MOVE YOUR ENVIRONMENT FORWARD

DRAFT SITE CHARACTERIZATION WORK PLAN

Floyd Bennett Memorial Airport – Site #557024
Town of Queensbury
Warren County, New York 12804

Prepared For:

Contract# D009808, Work Assignment No. 44
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Division of Environmental Remediation
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1.0 INTRODUCTION

On October 17, 2023, HRP Associates, Inc. (HRP) was authorized to complete this New York State Department of Environmental Conservation (NYSDEC) Work Assignment (WA) No. 40 (D009808-40) for Site Characterization (SC) of the Floyd Bennet Memorial Airport (Site No. 557024), which is in the Town of Queensbury, Warren County, New York (NY) (the Site). The focus of the Floyd Bennett Memorial Airport SC is to characterize potential impacts to soil, groundwater, sediment, and surface water related to the on-site airport operations. The scope of work for the SC, was developed based on HRP's review of background investigations, discussions and planning with NYSDEC staff and experience completing similar site characterization work plans.

1.1 Purpose and Objectives

This site-specific SC Work Plan (Work Plan) describes the details of the scope of work, including all proposed field activities, laboratory analyses, and data Quality Assurance/Quality Control (QA/QC) evaluation that will be associated with the SC at the Site. This document is intended to supplement information provided in the NYSDEC-approved *Generic Field Activities Plan for Work Assignments*, completed by HRP on August 8, 2019.

The purpose of the SC is to determine the source of surface water contamination as well as determine if Site PFAS usage has impacted soil and groundwater on-site. In accordance with DER-10 *Technical Guidance for Site Investigation and Remediation (May 2010),* the primary objectives of the SC scope of work are to:

- Identify and investigate potential Areas of Concern (AOCs) at the airport determine if sources of contamination are present.
- Obtain geologic and hydrogeologic data from the area. The specific information that will be collected and/or verified includes soil types (or fill), depth to groundwater, groundwater flow direction, subsurface geology, etc.
- Determine if applicable standards, criteria, and guidance (SCGs) contained in NYSDEC DER-10 and set forth for the Site are contravened.
- Determine if Site conditions represent a threat to public health or the environment.

1.2 Site Description and Background Information

The Floyd Bennett Memorial Airport Site (#557024) is a 510-acre parcel in the town of Queensbury, Warren County, New York (**Figure 1**). The Site is currently occupied by a county owned airport that is surrounded by residential, commercial, industrial, and rural properties.

Parcel descriptions with their relative location to the Site are detailed below:

North: 603 Queensbury Ave – Industrial use property improved by an 83,000-square-foot building (300 ft).
South: 24 Quaker Ridge Boulevard – Commercial use property improved by an 155,000-square-foot building (5,500 ft).
East: 65 Park Rd (Site # 558042) – Industrial use property improved by a 44,000-square-foot building (1,500 ft).
27 Park Rd – Industrial use property improved by an 8,000-square-foot building (1,300 ft).
8 Park Rd – Industrial/commercial use property improved by a 13,500-square-foot building (700 ft).
527 Queensbury Ave – Industrial/commercial use property improved by a 20,000-square-foot building (750 ft).
559 Queensbury Ave – Industrial/commercial use property improved by a 25,500-square-foot building (1,000 ft).
571 Queensbury Ave – Commercial use property improved by a 10,000-square-foot building (1,000 ft).
West: 724-364 Ridge Rd – Commercial and residential properties.

The New York State Department of Environmental Conservation (NYSDEC) was notified of on-site usage of Aqueous Film Forming Foam (AFFF) through an AFFF survey completed in 2017. Review of the Site history indicated the use of AFFF and likely release of PFAS compounds on-site. Historical records reported on the use of PFAS containing firefighting foam on a plane crash that occurred on November 19, 2021, where a single engine plane crashed into the fence on the north end of the runway. The location of the plane crash is depicted in **Figure 2**. Discussions with Fire Safety on-site informed HRP during the Site visit on January 4, 2024, that foam used during the crash was sprayed directly onto the crashed plane and no firefighting foam made it off-site according to discussions with on-site Fire and Safety personnel. NYSDEC was notified and the impacted soil was removed on November 20, 2021. The second recorded plane crash on-site occurred on May 10, 2010. Discussions with Fire and Safety indicated firefighting foam was not used on the crash. The location of the crash is not known. Testing areas are used to practice deploying the firefighting foam. Discussions with Fire and Safety indicated that PFAS is sprayed from the firetrucks into a partition which funneled the foam into a drum and is containerized. The locations of the PFAS use areas are depicted in **Figure 2**.

PFAS have been detected on-site by an off-site investigation at the W.F. Lake Site (Site #558042) which is located approximately 1,500 feet east of the Site. Samples were gathered from the Hudson River Tributary that cuts through the eastern portion of the Site. Seven samples were collected in the tributary and analyzed for PFAS. Detections of PFAS were found in all the samples. PFAS concentrations detected in on-site surface water are shown in **Figure 3**.

1.3 Site Geology and Hydrogeology

The Site lies at an elevation of approximately 320 feet above mean sea level (amsl). The southwestern side of the Site is bounded by a wetland and a tributary to the Hudson River intersects the property on the north and eastern side.

The New York State Geological Survey "Geologic Map of New York: Hudson-Mohawk Sheet" indicates the bedrock underlying the Site is the Beekman Group which primarily consists of dolostone interbedded with sandstone (Fischer et.al., 1970). According to the United States Department of Agriculture (USDA) National Resources Conservation Service (NRCS) the predominant soil on Site is the Madalin silt loam with a slope of 0-3%. The southeastern portion of the site is underlain by silt loam with a slope of 3-8%. Off-site investigations of the W.F. Lake site approximately 1,500 feet east of the Site found the site soil to consist of silty clay with coarse interbedded gravel increasing with depth. During the offsite investigation, bedrock was encountered at 13-14 feet below grade (ft bg) (CDM Smith, 2020).

The Site is located on a wetland according to the NYSDEC Environmental Resource Mapper. The Site has been built up for the airport use and surface water has been redirected on Site to drainage ditches running parallel to the runways. Surface water flows generally from the northwest to the southeast towards the Hudson River Tributary. Redirected surface waterways are depicted in **Figure 2**. Groundwater in off-site investigations was found approximately 3-5 ft bg and flowed to the west-northwest.

1.4 Areas of Concern

The focus of the SC is to characterize potential impacts to soil, sediment, surface water, and groundwater related to current and historic Site airport operations and to examine potential exposure pathways to Site receptors.

The AOCs for the Site are as follows:

- Areas of the Site impacted by the place crash on November 19, 2021
- Surface water where PFAS impacts were found during the investigation at the #C558042 site
- The area of the Site where AFFF is stored and spec testing occurs
- Area where AFFF was used for fire safety training exercises

Through the course of the SC, impacts related to other off-site sources (including other remediation sites and potential off-site sources) may be identified as additional AOCs warranting further characterization.

Based on the findings and discussions with the NYSDEC, HRP has developed the following scope of work (SOW) to investigate impacts to Site soil and groundwater related to current airport operations. The SOW includes the installation of soil borings and monitoring wells, and sampling of soil, groundwater, surface water, and sediment.

2.0 SITE CHARACTERIZATION SCOPE OF WORK

This SOW has been designed to gather data to evaluate each project objective listed in **Section 1.1**. The following sections provide specifics regarding the scope of work developed under this NYSDEC-approved WA (D009808-44).

2.1 Preliminary Activities

As part of the SOW, the following documents have been prepared under this WA:

- Project-specific Work Plan (this document) to accompany the generic Field Activities Plan (FAP),
- Site-specific Health and Safety Plan (HASP),
- Generic Quality Assurance Project Plan (QAPP).

These NYSDEC-approved generic FAP, HASP, and QAPP are on file with the NYSDEC. The site-specific elements are provided below.

2.1.1 Work Plan

This Work Plan has been prepared for use in performing the SC and will serve as the "site-specific FAP". This Work Plan identifies the components of the SC and a description of the tasks to be performed including the specific methods or procedures that will be used to conduct the field sampling. A proposed project schedule is included in **Section 5.1** of this Work Plan.

2.1.2 Health and Safety Plan

The site-specific HASP provides guidance to maximize health and safety of on-site workers during SC; specific tasks include media sampling, installation of wells, surveying, and other field related activities. Included in the site-specific HASP is a Community Air Monitoring Plan (CAMP) that details procedures for air monitoring during intrusive activities. CAMP documents can be found in **Appendix A.** The generic HASP has guidelines for health and safety supervision, air monitoring, medical monitoring, personal protective equipment, site controls, safe work practices and decontamination, etc.

2.1.3 Quality Assurance Project Plan

A site-specific QAPP has been prepared and is included in **Section 4** of this Work Plan. The site-specific QAPP was prepared as a supplement to the Generic QAPP with necessary site-specific information. Deviations from the protocols specified in the QAPP will be subject to the NYSDEC approval.

The Generic QAPP provides general information related to QA/QC procedures associated with the collection and analysis of samples of environmental media and includes specific representative standard operating procedures (SOPs) applicable to sample handling and field instrumentation use. Information provided in the Generic QAPP includes definitions and generic goals for data quality

and required types and quantities of QA/QC samples. The procedures address field documentation; sample handling, custody, and shipping; instrument calibration and maintenance; auditing; data reduction, validation, and reporting; corrective action requirements; and QA/QC (collected at a frequency of one per 20 samples) reporting specific to the analyses performed by the laboratories that are used for analysis of environmental media collected under Standby Contract No. D009808.

All laboratory analytical work will be performed by a NYSDOH Environmental Laboratory Approval Program (ELAP)-approved laboratory certified in all categories of Contract Laboratory Protocol (CLP) and Solid and Hazardous Waste analytical testing. A Data Usability Summary Report (DUSR) will be included in a SC Report for each round of analytical work. Category B deliverables will be retained in the project files and available for full data validation by a qualified, independent third party.

2.2 Investigation, Environmental Sampling, and Implementation

The SC will include the components described below. It will consist of sampling surface water and sediment at up to 10 locations along the surface water bodies on-site, installation of 15 direct push sample points across the Site, and the installation and sampling of 8 monitoring wells. The number and types of samples to be collected are discussed below and summarized in **Table 1**. The field investigation tasks for the Site are listed below in the order that they are expected to be completed:

1. Underground Utility Identification and Clearance using Ground-Penetrating Radar (GPR)
2. Surface water and sediment characterization of surface water bodies on-site
3. Soil Characterization (soil boring installation and surface and subsurface soil sampling)
4. Groundwater Characterization (monitoring well, and direct push installation and sampling)
5. Characterization and Disposal of Investigation Derived Waste
6. Analytical Data Quality Evaluation
7. Base Map Development and Site Survey

2.2.1 Underground Utility Clearance and Ground Penetrating Radar Survey

Prior to implementing any intrusive activities, a utility clearance will be conducted. HRP will rely upon multiple lines of evidence to ensure to the maximum extent practicable that subsurface features are identified prior to commencement of intrusive work.

HRP will mark sampling locations prior to installation and contact public utility clearance services to mark out the utilities prior to the survey. The drilling contractor will request utility mark outs through NYS Code Rule 753/Dig Safe System. The dig safe system is limited to public right-of ways and will only identify utilities entering private property rather than utilities present at the monitoring well installation location.

HRP will utilize a qualified subcontractor to conduct a GPR survey to attempt to locate any privately installed underground structures or utilities to ensure boring areas are clear of obstructions and identify any other potential AOCs. The GPR survey and underground utility markout will be completed within a minimum 10-foot radius of each soil boring and monitoring well location.

GPR is a non-destructive and non-intrusive geophysical exploration technique that uses radar waves to detect subsurface objects, such as tanks, drums, and piping. The GPR is also capable of detecting discontinuities in the subsurface materials indicative of excavated and backfilled areas, such as those associated with possible UST graves. The objective of performing this survey is not only to make subsurface investigation as safe as possible for the field staff while protecting utilities, but also to identify possible sources and migration pathways (utility corridors, etc.). All anomalies identified during the GPR survey will be marked out in the field.

If necessary, the upper 5 feet of soil borings will be cleared of any underground utilities by non-mechanical means, such as hand-digging methods.

2.2.2 Surface water and Sediment Sampling

To assess potential PFAS release points and the migration of on-site contaminates to the Hudson River Tributary, 12 surface water and sediment samples will be taken. Samples will be collected based on the location of the plane crash on November 19, 2021, the foam testing area, as well as where PFAS was identified in the surface water and sediment during sampling events associates with the W.F. Lake Site (Site #558042) Remedial Investigation.

All equipment used for sampling will be dedicated and discarded or decontaminated after use. Samples will be collected using new laboratory-supplied appropriate containers and will be preserved on ice in coolers during field sampling activities. Sediment samples will be collected using a stainless-steel hand auger, dredge sampling or appropriate disposable equipment.

One paired surface water and sediment sample from each sampling location will be collected for laboratory analysis (up to 12 collocated surface water and sediment samples are estimated). Opportunistic surface water and sediment samples may also be collected from the drainage ditches and culverts. All samples will be submitted for analysis to a NYSDOH ELAP certified laboratory.

All of the surface water/sediment samples will be collected and analyzed for the following list of compounds:

- PFAS Analyte list compounds via methods based on EPA Method 1633

Up to three water/sediment samples will be collected and analyzed for the following compounds:

- TAL Metals (23) Analyte list compounds via methods based on EPA Method 6010/6020/7000
- Total Cyanide via EPA Method 9012A/9012B
- VOC Analyte list compounds via EPA Method 8260

- Base/Neutral Extractables Analyte list compounds via methods based on EPA Method 8270
- 1,4-Dioxane via methods based on EPA Method 8270 SIM
- Organochlorine list compounds via methods based on EPA Method 8081 (Capillary)
- PCBs/Aroclor (9) list of compounds via methods based on EPA Method 8082
- Total Organic Carbon via methods based on EPA Method Llyod Kahn
- Moisture Content via methods based on EPA CLP SOW

The laboratory will submit analytical results to HRP in NYSDEC EDD format. Sample locations and totals are summarized in **Table 1** and laboratory QA/QC details are summarized in **Table 2**.

2.2.3 Installation of Direct Push Sample Points

The subsurface soil investigation locations were selected based on the on-site use of AFFF, and the locations of samples collected in off-site investigations. An estimated 15 soil borings will be advanced to depth of 20 feet or refusal via a direct-push Geoprobe or similar motorized drill rig. During soil boring installation, continuous soil samples will be collected using macrocore samplers for field characterization (grain size, moisture, color, compaction, staining, odor, and other observations) by the on-site geologist, and the data recorded on boring logs. All soil samples will be screened for volatile organic vapors using a photoionization detector (PID), and any visual or olfactory indications of contamination will be noted and used for the selection of soil samples.

Up to three soil samples will be collected from each soil boring location, with samples generally being collected near the surface, the groundwater interface, and at depth intervals with visual or olfactory indications of contamination.

All soil samples will be collected and analyzed for:

- PFAS Analyte list compounds via methods based on EPA Method 1633.

Up to 15 soil samples will be collected and analyzed for the following compounds:

- TAL Metals (23) Analyte list compounds via methods based on EPA Method 6010/6020/7000
- Total Cyanide via EPA Method 9012B
- VOC Analyte list compounds via methods based on EPA Method 8260
- Base/Neutral Extractables Analyte list compounds via methods based on EPA Method 8270
- 1,4-Dioxane via methods based on EPA Method 8270 SIM
- Organochlorine list compounds via methods based on EPA Method 8081 (Capillary)
- PCBs/Aroclor (9) list of compounds via methods based on EPA Method 8082
- Total Organic Carbon via methods based on EPA Method Llyod Kahn
- Moisture Content via methods based on EPA CLP SOW

The laboratory will submit analytical results to HRP in NYSDEC EDD format. Sample locations and totals are summarized in **Table 1** and laboratory QA/QC details are summarized in **Table 2**.

2.2.4 Groundwater Characterization

To evaluate Site groundwater quality and obtain groundwater flow information, 11 overburden groundwater wells will be installed on the Site. The locations of the proposed monitoring wells will be selected based on the on-site AFFF use/releases, AFFF storage areas, practice testing areas, and where PFAS were identified in the surface water.

The wells will be installed to a depth based on observations and sample results from the soil borings. The wells will be constructed of 2-inch PVC with PVC slotted screens with an appropriately sized sand pack. All wells will be screened across the groundwater interface.

Proposed monitoring well locations are depicted in **Figure 2**.

2.2.4.1. Monitoring Well Development

The newly installed monitoring wells will be developed a minimum of 24 hours after installation by pumping and surging until the field parameters (pH and specific conductance) stabilize for a minimum of three consecutive readings of ten percent variability or less. In addition, turbidity of the groundwater must achieve a reading of 50 Nephelometric Turbidity Units (NTUs) or less during the final reading.

All purge water obtained during well development will be containerized in appropriately labeled 55-gallon drums and disposed of in accordance with NYSDEC DER-10. All sampling equipment will be appropriately decontaminated between sampling locations or, if applicable, disposed of after one-time use.

2.2.4.2. Monitoring Well Sampling

Depth to groundwater measurements will be collected from the newly installed monitoring wells to the nearest 0.01 foot from the surveyed points prior to sampling activities, the data will be used to construct a groundwater elevation contour map to determine the direction of groundwater flow and to calculate the apparent hydraulic gradient.

Groundwater sampling will occur a minimum of one week after development has been completed. Groundwater samples will be collected from the newly installed monitoring wells on-site. A complete synoptic round of water levels will be taken prior to the start of groundwater sampling. Samples will be submitted to a NYSDOH ELAP and NYSDEC approved laboratory. Groundwater samples will be collected in general accordance with low-flow groundwater sampling procedures. All groundwater samples will be collected and analyzed for:

- PFAS Analyte list compounds via methods based on EPA Method 1633.

Up to three groundwater samples will be collected and analyzed for the following compounds:

- TAL Metals (23) Analyte list compounds via methods based on EPA Method 6010/6020/7000
- Total Cyanide via EPA Method 9012A
- VOC Analyte list compounds via methods based on EPA Method 8260
- Base/Neutral Extractables Analyte list compounds via methods based on EPA Method 8270
- 1,4-Dioxane via methods based on EPA Method 8270 SIM
- Organochlorine list compounds via methods based on EPA Method 8081 (Capillary)
- PCBs/Aroclor (9) list of compounds via methods based on EPA Method 8082

All analytical samples will be completed using QA/QC NYSDEC Method Category B. The laboratory will submit analytical results to HRP in NYSDEC EDD format. All Investigation Derived Waste (IDW) generated during installation, development, and sampling of the groundwater monitoring wells will be disposed of in accordance with DER-10. Sample locations and totals are summarized in **Table 1** and laboratory QA/QC details are summarized in **Table 2**.

2.2.5 Soil Vapor Intrusion (SVI) Investigation

A supplemental SVI investigation may be completed if the analytical results indicate significant VOC concentrations in the soil and seep samples near the residences upgradient of the Site.

2.2.6 Sample Handling Procedures

Nitrile gloves will be worn at all times by personnel collecting and handling the samples. All non-disposable equipment and tooling used for sampling will be properly decontaminated between sampling locations and intervals.

2.2.6.1. PFAS Sampling

Sampling for PFAS will occur at the Site during the planned activities covered in this Work Plan. Specific requirements for field sampling procedures including precautions to be taken, pump and equipment types, decontamination procedures, and a list of approved materials to be used during sampling for PFAS compounds are included in *Sampling, Analysis, and Assessment of Per and Polyfluoroalkyl Substances (PFAS)* under NYSDEC's Part 375 Remedial Programs (April 2023). Only regular ice will be used in the transport of samples being analyzed for PFAS. The minimum method achievable Reporting Limits for PFAS will be less than or equal to 2 ng/l (part per trillion [ppt]) for aqueous samples and 0.5 µg/kg (parts per billion [ppb]) for solids samples.

2.2.6.2. 1,4-Dioxane Sampling

Sampling for 1,4-dioxane will occur at the Site during the planned activities covered in this Work Plan. Specific requirements for field sampling procedures include precautions to be taken, pump and equipment types, detailed decontamination procedures, a prohibition on using Liquinox, and approved materials only to be used for 1,4-dioxane. The minimum method achievable Reporting Limits for 1,4-dioxane will be less than or equal to 0.35 µg/l (ppb) for aqueous samples and 0.1 mg/kg (parts per million [ppm]) in solids samples.

2.2.7 Decontamination Procedures

Non-dedicated sampling equipment (i.e., submersible pumps, water level indicators, etc.) will be subject to decontamination procedures prior to each sample collected to reduce the potential for cross-contamination as described in the Generic FAP on file with NYSDEC. The decontamination procedures will include the use of a scrub wash with a solution consisting of Alconox® detergent and potable water followed by a rinse with Deionized (DI) water. The decontaminated equipment will be stored in clean environments (i.e., the manufacturer's storage case). Decontamination fluids will be properly labeled and securely stored in a designated waste-container staging area.

2.2.8 Disposal of Investigation Derived Waste

Investigation derived waste (IDW) that is generated during the field investigations and the development of monitoring wells shall be handled in accordance with NYSDEC DER-10. HRP's subcontractor will be responsible for supplying the equipment and materials necessary for the proper handling and storage of the IDW, such as DOT-approved 55-gallon drums. All containers will be labeled and stored in accordance with applicable NYSDEC regulations at an off-site location.

Soil and water shall be handled and disposed of in accordance with DER-10. If off-site disposal of IDW is required, it will be disposed of or treated according to applicable local, state, and federal regulations.

2.2.9 Analytical Data Quality Evaluation

This Work Plan and the associated site-specific QAPP Section detail the data quality objectives and analytical requirements needed for this WA. All quality assurance protocols are provided in the Generic QAPP.

During the final Work Plan review period, the site-specific QAPP Section and Work Plan will be reviewed and modified according to NYSDEC requirements and comments. Once the plans are finalized, deviations, if required, from protocols specified in the plans will be approved in advance by NYSDEC. As required, the selected analytical laboratory will maintain NYSDOH ELAP certification in all categories of USEPA Contract Laboratory Program (CLP) and Solid and Hazardous Waste analytical testing for the duration of the project.

The ELAP certified laboratory will supply all required data deliverables (USEPA CLP and NYSDEC ASP deliverable format) to enable the data to be validated by a third-party data validation subcontractor. All environmental data will be submitted electronically in a specified format named 'NYSDEC' in accordance with the data submission procedures outlined on the NYSDEC's website (http://www.dec.ny.gov/chemical/62440.html).

Upon receipt of the sample data, the validation contractor will quantitatively and qualitatively validate the laboratory data. The validation of the analytical data will be performed according to the protocols and QC requirements of the analytical methods, the CLP National Functional Guidelines for

Organic and Inorganic Data Review (February 1994), the USEPA Region II CLP Data Review SOP, and the reviewer's professional judgment.

2.2.10 Base Map Development and Site Survey

The subject property and surrounding areas will be surveyed by a New York State licensed land surveyor. The field survey will include establishing project horizontal control and the collection of planimetric features for the development of 2D mapping. Subsequently, a base map of the Site will be developed using Computer Aided-Design (CAD) software that will be utilized to place all sampling locations from on-site and off-site investigations. The sample locations will be placed on the base map by geo-referencing previous figures into the local CAD coordinate system and will include all monitoring wells and soil borings.

Upon completion of the investigation fieldwork, a survey will be conducted to properly locate all sampling points. The elevations of all monitoring well casings and piezometers will be established to within an accuracy of plus or minus 0.01 feet to North American Vertical Datum (NAVD88). A notch will be etched in all interior casings, or a permanent black mark, to provide a reference point for all future groundwater elevation measurements.

2.3 Site Characterization Report

2.3.1 Report Preparation

The Site Characterization Report (SCR) will provide a description of the field activities, present data collected during field characterization, present a physical description of the Site including geology and hydrogeology, and provide an analysis and interpretation of the available data in the context of existing Site conditions. The SCR will include tabulated laboratory analytical results, Site maps and a discussion of contaminant concentrations, including a comparison to NYSDEC Standards, Criteria and Guidelines as described in Section 3.13 of DER-10.

The SCR prepared as part of this assignment will also provide a summary of the general nature of contamination on the Site to the extent investigated by the SC including, without limitation, the numbers of AOCs requiring further investigation and/or remediation and any significant events or seasonal variation which may have influenced sampling procedures or analytical results. The submitted report will include the report text, appropriate tables, figures, photographs, data summary tables, and boring logs in a PDF format on a compact disc. The electronic file will contain "bookmarks." In addition, one hard copy of the report will be provided.

2.3.2 Electronic Data Delivery

In addition to appropriate data summary tables and boring logs included in the report, all environmental data will be submitted electronically in a specified Electronic Data Deliverable (EDD) format named in accordance with the data submission procedures outlined on the NYSDEC's web site (http://www.dec.ny.gov/chemical/62440.html).

3.0 GREEN AND SUSTAINABLE REMEDIATION BEST MANAGEMENT PLAN

Through the course of the SC, HRP will implement Green and Sustainable Best Management Practices (BMPs) to reduce negative impacts to air, water, solid waste, etc.

In consultation with the NYSDEC, quantifiable impact reductions achieved by green and sustainable remediation BMPs implemented during the SC investigations (e.g., tons of carbon reduced, gallons of fuel saved, pounds of waste reduced) may be included in Site fact sheets to promote public awareness of NYSDEC green and sustainable BMPs.

Green and Sustainable Remediation BMPs to be implemented as part of this project are summarized below, organized by BMPs implemented in project planning and field work phases of work.

Project Planning BMPs

BMP 1) A well-conceived dynamic sampling plan has been developed for the Site to assure that the data collected at project on-set adequately addresses Site data gaps, consequently reducing remobilization of field crews and equipment. A conceptual site model (CSM) will be developed for the Site, incorporating Site sampling data, Site history, and current and historical off-site land use to identify data gaps and allows for refinement as additional data becomes available. Data visualization techniques such as concentration "heat maps" for contaminants of concern will be utilized to refine the CSM and project SOW. Refinement of the CSM and SOW will be performed with the primary goal of achieving the purposes and objectives of the SC as described in **Section 1.1**. Green and sustainable impact reductions will be a secondary goal of CSM/SOW refinement and care will be taken to ensure SOW changes do not impact the efficacy of the SC.

BMP 2) Efforts will be made to schedule Site visits and field work to reduce energy consumption and air emissions associated with mobilizations to and from the Site. The following BMPs will be implemented related to HRP mobilization:

- BMP 2a) Field work schedules will be consolidated by coordinating with contractors and property owners. Specifically, attempts will be made to have the GPR work performed in the same mobilization as intrusive work at the Site.
- BMP 2b) When two or more HRP personnel are involved in a trip to and from the Site which requires a passenger vehicle personnel will "car-pool" by sharing a vehicle, reducing energy consumption and emissions associated with taking multiple vehicles to the Site.

Field Work BMPs

BMP 3) Soil borings will be installed with direct push drilling methods, when possible, to reduce the generation of waste drill cuttings and drill rig operation time.

BMP 4) Monitoring wells will be installed as permanent points with protective road boxes or stick-ups so that they may be utilized for potential future sampling events. This will reduce energy usage, air emissions, and mobilizations associated with installing new investigation points if further investigation is required.

BMP 5) When not in use, vehicles, trucks, drill rigs, and other equipment will be shut off to reduce energy consumption and emissions related to engine idling.

BMP 6) Dedicated plastic tubing will be installed to collect groundwater samples from permanent monitoring wells, reducing waste generated by using new tubing if monitoring wells are sampled during future events.

BMP 7) Waste cardboard generated from labware (sample jars and bottle ware) will be reused or recycled to reduce waste.

4.0 SITE-SPECIFIC QUALITY ASSURANCE PROJECT PLAN

This site-specific QAPP has been prepared as a companion Section to accompany the Generic QAPP for the standby subcontract prepared by HRP for the NYSDEC under Standby Contract No. D009808. The purpose of the QAPP is to specify QA/QC procedures for the collection, analysis, and evaluation of data that will be legally and scientifically defensible.

4.1 Site-Specific Sampling

Surface water, sediment, soil, and groundwater samples will be collected during this Site Investigation. Detailed sampling procedures are detailed in **Section 4.0** of the Generic QAPP. Matrix types, number of samples (including QA/QC) and analytical details are summarized in **Table 2**. Proposed sample locations are depicted in **Figure 2.**

4.2 Data Quality Assessment and Usability

Data quality objectives for the SC are focused on the characterization of releases of hazardous substances impacting on-site soil, groundwater, surface water and sediment.

To achieve these objectives, QA/QC measures will be implemented throughout the Site Investigation to provide input as to the validity and usability of data generated through soil, groundwater, surface water and sediment. The procedures for data QA/QC management includes field documentation; sample handling, custody, and shipping; instrument calibration and maintenance; auditing; data reduction, validation, and reporting; corrective action requirements; and QA reporting specific to the analyses performed by the laboratory under subcontract to HRP. **Table 3** lists the sample containers, preservation, and holding time requirements for the parameters specific to this Site. This table will be referenced by field personnel.

For all data generated, a Category B Data package and DUSR will be prepared to provide a thorough evaluation of analytical data utilizing third-party data validation. Environmental Data Services, Inc. (EDS) will be the third-party data validator for this project.

5.0 PROJECT MANAGMENT

HRP has the responsibility of the overall management of this project and will respond to any NYSDEC requests. A proposed project schedule, key milestones, key project personnel, and project-specific subcontractors follow.

5.1 Project Schedule and Key Milestones

The proposed project schedule for this WA is outlined below. Key milestones are identified to monitor work progress. The following milestones will be applicable for this project:

CATEGORY	TASK	START	END
Task 1 – Preliminary Activities	Work Plan, QAPP, HASP (Includes Department Review and Approval)	10/19/2024	2/29/2024
Task 2 – Investigation, Environmental Sampling, and Implementation	Utility Clearance Permitting Surface water and Sediment Sampling Soil Sampling Groundwater Well Installation Groundwater Sampling Data Validation and Analysis	2/26/2024	5/31/2024
Task 3 – Site Characterization Report (SCR)	Report Preparation and Submittal	6/3/2024	9/13/2024

5.2 Key Project Personnel

A list of the project personnel of the prime consultant and subcontractors responsible for performance of the investigation has been submitted to the NYSDEC for approval. Primary project staff are listed in the table below.

Personnel	Company	Title for this Work Assignment	Responsibility
Mark Wright, PG (NYSDEC Contract Manager)	HRP Associates, Inc. (Prime Consultant)	Project Manager	Overall management of the WA
Bryan Sherman, CSP (Project Manager)	HRP Associates, Inc.	Office Health and Safety Manager	Approval of HASP and responsible for overall health and safety issues with the WA
Michael Varni (Senior Project Geologist)	HRP Associates, Inc.	Corporate QA/QC Officer	Responsible for QA/QC on the WA
Leah Topping (Project Consultant)	HRP Associates, Inc.	Field Manager and Site Health & Safety Officer	Responsible for the on-site sampling and investigative tasks

Subcontractors for this project will include:

- GPR – American Geophysics
- Drilling – Core Down Drilling LLC
- Laboratory – York Laboratories
- Data Validation – Environmental Data Services, Inc.
- IDW Disposal – Engineers Cost Estimate
- Site Survey – Susan Anacker Land Surveyor

6.0 REFERENCES

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Phase II Remedial Investigation performed by MACTEC, dated April 2023

Soil Survey Staff, Natural Resources Conservation Service, United States Department of Agriculture. Web Soil Survey. http://websoilsurvey.sc.egov.usda.gov/. Accessed [1/15/2024].

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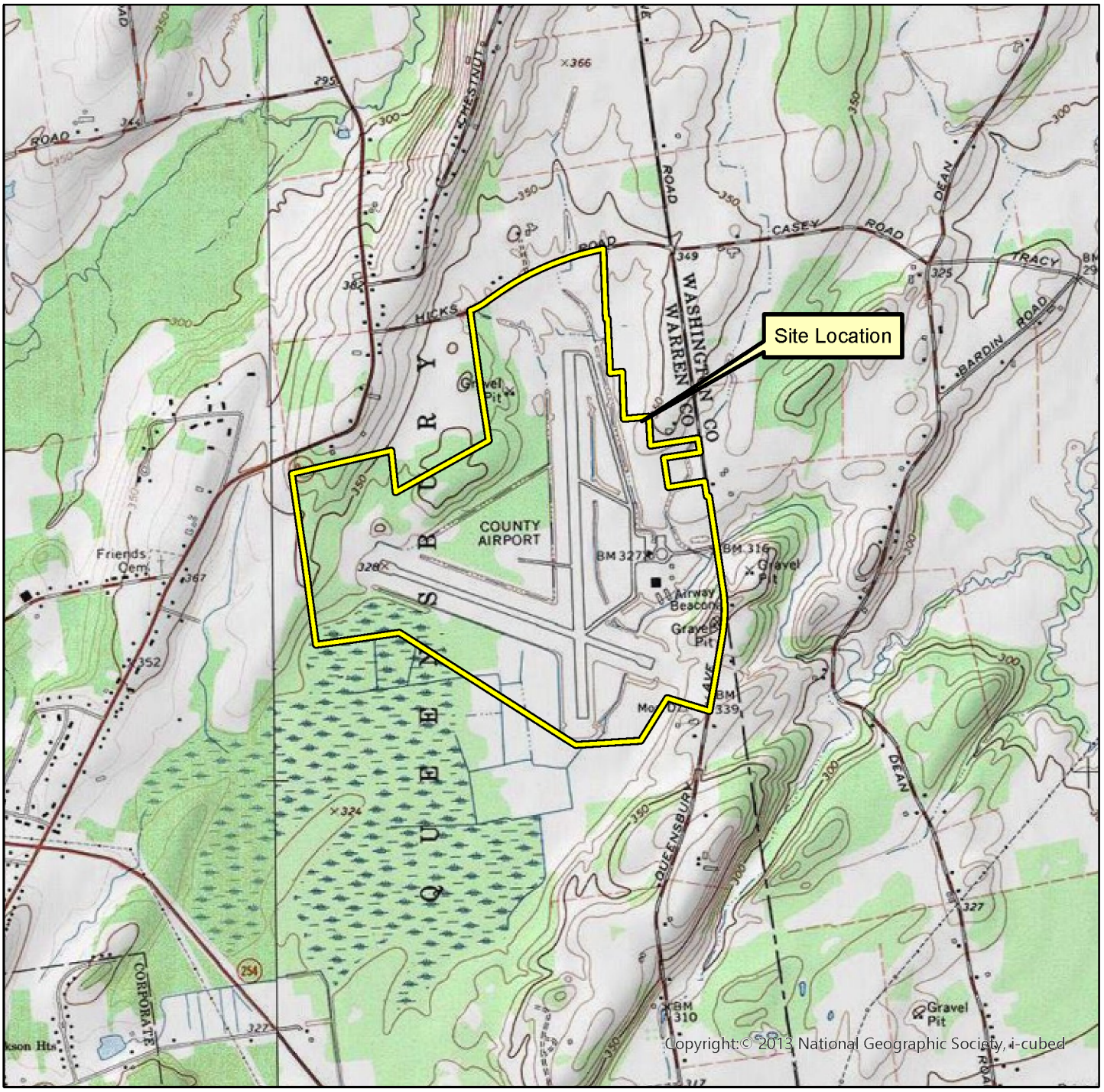
United States Environmental Protection Agency, Office of Superfund Remediation and Technology Innovation, National Functional Guidelines for Organic Data Review, January 2017.

FIGURES



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Feet

1:24,000

N

USGS Quadrangle Information
Quad ID: 43073-C6
Name: Glenns Falls, New York
Date Rev: 2016
Date Pub: 2019

Figure 1
Site Location
Floyd Bennett Memorial Airport
Queensbury, New York
HRP # DEC1044.P2
Scale 1" = 2,000'

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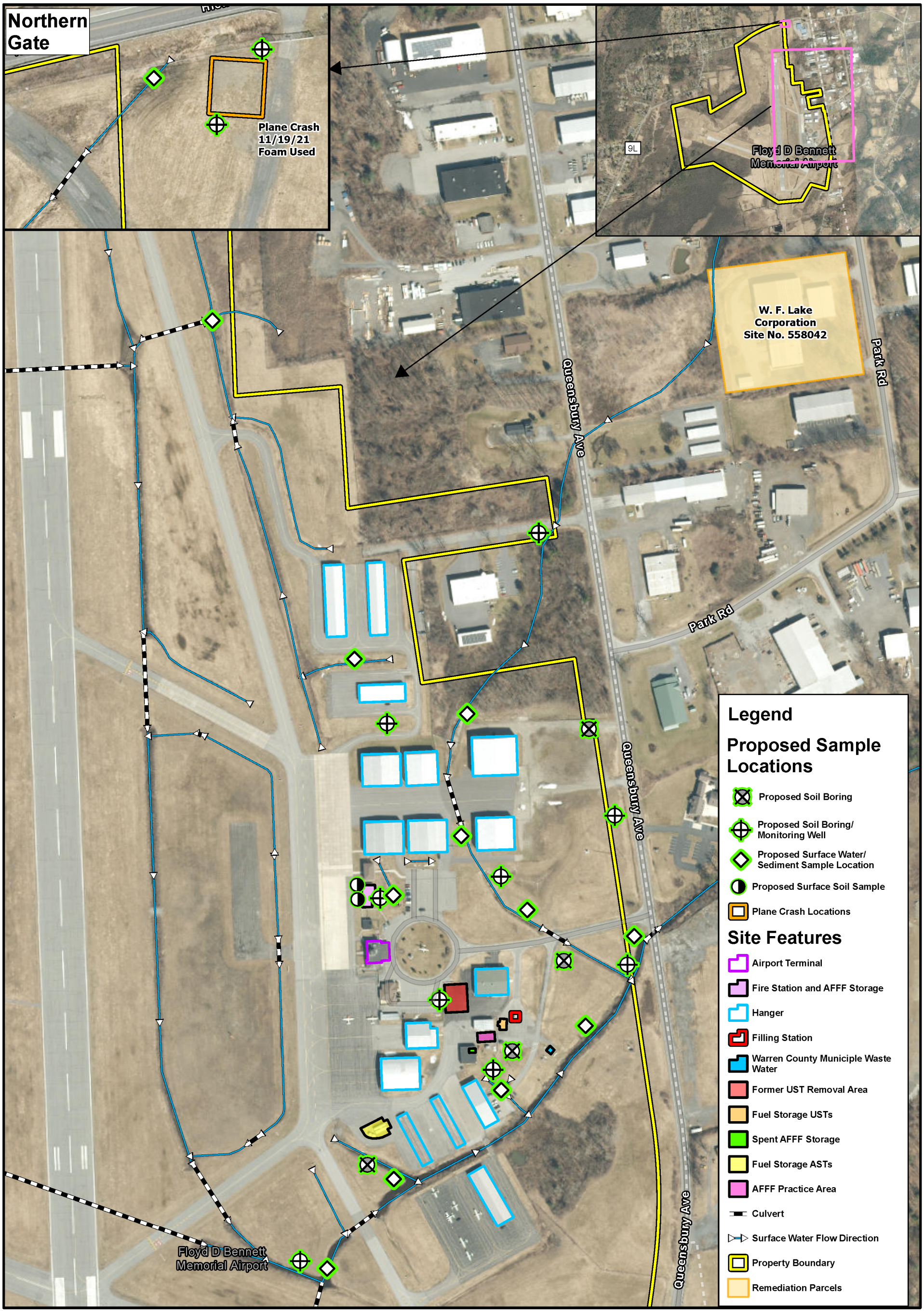

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Site Plan

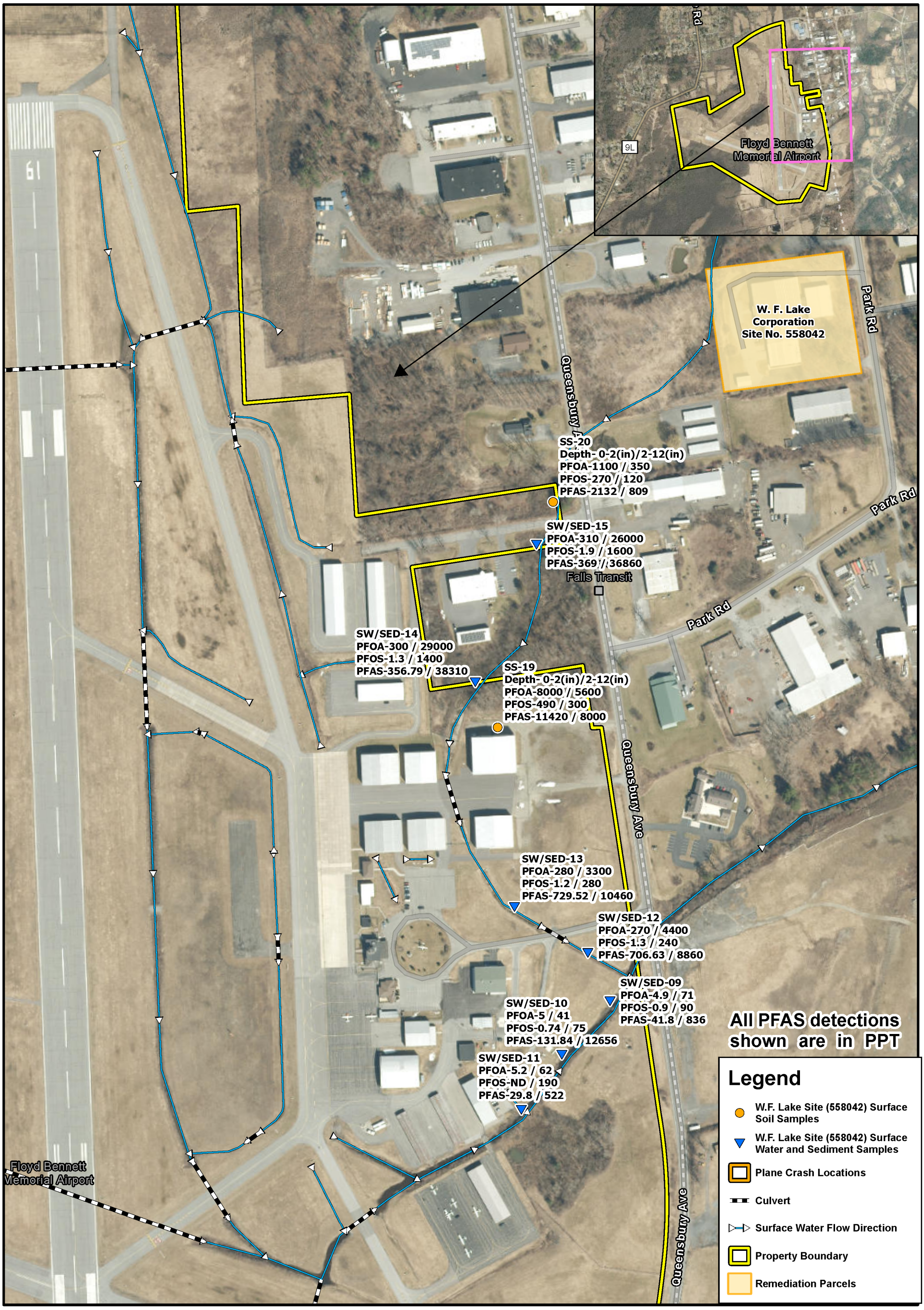
Floyd Bennett Memorial Airport
443 Queensbury Avenue
Queensbury, New York

CMS — DESIGNED BY:	11X17 — SHEET SIZE:
LLT — DRAWN BY:	3/18/2024 — DATE:
MEW — REVIEWED BY:	DEC1044.P2 — PROJECT NUMBER:

North

0 150 300 Ft

FIGURE 2



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HRP MOVE YOUR ENVIRONMENT FORWARD ONE FAIRCHILD SQUARE SUITE 110 CLIFTON PARK, NY 12065 (518) 877-7101 HRPASSOCIATES.COM	**Previous Investigations** **Floyd Bennett Memorial Airport** **443 Queensbury Avenue** **Queensbury, New York**	CMS DESIGNED BY: CMS DRAWN BY: MEW REVIEWED BY:	11X17 SHEET SIZE: 12/28/2023 DATE: DEC1044.P2 PROJECT NUMBER:	North 0 150 300 Ft	FIGURE 3

TABLES

Table 1
Sample Summary
Site Characterization

FLoyd Benntt Memorial Airport
NYSDEC Site # 557024
Town of Queensbury
Warren County, New York

Activity/Matrix	Number of Sample Locations	Proposed Sample Location	Number of Samples to be Collected	Analyses
Sediment	12	12 sediment sample locations	15 (12 regular, 3 QA/QC)	All 15 Samples: PFAS by EPA Method 1633 6 (3 regular, 3QA/QC) of the 15 VOCs by EPA Method 8260 Base/Neutral Extracables by EPA Method 8270 1,4-Dioxane by EPA Method 8270SIM TAL Metals (23), Mercury, Total Cr by EPA Method 6010/6020/7000 Total Cyanide by EPA Method 9012B Chlorinated Herbicides, Pesticides by EPA Method 8081B PCBs by EPA Method 8082 Corrosivity (pH) Total Organic Compounds (Lloyd Kahn) QA/QC: 1 Duplicate, 1 MS, 1 MSD, 1 Field Blank per 20 samples
Soil	48	15 proposed soil borings (3 samples per boring), 3 surface soil samples	57 (48 regular, 9 QA/QC)	All 57 Samples: PFAS by EPA Method 1633 18 of the 57 VOCs by EPA Method 8260 Base/Neutral Extracables by EPA Method 8270 1,4-Dioxane by EPA Method 8270SIM TAL Metals (23), Mercury, Total Cr by EPA Method 6010/6020/7000 Total Cyanide by EPA Method 9012B Chlorinated Herbicides, Pesticides by EPA Method 8081B PCBs by EPA Method 8082 Corrosivity (pH) Total Organic Compounds (Lloyd Kahn) QA/QC: 1 Duplicate, 1 MS, 1 MSD, 1 Field Blank per 20 samples
Surface Water	12	12 surface water locations	15 (12 regular, 3 QA/QC)	All 15 Samples: PFAS by EPA Method 1633 6 (3 regular, 3 QA/QC) of the 15 VOCs by EPA Method 8260 Base/Neutral Extracables by EPA Method 8270 1,4-Dioxane by EPA Method 8270SIM TAL Metals (23), Mercury, Total Cr by EPA Method 6010/6020/7000 Total Cyanide by EPA Method 9012B Chlorinated Herbicides, Pesticides by EPA Method 8081B PCBs by EPA Method 8082 Corrosivity (pH) Total Organic Compounds (Lloyd Kahn) QA/QC: 1 Duplicate, 1 MS, 1 MSD, 1 Field Blank per 20 samples
Groundwater	11	11 samples from monitoring wells	14 (11 regular, 3 QA/QC)	All 14 Samples: PFAS by EPA Method 1633 6 of the 14 VOCs by EPA Method 8260 Base/Neutral Extracables by EPA Method 8270 1,4-Dioxane by EPA Method 8270SIM TAL Metals (23), Mercury, Total Cr by EPA Method 6010/6020/7000 Total Cyanide by EPA Method 9012B Chlorinated Herbicides, Pesticides by EPA Method 8081B PCBs by EPA Method 8082 Corrosivity (pH) Total Organic Compounds (Lloyd Kahn) QA/QC: 1 Duplicate, 1 MS, 1 MSD, 1 Field Blank per 20 samples

Acronym List:
MS/MSD: Matrix Spike/Matrix Spike Duplicate
TCL: Total Compount List
VOCs: Volatile Organic Compounds
SVOCs: Semi-Volatile Organic Compounds
Cr: Chromium
PCBs: Polychlorinate Biphenyls
EPA: Environmental Protection Agency
PP: Primary Pollutant
TO: Toxic Organics

Table 2
Analytical Methods/Quality Assurance Summary
Site Characterization

Floyd Bennett Memorial Airport
NYSDEC Site # 557024
Town of Queensbury
Warren County, New York

				Containers per Sample			Preservation Requirements			
Parameter	**Number of Samples (including Field QC)**	**Preparation Method**	**Analytical Method**	**No.**	**Size**	**Type**	**Temp.**	**Light Sensitive**	**Chemical**	**Maximum Holding Time**
SOIL										
VOCs by GC/MS	18	5035A	SW-846 Method 8260B	3 vials 1 jar	40 ml vials, any size jar	glass vials clear glass jar	2-6º C	No	MeOH/ sodium bisulfate/ freezing	14 days
Base/Neutral/Acid Extractables	18	3546	SW-846 Method 8270C	1	4 oz	amber glass jar	2-6º C	Yes	NA	14 days
1,4 Dioxane	18	3546	SW-846 Method 8270 SIM		8 oz	amber glass jar	2-6º C	Yes	NA	14 days
TAL Metals (23), Mercury, Cr (total)	18	3050B	SW-846 Method 6010/6020/7000	1	2 oz	clear glass jar	2-6º C	No	NA	6 months
Total Cyanide	18	9012	SW-846 Method 9012B	1	2 oz	clear glass jar	2-6º C	No	NA	14 days
Chlrorinated Herbicides and Pesticides	18	3546	SW-846 Method 8081A	1	8 oz	clear glass jar	2-6º C	No	NA	15 days
PCBs	18	3546	SW-846 Method 8082	1	8 oz	clear glass jar	2-6º C	No	NA	16 days
Corrosivity (pH)	18	3546	SW-846 Method 9040C	1	4 oz	clear glass jar	2-6º C	No	NA	immediate
Total Organic Carbon	18	3546	Lloyd Kahn	1	4 oz	clear glass jar	2-6º C	No	NA	14 days
PFAS	57	NA	EPA Method 1633	2	8 oz	polypropylene	2-6º C	No	NA	14/28 days
Sediment										
VOCs by GC/MS	6	5035A	SW-846 Method 8260B	3 vials 1 jar	40 ml vials, any size jar	glass vials clear glass jar	2-6º C	No	MeOH/ sodium bisulfate/ freezing	14 days
Base/Neutral/Acid Extractables	6	3546	SW-846 Method 8270C	1	4 oz	amber glass jar	2-6º C	Yes	NA	14 days
1,4 Dioxane	6	3546	SW-846 Method 8270 SIM		8 oz	amber glass jar	2-6º C	Yes	NA	14 days
TAL Metals (23), Mercury, Cr (total)	6	3050B	SW-846 Method 6010/6020/7000	1	2 oz	clear glass jar	2-6º C	No	NA	6 months
Total Cyanide	6	9012	SW-846 Method 9012B	1	2 oz	clear glass jar	2-6º C	No	NA	14 days
Chlrorinated Herbicides and Pesticides	6	3546	SW-846 Method 8081A	1	8 oz	clear glass jar	2-6º C	No	NA	15 days
PCBs	6	3546	SW-846 Method 8082	1	8 oz	clear glass jar	2-6º C	No	NA	16 days
Corrosivity (pH)	6	3546	SW-846 Method 9040C	1	4 oz	clear glass jar	2-6º C	No	NA	immediate
Total Organic Carbon	6	3546	Lloyd Kahn	1	4 oz	clear glass jar	2-6º C	No	NA	14 days
PFAS	15	NA	EPA Method 1633	2	8 oz	polypropylene	2-6º C	No	NA	14/28 days
Groundwater										
VOCs by GC/MS	6	5053	SW-846 Method 8260B	3	40 ml vials	glass vials	2-6º C	No	HCl	14 days
Base/Neutral/Acid Extractables	6	3510C	SW-846 Method 8270C	2	liter	amber bottle	2-6º C	Yes	NA	7 days
1,4 Dioxane	6	3510C	SW-846 Method 8270 SIM	2	500 mL	amber bottle	2-6º C	Yes	NA	7 days
TAL Metals (23), Mercury, Cr (total)	6	3050B	SW-846 Method 6010/6020/7000)	1	500 mL	plastic bottle	2-6º C	No	Nitric Acid	6 months
Total Cyanide	6	9010	SW-846 Method 9012A	1	8 oz	polypropylene	2-6º C	No	NA	14 days
Chlrorinated Herbicides and Pesticides by GC	6	3546	SW-846 Method 8081A	2	liter	clear glass bottle	2-6º C	No	NA	14/28 days
PCBs by GC	6	3546	SW-846 Method 8082	2	liter	clear glass bottle	2-6º C	No	NA	7 days
PFAS	14	NA	EPA Method 1633	3	250 mL	polypropylene	2-6º C	No	NA	28 Days
Surface Water										
VOCs by GC/MS	6	5053	SW-846 Method 8260B	3	40 ml vials	glass vials	2-6º C	No	HCl	14 days
Base/Neutral/Acid Extractables	6	3510C	SW-846 Method 8270C	2	liter	amber bottle	2-6º C	Yes	NA	7 days
1,4 Dioxane	6	3510C	SW-846 Method 8270 SIM	2	500 mL	amber bottle	2-6º C	Yes	NA	7 days
TAL Metals (23), Mercury, Cr (total)	6	3050B	SW-846 Method 6010/6020/7000)	1	500 mL	plastic bottle	2-6º C	No	Nitric Acid	6 months
Total Cyanide	6	9010	SW-846 Method 9012A	1	8 oz	polypropylene	2-6º C	No	NA	14 days
Chlrorinated Herbicides and Pesticides by GC	6	3546	SW-846 Method 8081A	2	liter	clear glass bottle	2-6º C	No	NA	14/28 days
PCBs by GC	6	3546	SW-846 Method 8082	2	liter	clear glass bottle	2-6º C	No	NA	7 days
PFAS	15	NA	EPA Method 1633	3	250 mL	polypropylene	2-6º C	No	NA	28 Days

MOVE YOUR ENVIRONMENT FORWARD

APPENDIX A
Community Air Monitoring Plan (CAMP)

Community Air Monitoring Plan

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

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

Depending on the nature of known or potential contaminants at the site, real-time air monitoring for VOCs and/or particulate levels at the perimeter of the exclusion zone or work area will be necessary.

Continuous monitoring will be required for all ground intrusive activities. Ground intrusive activities include, but are not limited to, soil/waste excavation and handling, test pitting or trenching.

Periodic monitoring for VOCs will be required during non-intrusive activities such as the collection of soil samples. "Periodic" monitoring during sample collection might reasonably consist of taking a reading upon arrival at a sample location, monitoring while opening a well cap or overturning soil, monitoring during well baling/purging, and taking a reading prior to leaving a sample location. In some instances, depending upon the proximity of potentially exposed individuals, continuing monitoring may be required during sampling activities.

Particulate Monitoring, Response Levels, and Actions

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

- If the downwind PM-10 particulate level is 100 micrograms per cubic meter (mcg/m^3) greater than the 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 may continue with dust suppression techniques 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 150 mcg/m^3 above the upwind level, work will be stopped and a re-evaluation of activities initiated. Work can resume provided that dust suppression measures

and other controls are successful in reducing the downwind PM-10 particulate concentration to within 150 mcg/m^3 of the upwind level and in preventing visible dust migration.

All readings will be recorded and be available for State (DEC and DOH) personnel to review.

VOC Monitoring, Response Levels, and Actions

VOCs will be monitored at the downwind perimeter of the immediate work area (i.e., the exclusion zone) on a continuous basis or as otherwise specified. Upwind concentrations will be measured at the start of each workday and periodically thereafter to establish background conditions. The monitoring work will be performed using a photo ionization detector (PID) equipped with a 10.2 eV bulb. The PID will be calibrated at least daily for the contaminant(s) of concern or for an appropriate surrogate. The equipment will be capable of calculating 15-minute running average concentrations, which will be compared to the levels specified below.

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

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

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

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