SITE CHARACTERIZATION WORK PLAN

Denison Park Site

Corning, Steuben County, New York

Prepared for:

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ACRONYMS

AHA	Activity Hazard Analysis
bgs	below ground surface
CAMP	Community Air Monitoring Plan
DI	deionized
DPT	Direct Push Technology
FAP	Field Activities Plan
GPR	ground-penetrating radar
GPS	global positioning system
HSA	hollow-stem auger
HDPE	high-density polyethylene
IDW	investigation-derived waste
MCL	Minimum Contaminant Levels
MS/MSD	matrix spike/matrix spike duplicate
NAD 83	North American Datum of 1983
NAVD 88	North American Vertical Datum of 1988
NYSDEC	New York State Department of Environmental Conservation
NYSDOH	New York State Department of Health
PFAS	per- and polyfluoroalkyl substances
PFOA	perfluorooctanoic acid
PFOS	perfluorooctanesulfonic acid
PID	photoionization detector
PPE	personal protective equipment
PSHEP	Project Safety, Health, and Environmental Plan
PVC	polyvinyl chloride
QA/QC	quality assurance/quality control
QAPP	Quality Assurance Project Plan
SSC	State Sanitary Code
SCOs	Soil Cleanup Objectives
SGVs	Sediment Guidance Values
SSHEP	Subcontractor Safety, Health, and Environment Plan
SVOCs	semivolatile organic compounds
TCL	Target Compound List
TCLP	Toxicity Characteristic Leaching Procedure
VOCs	volatile organic compounds

SECTION 1 PROJECT OBJECTIVES AND BACKGROUND

1.1 Project Objectives

New York State Department of Environmental Conservation (NYSDEC), along with the New York State Department of Health (NYSDOH), have been overseeing the investigation and implementation of remedial activities associated with past disposal of waste materials from pre-cursor companies of Corning Incorporated.

Parsons proposes to assist NYSDEC with the site characterization efforts at the Denison Park site to:

1. Investigate potential impacts from target fill material containing ash, glass, and/or brick (glass manufacturing-related waste).
2. Investigate potential presence and location of contaminants in surface and subsurface soils.
3. Determine whether groundwater is being impacted.

The primary contaminants of concern, based on previous disposal of ash, glass, and/or brick, have been identified as arsenic, cadmium, lead, and semivolatile organic compounds (SVOCs). Investigations of neighboring properties are not included in this scope.

Tasks are further defined in subsequent sections, and include:

- Field preparation and geophysical investigation
- Soil sampling via test pits and soil borings
- Sediment coring and sampling
- Surface water sampling
- Groundwater monitoring well installation and sampling
- Site survey
- Waste handling
- Preparation and submittal of a final summary report

1.2 Project Background

The Denison Park site is a 33-acre property located in the City of Corning and is bounded by a pharmacy and a truck rental business to the north, a flood control berm and the Chemung River to the east, and residential properties to the west and south. The site property includes a swimming pool and associated one-story building, two tennis courts, two basketball courts, three picnic pavilions, a playground, a 1.8-acre pond, three baseball fields and an associated two-story building, and a 2-acre sewage treatment facility. Denison Parkway East, a four-lane road, bisects the site. The NYSDEC site number is # 851066 and a site location map is shown on **Figure 1**.

The area is underlain by alluvial silts and fine sands. Site soils are likely derived from post-glacial flood-plain deposits that are expected to exhibit relatively low permeability. Groundwater likely exists within overburden sands. An assessment of local topography and proximity of the site to the Chemung River indicates groundwater will be encountered shallower than 25 feet below ground surface (bgs) and presumably flows in a northeasterly direction.

Overburden soils in the vicinity of the site are likely underlain by Upper Devonian shale or siltstone. Bedrock depth at the site is unconfirmed but based on published information the top of bedrock is likely deeper than 80 feet bgs.

SECTION 2 HEALTH AND SAFETY

A *Project Safety, Health, and Environmental Plan* (PSHEP; Parsons 2020a) has been prepared for the investigation activities. All personnel and subcontractors working on the project are required to follow this plan for the work covered in this work plan. Copies of the PSHEP will be maintained at the support zone.

Prior to the start of work, the subcontractors shall submit a Subcontractor Safety, Health, and Environmental Plan (SSHEP) along with specific Activity Hazard Analyses (AHAs) for tasks to be performed under this work plan. Work cannot commence until SSHEP and AHAs are reviewed, and comments have been addressed. Copies of the SSHEP and AHAs will be maintained at the support zone.

A generic Community Air Monitoring Plan (CAMP) prepared for this contract will be implemented for real-time monitoring for volatile organic compounds (VOCs) and particulates (i.e., dust) at the upwind and downwind perimeter of each designated work area during invasive activities on-site. These readings will be provided on a weekly basis with all exceedances reported to NYSDEC and NYSDOH the same day (or next business day if after hours) along with the following:

- the reason for the exceedance
- what was done to correct the exceedance
- if the correction was effective

The Plan will follow the NYSDOH Generic CAMP as further detailed in Attachment 3, DER-10 Appendix 1A (NYSDEC 2010), and recommended response levels and action(s) will be implemented in the event of exceedance.

SECTION 3 QUALITY CONTROL

3.1 Field Activities

Field activities will be conducted in accordance with the following documents, prepared by Parsons for the NYSDEC program:

- PSHEP (2020a)
- generic Quality Assurance Project Plan (QAPP; 2020b)
- Field Activities Plan (FAP; 2020c)

Site-specific elements and specific AHAs for soil borings, surface soil sampling, surface water and sediment sampling, and monitoring well installation will be added to the PSHEP, as needed. PFAS sampling will be performed in accordance with *Sampling, Analysis, and Assessment of Per- and Polyfluoroalkyl Substances (PFAS) Under NYSDEC's Part 375 Remedial Programs* (NYSDEC 2021).

All proposed sample locations will be discussed with representatives of NYSDEC prior to implementation of this scope. Investigation/sample location may be modified with concurrence from NYSDEC.

3.2 Emerging Contaminants

Sampling will also be conducted for emerging contaminants as part of this investigation in general accordance with the applicable NYSDEC guidance, such as *Guidelines for Sampling and Analysis of PFAS* (NYSDEC, 2021). One of these

contaminants is per- and polyfluoroalkyl substances (PFAS) compounds. PFAS can be found in many standard environmental sampling materials, including fluoropolymer bailer/tubing, some decontamination solutions, and pump bladders/valves. Two of the principal target analytes – perfluorooctanoic acid (PFOA) and perfluorooctanesulfonic acid (PFOS) – have been broadly utilized in the production of various everyday items such as: waterproof/stain-resistant clothing, non-stick cookware, and many commonly used plastics.

Another of the target analytes is 1,4-dioxane. This compound has been used in many products including the manufacturing of pharmaceuticals, personal care products, polyethylene terephthalate (PET) plastic, paint strippers, dyes, greases, varnishes, and waxes.

The field activities and methods in the FAP include steps to prevent cross-contamination, and to avoid the introduction of external contaminant sources. These steps include, but are not limited to:

- use of sampling materials, tools, and personal protective equipment (PPE) that are known to be free of emerging contaminants
- use of compatible apparel
- hygiene considerations
- sample management considerations (e.g., sampling for PFAS prior to sampling for 1,4-dioxane)
- quality assurance/quality control (QA/QC) procedures
- use of source water and decontamination solutions that are demonstrated to be free of emerging contaminants

SECTION 4 SURVEYS, INVESTIGATIONS, ENVIRONMENTAL SAMPLING, AND IMPLEMENTATION

Parsons' approach to the site characterization is described in the following sections. Each portion of the investigation work will follow NYSDEC guidelines outlined in Division of Environmental Remediation (DER)-10 Technical Guidance document (NYSDEC 2010).

The overall program consists of:

1. Geophysical investigation (utility mapping)
2. Site survey of utilities and as-built coordinates for test pits, soil borings, and monitoring wells
3. Surface and subsurface investigation via soil borings and test pit excavation
4. Surface water and sediment sampling
5. Groundwater monitoring well installation and groundwater sampling

4.1 Field Preparation

4.1.1 Geophysical Investigation

A geophysical investigation will initially be performed at the site to locate subsurface utilities and/or subsurface anomalies at up to eight test pit locations and 11 soil boring locations, which are shown in conjunction with site features on **Figure 2**.

Prior to initiation of site activities, Dig Safely NY will be contacted to locate utility lines that enter and/or cross the property. The geophysical survey will be conducted to detect buried structures and subsurface utilities within the specified locations, and/or to trace a particular utility line or system. The geophysical surveyor will apply the appropriate surface geophysical

method(s) to search for utilities and/or buried obstructions. Geophysical technologies may include but not be limited to ground-penetrating radar (GPR), radio frequency (RF), and electromagnetic induction (EM). These techniques will be used to locate subsurface utility lines or subsurface features within a 10-foot radius of each proposed intrusive activity. Specific features may include subsurface utilities, subsurface anomalies, large voids, former subsurface structures, abandoned utilities, and former utility trenches. Based on an interpretation of data, the geophysical surveyor will mark the targets on the ground surface, for subsequent survey performed by others after the boring work and well installations are completed. Paint and flagging shall be used for marking of lines, showing any underground site utilities or obstructions.

Prior to intrusive work, Parsons will follow their *Subsurface Soil Disturbance Protocol* (see **Attachment 1**). Dig Safely New York will be called again prior to drilling activities. A geophysical utility locator will investigate and clear all boring locations for underground obstructions and utilities prior to drilling activities.

Due to the number of potential utilities present in the investigation area, each proposed boring location will be investigated for the presence of buried utilities or other obstructions. Three hand-cleared holes will be advanced to a depth of 5 feet using non-mechanical methods in a 3-foot by 3-foot by 3-foot triangular pattern around each sample location to identify potential utilities that cross through each sample location. Once all three locations have been advanced to 5 feet in depth and no utilities are identified, the proposed boring and/or well location can be completed in the center of the triangle using a drill rig to target depth as stated in the original scope of work.

4.1.2 Site Layout and Proposed Boring Locations

The site characterization efforts will include the following proposed field sampling activities:

Matrix	Approach	Number of locations	Purpose
SOIL			
	Surface Soil	23	Sample collection, laboratory analyses
	Test Pits	Up to 8	Visual assessment for ash, brick, and/or glass contamination, surface soil sample collection, laboratory analyses
	Soil Borings (shallow)	5	Soil characterization, sample collection, laboratory analyses
	Soil Borings (deep)	6	Soil characterization, sample collection, laboratory analyses
SEDIMENT			
	Sediment Cores	2	Sediment characterization, sample collection, laboratory analyses
SURFACE WATER			
	Near shore	2	Sample collection, laboratory analyses
GROUNDWATER			
	Monitoring Wells	6	Water table depth, sample collection, laboratory analyses

The site layout with proposed sampling locations is shown in **Figure 2**.

Initially, the proposed sampling locations will be roughly located with a handheld global positioning system (GPS) and will take into account surface and overhead features that may affect execution of field investigation activities. Following completion of the field investigation activities, a licensed professional land surveyor registered to practice in the State of New York will collect as-built data from the sample locations (as described in **Section 4.6 Site Survey**).

If any areas of exposed ash, brick and/or glass are identified during the execution of the Site Characterization Workplan additional sample locations and/or samples may be added in consultation with NYSDEC.

4.2 Soil Investigation

Soil characterization activities at the site consist of excavation of up to eight test pits, five shallow soil borings, six deeper soil borings, and collection of soil samples from each test pit and boring. The proposed locations for each test pit and soil boring are shown on **Figure 2**. These proposed locations will be marked out during the site survey and will be verified following installation (**Section 4.6 Site Survey**).

Prior to intrusive work Dig Safely NY will be notified and a geophysical investigation will be conducted to identify underground utilities or buried obstructions at each proposed test pit or boring location (as described in **Section 4.1.1 Geophysical Investigation**).

4.2.1 Test Pits

Up to eight test pits are proposed for excavation. Proposed locations for the test pits were selected based on review of historic documents that indicate areas potentially filled with non-native soils. The proposed locations for each test pit are shown on **Figure 2**. The proposed test pit locations will be marked out during the site survey and will be verified following excavation (**Section 4.6 Site Survey**).

4.2.1.1 INSTALLATION

Test pits will be excavated to the following dimensions, as site conditions allow:

- 20 to 25 feet long
- 2 feet wide
- 8 feet deep

Test pit dimensions may be modified in the field following discussion with the project manager and in concurrence with NYSDEC.

Test pits will be installed using excavation equipment capable of reaching the maximum proposed depth. Track mats should be considered prior to accessing the proposed test pit locations to minimize potential disturbances to ground surfaces at the site. Excavated test pit soils shall be placed on impervious polyethylene plastic sheeting (minimum 8-mil thickness). Any excavated soil piles shall be covered with plastic sheeting at the end of each workday. During excavation, the operator will excavate thin layers of soil, and will be mindful of the potential for encountering any previously unidentified buried materials, containers, utilities, or combination thereof. Test pit sidewalls may be cut back to prevent sidewalls from crumbling or collapsing. Test pits will be advanced until reaching desired 8-foot depth, encountering groundwater, or sidewalls show signs of destabilization, whichever occurs first.

Prior to beginning each test pit excavation, one surface soil sample shall be collected from 0 to 2 inches bgs (see **Section 4.2.3 Surface Soil Sampling** for additional details). Soils excavated from test pits will be logged and visually assessed for the presence of ash, brick, and/or glass. Field personnel shall sketch test pit walls, log test pit lithology, and collect requisite soil samples in accordance with **Section 4.2.1.2 Sampling**. Photographs shall be taken of freshly exposed test pit sidewalls to document soil stratigraphy and other anomalies. Soils will be visually classified using the Burmister (1970) and USCS (ASTM International 2018) soil classification systems. Soil descriptions will be recorded in field notes or test pit logs. Any non-native material present in the excavated soils shall be noted and described (type, color, texture, moisture content, etc.) and any layer of fill material containing ash, brick, and/or glass shall be noted in field logs. If impacted soils are encountered two soil samples shall be collected from the surrounding strata; one sample from within the horizon of the impacted soils, and another from the soil just below the impacted soils. Photographs of recovered soils and any fill materials containing ash, brick, and/or glass will be taken and included in the site characterization report. Excavated soils shall also be screened for the presence of VOCs with a photoionization detector (PID) and readings recorded on test pit logs and/or field book. The field team shall photograph the entirety of the test pit and surrounding site conditions.

Once the test pits have been excavated to their total depth and all requisite samples have been collected, the test pits shall be backfilled using excavated material. All test pits should be backfilled the same day as the excavation, or as soon thereafter as practical. Backfill should be placed in the bottom of the trench in one-foot lifts and compacted using the equipment bucket. Test pits shall not be left open or uncovered overnight. In the event the crews need to leave an open test pit unattended, the test pit shall be delineated with orange fencing and caution tape to prevent access.

Excavating equipment will be decontaminated between trenches at the decontamination area using a high-pressure steam wash.

Grossly contaminated soils and decontamination rinsates will be containerized in 55-gallon steel drums and transported to a central waste staging area for further characterization and disposal.

4.2.1.2 SAMPLING

As previously noted in **Section 3.2 Emerging Contaminants**, care will be taken to prevent cross contamination of samples, especially introduction of emerging contaminants, into the samples.

Surface soil samples will be collected from each test pit from 0 to 2 inches bgs (**see Section 4.2.3 Surface Soil Sampling for additional details**). Additionally, if target fill materials are encountered one sample will be collected from the target fill material itself and another from the material directly below the fill layer. Samples will be submitted for laboratory analysis.

Archive samples will be collected if target fill material/waste glass is encountered, as described in **Attachment 2**.

For QA/QC purposes, duplicate samples, equipment blanks, and matrix spike/matrix spike duplicate (MS/MSD) samples will be collected and analyzed at a rate of one for every 20 field samples. Trip blanks will also be included in sample coolers containing field samples for VOC analyses; these trip blanks will be analyzed for Target Compound List (TCL) VOCs.

Results from the analytical sampling will be compared to Part 375 *Soil Cleanup Objectives* (SCOs; NYSDEC 2006).

4.2.2 Soil Borings

Eleven soil borings are proposed for installation. The locations of proposed soil borings were selected based on review of historic documents that indicate areas potentially filled with non-native soils. The proposed locations for each soil boring are shown on **Figure 2**. The proposed soil boring locations will be marked out during the site survey and will be verified following boring installation (**Section 4.6 Site Survey**). The soil boring locations were verified on site by NYSDEC Flood Control representative, James Lynch, on May 3, 2020 during the site survey.

Soil borings will be advanced using one or more of the following methods depending on the location and objective of the sample location:

- Direct Push Technology (DPT) with MacroCore sampler, or equivalent
- Hollow-stem augers (HSA) with continuous sampling via split-spoon or Macrocore samplers

4.2.2.1 INSTALLATION

Soil borings will be advanced at the locations shown on **Figure 2**. Five shallow borings will be extended to a depth of 16 feet bgs. Six deeper borings will be extended to a depth of 24 feet bgs.

Soil cores will be collected and logged continuously until borings termination depths are reached. Soils will be visually classified using the Burmister (1970) and USCS (ASTM International 2018) soil classification systems. Soil descriptions will be recorded in the field notes or soil boring log form. Any non-native material present in the soil core will be noted and described (type, color, texture, moisture content, etc.) and any layer of fill material containing ash, brick and/or glass will be noted in the field logs. Photographs of recovered soils and any fill material containing ash, brick, and/or glass will

be taken to include in the final report. Each soil core will also be screened for the presence of VOCs with a photoionization detector (PID) and readings will be recorded on the boring log and/or field book.

Once the deeper soil borings have been advanced to their total depth, monitoring wells will be constructed in accordance with **Section 4.5.1 Monitoring Well Installation**. The ground surface around the well and surrounding area will be restored to conditions prior to intrusive activities. Track mats may be used to access the boring locations and minimize ground disturbances.

Upon completion, each soil boring that will not have an installed monitoring well will be grouted from total depth to surface using a Portland-bentonite slurry mix. After grouting is complete, the surface and surrounding area will be restored to conditions prior to intrusive activities. If required, access routes will also be restored.

Sampling equipment will be decontaminated between pushes and soil boring locations by washing equipment using a phosphate-free cleaning solution (e.g., Alconox) along with a distilled water rinse. All "down hole" drilling equipment will be decontaminated inside the decontamination pad, using a high-pressure steam wash.

Drill cuttings and decontamination rinsates will be containerized in 55-gallon steel drums and transported to a central waste staging area for further characterization and disposal.

4.2.2.2 SAMPLING

As previously noted in **Section 3.2 Emerging Contaminants**, care will be taken to prevent cross contamination of samples, especially introduction of emerging contaminants, into the samples. MacroCore samplers will be equipped with PFAS-free acetate liners. All necessary equipment, material, and supplies will be provided by the drilling subcontractor and will be compatible for collection of emerging contaminant samples (e.g., PFAS-free).

Surface soil samples will be collected from 0-2 inches and submitted for laboratory analysis (see **Section 4.2.3 Surface Soil Sampling** for additional details). Soil boring samples will be collected from the following intervals and submitted for laboratory analysis:

- 0 to 6 inches bgs (exclusive of sod/grass layer)
- 6 to 12 inches bgs
- 12 to 24 inches bgs
- every subsequent 2-foot interval to the bottom of boring

As shown on **Table 1**, all samples will be analyzed for total metals (including mercury) and SVOCs. The remaining parameters will be analyzed on 20 percent of the samples collected at locations based on field observations. If insufficient volume is recovered for full analyses, material from the sample interval either above or below the target interval will be composited with the target interval and submitted for analysis. Additional soil samples may be submitted for laboratory analyses based on field observations and based on discussions with representatives of NYSDEC, if applicable. Except for soils that will be analyzed for VOCs, each soil sample collected for laboratory analysis will be field homogenized prior to placement in laboratory-supplied bottles.

Archive samples will be collected if target fill material/waste glass is encountered, as described in **Attachment 2**.

For QA/QC purposes, duplicate samples, equipment blanks and MS/MSD samples will be collected and analyzed at a rate of one for every 20 field samples. Trip blanks will also be included in sample coolers containing field samples for VOC analyses; these trip blanks will be analyzed for TCL VOCs.

Results from the analytical sampling will be compared to Part 375 *Soil Cleanup Objectives* (SCOs; NYSDEC 2006).

4.2.3 Surface Soil Sampling

In addition to surface soil samples collected at test pit and boring locations (19), four (4) additional surface soil samples will be collected at independent locations throughout the park as shown on Figure 2. The surface soil samples will be analyzed for the parameters on Table 1.

4.2.3.1 SAMPLING

Surface soil samples will be collected from the top two inches (0 – 2 inches bgs, excluding the ground cover or sod layer), at the proposed locations shown in Figure 1, using appropriate decontaminated sampling equipment (e.g. stainless-steel spoon, shovel, etc).

Soil samples will be physically described using the Burmeister and Unified Soil Classification System (USCS), photo documented, and screened with a PID. Field information will be recorded on a sample log and/or field book. As noted previously, QA/QC samples will be analyzed for the parameters will be collected and analyzed at a rate of 1:20 field samples. Prior to filling laboratory-supplied bottles, each soil sample collected for analysis will be field homogenized.

Surface soil samples will be analyzed for the compounds listed in **Table 1**. Each sample will be analyzed for total metals, SVOCs, and 1,4-dioxane. The remaining parameters will be analyzed on 20 percent of the samples collected at locations based on field observations. Except for soils that will be analyzed for VOCs, each soil sample collected for laboratory analysis will be field homogenized prior to placement in laboratory-supplied bottles.

Sample equipment will be decontaminated between sample locations by washing equipment using a phosphate free cleaning solution (e.g., alconox) along with a distilled water rinse. As previously noted in Section 2.0 care will be taken to prevent cross contamination of samples, especially introduction of emerging contaminants into the samples. Decontamination rinsates will be containerized in 55-gallon steel drums and transported to a central waste staging area for further characterization and disposal.

4.3 Sediment Investigation

Two sediment sample locations are proposed for collection from within the 1.3-acre pond at Denison Park. The samples will be collected from near-shore areas as shown in **Figure 2**. The location of the proposed sediment samples were selected to be co-located with the surface water sample locations. These samples will be evaluated as sediments per NYSDEC's *Screening and Assessment of Contaminated Sediments* guidance document (NYSDEC 2014).

4.3.1 Sediment Coring

Sediment cores will be collected using hand-coring apparatus. Sediment will be visually classified using the Burmister (1970) and USCS (ASTM International 2018) soil classification systems. Descriptions will be recorded in the field notes or soil boring log form. Any non-native material present in the sediment core will be noted and described (type, color, texture, moisture content, etc.) and any layer of fill material greater than 1-inch-thick containing ash, brick and/or glass will be noted in the field logs. Photographs of recovered sediment and any fill material containing ash, brick, and/or glass will be taken to provide in the final report. Each sediment core will also be screened for the presence of VOCs with a PID as previously noted and readings will be recorded on the boring log and/or field book.

Sampling equipment will be decontaminated between pushes and sediment sample locations by washing equipment using a phosphate-free cleaning solution (e.g., Alconox) along with a distilled water rinse. Decontamination rinsates will be containerized in 55-gallon steel drums and transported to a central waste staging area for further characterization and disposal.

4.3.2 Sediment Sampling

As previously noted in **Section 3.2 Emerging Contaminants**, care will be taken to prevent cross contamination of samples, especially introduction of emerging contaminants into the samples.

Sediment samples will be collected using a hand-coring sampler. The sampler will be advanced to 12 to 24 inches bgs and samples will be field homogenized prior to placement in laboratory-provided bottles. A goal depth of 1ft will be attempted for sediment cores, but this depth will be dependent on sediment consistency and density. Since hand sampling equipment is to be utilized for sediment collection, refusal may be reached before sediment goal depth is achieved. In the event refusal is encountered, additional sampling shall be attempted until goal depth of 1ft is achieved. As shown on **Table 1**, all samples will be analyzed for total metals (including mercury), SVOCs and 1,4-dioxane, cyanide, VOC's, pesticides, herbicides, PCB's, total petroleum hydrocarbons, PFAS, and total organic carbon.

Archive samples will be collected if target fill material/waste glass is encountered, as described in **Attachment 2**.

For QA/QC purposes, duplicate samples, equipment blanks and MS/MSD samples will be collected and analyzed at a rate of one for every 20 field samples. Trip blanks will also be included in sample coolers containing field samples for VOC analyses; these trip blanks will be analyzed for TCL VOCs.

Results from the analytical sampling will be compared to Class A Sediment Guidance Values (SGVs; NYSDEC 2014).

4.4 Surface Water Investigation

Surface water sampling at the site consists of two near-shore surface water samples to be collected from the 1.3-acre pond at Denison Park. The samples will be collected from near-shore areas as shown in **Figure 2**. The locations of proposed surface water samples were selected to provide variation around the perimeter of the pond.

Surface water samples will be collected using a dipper bucket and extendable pole. As shown on **Table 1**, all samples will be analyzed for total and TCLP metals (including mercury) and SVOCs. Surface water samples will be analyzed as shown in **Table 1**. All samples will be filtered by the laboratory to report both dissolved and total analyte concentrations. Laboratory analytical results will be compared to Class C NYSDEC Ambient Water Quality Standards presented in T.O.G.S 1.1.1 (NYSDEC, 1998). Emergent contaminant analytical results (PFAS and 1,4 Dioxane) will be compared to NYSDOH Minimum Contaminant Levels (MCLs) as presented in the New York State Sanitary Code (SSC) 10 NYCRR Part 5 (NYSDOH 2018).

As previously noted in **Section 3.2 Emerging Contaminants**, care will be taken to prevent cross contamination of samples, especially introduction of emerging contaminants into the samples. Any non-dedicated sampling equipment will be decontaminated between sample locations by washing equipment using a phosphate-free cleaning solution (e.g., Alconox) along with a distilled water rinse. Decontamination rinsates will be containerized in 55-gallon steel drums and transported to a central waste staging area for further characterization and disposal.

4.5 Groundwater Investigation

Groundwater investigation activities at the site consist of installing six monitoring wells within the deeper borings described above. The proposed well locations are shown on **Figure 2**. The location, ground surface elevation, and top of casing elevation will be measured and recorded during the as-built survey (**Section 4.6 Site Survey**).

4.5.1 Monitoring Well Installation

Monitoring wells will be installed at the six deep soil boring locations (**Figure 2**). Each monitoring well will be constructed with 2-inch-diameter schedule 40 polyvinyl chloride (PVC) riser threaded with 10 feet of 2-inch-diameter schedule 40 PVC

0.010-slot screen. The screened interval should extend at least 2 feet above the water table unless field conditions warrant otherwise. Groundwater depth is estimated to be between 5 and 20 feet bgs.

The annular space surrounding the well will be backfilled with clean sand from 6 inches below the bottom of the screen to 2 feet above the top of screen. A bentonite seal will be installed above the sand pack and either allowed to hydrate (in saturated conditions) or hydrated using potable water (in unsaturated conditions). Each well will be grouted from the top of bentonite to grade using a Portland cement and bentonite slurry grout. Each well will be completed with a flush-mount or stick-up protective cover set within a 2-foot-diameter concrete apron, whichever is more conducive to site conditions.

As noted in **Section 3.2 Emerging Contaminants**, care will be taken to prevent the introduction of emerging contaminants into the completed monitoring wells. Downhole drilling equipment will be decontaminated between wells as previously noted and the area around the wells (including access routes) will be restored to previous conditions.

All necessary equipment, material, and supplies used to advance the sampler, purge groundwater, and collect groundwater samples will be compatible with emergent contaminant sampling (e.g., PFAS-free).

4.5.2 Monitoring Well Development

Each new monitoring well will be developed to remove drilling fluid used during boring advancement, as well as any fine-grained material that may have settled in and around the well screen during well construction. Well development will be performed a minimum of 24 hours after grout has been installed to provide sufficient time for the grout to cure.

Well development activities will consist of purging water until one of the following two criteria are met:

1. Water quality parameters have stabilized for three successive measurements and purge water turbidity drops below 50 nephelometric turbidity units (NTUs).
2. A maximum of 10 well volumes have been removed.

Well development may be performed using a stainless steel or PVC bailer, as well as a water pump paired with high-density polyethylene (HDPE) tubing and surge block. If the well goes dry during development, bailing or pumping will pause until 80 percent of the initial water level has recharged, at which point pumping or bailing will resume. The well will be considered developed once this process has been repeated, and the well has been pumped dry three times.

Development water will be temporarily contained using new 55-gallon steel drums, which will be staged on-site at a central investigation-derived waste (IDW) accumulation area (refer to **Section 4.7 Waste Handling**). The drilling subcontractor will provide drums of sufficient number and quality to containerize well development water, and will provide the equipment, personnel, and materials necessary to transport IDW from the investigation location to the central IDW accumulation area. Parsons will be responsible for collecting waste characterization samples and coordinating subsequent disposal.

4.5.3 Groundwater Monitoring Well Sampling

One round of groundwater sampling will be conducted at each of newly installed monitoring wells using low-flow sampling techniques. Prior to sampling, the water level in each boring will be measured and recorded to the nearest 0.01-foot using a PFAS-free electronic water level meter. Well sampling will commence once water quality parameters are stable for three consecutive readings. The stabilization guidelines are as follows:

- Temperature ± 10% of measurement
- pH ± 0.1 pH units
- Specific conductance ± 3% of measurement
- Redox ± 10 mV
- Dissolved oxygen ± 10% of measurement
- Turbidity ± 10% of measurement, or under 10 NTUs

Dedicated and disposable groundwater sampling equipment (e.g., tubing) will be used for sample collection. Any non-dedicated or non-disposable equipment (e.g., water level meter) will be decontaminated between samples by washing equipment with phosphate-free solution followed by a PFAS-free distilled water rinse. Purge water and decontamination water will be transferred to drums for characterization and disposal.

Groundwater samples will be analyzed as shown in **Table 1**. Laboratory analytical results will be compared to NYSDEC Class GA Ambient Water Quality Standards presented in *Technical and Operational Guidance Series 1.1.1* (NYSDEC, 1998). Emergent contaminant analytical results (PFAS and 1,4-dioxane) will be compared to NYSDOH Minimum Contaminant Levels (MCLs) as presented in the *New York State Sanitary Code* (SSC) 10 NYCRR Part 5. For QA/QC purposes, duplicate samples, equipment blanks and MS/MSD samples will be collected and analyzed at a rate of one for every 20 field samples. Trip blanks will also be included in sample coolers containing field samples for VOC analyses; these trip blanks will be analyzed for TCL VOCs.

As previously noted in **Section 3.2 Emerging Contaminants**, care will be taken to prevent cross contamination of samples, especially introduction of emerging contaminants into the samples. Any non-dedicated well sampling equipment will be decontaminated between well locations.

4.6 Site Survey

Following the completion of investigation activities, a licensed professional land surveyor registered to practice in the State of New York will collect as-built data from the sample locations.

The following as-built data will be collected for test pit and soil boring locations:

- Northing
- Easting
- Ground surface elevation

The following as-built data will be collected for sediment and surface water samples:

- Northing
- Easting
- Sediment surface elevation
- Water depth

The following as-built data will be collected for monitoring wells:

- Northing
- Easting
- Ground surface elevation
- Top of riser elevation
- Top of flush-mount or stick-up protective cover elevation

Horizontal survey data will be based on the North American Datum of 1983 (NAD 83) New York State Plane (Central Zone) coordinate system (in feet). Elevations will be based on the North American Vertical Datum of 1988 (NAVD 88).

4.7 Waste Handling

Investigation-derived waste (IDW), including excess soils/sediments from sample locations, decontamination rinsates, purge water, and other used materials (such as PPE, acetate Geoprobe liners, poly sheeting, etc.) will be placed in Department of Transportation-approved 55-gallon 17-H type drums. The IDW will be classified as hazardous or non-hazardous based on characterization results and will be disposed of in accordance with applicable NYSDEC regulations.

Appropriate equipment capable of handling and/or moving IDW stored to the designated waste storage area will be used, and IDW drums will be stored in an area lined with polyurethane sheeting for secondary containment.

SECTION 5 REPORT PREPARATION

Data obtained during the field investigations identified in this scope of work will be validated, evaluated, and summarized. A Site Characterization Report will then be prepared following completion of the investigation and receipt of analytical data. This report will document investigation activities specified in this work plan.

Chemical analytical results for soil and groundwater will be compared to 6 NYCRR Part 375 (NYSDEC, 2006) guidelines for various potential future land uses and State of New York Class GA water quality standards, respectively.

Chemical analytical results for sediment will be compared to Class A sediment guidance values (NYSDEC, 2014).

Chemical analytical results for surface water will be compared to Class C NYS ambient water quality standards (NYSDEC, 1998).

The document will include Category B data validation, and an evaluation of data for reclassification/delisting, or continuation of next steps of the site characterization.

SECTION 6 SCHEDULE

Following approval of this Work Plan by NYSDEC, the schedule shown below will be implemented. The work scope described herein is assumed to be completed during spring and summer 2022.

Task Name	Start	Finish
Utility Demarcation and Sample Location Mark-Out	Week 1	Week 1
Geophysical Investigation	Week 1	Week 1
Drilling Mobilization	Week 3	Week 3
Drilling/Soil Sampling/Well Installation	Week 3	Week 4
Well Development/Groundwater Sampling	Week 4	Week 5
As-built Coordinates and Elevations Survey	Week 6	Week 6
Data Management and Reporting Tasks	3-4 months after completion of field activities	

SECTION 7 REFERENCES

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Burmister, D.M. 1970. "Suggested Methods of Test for Identification of Soils." in *Special Procedures for Testing Soil and Rock for Engineering Purposes: Fifth Edition.* Editor(s): ASTM Committee D-18. STP38522S. January 1. pp. 311-323. DOI: 10.1520/STP38522S.

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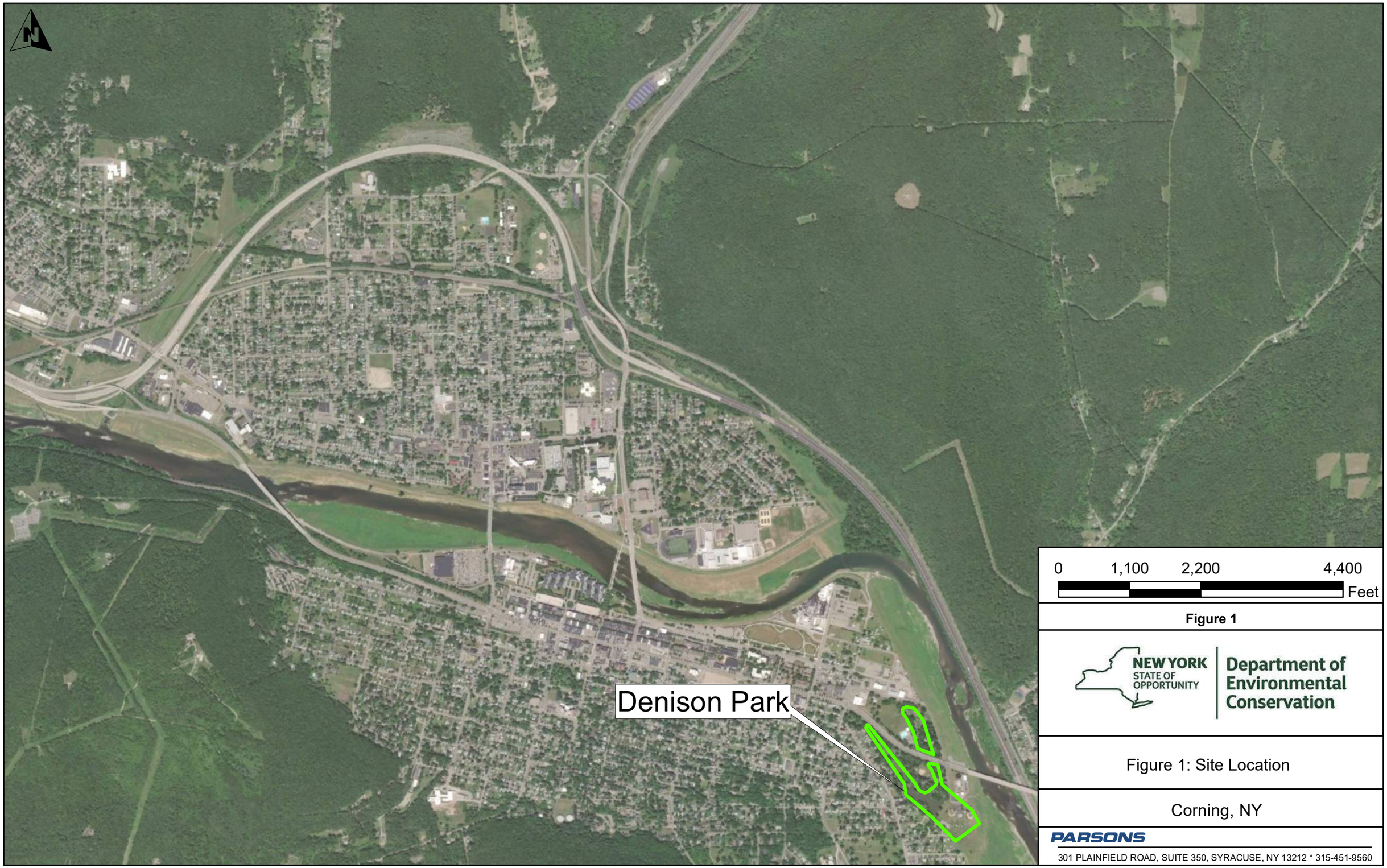
Parsons. 2020b. *Generic Quality Assurance Project Plan (QAPP)*. Prepared by Parsons for the New York State Department of Environmental Conservation Environmental Cleanup Program. May 2020.

Parsons. 2020c. *Field Activities Plan*. Prepared by Parsons for the New York State Department of Environmental Conservation Environmental Cleanup Program. April 2020.

FIGURES



0 1,100 2,200 4,400 Feet

Figure 1

NEW YORK STATE OF OPPORTUNITY | Department of Environmental Conservation

Figure 1: Site Location

Corning, NY

PARSONS

301 PLAINFIELD ROAD, SUITE 350, SYRACUSE, NY 13212 * 315-451-9560

Plotted By: CS

Plot Date: 12/2/2020

Document Path: Q:\GIS\NYSDEC\Corning\MXDs\Additional Properties\Denison Park.mxd

AREA NOT INCLUDED
IN DENISON PARK
SITE CHARACTERIZATION

TP-1
TP-2
TP-3
PB-1
PB-2
MW-1
MW-2
SS-01
SS-03

- Proposed Surface Sample Locations
- Proposed Test Pit Locations
- Proposed Monitoring Well Locations
- Proposed Boring Locations
- Areas of Disturbed Lands
- Tax Parcel Boundaries

Note: Test Pits are not shown to scale

0 85 170 340 Feet

Figure 2A

NEW YORK STATE OF OPPORTUNITY
Department of Environmental Conservation

Denison Park (North) -
Proposed Sample Locations

Corning, NY

PARSONS
301 PLAINFIELD ROAD, SUITE 350, SYRACUSE, NY 13212 * 315-451-9560

Plotted By: CS
Plot Date: 7/26/2022

Document Path: Q:\GIS\NYSDEC\Corning\MXDs\Additional Properties\Denison Park North Samples.mxd

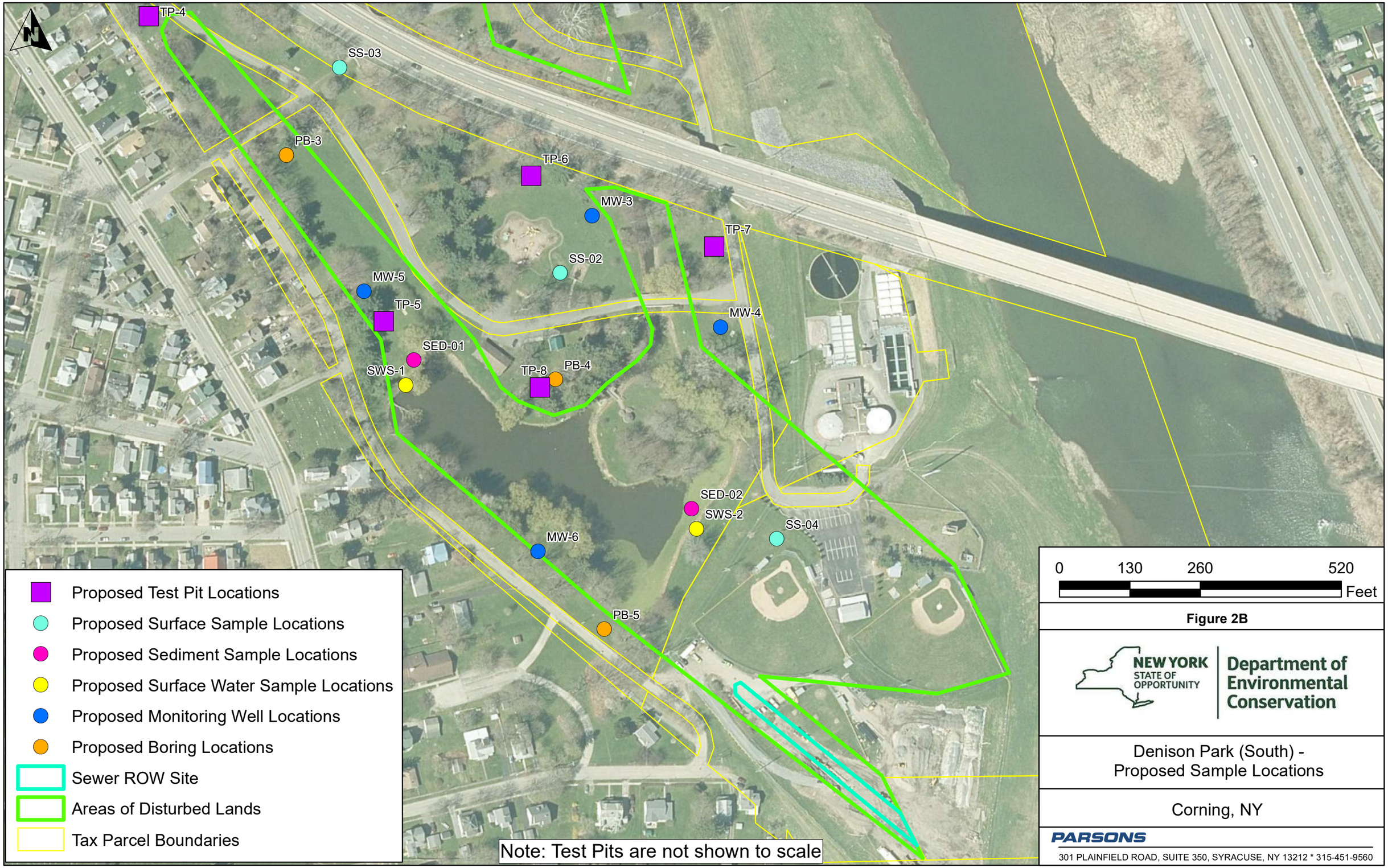


Figure 2B

NEW YORK STATE OF OPPORTUNITY | Department of Environmental Conservation

Denison Park (South) -
Proposed Sample Locations

Corning, NY

PARSONS
301 PLAINFIELD ROAD, SUITE 350, SYRACUSE, NY 13212 * 315-451-9560

Plotted By: CS

Plot Date: 7/26/2022

Document Path: Q:\GIS\NYSDEC\Corning\MXDs\Additional Properties\Denison Park South Samples.mxd

TABLES

TABLE 1
ANALYTICAL DATA SUMMARY FOR SITE CHARACTERIZATION
DENISON PARK, CORNING NEW YORK

Task	Sample Type	Analysis	Method	Turn-Around-Time	Samples	QA/QC Samples						Total
						Duplicate	Equipment Blank	Trip Blank	Field Blank	MS	MSD	
Surface Soil Sampling [1]	Soil	Metals [6]	SW6010D/SW7471B	Standard	23	2	1	0	0	2	2	30
	Soil	TCLP Metals [6]	SW6010C/SW7470A	Standard	23	2	1	0	0	2	2	30
	Soil	SVOCs + 1,4-Dioxane	SW8270D	Standard	23	2	1	0	0	2	2	30
	Soil	Cyanide	SW9012B	Standard	4	1	1	0	0	1	1	8
	Soil	VOCs	SW8260C	Standard	4	1	1	0	0	1	1	8
	Soil	Pesticides	SW8081B	Standard	4	1	1	0	0	1	1	8
	Soil	PCBs + Total	SW8082A	Standard	4	1	1	0	0	1	1	8
	Soil	Herbicides	SW8151A	Standard	4	1	1	0	0	1	1	8
	Soil	TPH	EPA 1664 (SGT HEM)	Standard	4	1	1	0	0	1	1	8
	Soil	PFAS	Modified EPA 537.1	Standard	4	1	1	0	0	1	1	8
Test Pit Sampling [1,3,5]	Soil	Metals [6]	SW6010D/SW7471B	Standard	0	0	0	0	0	0	0	0
	Soil	TCLP Metals [6]	SW6010C/SW7470A	Standard	0	0	0	0	0	0	0	0
	Soil	SVOCs +1,4-Dioxane	SW8270D	Standard	0	0	0	0	0	0	0	0
	Soil	Cyanide	SW9012B	Standard	0	0	0	0	0	0	0	0
	Soil	VOCs	SW8260C	Standard	0	0	0	0	0	0	0	0
	Soil	Pesticides	SW8081B	Standard	0	0	0	0	0	0	0	0
	Soil	PCBs + Total	SW8082A	Standard	0	0	0	0	0	0	0	0
	Soil	Herbicides	SW8151A	Standard	0	0	0	0	0	0	0	0
	Soil	TPH	EPA 1664 (SGT HEM)	Standard	0	0	0	0	0	0	0	0
	Soil	PFAS	Modified EPA 537.1	Standard	0	0	0	0	0	0	0	0
Soil Boring Sampling [1,3,5]	Soil	Metals [6]	SW6010D/SW7471B	Standard	134	7	6	0	0	7	7	161
	Soil	TCLP Metals [6]	SW6010C/SW7470A	Standard	0	0	0	0	0	0	0	0
	Soil	SVOCs+1,4-Dioxane	SW8270D	Standard	134	7	6	0	0	7	7	161
	Soil	Cyanide	SW9012B	Standard	27	2	2	0	0	2	2	35
	Soil	VOCs	SW8260C	Standard	27	2	2	0	0	2	2	35
	Soil	Pesticides	SW8081B	Standard	27	2	2	0	0	2	2	35
	Soil	PCBs + Total	SW8082A	Standard	27	2	2	0	0	2	2	35
	Soil	Herbicides	SW8151A	Standard	27	2	2	0	0	2	2	35
	Soil	TPH	EPA 1664 (SGT HEM)	Standard	27	2	2	0	0	2	2	35
	Soil	PFAS	Modified EPA 537.1	Standard	27	2	2	0	0	2	2	35
Sediment Sampling [2,3,5]	Sediment	Metals [6]	SW6010D/SW7471B	Standard	2	1	1	0	0	1	1	6
	Sediment	TCLP Metals [6]	SW6010C/SW7470A	Standard	0	0	0	0	0	0	0	0
	Sediment	SVOCs + 1,4-Dioxane	SW8270D	Standard	2	1	1	0	0	1	1	6
	Sediment	Cyanide	SW9012B	Standard	2	1	1	0	0	1	1	6
	Sediment	VOCs	SW8260C	Standard	2	1	1	0	0	1	1	6
	Sediment	Pesticides	SW8081B	Standard	2	1	1	0	0	1	1	6
	Sediment	PCBs + Total	SW8082A	Standard	2	1	1	0	0	1	1	6
	Sediment	Herbicides	SW8151A	Standard	2	1	1	0	0	1	1	6
	Sediment	TPH	EPA 1664 (SGT HEM)	Standard	2	1	1	0	0	1	1	6
	Sediment	PFAS	Modified EPA 537.1	Standard	2	1	1	0	0	1	1	6
	Sediment	Total Organic Carbon	Lloyd Kahn	Standard	2	1	1	0	0	1	1	6

TABLE 1
ANALYTICAL DATA SUMMARY FOR SITE CHARACTERIZATION
DENISON PARK, CORNING NEW YORK

Task	Sample Type	Analysis	Method	Turn-Around-Time	Samples	QA/QC Samples						Total
						Duplicate	Equipment Blank	Trip Blank	Field Blank	MS	MSD	
Surface Water Sampling [4]	Surface Water	VOCs	SW8260C	Standard	2	1	1	1	0	1	1	7
	Surface Water	SVOCs + 1,4-Dioxane	SW8270D/SW8270D SIM	Standard	2	1	1	0	0	1	1	6
	Surface Water	Pesticides	SW8081A	Standard	2	1	1	0	0	1	1	6
	Surface Water	PCBs + Total	SW8082A	Standard	2	1	1	0	0	1	1	6
	Surface Water	Herbicides	SW8151A	Standard	2	1	1	0	0	1	1	6
	Surface Water	Metals [6]	SW6010D/SW7470A	Standard	2	1	1	0	0	1	1	6
	Surface Water	Hardness (as $CaCO_3$)	SM2340C	Standard	2	1	1	0	0	1	1	6
	Surface Water	TPH	EPA 1664 (SGT HEM)	Standard	2	1	1	0	0	1	1	6
	Surface Water	PFAS	Modified EPA 537	Standard	2	1	1	0	1	1	1	7
Groundwater Sampling [4]	Groundwater	VOCs	SW8260C	Standard	6	1	1	1	1	1	1	12
	Groundwater	SVOCs + 1,4-Dioxane	SW8270D/SW8270D SIM	Standard	6	1	1	0	1	1	1	11
	Groundwater	Pesticides	SW8081A	Standard	6	1	1	0	1	1	1	11
	Groundwater	PCBs + Total	SW8082A	Standard	6	1	1	0	1	1	1	11
	Groundwater	Herbicides	SW8151A	Standard	6	1	1	0	1	1	1	11
	Groundwater	Metals	SW6010D/SW7470A	Standard	6	1	1	0	1	1	1	11
	Groundwater	TPH	EPA 1664 (SGT HEM)	Standard	6	1	1	0	1	1	1	11
	Groundwater	PFAS	Modified EPA 537.1	Standard	6	1	1	0	1	1	1	11
Waste Characterization Sampling	Soil	TCLP	SW1311	Standard	1	0	0	0	0	0	0	1
	Soil	TCLP Volatiles	SW8260C	Standard	1	0	0	0	0	0	0	1
	Soil	TCLP Semivolatiles	SW8270D	Standard	1	0	0	0	0	0	0	1
	Soil	TCLP Pesticides	SW8081B	Standard	1	0	0	0	0	0	0	1
	Soil	TCLP Herbicides	SW8151A	Standard	1	0	0	0	0	0	0	1
	Soil	TCLP Metals	SW6010C/SW7470A	Standard	1	0	0	0	0	0	0	1
	Soil	PCBs + Total	SW8082A	Standard	1	0	0	0	0	0	0	1
	Soil	Corrosivity	SW9045	Standard	1	0	0	0	0	0	0	1
	Soil	Ignitability	SW1030	Standard	1	0	0	0	0	0	0	1
	Soil	Reactivity (Cyanide and Sulfide)	SW7.3.3.2/SW7.3.4.2	Standard	1	0	0	0	0	0	0	1
	Water	VOCs	SW8260C	Standard	1	0	0	1	0	0	0	2
	Water	SVOCs	SW8270D	Standard	1	0	0	0	0	0	0	1
	Water	Pesticides	SW8081B	Standard	1	0	0	0	0	0	0	1
	Water	Herbicides	SW8151A	Standard	1	0	0	0	0	0	0	1
	Water	Total Cyanide	SW9012B	Standard	1	0	0	0	0	0	0	1
	Water	PCBs + Total	SW8082A	Standard	1	0	0	0	0	0	0	1
	Water	Metals	SW6010D/SW7470A	Standard	1	0	0	0	0	0	0	1
	Water	Corrosivity (pH)	SW9040	Standard	1	0	0	0	0	0	0	1
	Water	Flashpoint	SW1010	Standard	1	0	0	0	0	0	0	1
	Water	Reactivity (Cyanide and Sulfide)	SW7.3.3.2/SW7.3.4.2	Standard	1	0	0	0	0	0	0	1

NOTES:

1. NYCRR Subpart 375 Compounds
2. NYSDEC Screening and Assessment of Contaminated Sediment
3. An additional soil sample will be collected from native materials directly under any ash/brick/glass layer encountered
4. NYSDEC Ambient Water Quality Standard TOGS 1.1.1
5. Analysis of Cyanide, Hexavalent & Trivalent Chromium, VOCs, Pesticides, PCBS + Total, Herbicides, TPH, PFAS, and Organic Carbon(sediment only) will be submitted for 20% of samples.
6. Boron is included in all metals analyses.

ATTACHMENTS

ATTACHMENT 1
Parsons Subsurface Soil Disturbance Protocol

PARSONS ENVIRONMENT & INFRASTRUCTURE GROUP
MANDATORY SUBSURFACE SOIL DISTURBANCE PROTOCOL

1. INTRODUCTION

Intrusive investigation or excavation of the subsurface in areas developed for commercial, industrial or residential use exposes Parsons to the risk of causing damage to underground utilities and structures on a daily basis.

The potential consequences of causing damage to an underground utility or structure include, but are not limited to the following:

- Injury or loss of life
- Financial responsibility for repair, lost time, and/or loss of service
- Loss of client
- Federal investigation of job site work practices
- Litigation (third party lawsuits)

The mandatory protocol and checklists provided herein are intended as tools to aid in the management of risk, and ensure that a responsible standard is consistently applied at project sites where intrusion of the subsurface will occur.

2. PURPOSE

The purpose of this mandatory protocol is the prevention of potential injury and/or loss of life; and damage to subsurface utilities and structures. Parsons' staff will identify and evaluate the hazards associated with underground utilities and other structures prior to conducting any intrusive subsurface operation including but not limited to drilling/boring, test pitting, excavation and other subsurface intrusive activities.

3. SCOPE

Parsons' staff will employ sound investigative and work practices, and will use appropriate measures to avoid damage to subsurface utilities and structures. Furthermore, Parsons requires that these procedures be implemented by all of Parsons' employees and subcontractors, as appropriate. Subcontractors will have a copy of the procedures set forth in Section 6 of this document as an appendix to their contracts.

4. POLICY

Parsons' policy requires that the project manager follow all local, state, and federal laws applying to intrusive subsurface work (i.e. obtain permits, inform agencies, obtain utility clearances, etc). The project manager shall review, as available, all current and historical site drawings and plans from the client, facility owner or tenant, utility providers, municipal government offices (i.e. city engineer or building department) and third parties as appropriate.

The Pre-Drilling/Subsurface Checklist for Intrusive Fieldwork **(Attachment A)** shall be completed prior to initiating fieldwork. Note: *The checklist includes a site visit as a requisite to meet with knowledgeable staff as appropriate (current or former site/owner personnel, utility representatives, municipal representatives, etc.), and review site conditions and features relative to the proposed locations for intrusive work. The checklist should be turned in to the Parsons Project Manager and a copy placed in the project file.*

The procedure described under Section 6 of this document is mandatory at all sites where any intrusive subsurface activities will take place, including but not limited to drilling, augering, boring, excavating, test pitting, trenching or direct push (Geoprobe) technology.

Variance from the Subsurface Soil Disturbance Protocol is allowed only with the written approval from the appropriate Parsons' Program Manager or Sector Leader and the completion of the Utility Clearance Variance Request Form (Attachment B). GBU, Division or Project Safety personnel should be consulted as needed. Failure to obtain a variance in writing is grounds for disciplinary action. Copies of all variances will be maintained in the project files.

The Project Manager is encouraged to find locations that are acceptable to the project team to perform intrusive subsurface work that are not within right-of-ways, streets, highways, or near municipal or third party-owned utility corridors. When it is necessary to conduct work within these areas, the Project Manager should obtain approval from either the Program Manager or Sector Leader and submit the existing work plan to the GBU or Division Safety Manager for review.

5. RESPONSIBILITY

It is the responsibility of the Project Manager to ensure that the Pre-Drilling/Subsurface Checklist for Intrusive Fieldwork and Utility Clearance Variance Request form are followed. If a variance is sought, it is the responsibility of the Project manager to gain written approval of the appropriate Parsons' Program Manager or Sector Leader.

6. PROCEDURE: SUBSURFACE SOIL DISTURBANCE PROTOCOL

The Parsons' Project Manager will be responsible for fulfilling the objectives of this protocol by ensuring that the procedures are carried out by Parsons' employees, subcontractors, and any other person acting on behalf of Parsons. The Parsons' Project Manager will ensure that all individuals working on drilling and other subsurface exploration projects are adequately trained and supervised. Parsons will practice sound investigation and work practices and employ

all necessary measures to avoid damage to subsurface systems and structures. The Parsons' Program Manager or Sector Leader will be contacted and advised in advance of beginning field work in the event that a variance to this protocol is requested by the Parsons' Project Manager or designee. The following tasks/subtasks will be completed at every site and documented on the checklist.

6.1 PRE-INVESTIGATION TASKS

The objective of these tasks is to gather all relevant information about the site to assist in identifying exploration locations and obtaining necessary permits. Please note that in some instances the following information will be obtained or gathered by a subcontractor, which meets this objective.

6.1.1 Obtain Site Plans

Obtain as-built drawings and/or existing site plans as available. NOTE: As-built drawings may not accurately depict the locations of improvements and subsurface features and should therefore not be solely relied upon to determine acceptable locations for intrusive subsurface activities.

6.1.2 Obtain Permits

The project staff will observe all local, state, and federal laws, obtain all necessary permits and utility clearances, and secure site access permission. NOTE: Some permits/clearances require this step to be completed after the exploration locations have been identified and marked in the field. If this is required, proceed with Items 6.2 and 6.3 prior to obtaining permits.

6.1.3 Utility Mark-outs

Parsons' project staff will request a utility mark-out through the local utility locating one-call system for the work site, and document a reasonable degree of effort to locate all main electrical, gas, telephone and all other subsurface utilities. The Parsons' Project Manager must be notified of the status of locating underground utilities before field work progresses. If locating utilities becomes problematic, the Parsons' Project Manager should update the client and discuss potential alternative methods for locating or reducing risk of damage to underground utilities/structures for consideration (i.e. subcontract a private locating service, re-evaluate risk/reward of specific locations or utilize intrusive non-destructive methods as described in Section 6.5.6). Site plans will be updated as appropriate to include utility mark-out information. On third party sites, close coordination with the site owner's representatives for mark-outs, review of as-builts, and other information reviews should be conducted prior to work. NOTE: Some utilities require the exploration locations to be identified and marked in the field prior to performing mark-outs. If this is required proceed with Items 6.2 and 6.3 prior to obtaining permits.

6.2 SITE VISIT

A site visit is required to compare the site plan to actual conditions, document all findings, and update the site plan. Parsons will obtain information needed to prepare a vicinity map of the area that may include significant neighboring addresses, land use, surface water bodies, and other natural as well as manmade features of note, as appropriate. The site visit should be scheduled concurrent with, or soon after the utility mark-out. The inspection should include the following activities at a minimum.

6.2.1 Utilities

Note the location of all utility mark-outs and aboveground utilities:

- Area lights
- Phones
- Drain lines
- Overhead lines
- Fire hydrants
- Fiber optic cable signage
- Catch basins
- Manholes
- Junction boxes
- Natural gas
- Other utilities
- Observe paving scars such as areas of new pavement or saw cuts

6.2.2 Plant/Property Systems

If possible, speak with someone having historical site knowledge to gain information about the site (locations of former tanks, lines, etc.). For UST systems:

- Inspect for the presence of a dispenser pan and, if possible, determine whether product piping is rigid or flexible.
- Visually inspect the location of the tank field, observation wells (if present), dispensers and vent stack(s).

- Note the orientation, arrangement, location, sizes, etc. of the tanks and manholes. Estimate the burial depth of the tank field.

- Observe paving scars (i.e. fresh asphalt/concrete patches, scored asphalt/concrete). Note that this may not indicate location of product piping.

6.2.3 Existing Remediation Systems

Visually inspect the location of aboveground components. Note the locations of well manholes, sparge points, etc.

6.2.4 Safety

For UST systems, note the location of the emergency shut off switch and become familiar with its use.

6.3 SELECTION OF DRILLING/TEST PIT LOCATIONS

6.3.1 Critical Zones

Establish pre-drilling critical zones appropriate to the project site. These are zones where no drilling (if possible and if client concurs) will be conducted. As an example, the following critical zones could be applied at a UST site:

- 10ft (3m) distance from the furthest edge of any operating tank

- 10ft (3m) distance surrounding operating dispenser islands

- At active service station sites, the entire area between the tank field and the dispenser islands.

- The zone between 0 and 5-feet of utility markings

6.3.2 Select Drilling Locations

The information collected to this point will be utilized in combination with regulatory requirements and investigation objectives to select drilling locations. It is recommended that alternate drilling locations be selected in case additional explorations are required or obstructions are encountered. The effort to investigate a specific proposed drilling location should be to clear a minimum five-foot radius circle around the location.

6.3.3 Review Selected Locations with the Client

At a minimum, offer to review the selected and alternate drilling locations with the client's project manager or designated representative. When completing Geoprobe^{tm} (or similar) investigations in which some boring locations are not selected in advance, but partially

determined in the field based on field screening results, the client should approve the areas in which work will be performed. Do not proceed with the investigation until the plan has been discussed with the client, and approval to proceed has been granted. If relocation of a boring outside approved limits is necessary at any time and for any reason, contact the client prior to proceeding. CLIENT APPROVAL MUST BE DOCUMENTED. Verbal approval is acceptable if followed with written approval. Documentation may include a notation in the field book, email or written correspondence.

6.4. REQUIRED NOTIFICATIONS

Affected parties must be notified at least 48-hours (longer if possible) in advance of planned intrusive fieldwork. An exception would be in the event of an emergency response situation. Parsons' staff will avoid scheduling conflicts with facility activities at the site. The Parsons' Project Manager or designee will notify the following persons as applicable:

- The oversight regulatory agency (includes local fire, police and municipal contacts as appropriate).
- Property owner for private properties. This should include neighboring third party property owners if a potential exists for causing inconvenience as a result of the scheduled fieldwork.
- Client specific notifications as appropriate (i.e. facility maintenance, retail and/or real estate managers as appropriate)

6.5. ON-SITE SUBSURFACE ACTIVITIES

6.5.1 Safety

A Project Safety, Health and Environmental Plan (PSHEP) must be available on site at all times and all Parsons' staff, contractors and subcontractors must be familiar with it. Parsons' employees are to acknowledge their review of the PSHEP by signing the signature form contained within the PSHEP. The Parsons' field team leader is tasked with conducting a tailgate meeting at the start of each day to review project specific health and safety items with staff and subcontractors. Subcontractors, however, are responsible for their own health and safety. All work areas shall be secured with safety cones, safety tape, construction fence, barricades, or signs as appropriate.

A copy of this entire subsurface activity protocol and completed checklist must be appended to the health and safety plan.

6.5.2 Supervision

A Parsons' on-site representative will be responsible for overseeing subsurface activities. This representative will ensure that the work is performed with due caution and will be alert for warning signs that could indicate the presence of underground tanks, lines, or other subsurface structures.

6.5.3 Warning Signs

The following warning signs may indicate the presence of a subsurface structure such as tanks or lines:

- Pea Gravel/Sand/Non-indigenous Material.
- The absence of soil recovery in the hand auger. This could indicate pea gravel that has spilled out of the auger.
- Any unexpected departure from the native soil or groundwater conditions as established in other on-site digging.
- Obstructions encountered

If any of the above warning signs or a suspicious condition is encountered, intrusive subsurface activities in this area should immediately cease and the Parsons' Project Manager shall be contacted.

6.5.4 Drill Boring Sequence

If possible, the boring sequence should be planned such that the boring furthest from any suspected underground improvements is carried out first. This is done to determine the natural subsurface conditions and to allow the field geologist/scientist to recognize native versus fill conditions. Also, least impacted locations should be done first if possible to prevent possible cross contamination.

6.5.5 Surface Removal for Paved Areas

Sufficient paving or surface improvement should be removed to allow clear visibility of the subsurface conditions during hand augering/digging, and allow excavation with hand tools. Drilling in an area of high risk may warrant a larger pavement opening.

- Monitoring Well Installations: 2-ft x 2-ft (60cm x 60cm) minimum removal is suggested (assumes for example: 6.25-inch hollow stem auger (HSA) or smaller).
- Soil Borings: 8-inch (20cm) diameter minimum removal is suggested (assumes for example: 3.25-inch HAS or smaller).
- Direct Push Samplers: 4 to 6 inch (10 to 15 cm) diameter minimum removal is suggested (assumes for example: 2-inch diameter sample tube).

The technique used should not pose a threat to subsurface structures. Final completion for holes in pavement shall be neatly saw-cut or cored unless otherwise directed by the client.

6.5.6 Clearing the Subsurface for Utilities and Other Structures

Parsons' staff must ensure that no subsurface utilities, structures, or improvements exist where intrusive subsurface activities will occur. Locations will be cleared using results of historical data research and with geophysical methods (see below for details) at a zone 5 feet in radius around the proposed location. Staff (or personnel supervised by Parsons) will also utilize intrusive, non-destructive procedures such as hand digging to a depth of 5 feet and a diameter or width equivalent to the outside dimensions of the auger to investigate the boring location.

The method used to delineate the subsurface should be compatible with the inherent risk associated with the type of facility/property and the location of the drilling. Proactive investigative methods to clear specific drilling locations will include the following non-invasive and invasive non-destructive methods:

Non-Invasive Geophysical Remote Sensing: Multiple appropriate instruments (ground penetrating radar, electromagnetic detector, magnetometer, metal detector) can be used for this work. Survey an area around the location to a distance of 5 feet using geophysical methods to identify potential subsurface utilities or facilities. Move the borehole location, if necessary, within the cleared circle to avoid an object identified by the geophysical instrument. Examples of geophysical methods are provided below:

- Electromagnetic and radio frequency;
- Ferrous metal or magnetic locators;
- Ground probing radar (GPR).

Important note: A combination of two or more non-invasive instruments may be required to properly clear a subsurface area. For example, a ferrous metal detector may not detect metals pipes embedded in concrete duct banks, PVC pipes, FRP pipes, or other non-ferrous materials.

Intrusive Non-Destructive Procedures: Delineate the subsurface at the borehole location by probing or digging. Several acceptable methods are discussed below. In some cases, these intrusive procedures may not be practical due to the subsurface conditions or requirements of the explorations.

- Vacuum/Air Knife Digging: Vacuum digging has proven to be a very effective and safe means of digging and is recommended instead of probing and digging with hand tools.
- Probing: The probe should have a blunt or rounded tip and should be advanced by hand in a triangular pattern around the bore location without excessive force.
- Hand Digging: Should be performed with a small hand garden spade.

- Hand Augering: The auger is to be turned slowly and not forced through the soil. It is recommended that an auger without sharp points (some augers have rounded edges) be used.

- Post Hole Digging: Can be used for soil removal only in soil that has been probed and cannot be used to advance the hole beyond the depth or width of probing.

The area to be cleared for underground utilities or structures for augering shall exceed the diameter of the largest tool (hand auger, drill auger, sampling tube, etc.) to be advanced and sufficiently large to allow for visual inspection of any obstructions encountered. The first 1 - 2ft (0.3 - 0.6m) can be cleared by hand digging to remove the soil. Slowly and carefully probe (i.e. triangular pattern), vacuum, or hand auger throughout the area to be cleared to ensure that no obstructions exist anywhere near the potential path of the drill auger or push type sampler. The soil in the area to be cleared shall be fully removed during this step. If probing is utilized, then alternate probing with soil removal as necessary, until the first 5-ft (1.5m) has been delineated.

6.5.7 Refusal

Where natural subsurface conditions (e.g. cobbles/rocks, fill material, and/or bedrock) may prevent adequate probing and augering, a practical and sensible evaluation by the Parsons' Project Manager will be the basis for determining if continuation of probing and augering is feasible. In all cases Parsons must employ all means necessary to prevent damaging subsurface utilities, product lines, tanks, or other structures. **When conventional means of probing and augering cannot be utilized, the Parsons' field representative believes that additional probing/augering is not feasible, or if the probing/augering poses additional hazard to personnel because of the physical demands of performing the task, work in that specific area will cease**. The Parsons' Project Manager will contact the client's project manager or designee to discuss alternatives. If Parsons' staff suspects, based on past information or boring logs, that hand augering is infeasible, then alternatives such as vacuum clearing or non-invasive procedures should be evaluated in advance.

6.5.8 Event Notification

If any portion of a tank, pipe, utility or other subsurface structure is encountered, or if there is any doubt it has been encountered, the work is to cease in that area and the Parsons' Project Manager notified immediately. If there is reason to believe that the structure has been damaged, if applicable, the emergency shut-off switch should be activated (if applicable) and the appropriate municipality and client notified immediately. The Parsons' Project Manager and/or client will decide if additional uncovering by hand is required. If it is confirmed that a UST system has been encountered, a tightness test(s) should be considered. Under no circumstances is the area to be backfilled without notifying the Parsons' Project Manager, unless risk of personal injury or damage warrants a temporary backfilling.

In case of refusal or if an unknown subsurface object is encountered during intrusive subsurface activities, then the following specified resolution process must take place.

- Additional and deliberately careful excavation by hand will be conducted in an attempt to define the cause of refusal or identify the subsurface object.

    a. If the cause CAN be readily and correctly defined as not destructive or hazardous, the field task manager should call the PM to discuss the situation.

    b. If the cause CAN be readily and correctly defined as potentially destructive or hazardous, the field task manager should call the PM to discuss the situation. The specific location must be re-evaluated.

    c. If the cause CANNOT be readily and correctly defined, the field task manager should call the PM to discuss the situation. The specific location must be re-evaluated.

- In case "a," drilling may proceed ONLY after consultation with the PM.

- In cases "b" and "c," drilling MUST STOP so that location re-evaluation can take place. The client, the utility owner (if applicable) and if required, the appropriate regulatory agency, must be advised of the situation and consulted to determine if (1) the location is necessary, which may require additional effort to clear a new location, or (2) the location is not necessary, and can be deleted from the program.

6.5.9 Scheduling

Since clearing locations for augering, drilling, excavation and similar intrusive field work can be time consuming, it may be appropriate to perform the surface removal subsurface delineation prior to the arrival of subcontractors and their equipment on site. If these activities are conducted prior to the actual day of intrusive field work, then the cleared locations must be adequately covered with plates and/or backfilled, or barricaded to protect pedestrians and other surface traffic. Care must be taken to prevent settlement of the material used to cover the holes.

ATTACHMENT A

PRE-DRILLING/SUBSURFACE CHECKLIST FOR INTRUSIVE FIELD WORK

PREDRILLING/SUBSURFACE CHECKLIST FOR INTRUSIVE FIELDWORK

Site Name: _____ **Job Number:** _____
Site Phone Number: _____
Site Address: _____ **County:** _____
Client Proj. Mgr.: _____ **Phone:** _____
Site Manager Contacted Date: _____ **By:** _____
Site Drawings (yes / no / NA) _____ (please attach) **Historical Drawings (yes / no / NA)** _____
Third Party Construction/Redevelopment Plans (Yes/No/NA)

***ATTACH SITE FIGURE WITH PROPOSED BORING LOCATIONS

Subcontractor's (drillers, concrete, etc…) **Company** _____
Subcontractor's Contact Person _____ **Phone** _____
Meeting / Start Date _____ **Time** _____

1) **Health and Safety Signoff Form Completed? (Yes/No)** **Date** _____

2) **Utility Protection Services (Minimum 48 Hrs. Advance Notice, State Specific Notification Period Supercedes)**
Called: Date _____ **Time** _____ **Initials** _____
Reference # _____
Proposed Drilling Locations Premarked for Locating Service. **Y / N**

3) **Private or In-House Utility Locating Service Performed?** **Y / N** _____
Called: Date _____ **Time** _____ **Initials** _____
Name of Locating Service: _____
Telephone #/ contact: _____
Name of Supplier Locating Technician: _____
Type of sensing equipment used: _____
Proposed Drilling Locations Premarked **Y / N**

4) **Other Potential Underground Structures**
Name of City Engineer/Utility Representative: _____
Telephone #: _____
Date Notified _____ **Maps:** **Y / N**
Cleared: **Y / N**

5) **COMPLETED SITE WALKOVER W/ SITE MANAGER/DESIGNEE OR OWNER/TENANT REP.** **Y / N**
Name of Site Manager: _____
Name of Property Owner/Tenant Representative: _____
Cleared: **Yes / No**
Building Utility Service Line Connections Identified: **Y / N**
(Hand sketch on site map w/proposed boring locations and most likely utility trench locations)

6) **Utility Inventory:** **Y / N**

Utility	Name	Depth (ft) (If Available)	Phone	Notified - Date	Marked
Above Ground Services					
Electric		NA		Y / N	Y / N
Telephone		NA		Y / N	Y / N
Cable		NA		Y / N	Y / N
Overhead Supports		NA		Y / N	Y / N
Traffic light cables		NA		Y / N	Y / N

PREDRILLING/SUBSURFACE CHECKLIST FOR INTRUSIVE FIELDWORK

6) Utility Inventory Continued:

Below Ground Services:

Electric				Y / N		Y / N
Telephone				Y / N		Y / N
Cable				Y / N		Y / N
Gas				Y / N		Y / N
Water				Y / N		Y / N
UST System				Y / N		Y / N
Storm				Y / N		Y / N
Sanitary				Y / N		Y / N
Steam				Y / N		Y / N
Pipeline Companies				Y / N		Y / N

Other:

				Y / N		Y / N
				Y / N		Y / N
				Y / N		Y / N

7) Site-Specific Emergency Contingency Plan Incorporated in Health & Safety Plan Y / N

8) Drilling Locations Approved by Client Project Manager Named Above? Y / N

9) Signature of Parsons' Project Mgr. (required to begin fieldwork):

Name of Project Manager	**Signature of Project Manager**
Name of Parsons Field Personnel	**Signature of Field Personnel**

(This document to be included with the site H&S Plan and should be available upon request.)

ADDITIONAL COMMENTS / NOTES:

ATTACHMENT B
UTILITY CLEARANCE VARIANCE REQUEST FORM

PARSONS

UTILITY CLEARANCE VARIANCE REQUEST

To: Enter Parsons Manager (Program, Sector or Operations)

From:

Client Company Name:

Site/Project Name:

Date of Request:

Work Start Date:

The purpose of this document is to request a variance from one or more of the PE&I Mandatory Subsurface Soil Disturbance Protocol requirements. The purpose of the mandatory protocol is to prevent potential injury and/or loss of life; and damage to subsurface utilities and structures during any soil disturbance. Any waiver of these requirements should be carefully evaluated.

Variance from the Subsurface Soil Disturbance Protocol is allowed only with the written approval of the appropriate Parsons' Program/Sector/Operations Manager. GBU/Divisional/Program safety resources should be consulted as needed. Failure to obtain a variance in writing is grounds for disciplinary action.

Brief Project Description

Insert a brief background and description of the intrusive activities, which are the reason(s) for requesting a variance.

Utility Clearance Requirements

Step No.	Requirement	Step Completed[1]
Prep-1	Obtain as-built drawings and/or existing site plans if available and review for on-site utilities.	☐ Yes ☐ No

[1]Any "No" response must include the rationale for not completing the step at the end of the Variance Request form.

Step No.	Requirement	Step Completed[1]
Prep-2	Utility mark-out requested through the nationwide utility locating one-call system (www.call811.com) for the work site.	☐ Yes ☐ No
Prep-3	Review the Subsurface Soil Disturbance protocol with all PE&I technical staff that will potentially be involved in projects that include subsurface investigation.	☐ Yes ☐ No
Pre Mob-1	Notify affected parties at least 48-hours (longer if possible) in advance of planned intrusive fieldwork.	☐ Yes ☐ No
Pre Mob-2	Prepare a Project Safety, Health and Environmental Plan (PSHEP) that includes a copy of the Subsurface Soil Disturbance protocol.	☐ Yes ☐ No
Pre Mob-3	Select a competent Parsons' on-site representative to oversee all surface removal, hand augering/digging, drilling, and test pitting.	☐ Yes ☐ No
Site [2] Visit-1	Perform a site visit and identify indications of underground utilities. Indications could include [3]: ➢ Area lights ➢ Phones ➢ Drain lines ➢ Overhead lines ➢ Fire hydrants ➢ Fiber optic cable signage ➢ Catch basins ➢ Manholes ➢ Junction boxes ➢ Natural gas	☐ Yes ☐ No

[1] Any "No" response must include the rationale for not completing the step at the end of the Variance Request form.

[2] Site visit activities must be included with mobilization activities if a Site visit is not performed prior to mobilization for the field work.

[3] Note that list is not all inclusive.

Step No.	Requirement	Step Completed[1]
	➢ Observe paving scars such as areas of new pavement or saw cuts	
Site Visit-2	Prepare a vicinity map of the proposed work area to include significant features and utilities. The site visit should be scheduled concurrent with, or soon after the utility mark-out.	☐ Yes ☐ No
Site Visit-3	Interview someone having historical site knowledge to gain information about the site (locations of former tanks, lines, etc.).	☐ Yes ☐ No
Site Visit-4	Establish pre-drilling critical zones appropriate to the project site	☐ Yes ☐ No
Site Visit-4	Review Selected Locations with the Client	☐ Yes ☐ No
Field Work-1	Review site utility maps against each proposed work activity. Check for legibility, accuracy, and scale while walking areas of concern. Evaluate the work area for any items in Site Visit-1 that may have been missed.	☐ Yes ☐ No
Field Work-2	Obtain all necessary permits and utility from the facility.	☐ Yes ☐ No
Field Work-3	Remove any surface paving or surface cover allow clear visibility of the subsurface conditions during hand augering/digging, and allow excavation with hand tools.	☐ Yes ☐ No
Field Work-4	Non-Invasive Clearing: Clear a minimum of a five foot radius for each proposed intrusive activity. Locations will be cleared using results of historical data research and with geophysical methods. Multiple appropriate instruments (ground penetrating radar, electromagnetic detector, magnetometer, metal detector) can be used for this work.	☐ Yes ☐ No
Field Work-5	Invasive Clearing: Delineate the subsurface at the borehole location by probing or digging. Dimensions of the intrusive method must exceed the diameter of the largest tool (hand auger, drill auger, sampling tube, etc.) to be advanced and	☐ Yes ☐ No

Step No.	Requirement	Step Completed[1]
	sufficiently large to allow for visual inspection of any obstructions encountered. Approved methods could include the following: ➢ Vacuum Extraction (Air Knifing, SoftDig®) ➢ Probing ➢ Hand Digging ➢ Hand Augering ➢ Post Hole Digging	

Rationale

Below, identify the step or steps the variance is being requested for and an explanation of why the waiver is necessary and/or justified.

Step No.	Rationale for Variance Request

Approvals

	Name	**Date**
Parsons Manager (Program, Sector, or Operations)		

ATTACHMENT 2
NYSDEC Corning Area Glass Sampling Standard Operating Procedure

NYSDEC CORNING AREA GLASS SAMPLING STANDARD OPERATING PROCEDURE

TABLE OF CONTENTS

1. Objective

The purpose of this task is to collect and identify specific waste items associated with historic manufacturing waste (largely associated with glass manufacturing) disposal throughout the area. Performing this work involves the need to preserve unique shapes, markings, etc. of archive samples. Archived samples may be analyzed at NYSDEC's discretion to define their physical and chemical characteristics.

2. Procedure

a. Equipment and Supplies

The following equipment will be used:

- Clear Zip-Loc bags
- Digital camera
- PPE in accordance with the HASP
- Sample logs
- Ruler
- Tape measure
- Ultraviolet flashlight
- Fibrous brush
- Basic glass cutting equipment - different equipment may be utilized based on site- and sample-specific circumstances, including:
  - Triangular file
  - Hammer & chisel
  - Other hand tools (as applicable)

b. Notification

Prior to any archive sample being collected, to the extent practical, Corning Incorporated will be alerted of field archive sample collection if required by an order on consent or at the discretion of NYSDEC if not. Split samples may be provided to Corning Incorporated upon request. If splitting of a sample would otherwise impact the ability to get test results for the sampled material or would otherwise alter the nature of the material to damage it beyond its intended use as an archive sample, then Parsons and/or NYSDEC shall take the sample without splitting with Corning Incorporated and properly maintain the sample. NYSDEC solely reserves the right to refuse to split a sample.

c. Sampling Method

The following observations will be noted in the glass archiving sampling record log (Appendix A):

- Site name;
- Project number;

- Sampling date;
- Samplers;
- Sample ID;
- Parcel ID;
- Sampling Method;
- Location;
- Surrounding soil (or subject material) type & appearance;
- Optionally, if the following physical properties are applicable to a specific archive sample, record dimensions, shape, and color of the archive sample. Record opacity, fracture, and UV/fluorescence as applicable after sample collection; and
- Other notable observations.

To the extent possible, archive samples will be logged prior to being disturbed (e.g., moved by an excavator). A digital camera will be used to take photos of the archive sample and location; a ruler will be staged in the photo frame as a dimensional reference. An ultraviolet flashlight will be used to determine fluorescence of the archive sample after sample collection. A sketch of the samplelocation relative to property landmarks (e.g., fenceline, vegetation, shed, etc.) must be drawn and recorded in a field book, or supplemented with a written location description or photograph.

When handling the archive sample, samplers will wear nitrile gloves. Prior to or after the archive sample being split or bagged, a fibrous brush will be used to remove debris attached to glass or brick material.

As provided in Section 2.b., NYSDEC and Corning Incorporated will be notified before collection of any archive sample. If requested by Corning Incorporated, and where reasonable, larger pieces of glass may be split sampled into two pieces. A glass cutting device will be used to split the sample into two halves (to the extent possible). Glass pieces may be cut by scoring the glass witha triangular file and then breaking along the score, by breaking with a hammer and chisel, or by another appropriate hand methods. If hand tools are inadequate to physically split the glass sample, additional methods may be considered (e.g., a wet saw). Alternative methods of splitting samples will need to consider health and safety risks and generation/disposal of wastes prior to implementing.

If splitting a glass piece may harm its integrity, damage a unique and distinguishable shape, isn't feasible due to its size or shape, or presents another issue, field personnel will collect two pieces of similar material found together. One piece of the sample will be offered to Corning Incorporated as a split sample. NYSDEC and Corning Incorporated can discuss these instances, if they arise, and may make a future arrangement to split the piece.

The cutting device and splitting method (e.g., cut, crushed, or alternative method) must be noted on the glass archiving sampling record log (Appendix A). Additionally, an estimate of the percentage of the glass that is salvageable for archiving must be noted on the log. Once the archive sample is split, a photo must be taken of the glass samples. If an archive sample is unevenly split, NYSDEC reserves the right to choose the piece(s) to collect.

Sample identification information must be affixed to the Zip-Loc bag containing the archive sample. The following information must be noted on the bag, chain of custody, and/or sampling record log:

- Sample ID
- Chain of Custody number
- Sampler(s)
- Date sample collected
- Collection location (Area, Parcel ID, etc.)
- Sampler company (i.e., Parsons)
- Client (i.e., NYSDEC)

In the event a Corning Incorporated representative is unable to be present during the archive sample collection, the sample will be collected and stored in a secure location (e.g., the Parsons trailer). Corning Incorporated will be notified of the completion of the sampling effort. At Corning Incorporated's request, the archive sampling information will be shared. The archive sample may be split when a Corning Incorporated representative is present.

d. Chain of Custody

Archive samples will be collected under a chain of custody (Appendix B).

- The total number of samples on a chain is limited to 20.
- If the chain has multiple pages, it must be noted (e.g., Page 1 of 2).
- At the end of the workday, a picture will be taken of the chain to capture an electronic copy of the signed chain. A .pdf copy of the signed chain will be saved to the project file.

The *Site ID* consists of the work location (e.g., Study Area, Van Etten Road, etc.) that the archive sample is collected from.Each location has its own *Site ID*. Site IDs for each work location will be as follows, and this SOP will be amended as needed to list additional Site IDs.

Work Location	Site ID
Study Area	SA
Stewart Park	Stewart
Van Etten	Van
Guthrie Medical Center	GMC
Guthrie Center North Parking Lot	GCNPL
City of Corning Fire Department	CCFD
Post Creek	Post
3510 West Road	WR
McKinney Park	MCP; McKinney
William Street Park	WSP
Vine Street Site	Vine; 6FLA

Chain Numbers are the *Site ID* + *Sampling Date* (e.g., SA-072420 are the archive samples collected in the Study Area on July 24, 2020).

Field Sample IDs must be unique. The *Field Sample ID* for locations within the Study Area consists of the *Site ID* + *Residence Number* + *Date* + *Sequential Number* + *Sample Type* (AG for archive glass, FB for furnace brick, CS for ceramic, and ASH for ash). For example, SA-Res012-072420-01-AG would be the first sample collected at Study Area Residence 12 on July 24,2020 and would consist of archive glass. The *Field Sample ID* for locations outside of the study area will consist of *Site ID* + *Date* + *Sequential Number* + *Sample Type*. For example, Stewart-101220-04-FB would be the fourth sample collected at Stewart Park on October 12, 2020 and would consist of furnace brick.

3. Attachments

A. APPENDIX A GLASS ARCHIVING SAMPLING RECORD LOG

B. APPENDIX B SAMPLE CHAIN OF CUSTODY FORM

PARSONS
GLASS ARCHIVING SAMPLING RECORD

SITE NAME:
PROJECT NUMBER: 452163.03000
SAMPLING DATE / TIME:
WEATHER:
SAMPLERS: of Parsons
of
of

SAMPLE ID:
PARCEL ID:
SAMPLING METHOD: Hand collection

DESCRIPTION OF SAMPLING POINT

LOCATION:
SURROUNDING SOIL/SUBJECT MATERIAL TYPE & APPEARANCE:
ORIENTATION:
DEPTH TO TOP:
DEPTH TO BOTTOM:
ABG* PROPORTIONS:

ARCHIVE SAMPLE DESCRIPTION

DIMENSIONS (Photograph with ruler):
SHAPE:
COLOR:
OPACITY:
FRACTURE:
UV/FLUORESCENCE TESTING:
OTHER:

CHAIN OF CUSTODY

SAMPLE SPLIT?: Y | N
SPLITTING DEVICE:
SPLIT METHOD:
SPLIT RECOVERY %:
CHAIN OF CUSTODY NUMBER:
SHIPPED VIA: Dropped off at

COMMENTS / MISCELLANEOUS

*ABG denotes ash, brick, and/or glass

Submitted to:

Chain Of Custody / Analysis Request

AESI Ref:

COC # :

Lab Use Only

Lab Proj #

Lab ID

Job No.

Privileged & Confidential

EDD To:

Site Name:

Location of Site:

Client Contact: (name, co., address)

Sampler:

P O #

Analysis Turnaround Time:

Standard -

2 weeks -

1 week -

Next Day -

Hardcopy Report To:

Invoice To:

Preservative

Grab/Composite | MS/MSD | Field Filtered Sample ?

Sample Identification

	Location ID	Start Depth (ft)	End Depth (ft)	Field Sample ID	Sample Date	Sample Time	Sample Type	Sample Matrix	Sample Purpose	# of Cont.	Units			0	0	2												
1																												
2																												
3																												
4																												
5																												
6																												
7																												
8																												
9																												
10																												
11																												
12																												

Special Instructions:
Samples will be held at the Parsons field office following sample collection, and may be submitted under chain of custody for analytical testing at a later date.

Notes:

Sample Collected/Held by	Company			Company		Condition	Custody Seals Intact
	Date/Time			Date/Time		Cooler Temp.	
Transferred to Archived by	Company			Company		Condition	Custody Seals Intact
	Date/Time			Date/Time		Cooler Temp.	

Preservatives: 0 = None; [1 = HCL]; [2 = HNO3]; [3 = H2SO4]; [4 = NaOH]; [5 = Zn. Acetate]; [6 = MeOH]; [7 = NaHSO4]; 8 = Other (specify):

ATTACHMENT 3

NYSDOH Generic Community Air Monitoring Plan

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

Overview

A Community Air Monitoring Plan (CAMP) requires real-time monitoring for volatile organic compounds (VOCs) and particulates (i.e., dust) at the downwind perimeter of each designated work area when certain activities are in progress at contaminated sites. The CAMP is not intended for use in establishing action levels for worker respiratory protection. Rather, its intent is to provide a measure of protection for the downwind community (i.e., off-site receptors including residences and businesses and on-site workers not directly involved with the subject work activities) from potential airborne contaminant releases as a direct result of investigative and remedial work activities. The action levels specified herein require increased monitoring, corrective actions to abate emissions, and/or work shutdown. Additionally, the CAMP helps to confirm that work activities did not spread contamination off-site through the air.

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

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

Community Air Monitoring Plan

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

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

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

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

VOC Monitoring, Response Levels, and Actions

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

1. If the ambient air concentration of total organic vapors at the downwind perimeter of the work area or exclusion zone exceeds 5 parts per million (ppm) above background for the 15-minute average, work activities must be temporarily halted and monitoring continued. If the total organic vapor level readily decreases (per instantaneous readings) below 5 ppm over background, work activities can resume with continued monitoring.

2. If total organic vapor levels at the downwind perimeter of the work area or exclusion zone persist at levels in excess of 5 ppm over background but less than 25 ppm, work activities must be halted, the source of vapors identified, corrective actions taken to abate emissions, and monitoring continued. After these steps, work activities can resume provided that the total organic vapor level 200 feet downwind of the exclusion zone or half the distance to the nearest potential receptor or residential/commercial structure, whichever is less - but in no case less than 20 feet, is below 5 ppm over background for the 15-minute average.

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

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

Particulate Monitoring, Response Levels, and Actions

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

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

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

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

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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.