


Town of Islip

SITE CHARACTERIZATION WORK PLAN

Long Island MacArthur Airport
100 Arrival Ave, Ronkonkoma NY
Site No. 152251

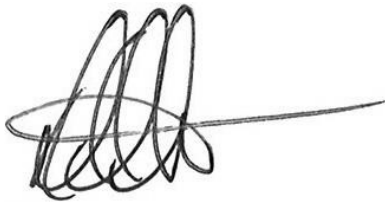
March 5, 2020

A large, solid orange geometric shape, resembling a stylized triangle or a section of a larger triangle, is positioned in the bottom right corner of the page. It is composed of two overlapping triangles, creating a complex, angular form that extends from the bottom edge towards the top right corner.

SITE CHARACTERIZATION WORK PLAN



Xuan Xu
Project Scientist



David E. Stern
Project Manager



Allan Horneman
Ph.D., Technical Expert

SITE CHARACTERIZATION WORK PLAN

Long Island MacArthur Airport
100 Arrival Ave, Ronkonkoma NY
Site No. 152251

Prepared for:
Town of Islip
100 Arrival Avenue
Ronkonkoma, NY 11779

Prepared by:
Arcadis of New York, Inc.
Two Huntington Quadrangle
Suite 1S10
Melville
New York 11747
Tel 631 249 7600
Fax 631 249 7610

Our Ref.:
30017855.00003

Date:
March 5, 2020

This document is intended only for the use of the individual or entity for which it was prepared and may contain information that is privileged, confidential and exempt from disclosure under applicable law. Any dissemination, distribution or copying of this document is strictly prohibited.

CONTENTS

1	Introduction	1-3
1.1	Objective.....	1-3
2	Site Description and History	2-3
2.1	Physical Setting	2-3
2.2	Site History	2-4
2.3	Site Use	2-5
3	Site Characterization Field Activities	3-5
3.1	Site Preparation and Utility Location	3-6
3.2	Soil Investigation	3-6
3.2.1	Objectives	3-6
3.2.2	Soil Borings	3-7
3.2.3	Soil Sample Analysis.....	3-7
3.3	Groundwater Investigation	3-7
3.3.1	Objectives	3-8
3.3.2	Groundwater Grab Sample and Analysis	3-8
3.3.3	Permanent Monitoring Well Installation	3-8
3.3.4	Monitoring Well Inspections	3-9
3.3.5	Water-Level Measurements.....	3-9
3.3.6	Groundwater Sampling and Analysis.....	3-9
3.4	Stormwater and Sediment Investigation	3-10
3.4.1	Objectives	3-10
3.4.2	Sediment Sampling.....	3-10
3.4.3	Sediment Sample Analysis	3-10
3.4.4	Stormwater Sampling and Analysis	3-11
3.5	Investigation-Derived Waste Management	3-11
3.6	Air Monitoring	3-11
3.7	Health and Safety	3-11
4	Site Characterization Report	4-11
5	Target Duration Schedule.....	5-12

SITE CHARACTERIZATION WORK PLAN

6	References	6-13
---	------------------	------

TABLES

Table 1	Description of Soil Borings, Sampling Intervals, and Analytical Parameters for Areas of Potential Concern
Table 2	Description of Sediment and Soil Sampling Intervals and Analytical Parameters for Areas of Potential Concern
Table 3	Monitoring Well Details, Groundwater Sample Collection, and Analytical Parameters for Areas of Potential Concern
Table 4	Summary of Existing Monitoring Wells

FIGURES

Figure 1	Site Location
Figure 2	Site Characterization Sampling Plan

APPENDICES

Appendix A	Field Sampling Plan
Appendix B	Quality Assurance Project Plan
Appendix C	Community Air Monitoring Plan
Appendix D	Health and Safety Plan

1 INTRODUCTION

On behalf of the Town of Islip (Town), Arcadis of New York, Inc. (Arcadis) has prepared this Site Characterization Work Plan (SCWP) as part of the site characterization (SC) process for the Long Island MacArthur Airport (ISP or Site). The SC is required based on the Order on Consent (Index R1-20180228) (Order) (NYSDEC 2019a), executed between the Town and the New York State Department of Environmental Conservation (NYSDEC) on May 23, 2019. The Site has been classified as Class “P” (Potential) in the New York State Superfund Registry of Inactive Hazardous Waste Disposal Sites in February 2018 due to the detection of perfluorooctanesulfonic acid (PFOS) in water samples collected from a Suffolk County Water Authority (SCWA) public supply well located in Bohemia, New York (NYSDEC 2018b).

This SCWP follows the findings of the Records Search Report prepared for the Site (Arcadis 2019), which was submitted to the NYSDEC on August 8, 2019. An outline of the SCWP was previously submitted to NYSDEC on August 8, 2019 and subsequently revised following NYSDEC comments on August 27, 2019 and December 6, 2019 (NYSDEC 2019b; 2019c). The SCWP outline was approved by the NYSDEC in a letter dated February 7, 2020 (NYSDEC 2019d).

1.1 Objective

The primary objective of this SCWP is to determine whether potential environmental conditions can be attributed to an area of potential concern (AOPC) on the Site identified by the Records Search Report, and if the Site requires further investigation. Twelve (12) of the fifteen (15) AOPCs identified in the Records Search Report will be evaluated during the site characterization. Of the remaining three (3) AOPCs, CAMCO (AOPC #13) and the New York Army National Guard (AOPC #15) are managed under separate NYSDEC programs. The Composting Facility (AOPC #14) is being evaluated under a separate due diligence activity by the Town as part of potential future parcel redevelopment.

This SCWP is a required element of the SC process and has been prepared to satisfy the requirements of the Order as well as the provisions of NYSDEC’s DER-10 Technical Guidance for Site Investigation and Remediation (NYSDEC 2010).

2 SITE DESCRIPTION AND HISTORY

The Site is located at 100 Arrival Avenue in the hamlet of Ronkonkoma, Town of Islip, New York (**Figure 1**). The Site consists of a complex of buildings and structures positioned on approximately 1,208 acres (L&B and JKL 2016). The Site is utilized as a local airport serving both commercial and general aviation flights.

2.1 Physical Setting

The Site is bounded to the north by the Long Island Railroad facility and Railroad Avenue; to the west by Smithtown Avenue with mixed commercial and industrial use; to the east by Lincoln Avenue with mixed residential and commercial use; and to the south by Veterans Memorial Highway with mixed commercial and industrial use.

SITE CHARACTERIZATION WORK PLAN

Surface water bodies are not present on or adjacent to the Site. The most proximal water body, Lake Ronkonkoma, is located approximately 1.4 miles northwest of the Site. There are no National Wetland Inventory (NWI) or state mapped wetlands located at the Site; and the Site is not located within a 500-year or 100-year Federal Emergency Management Agency (FEMA) flood zone.

The unconsolidated geologic deposits underlying Suffolk County consist of clay, silt, sand, and gravel that overlie southward-dipping consolidated bedrock. The crystalline bedrock consists mainly of Precambrian age granite, gneiss, and schist. The overlying unconsolidated sediments were deposited during the Cretaceous age and form, in ascending order, the Raritan and Magothy Formations. During the Pleistocene period, glacial meltwater deposited outwash material forming what is presently known as the Upper Glacial aquifer (King and Beikman 1974).

Published data indicate that the horizontal hydraulic conductivity of the Upper Glacial aquifer in the MacArthur Airport area is approximately 1,500 to 2,000 gpd/ft² (McClymonds and Franke, 1972). The direction of groundwater flow in the Upper Glacial aquifer in the area of the Site is to the south-southwest based on a regional water table map developed by the USGS (Monti et al 2013). The groundwater flow direction may vary locally due to the influence of pumping supply wells.

Based on information obtained from FOILs and from the USGS, a total of 17 monitoring wells were identified on the Site. Two (2) additional on-site monitoring wells were identified in the RSR near the southern boundary of the Site. In addition, two (2) public supply wellfields are located southeast and southwest of the Site. **Table 4** summarizes available on-Site well information; **Figure 2** shows the approximate locations of on-Site wells.

2.2 Site History

The history of Site development is based on interpretation of historical aerial photographs, historical topographic maps and information provided in the EDR City Directory Report. Based on review of historical aerial photographs, prior to 1947, the Site was undeveloped grassland. In 1942 the Town contracted with the federal government to build an airfield on the Site (NYSDEC 2018a). The first airport related features appear on historical aerial photographs in 1947. By 1985, historical aerial photographs depict the airport terminal and associated structures appear comparable to their present-day locations. CAMCO occupied 2125 Smithtown Avenue as an aircraft overhaul and repair facility from before World War II until 1996. Following receipt of analytical results of leaching pool samples, the Town entered an Order on Consent for remedial work in 2010 with the NYSDEC (NYSDEC 2018a). Upon completion of remedial work per the Order of Consent, institutional controls were incorporated to control exposure to residual impacts. The CAMCO site is currently listed in the New York State (NYS) Inactive Hazardous Waste Disposal Site Remedial Program under Site No. 152206.

The New York Army National Guard Aviation Unit (Army National Guard) moved to the Long Island MacArthur Airport in the early 1970's, where it was designated as Army Aviation Support Facility #1. Army National Guard currently operates at the Site, supporting an assault helicopter battalion and an aviation support battalion. The NYSDEC indicated in a meeting with Arcadis and the Town in June 2019 that Army National Guard is conducting their own records search effort.

2.3 Site Use

The Site comprises a runway/taxiway system, airport terminals, several commercial aviation buildings and ancillary airport service buildings. In general, MacArthur Airport operations can be subdivided into core and non-core functions. Core operations can be defined as operations essential to the function of the airport. Non-Core operations include, Fixed-Based Operators (FBOs), concessions/support tenants, satellite areas. Additional details on site use were provided in the Records Search Report (Arcadis 2019).

3 SITE CHARACTERIZATION FIELD ACTIVITIES

This section of the SC Work Plan describes the field activities to be performed during the SC. The RSR identified fifteen (15) on-site AOPCs. SC activities are proposed for twelve (12) on-site AOPCs. Details of the proposed work at each AOPC and associated rationale are summarized in **Table 1**. **Figure 2** depicts the site plan with proposed soil boring locations.

Project personnel will conduct the following activities to evaluate the presence of potential environmental issues at the Site:

- Conduct a site visit to determine preliminary proposed boring and sampling locations at each AOPC;
- Perform utility markout to field-verify existing Site conditions and label and/or mark the final boring and sampling locations;
- Mobilize to the Site and conduct the following investigation activities:
 - Soil investigation including completion of soil borings and collection of soil samples for laboratory analysis;
 - Groundwater investigation including collection of groundwater grab samples and installation of permanent monitoring wells;
 - Collection of sediment samples from swales (as identified).
 - Collection of sediment samples and stormwater samples from recharge basins.
- Perform inspection of existing on-site monitoring wells and determine their usability for this SC;
- Conduct a groundwater sampling round, including collection of groundwater samples from newly installed permanent groundwater monitoring wells and existing on-site monitoring wells deemed usable to characterize on-site groundwater quality;
- Conduct a synoptic water-level measuring round, including newly installed permanent groundwater monitoring wells and existing on-site monitoring wells deemed usable, to determine on-site groundwater flow.

SITE CHARACTERIZATION WORK PLAN

- Field procedures are described generally in the following subsections, with additional details provided in the Field Sampling Plan (**Appendix A**).
- Sample collection and management methods, laboratory analysis methods and analytes, as well as quality assurance/quality control (QA/QC) methods are provided in the quality assurance project plan (QAPP) (**Appendix B**).
- Community air monitoring activities and action levels are provided in the Community Air Monitoring Plan (CAMP) (**Appendix C**).
- Work described in this SCWP will conform to the health and safety requirements as stated in the Health and Safety Plan (HASP) (**Appendix D**).

3.1 Site Preparation and Utility Location

Field personnel will mobilize to the Site to verify existing Site conditions and label and/or mark the proposed boring and sample locations presented on **Figure 2**. Once the sample locations are marked, Long Island One Call Dig Safely will be contacted to mark underground utilities. In addition, private utility locators will be subcontracted to confirm underground utilities in areas where intrusive activities (i.e., drilling, split-spoon sampling, well installation) will occur. The Site contact, airport FBOs and tenants will be contacted for assistance with mark out of utilities.

Once the utilities are marked, equipment and personnel necessary to accomplish the SC activities will be mobilized to the Site. Given the numerous utilities likely present on Site, subsurface sample locations will be cleared of utilities to a depth of 5 ft bls by hand or by air knife.

Additional details on subsurface and overhead utility location clearance is provided in the HASP.

3.2 Soil Investigation

The objectives for the soil investigation and the procedures for obtaining and analyzing subsurface soil samples are detailed in Sections 3.2.2 and 3.2.3.

3.2.1 Objectives

The objectives of the soil investigation are to:

- Characterize whether chemical releases have occurred at the Site by collecting, visually characterizing, and analyzing subsurface soil samples.
- Whether or not those releases pose a threat to public health and the environment by comparing the analytical results to relevant Standards, Criteria and Guidance values (SCGs).
- Obtain sufficient information to evaluate the necessity for further action.

The approach that will be implemented to address these objectives is discussed below.

3.2.2 Soil Borings

To accomplish the soil investigation objectives, soil borings will be drilled and sampled at AOPCs, as specified in **Table 2**.

Soil borings will be drilled/sampled using either Geoprobe method or Sonic drilling methodology as described in Section 4.3 of the FSP (**Appendix A**). Soil collected from each sample interval will be visually characterized for color, texture, and moisture content as described in the FSP. Soil cores will be examined and lithologically logged following procedures described in the FSP. Visible staining, discoloration, photoionization detector (PID) readings and obvious odors will be noted.

Soil samples will be collected to meet the SC objectives presented in Section 3.2.1 based on visual observation of the soil cores. Soil samples will be collected based on field observations (i.e., staining, odor or elevated PID readings). If staining or PID readings are not observed at a boring location, the soil samples will be collected at 0-2 ft bls and/or 2 ft above the water table (**Table 2**). Soil sampling methods are described in the FSP.

Upon completion of the soil boring, boring locations will be surveyed using a handheld rental GPS unit.

3.2.3 Soil Sample Analysis

Soil samples collected from each boring will be analyzed for parameters specified in **Table 2**. Samples will be submitted to a NYSDOH accredited laboratory certified for the selected analysis. Analytical methods, sample handling, and laboratory protocols are outlined in the QAPP (**Appendix B**). Sample analyses will follow the NYSDEC Analytical Services Protocol (ASP) (most recent version) and will include QA/QC samples at a frequency indicated in the QAPP. Analytical results for analysis of soil samples will be reported using NYSDEC ASP Category B data deliverables.

Equipment decontamination will follow the procedures outlined in the FSP. In general, non-disposable equipment, including drilling tools and equipment, will be decontaminated prior to first use on Site, between investigation locations, and prior to demobilization (if dedicated equipment is not used). The integrity of the decontamination procedures will be checked periodically with equipment rinse blanks, as required by the QAPP.

Investigation-derived waste (IDW) will be containerized in appropriate waste containers and staged in an on-site area prior to off-site disposal. Soil cuttings, personal protective equipment (PPE), and spent disposable sampling materials will be segregated by waste type and placed in DOT-approved 55-gallon steel drums. Decontamination water and drilling water will be stored in DOT-approved 55-gallon steel drums. Drums will be appropriately labeled with the contents, generator, location, and date for later off-site transportation and disposal.

3.3 Groundwater Investigation

The SC groundwater investigation objectives and general procedures for obtaining and analyzing groundwater samples are detailed in Sections 3.3.2 through 3.3.6.

3.3.1 Objectives

The objectives of the groundwater investigation are to:

- Determine groundwater flow and hydraulic characteristics beneath the Site.
- Characterize whether chemical releases have occurred at the Site by collecting and analyzing groundwater samples.
- Gather sufficient analytical data to evaluate the necessity for further action.

The approach that will be implemented to address these objectives is discussed below.

3.3.2 Groundwater Grab Sample and Analysis

Groundwater grab samples will be collected from eight (8) AOPCs (**Table 3**) using either temporary well or Push Ahead methods discussed in the FSP (**Appendix A**). If drilling fluid (i.e., potable water) is used during drilling process, fluorescein dye will be added to the drilling water following procedures detailed in the FSP. The purpose of using dye is to confirm that enough drilling water has been removed prior to groundwater sample collection to ensure that groundwater grab samples are representative of aquifer conditions. Continuous soil cores will be collected, examined for visual indication of impact, and lithologically logged.

Field parameters including pH, oxidation-reduction potential (ORP), turbidity, temperature, conductivity, and dissolved oxygen will be measured and documented during sampling using the procedures outlined in the FSP.

3.3.3 Permanent Monitoring Well Installation

Permanent monitoring wells will be installed at select AOPCs (**Table 3**). One (1) permanent monitoring well will be installed at the upgradient Site boundary and four (4) will be installed at the downgradient Site boundary (**Table 3**). The monitoring wells will be drilled using sonic drilling methodology.

Table 3 provides proposed screen intervals for the monitoring wells. The FSP (**Appendix A**) provides proposed specifications of the monitoring wells. Continuous soil cores will be collected, examined for visual indication of impact, and lithologically logged. Description of the soil cores will be used to determine final well construction. Final screen interval, screen size and construction details may be adjusted based on field observations.

Following installation, permanent wells will be developed by surging and pumping water from the well using the procedures outlined in the FSP. Surging and pumping will continue until the turbidity is below 50 nephelometric turbidity units (NTUs) or until pH and conductivity measurements have stabilized. Water generated by monitoring well development and equipment decontamination will be containerized in DOT-approved 55-gallon steel drums prior to being transported for off-site disposal.

Subsequent to well installation activities, a New York State licensed surveyor will field survey the monitoring well locations. A permanently surveyed benchmark will be established at the Site. For each monitoring well, the surveyor will determine the location relative to the New York State Plane Coordinate

SITE CHARACTERIZATION WORK PLAN

System (North American Datum 1983), and the ground surface elevation and measuring point elevation (defined as the top of the inner casing) relative to National Geodetic Vertical Datum (NGVD) 1929.

3.3.4 Monitoring Well Inspections

Table 4 provides available information of existing on-site monitoring wells. Existing on-site monitoring wells will be inspected to determine the current condition. The purpose of the inspection is to determine the usability of the wells for this SC. Wells meeting the following criteria will be considered usable for this SC:

- Complete well construction information, including total well depth, screen interval, materials of well construction (i.e., casing and screen). During the well inspection, the well will be sounded to confirm the total depth and the depth-to-water will be recorded.
- Record of drilling and installation method, development method, and historical sampling records.
- Secure manhole cover and sanitary seal.

Wells that do not meet one or more of the above criteria will not be used for the SC. The well inspection form is provided in the FSP (**Appendix A**).

3.3.5 Water-Level Measurements

The depth to water will be measured in existing, usable on-site monitoring wells prior to installing new monitoring wells. Following installation of monitoring wells specified in this SCWP, a second round of water-level measurements will be performed in new and existing on-site wells. Water levels will be measured to the nearest one-hundredth of a foot from the reference point at the top of the inner casing using the procedures outlined in the FSP (**Appendix A**). The water-level measurements will be converted to water-level elevations based on the surveyed monitoring well measuring point elevations. The water-level elevation information will be used in conjunction with published hydraulic conductivity data for this area to evaluate horizontal groundwater flow beneath the Site.

3.3.6 Groundwater Sampling and Analysis

One round of groundwater sampling will be conducted that will comprise selected, usable existing monitoring wells and the eight new monitoring wells installed as part of the SC. The groundwater sampling will be conducted a minimum two weeks after completion of the monitoring well installation and development activities to allow for a period of equilibration. The groundwater sampling event will consist of collecting one groundwater sample from each groundwater monitoring well installed during the SC and any existing on-site monitoring well that is deemed acceptable for the purpose of this SC.

The wells will be purged using low-flow methods using a Teflon-free bladder pump following procedure s described in the FSP (**Appendix A**).

Following the purging, the groundwater sample will be collected. The groundwater samples will be submitted to the laboratory for the analysis specified in **Table 3**. Field parameters including pH,

oxidation-reduction potential (ORP), turbidity, temperature, conductivity, and dissolved oxygen will be collected and documented during groundwater sampling using the procedures outlined in the FSP.

3.4 Stormwater and Sediment Investigation

The SC stormwater and sediment investigation objectives and general procedures for obtaining and analyzing samples are detailed in Sections 3.4.2 through 3.4.5.

3.4.1 Objectives

The objectives of the stormwater and sediment investigation are to:

- Characterize whether chemical releases have occurred at the Site by collecting and analyzing sediment and stormwater samples.
- Gather sufficient analytical data to evaluate the necessity for further action.

The approach that will be implemented to address these objectives is discussed below.

3.4.2 Sediment Sampling

Sediment samples will be collected using Lexan® or similar sampler driven into target depth, creating a vacuum with a check valve, and retrieving the sediment core intact. Sampling procedures are detailed in the FSP (**Appendix A**). Sediment samples will be collected from 0-2 ft below the bottom of the recharge basins or swales, examined for visual indication of impacts, and lithologically logged following procedures described in the FSP. Visible staining, discoloration, PID readings above background, and obvious odors will be noted.

3.4.3 Sediment Sample Analysis

Sediment grab samples will be analyzed for parameters specified in **Table 2**. Samples will be submitted to a NYSDOH accredited laboratory certified for the selected analysis. Analytical methods, sample handling, and laboratory protocols are outlined in the QAPP (**Appendix B**). Sample analyses will follow the NYSDEC ASP and will include QA/QC samples at a frequency indicated in the QAPP. Analytical results for analysis of the soil samples will be reported using NYSDEC ASP Category B data deliverables.

Equipment decontamination will follow the procedures outlined in the FSP. In general, non-disposable equipment will be decontaminated prior to first use on Site, between each investigation location, and prior to demobilization (if dedicated equipment is not used). The integrity of the decontamination procedures will be checked periodically with equipment rinse blanks, as described in the QAPP.

Investigation-derived waste (IDW) will be containerized in appropriate waste containers and staged in an on-site area prior to off-site disposal. Personal protective equipment (PPE) and spent disposable sampling materials will be segregated by waste type and placed in DOT-approved 55-gallon steel drums. Decontamination water will be stored in DOT-approved 55-gallon steel drums. Drums will be appropriately labeled with the contents, generator, location, and date for later off-site transportation and disposal.

3.4.4 Stormwater Sampling and Analysis

Stormwater grab samples will be collected from AOPC 1 and AOPC 2 following procedures discussed in the FSP (**Appendix A**). Stormwater samples will be collected either during or immediately after a storm event.

AOPCs 3, 4 and 5 will be inspected for drainage swales. If stormwater is identified in a swale, one (1) water grab sample will be collected per AOPC.

Stormwater samples will be measured for the following field parameters: pH, oxidation-reduction potential (ORP), turbidity, temperature, conductivity, and dissolved oxygen. Field parameters will be measured using the procedures outlined in the FSP.

3.5 Investigation-Derived Waste Management

As described above, IDW will be containerized and staged on site for appropriate characterization and disposal. PPE and spent disposable sampling materials will be segregated and placed in DOT-approved 55-gallon steel drums. Decontamination water and monitoring well purge water will be stored in DOT-approved 55-gallon steel drums. Waste storage containers will be appropriately labeled with the contents, generator, location, and date for later off-site transportation and disposal.

Representative waste characterization samples will be collected from soil drums containing the drill cuttings and water drums containing the decontamination water and monitoring well purge water. The samples will be submitted to the laboratory for laboratory analysis PFAS, 1,4-Dioxane, toxicity characteristic leaching procedure (TCLP) VOCs, TCLP SVOCs, TCLP pesticides, and TCLP metals. In addition, the samples will be analyzed for total polychlorinated biphenyls (PCBs), reactivity, corrosivity, and ignitability. Waste profiles will be generated using analytical results of waste characterization samples. IDWs will then be disposed of according to applicable regulations. Copies of manifests will be obtained and provided with the final SC Report.

3.6 Air Monitoring

Work zone air monitoring will be conducted in accordance with the HASP (**Appendix D**). Community air monitoring will be conducted in accordance with the CAMP (**Appendix C**).

3.7 Health and Safety

Appendix D provides the health and safety procedures that will be implemented to protect Site workers conducting the SC field activities.

4 SITE CHARACTERIZATION REPORT

This section presents an outline for the SC Report that will be prepared to describe the SC field investigation activities and results.

Following receipt of the analytical results for the samples collected during the SC field activities, the results will be reviewed by a qualified data validator as described in the QAPP (**Appendix B**). A Data

SITE CHARACTERIZATION WORK PLAN

Usability Summary Report (DUSR) will be prepared for each sample delivery group. The validated analytical data will be compared to relevant SCGs and presented in the SC Report. The text of the SC Report will include a discussion of the following general topics:

- Site and project background
- Field activities completed
- Methodologies used to complete the field activities
- Findings of the field activities
- Understanding of the conceptual site model including the geologic and hydrogeologic conditions
- Summary of the distribution of hazardous substances (if present) in soil and groundwater

The text of the SC Report will be supported by presentation of subsurface logs, analytical data summary tables and figures (as appropriate) illustrating site-specific data, including hydrogeologic conditions and posting of key chemical constituent exceedances in subsurface soil and groundwater.

5 TARGET DURATION SCHEDULE

This section presents a target duration schedule for implementing the field investigation activities presented in this SC Work Plan. The project duration may depend on access to conduct the work, subcontractor availability, unforeseen field conditions, and weather delays. Changes in the schedule will be made in consultation with ISP and the NYSDEC.

Work Activity	Duration
SC Work Plan Approval	--
Mobilization (from date of SCWP approval, including scheduling of drilling subcontractor and utility clearance)	4 weeks
SC Field Activities	8 weeks
Laboratory Analysis of Samples (following completion of field activities)	8 weeks
Data Validation	12 weeks
Prepare SC Report and submit to NYSDEC	8 weeks

6 REFERENCES

- Arcadis. 2019. Records Search Report. Long Island MacArthur Airport. 100 Arrival Ave, Ronkonkoma NY. NYSDEC Site No. 152251.
- King, P.B. and H.M. Beikman. 1974. Geologic Map of the United States (Exclusive of Alaska and Hawaii). Geologic cartography by Gertrude J. Edmonston. U.S. Geological Survey. Scale 1:2,500,000.
- L&B and JKL. 2016. Exhibit "A" Airport Property Map. In *Airport Layout Plan*. Prepared for Long Island MacArthur Airport (ISP), New York. March.
- McClymonds, N.E. and O.L. Franke. 1972. Water-Transmitting Properties of Aquifers in Long Island, New York. U.S. Geological Survey Professional Paper 327-E. U.S. Government Printing Office, Washington, D.C.
- NYSDEC. 2019a. Order on Consent and Administrative Settlement, site # 152251.
- NYSDEC 2019b. Letter to Arcadis. Subject: Site Characterization Work Plan Outline, August 27, 2019.
- NYSDEC 2019c. Letter to Arcadis. Subject: Site Characterization Work Plan Outline, December 6, 2019.
- NYSDEC 2019d. Letter to Arcadis. Subject: Site Characterization Work Plan Outline, February 7, 2020
- NYSDEC. 2018a. Environmental Site Remediation Database Search Details. Available online at: www.dec.ny.gov/cfm/external/derexternal/haz/details.cfm. Retrieved June 14, 2019.
- NYSDEC. 2018b. *Fact Sheet: Long Island MacArthur Airport, Town of Islip*. February 2018.
- NYSDEC. 2010. DER-10, Technical Guidance for Site Investigation and Remediation. May 3, 2010.
- U.S. Geological Survey 2013. Water-Table and Potentiometric-Surface Altitudes in the Upper Glacial, Magothy, and Lloyd Aquifers beneath Long Island, New York, April-May 2010. U.S. Geological Survey Scientific Investigations Map 3270, Scale 1:125,000. Monti, J., Como, M, and R. Busciolano.

TABLES



Table 1
Description of Borings, Sampling Intervals, and Analytical Parameters for Areas of Potential Concerns
Long Island MacArthur Airport
Ronkonkoma, New York

AOPC #	Address/ Location Description	Sediment/ Stormwater Sample	Soil boring	Groundwater Grab Sample	Permanent Monitoring Well	Analytical Parameters ⁽¹⁾						Proposed Scope of Work	Rationale
						PFAS	1,4 Dioxane	VOCs	SVOCs	Metals	PCBs/Pesticides/Herbicides ⁽²⁾		
Core Airport Operation													
1	Recharge Basin #1	√	--	--	--	√	√	√	--	--	√	- Collect up to six (6) sediment sample within the recharge basin. - Collect one (1) stormwater sample if conditions allow.	Area receives stormwater runoff from AOPC #3 (Fire Training Area #1) and AOPC #8 (Glycol Treatment Plant).
2	Recharge Basin #2	√	--	--	--	√	√	√	--	--	√	- Collect up to six (6) sediment sample within the recharge basin. - Collect one (1) stormwater sample if conditions allow.	Area receives stormwater runoff from AOPC #6 (Old Fire House), AOPC 12 (Former Excelaire) and AOPC #15 Army National Guard area.
3	Fire Training Area #1: Northeast Wooded Area	√	√	√	√	√	√	√	√	--	√	- Drill two (2) soil borings and collect up to five (5) soil samples between land surface and the water table; - Collect one (1) groundwater grab sample at or near the water table; - Collect one (1) sediment sample from identified swale(s); - Collect one (1) stormwater sample if conditions exist in the swale(s); - Install one (1) permanent monitoring well within or immediately downgradient of this AOPC.	Area is historically used for fire training and firefighting foam testing involving AFFF.
4	Fire Training Area #2: Northwest, behind Compost Facility	√	√	√	√	√	√	√	√	--	√	- Drill two (2) soil borings and collect up to five (5) soil samples between land surface and the water table; - Collect one (1) groundwater grab sample at or near the water table; - Collect one (1) sediment sample from identified swale(s); - Collect one (1) stormwater sample if conditions exist in the swale(s); - Install one (1) permanent monitoring well within or immediately downgradient of this AOPC.	Area is used for firefighting foam testing involving AFFF.
5	Equipment Cleanout Area by Suffolk County Water Tower	√	√	√	--	√	√	√	--	--	√	- Drill two (2) soil borings and collect up to five (5) soil samples between land surface and the water table; - Collect one (1) groundwater grab sample at or near the water table; - Collect one (1) sediment sample from identified swale(s); - Collect one (1) stormwater sample if conditions exist in the swale(s).	Area is used for firefighting equipment cleanout, which poses potential impact from AFFF residue.
6	Old Fire House	√	√	√	--	√	--	--	--	--	√	- Collect one (1) soil samples at the 0-2' bls; - Collect one (1) groundwater grab sample; - Collect up to two (2) sediment samples from identified drainage structure.	Area is used for firefighting foam testing involving AFFF.
7	Taxiway Runoff Area #1: Low lying area between Taxiways Whiskey and Bravo	--	√	√	--	√	√	√	√	√	√	- Collect one (1) soil samples at the 0-2' bls; - Collect one (1) groundwater grab sample.	Low-lying Area receives overland stormwater runoff from Runways and from tenants along Smithtown Ave.
8	Glycol Treatment Plant	--	--	√	--	√	√	--	--	--	√	- Collect one (1) groundwater grab sample at the southern boundary of this AOPC.	Area receives runoff containing aircraft deicing fluid from the terminal area.
Independent Operation													
9	Excelaire, LLC / Hawthorne Global Aviation Services	--	--	--	√	√	√	√	√	√	√	- Install one (1) permanent monitoring well downgradient of AOPC #9 and #10.	Area is historical electroplating facility.
10	Sheltair ISLIP, LLC	--	--	--									Area is historical electroplating facility.
11	Herz/Avis/Budget	--	--	√	--	√	√	√	--	--	√	- Collect two (2) groundwater grab samples.	Area is currently operating a car wash facility.
12	Whitney Hangar	--	--	√	--	√	√	√	√	√	√	- Collect one (1) groundwater grab sample.	Area of suspected handling of hazardous material historically. Site inspection observed poor housekeeping.
Satellite Areas ⁽³⁾													
13	Central Aviation and Marine Corporation (CAMCO)	No proposed additional work. Work is currently performed by CAMCO under oversight of NYSDEC.											
14	Composting Facility	Town of Islip is preparing due diligence plan as part of proposed parcel redevelopment.											
15	New York Army National Guard Aviation Unit	No proposed additional work. Work is currently performed by Army National Guard under oversight of NYSDEC.											

Notes and Abbreviations on Last Page

Table 1
Description of Borings, Sampling Intervals, and Analytical Parameters for Areas of Potential Concerns
Long Island MacArthur Airport
Ronkonkoma, New York

AOPC #	Address/ Location Description	Sediment/ Stormwater Sample	Soil boring	Groundwater Grab Sample	Permanent Monitoring Well	Analytical Parameters ⁽¹⁾						Proposed Scope of Work	Rationale
						PFAS	1,4 Dioxane	VOCs	SVOCs	Metals	PCBs/Pesticides/Herbicides ⁽²⁾		
Site Wide													
Site-Wide	Site-wide monitoring wells	--	--	--	√	√	√	√	√	√	√	- Install one (1) monitoring well hydraulically upgradient of the Site; - Install up to four (4) monitoring wells at the southern boundary of the Site.	To monitor groundwater quality hydraulically upgradient and downgradient of the Site. Also to monitor groundwater quality at the southern boundary of the site and upgradient of SCWA Well #13.

Notes and Abbreviations:

Proposed boring and sampling locations are subject to field verification and may be revised.

See Tables 2 and 3 for details.

Based on USGS NWIS information, water table onsite is about 40 to 45 ft bls.

(1) PFAS will be analyzed using modified USEPA Method 537 following NYSDEC's list of 21 PFAS compounds; 1,4-Dioxane will be analyzed using USEPA Method 8270D SIM; VOCs will be analyzed using USEPA method 8260C; SVOCs will be analyzed using USEPA method 8270D; Metals will be analyzed using USEPA method 8081.

PCBs will analyzed using modified USEPA Method 8082; Pesticides will be analyzed using modified USEPA Method 8082; Herbicides will be analyzed using modified USEPA Method 8151A.

(2) PCBs, Pesticides and Herbicides will by analyzed for all groundwater samples and select soil samples. See Tables 2 and 3 for details.

AOPC	Area of Potential Concern
SCWA	Suffolk County Water Authority
PFAS	Per- and Polyfluoroalkyl Substances
VOCs	Volatile Organic Compounds
SVOCs	Semi-Volatile Organic Compounds
PCBs	Polychlorinated biphenyls
USEPA	United States Environmental Protection Agency
SIM	Select Ion Monitoring
--	Not Applicable
NWIS	National Water Information System
ft bls	feet below land surface

Table 2
Sediment and Soil Sampling Intervals and Analytical Parameters for Areas of Potential Concerns
Long Island MacArthur Airport
Ronkonkoma, New York

AOPC #	Address/ Location Description	Sampling ID		Sampling Depth (ft bls)		Sample Counts ⁽¹⁾					
		Sediment Sample	Soil Boring	Soil Boring Depth	Soil Sampling Interval	PFAS	1,4 Dioxane	VOCs	SVOCs	Metals	PCBs/Pesticides/Herbicides
Core Airport Operation											
1	Recharge Basin #1	ISP SED 1-1 thru SED 1-6 ⁽⁵⁾	--	--	0-2	max. 6	max. 6	max. 6	--	--	max. 6
2	Recharge Basin #2	ISP SED 2-1 thru SED 2-6 ⁽⁵⁾	--	--	0-2	max. 6	max. 6	max. 6	--	--	max. 6
3	Fire Training Area #1: Northeast Wooded Area ⁽²⁾	ISP SED 3-1 ⁽⁵⁾	ISP SO 3-1 ISP SO 3-2	Water table	• 0-2 • 2 ft above water table • Up to 3 additional samples will be collected based on field observation and geology ⁽³⁾	min. 5	min. 5	min. 5	--	--	3
4	Fire Training Area #2: Northwest, behind Compost Facility ⁽²⁾	ISP SED 4-1 ⁽⁵⁾	ISP SO 4-1 ISP SO 4-2	Water table	• 0-2 • 2 ft above water table • Up to 3 additional samples will be collected based on field observation and geology ⁽³⁾	min. 5	min. 5	min. 5	--	--	3
5	Equipment Cleanout Area by Suffolk County Water Tower ⁽²⁾	ISP SED 5-1 ⁽⁵⁾	ISP SO 5-1 ISP SO 5-2	Water table	• 0-2 • 2 ft above water table • Up to 3 additional samples will be collected based on field observation and geology ⁽³⁾	min. 5	min. 5	min. 5	--	--	3
6	Old Fire House	ISP SED 6-1 ISP SED 6-2 ⁽⁴⁾ ⁽⁵⁾	ISP SO 6-1	Water table	0-2	1-3	--	--	--	--	1-3
7	Taxiway Runoff Area #1: Low lying area between Taxiways Whiskey and Bravo	--	ISP SO 7-1	Water table	0-2	1	1	1	1	1	1
8	Glycol Treatment Plant	--	--	--	--	--	--	--	--	--	--
Independent Operation											
9	Excelsaire, LLC / Hawthorne Global Aviation Services	--	--	--	--	--	--	--	--	--	--
10	Sheltair ISLIP, LLC										
11	Herz/Avis/Budget	--	--	--	--	--	--	--	--	--	--
12	Whitney Hangar	--	--	--	--	--	--	--	--	--	--
Satellite Areas ⁽³⁾											
13	Central Aviation and Marine Corporation (CAMCO)	No proposed additional work. Work is currently performed by CAMCO under oversight of NYSDEC.									
14	Composting Facility	Town of Islip is preparing due diligence plan as part of proposed parcel redevelopment.									
15	New York Army National Guard Aviation Unit	No proposed additional work. Work is currently performed by Army National Guard under oversight of NYSDEC.									

Notes and Abbreviations on Last Page

Table 2
Sediment and Soil Sampling Intervals and Analytical Parameters for Areas of Potential Concerns
Long Island MacArthur Airport
Ronkonkoma, New York

AOPC #	Address/ Location Description	Sampling ID		Sampling Depth (ft bls)		Sample Counts ⁽¹⁾					
		Sediment Sample	Soil Boring	Soil Boring Depth	Soil Sampling Interval	PFAS	1,4 Dioxane	VOCs	SVOCs	Metals	PCBs/Pesticides/Herbicides
Site Wide											
Site-Wide	Site-wide monitoring wells	--	--	--	--	--	--	--	--	--	--

Notes and Abbreviations:

Proposed boring and sampling locations are subject to field verification and may be revised.

Based on USGS NWIS information, water table onsite is about 40 to 45 ft bls.

(1) PFAS will be analyzed using modified USEPA Method 537 following NYSDEC's list of 21 PFAS compounds; 1,4-Dioxane will be analyzed using USEPA Method 8270D SIM; VOCs will be analyzed using USEPA method 8260C; SVOCs will be analyzed using USEPA method 8270D; Metals will be analyzed using USEPA method 8081; PCBs will analyzed using modified USEPA Method 8082; Pesticides will be analyzed using modified USEPA Method 8082; Herbicides will be analyzed using modified USEPA Method 8151A.

(2) Inspections will be performed at AOPC #3, #4 and #5 to identify any swales. One sediment sample will be collected per AOPC, should a swale(s) be identified. Stormwater samples will be collected per AOPC and analyzed for the same parameters as the associated sediment sample.

- Minimum five (5) soil samples proposed for analysis of PFAS, 1,4-Dioxane and VOCs include soil samples collected from 0-2ft and 2ft above groundwater table at each soil boring (2 soil borings, i.e. total of 4 soil samples) and one (1) sediment sample;

- Three (3) soil samples proposed for analysis of PCBs, Pesticides and Herbicides include 0-2ft soil samples collect at each soil boring (2 soil borings,i.e. total of 2 soil samples) and one (1) sediment sample.

(3) Additional soil samples submitted for VOCs analysis (based on field observation). Such samples will also be analyzed for PFAS and 1,4-Dioxane.

(4) Arcadis will review records and inspect the Old Fire House to identify drainage features, including drainage swales and/or sumps inside and outside the firehouse. Stormwater (if identified) and sediment samples will be collected from each drainage feature (maximum of two samples for this AOPC).

(5) If conditions allow, one co-located stormwater sample will be collected and analyzed for the same parameters as the associated sediment samples.

AOPC	Area of Potential Concern
SCWA	Suffolk County Water Authority
PFAS	Per- and Polyfluoroalkyl Substances
VOCs	Volatile Organic Compounds
SVOCs	Semi-Volatile Organic Compounds
PCBs	Polychlorinated biphenyls
USEPA	United States Environmental Protection Agency
SIM	Select Ion Monitoring
ft bls	feet below land surface
--	Not Applicable
NWIS	National Water Information System
min.	minimum

Table 3
Monitoring Well Details, Groundwater Sample Collection and Analytical Parameters for Areas of Potential Concerns
Long Island MacArthur Airport
Ronkonkoma, New York

AOPC #	Address/ Location Description	Sampling ID		Sampling Interval (ft bls)		Sample Counts ⁽¹⁾					
		Groundwater Grab Sample ⁽³⁾	Permanent Monitoring Well ⁽³⁾	GW Grab Sample Depth	Monitoring Well Screen Interval ⁽²⁾	PFAS	1,4 Dioxane	VOCs	SVOCs	Metals	PCBs/Pesticides/Herbicides
Core Airport Operation											
1	Recharge Basin #1	--	--	--	--	--	--	--	--	--	
2	Recharge Basin #2	--	--	--	--	--	--	--	--	--	
3	Fire Training Area #1: Northeast Wooded Area	ISP GWG 3-1	ISP MW 3-1	0-2 ft below water table	Screen starts at 3 ft above water table; 10 ft total screen length	2	2	2	2	--	2
4	Fire Training Area #2: Northwest, behind Compost Facility	ISP GWG 4-1	ISP MW 4-1	0-2 ft below water table	Screen starts at 3 ft above water table; 10 ft total screen length	2	2	2	2	--	2
5	Equipment Cleanout Area by Suffolk County Water Tower	ISP GWG 5-1	--	0-2 ft below water table	--	1	--	--	--	--	1
6	Old Fire House	ISP GWG 6-1	--	0-2 ft below water table	--	1	--	--	--	--	1
7	Taxiway Runoff Area #1: Low lying area between Taxiways Whiskey and Bravo	ISP GWG 7-1	--	0-2 ft below water table	--	1	1	1	1	1	1
8	Glycol Treatment Plant	ISP GWG 8-1	--	0-2 ft below water table	--	1	1	--	--	--	1
Independent Operation											
9	Excelaire, LLC / Hawthorne Global Aviation Services	--	ISP MW 9-1	--	Screen starts at 3 ft above water table; 10 ft total screen length	1	1	1	1	1	1
10	Sheltair ISLIP, LLC										
11	Hertz/Avis/Budget	ISP GWG 11-1 ISP GWG 11-2	--	0-2 ft below water table	--	2	2	2	--	--	2
12	Whitney Hangar	ISP GWG 12-1	--	0-2 ft below water table	--	1	1	1	1	1	1
Satellite Areas											
13	Central Aviation and Marine Corporation (CAMCO)	No proposed additional work. Work is currently performed by CAMCO under oversight of NYSDEC.									
14	Composting Facility	Town of Islip is preparing due diligence plan as part of proposed parcel redevelopment.									
15	New York Army National Guard Aviation Unit	No proposed additional work. Work is currently performed by Army National Guard under oversight of NYSDEC.									

Notes and Abbreviations on Last Page

Table 3
Monitoring Well Details, Groundwater Sample Collection and Analytical Parameters for Areas of Potential Concerns
Long Island MacArthur Airport
Ronkonkoma, New York

AOPC #	Address/ Location Description	Sampling ID		Sampling Interval (ft bls)		Sample Counts ⁽¹⁾					
		Groundwater Grab Sample ⁽³⁾	Permanent Monitoring Well ⁽³⁾	GW Grab Sample Depth	Monitoring Well Screen Interval ⁽²⁾	PFAS	1,4 Dioxane	VOCs	SVOCs	Metals	PCBs/Pesticides/Herbicides
Site Wide ⁽²⁾											
Site-Wide	Site-wide monitoring wells	--	ISP MW-1 ISP MW-2 ISP MW-3 ISP MW-4 ISP MW-5	--	Screen starts at 3 ft above water table; 10 ft total screen length	5	5	5	5	5	5

Notes and Abbreviations:

Proposed boring and sampling locations are subject to field verification.

Based on USGS NWIS information, water table onsite is estimated to range between 40 to 45 ft bls.

(1) PFAS will be analyzed using modified USEPA Method 537 following NYSDEC's list of 21 PFAS compounds; 1,4-Dioxane will be analyzed using USEPA Method 8270D SIM; VOCs will be analyzed using USEPA method 8260C; SVOCs will be analyzed using USEPA method 8270D;

Metals will be analyzed using USEPA method 8081; PCBs will analyzed using modified USEPA Method 8082; Pesticides will be analyzed using modified USEPA Method 8082; Herbicides will be analyzed using modified USEPA Method 8151A.

(2) Final well construction may vary pending field observation and review of the initial round of water-level measurements, to be performed prior to well installation.

(3) Continuous soil cores will be collected, examined for visual indication of impact, and lithologically logged.

AOPC	Area of Potential Concern
SCWA	Suffolk County Water Authority
PFAS	Per- and Polyfluoroalkyl Substances
VOCs	Volatile Organic Compounds
SVOCs	Semi-Volatile Organic Compounds
PCBs	Polychlorinated biphenyls
USEPA	United States Environmental Protection Agency
SIM	Select Ion Monitoring
ft bls	feet below land surface
--	Not Applicable
NWIS	National Water Information System

Table 4
Summary of Existing Monitoring Wells
Long Island MacArthur Airport
Ronkonkoma, New York

Well ID	Ownership	LS Elevation (ft msl)	MP Elevation (ft msl)	Latitude	Longitude	Total Depth (ft)	Diameter (in)	Screen Interval (ft bls)	DTW (ft bls)	Reference
On Site Wells										
S 20930.1	USGS	80	UNK	40.47°23"	73.06°08"	130	6	120-125	50	USGS NWIS ⁽¹⁾
S 66607.1	USGS	84	UNK	40.47°11"	73.06°48"	55	UNK	UNK	UNK	USGS NWIS ⁽¹⁾
S 44508.1	USGS	86	UNK	40.47°40"	73.06°05"	105	UNK	UNK	UNK	USGS NWIS ⁽¹⁾
S 44506.1	USGS	83	UNK	40.47°40"	73.06°01"	105	UNK	UNK	UNK	USGS NWIS ⁽¹⁾
S 45545.1	USGS	82	UNK	40.47°40"	73.05°58"	108	UNK	UNK	UNK	USGS NWIS ⁽¹⁾
S 45887.1	USGS	82	UNK	40.47°40"	73.05°56"	108	UNK	UNK	UNK	USGS NWIS ⁽¹⁾
S 45888.1	USGS	81	UNK	40.47°39"	73.05°55"	108	UNK	UNK	UNK	USGS NWIS ⁽¹⁾
S 5834.1	USGS	98	UNK	40.48°02"	73.06°38"	134	UNK	UNK	UNK	USGS NWIS ⁽¹⁾
MW-13-1	CAMCO	UNK	95.60	UNK	UNK	65	2	UNK	52.42	CAMCO SMP December 2015 ⁽²⁾
MW-13-2	CAMCO	UNK	96.93	UNK	UNK	65	2	UNK	54.03	CAMCO SMP December 2015 ⁽²⁾
MW-13-3	CAMCO	UNK	94.47	UNK	UNK	65	2	UNK	53.57	CAMCO SMP December 2015 ⁽²⁾
MW-13-4	CAMCO	UNK	96.13	UNK	UNK	67	2	57-67	51.47	CAMCO SMP December 2015 ⁽²⁾
MW-13-5	CAMCO	UNK	95.51	UNK	UNK	67	2	57-67	52.74	CAMCO SMP December 2015 ⁽²⁾
MW-13-6	CAMCO	UNK	95.58	UNK	UNK	65	2	55-65	55.86	CAMCO SMP December 2015 ⁽²⁾
MW-11-1	Hertz	UNK	UNK	UNK	UNK	58	4	38-58	UNK	Phase I ESA- 1989
MW-11-2	Hertz	UNK	UNK	UNK	UNK	58	4	38-58	UNK	Phase I ESA- 1989
MW-11-3	Hertz	UNK	UNK	UNK	UNK	59	4	39-59	UNK	Site Inspection
Off Site Wells										
MW-1	ISP	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	ISP SPDES Permit Number NY017370
MW-2	ISP	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	ISP SPDES Permit Number NY017370

Notes and Abbreviations:

Information collected from USGS NWIS, SMP for Former CAMCO Site (EnviroTrac 2015) and Hertz 1989 Phase I (Groundwater Technology Inc. 1989).

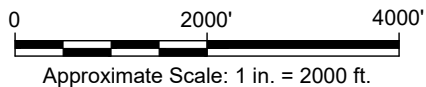
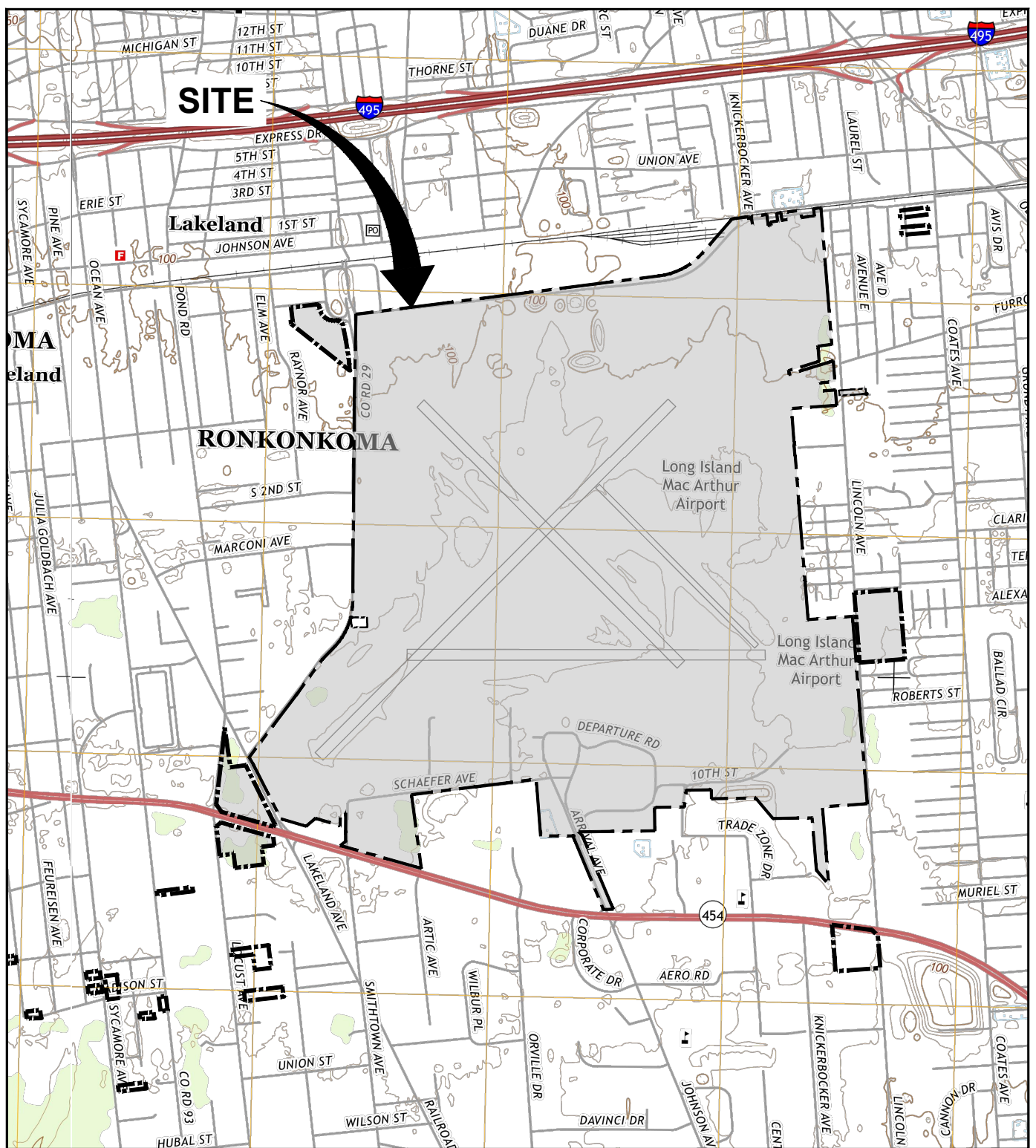
⁽¹⁾ Elevation referenced to NAVD88. Coordinations referenced to NAD27.

⁽²⁾ Elevation and coordination reference are unknown.

ID	Identification
LS	Land surface
MP	Measuring point
ft msl	feet above mean sea level
ft bls	feet below land surface
in	inch
UNK	Unknown
NWIS	National Water Information System
SMP	Site Management Plan
ISP	Town of Islip
SPDES	State Pollution Discharge Elimination System

FIGURES





NOTE:

PARCEL BOUNDARY DATA OBTAINED
FROM SUFFOLK COUNTY, REAL
PROPERTY TAX
SERVICE AGENCY GEOGRAPHICAL
INFORMATION SYSTEMS.



LONG ISLAND MACARTHUR AIRPORT
RONKONKOMA, NEW YORK

SITE LOCATION



FIGURE

1

Arcadis of New York, Inc.

Two Huntington Quadrangle

Suite 1S10

Melville, New York 11747

Tel 631 249 7600

Fax 631 249 7610

www.arcadis.com