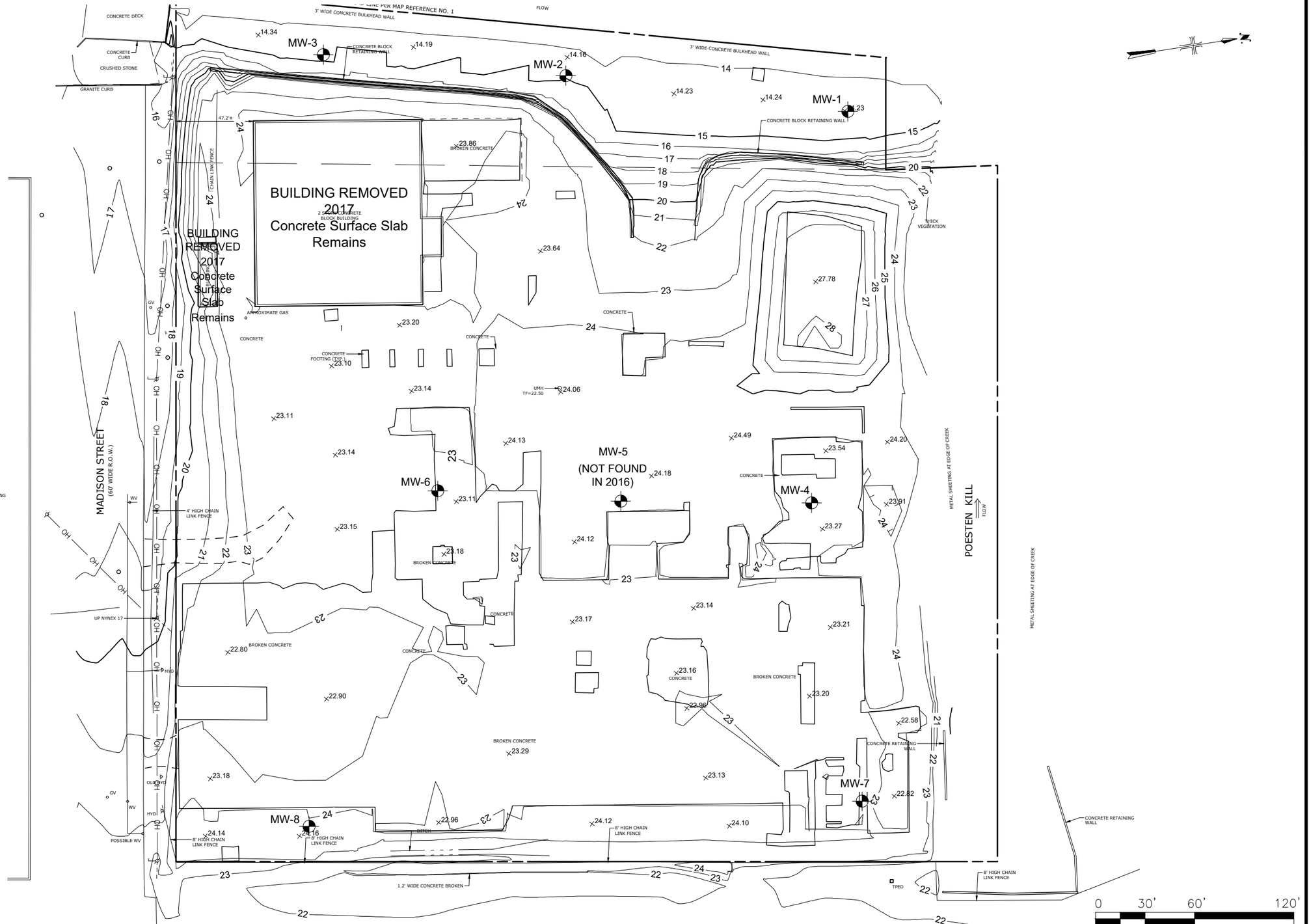
Annual monitoring of the performance of the remedy and overall reduction in contamination on-site and off-site will be conducted for the first five years following the completion of remedial construction. Based on a review by the NYSDEC of data generated during the five years of monitoring, the frequency of monitoring thereafter will be determined. Trends in contaminant levels in groundwater and storm water in the affected areas will be evaluated to determine if the remedy continues to be effective in achieving remedial goals. Monitoring programs are summarized in Table 3.1 and outlined in detail in Sections 3.2 and 3.3. Information regarding the existing monitoring wells is included in Appendix E.

Table 3.1 Monitoring/Inspection Schedule

Monitoring Program	Frequency*	Matrix	Analysis
Groundwater	Annual monitoring for five years	Groundwater from monitoring wells shown on Figure 6	TAL Metals Field Parameters SVOCs PCBs 1,4-Dioxane PFAS
Storm water	Annual monitoring for five years	Storm water collected from surface water drainage discharge	TAL Metals 1,4-Dioxane PFAS
Stone, Asphalt and Concrete Cover	Inspection during each groundwater monitoring event specified above	Stone, Asphalt and Concrete Cover	Visual Inspection

*The frequency of events will be conducted as specified until otherwise approved by the NYSDEC and the NYSDOH.

Figure 6 Monitoring Wells



NOTES:

1. MONITORING WELL LOCATIONS ARE APPROXIMATE.

ARCADIS	FORMER SCOLITE SITE NYSDEC SITE NO. E442037 CITY OF TROY, RENSSELAER COUNTY, NEW YORK	MONITORING WELLS	APRIL 2018 FIGURE 6

USER: HAUSMANN FILENAME: C:\ACAD\PROJ\00266425.0000\FIGURES\SCOLITE\FIGURE 5-MW LOCATIONS.DWG SAVE DATE: 4/10/2018 2:00 PM PLOT DATE: 4/10/2018 2:00 PM

3.2 Cover Monitoring

During remedial implementation, a stone cover was installed on the surface of the Site in areas not previously covered with concrete building slabs. Holes and unpaved areas within and adjacent to the slabs were covered with new asphalt. Prior to placement of the stone, a geotextile fabric was installed as a demarcation layer between the underlying regraded soil and the stone cover system. A visual inspection of the stone, asphalt and concrete cover system shall be conducted at the time of each groundwater monitoring event described in this SMP. The purpose of the visual inspection is to identify any changes, such as damage or erosion to the surficial media, which could compromise the functionality of the cover system. Since such changes could potentially increase the likelihood of exposure to subsurface contamination remaining at the Site, the specific nature of the change shall be documented in accordance with the reporting requirements contained in this SMP. A sample inspection report form for the Site is included in Appendix F.

3.3 Media Monitoring Program

3.3.1 Groundwater Monitoring

Groundwater monitoring will be performed on a periodic basis to assess the performance of the remedy. The monitoring and sampling plan may only be modified with the approval of the NYSDEC. The network of monitoring wells has been maintained to monitor groundwater conditions at the Site. A total of eight monitoring wells have been installed on the Site, although MW-5 was not located during installation of the cover system. The approximate locations of these wells are shown on Figure 6. Characteristics of these monitoring wells include:

Table 3.2 Monitoring Well Construction Details

Well ID	Northing	Easting	Status	Total Depth (ft. bgs)	Top of Casing Elevation (ft. amsl)*	Measuring Point Elevation (PVC, ft. amsl)*
MW-1	1417089.08	707539.88	Existing	23.57		
MW-2	1416923.82	707493.38	Existing	23.02		
MW-3	1416779.82	707458.76	Existing	21.49		
MW-4			Existing	28.61		
MW-6	1416808.31	707730.96	Existing	28.63		
MW-7	1417036.44	707956.81	Existing	19.10		
MW-8	1416701.27	707921.81	Existing	29.34		

*Elevations to be determined
Locations are approximate and require field verification.

Table 3.3 Wells to be Sampled

Well ID	
MW-1	MW-6
MW-2	MW-7
MW-3	MW-8
MW-4	

Deliverables for the groundwater monitoring program are specified below.

3.3.1.1 Sampling Protocol

All monitoring well sampling activities will be recorded in a field book and on a groundwater-sampling log presented in Appendix G. Other observations (e.g. well integrity, etc.) will be noted on the well sampling log. The well sampling log will serve as the inspection form for the groundwater monitoring well network.

In addition to standard sampling procedures listed in this SMP, additional measures must be observed due to the sensitivity of 1,4-Dioxane and Perfluoroalkyl Substances (PFAS) sampling. Samplers should not use products such as soaps, cosmetics, moisturizers, hand creams, etc. that may contain PFAS the day of sampling. Insect repellents and sun-blocks must contain 100% natural ingredients, any other such products may contain PFAS and are not permitted on the Site. Coated Tyvek clothing should be worn on-site during sampling, and long hair should be tied back. All clothing must be well-laundered with minimal use of soap and zero use of fabric softener. All footwear should be made with polyurethane and polyvinyl chloride, and clothing or boots with Gore-Tex material are not permitted on the Site. Seats of the field vehicle used during the sampling event must be covered with a well-laundered cotton blanket to avoid cross contamination between any latent materials on the vehicle seats and the groundwater samples being collected. Should sampling take place during wet weather, samplers should wear the appropriate clothing that will not risk cross contamination, such as avoiding synthetic gear that has been treated with a water repellant finish containing PFAS. Only gear made from wax-coated materials is acceptable.

3.3.1.2 Groundwater Level Measurements

Prior to groundwater sampling, the depth to groundwater will be measured in each well and the groundwater elevation above mean sea level will be determined for each monitoring point. Water level measurements will be used in conjunction with horizontal and vertical ground survey data to evaluate horizontal and vertical components of groundwater flow. Water level measurements will also be used to determine the volume of standing water in wells for purging activities.

The following equipment will be used for the measurement of water levels:

- Electronic water level indicator;
- Field log book and pen; and
- Photoionization Detector (PID).

At each monitoring well, the cap and internal riser cover will be removed. The headspace and breathing zone air quality will be monitored with the PID. This step may be omitted in subsequent rounds of water level measurements in those wells that yielded no detectable amounts of vapors or gases from prior sampling rounds.

The battery of the electronic water level indicator will be checked by pushing the battery check button and waiting for the audible signal to sound or the instrument light to come on. The water level indicator will be decontaminated before use in each well by using an Alconox wash and laboratory certified PFAS-free water rinse. The instrument will then be turned on and the probe will be slowly lowered into the well, until the audible signal is heard, or the instrument light goes on, indicating that the sensor in the probe has made contact with the water surface in the well.

The depth to water will be recorded to the nearest one-hundredth of a foot, from the top of the measuring mark on the well riser. The date, time, well number, and depth to water will be recorded in the field logbook in indelible ink.

3.3.2 Monitoring Well Inspection

Prior to collecting groundwater samples, each monitoring well will be inspected for the following:

- Damage to the cover or protective casing, if visible above the ground surface;
- Erosion of the cover system in the area immediately surrounding the casing;
- Operable lock, if appropriate; and
- Damage to the monitoring well surface seal.

3.3.2.1 Monitoring Well Sampling Procedures

The following equipment will be needed to collect groundwater samples for analysis:

- Electric water level indicator;
- Peristaltic pump;
- High-density polyethylene tubing;
- Temperature, pH, dissolved oxygen, specific conductivity and turbidity meters;
- Photoionization detector;
- Field logbook and field logs (must be loose paper);

- Laboratory prepared sample containers (polypropylene or HDPE sample bottles);
- Roll of polyethylene sheeting; and
- Decontamination equipment.

Groundwater sampling will be conducted in accordance with the USEPA Low-Flow Sampling Protocol (USEPA 1998). A piece of high-density polyethylene (HDPE) sheeting will be fitted over the monitoring well and laid on the ground. The sampling equipment will be placed on the HDPE sheeting. The expansion cap will be removed and the headspace at the top of the monitoring well will be measured with a PID. This step may be omitted in those monitoring wells which have already demonstrated in the previous rounds of water level measurements that they contain no or insignificant amounts of vapors or gases. The PID will be calibrated before the start of each sampling event.

Clean, new HDPE tubing will be attached to the peristaltic pump. The tubing will be lowered into the water column to a maximum depth of two feet above the bottom of the well. The well will be purged at a rate suitable to minimize drawdown. Field parameters, consisting of pH, specific conductance, temperature, dissolved oxygen, reduction potential, turbidity, and water level will be measured in each monitoring well prior to, during, and after purging (just before sampling) through the use of a flow-through cell. Both the pH and the specific conductivity meters will be calibrated for water temperature before each sampling event.

The volume of water removed from each monitoring well will be dependent upon the amount of time required for stabilization of the field parameters. In general, the well will be considered stabilized for sample collection when field parameters have stabilized for three consecutive readings as follows:

- pH: +/- 0.1 standard units
- Specific Conductance: +/- 3%
- Reduction Potential: +/- 10 millivolts
- Dissolved Oxygen: +/- 10%
- Turbidity: +/- 10%

When the field parameters have stabilized, the volume of water purged will be recorded, and groundwater in the monitoring well will be sampled through the pump at the same flow rate used to purge the well. Groundwater that is purged from monitoring wells or discharged during drilling activities may be disposed of at the Site and allowed to infiltrate into the ground based on the following conditions:

1. There is a defined Site which is the source of the groundwater contamination;
2. There is no free product, such as LNAPLs and DNAPLs, observed;
3. Recharge pits are used to preclude run-off from the Site and the pits are covered with clean cover stone when no longer needed; and
4. The infiltrating groundwater is being returned to the same water-bearing zone from which it is being purged.

If the above criteria are not met, the materials will be containerized in U.N.-approved, 55-gallon steel drums. The contents will be identified on weather-resistant labels attached to drum exteriors.

Upon completion of sampling, the sample bottles will be immediately placed in a cooler held at 4°C, using sealable plastic/polyethylene bags to hold the ice. Cooler ice must not be chemical or "blue" ice. Sample containers collected for perfluoroalkyl substances (PFAS) must be kept in a separate cooler if sampling to detect contaminants other than PFAS are collected during the same event.

Non-powdered nitrile disposable gloves will be worn by the sampling personnel and changed frequently in the following circumstances:

- Prior to decontamination of equipment;
- After contact with any non-decontaminated surface;
- Prior to contact with sample bottles;
- Between putting labels on sample bottles and sample collection;
- Before and after handling water quality meters;
- Before and after insertion of equipment into the monitoring wells (i.e. tubing, interface probe); and
- Before and after handling of any quality control/assurance samples.

Groundwater samples will be sent to a NYSDOH ELAP and NYSDEC ASP-approved analytical laboratory under chain-of-custody procedures for analysis of 1,4-Dioxane by USEPA Method 8270 SIM, PFAS (linear and non-linear branch isomers) by USEPA Method 537, SVOCs by USEPA Method 8270C, PCBs by USEPA Method 8082, and Target Analyte List (TAL) metals by USEPA Method 6010B:

Table 3.4 Analyte List

Analytes		
Aluminum	Copper	Selenium
Antimony	Iron	Silver
Arsenic	Lead	Sodium
Barium	Magnesium	Thallium
Beryllium	Manganese	Tin
Cadmium	Mercury	Titanium
Calcium	Molybdenum	Vanadium
Chromium	Nickel	Zinc
Cobalt	Potassium	1,4-Dioxane
SVOCs	Perfluorinated Alkyl Acids (linear and non-linear branch isomers)	PCBs

If the turbidity of the groundwater samples is greater than 50 Nephelometric Turbidity Units (NTUs) at the conclusion of well purging, total (unfiltered) and dissolved (filtered) fraction groundwater samples will be collected. The dissolved fraction groundwater samples will be filtered using a 0.45 micron in-line disposable filter.

In the event a spill occurs while sampling, liquids should be absorbed with an inert material, such as vermiculite or sand. That material should then be placed in a suitable closed container. Spark-proof tools

and explosion-proof equipment should be used during clean up. Any solids should be collected with an electrically-protected vacuum cleaner or by wet-brushing.

3.3.3 Field Quality Control Samples

Quality control procedures will be employed to ensure that sampling, transportation and laboratory activities do not bias sample analytical quality. Duplicate samples, matrix spike samples and matrix spike duplicates will provide a quantitative basis for validating the analytical data. A summary of the anticipated QA/QC samples for each media is included in Tables 3.5 and 3.6.

Table 3.5 QA/QC Samples – Groundwater

QA/QC Sample Type	Number of QA/QC Samples
Duplicate	1 duplicate for every 20 samples collected or 1 duplicate for every 7 calendar days of sampling
MS/MSD	1 MS/MSD for every 20 samples collected or 1 MS/MSD for every 7 calendar days of sampling

Table 3.6 QA/QC Samples – Storm Water

QA/QC Sample Type	Number of QA/QC Samples
Duplicate	1 duplicate for every 20 samples collected or 1 duplicate for every 7 calendar days of sampling
MS/MSD	1 MS/MSD for every 20 samples collected or 1 MS/MSD for every 7 calendar days of sampling

3.3.3.1 Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) sample pairs are analyzed by the laboratory to provide a quantitative measure of the laboratory's precision and accuracy. Field personnel will specify samples for MS/MSD analysis. Extra volume is not required for aqueous samples for inorganic analysis.

3.3.3.2 Field Duplicates

For each sample matrix, a field duplicate sample will be collected at a rate of one sample per 20 environmental samples per media. The duplicate sample is collected at the same location as the environmental sample. The field duplicate sample is identified using the sample designation system described in this Section. The identity of the field duplicate is not revealed to the laboratory. The analytical results of the environmental samples will be compared to the corresponding field duplicate samples, to evaluate field sampling precision.

3.3.3.3 Sample Designation

A sample numbering system will be used to identify each sample. This system will provide a tracking procedure to allow retrieval of information about a particular sample, and will assure that each sample is uniquely numbered. The sample identification will consist of at least four components as follows:

- **Project Identification**: The first component consists of a three-letter designation, which identifies the project Site. For this project, the three-letter designation will be FSS for Former Scolite Site.
- **Sample Type**: The second component, which identifies the sample type, will consist of a two-letter code as follows:
    - MW – Monitoring well (Groundwater Sample, determined by the existing well ID)
    - SW – Storm water (Storm water Sample from a drainage discharge point)
- **Sample Identification**: The third component will be used to uniquely identify each sample for NYSDEC EQuIS EDD purposes. The sampling date will be used and will be provided in the following format:
    - MMDDYYYY (i.e. August 16, 2016 would be 08162016)
- **Quality Assurance/Quality Control Samples**: The samples will be labeled with the following suffixes:
    - MS – Matrix Spike
    - MSD – Matrix Spike Duplicate

Duplicate samples will be numbered uniquely as if they were samples.

A record of identification for duplicate samples will be maintained.

Examples of identification numbers are given below:

FSS-MW-01-08162016: Monitoring well groundwater sample, monitoring well ID MW-01, location one, collected August 16, 2016.

FSS-MW-01-08162016-MS: Monitoring well groundwater sample, monitoring well ID MW-01, location one, collected on August 16, 2016, matrix spike.

3.3.4 Field Documentation – General

Documentation of an investigative team's field activities often provides the basis for technical Site evaluations and other such related written reports. All records and notes generated in the field will be considered controlled evidentiary documents and may be subject to scrutiny in litigation.

Personnel designated as being responsible for documenting field activities must be aware that all notes may provide the basis for preparing responses for legal interrogatories. Field documentation must provide sufficient information and data to enable reconstruction of field activities. The following information must be provided on the inside front cover of each field logbook:

- Project Name (Site Name);
- Site Location;
- Site Manager; and
- Date of Issue.

Control and maintenance of field logbooks is the responsibility of the Field Team Leader.

3.3.5 Documentation of Field Activities

Field logbook entries must be legibly written and provide an unbiased, concise, detailed picture of all field activities. Use of preformatted data reporting forms must be identifiable and referenced to field notebook entries.

Step-by-step instructions and procedures for documenting field activities are provided below and in following sub-sections. Instruction and procedures relating to the format and technique in which field logbook entries are made are as follows:

- All logging taken in the field must be documented on loose paper, waterproof paper must not be used. Should a clip board be used, Masonite or Aluminum clip boards are applicable.
- Leave the first two pages blank. They will provide space for a table of contents to be added when the field logbook is complete.
- The first written page for each day identifies the date, time, Site name, location, personnel and their responsibilities, other non-personnel present, and observed weather conditions. Additionally, during the course of Site activities, deviations from the work plan must also be documented.

- All photos taken must be traceable to field logbook entries. It is recommended to reference photo locations to the Site sketch or map.
- All entries must be made in ink.
- All entries must be accompanied by the appropriate military time (such as 1530 instead of 3:30).
- Errors must be lined through and initialed. No erroneous notes are to be made illegible.
- The person documenting must sign and date each page as it is completed.
- Isolated logbook entries made by a team member, other than the team member designated responsible for field documentation, must be signed and dated by the person making the entry.
- Additions, clarifications, or corrections made after completion of field activities must be dated and signed.

3.3.6 General Site Information

General Site characteristics must be recorded. Information may include:

- Type of access into facility (locked gates, etc.)
- Anything that is unexpected on-site (e.g. appearance of drums that have not been previously recorded).
- Information obtained from interview with Site personnel (if applicable), or other interested party contact on the Site.
- Name of any community contacts at the Site.
- A Site map or sketch. It can be sketched into the logbook or attached to the book.

3.3.7 Sample Activities

A chronological record of each sampling activity must be kept.

- Explanation of sampling at the location identified in the sampling plan (e.g., discolored soil, stressed vegetation).
- Exact sample location, using permanent recognizable landmarks and reproducible measurements.
- Sample matrix.
- Sample descriptions - i.e., color, texture, odor (e.g., soil type, murky water) and any other important distinguishing features.
- Decontamination procedures, if used.

As part of chain-of-custody procedures, recorded on-site sampling information must include sample number, date, time, sampling personnel, sample type, designation of sample as grab or composite, and

identify any preservative used. Sample locations should be referenced by sample number on the Site sketch or map. The offer and/or act of providing sample splits to a third party (e.g. the responsible party representative; state, county, or municipal environmental and/or health agency, etc.) must be documented. Sample tracking and custody will be documented between sample collection and laboratories.

3.3.7.1 Sample Dispatch Information

When sampling is complete, all sample documentation such as chain-of-custody forms shall be copied, and copies placed in the project files. A notation of the number of coolers shipped, carrier and time delivered to pick-up point should be made in a field notebook.

3.3.7.2 Monitoring Well Repairs, Replacement and Decommissioning

If bio-fouling or silt accumulation occurs in the on-Site and/or off-site monitoring wells, the wells will be physically agitated/surged and redeveloped. Additionally, monitoring wells will be properly decommissioned and replaced (as per the SMP), if an event renders the wells unusable.

Repairs and/or replacement of wells in the monitoring well network will be performed based on assessments of structural integrity and overall performance.

The NYSDEC will be notified prior to any repair or decommissioning of monitoring wells for the purpose of replacement, and the repair or decommissioning and replacement process will be documented. Well decommissioning without replacement will be done only with the prior approval of the NYSDEC. Well abandonment will be performed in accordance with the NYSDEC's "Groundwater Monitoring Well Decommissioning Procedures." Monitoring wells that are decommissioned because they have been rendered unusable will be reinstalled in the nearest available location, unless otherwise approved by the NYSDEC.

3.3.8 Storm Water Monitoring

To maintain proper drainage at the Site, the stone, concrete and asphalt surfaces will be visually inspected for damage, puddling/ponding and debris build up, and the inspection will be documented in the field book.

Storm Water Sampling Procedures

The following equipment will be needed to collect a storm water sample for analysis:

- Peristaltic pump.
- HDPE tubing.
- Temperature, pH, dissolved oxygen, specific conductivity and turbidity meters.
- Field logbook and field logs (must be loose paper).

- Laboratory prepared sample containers (polypropylene or HDPE sample bottles).

If water is present on the cover surface, a grab sample will be collected. A single set of field parameters, consisting of pH, specific conductance, temperature, dissolved oxygen, reduction potential, turbidity, and water level will be measured once prior to sampling. Both the pH and the specific conductivity meters will be calibrated for water temperature before each sampling event. If the turbidity of the storm water samples is greater than 50 NTUs, total (unfiltered) and dissolved (filtered) fraction storm water samples will be collected. The dissolved fraction storm water samples will be filtered using a 0.45 micron in-line disposable filter. To obtain a filtered sample, the storm water will need to be collected with a peristaltic pump, in order for the water to be pumped through the filter.

The storm water sampling frequency may be modified based on review of collected data by the NYSDEC. The SMP will be modified to reflect future changes in sampling plans approved by the NYSDEC.

Upon completion of sampling, the sample bottles will be immediately placed in a cooler held at 4^{o}C. Disposable non-powdered nitrile gloves will be worn by the sampling personnel and changed at a frequency consistent with the groundwater sampling procedures listed in Section 3.3.2.1 of this SMP.

Storm water samples will be sent to a NYSDOH ELAP and NYSDEC ASP-approved analytical laboratory under chain-of-custody procedures for analysis of 1,4-Dioxane by USEPA Method 8270 SIM, PFAS (linear and non-linear branch isomers) by USEPA Method 537, SVOCs by USEPA Method 8270C, PCBs by USEPA Method 8082, and Target Analyte List (TAL) metals by USEPA Method 6010B.

Sample designation and field documentation are identical to groundwater monitoring methods as previously described.

3.4 Site – Wide Inspection

Site-wide inspections will be performed on a regular schedule at a minimum of once each year. Site-wide inspections will be also performed after all severe weather conditions that may affect Engineering Controls or monitoring devices. During these inspections, an inspection report form will be completed (Appendix F). The form will compile sufficient information to assess the following:

- Compliance with all ICs, including Site usage;
- An evaluation of the condition and continued effectiveness of ECs;
- General Site conditions at the time of the inspection;
- The Site management activities being conducted, including, where appropriate, confirmation sampling and a health and safety inspection;
- Compliance with permits and schedules included in the Operation and Maintenance Plan; and
- Confirm that Site records are up to date.

3.5 Monitoring Quality Assurance/Quality Control

Not applicable to the monitoring phase at the Former Scolite Site. Sampling QA/QC can be found in Section 3.3.3 of this SMP.

3.6 Monitoring Reporting Requirements

Forms and any other information generated during regular monitoring events and inspections will be kept on file by the NYSDEC. All forms, and other relevant reporting formats used during the monitoring/inspection events, will be prepared in accordance with the NYSDEC's standards and as specified in this SMP.

Monitoring results will be collected by the NYSDEC on an annual basis for the first five years following completion of the remedial construction.

The results will include the following information:

- Date of monitoring event;
- Personnel conducting sampling;
- Description of the activities performed;
- Type of samples collected (e.g., groundwater, storm water, etc.);
- Copies of all field forms completed (e.g., well sampling logs, chain-of-custody documentation, etc.);
- A figure illustrating sample type and sampling locations;
- A figure illustrating potentiometric contours;
- Copies of all laboratory data sheets and the required laboratory data deliverables for all points sampled (to be submitted electronically in the NYSDEC-identified format);
- Any observations, conclusions, or recommendations; and
- A determination as to whether groundwater conditions have changed since the last reporting event.

Data will be reported in hard copy or digital format as determined by the NYSDEC. A summary of the monitoring program deliverables is in Table 3.7.

Table 3.7 Schedule of Monitoring/Inspection Reports

Task	Reporting Frequency*
Groundwater and Storm Water Monitoring and Site Inspection Report	**Annually for first five years**

***The frequency will be conducted as specified until otherwise approved by the NYSDEC.

4 Operation and Maintenance Plan

4.1 Introduction

The Site remedy does not rely on any mechanical systems. Therefore, the operation and maintenance of such components is not included in this SMP. The condition of chain-link fence and the cover system will be inspected as part of the Site Inspection, and any damage will be documented and promptly repaired.

5 Inspections, Reporting and Certifications

5.1 Site Inspections

5.1.1 Inspection Frequency

All inspections will be conducted at the frequency specified in the schedules provided in Section 3 of this SMP. Inspections of remedial components will be conducted annually for the first five years following completion of remedial construction, or whenever a severe weather event has taken place, such as an erosion or flooding event that may affect the ECs.

5.1.2 Inspection Forms, Sampling Data, Maintenance Reports

All inspections and monitoring events will be recorded on the appropriate section of the inspection report form for their respective system. The inspection report form is contained in Appendix F. Additionally, a general Site-wide inspection form will be completed during the Site-wide inspection (see Appendix F). These forms are subject to NYSDEC revision.

5.1.3 Evaluation of Records and Reporting

The results of the inspection and Site monitoring data will be evaluated as part of the EC/IC certification demonstrating that the:

- EC/ICs are in place, are performing properly, and remain effective;
- The Monitoring Plan is being implemented;
- Operation and maintenance activities are being conducted properly; and
- The Site remedy continues to be protective of public health and the environment, and is performing as designed in the RAWP and RD.

5.2 Certification of Institutional Controls

For each institutional control identified for the Site, it shall be determined that all of the following statements are true:

- The institutional control employed at this Site is unchanged from the date the control was put in place, or last approved by the NYSDEC;
- Nothing has occurred that would impair the ability of the control to protect the public health and the environment;
- Nothing has occurred that would constitute a violation or failure to comply with any Site management plan for this control;

- Access to the Site will continue to be provided to the NYSDEC to evaluate the remedy, including access to evaluate the continued maintenance of this control;
- If a financial assurance mechanism is required under the oversight document for the Site, the mechanism remains valid and sufficient for the intended purpose under the document;
- Use of the Site is compliant with the environmental easement;
- The information presented in this report is accurate and complete;
- No new information, including groundwater monitoring data from the wells located at the Site boundary, if any, indicate that the assumptions made in the qualitative exposure assessment of off-site contamination are no longer valid;
- Every five years the following certification will be added: “The assumptions made in the qualitative exposure assessment remain valid”; and
- The Owner’s representative shall certify that all information and statements in the certification form are true. A false statement made is punishable as a Class “A” misdemeanor, pursuant to Section 210.45 of the Penal Law.

5.3 Periodic Review Report

A Periodic Review Report will be prepared and submitted to the NYSDEC every year, beginning twelve months after the Certificate of Completion is issued. In the event that the Site is subdivided into separate parcels with different ownership, a single Periodic Review Report will be prepared that addresses the Site depicted and described in Appendix A, including the metes and bounds of the environmental easements. The report will be prepared in accordance with NYSDEC DER-10 and will include:

- Identification, assessment and certification of all EC/ICs required by the remedy for the Site;
- Results of the required annual Site inspections and severe condition inspections, if applicable;
- All applicable inspection forms and other records generated for the Site during the reporting period in electronic format;
- A summary of any discharge monitoring data and/or information generated during the reporting period with comments and conclusions in electronic format;
- Data summary tables and graphical representations of contaminants of concern by media (groundwater, soil vapor), which include a listing of all compounds analyzed, along with the applicable standards, with all exceedances highlighted. These will be submitted in electronic format, as determined by the NYSDEC. These will include a presentation of past data as part of an evaluation of contaminant concentration trends;
- Results of all analyses, copies of all laboratory data sheets, and the required laboratory data deliverables for all samples collected during the reporting period; and
- A Site evaluation, which includes the following:

- The compliance of the remedy with the requirements of the Site-specific RAWP, ROD or Decision Document;
- Assessment of the operation and the effectiveness of all treatment units, etc., including identification of any needed repairs or modifications;
- Any new conclusions or observations regarding Site contamination based on inspections or data generated by the Monitoring Plan for the media being monitored;
- Recommendations regarding any necessary changes to the remedy and/or Monitoring Plan; and
- The overall performance and effectiveness of the remedy.

5.4 Corrective Measures Plan

If any component of the remedy is found to have failed, or if the periodic certification cannot be provided due to the failure of an institutional or engineering control, a corrective measures plan will be prepared and submitted to the NYSDEC. This plan will explain the failure and provide the details and schedule for performing the work necessary to correct the failure.

APPENDIX A

Cover Limit Description and Final Survey

Metes and Bounds Description of Stone Boundary and the Former Site Scolite International Corp. in the City of Troy

ALL that Certain stone boundary situated in the Town of Troy, County of Rensselaer, State of New York, lying along the Northerly side of Madison Street, being shown as apportion of the map entitled "FINISHED GRADE TOPOGRAPHY LANDS N/F CITY OF TROY", prepared by NMB Land Surveying PLLC, dated September 23rd, 2016, and being more particularly bounded and described as follows:

Beginning at a point which is located on the south easterly corner of the property, being approximately 13 feet northwesterly of utility pole NM 6 and 29 feet northeasterly of said fire hydrant and then the stone boundary being described to the west, thence along the said northerly side of Madison Street the following 12 courses:

thence N 83°35'52" W a distance of 109.88';

thence N 86°55'50" W a distance of 58.79';

thence N 80°49'07" W a distance of 175.51';

thence N 79°13'57" W a distance of 81.43';

thence N 74°17'33" W a distance of 92.42';

thence N 14°04'02" E a distance of 462.58';

thence S 79°24'49" E a distance of 22.15';

thence S 74°37'22" E a distance of 67.75';

thence S 80°38'09" E a distance of 230.86';

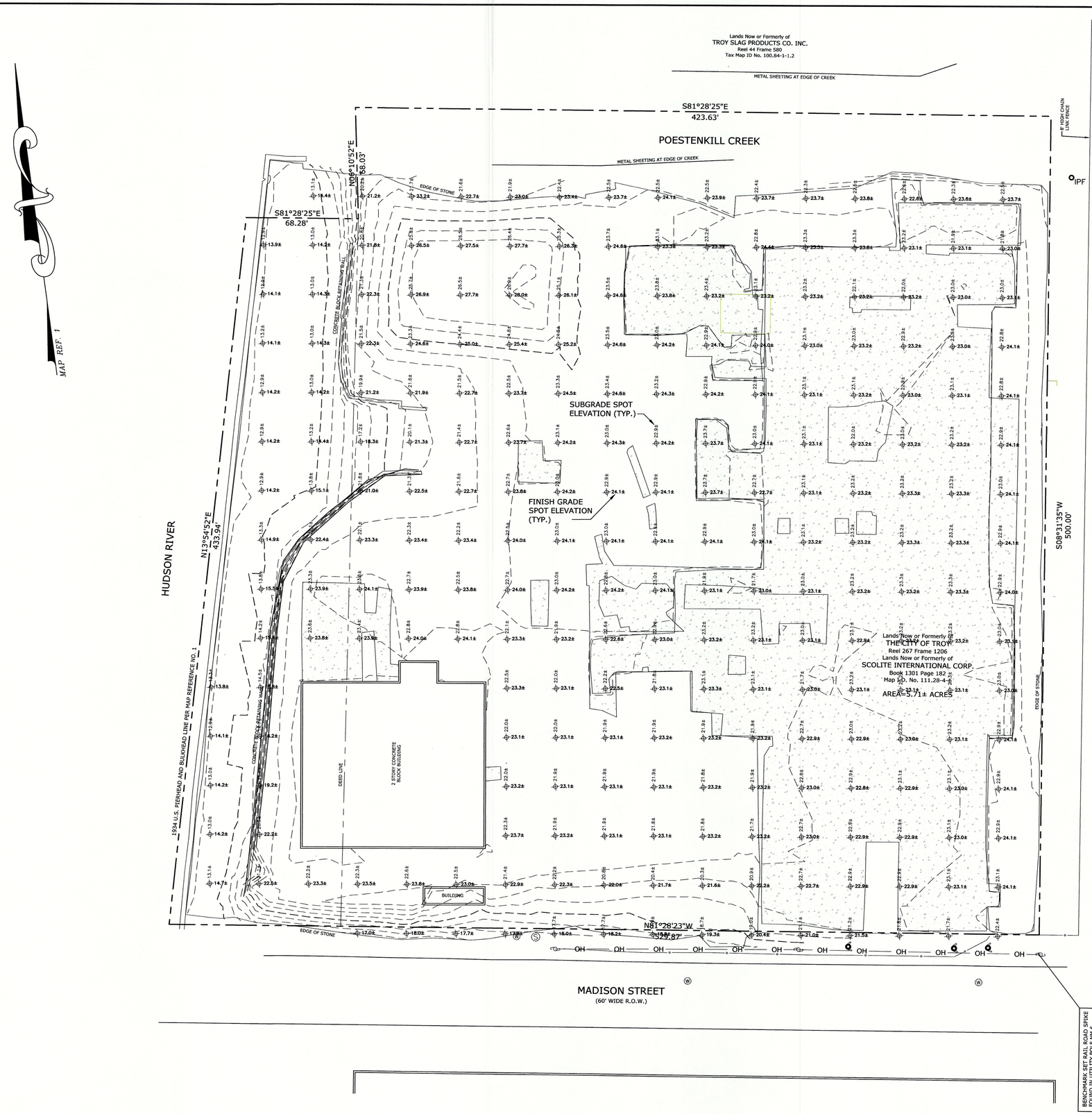
thence S 89°41'09" E a distance of 59.29';

thence S 78°56'57" E a distance of 94.06';

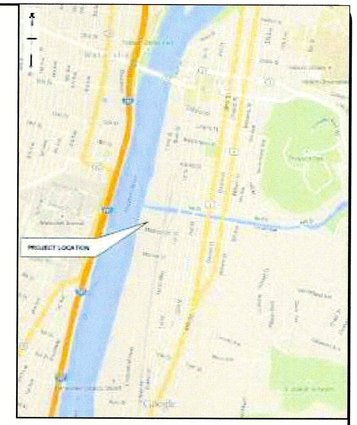
thence S 08°36'36" W a distance of 459.57';

which is the point of beginning, having an area of 230246.08 square feet, 5.286 acres of land.

Being a portion of lands conveyed to City of Troy by deed reel 267 Frame 1206, also described as Lands Now of Formerly of Scolite International Corp. Book 1301 page 182, also Map I.D. No. 111.28-4-1.



MAP REF. 1



SITE LOCATION MAP

N.T.S.

NOTES:

1. SURVEY SHOWN WAS PREPARED FROM A AUGUST 2016 FIELD SURVEY.
2. SURVEY SUBJECT TO ANY SUBSURFACE CONDITIONS THAT MAY EXIST, IF ANY.
3. UNDERGROUND UTILITIES SHOWN HERON ARE APPROXIMATE AND BASED ON UTILITY EVIDENCE VISIBLE AT GROUND SURFACE AND ARE SUBJECT TO FIELD VERIFICATION BY EXCAVATION. UTILITIES SHOWN DO NOT IMPLY TO CONSTITUTE OR REPRESENT ALL UTILITIES UPON OR ADJACENT TO THE SURVEYED AREA. OTHER UTILITIES MAY EXIST, IF ANY.
4. THE DATUM USED FOR THIS SURVEY IS BASED ON PROVIDED PROJECT CONTROL.
5. ORIGINAL GROUND TOPOGRAPHY WAS PROVIDED BY J.H. MALOY.
6. NMB LAND SURVEYING PLLC PERFORMED NO BOUNDARY DETERMINATION FOR THE PURPOSES OF THIS SURVEY. PROPERTY LINES SHOWN ARE FOR REFERENCE ONLY.
7. ALL FEATURES AND PROPERTY LINES SHOWN ARE ARE REFERENCED FROM MAP REFERENCE NO. 1.

MAP REFERENCES:

1. DESIGN PLANS ENTITLED "SCHUYLER HEIGHTS FIRE DISTRICT STATION HOUSE SITE SITE NO. E410050, FORMER SCOLITE SITE, SITE NO. E442037, FORMER HETTLING FARM SITE, SITE NO. E411015, REMEDIAL CONSTRUCTION PROJECT" DATED NOVEMBER 2015 AND PREPARED BY ARCADIS CE, INC.

LEGEND:

- IPF — IRON PIPE FOUND
- W — WATER VALVE
- OH — OVERHEAD UTILITY LINE
- O — FENCE
- UTILITY POLE
- S — SEWER MANHOLE

0 30 60 Feet

NMB LAND SURVEYING PLLC
20 TROY AVE. WYNANTSKILL NY, 12198
518-376-4630

REVISIONS			
NO.	DATE	DESCRIPTION	BY

STATE OF NEW YORK — NATHAN M. BURROWS — 050724 — LICENSED LAND SURVEYOR

NATHAN M. BURROWS L.S.
NEW YORK LIC. No. 50,724

MAP OF SURVEY

FINISHED GRADE TOPOGRAPHY

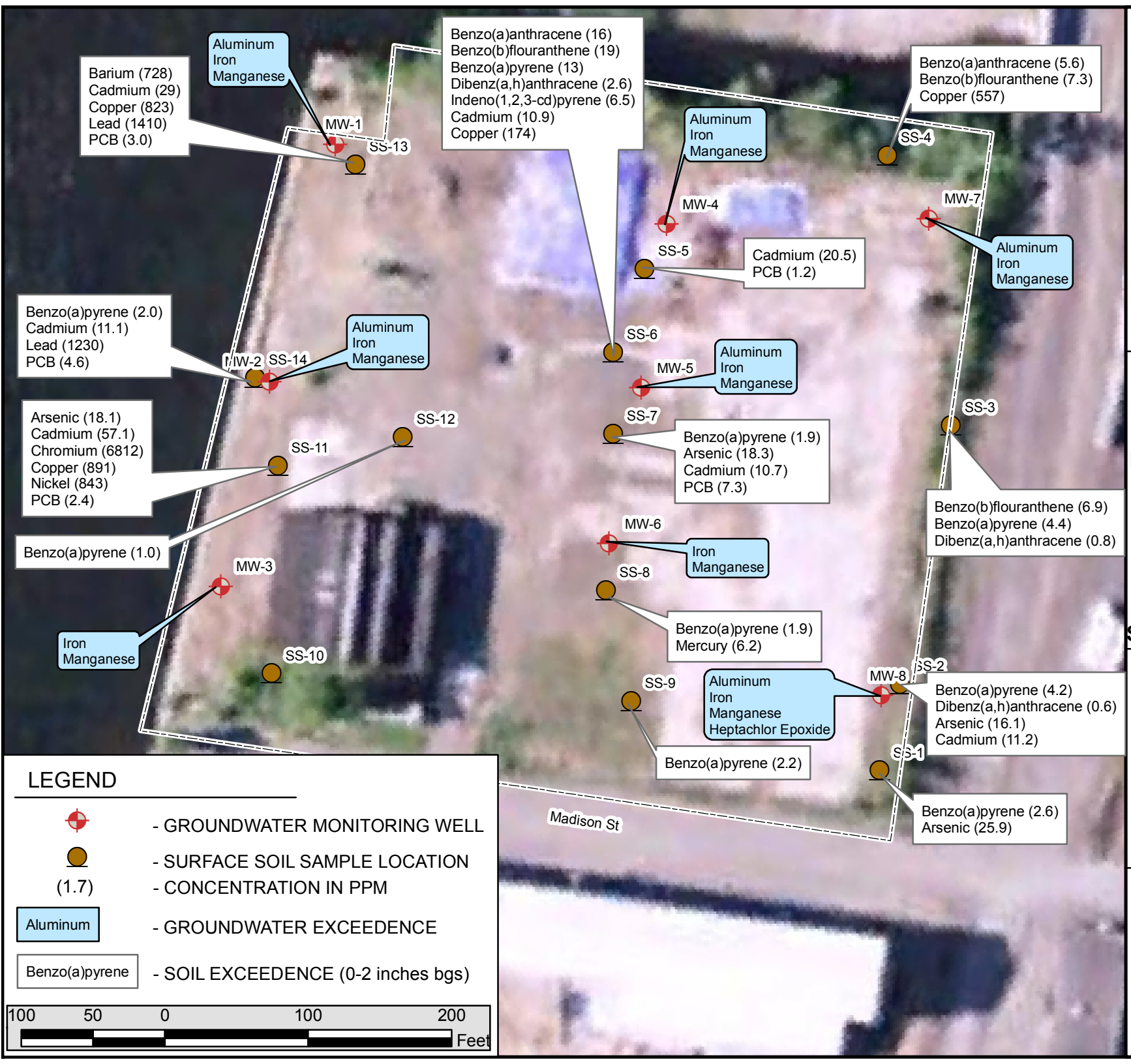
LANDS N/F CITY OF TROY

CITY OF TROY
COUNTY OF RENSSELAER — STATE OF NEW YORK

SURVEYED BY: 77777	CHECKED BY: NMB	DATE: 9-23-2016
DRAWN BY: DKJ	JOB No.: 77777	DWG No.: FINISHED GRADE
SCALE: 1"=30'	SHEET 1 OF 1	

APPENDIX B

Contamination Information



New York State
Department of Environmental
Conservation

Division of
Environmental Remediation

Former Scolite,
Troy

DEC Site No.: E4-42-037

FIGURE 3

Exceedences of all Compounds in Groundwater & Surface Soils(Commercial SCOs)

Map Details

Created in ArcMap 9.3

10.19.2010

N

North American Datum 1983
UTM Zone 18

New York State
Department of Environmental
Conservation

Division of
Environmental Remediation

Former Scolite
Troy

DEC Site No.: E4-42-037

FIGURE 4

Exceedences of all Compounds in Subsurface Soils (Commercial SCOs)

Map Details

Created in ArcMap 9.3

10.19.2010

N

North American Datum 1983
UTM Zone 18

APPENDIX C

Fugitive Dust and Particulate Monitoring

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 D

Community Air Monitoring Program

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 E

Monitoring Well Summary

Existing Monitoring Well Data

MW	DTW (FT)	DTB (FT)	Bottom	TOC	Footing	Surrounding Material	Additional Notes
			Conditions				
MW-1	11.59	23.57	Soft	Broken	Loose/Broken	Soil	
MW-2	12.08	23.02	Soft	Intact	Broken Concrete	Concrete then soil	
MW-3	11.89	21.49	Soft	Broken	N/A	Soil	
MW-4	21.36	28.61	Soft	Intact	Concrete	Concrete	Iron-bearing groundwater (orange color) noted on probe
MW-5	N/A	N/A	N/A	N/A	N/A	Soil	MW-5 has not been located as of 8/9/2016
MW-6	20.99	28.63	Soft	Intact	Concrete	Concrete	
MW-7	DRY	19.10	Firm	Broken	N/A	Soil	
MW-8	21.07	29.34	Soft	Intact	Broken Concrete	Soil	

Definitions:
FT: Feet
TOC: Top of Casing
N/A: Not Applicable

Notes:
1. Monitoring Well data collected on 8/9/2016.
2. MW-5 was mapped in the March 2011 DEC Record of Decision as equidistant from MW-4 and MW-6.

APPENDIX F

Inspection Report

New York Works
Former Scolite Site
NYSDEC Site Number E442037
Cover Inspection Form

Time: _____

Date: _____

Weather Conditions: _____

Were Photographs Taken ?: _____

Inspection Checklist:

A. Concrete and Asphalt Cover:

The cover shall be inspected by traversing it and examining it for the following items:

		Yes	No
1.	Are there cracks, subsidence, or holes in the surface?	___	___
2.	Is there any erosion damage to the concrete or asphalt areas?	___	___
3.	Is there discoloration or evidence of spills on the surface?	___	___
4.	Is there other evidence of disturbance to the area?	___	___
5.	Is there debris or trash present?	___	___

Comments *(Explanation required for each Yes answer in Section A):*

B. Gravel Cover:

The gravel cover shall be inspected by traversing it and examining it for the following items:

		Yes	No
1.	Are there holes or subsidence of the gravel surface?	___	___
2.	Is there evidence of burrowing by animals?	___	___
3.	Is there any erosion damage to the gravel surface?	___	___
4.	Is there discoloration or evidence of spills on the surface?	___	___
5.	Is there other evidence of disturbance to the area?	___	___
6.	Is there debris or trash present?	___	___

Comments (*Explanation required for each Yes answer in Section B):*

C. Site Drainage

The perimeter of the Site near adjacent properties shall be inspected by traversing the area and examining it for the following:

		Yes	No
1.	Is there any erosion damage?	___	___
2.	Is there debris blocking drainage pathways?	___	___
3.	Is there evidence of ponding or puddling of water?	___	___

Comments *(Explanation required for each Yes answer in Section C):*

General Comments, Site Notes and Observations of Activities on Adjacent Parcels Which Could Interact With the Work:

Signature:

_____	_____	_____
Inspector	Date	Organization

ARCADIS Design & Consultancy for natural and built assets

GROUNDWATER MONITORING WELL INSPECTION

SITE/PROJECT NAME: _____ PROJECT NUMBER: _____

DATE OF INSPECTION: _____ INSPECTOR: _____

WELL DESIGNATION: _____

WELL LOCATION: _____

Outward Appearance

Flushmount Diameter	_____ inches	N/A [ ]	
Approximate Stickup Height	_____ feet	N/A [ ]	
Integrity of Protective Casing	Describe: _____		
Protective Casing Material	Steel [ ]	Stainless Steel [ ]	Other _____
Protective Casing Width or Dia.	_____ inches		
Weep Hole in Protective Casing	Yes [ ]	No [ ]	
Surface Seal/Apron Material	Cement [ ]	Bentonite [ ]	Not apparent [ ] Other _____
Integrity of Surface Seal/Apron	Describe: _____		
Surface Drainage	Away from Wellhead [ ]	Toward Wellhead [ ]	
Bollards Present?	Yes [ ]	No [ ]	Describe: _____
Well ID. Visible?	Yes [ ]	No [ ]	Describe: _____
Lock Present and Functional?	Yes [ ]	No [ ]	Describe: _____
Photograph Taken? Photo #	Yes [ ]	No [ ]	Describe: _____

Inner Appearance

Integrity of Well Casing	Describe: _____			
Integrity of Cap Seal	Describe: _____			
Surface Water in Casing?	Yes [ ]	No [ ]	Describe: _____	
Well Casing Diameter	_____ inches			
Well Casing Material	PVC [ ]	Steel [ ]	Stainless Steel [ ]	
Inner Cap	Threaded [ ]	Slip [ ]	Expansion Plug [ ]	None [ ]
Reference/Measuring Point	Groove [ ]	Indelible Mark [ ]	None [ ]	
Evidence of Double Casing?	Yes [ ]	No [ ]	Describe: _____	

Downhole

Odor	Yes [ ]	No [ ]	Describe: _____
PID Reading	_____ ppm		
Depth to Water (to top of casing)	_____ feet (nearest 0.01)	Depth to LNAPL	_____ feet (nearest 0.01) N/A [ ]
Total Well Depth (to top of casing)	_____ feet (nearest 0.1)		
Sediment (Hard/Soft Bottom)	Describe: _____		

Additional Comments:

_____

_____

_____

_____

_____

APPENDIX G

Groundwater Sampling Log

ARCADIS Design & Consultancy for natural and built assets

WELL DEVELOPMENT/ PURGING LOG

WELL NUMBER: _____ DATE: _____

PROJECT NAME: _____

PROJECT NUMBER: _____

SAMPLERS: _____

A: Total Casing and Screen Length: _____

B: Casing Internal Diameter: _____

C: Water Level Below Top of Casing: _____

D: Volume of Water in Casing: _____

Well I.D.	Vol. Gal./ft.
1"	0.04
2"	0.17
3"	0.38
4"	0.66
5"	1.04
6"	1.50
8"	2.60

$v = 0.0408 (B)^2 \times (A-C) = D$

$v = 0.0408 (\quad)^2 \times (\quad - \quad) =$ _____ gal.

PARAMETER	ACCUMULATED VOLUME PURGED												
Time													
Gallons													
Depth to Water													
Temperature (^{o}C)													
pH													
Redox (mV)													
Conductivity (mohm/cm													
Turbidity (ntu)													
Disolved Oxygen (mg/l)													
TDS													
Salinity													

Notes:

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