Columbia Mills Site
OSWEGO, NEW YORK

Site Management Plan

NYSDEC Site Number: 7-38-012

Prepared for:
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1.0 INTRODUCTION AND DESCRIPTION OF REMEDIAL PROGRAM

1.1 INTRODUCTION

This document is required as an element of the remedial program at the Columbia Mills Site (hereinafter referred to as the "Site") under the New York State (NYS) Inactive Hazardous Waste Disposal Site Remedial Program administered by New York State Department of Environmental Conservation (NYSDEC). Site remediation was performed in accordance with the Order on Consent between Columbia Mills and the NYSDEC dated March 20, 1989 and the Record of Decision (ROD), Site # 07-38-012, which was executed on March 25, 1992.

1.1.1 General

Columbia Mills, Inc. entered into an Order on Consent with the NYSDEC to remediate an approximately 10-acre area of the former 100 acre facility located in Minetto, Oswego County, New York. This Order on Consent required the Remedial Party, Columbia Mills, Inc., to investigate and remediate contaminated media at the site. A figure showing the site location and boundaries of this 100-acre site is provided in Figure 1. Figure 2 shows the original features of the facility and Figure 3 presents the areas that were excavated for remediation.

After completion of the remedial work described in the Columbia Mills Landfill Final Remediation Report and the Record of Decision, all known soil contamination was consolidated into the on-site landfill. Subsequently, the Site boundaries were reduced (Figure 1 and Figure 4) to only include the on-site landfill (7.9 acres). The materials consolidated in the landfill are the only considerable contamination remaining in the subsurface at this Site, which is hereafter referred to as "remaining contamination." This

Site Management Plan (SMP) was prepared to manage remaining contamination at the site. All reports associated with the Site can be viewed by contacting the NYSDEC or its successor agency managing environmental issues in New York State.

This SMP was prepared by ARCADIS of New York, Inc. (ARCADIS), on behalf of the NYSDEC, in accordance with the requirements in NYSDEC DER-10 Technical Guidance for Site Investigation and Remediation, dated May, 2010, and the guidelines provided by NYSDEC. This SMP addresses the means for implementing the Institutional Controls (ICs) and Engineering Controls (ECs) that are required by the NYSDEC for the Site.

1.1.2 Purpose

The Site contains contamination within a closed, capped landfill, left after completion of the remedial action. Engineering Controls have been incorporated into the Site remedy to control exposure to remaining contamination during the use of the Site to ensure protection of public health and the environment. Currently, no Environmental Deed Restrictions have been granted to the NYSDEC. In lieu of deed restrictions, the NYSDEC will require compliance with this SMP and all ECs and ICs placed on the site. The ICs place restrictions on Site use, and mandate operation, maintenance, monitoring and reporting measures for all ECs and ICs. This SMP specifies the methods necessary to ensure compliance with all ECs and ICs required by the NYSDEC for contamination that remains at the Site. This plan has been approved by the NYSDEC, and compliance with this plan is required by the NYSDEC. This SMP may only be revised with the approval of the NYSDEC.

This SMP provides a detailed description of all procedures required to manage remaining contamination at the Site after completion of the Remedial Action, including: (1) implementation and management of all Engineering and Institutional Controls; (2) media monitoring; (3) operation and maintenance of all collection and containment systems; (4) performance of periodic inspections, certification of results, and submittal of Periodic Review Reports; and (5) defining criteria for termination of treatment system operations.

To address these needs, this SMP includes three plans: (1) an Engineering and Institutional Control Plan for implementation and management of EC/ICs; (2) a Monitoring Plan for implementation of Site Monitoring; (3) an Operation and Maintenance Plan for implementation of remedial collection and containment systems.

This plan also includes a description of Periodic Review Reports for the periodic submittal of data, information, recommendations, and certifications to NYSDEC.

It is important to note that:

- This SMP details the site-specific implementation procedures that are required by the Record of Decision. Failure to comply with this SMP is a violation of Environmental Conservation Law, 6NYCRR Part 375 and the Order on Consent (Site #7-38-012) for the Site, and thereby subject to applicable penalties.

1.1.3 Revisions

Revisions to this plan will be proposed in writing to the NYSDEC's project manager. The NYSDEC will provide a notice of any approved changes to the SMP, and append these notices to the SMP that is retained in its files.

1.2 SITE BACKGROUND

The factory originally consisted of approximately 100 acres. Approximately 10 acres adjacent to State Route 48 contained the former plant area (Figures 1 and 2). Remnants of the former building slabs are still visible. Prior to the remediation, the primary contaminants of concern were polychlorinated biphenyls (PCBs), volatile organic compounds (VOCs), and metals (primarily lead) at the main plant facility within the former site boundaries. Two ponds located north of the plant area were used to store process water for the plant. An approximately five acre landfill was located to the west of the plant area. The landfill contained drums, ash, and debris. The ponds were located adjacent to the former landfill.

During remediation, the ponds were eliminated and replaced with an approximately 0.8 acre amphibian breeding pond (ABP). All known soil contamination on the former site was consolidated into the on-site landfill, which was capped and closed in 1997. Remediation at the former site was completed in 1997.

Currently, the main Site feature is the capped, closed landfill enclosed by a chain link fence. The landfill is located in the western portion of the former site and encompasses approximately 7.9 acres. Groundwater and leachate from the landfill can be directed to three locations; a 10,000-gallon underground storage tank (UST), the Town of Minetto waste water treatment plant (WWTP), or the ABP. The ABP is located in the western portion of the former parcel, approximately 300 feet west of the landfill. An ephemeral stream flows onto the northwest corner of the landfill from a culvert in through the former Conrail right-of way. The stream flows along the northern border of the landfill and discharges into the ABP (Figure 4).

1.2.1 Site Location and Description

The Site is located in the Town of Minetto County of Oswego, New York and is identified as Block 183.02 and Lot 02-05 on the Minetto Tax Map. The former site is an approximately 100-acre area bounded by County Route 42 to the north, County Route 24 to the south, State Route 48 to the east, and by a former Conrail track right-of-way to the west (see Figure 1). The current Site consists of the landfill, and is located in the north western portion of the former site.

1.2.2 Site History

Columbia Mills was a factory that manufactured vinyl window shades and coverlets and generated and disposed of assorted industrial wastes. The company closed in 1977, and the buildings on the property fell to ruin. Remnants of the former building slabs are still visible. The site was briefly used for salvage operation before ownership was transferred to the County of Oswego and the Town of Minetto.

1.2.3 Geologic Conditions

The Site is generally underlain by lacustrine and glacial till deposits consisting of silt, sand, and gravel. Bedrock was encountered at depths ranging from five to 17 feet below ground surface (bgs). The direction of groundwater flow in the vicinity of the Site is generally northeast toward the ABP and the Oswego Canal. Shallow and deep groundwater flow figures are shown in Figures 5 and 6. The depth to water in the shallow (overburden) groundwater monitoring wells is approximately seven feet bgs. The depth to water in the deep (bedrock) groundwater monitoring wells is generally 10 feet bgs.

1.3 SUMMARY OF REMEDIAL INVESTIGATION FINDINGS

Previous investigations at the former site include:

Site Reuse Investigation: In 1984, Calocerinos & Spina (C & S) was retained by Oswego County to evaluate the potential for Site reuse. During this investigation, several potential hazards were identified on-site. Containers of chemicals and underground storage tanks were identified as well as physical hazards due to the lack of Site security measures.

Phase II Investigation: In order to evaluate potential contaminant sources in the main plant and drum disposal areas relative to human health and the environment, to improve Site security measures and to arrange for the removal of the drums and bags of chemicals in the main plant area, during 1985, C & S was authorized by Bond, Schoeneck & King, attorneys for the Columbia Mills company, to perform at Phase II Site Investigation.

Expanded Phase II Investigation: Following NYSDEC review and comment of the Phase II report, Columbia Mills agreed to fund additional Phase II investigations and pursue a number of interim remedial measures (IRMs).

Remedial Investigation Report: A Remedial Investigation (RI) was performed to characterize the nature and extent of contamination at the former site. Although a supplemental Phase II report was originally going to be prepared at the conclusion

of the expanded Phase II investigation, it was determined that since the reporting requirements would be similar, an RI report would be prepared in lieu of the supplemental Phase II Report. Based on this decision, additional sampling and analyses were requested by the NYSDEC and the New York State Department of Health (NYSDOH). The additional sampling and analyses included collection of groundwater, surface water, sediments, and soil samples for analysis for the compounds on the TCL list. The results of the interim remedial actions and the post-Phase II investigation were presented in a draft RI report that was submitted to the NYSDEC and the NYSDOH in October 1988. The results of the RI are described in detail in the following report:

- Remedial Investigation Report, Columbia Mills Site, Minetto, New York. Prepared for Bond, Schoeneck & King, Malcolm Pirnie Inc., October 1988.

Below is a summary of site conditions when the RI was performed:

Drum Disposal Area

Soil

RI activities in the drum disposal area (General Landfill Area) included test pitting and sampling of soils and wastes (Figure 3). The landfill was approximately five acres in area and consisted of drums, ash, and debris at depths to 11 feet. The fill material contained levels of cadmium (14.7 milligrams per kilogram (mg/kg) to 28.5 mg/kg), chromium (112 mg/kg to 588 mg/kg), copper (156 mg/kg to 1,100 mg/kg), lead (1,300 mg/kg to 4,600 mg/kg), zinc (856 mg/kg to 8,950 mg/kg) and cyanide (1.4 mg/kg to 36.9 mg/kg). Previous sampling of the fill in the former railroad bed indentified lead at 65,000 mg/kg on the surface. The results of the October 1990 TCLP metals analysis indentified lead from the surface soil at 178 mg/kg, which exceeded the regulatory level of 5 mg/kg, indicating the presence of characteristic hazardous waste. Semi-volatile compounds (SVOCs) were detected in all samples. The only VOC detected in the soils was toluene at concentrations of 2 micrograms per kilogram (µg/kg) and 7 µg/kg.

Groundwater

Groundwater in the drum disposal area existed in both the overburden deposits (shallow zone) and bedrock (deep zone). Bedrock in this area occurs at depths of less than one foot below ground surface (bgs) to 20 feet bgs. Groundwater flow in the shallow zone in the fill area is generally north. In the deep zone, groundwater flow is east towards the river. Metals and SVOCs were detected in one well in the shallow groundwater of the drum disposal area where lead (80 micrograms per liter [µg/L]), zinc (614 µg/L) and cyanide (143 µg/L) exceeded standards. SVOCs found to be present at concentrations above their class GA values are: benzo (a) anthracene, chrysene, benzo (b) fluoranthene, benzo (k) fluoranthene, and benzo (d) pyrene. Values were estimated at 1 – 3 µg/L. For the deep groundwater the following VOCs were detected at one well at levels below groundwater standards: toluene, trichloroethene (TCE) and methylethyl ketone (MEK).

Sediments

Elevated levels of some metals were detected in the sediments of ponds 1, 2 and 3. The extent of contamination in the three ponds was determined primarily through the analysis of the previous data collected during 1985 and 1987. Sampling of sediments in pond 1 has indicated that the metals contamination is concentrated in the top one foot layer of sediments in the southeast quarter of the pond. Metals detected at elevated concentrations in this area include cadmium (0.35 mg/kg to 6.6 mg/kg), chromium (2.6 mg/kg to 110 mg/kg), copper (5.7 mg/kg to 180 mg/kg), lead (1.7 mg/kg to 480 mg/kg), nickel (2 mg/kg to 130 mg/kg) and zinc (41 mg/kg to 2,300 mg/kg). In pond 3 sediments, the 1985 sampling identified lead up to 13,000 mg/kg. The October 1990 RI TCLP sampling of pond 3 identified lead at 18 mg/kg, exceeding the TCLP regulatory level. In pond 2, the 1985 sampling identified elevated metals, particularly lead (720 mg/kg to 3,000 mg/kg) and zinc (94 mg/kg to 7,800 mg/kg).

The sediment in the intermittent stream running from pond 1 to Evert’s Creek was sampled for inorganics as part of the supplemental RI. The sample locations closest to the drum disposal area contained the greatest number of metals at

concentrations exceeding NYSDEC sediment criteria. Based on this information it appears that the metals contamination in the sediment in this stream was concentrated in a 400-foot section east of the concrete “tunnel” downstream from the drum disposal area.

Surface Water

In past sampling of the ponds there were sporadic detections above surface water standards of cadmium, lead and zinc. Limited surface water sampling was conducted in the drum disposal area as part of the additional RI field work. Lead was detected at 270 µg/L and zinc was detected at 2,100 µg/L in one sediment sample in pond 1 during the June 1991 sampling event.

Main Plant Area

Soil

Soil sampling was concentrated in the four areas where underground storage tanks (USTs) had been present, identified as UST areas 1 through 4 (Figure 3). In UST area 1, VOCs were detected in the soil zone directly above bedrock (10 – 12 feet). The compound detected at the highest concentration was toluene at 13 µg/kg. Benzene was detected at 16 µg/kg in a well located east of the tank area. The five surface soil samples located at the edge of UST area 1, on the bank of Benson Creek, identified some metals at slightly elevated levels. Metals in the borings taken in the tank area were at background levels.

Previous sampling indicated the presence of VOCs in the soils of UST areas 2 and 4, however, detectable levels of VOCs were not found in these areas during the summer 1989 soil gas survey. Elevated levels of VOCs were found in the test pit 3 soil area. SVOCs were also detected in this area, but not at levels of concern.

The VOC contamination in the stockpiled soils from the former tank excavations was effectively alleviated through aeration of the soil. Supplemental RI sampling of the soil piles identified elevated levels of SVOCs and levels of lead up to 2,420 mg/kg.

Groundwater

Similar to the drum disposal area, groundwater in the main plant exists in both the shallow zone and the deep zone. Shallow groundwater flow in the main plant area is complicated by the presence of the building foundations, tunnels and storm sewers. Over most of the main plant area, shallow groundwater is collected by the bedding of sewer system 2B and discharged to the Oswego River. In other sections, groundwater discharges to Benson Creek. The deep groundwater flow pattern is influenced by the water ponded behind the Niagara-Mohawk hydroelectric dam. Much of the deep zone groundwater, therefore, flows north towards Benson Creek and the main pond before discharging to the Oswego River.

In the main plant area sampling of shallow and deep groundwater monitoring wells identified VOC contamination in the area east of UST Area 1 and in the vicinity of UST Area 3. In UST Area 1, the shallow groundwater contained toluene (4 µg/L) and TCE (71 µg/L) in one of the shallow wells. VOC contamination was confirmed during additional sampling of this well in April 1991, with several compounds exceeding groundwater standards. The following compounds were detected: vinyl chloride (18 µg/L), 1,2 DCE (85 µg/L), TCE (100 µg/L), benzene (2 µg/L), and MEK (19 µg/L). Further east, in the bedrock groundwater, benzene and toluene have been consistently detected at concentrations exceeding their respective GA standards. The concentration of benzene has averaged 16.4 µg/L and toluene has averaged 66.5 µg/L. The deep bedrock represents a poor-water bearing unit.

In the test pit 3 area, analytical results of the RI sampling of the shallow monitoring wells and deep wells have indicated that, in general, only low levels of VOCs are present in the groundwater in this area. The only MCL/GA standard exceedances noted for organics were toluene (10 µg/L) and MEK (140 µg/L). Tentatively identified compounds (TICs), identified as cyclohexanes, appear to be the main contaminants in the test pit 3 area groundwater.

Sediments/Surface Water

The sediment in Benson Creek near UST area 1 was sampled for VOCs and inorganics as part of the supplemental RI. The analytical results indicate that two VOCs were detected in the sediment samples from Benson Creek: MEK (37 µg/kg) and toluene (3 µg/kg) at. Metals analysis indicated that nearly all metals were present with the highest concentrations in samples obtained from the area of ponded water between UST area 1 and the embankment north. Levels of lead were 429 mg/kg and 1,560 mg/kg in these samples. Further up on the bank, lead was detected at 13,800 mg/kg.

Past sampling of surface water from Benson Creek near UST area 1, which was performed before the tanks were removed, indicated the presence of VOCs. Sampling conducted as part of the 1988 RI detected no VOCs and zinc was the only metal detected at 6 µg/L.

Sewers

The investigation of the on-site sewers identified six piping systems, which were sampled and characterized. Three of the systems, 2A, 2B, 3 and 4, discharge to the Oswego River. Systems 1 and 6 consist of former roof drain piping and contain no flowing water. System 5 is the former septic drainage from building 14 and consists of two tanks which formerly discharged to Benson Creek. System 2B originates near the drum disposal area and runs under Benson Creek and through the main plant area.

SVOCs were present in sediment in all storm sewers that were sampled. System 6 contained no sediments, and sampling of system 3 sediments in 1987 indentified only the presence of metals. VOCs were detected at low levels in system 1 and 4 sediments. The highest detection was toluene at 170 mg/kg in system 2A. Metals and low levels of pesticides or PCBs were detected in most sediment sampled. In general, these contaminants existed at lower levels in the sewer waters, which discharge to the Oswego River.

Arsenal Area

The arsenal area is located behind the main plant area. It was a former storage area for explosive chemicals that have since been removed from the former site. Overall, the magnitude of contamination in the arsenal area is very slight. SVOCs appear to have been the predominant contaminants in this area, but were present at low concentrations.

1.4 SUMMARY OF REMEDIAL ACTIONS

The former site was remediated in accordance with the NYSDEC-approved Record of Decision, dated March 1992.

The following is a summary of the selected remedy proposed in the Record of Decision:

1. Stabilize and cap wastes in the former plant disposal area and collect and treat groundwater from the area of capped wastes: Wastes in the landfill area will be stabilized to prevent leaching of metals followed by containment. Containment will consist of the construction of a single membrane barrier cap in conjunction with a barrier drain to collect and transport the leachate from the fill for treatment. In addition, a second trench system will drain three ponds that currently form the edges of the landfill and will serve to direct surface water and groundwater away from the containment area. The contaminated pond and stream sediments, as well as soils and sediments from the main plant also contaminated with metals will also be included in this on-site containment system.
2. Extraction and treatment of the volatile organic compound contaminated groundwater in the UST Area 1 with vapor extraction treatment of soil hot spots: Groundwater treatment will commence first and will control contaminant migration in the aquifer. The vacuum extraction will be used only as necessary to remediate contaminated soil hot spots. Groundwater will be treated as necessary to meet the appropriate permit requirements for its discharge. Treatment is expected to be accomplished with air stripping or carbon absorption, and will be discharged to surface water. Groundwater

and soils treatment design will incorporate proper controls so that all air discharge and water quality standards or criteria for discharge will be met.

3. Remove the sediments from the plant sewers and dispose of in the on-site landfill or off-site facility followed by the abandonment of sewer lines: It is expected that most sediments will be disposed of in the on-site landfill. However, any sediments that test as characteristic hazardous waste of contain high levels of organic contamination will be disposed of in an off-site facility.

The following is a list of the Remedial Actions performed at the former site as summarized in the Columbia Mills Landfill Final Remediation Report (1997):

1. Excavation of soil and sediment exceeding cleanup goals for lead (100 mg/kg) and consolidation in the landfill. Soil was excavated to where soil met cleanup goals, except where bedrock was encountered first.
2. Four monitoring wells and four piezometers were decommissioned and eight monitoring wells and 14 piezometers were installed.
3. A 0.8 acre Amphibian Breeding Pond was constructed to replace three on-site ponds that were eliminated during the site remediation work. During the course of the work, construction personnel relocated amphibians and turtles to the pond. Two types of wetland vegetation were planted around the perimeter of the pond.
4. A groundwater depression and leachate collection system was constructed around the perimeter of the landfill at the toe of the slope.
5. An underground 10,000 gallon double walled leachate storage tank was installed.
6. A final cover system on the landfill area was constructed. The cover system consisted of a synthetic component and a soil component, after grading the surface and subgrade compaction.
7. Following completion of all remedial activities, the site was restored and landscaped. In general, restoration included placement of topsoil and/or woodchips on all disturbed areas, fertilizing and seeding the site, and planting trees.

Remedial activities were completed at the site in 1997.

1.4.1 Removal of Contaminated Materials from the Site

Water collected during construction of the landfill included water within existing ponds and groundwater from excavations (dewatering water) as well as precipitation runoff and decontamination water. During the construction phase of the project, 851,400 gallons of water were treated. Water was collected within the leachate/groundwater collection system following construction.

Sediment excavated from three existing ponds was deposited to the landfill area. Exit samples were collected to determine if cleanup goals had been achieved.

Excavated soil was deposited in the landfill area. Exit samples were collected to determine if cleanup objectives were achieved. Initially, the cleanup goal for lead contaminated soils was set at 100 mg/kg. During the work, as a means of limiting excavation and based on similar project experience, the NYSDEC directed that the goal be raised based on the depth of the sample from the ground surface. Higher cleanup goals at deeper depths were considered reasonable since there was minimal potential of future contact. Cleanup goals at the ground surface were maintained at 100 mg/kg.

1.4.2 Site-Related Treatment Systems

No long-term treatment systems were installed as part of the site remedy.

1.4.3 Remaining Contamination

Remediation at the Site is complete. All known soil contamination on the Site has been consolidated into the on-Site landfill which was capped and closed in 1997. Operation, Maintenance, and Monitoring (OM&M) of the landfill have been completed on an annual basis between 2007 and 2013.

One sample collected from the landfill groundwater monitoring network in 2007 contained PCBs. The total PCBs concentration in the sample was 0.59 µg/L, which is greater than the respective NYSDEC Class GA Standard of 0.09 µg/L. No PCBs were detected in any of the samples collected during the 2008 through 2011 sampling events.

Results from groundwater sampling conducted in 2008 indicate that concentrations of VOCs were an order of magnitude less than the applicable NYSDEC

Class GA Standards. Iron (1,680 µg/L), manganese (740 µg/L), and sodium (108,000 µg/L) were the only metals detected in groundwater above the respective NYSDEC Class GA Standards of 300 µg/L (iron and manganese) and 20,000 µg/L, respectively. Surface water sampling in 2009 indicated that iron and manganese exceedances were also reported in a surface water sample collected upstream of the Site. Additionally, sodium exceedances in groundwater were likely related to the annual application of road de-icing agents. Therefore, iron, manganese, and sodium are not expected to be Site-related contaminants of concern.

Leachate and groundwater pore pressure relief system (PPRS) samples collected between 2009 and 2011 did not contain any PCBs, VOCs, or metals above the corresponding NYSDEC Class GA Standards. In October 2010, the contents of the leachate collection tank were discharged to the Town of Minetto WWTP and leachate flow was directed to the Town of Minetto WWTP. Prior to this, leachate flow was directed to the ABP.

Based upon the remedial action completed and data gathered, the Site is classified by the NYSDEC as a Class 4 inactive hazardous waste site.

2.0 ENGINEERING AND INSTITUTIONAL CONTROL PLAN

2.1 INTRODUCTION

2.1.1 General

Since remaining contaminated soil and groundwater exists within the landfill, Engineering Controls and Institutional Controls (EC/ICs) are required to protect human health and the environment. This Engineering and Institutional Control Plan describes the procedures for the implementation and management of all EC/ICs at the site. The EC/IC Plan is one component of the SMP and is subject to revision by NYSDEC.

2.1.2 Purpose

This plan provides:

- A description of all EC/ICs on the site;
- The basic implementation and intended role of each EC/IC;
- A description of the key components of the ICs set forth in the Environmental Easement;
- A description of the features to be evaluated during each required inspection and periodic review;
- A description of plans and procedures to be followed for implementation of EC/ICs, such as the implementation of the Excavation Work Plan for the proper handling of remaining contamination that may be disturbed during maintenance or redevelopment work on the site; and
- Any other provisions necessary to identify or establish methods for implementing the EC/ICs required by the site remedy, as determined by the NYSDEC.

2.2 ENGINEERING CONTROLS

2.2.1 Engineering Control Systems

2.2.1.1 Landfill Cap

Exposure to remaining contamination in soil/fill at the Site is prevented by a landfill cap placed over the Site. The landfill was constructed with a perimeter groundwater depressurization and leachate collection system that encompasses the landfill cell. The collection system can be regulated to allow leachate to discharge to the leachate collection tank, ABP, or Town of Minetto sewer system. Currently, leachate is apparently discharged to the ABP, which discharges to the east toward the Oswego Canal. A review of available NYSDEC and USEPA records did not indicate any current effluent discharge permits for the landfill. According the Columbia Mills Landfill Final Remediation Report (Malcolm Pirnie, 1997), three to four inches of sub-grade material was placed over the landfill waste. The remainder of the landfill cover system (from bottom to top) consists of a non-woven geo-textile filter fabric, 40-mil HDPE liner, geo-composite drainage material, two feet of compacted barrier protection soil, and six inches of topsoil. As indicated previously, a six-foot chain-link fence surrounds the perimeter of the landfill and is inspected annually. The Excavation Work Plan that appears in Appendix A outlines the procedures required to be implemented in the event the landfill cap is breached, penetrated or temporarily removed, and any underlying remaining contamination is disturbed. Procedures for the inspection and maintenance of this cover are provided in the Monitoring Plan included in Section 4 of this SMP.

2.2.1.2 Leachate and Pore Pressure Relief System

No As Build drawings were available to document the final landfill configuration. Available construction documents show that a combination PPRS/leachate collection system is located along the perimeter of the landfill cell. Figures 4 and 7 provide a generalized schematic of the PPRS and leachate collection system. The system is designed to convey leachate by gravity to a 10,000 gallon sub-surface leachate collection tank. Groundwater from separate PPRSs (north and south of the landfill cell, respectively) discharges into a combination sampling sump located on the west side of the landfill. Control valves within the sampling sump can direct flow from each PPRS to the leachate collection tank, if needed. Flow into the sampling sump is discharged

directly into the ABP. The documents also showed that leachate could either be contained in the collection tank or discharged from the tank via a pair of collection tank overflow control valves. One of the control valves regulates flow from the leachate collection tank to the combination sampling sump where groundwater from the PPRS system is typically directed. The combined leachate and PPRS groundwater flow is then discharged directly to the ABP. The second valve regulates flow from the leachate collection tank to the Town of Minetto sanitary sewer system. The Town of Minetto sanitary sewer structure is located on Barrett Drive, southeast of the site.

2.2.2 Criteria for Completion of Remediation/Termination of Remedial Systems

Generally, remedial processes are considered completed when effectiveness monitoring indicates that the remedy has achieved the remedial action objectives identified by the decision document. The framework for determining when remedial processes are complete is provided in Section 6.6 of NYSDEC DER-10.

2.2.2.1 Landfill Cap

The landfill cap is a permanent control and the quality and integrity of this system will be inspected at defined, regular intervals in perpetuity.

2.2.2.2 Monitored Natural Attenuation

Annual groundwater sampling has occurred since 2007. Monitoring well locations are presented on Figure 8. Groundwater monitoring activities to assess natural attenuation will continue, as determined by the NYSDEC, until residual groundwater concentrations are found to be consistently below NYSDEC standards or have become asymptotic at an acceptable level over an extended period. Monitoring will continue until permission to discontinue is granted in writing by the NYSDEC. If groundwater contaminant levels become asymptotic at a level that is not acceptable to the NYSDEC, additional source removal, treatment and/or control measures will be evaluated.

2.3 INSTITUTIONAL CONTROLS

A series of Institutional Controls is required by the NYSDEC to: (1) implement, maintain and monitor Engineering Control systems; (2) prevent future exposure to remaining contamination by controlling disturbances of the subsurface contamination;

and, (3) prohibit the use and development of the Site since it is a landfill. Adherence to these Institutional Controls on the Site is required by the NYSDEC and will be implemented under this Site Management Plan. These Institutional Controls are:

- Compliance with this SMP by the Grantor and the Grantor's successors and assigns;
- All Engineering Controls must be operated and maintained as specified in this SMP;
- All Engineering Controls on the Controlled Property must be inspected at a frequency and in a manner defined in the SMP.
- Groundwater monitoring must be performed as defined in this SMP;
- Data and information pertinent to Site Management of the Controlled Property must be reported at the frequency and in a manner defined in this SMP;

The ICs currently established for the Site in the 2007 Work Plan include NYSDEC requirements for annual O&M and monitoring. Site inspections include verifying the integrity of the perimeter fence and mowing the landfill cover. According the Oswego County Real Property Tax website, the Site property is owned by Oswego County and is listed as a landfill. According to the ROD, ICs at the landfill were to include actions such as "property deed covenants to prevent development of the site or use of groundwater below the site" (NYSDEC, 1992). On March 17, 2009, the Oswego County Clerk and Town of Minetto were contacted to inquire about deed restrictions or land use regulations, but no information could be provided. An environmental lien search was conducted in March 2013. No deeds associated with the Site were found. No Environmental Easement for the Site exists.

2.3.1 Excavation Work Plan

The Site has been remediated and not intended to be disturbed for any future use. Any future intrusive work that will penetrate or disturb the landfill cell or leachate system/PPRS, or encounter or disturb the remaining contamination, including any

modifications or repairs to the existing cover system will be performed in compliance with the Excavation Work Plan (EWP) that is attached as Appendix A to this SMP. Any work conducted pursuant to the EWP must also be conducted in accordance with the procedures defined in a Health and Safety Plan (HASP) and Community Air Monitoring Plan (CAMP) prepared for the specific work at the Site and must be in compliance with DER-10, and 29 CFR 1910, 29 CFR 1926, and all other applicable Federal, State and local regulations. A sample HASP is attached as Appendix F to this SMP. Based on future changes to State and federal health and safety requirements, and specific methods employed by future contractors, the HASP and CAMP will be updated and re-submitted with the notification provided in Section A-1 of the EWP. Any intrusive construction work will be performed in compliance with the EWP, HASP and CAMP, and will be included in the periodic inspection and certification reports submitted under the Site Management Reporting Plan (See Section 5).

THE SITE OWNER AND ASSOCIATED PARTIES PREPARING THE REMEDIAL DOCUMENTS SUBMITTED TO THE STATE, AND PARTIES PERFORMING THIS WORK, ARE COMPLETELY RESPONSIBLE FOR THE SAFE PERFORMANCE OF ALL INTRUSIVE WORK, THE STRUCTURAL INTEGRITY OF EXCAVATIONS, PROPER DISPOSAL OF EXCAVATION DE-WATER, CONTROL OF RUNOFF FROM OPEN EXCAVATIONS INTO REMAINING CONTAMINATION, AND FOR STRUCTURES THAT MAY BE AFFECTED BY EXCAVATIONS (SUCH AS BUILDING FOUNDATIONS AND BRIDGE FOOTINGS). THE SITE OWNER WILL ENSURE THAT SITE DEVELOPMENT ACTIVITIES WILL NOT INTERFERE WITH, OR OTHERWISE IMPAIR OR COMPROMISE, THE ENGINEERING CONTROLS DESCRIBED IN THIS SMP.2.4 INSPECTIONS AND NOTIFICATIONS

2.4.1 Inspections

Inspections of all remedial components installed at the Site will be conducted at the frequency specified in the SMP Monitoring Plan schedule. A comprehensive Site-wide inspection will be conducted annually, regardless of the frequency of the Periodic Review Report. The inspections will determine and document the following:

- Whether Engineering Controls continue to perform as designed;

- If these controls continue to be protective of human health and the environment;
- Compliance with requirements of this SMPDeed restriction;
- Achievement of remedial performance criteria;
- Sampling and analysis of appropriate media during monitoring events;
- If Site records are complete and up to date; and
- Changes, or needed changes, to the remedial or monitoring system;

Inspections will be conducted in accordance with the procedures set forth in the Monitoring Plan of this SMP (Section 3). The reporting requirements are outlined in the Periodic Review Reporting section of this plan (Section 5).

If an emergency, such as a natural disaster or an unforeseen failure of any of the ECs occurs, an inspection of the Site will be conducted within 5 days of the event to verify the effectiveness of the EC/ICs implemented at the Site by a qualified environmental professional as determined by NYSDEC.

2.4.2 Notifications

Notifications will be submitted by the property owner to the NYSDEC as needed for the following reasons:

- 60-day advance notice of any proposed changes in Site use that are required under the terms of the Order on Consent, 6NYCRR Part 375, and/or Environmental Conservation Law.
- 7-day advance notice of any proposed ground-intrusive activities pursuant to the Excavation Work Plan.
- Notice within 48-hours of any damage or defect to the foundation, structures or engineering control that reduces or has the potential to reduce the effectiveness of an Engineering Control and likewise any action to be taken to mitigate the damage or defect.
- Verbal notice by noon of the following day of any emergency, such as a fire, flood, or earthquake that reduces or has the potential to reduce the effectiveness of Engineering Controls in place at the Site, with written confirmation within 7 days

that includes a summary of actions taken, or to be taken, and the potential impact to the environment and the public.

- Follow-up status reports on actions taken to respond to any emergency event requiring ongoing responsive action shall be submitted to the NYSDEC within 45 days and shall describe and document actions taken to restore the effectiveness of the ECs.

Any change in the ownership of the Site or the responsibility for implementing this SMP will include the following notifications:

- At least 60 days prior to the change, the NYSDEC will be notified in writing of the proposed change. This will include a certification that the prospective purchaser has been provided with a copy of the Order on Consent, and all approved work plans and reports, including this SMP
- Within 15 days after the transfer of all or part of the Site, the new owner's name, contact representative, and contact information will be confirmed in writing.

2.5 CONTINGENCY PLAN

Emergencies may include injury to personnel, fire or explosion, environmental release, or serious weather conditions.

2.5.1 Emergency Telephone Numbers

In the event of any environmentally related situation or unplanned occurrence requiring assistance the Owner or Owner's representative(s) should contact the appropriate party from the contact list below. For emergencies, appropriate emergency response personnel should be contacted. Prompt contact should also be made to ARCADIS of New York, Inc. These emergency contact lists must be maintained in an easily accessible location at the Site.

Table 2-1: Emergency Contact Numbers

Medical, Fire, and Police:	911
One Call Center:	(800) 272-4480

	(3 day notice required for utility markout)
Poison Control Center:	(800) 222-1222
Pollution Toxic Chemical Oil Spills:	(800) 424-8802
NYSDEC Spills Hotline	(800) 457-7362

Table 2-2: Other Contact Numbers

Consultant - Arcadis CE, Inc.	(518)-250-7300 (Andrew Vitolins)
NYSDEC Project Manager – Payson Long.	(518)-402-9813

* Note: Contact numbers subject to change and should be updated as necessary

2.5.2 Map and Directions to Nearest Health Facility

Site Location: State Route 48 and County Route 24

Nearest Hospital Name: Oswego Hospital

Hospital Location: 110 W 6th Street, Oswego, New York 13126

Hospital Telephone: 315-349-5500

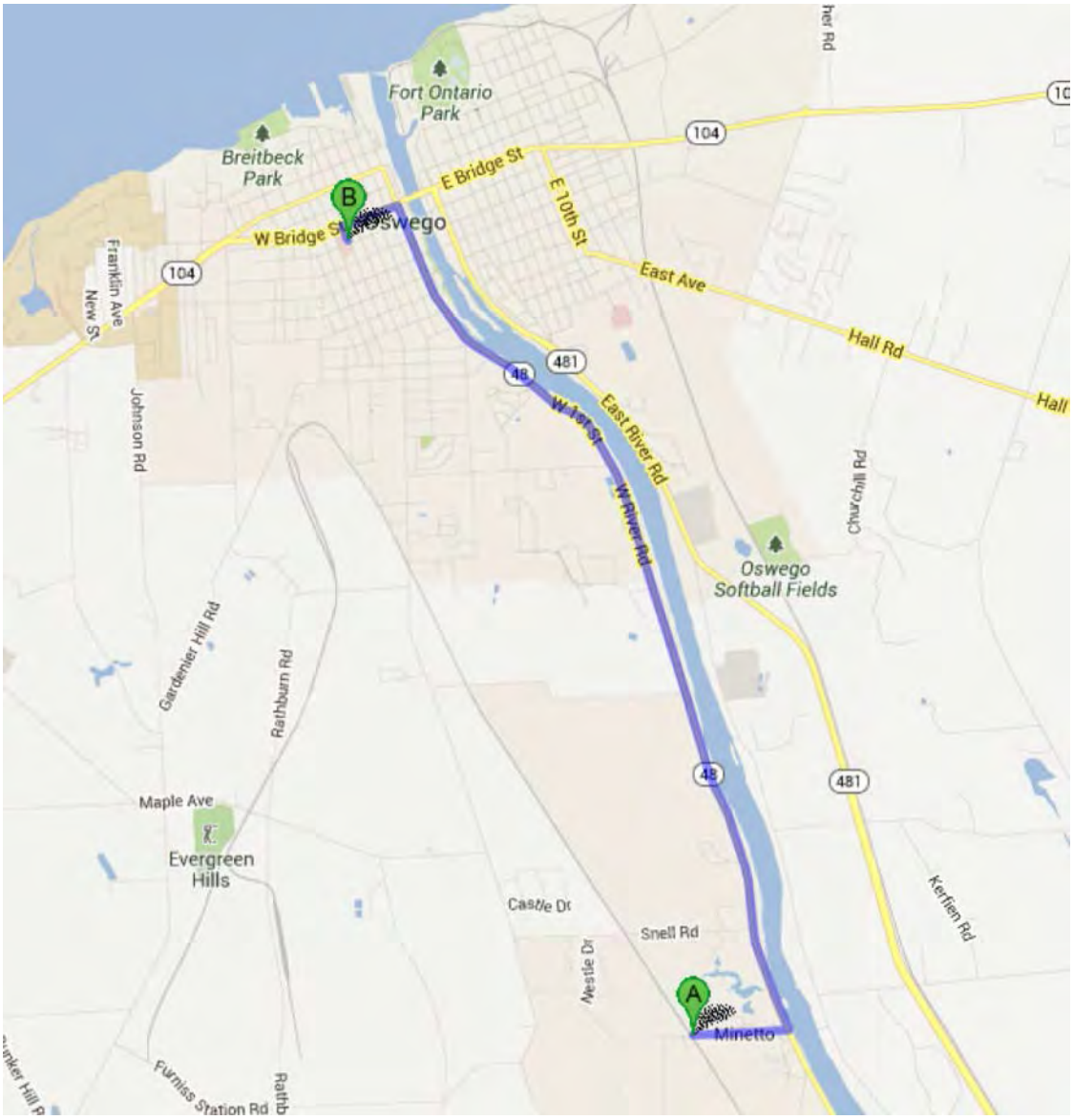
Directions to the Hospital:

1. Head northwest on NY-48 toward Snell Rd.
2. Continue onto W 1st St.
3. Turn left onto W Bridge St.
4. Turn left onto W 6th St.
5. Oswego Hospital is on right

Total Distance: 4.7 miles

Total Estimated Time: 9 minutes

Map Showing Route from the Site to the Hospital:



2.5.3 Response Procedures

As appropriate, the fire department and other emergency response group will be notified immediately by telephone of the emergency. The emergency telephone number list is found at the beginning of this Contingency Plan (Table 2-1). The list will also be posted prominently at the Site and made readily available to all personnel at all times. No materials are collected or transported from the Site. The Site is inactive and unoccupied. In case of emergency, any on-site personnel will meet at the location designated in the HASP.

3.0 SITE MONITORING PLAN

3.1 INTRODUCTION

3.1.1 General

The Monitoring Plan describes the measures for evaluating the landfill cap, and all affected Site media identified below. This Monitoring Plan may only be revised with the approval of NYSDEC.

3.1.2 Purpose and Schedule

This Monitoring Plan describes the methods to be used for:

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

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

- Sampling locations, protocol, and frequency;
- Analytical sampling program requirements;
- Reporting requirements;
- Quality Assurance/Quality Control (QA/QC) requirements;
- Inspection and maintenance requirements for monitoring wells;
- Monitoring well decommissioning procedures; and
- Annual inspection and periodic certification.

Annual monitoring of the performance of the remedy and overall reduction in contamination on-Site will be conducted at a frequency determined by NYSDEC. Trends in contaminant levels in groundwater in the affected areas will be evaluated to determine

if the remedy continues to be effective in achieving remedial goals. Monitoring programs are summarized in Table 3-1 and outlined in detail in Sections 3.2 and 3.3 below.

Table 3-1: Monitoring/Inspection Schedule

Monitoring Program	Frequency*	Matrix	Analysis
Monitoring Well Network	Annually	Groundwater	PCBs by USEPA Method 8082
Leachate	Annually	Water	PCBs by USEPA Method 8082
PPRS	Annually	Water	PCBs by USEPA Method 8082
Landfill Inspection	Annually	NA	NA

*** THE FREQUENCY OF EVENTS WILL BE CONDUCTED AS SPECIFIED UNTIL OTHERWISE APPROVED BY NYSDEC AND NYSDOH.**

3.2 COVER SYSTEM MONITORING

The landfill was constructed as an engineering control to consolidate the former waste materials from the site and protect human health and limit wildlife exposure. The landfill will be inspected annually to verify that the cell is functioning as intended.

3.3 MEDIA MONITORING PROGRAM

3.3.1 Groundwater Monitoring

Groundwater monitoring will be performed on an annual basis to assess the performance of the remedy.

The network of monitoring wells has been installed to monitor both up-gradient and down-gradient groundwater conditions at the Site. The locations of the monitoring wells (MW-1S, MW-1D, MW-2S, MW-2D, MW-3S, MW-3D, MW-4S and MW-4D) are shown in Figure 8. Shallow wells were installed to a depth of 15 feet bgs and deep wells were installed to a depth of 25 feet bgs. Monitoring wells were installed using hollow stem auger drilling techniques. Wells were constructed using flush-threaded joint PVC casing. Select sand was used to backfill the space around the screen. The sand was brought to a level one foot above the top of the screen. A two-foot thick bentonite seal was placed above the sand. The remaining space was backfilled with a cement-bentonite grout. A 6-inch protective casing was placed over the well casing. Each of the eight monitoring wells will be sampled annually, in addition to a sample of leachate and from the PPRS. Samples will be analyzed for PCBs. The sampling frequency may be modified with the approval NYSDEC. The SMP will be modified to reflect changes in sampling plans approved by NYSDEC. Category B deliverables will be required for all samples.

3.3.1.1 Sampling Protocol

All monitoring well sampling activities will be recorded in a field book and a groundwater-sampling log presented in Appendix B. A Field Activities Plan is provided in Appendix C. Other observations (e.g., well integrity, etc.) will be noted on the well sampling log. A monitoring well inspection log is provided as Appendix D.

Groundwater samples from monitoring wells MW-1S, MW-1D, MW-2S, MW-2D, MW-3S, MW-3D, MW-4S, and MW-4D are collected using low-flow groundwater purging and sampling procedures. Prior to collecting groundwater samples, pH, conductivity, turbidity, dissolved oxygen (DO), temperature, salinity, total dissolved solids (TDS), and oxidation-reduction potential (REDOX) are measured using a Horiba U-22 water quality meter and recorded on groundwater sampling purge logs.

Groundwater samples collected during the groundwater monitoring program are analyzed for PCBs by USEPA Method 8082.

3.3.1.2 Monitoring Well Repairs, Replacement And Decommissioning

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

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

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

3.4 SITE-WIDE INSPECTION

Site-wide inspections will be performed on a regular schedule at a minimum of once a year. Site-wide inspections will also be performed after all severe weather conditions that may affect Engineering Controls or monitoring devices. During these inspections, the following information will be recorded:

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

3.5 LEACHATE COLLECTION NETWORK/PPRS MONITORING

Sampling the leachate collection network/PPRS is planned to be performed on an annual basis or as determined by NYSDEC. There are various sampling stations available to monitor the Leachate Collection Network and the PPRS (Figure 7). Based on recommendation from NYSDEC, all or a selection of these stations may be sampled to evaluate for the presence of PCBs potentially being discharged to the Town of Minetto sewer.

The typical procedure involves temporarily diverting the flow from the Town of Minetto sanitary sewer to the combination sampling sump. Collection of samples from the collection system can be collected from each inlet pipe using a swing-type dipper sampling device. Following sampling procedures at the combination sampling sump structure, the flow is then restored to the Town of Minetto sewer.

3.6 MONITORING QUALITY ASSURANCE/QUALITY CONTROL

All sampling and analyses will be performed in accordance with the requirements of the Quality Assurance Project Plan (QAPP) prepared for the Site (Appendix E). Main Components of the QAPP include:

- QA/QC Objectives for Data Measurement;
- Sampling Program:
    - Sample containers will be properly washed, decontaminated, and appropriate preservative will be added (if applicable) prior to their use by the analytical laboratory. Containers with preservative will be tagged as such.
    - Sample holding times will be in accordance with the NYSDEC ASP requirements.
    - Field QC samples (e.g., trip blanks, coded field duplicates, and matrix spike/matrix spike duplicates) will be collected as necessary.
- Sample Tracking and Custody;
- Calibration Procedures:

- All field analytical equipment will be calibrated immediately prior to each day's use. Calibration procedures will conform to manufacturer's standard instructions.
- The laboratory will follow all calibration procedures and schedules as specified in USEPA SW-846 and subsequent updates that apply to the instruments used for the analytical methods.

- Analytical Procedures;
- Preparation of a Data Usability Summary Report (DUSR), which will present the results of data validation, including a summary assessment of laboratory data packages, sample preservation and chain of custody procedures, and a summary assessment of precision, accuracy, representativeness, comparability, and completeness for each analytical method.
- Internal QC and Checks;
- QA Performance and System Audits;
- Preventative Maintenance Procedures and Schedules;
- Corrective Action Measures.

3.6 MONITORING REPORTING REQUIREMENTS

Forms and any other information generated during regular monitoring events and inspections will be kept on file on-Site. All forms, and other relevant reporting formats used during the monitoring/inspection events, will be (1) subject to approval by NYSDEC and (2) submitted at the time of the Periodic Review Report, as specified in the Reporting Plan of this SMP.

All monitoring results will be reported to NYSDEC on a periodic basis in the Periodic Review Report. A letter report will also be prepared [if required by NYSDEC], subsequent to each sampling event. The report (or letter) will include, at a minimum:

- Date of event;
- Personnel conducting sampling;
- Description of the activities performed;

- Type of samples collected (e.g., sub-slab vapor, indoor air, outdoor air, etc);
- Copies of all field forms completed (e.g., well sampling logs, chain-of-custody documentation, etc.);
- Sampling results in comparison to appropriate standards/criteria;
- A figure illustrating sample type and sampling locations;
- Copies of all laboratory data sheets and the required laboratory data deliverables required for all points sampled (o be submitted electronically in the NYSDEC-identified format);
- Any observations, conclusions, or recommendations; and
- A determination as to whether groundwater conditions have changed since the last reporting event.

Data will be reported in hard copy or digital format as determined by NYSDEC.

A summary of the monitoring program deliverables are summarized in Table 3-2 below.

Table 3-2: Schedule of Monitoring/Inspection Reports

Task	Reporting Frequency*
Periodic Review Report	3 years
Monitoring Reports	Annually

* The frequency of events will be conducted as specified until otherwise approved by NYSDEC

4.0 OPERATION AND MAINTENANCE PLAN

4.1 INTRODUCTION

The Site remedy does not rely on any mechanical systems, such as sub-slab depressurization systems or air sparge/ soil vapor extraction systems to protect public health and the environment. Therefore, the operation and maintenance of such components is not included in this SMP. Operation and maintenance of the Site includes the landfill inspection and leachate sampling.

5. INSPECTIONS, REPORTING AND CERTIFICATIONS

5.1 SITE INSPECTIONS

5.1.1 Inspection Frequency

All inspections will be conducted at the frequency specified in the schedules provided in Section 3 Monitoring Plan and Section 4 Operation and Maintenance Plan of this SMP. At a minimum, a Site-wide inspection will be conducted annually.

5.1.2 Inspection Forms, Sampling Data, and Maintenance Reports

All inspections and monitoring events will be recorded on the appropriate forms for their respective system which are contained in Appendices B and D. Landfill inspection notes will be included in each annual report and summarized in the Periodic Review Report. Additionally, a general Site-wide inspection form will be completed during the Site-wide inspection. These forms are subject to NYSDEC revision.

All applicable inspection forms and other records, including all media sampling data and system maintenance reports, generated for the Site during the reporting period will be provided in electronic format in the Periodic Review Report.

5.1.3 Evaluation of Records and Reporting

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

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

5.2 CERTIFICATION OF ENGINEERING AND INSTITUTIONAL CONTROLS

After the last inspection of the reporting period, a qualified environmental professional will prepare the following certification:

For each institutional or engineering control identified for the Site, I certify that all of the following statements are true:

- The inspection of the Site to confirm the effectiveness of the institutional and engineering controls required by the remedial program was performed under my direction;
- The institutional control and/or engineering control employed at this Site is unchanged from the date the control was put in place, or last approved by the Department;
- Nothing has occurred that would impair the ability of the control to protect the public health and environment;
- Nothing has occurred that would constitute a violation or failure to comply with any site management plan for this control;
- Access to the Site will continue to be provided to the Department to evaluate the remedy, including access to evaluate the continued maintenance of this control;
- If a financial assurance mechanism is required under the oversight document for the Site, the mechanism remains valid and sufficient for the intended purpose under the document;
- The engineering control systems are performing as designed and are effective;
- To the best of my knowledge and belief, the work and conclusions described in this certification are in accordance with the requirements of the Site remedial program; and
- The information presented in this report is accurate and complete.
- I certify that all information and statements in this certification form are true. I understand that a false statement made herein is punishable as a Class “A” misdemeanor, pursuant to Section 210.45 of the Penal Law. I, [INSERT NAME],

of [INSERT BUSINESS ADDRESS], am certifying as [OWNER OR OWNER'S DESIGNATED SITE REPRESENTATIVE] for the Site.

The signed certification will be included in the Periodic Review Report described below.

In addition, since this Site does not represent a significant threat to public health or the environment, the following notes will also be included in the certifications:

- No new information has come to my attention, including groundwater monitoring data from wells located at the Site boundary, if any, to indicate that the assumptions made in the qualitative exposure assessment of off-Site contamination are no longer valid; and

  Every five years the following certification will be added:

- The assumptions made in the qualitative exposure assessment remain valid.

  The signed certification will be included in the Periodic Review Report described below.

5.3 PERIODIC REVIEW REPORT

A Periodic Review Report will be submitted to the Department every three years. In the event that the Site is subdivided into separate parcels with different ownership, a single Periodic Review Report will be prepared that addresses the Site. The report will be prepared in accordance with NYSDEC DER-10 and submitted within 30 days of the end of each certification period. Media sampling results will also incorporated into the Periodic Review Report. The report will include:

- Identification, assessment and certification of all ECs/ICs required by the remedy for the Site;
- Results of the required annual Site inspections and severe condition inspections, if applicable;
- All applicable inspection forms and other records generated for the Site during the reporting period in electronic format;

- A summary of any discharge monitoring data and/or information generated during the reporting period with comments and conclusions;
- Data summary tables and graphical representations of contaminants of concern by media (groundwater, soil vapor), which include a listing of all compounds analyzed, along with the applicable standards, with all exceedances highlighted. These will include a presentation of past data as part of an evaluation of contaminant concentration trends;
- Results of all analyses, copies of all laboratory data sheets, and the required laboratory data deliverables for all samples collected during the reporting period will be submitted electronically in a NYSDEC-approved format;
- A Site evaluation, which includes the following:
    - The compliance of the remedy with the requirements of the Site-specific RAWP, ROD or Decision Document;
    - The operation and the effectiveness of all treatment units, etc., including identification of any needed repairs or modifications;
    - Any new conclusions or observations regarding Site contamination based on inspections or data generated by the Monitoring Plan for the media being monitored;
    - Recommendations regarding any necessary changes to the remedy and/or Monitoring Plan; and
    - The overall performance and effectiveness of the remedy.

The Periodic Review Report will be submitted, in hard-copy format, to the NYSDEC Central Office and Regional Office in which the Site is located, and in electronic format to NYSDEC Central Office, Regional Office and the NYSDOH Bureau of Environmental Exposure Investigation.

5.4 CORRECTIVE MEASURES PLAN

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

necessary to correct the failure. Unless an emergency condition exists, no work will be performed pursuant to the corrective measures plan until it is approved by the NYSDEC.

APPENDIX A – EXCAVATION WORK PLAN

This plan represents a procedure for any activity that would disturb or penetrate the landfill cell on the Site, or disturb the leachate collection network/pore pressure relief system (PPRS). Any work that may impact these structures will be required to follow the procedures outlined below. In summary, NYSDEC will be notified of the work and detailed plans, including waste disposal management and protective measures for the landfill and leachate collection network/PPRS, will be required for submittal prior to work. At minimum, all work plans, Health and Safety Plans, Community Air and Monitoring Plans, and any other applicable documentation related to the proposed work will need to, meet the requirements of NYSDEC.

A-1 NOTIFICATION

At least 15 days prior to the start of any activity that is anticipated to encounter remaining contamination, the Site owner or their representative will notify the Department. Currently, this notification will be made to:

Payson Long

Regional Hazardous Waste Remediation Engineer

New York State Department of Environmental Conservation

625 Broadway

Albany, NY 12233-0001

This notification will include:

- A detailed description of the work to be performed, including the location and areal extent, plans for Site re-grading, intrusive elements or utilities to be installed below the soil cover, estimated volumes of contaminated soil to be excavated and any work that may impact an engineering control,

- A summary of environmental conditions anticipated in the work areas, including the nature and concentration levels of contaminants of concern, potential presence of grossly contaminated media, and plans for any pre-construction sampling;
- A schedule for the work, detailing the start and completion of all intrusive work,
- A summary of the applicable components of this EWP,

- A statement that the work will be performed in compliance with this EWP and 29 CFR 1910.120,
- A copy of the contractor's health and safety plan, in electronic format,
- Identification of disposal facilities for potential waste streams,
- Identification of sources of any anticipated backfill, along with all required chemical testing results.

A-2 SOIL SCREENING METHODS

Visual, olfactory and instrument-based soil screening will be performed by a qualified environmental professional during all remedial and development excavations into known or potentially contaminated material (remaining contamination). Soil screening will be performed regardless of when the invasive work is done and will include all excavation and invasive work performed during development, such as excavations for foundations and utility work, after issuance of the COC.

Soils will be segregated based on previous environmental data and screening results into material that requires off-Site disposal, material that requires testing, material that can be returned to the subsurface, and material that can be used as cover soil.

A-3 STOCKPILE METHODS

Soil stockpiles will be continuously encircled with a berm and/or silt fence. Hay bales will be used as needed near catch basins, surface waters and other discharge points.

Stockpiles will be kept covered at all times with appropriately anchored tarps. Stockpiles will be routinely inspected and damaged tarp covers will be promptly replaced.

Stockpiles will be inspected at a minimum once each week and after every storm event. Results of inspections will be recorded in a logbook and maintained at the Site and available for inspection by NYSDEC.

A-4 MATERIALS EXCAVATION AND LOAD OUT

A qualified environmental professional or person under their supervision will oversee all invasive work and the excavation and load-out of all excavated material.

The owner of the property and its contractors are solely responsible for safe execution of all invasive and other work performed under this Plan.

The presence of utilities and deed restrictions on the Site will be investigated by the qualified environmental professional. It will be determined whether a risk or impediment to the planned work under this SMP is posed by utilities or deed restrictions on the Site.

Loaded vehicles leaving the Site will be appropriately lined, tarped, securely covered, manifested, and placarded in accordance with appropriate Federal, State, local, and NYSDOT requirements (and all other applicable transportation requirements).

A truck wash will be operated on-Site. The qualified environmental professional will be responsible for ensuring that all outbound trucks will be washed at the truck wash before leaving the Site until the activities performed under this section are complete.

Locations where vehicles enter or exit the Site shall be inspected daily for evidence of off-Site soil tracking.

The qualified environmental professional will be responsible for ensuring that all egress points for truck and equipment transport from the Site are clean of dirt and other materials derived from the Site during intrusive excavation activities. Cleaning of the adjacent streets will be performed as needed to maintain a clean condition with respect to Site-derived materials.

A-5 MATERIALS TRANSPORT OFF-SITE

All transport of materials will be performed by licensed haulers in accordance with appropriate local, State, and Federal regulations, including 6 NYCRR Part 364. Haulers will be appropriately licensed and trucks properly placarded.

Material transported by trucks exiting the Site will be secured with tight-fitting covers. Loose-fitting canvas-type truck covers will be prohibited. If loads contain wet material capable of producing free liquid, truck liners will be used.

All trucks will be washed prior to leaving the Site. Truck wash waters will be collected and disposed of off-Site in an appropriate manner.

All trucks loaded with Site materials will exit the vicinity of the Site using only approved truck routes. This is the most appropriate route and takes into account: (a) limiting transport through residential areas and past sensitive Sites; (b) use of city mapped truck routes; (c) prohibiting off-Site queuing of trucks entering the facility; (d) limiting total distance to major highways; (e) promoting safety in access to highways; and (f) overall safety in transport.

Trucks will be prohibited from stopping and idling in the neighborhood outside the project Site.

Egress points for truck and equipment transport from the Site will be kept clean of dirt and other materials during Site remediation and development.

Queuing of trucks will be performed on-Site in order to minimize off-Site disturbance. Off-Site queuing will be prohibited.

A-6 MATERIALS DISPOSAL OFF-SITE

All soil/fill/solid waste excavated and removed from the Site will be treated as contaminated and regulated material and will be transported and disposed in accordance with all local, State (including 6NYCRR Part 360) and Federal regulations. If disposal of soil/fill from this Site is proposed for unregulated off-Site disposal (i.e. clean soil removed for development purposes), a formal request with an associated plan will be

made to the NYSDEC. Unregulated off-Site management of materials from this Site will not occur without formal NYSDEC approval.

Off-Site disposal locations for excavated soils will be identified in the pre-excavation notification. This will include estimated quantities and a breakdown by class of disposal facility if appropriate, i.e. hazardous waste disposal facility, solid waste landfill, petroleum treatment facility, C/D recycling facility, etc. Actual disposal quantities and associated documentation will be reported to the NYSDEC in the Periodic Review Report. This documentation will include: waste profiles, test results, facility acceptance letters, manifests, bills of lading and facility receipts.

Non-hazardous historic fill and contaminated soils taken off-Site will be handled, at minimum, as a Municipal Solid Waste per 6NYCRR Part 360-1.2. Material that does not meet Track 1 unrestricted SCOs is prohibited from being taken to a New York State recycling facility (6NYCRR Part 360-16 Registration Facility).

A-7 MATERIALS REUSE ON-SITE

Chemical criteria for on-site reuse of material have been approved by NYSDEC consist of the 6 NYCRR Part 375 Protection of Groundwater Soil Cleanup Objectives. The qualified environmental professional will ensure that procedures defined for materials reuse in this SMP are followed and that unacceptable material does not remain on-site. Contaminated on-site material, including historic fill and contaminated soil, that is acceptable for re-use on-site will be placed below the demarcation layer or impervious surface, and will not be reused within a cover soil layer, within landscaping berms, or as backfill for subsurface utility lines.

Any demolition material proposed for reuse on-site will be sampled for asbestos and the results will be reported to the NYSDEC for acceptance. Concrete crushing or processing on-site will not be performed without prior NYSDEC approval. Organic matter (wood, roots, stumps, etc.) or other solid waste derived from clearing and grubbing of the Site will not be reused on-site.

A-8 FLUIDS MANAGEMENT

All liquids to be removed from the Site, including excavation dewatering and groundwater monitoring well purge and development waters, will be handled, transported and disposed in accordance with applicable local, State, and Federal regulations. Dewatering, purge and development fluids will not be recharged back to the land surface or subsurface of the Site, but will be managed off-Site.

Discharge of water generated during large-scale construction activities to surface waters (i.e. a local pond, stream or river) will be performed under a SPDES permit.

A-9 LANDFILL CAP RESTORATION

After the completion of soil removal and any other invasive activities the landfill cap will be restored in a manner that complies with the ROD. The demarcation layer, consisting of orange snow fencing material or equivalent material will be replaced to provide a visual reference to the top of the 'Remaining Contamination Zone', the zone that requires adherence to special conditions for disturbance of remaining contaminated soils defined in this Site Management Plan. If the type of cover system changes from that which exists prior to the excavation (i.e., a soil cover is replaced by asphalt) this will constitute a modification of the cover element of the remedy and the upper surface of the 'Remaining Contamination. A figure showing the modified surface will be included in the subsequent Periodic Review Report and in any updates to the Site Management Plan.

A-10 BACKFILL FROM OFF-SITE SOURCES

All materials proposed for import onto the Site will be approved by the qualified environmental professional and will be in compliance with provisions in this SMP prior to receipt at the Site.

Material from industrial Sites, spill Sites, or other environmental remediation Sites or potentially contaminated Sites will not be imported to the Site.

All imported soils will meet the backfill and cover soil quality standards established in 6NYCRR 375-6.7(d). Soils that meet 'exempt' fill requirements under 6 NYCRR Part 360, but do not meet backfill or cover soil objectives for this Site, will not

be imported onto the Site without prior approval by NYSDEC. Solid waste will not be imported onto the Site.

Trucks entering the Site with imported soils will be securely covered with tight fitting covers. Imported soils will be stockpiled separately from excavated materials and covered to prevent dust releases.

A-11 STORMWATER POLLUTION PREVENTION

Barriers and hay bale checks will be installed and inspected once a week and after every storm event. Results of inspections will be recorded in a logbook and maintained at the Site and available for inspection by NYSDEC. All necessary repairs shall be made immediately.

Accumulated sediments will be removed as required to keep the barrier and hay bale check functional.

All undercutting or erosion of the silt fence toe anchor shall be repaired immediately with appropriate backfill materials.

Manufacturer's recommendations will be followed for replacing silt fencing damaged due to weathering.

Erosion and sediment control measures identified in the SMP shall be observed to ensure that they are operating correctly. Where discharge locations or points are accessible, they shall be inspected to ascertain whether erosion control measures are effective in preventing significant impacts to receiving waters

Silt fencing or hay bales will be installed around the entire perimeter of the construction area.

A-12 CONTINGENCY PLAN

If underground tanks or other previously unidentified contaminant sources are found during post-remedial subsurface excavations or development related construction, excavation activities will be suspended until sufficient equipment is mobilized to address the condition.

Sampling will be performed on product, sediment and surrounding soils, etc. as necessary to determine the nature of the material and proper disposal method. Chemical analysis will be performed for full a full list of analytes (TAL metals; TCL volatiles and semi-volatiles, TCL pesticides and PCBs), unless the Site history and previous sampling results provide a sufficient justification to limit the list of analytes. In this case, a reduced list of analytes will be proposed to the NYSDEC for approval prior to sampling.

Identification of unknown or unexpected contaminated media identified by screening during invasive Site work will be promptly communicated by phone to NYSDEC's Project Manager. Reportable quantities of petroleum product will also be reported to the NYSDEC spills hotline. These findings will be also included in the periodic reports prepared pursuant to Section 5 of the SMP.

A-13 COMMUNITY AIR MONITORING PLAN

As part of the detailed planning documentation, a Community Air Monitoring Plan (CAMP) must be included. Guidance can be obtained in Appendix 1A of DER-10, Generic CAMP. At a minimum, the CAMP must include:

- Details of the perimeter air monitoring program;
- Action levels to be used;
- Methods for air monitoring ;
- Analytes measured and instrumentation to be used;
- A figure of the location(s) of all air monitoring instrumentation. A figure showing specific locations must be presented for monitoring stations based on generally prevailing wind conditions, with a note that the exact locations to be monitored on a given day will be established based on the daily wind direction.

Air sampling locations will be adjusted on a daily or more frequent basis based on actual wind directions to provide an upwind and at least two downwind monitoring stations. If a sensitive receptor, such as a school, day care or residential area is adjacent to the site, a fixed monitoring station should be located at that site perimeter, regardless of wind direction, and discussed in the text.

Exceedances of action levels listed in the CAMP will be reported to NYSDEC and NYSDOH Project Managers.

A-14 ODOR CONTROL PLAN

This odor control plan is capable of controlling emissions of nuisance odors off-Site. If nuisance odors are identified at the Site boundary, or if odor complaints are received, work will be halted and the source of odors will be identified and corrected. Work will not resume until all nuisance odors have been abated. NYSDEC and NYSDOH will be notified of all odor events and of any other complaints about the project. Implementation of all odor controls, including the halt of work, is the responsibility of the property owner's Remediation Engineer, and any measures that are implemented will be discussed in the Periodic Review Report.

All necessary means will be employed to prevent on- and off-Site nuisances. At a minimum, these measures will include: (a) limiting the area of open excavations and size of soil stockpiles; (b) shrouding open excavations with tarps and other covers; and (c) using foams to cover exposed odorous soils. If odors develop and cannot be otherwise controlled, additional means to eliminate odor nuisances will include: (d) direct load-out of soils to trucks for off-Site disposal; (e) use of chemical odorants in spray or misting systems; and, (f) use of staff to monitor odors in surrounding neighborhoods.

If nuisance odors develop during intrusive work that cannot be corrected, or where the control of nuisance odors cannot otherwise be achieved due to on-Site conditions or close proximity to sensitive receptors, odor control will be achieved by sheltering the excavation and handling areas in a temporary containment structure equipped with appropriate air venting/filtering systems.

A-15 DUST CONTROL PLAN

A dust suppression plan that addresses dust management during invasive on-Site work will include, at a minimum, the items listed below:

- Dust suppression will be achieved though the use of a dedicated on-Site water truck for road wetting. The truck will be equipped with a water cannon capable of spraying water directly onto off-road areas including excavations and stockpiles.
- Clearing and grubbing of larger Sites will be done in stages to limit the area of exposed, unvegetated soils vulnerable to dust production.
- Gravel will be used on roadways to provide a clean and dust-free road surface.
- On-Site roads will be limited in total area to minimize the area required for water truck sprinkling.

A-16 OTHER NUISANCES

Other nuisances, such as rodent control and noise will also be incorporated into the planning documentation.

A plan for rodent control will be developed and utilized by the contractor prior to and during Site clearing and Site grubbing, and during all remedial work.

A plan will be developed and utilized by the contractor for all remedial work to ensure compliance with local noise control ordinances.

APPENDIX B – GROUNDWATER PURGE LOG

WELL DEVELOPMENT/ PURGING LOG

WELL NUMBER: _____ DATE: _____

PROJECT NAME: _____

PROJECT NUMBER: _____

SAMPLERS: _____

A: Total Casing and Screen Length: _____

B: Casing Internal Diameter: _____

C: Water Level Below Top of Casing: _____

D: Volume of Water in Casing: _____

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

v = 0.0408 ( )^2 x (-) = _____ gal.

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

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

Notes: _____

APPENDIX C – FIELD ACTIVITIES PLAN

APPENDIX D – MONITORING WELL INSPECTION FORM

ARCADIS

GROUNDWATER MONITORING WELL INSPECTION

SITE/PROJECT NAME: _____ PROJECT NUMBER: _____

DATE OF INSPECTION: _____ INSPECTOR: _____

WELL DESIGNATION: _____

WELL LOCATION: _____

Outward Appearance

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

Inner Appearance

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

Downhole

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

Additional Comments:

_____

_____

_____

_____

_____

_____

APPENDIX E – QUALITY ASSURANCE PROJECT PLAN (QAPP)

APPENDIX F –HEALTH AND SAFETY PLAN (HASP) AND COMMUNITY AIR MONITORING PLAN (CAMP)

ARCADIS
Infrastructure · Water · Environment · Buildings

Site Specific Health and Safety Plan

Revision 11 9/20/2012

Project Name:	Columbia Mills Minetto, New York Environmental Sampling and Remedial Investigation
Project Number:	00266405.0000
Client Name:	New York State DEC
Date:	February 15, 2013
Revision:	1

Approvals:

HASP Developer: Breanna Quaglieri

HASP Reviewer: Aaron Bobar

Project Manager: Bruce Nelson

Emergency Information

Site Address: Columbia Mills
Route 48, about 6 miles North of Oneida Street
Minetto, New York

Emergency Phone Numbers:

Emergency (fire, police, ambulance)		911
Emergency (facility specific, if applicable):		
	Jeremy Wyckoff	518-250-7335
Emergency Other (specify)		
Client Contact	Parson Long	518-402-9745
WorkCare (non-lifethreatening injury/illness)		1-800-455-6155
Project H&S	Aaron Bobar	518-928-6013 (cell)
Task Manager	Jeremy Wyckoff	518-250-7335
Project Manager	Bruce Nelson	518-250-7360
Corporate H&S Specialist	Julie Santanello	978-322-4515
Corporate H&S Director	Rebecca Lindeman	408-834-0368

Hospital Name and Address: Oswego Hospital
110 West 6th Street
Oswego, NY 13126

Hospital Phone Number: 315-349-5511

Incident Notification Process

1	Dial 911/Facility Emergency Number/WorkCare as applicable	
2	Contact PM/Supervisor	Bruce Nelson
3	Contact Corporate H&S	Rebecca Lindeman
4	Contact Client	Parson Long

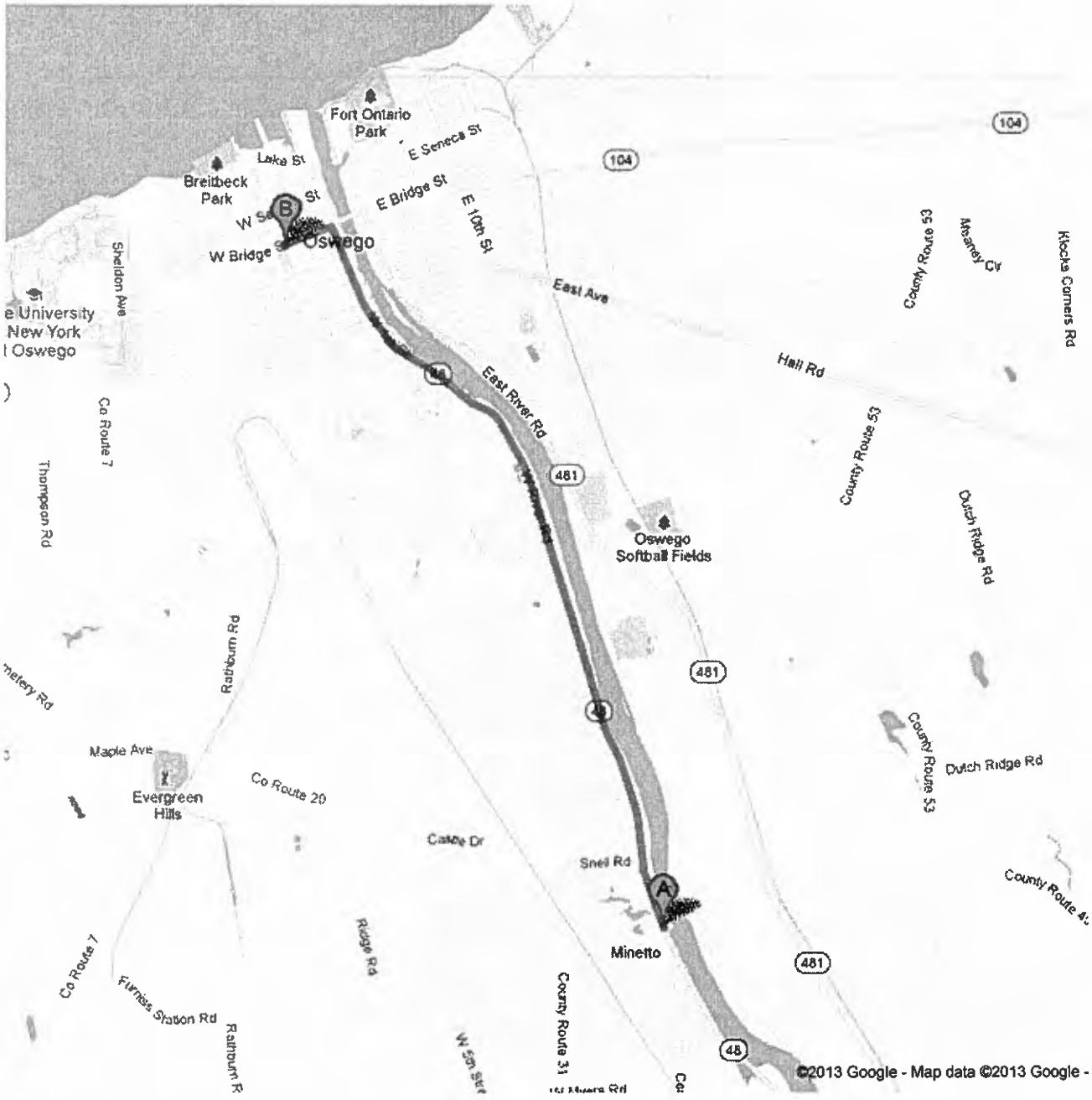
Complete below, as applicable, or clear cell contents:

Location of Assembly Area(s): Route 48

Nearest Storm Shelter: Not Applicable

Google

Directions to 110 W 6th St, Oswego, NY 13126
4.7 mi – about 9 mins



NY-48 N

1.	Head **northwest** on **NY-48 N** toward **Snell Rd** About 6 mins	go 4.2 mi total 4.2 mi
2.	Continue onto **W 1st St**	go 0.3 mi total 4.5 mi
3.	Turn left onto **W Bridge St** About 1 min	go 0.3 mi total 4.7 mi
4.	Turn left onto **W 6th St** Destination will be on the right	go 36 ft total 4.7 mi

110 W 6th St, Oswego, NY 13126

These directions are for planning purposes only. You may find that construction projects, traffic, weather, or other events may cause conditions to differ from the map results, and you should plan your route accordingly. You must obey all signs or notices regarding your route.

Directions weren't right? Please find your route on maps.google.com and click "Report a problem" at the bottom left.

General Information

Site Type (select all applicable where work will be conducted):

- ☐ Active
- ☐ Bridge
- ☐ Buildings
- ☐ Commercial
- ☐ Construction
- ☐ Government
- ☑ Inactive
- ☑ Industrial
- ☑ Landfill
- ☐ Marine
- ☐ Mining
- ☐ Parking Lot/Private Roadway
- ☐ Railroad
- ☐ Remote Area
- ☐ Residential
- ☐ Retail
- ☐ Roadway (public, inlcuing right-of-way)
- ☑ Secure
- ☐ Unknown
- ☐ Unsecured
- ☐ Utility
- ☐ Other (specify): _____

Surrounding Area and Topography (select one):

- ☐ Surrounding area and topography are presented in the project work plan
- ☑ Surrounding area and topography (*briefly describe*):
  The site is relatively flat. A heavily wooded area is to the North of the site. To the East of the site is Route 48. To the South of the site is an access road. To the East of the site is another heavily wooded area.

Site Background (select one):

- ☐ Site background is presented in the project work plan
- ☑ Site background (*briefly describe)* :
  Former factory that manufactured vinyl window shades and coverlets. The company closed in 1977. Organic contamination and elevated levels of heavy metals were confirmed at the site. Several underground storage tanks were removed by August of 1988. Asbestos was found on site. Record of Decision required consolidation and capping of wastes and site sediments in the drum disposal area, removal of sediments from the plant sewers, and treatment of groundwater near a former underground storage tank.

Project Tasks
The following tasks are identified for this project:

Examples: "Drilling/soil sampling", "Surveying", "General Inspections", "Construction Management/Inspections"

1 General Site Work
2 Groundwater Sampling
3
4
5

☐ Subcontractor H&S information is attached
☐ Utility clearance required.
☐ ARCADIS Standards apply to augment JSA *[list standard(s) below]*
☐ ARCADIS Field H&S Handbook sections apply *(list below)*
Comments:

Roles and Responsibilities

	Name	*Role*	*Additional Responsibilities (Describe)*
1	Bruce Nelson	PM	
2	Jeremy Wyckoff	TM	
3	Jeremy Wyckoff	Field Lead	SSO; Field Sampling
4	Breanna Quaglieri	Field Team	Field Sampling
5	Ely Moskal	Field Team	Field Sampling
6	Christine Thomas	Field Team	Field Sampling

Training

All ARCADIS employees are required to have the following training:	*Selected ARCADIS employees are required to have the following additional training:*	Names or Numbers from above
☑ 40 hr HAZWOPER w current refresh.	☐ Not applicable	
☐ 24 hr HAZWOPER	☑ First aid/CPR/BBP	Wyckoff; Quaglieri
☐ 10 hr Construction	☐ 30 hr Construction	
☐ HazMat #1 (Ground/Air/MOT)	☐ 10 hr Construction	
☐ HazMat #4 (MOT)	☑ HazMat #1 (Gr./Air/MOT)	Wyckoff; Quaglieri
☐ HazCom/Emergency Action Plan	☐ HazMat #4 (MOT)	
☑ H&S Orientation (classroom); or	☐ Confined space entrant	
☐ H&S Orientation (on-line)	☐ Confined space rescue	
☑ PPE	☐ Excavation CP	
☐ Respiratory protection	☐ Electrical (NFPA 70E)	
☐ MSHA	☐ Lockout/Tagout	
☑ Smith System (on-line)	☐ H&S Orientation (class)	
☐ OTS/eRailsafe	☐ OTS/eRailsafe	
☐ Client specific:	☐ Smith Sys. (hands on)	
	☐ Boating safety	
☐ Other:	☐ Other:	

Hazard Analysis

Risk Assessment Matrix		Likelihood Ratings** (likelihood that incident would occur)			
Consequences Ratings*		A	B	C	D
People	Property	0 Almost impossible	1 Possible but unlikely	2 Likely to happen	3 Almost certain to happen
1 - Slight or no health	Slight or no damage	0 - Low	1 - Low	2 - Low	3 - Low
2 - Minor health effect	Minor damage	0 - Low	2 - Low	4 - Medium	6 - Medium
3 - Major health effect	Local damage	0 - Low	3 - Low	6 - Medium	9 - High
4 - Fatalities	Major damage	0 - Low.	4 - Medium.	8 - High	12 - High

Division
Environment

Business Unit
REM

Task 1: General Site Work

Hazardous Activity #1

Field-Walking - uneven or slippery terrain

Hazard Types (unmitigated ranking H-High, M-Medium, L-Low):

Biological	-	Chemical	-	Driving	-	Electrical	-
Environmental	-	Gravity	M	Mechanical	-	Motion	-
Personal Safety	-	Pressure	-	Radiation	-	Sound	-

Overall Unmitigated Risk: Medium Mitigated Risk: Medium if utilizing:
Primary Controls: TRACK PPE (see HASP "PPE" section)

Secondary Controls: Housekeeping

Hazardous Activity #2

Field-Ambient environment - exposure heat, cold, sun, weather, etc

Hazard Types (unmitigated ranking H-High, M-Medium, L-Low):

Biological	-	Chemical	-	Driving	M	Electrical	L
Environmental	L	Gravity	H	Mechanical	-	Motion	L
Personal Safety	M	Pressure	-	Radiation	-	Sound	-

Overall Unmitigated Risk: Medium Mitigated Risk: Medium if utilizing:
Primary Controls: TRACK PPE (see HASP "PPE" section) Field H&S Handbook

Secondary Controls: H&S Standards Engineering Controls Admin. Controls Specialized Equipment

Hazardous Activity #3

Field-Biological - insects, spiders, snakes, etc

Hazard Types (unmitigated ranking H-High, M-Medium, L-Low):

Biological	M	Chemical	-	Driving	-	Electrical	-
Environmental	-	Gravity	-	Mechanical	-	Motion	-
Personal Safety	-	Pressure	-	Radiation	-	Sound	-

Overall Unmitigated Risk: Medium Mitigated Risk: Low if utilizing:
Primary Controls: TRACK Engineering Controls PPE (see HASP "PPE" section)

Secondary Controls: JSAs HASP Job Briefing/Site Awareness PPE (see HASP "PPE" section) Housekeeping

Hazardous Activity #4

General-First aid/CPR - response

Hazard Types (unmitigated ranking H-High, M-Medium, L-Low):

Biological	L	Chemical	-	Driving	-	Electrical	-
Environmental	L	Gravity	-	Mechanical	-	Motion	-
Personal Safety	L	Pressure	-	Radiation	-	Sound	-

Overall Unmitigated Risk: Low Mitigated Risk: Low if utilizing:
Primary Controls: TRACK First Aid/CPR Training (designed person) Bloodborne Pathogens Training PPE (see HASP "PPE" section)

Secondary Controls: Field H&S Handbook H&S Standards PPE (see HASP "PPE" section)

Risk Assessment Matrix		Likelihood Ratings** (likelihood that incident would occur)			
Consequences Ratings*		A	B	C	D
People	Property	0 Almost impossible	1 Possible but unlikely	2 Likely to happen	3 Almost certain to happen
1 - Slight or no health	Slight or no damage	0 - Low	1 - Low	2 - Low	3 - Low
2 - Minor health effect	Minor damage	0 - Low	2 - Low	4 - Medium	6 - Medium
3 - Major health effect	Local damage	0 - Low	3 - Low	6 - Medium	9 - High
4 - Fatalities	Major damage	0 - Low.	4 - Medium.	8 - High	12 - High

Task 2: Groundwater Sampling

Hazardous Activity #1

Chemical-Corrosives - working with or exposure to corrosives in laboratory work, sample bottle preservatives, decon chemicals, etc

Hazard Types (unmitigated ranking H-High, M-Medium, L-Low):

Biological	-	Chemical	H	Driving	-	Electrical	-
Environmental	L	Gravity	-	Mechanical	-	Motion	-
Personal Safety	-	Pressure	-	Radiation	-	Sound	-

Overall Unmitigated Risk: Medium Mitigated Risk: Low if utilizing:

Primary Controls: TRACK JSAs Engineering Controls PPE (see HASP "PPE" section)

Secondary Controls: H&S Standards Job Briefing/Site Awareness Hazcom Training MSDS (see also HASP Hazcom section) Admin. Controls Specialized Equipment Housekeeping

Hazardous Activity #2

Field-Sampling - monitoring well sampling - manual (bailer, check valve)

Hazard Types (unmitigated ranking H-High, M-Medium, L-Low):

Biological	-	Chemical	L	Driving	-	Electrical	-
Environmental	-	Gravity	L	Mechanical	-	Motion	M
Personal Safety	-	Pressure	-	Radiation	-	Sound	-

Overall Unmitigated Risk: Low Mitigated Risk: Low if utilizing:

Primary Controls: TRACK JSAs Engineering Controls Job Rotation PPE (see HASP "PPE" section)

Secondary Controls: Job Briefing/Site Awareness Admin. Controls

Hazardous Activity #3

Field-Sampling - sample cooler preparation

Hazard Types (unmitigated ranking H-High, M-Medium, L-Low):

Biological	-	Chemical	M	Driving	-	Electrical	-
Environmental	-	Gravity	M	Mechanical	L	Motion	L
Personal Safety	M	Pressure	-	Radiation	-	Sound	-

Overall Unmitigated Risk: Medium Mitigated Risk: Low if utilizing:

Primary Controls: TRACK JSAs Engineering Controls PPE (see HASP "PPE" section) See HASP "Monitoring" section

Secondary Controls: Job Briefing/Site Awareness Admin. Controls Work Plan

Hazardous Activity #4

Field-Measurement - water levels and well sounding

Hazard Types (unmitigated ranking H-High, M-Medium, L-Low):

Biological	-	Chemical	L	Driving	-	Electrical	-
Environmental	-	Gravity	L	Mechanical	-	Motion	M
Personal Safety	-	Pressure	-	Radiation	-	Sound	-

Overall Unmitigated Risk: Low Mitigated Risk: Low if utilizing:

Primary Controls: TRACK JSAs PPE (see HASP "PPE" section)

Secondary Controls: Job Briefing/Site Awareness

Hazard Communication (HazCom)/Global Harmonization System (GHS)

☐ HAZCOM/GHS for this project is managed by the client or general contractor

*List the chemicals anticipated to be used by **ARCADIS** on this project per HazCom/GHS requirements.*
(Modify quantities as needed)

	Acids/Bases	Qty
☑	Not applicable	
☐	Hydrochloric acid	<500 ml
☐	Nitric acid	<500 ml
☐	Sulfuric acid	<500 ml
☐	Sodium hydroxide	<500 ml
☐	Zinc acetate	<500 ml
☐	Ascorbic acid	<500 ml
☐	Acetic acid	<500 ml
☐	Other:	
	_____	
	_____	
	_____	

	Decontamination	Qty
☐	Not applicable	
☑	Alconox	≤ 5 lbs
☐	Liquinox	≤ 1 gal
☐	Acetone	≤ 1 gal
☐	Methanol	≤ 1 gal
☐	Hexane	≤ 1 gal
☐	Isopropyl alcohol	≤ 4 gal
☐	Nitric acid	≤ 1 L
☐	Other:	
	_____	
	_____	
	_____	

	Calibration	Qty.
☐	Not applicable	
☐	Isobutylene/air	1 cyl
☐	Methane/air	1 cyl
☐	Pentane/air	1 cyl
☐	Hydrogen/air	1 cyl
☐	Propane/air	1 cyl
☐	Hydrogen sulfide/air	1 cyl
☐	Carbon monoxide/air	1 cyl
☑	pH standards (4,7,10)	≤ 1 gal
☑	Conductivity standards	≤ 1 gal
☐	Other:	
	_____	

	Fuels	Qty.
☑	Not applicable	
☐	Gasoline	≤ 5 gal
☐	Diesel	≤ 5 gal
☐	Kerosene	≤ 5 gal
☐	Propane	1 cyl
☐	Other:	
	_____	

	Kits	Qty.
☑	Not applicable	
☐	Hach (specify):	_____ 1 kit
☐	DTECH (specify):	_____ 1 kit
☐	EPA 5035 Soil (specify kit):	_____ 1 kit
☐	Other:	
	_____	_____
	_____	_____

	Remediation	Qty.
☑	Not applicable	
☐	_____	
☐	_____	
☐	_____	
☐	_____	
☐	_____	

	Other:	Qty.
☑	Not applicable	
☐	Spray paint	≤ 6 cans
☐	WD-40	≤ 1 can
☐	Pipe cement	≤ 1 can
☐	Pipe primer	≤ 1 can
☐	Mineral spirits	≤ 1 gal

		Qty.
☐	_____	
☐	_____	
☐	_____	
☐	_____	
☐	_____	
☐	_____	

Material safety data sheets (MSDSs)/Safety Data Sheets (SDSs) must be available to field staff.
Indicate below how MSDS information will be provided:

☐ Not applicable
☐ Printed copy in company vehicle
☐ Printed copy in the project trailer/office
☑ Printed copy attached
☐ Electronic copy on field computer

☐ Contractor MSDSs/SDSs are not applicable
☐ Contractor MSDSs/SDSs are attached
☐ Contractor MSDSs/SDSs will be on site and located: _____

☐ Bulk quantities of the following materials will be stored: _____

Contact the project H&S contact for information in determining code and regulatory requirements associated with bulk storage of materials.

Monitoring

☑ Chemical air monitoring is not required for this project.

For projects requiring air monitoring, list the relevant constituents representing a hazard to site workers.

Constituent	Max. Conc.	Units	TWA	Units	STEL	Units	IDLH	Units	LEL/UEL (%)	VD Air=1	VP (mm Hg)	IP (eV)
None			9999	-	0	-	0	-	0	0	0	0
None			9999	-	0	-	0	-	0	0	0	0
None			9999	-	0	-	0	-	0	0	0	0
None			9999	-	0	-	0	-	0	0	0	0
None			9999	-	0	-	0	-	0	0	0	0
None			9999	-	0	-	0	-	0	0	0	0

Notes: TWAs are ACGIH 8 hr-TLVs unless noted.

p-ppm m-mg/m3
s- skin c-ceiling
r- resipirable i-inhalable

c2- ceiling (2 hr) se-sensitizer
"9999" - NA O-OSHA PEL
N-NIOSH 10 hr REL

"#N/A" -Constituent is not in database, manually enter information

Monitoring Equipment and General Protocols

Air monitoring is required for any task or activity where employees have potential exposure to vapors or particulates above the TWA. Action levels below are appropriate for most situations. Contact the project H&S contact for all stop work situations. Select monitoring frequency and instruments to be used.

Monitoring Frequency:
Indicator Tube/Chip Frequency: Indicator tube/chip monitoring not required

	Instrument	Action Levels	Actions
☐	Photoionization Detector Lamp (eV):	< 0.000 0.000 - 0.0 > 0.0	Continue work Sustained >5 min. continuous monitor, review eng. controls and PPE, proceed with caution Sustained >5 min. stop work, contact SSO
☐	Flame Ionization Detector (FID)	< 0.0 0.0 - 0.0 > 0.0	Continue work Sustained >5 min. continuous monitor, review eng. controls and PPE, use caution Sustained >5 min. stop work, contact SSO
☐	LEL/O2 Meter	0-5% LEL >5-10% LEL >10% LEL 19.5%-23.5% O2 <19.5% O2 >23.5% O2	Continue work Continuous monitor, review eng. controls, proceed with caution Stop work, evacuate, contact SSO Normal, continue work O2 deficient, stop work, evacuate, cont. SSO O2 enriched, stop work, evacuate, contact SSO
☐	Indicator: ☐ tube ☐ chip Compound(s):	≤PEL/TLV >PEL/TLV	Continue work Stop work, review eng. controls and PPE, contact SSO
☐	Particulate Monitor (mists, aerosols, dusts in mg/m^3)	< 2.5 2.5 - 5.00 > 5.00	Continue work Use engineering controls, monitor continuously Stop work, review controls, contact SSO
☐	Other:	Specify:	Specify:

Personal Protective Equipment (PPE)

See JSA for the task being performed for PPE requirements. *If the work is not conducted under a JSA, refer to the governing document for PPE requirements. At a minimum, the following checked PPE is required for <u>all tasks during field work</u> not covered by a JSA on this project:*

Level D or Level D Modified:

☑ Hard hat	☐ Snake chaps/guards	☐ Coveralls:	Specify Type:
☑ Safety glasses	☐ Briar chaps	☐ Apron:	
☐ Safety goggles	☐ Chainsaw chaps	☑ Chem. resistant gloves:	Nitrile/Latex
☐ Face shield	☐ Sturdy boot	☐ Gloves other:	
☐ Hearing protection	☑ Steel toe boot	☐ Chemical boot:	
☐ Rain suit	☐ Metatarsal boot	☐ Boot other:	
☐ Other:		☑ Traffic vest:	ANSI Type II
		☐ Life vest:	

Task specific PPE:

Comments:

Medical Surveillance (*check all that apply*)

- ☐ Medical Surveillance is not required for this project.
- ☑ HAZWOPER medical surveillance applies to all ARCADIS site workers on the project.
- ☐ HAZWOPER medical surveillance applies to all subcontractors on the project.
- ☐ HAZWOPER medical surveillance applies to all site workers on the project except:

- ☐ Other medical surveillance required (describe type and who is required to participate):

- ☐ Client drug and/or alcohol testing required.

Hazardous Materials Shipping and Transportation (*check all that apply*)

- ☐ Not applicable, no materials requiring a Shipping Determination will be transported or shipped
- ☑ A Shipping Determination has been reviewed and provided to field staff
- ☐ A Shipping Determination is attached
- ☐ All HazMat will be transported under Materials of Trade by ARCADIS
- ☐ Other (specify):

Roadway Work Zone Safety (*check all that apply*)

- ☑ Not applicable for this project
- ☐ All or portions of the work conducted under a TCP
- ☐ All or portions of the work conducted under a STAR Plan
- ☐ TCP or STAR Plan provided to field staff
- ☐ TCP or STAR Plan attached
- ☐ Other (specify):

ARCADIS Commercial Motor Vehicles (CMVs)

This section is applicable to ARCADIS operated vehicles only

- ☑ This project will **<u>not</u>** utilize CMV drivers
- ☐ This project will utilize CMV drivers

Site Control (*check all that apply*)

- ☑ Not applicable for this project.
- ☐ Site control protocols are addressed in JSA or other supporting document (attach)
- ☐ Maintain an exclusion zone of _____ ft. around the active work area
- ☐ Site control is integrated into the STAR Plan or TCP for the project
- ☐ Level C site control - refer to Level C Supplement attached
- ☐ Other (specify):

Decontamination (*check all that apply*)

- ☐ Not applicable for this project.
- ☐ Decontamination protocols are addressed in JSA or other governing document (attach)
- ☑ Level D work- wash hands and face prior to consuming food, drink or tobacco.
- ☐ Level D Modified work- remove coveralls and contain, wash hands and face prior to consuming food, drink or tobacco. Ensure footwear is clean of site contaminants
- ☐ Level C work - refer to the Level C supplement attached.
- ☐ Other (specify):

Sanitation *(check all that apply)*

- ☑ Mobile operation with access to off-site restrooms and potable water
- ☐ Restroom facilities on site provided by client or other contractor
- ☐ Project to provide portable toilets (1 per 20 workers)
- ☐ Potable water available on site
- ☐ Project to provide potable water (assume 1 gal./person/day)
- ☐ Project requires running water (hot and cold, or tepid) with soap and paper towels

Safety Briefings (*check all that apply*)

- ☑ Safety briefing required daily
- ☐ Safety briefing required twice a day
- ☐ Safety briefings required at the following frequency: _____
- ☑ Subcontractors to participate in ARCADIS safety briefings
- ☑ ARCADIS to participate in client/contractor safety briefings
- ☐ Other (specify):

Safety Equipment and Supplies

Safety equipment/supply requirements are addressed in the JSA for the task being performed. *If work is not performed under a JSA, the following safety equipment is required to be present on site in good condition (Check all that apply):*

- ☑ First aid kit
- ☑ Bloodborne pathogens kit
- ☑ Fire extinguisher
- ☐ Eyewash (ANSI compliant)
- ☑ Eyewash (bottle)
- ☑ Drinking water
- ☐ Other: _____

- ☑ Insect repellent
- ☑ Sunscreen
- ☐ Air horn
- ☐ Traffic cones
- ☐ 2-way radios
- ☐ Heat stress monitor

_____

H&S Program (*check all that apply*)

- ☐ H&S metrics are provided on the account level, refer to account guidance
- ☑ TIP required at the following frequency on this project:
  Select One: 80 mhrs _____ time(s) _____ Define: _____
- ☐ H&S Field Assessment required at the following frequency on this project:
  Select One: _____ mhrs _____ time(s) _____ Define: _____
- ☐ Other (specify):

List tasks anticipated for TIP activity:

Groundwater Sampling
Driving
Field General Multi-task

Signatures

I have read, understand and agree to abide by the requirements presented in this health and safety plan. I understand that I have the absolute right to stop work if I recognize an unsafe condition affecting my work until corrected.

Printed Name	Signature	Date

Add additional sheets if necessary

☐ Subcontractor Acknowledgement Form attached

You have an absolute right to STOP WORK if unsafe conditions exist!

Job Safety Analysis

General

JSA ID		**Status**	Review
Job Name	Columbia Mills	**Created Date**	2/12/2013
Task Description	Groundwater Sampling	**Completed Date**	
Template	FALSE	**Auto Closed**	FALSE

Client / Project

Client	NYSDEC
Project Number	00266405.0000
Project Name	Columbia Mills
PIC	
Project Manager	Nelson, Bruce

User Roles

Role	Employee	Due Date	Completed Date	Supervisor	Active
Developer	Quaglieri, Breanna				☑
HASP Reviewer	Bobar, Aaron				

Job Steps

Job Step No.	Job Step Description		Potential Hazard	Critical Action	H&S Reference
1	Groundwater sampling.	1	Driving to sampling location. Parking at location. Injury or property damage from vehicle collision.	Use Smith Driving techniques, use a spotter for backing, provide sufficient space away from uneven ground or steep slope. Walk equipment out if necessary.	Field H&S Handbook V(G); JSA #014897120.0000-004
		2	Walking to sample location. Unloading and carrying equipment.	Plan a safe route. Use proper lifting techniques. Ask for help with heavy items. Make multiple trips if necessary. Use caution on steep-uneven terrain.	
		3	Handling sample coolers can cause injury.	Review JSA #014897120.0000-003 for safe handling procedures.	JSA #014897120.0000-003
		4	Hazardous animals/plants.	Avoid hazardous plants, such as posion ivy. Be cautious of ticks and other parasites. Use appropriate insect repellents. Be cautious of wild animals. Aviod any animals that seem fearless or approach you - use good judgement.	Field H&S Handbook
		5	Slip/trip/falls can occur when setting up equipment.	Spot each other and provide safe distance from slopes. Wear anti-slip footwear with ankle support. Do not hurry through task.	
		6	Clutter and equipment can cause tripping hazard including location and placement of equipment cables or tubing.	Maintain good housekeeping and aisle space. Secure objects to prevent shifting or movement that could impair walkway. Keep materials clear of designated walkways, cover if practical.	

Job Safety Analysis

General

JSA ID		**Status**	Review
Job Name	Columbia Mills	**Created Date**	2/12/2013
Task Description	Groundwater Sampling	**Completed Date**	
Template	FALSE	**Auto Closed**	FALSE

PPE — Personal Protective Equipment

Type	Personal Protective Equipment	Description	Required
Dermal Protection	splash apron,Tyvek coveralls	Should use when CKD is present	Optional
Eye Protection	safety glasses	Should use when CKD is present	Required
			Required
Foot Protection	steel-toe boots		Required
Hand Protection	chemical resistant gloves (specify type)	Nitrile	Required

Supplies

Type	Supply	Description	Required
Communication Devices	2-way radio or cellular phone		Required
Decontamination	Decon supplies (specify type)	Alconox	Required
Miscellaneous	fire extinguisher		NO
	first aid kit		Required
Personal	eye wash (specify type)		Required
	insect repellant		Required
	sunscreen		Required

Job Safety Analysis

General

JSA ID		**Status**	Review
Job Name	Columbia Mills	**Created Date**	2/12/2013
Task Description	Sample Cooler Handling	**Completed Date**	
Template	FALSE	**Auto Closed**	FLASE

Client / Project

Client	NYSDEC
Project Number	00266405.0000
Project Name	Columbia Mills
PIC	
Project Manager	Nelson, Bruce

User Roles

Role	Employee	Due Date	Completed Date	Supervisor	Active
Developer	Quagleiri, Breanna				☑
HASP Reviewer	Bobar, Aaron				

Job Steps

Job Step No.	Job Step Description		Potential Hazard	Critical Action	H&S Reference
1	Transfer field samples to sample packing area	1	Lifting heavy coolers may result in muscle strain especially to lower back.	Use proper lifting techniques and keep back straight. Use buddy system for large coolers, Use mechanical aids like hand trucks if readily available to move coolers. Do not over fill coolers with full sample containers for temporary movement to the sample prep area. Ensure an adequate supply of sample coolers are in field.	
		2	Hazards to hands from broken glass caused by over tightening lids or improper placement in cooler	Inspect all bottles and bottle caps for cracks/leaks before and after filling container. Do not over tighten sample lids. Clean up any broken bottles immediately, avoid contact with sample preservatives. Wear leather gloves when handling broken glass.	
		3	Exposure to chemicals (acid preservatives or site contaminants) on the exterior of sample bottles after filling.	Wear protective gloves for acid preservatives and safety glasses with side shields during all sample container handling activities (before and after filling), Once filled follow project specific HASP PPE requirements for skin and eye protection.	
		4	Samples containing hazardous materials may violate DOT/IATA HazMat shipping regulations	All persons filling a sample bottle or preparing a cooler for shipment must have complete ARCADIS DOT HazMat shipping training. Compare the samples collected to the materials described in the Shipping Determination for the Project and ensure consistent. Re-perform all Shipping determinations if free product is collected and not anticipated during planning.	
2	Sample cooler selection	1	Sample coolers with defective handles, lid hinges, lid hasps cracked or otherwise damaged may result in injury (cuts to hands, crushing of feet if handle breaks etc)	Only use coolers that are new or in like new condition, No rope handled coolers unless part of the manufacturer's handle design.	ARCADIS Shipping Guide US-001
		2	Selection of excessively large coolers introduces lifting hazards once the cooler is filled.	Select coolers and instruct lab to only provide coolers of a size appropriate for the material being shipped. For ordinary sample shipping sample coolers should be 48 quart capacity or smaller to reduce lifting hazards.	
3	Pack Samples	1	Pinch points and abrasions to hands from cooler lid closing unexpectedly	Beware that lid could slam shut; block/brace if needed; be wary of packing in strong winds. New coolers may be more prone to self closing, tilt cooler back slightly to facilitate keeping lid open.	

Job Safety Analysis

General

JSA ID		**Status**	Review
Job Name	Columbia Mills	**Created Date**	2/12/2013
Task Description	Sample Cooler Handling	**Completed Date**	
Template	FALSE	**Auto Closed**	FLASE

		2	Awkward body positions and contact stress to legs and knees when preparing coolers on irregular or hard ground surfaces.	Plan cooler prep activities. Situate cooler where neutral body positions can be maintained if practical, like truck tailgate. Avoid cooler prep on rough gravel surfaces unless knees and legs protected during kneeling.	
		3	Frostbite or potential for oxygen deficiency when packing with dry ice. Contact cold stress to fingers handling blue ice or wet ice	Dry ice temperature is -109.30F. Wear thermal protective gloves. DO NOT TOUCH with bare skin! Dry ice sublimates at room temp and could create oxygen deficiency in closed environment. Maintain adequate ventilation! Do not keep dry ice in cab of truck. Wear gloves when handling blue ice or gaging wet ice. Dry Ice is DOT regulated for air shipping, follow procedures in Shipping Determination.	
4	Sealing, labeling and Marking Cooler	1	Cuts to hands and forearms from strapping tape placement or removing old tape and labels	Do not use a fixed, open-blade knife to remove old tags/labels, USE SCISSORS or other safety style cutting device. Only use devices designed for cutting. Do not hurry through task.	
		2	Lifting and awkward body position hazards from taping heavy coolers, dropping coolers on feet during taping.	Do not hurry through the taping tasks, ensure samples in cooler are evenly distributed in cooler to reduce potential for overhanging cooler falling off edge of tailgate/table when taping.	
		3	Improper labeling and marking may result in violation of DOT/IATA HazMat shipping regulations delaying shipment or resulting in regulatory penalty	Do not deviate from ARCADIS Shipping Guide or Shipping Determination marking or labeling requirements.	
5	Offering sample cooler to a carrier or lab courier for shipment.	1	Lifting heavy coolers may result in muscle strain especially to lower back.	See lifting hazard controls above.	
		2	Carrier refusal to accept cooler may cause shipping delay and/or result in violation of DOT HazMat shipping regulations.	Promptly report all rejected and refused shipments to the ARCADIS DOT Program Manager. Do Not re-offer shipment if carrier requires additional labels markings or paperwork inconsistent with your training or Shipping Determination without contacting the ARCADIS DOT Compliance Manager.	

PPE — Personal Protective Equipment

Type	Personal Protective Equipment	Description	Required
Eye Protection	safety glasses		Required
Hand Protection	chemical resistant gloves (specify type)	nitrile	Required
	work gloves (specify type)	leather	Required

Supplies

Type	Supply	Description	Required
Miscellaneous	Other	Scissors	Required

In-Situ Inc. Innovations in Water Monitoring

Material Safety and Data Sheet

I. Chemical Product and Company Identification

Product Name:	Manufacturer:	Emergency Contact:
Buffer Solution pH 4.00	Aqua Phoenix Scientific, Inc. 320 Maple Ave. Hanover, PA 17331 Telephone: 866 632 1291 Fax: 717 633 1285	INFOTRAC Emergency Response Hotline: 1-800-535-5053 (in the U.S. and Canada) 1-352-323-3500 www.infotrac.net

II. Composition, Information on Ingredients

Hazardous Components Specific Chemical Identity: Common Names	CAS NO.	%	OSHA PEL	ACGIH TLV
Potassium Acid Phthalate	877-24-7	1% w/v	N/A	N/A
Water, purified	7732-18-5	>99% w/v	N/A	N/A

III. Hazard Identification

Emergency Overview: Non-flammable, non-corrosive, non-toxic. Does not present significant health hazards. Wash areas of contact with water.

Target Organs: Eyes, skin

Eyes	May cause slight irritation
Skin	May cause slight irritation
Ingestion	May cause diarrhea, nausea, vomiting, and cramps
Inhalation	Not likely to be a hazard
Chronic Effect /Carcinogenicity	None (IARC, NTP, OSHA)

IV. First Aid

Eyes	Immediately flush eyes with water for at least 15 minutes. Immediately get medical assistance.
Skin	Flush with water for 15 minutes. Get medical assistance if irritation develops.
Ingestion	Dilute with water or milk. Get medical assistance.
Inhalation	Remove to fresh air. Give artificial respiration if necessary. If breathing is difficult, give oxygen.

V. Fire Fighting Measures

Flash Point	N/A
Extinguishing Media	Use means suitable to extinguishing surrounding fire.
Fire and Explosion Hazards	Not considered to be a fire or explosion hazard.
Fire Fighting Instructions/Equipment	Use normal procedures. Poisonous gases may be produced in fire. Use protective clothing. Use NIOSH-approved breathing equipment.
NFPA Rating	(estimated) Health: 1; Flammable: 0; Reactivity: 0

VI. Accidental Release Measures

Absorb with suitable material. Always obey local regulations.

VII. Handling and Storage

Handling	Wash hands after handling. Avoid contact with skin and eyes.
Storage	Protect from freezing and physical damage.

VIII. Exposure Controls, Personal Protection

Engineering Controls	Normal ventilation is adequate
Respiratory Controls	Normal ventilation is adequate
Skin Protection	Chemical resistant gloves
Eye Protection	Safety Glasses or goggles

IX. Physical and Chemical Properties

Appearance	Clear, reddish liquid	**Odor**	Odorless
pH @ 25°C	4.0	**Solubility in Water**	Infinite
Boiling Point	Approx 100°C	**Specific Gravity**	Approx 1
Melting point	Approx 0°C	**Vapor Pressure**	N/A

X. Stability and Reactivity

Chemical Stability	Stable under normal conditions of use and storage
Incompatibility	Nitric Acid
Hazardous Decomposition Products	Oxides of potassium and carbon
Hazardous Polymerization	Does not occur

XI. Toxicological Information

LD50 orl-rat	>3200 mg/kg (Potassium Acid Phthalate)
LC50 inhalation-rat	N/A

XII. Ecological Information

Ecotoxicity	N/A

XIII. Disposal Considerations

Dilute with water. Neutralize with dilute sodium hydroxide solution.
All chemical waster generators must determine whether a discarded chemical is classified as hazardous waste. Comply with all local, state, and federal regulations.

XIV. Transport Information

DOT	Not Regulated

XV. Regulatory Information (not meant to be all inclusive)

OSHA Status	These chemicals are not considered hazardous by OSHA
TSCA	The components of this solution are listed on the TSCA Inventory
SARA Title III Section 313	N/A
RCRA Status	N/A
CERCLA Reportable Quality	N/A
WHMIS	N/A

XVI. Additional Information

Issue Date: 12/28/06
Revision Date: 3/8/10, Rev. 004
Document: 0032790

* N/A – Not Applicable/Not Available

Disclaimer: The information, data and recommendations contained herein were provided to In-Situ Inc. by the manufacturer named on this Material Safety Data Sheet. In-Situ Inc. makes no warranty of any kind whatsoever with respect thereto and disclaims all liability from reliance thereon. In-Situ Inc. reserves the right to revise this Material Safety Data Sheet as new information is provided to it by the manufacturer.

In-Situ Inc.

For more information contact In-Situ Inc.
221 East Lincoln Avenue, Fort Collins, CO 80524
1-800-446-7488 (toll-free in U.S. & Canada
1-970-498-1500 (international & domestic)
www.in-situ.com

In-Situ Inc. Innovations in Water Monitoring

Material Safety and Data Sheet

I. Chemical Product and Company Identification

Product Name:	Manufacturer:	Emergency Contact:
Buffer Solution pH 7.00	Aqua Phoenix Scientific, Inc. 320 Maple Ave. Hanover, PA 17331 Telephone: 866 632 1291 Fax: 717 633 1285	INFOTRAC Emergency Response Hotline: 1-800-535-5053 (in the U.S. and Canada) 1-352-323-3500 www.infotrac.net

II. Composition, Information on Ingredients

Hazardous Components Specific Chemical Identity: Common Names	CAS NO.	%	OSHA PEL	ACGIH TLV
Sodium Phosphate, Dibasic	7558-79-4	<3% w/v	N/A	N/A
Potassium Phosphate, Monobasic	7778-77-0	<2% w/v	N/A	N/A
Water, purified	7732-18-5	>95% w/v	N/A	N/A

III. Hazard Identification

Emergency Overview: : Non-flammable, non-corrosive, non-toxic. Does not present significant health hazards. Wash areas of contact with water.

Target Organs: Eyes, skin.

Eyes	May cause slight irritation
Skin	May cause slight irritation
Ingestion	Large doses may cause upset stomach
Inhalation	Not likely to be a hazard
Chronic Effect /Carcinogenicity	None (IARC, NTP, OSHA)

IV. First Aid

Eyes	Immediately flush eyes with water for at least 15 minutes. Immediately get medical assistance.
Skin	Flush with water for 15 minutes. Get medical assistance if irritation develops.
Ingestion	Dilute with water or milk. Get medical assistance.
Inhalation	Remove to fresh air. Give artificial respiration if necessary. If breathing is difficult, give oxygen.

V. Fire Fighting Measures

Flash Point	N/A
Extinguishing Media	Use means suitable to extinguishing surrounding fire.
Fire and Explosion Hazards	Not considered to be a fire or explosion hazard.
Fire Fighting Instructions/Equipment	Use normal procedures. Poisonous gases may be produced in fire. Use protective clothing. Use NIOSH-approved breathing equipment.
NFPA Rating	(estimated) Health: 1; Flammable: 0; Reactivity: 0

VI. Accidental Release Measures

Absorb with suitable material. Always obey local regulations.

VII. Handling and Storage

Handling	Wash hands after handling. Avoid contact with skin and eyes.
Storage	Protect from freezing and physical damage.

VIII. Exposure Controls, Personal Protection

Engineering Controls	Normal ventilation is adequate
Respiratory Controls	Normal ventilation is adequate
Skin Protection	Chemical resistant gloves
Eye Protection	Safety Glasses or goggles

IX. Physical and Chemical Properties

Appearance	Clear, yellow liquid	**Odor**	Odorless
pH @ 25°C	5.8-8	**Solubility in Water**	Infinite
Boiling Point	Approx 100°C	**Specific Gravity**	Approx 1
Melting point	Approx 0°C	**Vapor Pressure**	N/A

X. Stability and Reactivity

Chemical Stability	Stable under normal conditions of use and storage
Incompatibility	None Identified
Hazardous Decomposition Products	Oxides of Phosphorus
Hazardous Polymerization	Does not occur

XI. Toxicological Information

LD50 orl-rat	17 g/kg (Sodium Phosphate, Dibasic)
LC50 inhalation-rat	>4640 mg/kg (Potassium Phosphate, Monobasic

XII. Ecological Information

Ecotoxicity	N/A

XIII. Disposal Considerations

Dilute with water.
All chemical waster generators must determine whether a discarded chemical is classified as hazardous waste.
Comply with all local, state, and federal regulations.

XIV. Transport Information

DOT	Not Regulated

XV. Regulatory Information (not meant to be all inclusive)

OSHA Status	These chemicals are not considered hazardous by OSHA
TSCA	The components of this solution are listed on the TSCA Inventory
SARA Title III Section 313	N/A
RCRA Status	N/A
CERCLA Reportable Quality	N/A
WHMIS	N/A

XVI. Additional Information

Issue Date: 12/28/06
Revision Date: 3/8/10, Rev. 004
Document: 0032800

* N/A – Not Applicable/Not Available

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In-Situ Inc. Innovations in Water Monitoring

Material Safety and Data Sheet

I. Chemical Product and Company Identification

Product Name:	Manufacturer:	Emergency Contact:
Buffer Solution pH 10.00	Aqua Phoenix Scientific, Inc. 320 Maple Ave. Hanover, PA 17331 Telephone: 866 632 1291 Fax: 717 633 1285	INFOTRAC Emergency Response Hotline: 1-800-535-5053 (in the U.S. and Canada) 1-352-323-3500 www.infotrac.net

II. Composition, Information on Ingredients

Hazardous Components Specific Chemical Identity: Common Names	CAS NO.	%	OSHA PEL	ACGIH TLV
Sodium Bicarbonate	144-55-8	0.5% w/v	N/A	N/A
Sodium Carbonate	497-19-8	0.5% w/v	N/A	N/A
Water, purified	7732-18-5	>99% w/v	N/A	N/A

III. Hazard Identification

Emergency Overview: Non-flammable, non-corrosive, non-toxic. Does not present significant health hazards. Wash areas of contact with water.

Target Organs: Eyes, skin

Eyes	May cause slight irritation.
Skin	May cause slight irritation.
Ingestion	May cause nausea, diarrhea, vomiting, and cramps.
Inhalation	Not likely to be a hazard.
Chronic Effect /Carcinogenicity	None (IARC, NTP, OSHA).

IV. First Aid

Eyes	Immediately flush eyes with water for at least 15 minutes. Immediately get medical assistance.
Skin	Flush with water for 15 minutes. Get medical assistance if irritation develops.
Ingestion	Dilute with water or milk. Get medical assistance.
Inhalation	Remove to fresh air. Give artificial respiration if necessary. If breathing is difficult, give oxygen.

V. Fire Fighting Measures

Flash Point	N/A
Extinguishing Media	Use means suitable to extinguishing surrounding fire.
Fire and Explosion Hazards	Not considered to be a fire or explosion hazard.
Fire Fighting Instructions/Equipment	Use normal procedures. Poisonous gases may be produced in fire. Use protective clothing. Use NIOSH-approved breathing equipment.
NFPA Rating	(estimated) Health: 1; Flammable: 0; Reactivity: 0

VI. Accidental Release Measures

Absorb with suitable material. Always obey local regulations.

VII. Handling and Storage

Handling	Wash hands after handling. Avoid contact with skin and eyes.
Storage	Protect from freezing and physical damage.

VIII. Exposure Controls, Personal Protection

Engineering Controls	Normal ventilation is adequate
Respiratory Controls	Normal ventilation is adequate
Skin Protection	Chemical resistant gloves
Eye Protection	Safety Glasses or goggles

IX. Physical and Chemical Properties

Appearance	Clear, blue liquid	**Odor**	Odorless
pH @ 25°C	10.00	**Solubility in Water**	Infinite
Boiling Point	Approx 100°C	**Specific Gravity**	Approx 1
Melting point	Approx 0°C	**Vapor Pressure**	N/A

X. Stability and Reactivity

Chemical Stability	Stable under normal conditions of use and storage
Incompatibility	Acids
Hazardous Decomposition Products	Oxides of Sodium
Hazardous Polymerization	Does not occur

XI. Toxicological Information

LD50 orl-rat	4090 mg/kg (Sodium Carbonate), 4220 mg/kg (Sodium Bicarbonate)
LC50 inhalation-rat	N/A

XII. Ecological Information

Ecotoxicity	N/A

XIII. Disposal Considerations

Dilute with water.
All chemical waster generators must determine whether a discarded chemical is classified as hazardous waste. Comply with all local, state, and federal regulations.

XIV. Transport Information

DOT	Not Regulated

XV. Regulatory Information (not meant to be all inclusive)

OSHA Status	These chemicals are not considered hazardous by OSHA.
TSCA	The components of this solution are listed on the TSCA Inventory.
SARA Title III Section 313	N/A
RCRA Status	N/A
CERCLA Reportable Quality	N/A
WHMIS	N/A

XVI. Additional Information

Issue Date: 12/28/06
Revision Date: 3/8/10, Rev. 004
Document: 0032810

* N/A – Not Applicable/Not Available

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In-Situ Inc. Innovations in Water Monitoring

Material Safety and Data Sheet

I. Chemical Product and Company Identification

Product Name:	Manufacturer:	Emergency Contact:
Conductivity Standard 147, 1413, 12890, and 58670 µS/cm (µmho/cm)	Aqua Phoenix Scientific, Inc. 320 Maple Ave. Hanover, PA 17331 Telephone: 866 632 1291 Fax: 717 633 1285	INFOTRAC Emergency Response Hotline: 1-800-535-5053 (in the U.S. and Canada) 1-352-323-3500 www.infotrac.net

II. Composition, Information on Ingredients

Hazardous Components Specific Chemical Identity: Common Names	CAS NO.	%	OSHA PEL	ACGIH TLV
Potassium Chloride	7447-40-7	<0.01-2% w/v	N/A	N/A
Water, purified	7732-18-5	>98% w/v	N/A	N/A

III. Hazard Identification

Emergency Overview: Non-flammable, non-corrosive, non-toxic. Does not present significant health hazards. Wash areas of contact with water.

Target Organs: Eyes, Skin

Eyes	May cause slight irritation.
Skin	May cause slight irritation.
Ingestion	Large doses may cause upset stomach.
Inhalation	Not likely to be a hazard.
Chronic Effect /Carcinogenicity	None (IARC, NTP, OSHA).

IV. First Aid

Eyes	Immediately flush eyes with water for at least 15 minutes. Immediately get medical assistance.
Skin	Flush with water for 15 minutes. Get medical assistance if irritation develops.
Ingestion	DO NOT induce vomiting. Dilute with water or milk. Get medical assistance.
Inhalation	Remove to fresh air. Give artificial respiration if necessary. If breathing is difficult, give oxygen.

V. Fire Fighting Measures

Flash Point	N/A
Extinguishing Media	Use means suitable to extinguishing surrounding fire.
Fire and Explosion Hazards	Not considered to be a fire or explosion hazard.
Fire Fighting Instructions/Equipment	Use normal procedures. Poisonous gases may be produced in fire. Use protective clothing. Use NIOSH-approved breathing equipment.
NFPA Rating	(estimated) Health: 1, Flammable: 0, Reactivity: 0

VI. Accidental Release Measures

Absorb with suitable material. Always obey local regulations.

VII. Handling and Storage

Handling	Wash hands after handling. Avoid contact with skin and eyes.
Storage	Protect from freezing and physical damage.

VIII. Exposure Controls, Personal Protection

Engineering Controls	Normal ventilation is adequate.
Respiratory Controls	Normal ventilation is adequate.
Skin Protection	Chemical resistant gloves.
Eye Protection	Safety Glasses or goggles.

IX. Physical and Chemical Properties

Appearance	Clear, colorless liquid	**Odor**	Odorless
pH @ 25°C	N/A	**Solubility in Water**	Infinite
Boiling Point	Approx 100.1°C	**Specific Gravity**	1.00-1.01
Melting point	Approx (-6)-0°C	**Vapor Pressure**	N/A

X. Stability and Reactivity

Chemical Stability	Stable under normal conditions of use and storage.
Incompatibility	Strong Oxidizing agents, Lithium, Bromine, Trifluoride.
Hazardous Decomposition Products	Oxides of Sodium and fumes of Chloride.
Hazardous Polymerization	Does not occur.

XI. Toxicological Information

LD50 orl-rat	3020mg/kg
LC50 inhalation-rat	N/A

XII. Ecological Information

Ecotoxicity	N/A

XIII. Disposal Considerations

Dilute with water.
All chemical waster generators must determine whether a discarded chemical is classified as hazardous waste.
Comply with all local, state, and federal regulations.

XIV. Transport Information

DOT	Not Regulated

XV. Regulatory Information (not meant to be all inclusive)

OSHA Status	These chemicals are not considered hazardous by OSHA
TSCA	The components of this solution are listed on the TSCA Inventory
SARA Title III Section 313	N/A
RCRA Status	N/A
CERCLA Reportable Quality	N/A
WHMIS	N/A

XVI. Additional Information

Issue Date: 12/28/06
Revision Date: 3/8/10, Rev. 004
Document: 0032780

* N/A – Not Applicable/Not Available

In-Situ Inc.

For more information contact In-Situ Inc.
221 East Lincoln Avenue, Fort Collins, CO 80524
1-800-446-7488 (toll-free in U.S. & Canada)
1-970-498-1500 (international & domestic)
www.in-situ.com

MATERIAL SAFETY DATA SHEET

ALCONOX®

Prepared to U.S. OSHA, CMA, ANSI, Canadian WHMIS, Australian WorkSafe, Japanese Industrial Standard JIS Z 7250:2000, and European Union REACH Regulations

SECTION 1 - PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME:	**ALCONOX®**
CHEMICAL FAMILY NAME:	Detergent.
PRODUCT USE:	Critical-cleaning detergent for laboratory, healthcare and industrial applications
U.N. NUMBER:	Not Applicable
U.N. DANGEROUS GOODS CLASS:	Non-Regulated Material
SUPPLIER/MANUFACTURER'S NAME:	Alconox, Inc.
ADDRESS:	30 Glenn St., Suite 309, White Plains, NY 10603. USA
EMERGENCY PHONE:	**TOLL-FREE in USA/Canada** 800-255-3924
	International calls 813-248-0585
BUSINESS PHONE:	914-948-4040
DATE OF PREPARATION:	May 2011
DATE OF LAST REVISION:	February 2008

SECTION 2 - HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW: This product is a white granular powder with little or no odor. Exposure can be irritating to eyes, respiratory system and skin. It is a non-flammable solid. The Environmental effects of this product have not been investigated.

US DOT SYMBOLS

Non-Regulated

CANADA (WHMIS) SYMBOLS

EUROPEAN and (GHS) Hazard Symbols

Signal Word: **Warning!**

EU LABELING AND CLASSIFICATION:

Classification of the substance or mixture according to Regulation (EC) No1272/2008 Annex 1
EC# 205-633-8 This substance is not classified in the Annex I of Directive 67/548/EEC
EC# 268-356-1 This substance is not classified in the Annex I of Directive 67/548/EEC
EC# 231-838-7 This substance is not classified in the Annex I of Directive 67/548/EEC
EC# 231-767-1 This substance is not classified in the Annex I of Directive 67/548/EEC
EC# 207-638-8 Index# 011-005-00-2
EC# 205-788-1 This substance is not classified in the Annex I of Directive 67/548/EEC

GHS Hazard Classification(s):

Eye Irritant Category 2A

Hazard Statement(s):

H319: Causes serious eye irritation

Precautionary Statement(s):

P260: Do not breath dust/fume/gas/mist/vapors/spray
P264: Wash hands thoroughly after handling
P271: Use only in well ventilated area.
P280: Wear protective gloves/protective clothing/eye protection/face protection/

Hazard Symbol(s):

[Xi] Irritant

Risk Phrases:
R20: Harmful by inhalation
R36/37/38: Irritating to eyes, respiratory system and skin

Safety Phrases:
S8: Keep container dry
S22: Do not breath dust
S24/25: Avoid contact with skin and eyes

HEALTH HAZARDS OR RISKS FROM EXPOSURE:

ACUTE: Exposure to this product may cause irritation of the eyes, respiratory system and skin. Ingestion may cause gastrointestinal irritation including pain, vomiting or diarrhea.

CHRONIC: This product contains an ingredient which may be corrosive.

TARGET ORGANS: ACUTE: Eye, respiratory System, Skin CHRONIC: None Known

SECTION 3 - COMPOSITION and INFORMATION ON INGREDIENTS

HAZARDOUS INGREDIENTS:	CAS #	EINECS #	ICSC #	WT %	HAZARD CLASSIFICATION; RISK PHRASES
Sodium Bicarbonate	144-55-8	205-633-8	1044	33 - 43%	HAZARD CLASSIFICATION: None RISK PHRASES: None
Sodium (C10 – C16) Alkylbenzene Sulfonate	68081-81-2	268-356-1	Not Listed	10 – 20%	HAZARD CLASSIFICATION: None RISK PHRASES: None
Sodium Tripolyphosphate	7758-29-4	231-838-7	1469	5 - 15%	HAZARD CLASSIFICATION: None RISK PHRASES: None
Tetrasodium Pyrophosphate	7722-88-5	231-767-1	1140	5 - 15%	HAZARD CLASSIFICATION: None RISK PHRASES: None
Sodium Carbonate	497-19-8	207-638-8	1135	1 - 10%	HAZARD CLASSIFICATION: [Xi] Irritant RISK PHRASES: R36
Sodium Alcohol Sulfate	151-21-3	205-788-1	0502	1 – 5%	HAZARD CLASSIFICATION: None RISK PHRASES: None
Balance of other ingredients are non-hazardous or less than 1% in concentration (or 0.1% for carcinogens, reproductive toxins, or respiratory sensitizers).					

NOTE: ALL WHMIS required information is included in appropriate sections based on the ANSI Z400.1-2004 format. This product has been classified in accordance with the hazard criteria of the CPR and the MSDS contains all the information required by the CPR, EU Directives and the Japanese Industrial Standard *JIS Z 7250: 2000*.

SECTION 4 - FIRST-AID MEASURES

Contaminated individuals of chemical exposure must be taken for medical attention if any adverse effect occurs. Rescuers should be taken for medical attention, if necessary. Take copy of label and MSDS to health professional with contaminated individual.

EYE CONTACT: If product enters the eyes, open eyes while under gentle running water for at least 15 minutes. Seek medical attention if irritation persists.

SKIN CONTACT: Wash skin thoroughly after handling. Seek medical attention if irritation develops and persists. Remove contaminated clothing. Launder before re-use.

INHALATION: If breathing becomes difficult, remove victim to fresh air. If necessary, use artificial respiration to support vital functions. Seek medical attention if breathing dificulty continues.

INGESTION: If product is swallowed, call physician or poison control center for most current information. If professional advice is not available, do not induce vomiting. Never induce vomiting or give diluents (milk or water) to someone who is unconscious, having convulsions, or who cannot swallow. Seek medical advice. Take a copy of the label and/or MSDS with the victim to the health professional.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE: Pre-existing skin, or eye problems may be aggravated by prolonged contact.

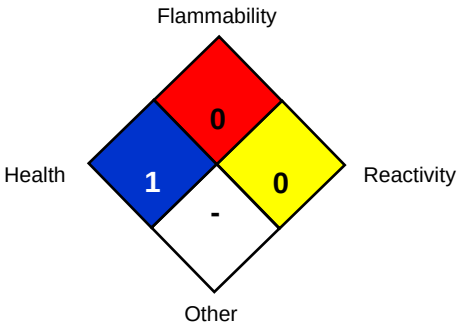
RECOMMENDATIONS TO PHYSICIANS: Treat symptoms and reduce over-exposure.

SECTION 5 - FIRE-FIGHTING MEASURES

FLASH POINT: Not Flammable
AUTOIGNITION TEMPERATURE: Not Applicable
FLAMMABLE LIMITS (in air by volume, %): Lower (LEL): NA Upper (UEL): NA
FIRE EXTINGUISHING MATERIALS: As appropriate for surrounding fire. Carbon dioxide, foam, dry chemical, halon, or water spray.

UNUSUAL FIRE AND EXPLOSION HAZARDS: This product is non-flammable and has no known explosion hazards.
Explosion Sensitivity to Mechanical Impact: Not Sensitive.
Explosion Sensitivity to Static Discharge: Not Sensitive
SPECIAL FIRE-FIGHTING PROCEDURES: Incipient fire responders should wear eye protection. Structural firefighters must wear Self-Contained Breathing Apparatus and full protective equipment. Isolate materials not yet involved in the fire and protect personnel. Move containers from fire area if this can be done without risk; otherwise, cool with carefully applied water spray. If possible, prevent runoff water from entering storm drains, bodies of water, or other environmentally sensitive areas.

NFPA RATING SYSTEM



HMIS RATING SYSTEM

HAZARDOUS MATERIAL IDENTIFICATION SYSTEM

HEALTH HAZARD (BLUE)	1
FLAMMABILITY HAZARD (RED)	0
PHYSICAL HAZARD (YELLOW)	0

PROTECTIVE EQUIPMENT			
EYES	RESPIRATORY	HANDS	BODY
	See Sect 8		See Sect 8

For Routine Industrial Use and Handling Applications

Hazard Scale: **0** = Minimal **1** = Slight **2** = Moderate **3** = Serious **4** = Severe * = Chronic hazard

SECTION 6 - ACCIDENTAL RELEASE MEASURES

SPILL AND LEAK RESPONSE: Personnel should be trained for spill response operations.
SPILLS: Contain spill if safe to do so. Prevent entry into drains, sewers, and other waterways. Sweep, shovel or vacuum spilled material and place in an appropriate container for re-use or disposal. Avoid dust generation if possible. Dispose of in accordance with applicable Federal, State, and local procedures (see Section 13, Disposal Considerations).

SECTION 7 - HANDLING and STORAGE

WORK PRACTICES AND HYGIENE PRACTICES: As with all chemicals, avoid getting this product ON YOU or IN YOU. Wash thoroughly after handling this product. Do not eat, drink, smoke, or apply cosmetics while handling this product. Avoid breathing dusts generated by this product. Use in a well-ventilated location. Remove contaminated clothing immediately.

STORAGE AND HANDLING PRACTICES: Containers of this product must be properly labeled. Store containers in a cool, dry location. Keep container tightly closed when not in use. Store away from strong acids or oxidizers.

SECTION 8 - EXPOSURE CONTROLS - PERSONAL PROTECTION

EXPOSURE LIMITS/GUIDELINES:

Chemical Name	CAS#	ACGIH TWA	OSHA TWA	SWA
Sodium Bicarbonate	144-55-8	10 mg/m³ Total Dust	15 mg/m³ Total Dust	10 mg/m³ Total Dust
Sodium (C10 – C16) Alkylbenzene Sulfonate	68081-81-2	10 mg/m³ Total Dust	15 mg/m³ Total Dust	10 mg/m³ Total Dust
Sodium Tripolyphosphate	7758-29-4	10 mg/m³ Total Dust	15 mg/m³ Total Dust	10 mg/m³ Total Dust
Tetrasodium Pyrophosphate	7722-88-5	5 mg/m³	5 mg/m³	5 mg/m³
Sodium Carbonate	497-19-8	10 mg/m³ Total Dust	15 mg/m³ Total Dust	10 mg/m³ Total Dust
Sodium Alcohol Sulfate	151-21-3	10 mg/m³ Total Dust	15 mg/m³ Total Dust	10 mg/m³ Total Dust

Currently, International exposure limits are not established for the components of this product. Please check with competent authority in each country for the most recent limits in place.

VENTILATION AND ENGINEERING CONTROLS: Use with adequate ventilation to ensure exposure levels are maintained below the limits provided below. Use local exhaust ventilation to control airborne dust. Ensure eyewash/safety shower stations are available near areas where this product is used.

The following information on appropriate Personal Protective Equipment is provided to assist employers in complying with OSHA regulations found in 29 CFR Subpart I (beginning at 1910.132) or equivalent standard of Canada, or standards of EU member states (including EN 149 for respiratory PPE, and EN 166 for face/eye protection), and those of Japan. Please reference applicable regulations and standards for relevant details.

RESPIRATORY PROTECTION: Based on test data, exposure limits should not be exceeded under normal use conditions when using Alconox Detergent. Maintain airborne contaminant concentrations below guidelines listed above, if applicable. If necessary, use only respiratory protection authorized in the U.S. Federal OSHA Respiratory Protection Standard (29 CFR 1910.134), equivalent U.S. State standards, Canadian CSA Standard Z94.4-93, the European Standard EN149, or EU member states.

EYE PROTECTION: Safety glasses. If necessary, refer to U.S. OSHA 29 CFR 1910.133 or appropriate Canadian Standards.

HAND PROTECTION: Use chemical resistant gloves to prevent skin contact.. If necessary, refer to U.S. OSHA 29 CFR 1910.138 or appropriate Standards of Canada.

BODY PROTECTION: Use body protection appropriate to prevent contact (e.g. lab coat, overalls). If necessary, refer to appropriate Standards of Canada, or appropriate Standards of the EU, Australian Standards, or relevant Japanese Standards.

SECTION 9 - PHYSICAL and CHEMICAL PROPERTIES

PHYSICAL STATE:	Solid
APPEARANCE & ODOR:	White granular powder with little or no odor.
ODOR THRESHOLD (PPM):	Not Available
VAPOR PRESSURE (mmHg):	Not Applicable
VAPOR DENSITY (AIR=1):	Not Applicable.
BY WEIGHT:	Not Available
EVAPORATION RATE (nBuAc = 1):	Not Applicable.
BOILING POINT (C°):	Not Applicable.
FREEZING POINT (C°):	Not Applicable.
pH:	9.5 (1% aqueous solution)
SPECIFIC GRAVITY 20°C: (WATER =1)	0.85 – 1.1
SOLUBILITY IN WATER (%)	>10% w/w
COEFFICIENT OF WATER/OIL DIST.:	Not Available
VOC:	None
CHEMICAL FAMILY:	Detergent

SECTION 10 - STABILITY and REACTIVITY

STABILITY: Product is stable
DECOMPOSITION PRODUCTS: When heated to decomposition this product produces Oxides of carbon (COx)
MATERIALS WITH WHICH SUBSTANCE IS INCOMPATIBLE: Strong acids and strong oxidizing agents.
HAZARDOUS POLYMERIZATION: Will not occur.
CONDITIONS TO AVOID: Contact with incompatible materials and dust generation.

SECTION 11 - TOXICOLOGICAL INFORMATION

TOXICITY DATA: Toxicity data is available for mixture:

CAS# 497-19-8 LD50 Oral (Rat)	4090 mg/kg
CAS# 497-19-8 LD50 Oral (Mouse)	6600 mg/kg
CAS# 497-19-8 LC50 Inhalation (Rat)	2300 mg/m³ 2H
CAS# 497-19-8 LC50 Inhalation (Mouse)	1200 mg/m³ 2H
CAS# 7758-29-4 LD50 Oral (Rat)	3120 mg/kg
CAS# 7758-29-4 LD50 Oral (Mouse)	3100 mg/kg
CAS# 7722-88-5 LD50 Oral (Rat)	4000 mg/kg

SUSPECTED CANCER AGENT: None of the ingredients are found on the following lists: FEDERAL OSHA Z LIST, NTP, CAL/OSHA, IARC and therefore is not considered to be, nor suspected to be a cancer-causing agent by these agencies.
IRRITANCY OF PRODUCT: Contact with this product can be irritating to exposed skin, eyes and respiratory system.
SENSITIZATION OF PRODUCT: This product is not considered a sensitizer.
REPRODUCTIVE TOXICITY INFORMATION: No information concerning the effects of this product and its components on the human reproductive system.

SECTION 12 - ECOLOGICAL INFORMATION

ALL WORK PRACTICES MUST BE AIMED AT ELIMINATING ENVIRONMENTAL CONTAMINATION.
ENVIRONMENTAL STABILITY: No Data available at this time.
EFFECT OF MATERIAL ON PLANTS or ANIMALS: No evidence is currently available on this product's effects on plants or animals.

EFFECT OF CHEMICAL ON AQUATIC LIFE: No evidence is currently available on this product's effects on aquatic life.

SECTION 13 - DISPOSAL CONSIDERATIONS

PREPARING WASTES FOR DISPOSAL: Waste disposal must be in accordance with appropriate Federal, State, and local regulations, those of Canada, Australia, EU Member States and Japan.

SECTION 14 - TRANSPORTATION INFORMATION

US DOT; IATA; IMO; ADR:

THIS PRODUCT IS NOT HAZARDOUS AS DEFINED BY 49 CFR 172.101 BY THE U.S. DEPARTMENT OF TRANSPORTATION.
PROPER SHIPPING NAME: Non-Regulated Material
HAZARD CLASS NUMBER and DESCRIPTION: Not Applicable
UN IDENTIFICATION NUMBER: Not Applicable
PACKING GROUP: Not Applicable.
DOT LABEL(S) REQUIRED: Not Applicable
NORTH AMERICAN EMERGENCY RESPONSE GUIDEBOOK NUMBER (2004): Not Applicable
MARINE POLLUTANT: None of the ingredients are classified by the DOT as a Marine Pollutant (as defined by 49 CFR 172.101, Appendix B)

U.S. DEPARTMENT OF TRANSPORTATION (DOT) SHIPPING REGULATIONS:
This product is not classified as dangerous goods, per U.S. DOT regulations, under 49 CFR 172.101.

TRANSPORT CANADA, TRANSPORTATION OF DANGEROUS GOODS REGULATIONS:
This product is not classified as Dangerous Goods, per regulations of Transport Canada.

INTERNATIONAL AIR TRANSPORT ASSOCIATION (IATA):
This product is not classified as Dangerous Goods, by rules of IATA:

INTERNATIONAL MARITIME ORGANIZATION (IMO) DESIGNATION:
This product is not classified as Dangerous Goods by the International Maritime Organization.

EUROPEAN AGREEMENT CONCERNING THE INTERNATIONAL CARRIAGE OF DANGEROUS GOODS BY ROAD (ADR):

This product is not classified by the United Nations Economic Commission for Europe to be dangerous goods.

SECTION 15 - REGULATORY INFORMATION

UNITED STATES REGULATIONS

SARA REPORTING REQUIREMENTS: This product is not subject to the reporting requirements of Sections 302, 304 and 313 of Title III of the Superfund Amendments and Reauthorization Act., as follows: None

TSCA: All components in this product are listed on the US Toxic Substances Control Act (TSCA) inventory of chemicals.

SARA 311/312:

Acute Health: Yes Chronic Health: No Fire: No Reactivity: No

U.S. SARA THRESHOLD PLANNING QUANTITY: There are no specific Threshold Planning Quantities for this product. The default Federal MSDS submission and inventory requirement filing threshold of 10,000 lb (4,540 kg) may apply, per 40 CFR 370.20.

U.S. CERCLA REPORTABLE QUANTITY (RQ): None

CALIFORNIA SAFE DRINKING WATER AND TOXIC ENFORCEMENT ACT (PROPOSITION 65): None of the ingredients are on the California Proposition 65 lists.

CANADIAN REGULATIONS:

CANADIAN DSL/NDSL INVENTORY STATUS: All of the components of this product are on the DSL Inventory

CANADIAN ENVIRONMENTAL PROTECTION ACT (CEPA) PRIORITIES SUBSTANCES LISTS: No component of this product is on the CEPA First Priorities Substance Lists.

CANADIAN WHMIS CLASSIFICATION and SYMBOLS: This product is categorized as a Controlled Product, Hazard Class D2B as per the Controlled Product Regulations

EUROPEAN ECONOMIC COMMUNITY INFORMATION:

EU LABELING AND CLASSIFICATION:

Classification of the mixture according to Regulation (EC) No1272/2008. See section 2 for details.

AUSTRALIAN INFORMATION FOR PRODUCT:

AUSTRALIAN INVENTORY OF CHEMICAL SUBSTANCES (AICS) STATUS: All components of this product are listed on the AICS.

STANDARD FOR THE UNIFORM SCHEDULING OF DRUGS AND POISONS: Not applicable.

JAPANESE INFORMATION FOR PRODUCT:

JAPANESE MINISTER OF INTERNATIONAL TRADE AND INDUSTRY (MITI) STATUS: The components of this product are not listed as Class I Specified Chemical Substances, Class II Specified Chemical Substances, or Designated Chemical Substances by the Japanese MITI.

INTERNATIONAL CHEMICAL INVENTORIES:

Listing of the components on individual country Chemical Inventories is as follows:

Asia-Pac:	Listed
Australian Inventory of Chemical Substances (AICS):	Listed
Korean Existing Chemicals List (ECL):	Listed
Japanese Existing National Inventory of Chemical Substances (ENCS):	Listed
Philippines Inventory if Chemicals and Chemical Substances (PICCS):	Listed
Swiss Giftliste List of Toxic Substances:	Listed
U.S. TSCA:	Listed

SECTION 16 - OTHER INFORMATION

PREPARED BY: Paul Eigbrett Global Safety Management, 10006 Cross Creek Blvd. Suite 440, Tampa, FL 33647

Disclaimer: To the best of Alconox, Inc. knowledge, the information contained herein is reliable and accurate as of this date; however, accuracy, suitability or completeness is not guaranteed and no warranties of any type either express or implied are provided. The information contained herein relates only to this specific product.

ANNEX:

IDENTIFIED USES OF ALCONOX® AND DIRECTIONS FOR USE

Used to clean: Healthcare instruments, laboratory ware, vacuum equipment, tissue culture ware, personal protective equipment, sampling apparatus, catheters, tubing, pipes, radioactive contaminated articles, optical parts, electronic components, pharmaceutical apparatus, cosmetics manufacturing equipment, metal castings, forgings and stampings, industrial parts, tanks and reactors. Authorized by USDA for use in federally inspected meat and poultry plants. Passes inhibitory residue test for water analysis. FDA certified.

Used to remove: Soil, grit, grime, buffing compound, slime, grease, oils, blood, tissue, salts, deposits, particulates, solvents, chemicals, radioisotopes, radioactive contaminations, silicon oils, mold release agents.

Surfaces cleaned: Corrosion inhibited formulation recommended for glass, metal, stainless steel, porcelain, ceramic, plastic, rubber and fiberglass. Can be used on soft metals such as copper, aluminum, zinc and magnesium if rinsed promptly. Corrosion testing may be advisable.

Cleaning method: Soak, brush, sponge, cloth, ultrasonic, flow through clean-inplace. Will foam—not for spray or machine use.

Directions: Make a fresh 1% solution (2 1/2 Tbsp. per gal., 1 1/4 oz. per gal. or 10 grams per liter) in cold, warm, or hot water. If available use warm water. Use cold water for blood stains. For difficult soils, raise water temperature and use more detergent. Clean by soak, circulate, wipe, or ultrasonic method. Not for spray machines, will foam. For nonabrasive scouring, make paste. Use 2% solution to soak frozen stopcocks. To remove silver tarnish, soak in 1% solution in aluminum container. RINSE THOROUGHLY—preferably with running water. For critical cleaning, do final or all rinsing in distilled, deionized, or purified water. For food contact surfaces, rinse with potable water. Used on a wide range of glass, ceramic, plastic, and metal surfaces. Corrosion testing may be advisable.

ARCADIS

Control Number:TGM - _____

TGM + *project number plus date as follows: xxxxxxxx.xxxx.xxxxx - dd/mm/year*

TAILGATE HEALTH & SAFETY MEETING FORM

Project Name:			**Project Location:**
Date:	**Time:**	**Conducted by:**	**Signature/Title:**

Issues or concerns from previous day's activities:

Task anticipated to be performed today:

☐ Additonal permits or checklists attached

USE TRACK! Evaluate the hazards (h) for the tasks being performed today and rank as Low (L), Medium (M) or High (H). Use relevant JLAs, FHSHB, permit or other work standard to communicate controls (c) to be used to eliminate or mitigate identified hazards.

☐ Gravity (i.e., ladder, scaffold, trips) (L M H)
h: _____
c: _____

☐ Motion (i.e., traffic, moving water) (L M H)
h: _____
c: _____

☐ Mechanical (i.e., augers, motors) (L M H)
h: _____
c: _____

☐ Electrical (i.e., utilities, lightning) (L M H)
h: _____
c: _____

☐ Pressure (i.e., gas cyl., wells) (L M H)
h: _____
c: _____

☐ Environment (i.e., heat, cold, ice) (L M H)
h: _____
c: _____

☐ Chemical (i.e., fuel, acid, paint) (L M H)
h: _____
c: _____

☐ Biological (i.e., ticks, poison ivy) (L M H)
h: _____
c: _____

☐ Radiation (i.e., alpha, sun, laser) (L M H)
h: _____
c: _____

☐ Sound (i.e., machinery) (L M H)
h: _____
c: _____

☐ Personal (i.e. alone, night) (L M H)
h: _____
c: _____

☐ Driving (i.e. car, ATV, boat, dozer) (L M H)
h: _____
c: _____

☐ Refer to the attached Hazard Analysis Sheet(s) or JSA

Comments:

Signature and Certification: I have read and understand the project specific HASP for this project.

Printed Name/Signature/Company	Sign In Time	Sign Out Time

Place any additional signatures on the back of this form.

I will STOP the job any time anyone is concerned or uncertain about health & safety or if anyone identifies a hazard or additional mitigation not recorded in the site, project, job or task hazard assessment.

I will be alert to any changes in personnel, conditions at the work site or hazards not covered by the original hazard assessments.

If it is necessary to **STOP THE JOB,** I will perform **TRACK**; and then amend the hazard assessments or the HASP as needed.

I will not assist a subcontractor or other party with their work unless it is absolutely necessary and then only after I have done TRACK and I have thoroughly controlled the hazard.

All site staff should arrive fit for work. If not, they should report to the supervisor any restrictions or concerns.

In the event of an injury, employees will call **WorkCare at 1.800.455.6155** and then notify the field supervisor.

Utility strike, motor vehicle accident or 3rd party protperty damage - field supervisor will immediately notify the Project or Task Manager

COMMUNITY HEALTH AND SAFETY PLAN
COMMUNITY AIR MONITORING PLAN
COLUMBIA MILLS SITE, OSWEGO, NEW YORK

To provide a measure of protection for any potential downwind receptors, and to confirm that work activities do not generate airborne contaminants, ARCADIS will conduct continuous monitoring for volatile organic compounds (VOCs) and particulate matter (dust) during all ground intrusive activities at the site. Monitoring will be conducted at the downwind perimeter of each work area.

VOC MONITORING, RESPONSE LEVELS, AND ACTIONS

Volatile organic compounds (VOCs) will be monitored on a continuous basis during ground intrusive activities. Upwind concentrations will be measured at the start of each workday and periodically thereafter to establish background conditions. VOC monitoring will be conducted using a MiniRae 2000 photoionization detector (PID). The PID will be calibrated at least daily using the span calibration gas recommended by the manufacturer. The PID will calculate 15-minute running average concentrations. These averages will be compared to the action levels specified below.

Action Levels

- 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 will be temporarily halted and monitoring continued. If the total organic vapor level readily decreases (per instantaneous readings) below 5 ppm over background, work activities will resume with continued monitoring.

- If total organic vapor levels at the downwind perimeter of the work area or exclusion zone persist at levels in excess of 5 ppm over background but less than 25 ppm, work activities will be halted, the source of vapors identified, corrective actions taken to abate emissions, and monitoring continued. After these steps, work activities will 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.

- If the organic vapor level is above 25 ppm at the perimeter of the work area, all work activities will be stopped.

All 15-minute average readings will be recorded and be available for review by the New York State Department of Environmental Conservation (NYSDEC) or the NYS Department of Health (DOH). Instantaneous readings, if any, used for decision purposes will also be recorded.

PARTICULATE MONITORING, RESPONSE LEVELS, AND ACTIONS

Particulate concentrations will be monitored continuously at the downwind perimeter of the each work area during all ground intrusive activities. 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) will be used for the particulate monitoring. The equipment will be equipped with an audible alarm to indicate exceedance of the action levels summarized below. Any fugitive dust migration will also be visually assessed during all work activities.

Action Levels

- If the downwind PM-10 particulate level is 0.1 milligrams per cubic meter (mg/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 will be employed. Work will continue with dust suppression techniques provided that downwind PM-10 particulate levels do not exceed 0.15 mg/m^3 above the upwind level and provided that no visible dust is migrating from the work area.

- If, after implementation of dust suppression techniques, downwind PM-10 particulate levels are greater than 0.15 mg/m^3 above the upwind level, work will be stopped and a re-evaluation of activities initiated. Work will resume provided that dust suppression measures and other controls are successful in reducing the downwind PM-10 particulate concentration to within 0.15 mg/m^3 of the upwind level and in preventing visible dust migration.

All particulate monitoring measurements readings will be recorded and made available for NYSDEC and NYSDOH review.

APPENDIX G

RESPONSIBILITIES of

OWNER and REMEDIAL PARTY

Responsibilities

This page may be used when site management responsibilities are to be carried out by multiple parties. For example, it can be used when a Remedial Party does not own the site property, and, therefore, must share site management and/or reporting obligations with a site owner, or when the State is operating a remedial system or otherwise carrying out site management.

The responsibilities for implementing the Site Management Plan ("SMP") for the Columbia Mills site (the "site"), number 7-38-012, are divided between the site owner(s) and a Remedial Party, as defined below. The owner(s) is/are currently listed as:

County of Oswego and the Town of Minetto (the "owner").

Solely for the purposes of this document and based upon the facts related to a particular site and the remedial program being carried out, the term Remedial Party ("RP") refers to any of the following: certificate of completion holder, volunteer, applicant, responsible party, and, in the event the New York State Department of Environmental Conservation ("NYSDEC") is carrying out remediation or site management, the NYSDEC and/or an agent acting on its behalf. The RP is:

County of Oswego and the Town of Minetto.

Nothing on this page shall supersede the provisions of an Environmental Deed restriction, Consent Order, Consent Decree, agreement, or other legally binding document that affects rights and obligations relating to the site.

Site Owner's Responsibilities:

1) The owner shall follow the provisions of the SMP as they relate to future construction and excavation at the site.

2) In accordance with a periodic time frame determined by the NYSDEC, the owner shall periodically certify, in writing, that all Institutional Controls set forth in a(n) Deed Restriction remain in place and continue to be complied with. The owner shall provide a written certification to the RP, upon the RP's request, in order to allow the RP to include the certification in the site's Periodic Review Report (PRR) certification to the NYSDEC.

3) In the event the site is delisted, the owner remains bound by the Deed Restriction and shall submit, upon request by the NYSDEC, a written certification that the Deed Restriction is still in place and has been complied with.

4) The owner shall grant access to the site to the RP and the NYSDEC and its agents for the purposes of performing activities required under the SMP and assuring compliance with the SMP.

5) The owner is responsible for assuring the security of the remedial components located on its property to the best of its ability. In the event that damage to the remedial components or

vandalism is evident, the owner shall notify the site's RP and NYSDEC in accordance with the timeframes indicated in Section [2.4.2]-Notifications.

6) In the event some action or inaction by the owner adversely impacts the site, the owner must notify the site's RP and the NYSDEC in accordance with the time frame indicated in [Section 2.4.2]- Notifications and (ii) coordinate the performance of necessary corrective actions with the RP.

7) The owner must notify the RP and the NYSDEC of any change in ownership of the site property (identifying the tax map numbers in any correspondence) and provide contact information for the new owner of the site property. 6 NYCRR Part contains notification requirements applicable to any construction or activity changes and changes in ownership. Among the notification requirements is the following: Sixty days prior written notification must be made to the NYSDEC. Notification is to be submitted to the NYSDEC Division of Environmental Remediation's Site Control Section. Notification requirements for a change in use are detailed in Section 2.4 of the SMP. A 60-Day Advance Notification Form and Instructions are found at http://www.dec.ny.gov/chemical/76250.html.

8) If an owner has a written agreement to perform work for the RP, a description of the activities may be inserted here. (The corresponding agreement should also be included in the SMP.) The owner will maintain the conditions at the site including: maintain fences and conduct mowing on behalf of the RP. The RP remains ultimately responsible for maintaining the engineering controls.

Remedial Party Responsibilities

1) The RP must follow the SMP provisions regarding any construction and/or excavation it undertakes at the site.

2) The RP shall report to the NYSDEC all activities required for remediation, operation, maintenance, monitoring, and reporting. Such reporting includes, but is not limited to, periodic review reports and certifications, electronic data deliverables, corrective action work plans and reports, and updated SMPs.

3) Before accessing the site property to undertake a specific activity, the RP shall provide the owner advance notification that shall include an explanation of the work expected to be completed. The RP shall provide to (i) the owner, upon the owner's request, (ii) the NYSDEC, and (iii) other entities, if required by the SMP, a copy of any data generated during the site visit and/or any final report produced.

4) If the NYSDEC determines that an update of the SMP is necessary, the RP shall update the SMP and obtain final approval from the NYSDEC. Within 5 business days after NYSDEC approval, the RP shall submit a copy of the approved SMP to the owner(s).

5) The RP shall notify the NYSDEC and the owner of any changes in RP ownership and/or control and of any changes in the party/entity responsible for the operation, maintenance, and monitoring of and reporting with respect to any remedial system (Engineering Controls). The RP shall provide contact information for the new party/entity. Such activity constitutes a Change of Use pursuant to 375-1.11(d) and requires 60-days prior notice to the NYSDEC. A

60-Day Advance Notification Form and Instructions are found at http://www.dec.ny.gov/chemical/76250.html .

6) The RP shall notify the NYSDEC of any damage to or modification of the systems as required under Section [2.4.2]- Notifications] of the SMP.

7) The RP is responsible for the proper maintenance of any installed vapor intrusion mitigation systems associated with the site.

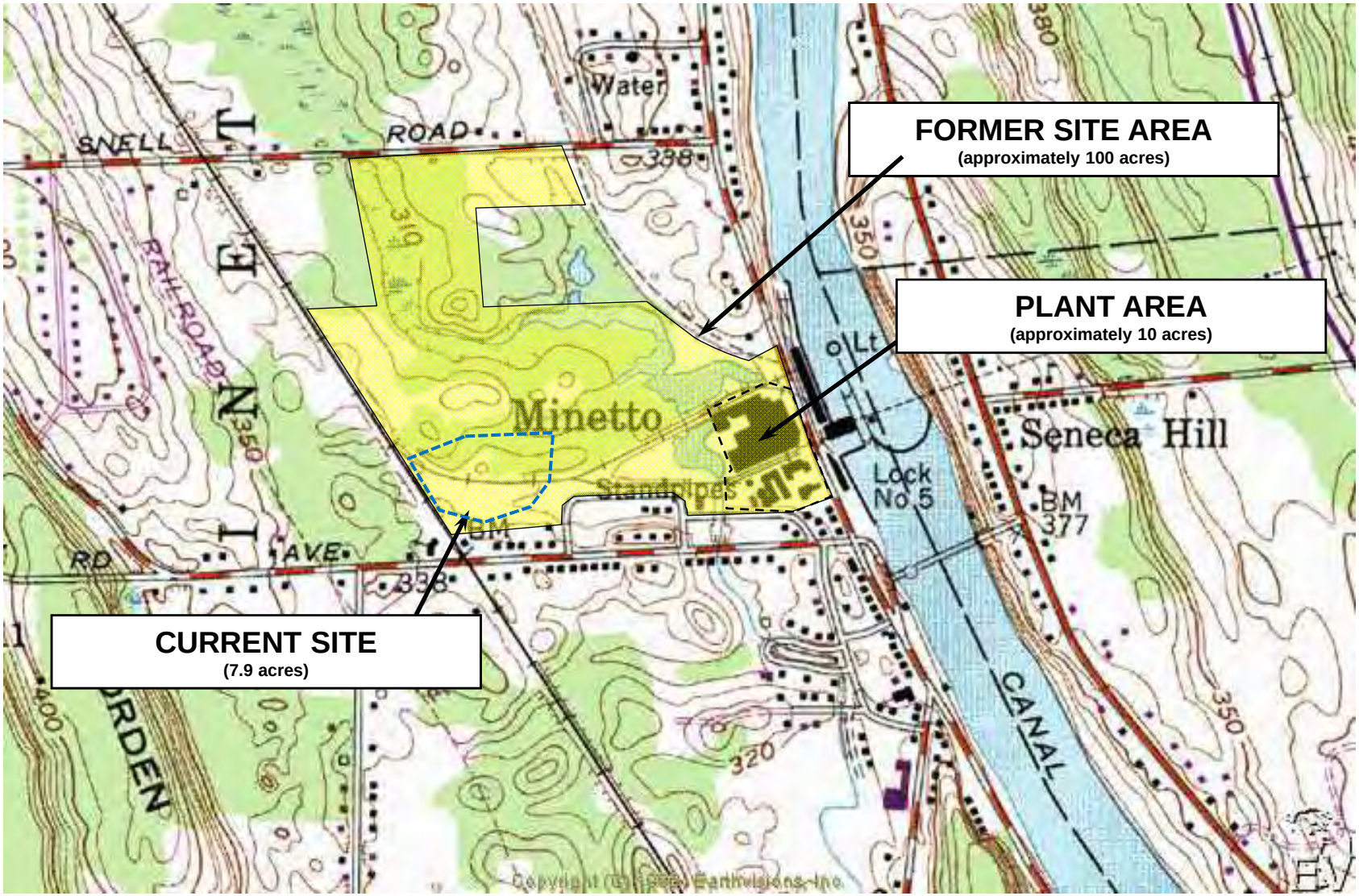
8) The RP is responsible for the proper monitoring and maintenance of any installed drinking water treatment system associated with the site.

9) Prior to a change in use that impacts the remedial system or requirements and/or responsibilities for implementing the SMP, the RP shall submit to the NYSDEC for approval an amended SMP.

10) Any change in use, change in ownership, change in site classification (*e.g*., delisting), reduction or expansion of remediation, and other significant changes related to the site may result in a change in responsibilities and, therefore, necessitate an update to the SMP and/or updated legal documents. The RP shall contact the Department to discuss the need to update such documents.

Change in RP ownership and/or control and/or site ownership does not affect the RP's obligations with respect to the site unless a legally binding document executed by the NYSDEC releases the RP of its obligations.

Future site owners and RPs and their successors and assigns are required to carry out the activities set forth above.



SOURCE: U.S.G.S 7.5 MIN. OSWEGO EAST QUAD, 1985

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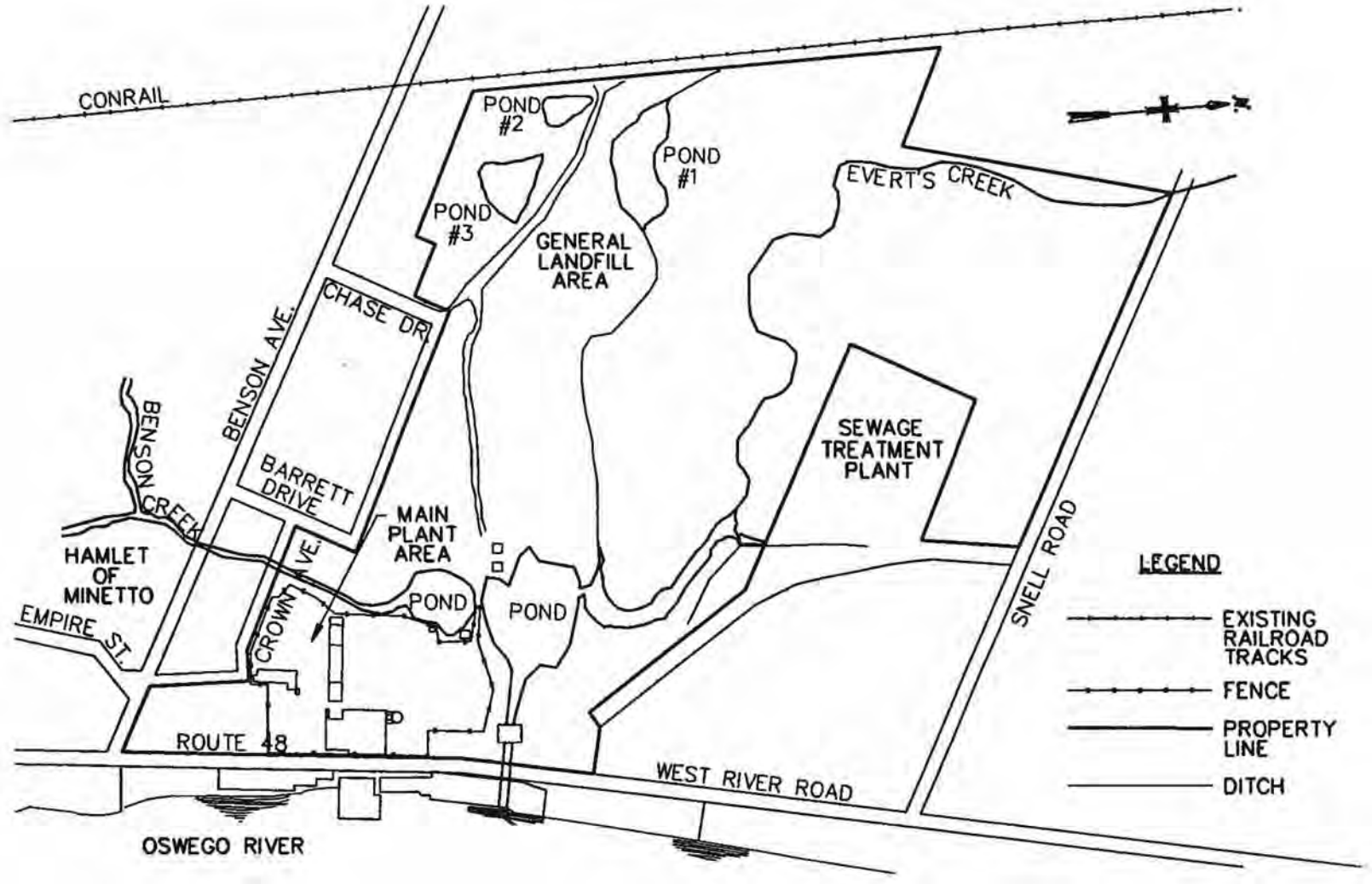
NYSDEC STANDBY CONTRACT NO. D004443-7
NYSDEC SITE NO. 7-38-012
MINETTO, NEW YORK

COLUMBIA MILLS SITE LOCATION

FIGURE 1



Source: Columbia Mills Site , Record of Decision, March 1992, Prepared by NYSDEC Division of Hazardous Waste Remediation

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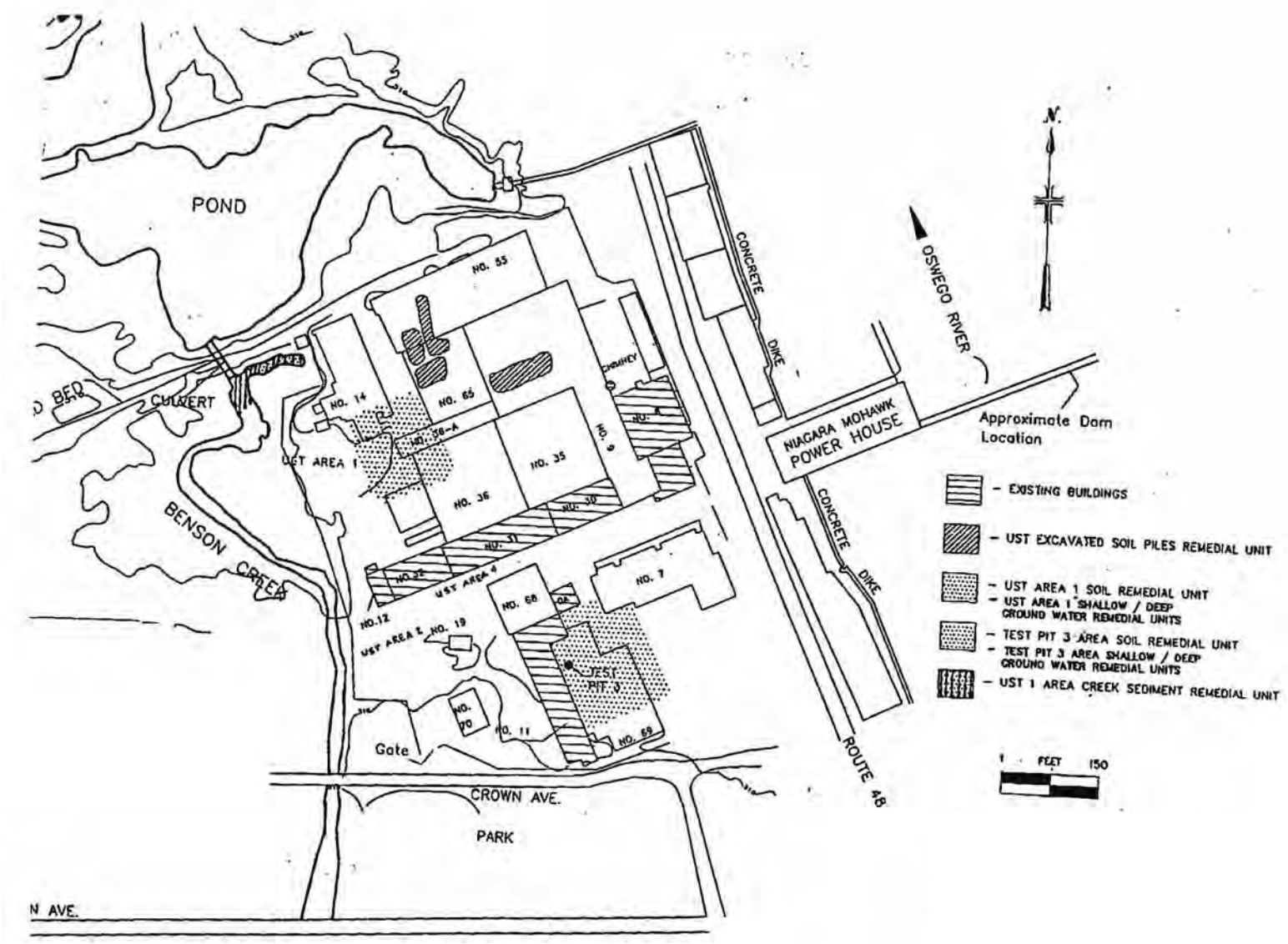
COLUMBIA MILLS HISTORICAL SITE FEATURES

FIGURE 2



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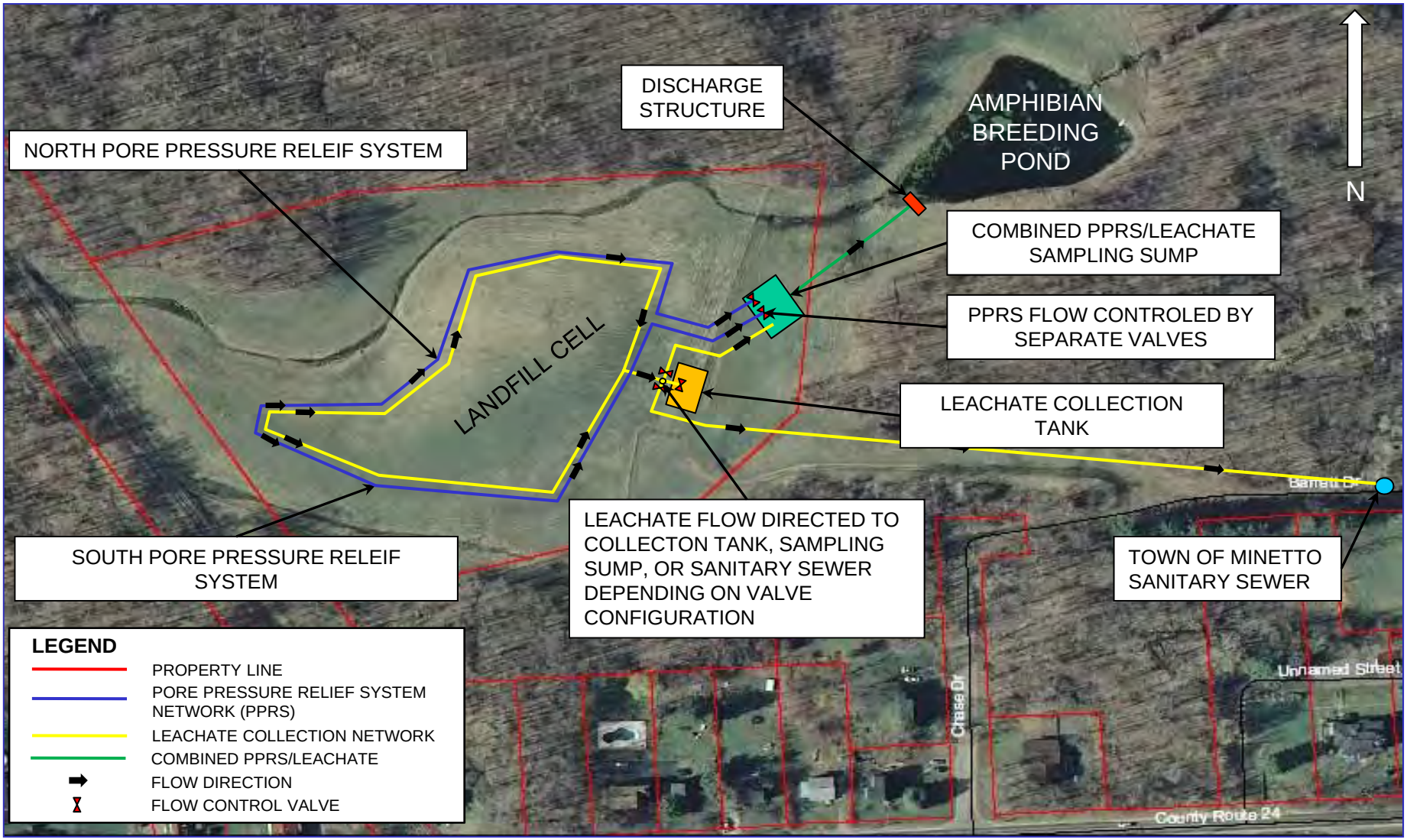
COLUMBIA MILLS REMEDIATION AREAS

FIGURE 3



Note: Graphic is not to scale. Boundaries and leachate/pore pressure relief system are approximate. Meant for visualization only.

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NYSDEC STANDBY CONTRACT NO. D004443-7
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SITE FEATURES AND PROCESS FLOW

FIGURE 4

N.

319.57
MW-1S
MW-1D

309.50
MW-3S
MW-3D

310.61
MW-4S
MW-4D

322.86
MW-2S
MW-2D

LFP-1
LFP-2
LFP-3
LFP-4
LFP-5
LFP-6
LFP-7
LFP-8
LFP-9
LFP-10
LFP-11
LFP-12
LFP-13
LFP-14

320
318
316
314
312
310
322

COMBINATION SAMPLING SUMP MANHOLE

BARRETT DR.

CHASE DR.

50 0 50 100
SCALE: 1" = 100'

LEGEND:

- MW-2S — MONITORING WELL LOCATION
- 310.26 — GROUNDWATER ELEVATION
- 314 — POTENTIOMETRIC CONTOUR
- RAILROAD TRACKS
- ROADWAY/DRIVEWAY
- BUILDING
- FENCE
- STREAM/POND
- TREELINE
- GROUNDWATER FLOW DIRECTION

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NYSDEC STANDBY CONTRACT NO. D00443-7
NYSDEC SITE NO. 7-38-012
COLUMBIA MILLS SITE
MINETTO, NEW YORK

SHALLOW POTENTIOMETRIC SURFACE (10/16/13)

SCALE: AS SHOWN

JANUARY 2014
FIGURE 5

N.

MW-1S
MW-1D
319.57
MW-2S
MW-2D
322.47
MW-3S
299.04
MW-3D
MW-4S
MW-4D
310.21

LFP-1
LFP-2
LFP-3
LFP-4
LFP-5
LFP-6
LFP-7
LFP-8
LFP-9
LFP-10
LFP-11
LFP-12
LFP-13
LFP-14

300
302
304
306
308
310
312
314
316
318
320
322

COMBINATION SAMPLING SUMP MANHOLE

BARRETT DR.

CHASE DR.

50 0 50 100
SCALE: 1" = 100'

LEGEND:

- MW-2S — MONITORING WELL LOCATION
- 310.26 — GROUNDWATER ELEVATION
- 314 — POTENTIOMETRIC CONTOUR
- RAILROAD TRACKS
- ROADWAY/DRIVEWAY
- BUILDING
- FENCE
- STREAM/POND
- TREELINE
- GROUNDWATER FLOW DIRECTION

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NYSDEC STANDBY CONTRACT NO. D00443-7
NYSDEC SITE NO. 7-38-012
COLUMBIA MILLS SITE
MINETTO, NEW YORK

DEEP POTENTIOMETRIC SURFACE (10/16/13)

SCALE: AS SHOWN

JANUARY 2014
FIGURE 6

Note: Graphic is not to scale. Boundaries, sample locations, and leachate/pore pressure relief system are approximate. Meant for visualization only.

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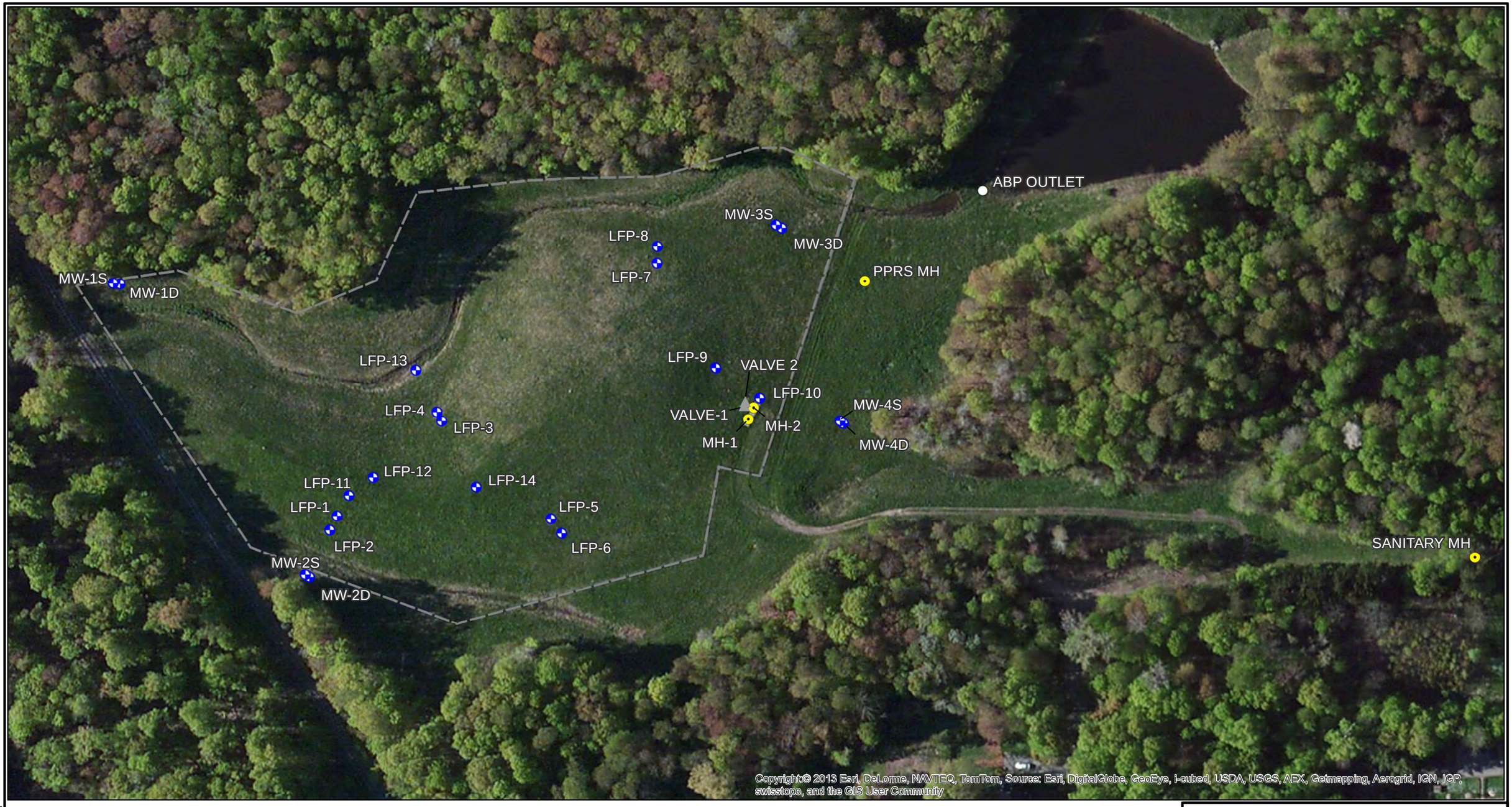
NYSDEC STANDBY CONTRACT NO. D004443-7
NYSDEC SITE NO. 7-38-012
MINETTO, NEW YORK

LEACHATE COLLECTION NETWORK AND PPRS SAMPLING LOCATIONS

FIGURE 7



Legend

Locations

- Manhole
- Outlet
- Valve
- Monitoring Well
- Approximate Fenceline

0 70 140 280 420 560 Feet

N

NYSDEC STANDBY CONTRACT NO. D00443-7
NYSDEC SITE NO. 7-38-012
COLUMBIA MILLS SITE
MINETTO, NEW YORK

MONITORING WELL LOCATIONS

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FIGURE
8

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