ATLANTIC TESTING LABORATORIES

Albany
22 Corporate Drive
Clifton Park, NY 12065
518-383-9144 (T)
atlantictesting.com

WBE certified company

December 2, 2022

New York State Department of Environmental Conservation
Division of Environmental Permits
625 Broadway, 4th Floor
Albany, New York 12233-1750

Attn: Karen M. Gaidasz

Re: Groundwater Monitoring Well Plan
Port of Albany Expansion Project
Beacon Island Parcel
Bethlehem, Albany County, New York
ATL Report No. AT5596CE-08-11-22 Revision 1

Ladies/Gentlemen:

Enclosed is a copy of the revised Groundwater Monitoring Well Plan prepared for the referenced site. This report was revised to address the following comments provided by representatives of the New York State Department of Environmental Conservation.

1. *Include the target analyte list for heavy metals, using analytical method EPA Method 6010/6020/7000 entire series of metals.*
   - Section 3.4 has been updated to include a list of the metals that will be included for analysis.
2. *There is a potential concern for mercury and total chromium. While it is not necessary to speciate the samples initially, the Plan should indicate that speciation will occur for future sampling events if elevated results of mercury or total chromium are identified.*
   - Section 3.4 has been updated to include a description for methyl mercury analysis if considered applicable as the groundwater monitoring program progresses.
   - Hexavalent chromium will be included in the groundwater sampling and analysis, and is specified in the updated Section 3.4.
3. *For Emerging Contaminants: since PGAS was previously identified, groundwater should continue to be analyzed for PFAS and 1,4-dioxane should also be included.*
   - Section 3.4 lists PFAS as part of the full suite of analytical parameters. 1,4-dioxane is a compound that will be reported with the semi-VOC analysis via EPA Method 8270 (base/neutral extractables).
4. *The Plan does not discuss what happens if there are any exceedances of baseline conditions during construction sampling. Please include a section describing the protocol if exceedances are identified.*
   - Section 3.5, Protocol for Exceedances, has been added to the Plan.

Please contact our office should you have any questions, or if we may be of further assistance.

Sincerely,
ATLANTIC TESTING LABORATORIES, Limited

Cheyenne J. Dashnaw, P.E.
Senior Engineer

CJD/cjd

Enclosures

GROUNDWATER MONITORING WELL PLAN

PORT OF ALBANY EXPANSION PROJECT
BEACON ISLAND PARCEL
BETHLEHEM, ALBANY COUNTY, NEW YORK

WBE certified company

PREPARED BY:

ATLANTIC TESTING LABORATORIES, LIMITED
22 Corporate Drive
Clifton Park, New York 12065

PREPARED FOR:

McFarland Johnson, Inc.
60 Railroad Place, Suite 402
Saratoga Springs, New York 12866
MJ Project No. 18641.02

Albany Port District Commission
106 Smith Boulevard
Albany, New York 12202

ATL REPORT NO. AT5596CE-08-11-22 Revision 1

December 2, 2022

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1.0 INTRODUCTION

1.1 Purpose

Atlantic Testing Laboratories, Limited (ATL) was retained by McFarland Johnson, Inc., on behalf of the Albany Port District Commission, to prepare a Groundwater Monitoring Well Plan to describe the installation of proposed monitor wells at the Port of Albany expansion site (Beacon Island), and the sampling and analysis of these wells during and post-construction. This Groundwater Monitoring Well Plan is being provided for compliance with General Requirements item number 8 of the New York State Department of Environmental Conservation (NYSDEC) Article 11 and Article 15 permits for the project site (referenced as NYSDEC Permit IDs 4-0122-00322/00002 and 4-0122-00322/00005). Below is an excerpt from the permits showing the General Requirements item number 8.

> **8. Groundwater Monitoring Wells** The Permittee shall prepare a Groundwater Monitoring Well Plan which specifies the installation of multiple groundwater wells along the banks of the Hudson River to monitor for potential contaminant migration resulting from construction activities over the coal ash landfill. The Plan shall outline the number of wells, location of wells and contaminants of concern. The wells shall be installed prior to soil surcharging activities so that baseline conditions can be established. Once soil surcharging commences, groundwater monitoring shall be conducted monthly until construction activities are completed. Monitoring shall continue post-construction every six (6) months until NYSDEC determines it can be discontinued based on review of sampling results. The Groundwater Monitoring Well Plan shall be submitted to NYSDEC by November 30, 2022, for review and approval.

1.2 Site Description

The subject site is the Beacon Island parcel located to the east of River Road (County Route 144) and along the west side of the Hudson River, in the Town of Bethlehem, Albany County, New York. The subject site is intersected by 42° 36' 11" north latitude and 73° 45' 57" west longitude. The Beacon Island parcel is comprised of approximately 80 acres, and is the site of a planned expansion for the Port of Albany. A Site Location Map, showing the approximate location of the subject site, is included in Appendix A.

1.3 Background Information

The subject site was historically used for disposition of coal ash waste materials. Existing on-site coal ash waste materials are planned to remain, as described in the landfill reclamation work plan for the site (reference ATL Report No. AT5596CE-05-10-12, dated October 20, 2022). Planned redevelopment of the site includes clearing and grading, placement of material for soil surcharging, and then construction of facilities and structures for the Port of Albany expansion.

2.0 MONITORING WELL INSTALLATION

2.1 Monitoring Well Locations and Depths

As required by General Requirements item number 8 of NYSDEC Permit IDs 4-0122-00322/00002 and 4-0122-00322/00005, a series of groundwater monitoring wells will be installed along the banks of the Hudson River to monitor for potential contaminant migration resulting from construction activities over the coal ash landfill. A total of 5 monitoring wells are proposed, as shown on the Proposed Monitoring Well Location Plan in Appendix B.

For the south end of the subject site, where the waste ash extends closest to the Hudson River, spacing between monitoring wells MW-1, MW-2, and MW-3 will be approximately 400 to 500 feet. For the north end of the subject site, where the waste ash extends further away from the Hudson River, spacing between monitoring wells MW-3, MW-4, and MW-5 will be approximately 900 to 1,100 feet. Locations shown on the Proposed Monitoring Well Location Plan are not exact, but will be near the general areas shown. Actual locations will be subject to modification at the time of installation to avoid planned locations of structures or other site development features, as needed to limit potential for damage of the monitoring wells during or post-construction.

Available information indicates that groundwater at the subject site is expected to be present at shallow depths ranging from 1.5 to 16 feet below existing grade. Observed depths of termination for the coal ash (based on previously completed subsurface investigations) have ranged from 2 and 23 feet below the ground surface, with an estimated mean depth of 15 feet. Monitoring wells will be installed to a depth of 20 feet below the ground surface, unless groundwater is observed at greater than 10 feet during the drilling work. For locations where groundwater is observed at a depth greater than 10 feet, the monitoring wells will be advanced further and depth of termination will be selected to achieve an estimated 10-foot interval with groundwater for the screened section of the finished well. The maximum depth of the monitoring wells will be 30 feet, which is expected to be sufficient based on the available site information for groundwater depths (1.5 to 16 feet as previously described).

2.2 Monitoring Well Installation Methods

Monitoring wells will be advanced using a Geoprobe Systems' Model 7822DT drill rig or equivalent. The monitoring wells will be installed in borings that are cased with steel casing (2.625-inch I.D.) equipped with an expendable drive point to prevent slough from entering the interior cavity of the casing. The wells will be constructed with a 10-foot length of 2-inch diameter, 0.01-inch slots schedule 40 PVC screen to intercept the groundwater table and 2-inch diameter schedule 40 PVC well riser to extend from the top of screen to the ground surface. The screened interval will be backfilled with a sand pack. A bentonite seal will be placed above the sand pack, and the remainder of the annulus will be backfilled with a cement/bentonite grout. A steel stick-up style protective casing will be installed at the surface. The steel well protector will be fitted with a lockable cover.

Subsequent to installation, the monitoring wells will be developed to facilitate future sampling and analysis. Development will include evacuating a sufficient volume of water to reduce turbidity and sediment associated with installation activities, and seat the well. The wells will be allowed to recover for at least 24 hours prior to sampling.

Investigation-derived wastes (IDW) associated with the monitoring well installation will be containerized on-site and labeled, for temporary storage prior to receipt of laboratory analysis results for the groundwater samples. The owner will subsequently coordinate requisite waste handling, sampling, analysis, and disposal.

2.3 Survey for Locations and Elevations

Surveying of the monitoring well locations and elevations will be coordinated with on-site construction representatives. A drawing will be provided to show the monitoring well locations and elevations. Data and information provided from the survey will be used to determine groundwater elevations during sampling events.

2.4 Replacement of Damaged Wells (If Applicable)

Conditions of monitoring wells will be evaluated at the time of each sampling event. In the event that a monitoring well is determined to be in a condition not suitable for sample collection, the Port of Albany will coordinate for replacement of the damaged monitoring well prior to the next scheduled sampling event. Sampling and analysis data would not be available for the event in which the monitoring well is identified as damaged, but should be available during the next subsequent sampling event.

3.0 GROUNDWATER SAMPLING AND ANALYSIS PLAN

3.1 Contaminants of Concern

Sampling and analysis of the coal ash material have been completed during previous subsurface investigations at the subject site. As indicated in the Landfill Reclamation Work Plan for the site (reference ATL Report No. AT5596CE-05-10-12, dated October 20, 2022), available analysis results were not indicative of a concern for volatile organic compounds (VOC), semi-VOC, pesticides, polychlorinated biphenyls (PCB), or cyanide within the coal ash material. The analysis for metals identified certain concentrations above NYSDEC Soil Cleanup Objectives, with primary contaminants of concern being arsenic and barium. Previously collected groundwater samples from the subject site have exhibited similar results, with metals being the primary contaminants of concern. Analysis for per- and polyfluoroalkyl substances (PFAS) via groundwater sampling and analysis conducted by the NYSDEC in November 2020 identified concentrations for perfluorooctanesulfonic acid (PFOS) in 1 of 6 monitoring wells at 33 parts per billion (ppb) and 34 ppb (field duplicate sample), exceeding the New York State MCL of 10 ppb.

3.2 Sampling and Analysis Schedule

Per conditions of the General Requirements item number 8 of NYSDEC Permit IDs 4-0122-00322/00002 and 4-0122-00322/00005, sampling and analysis events will be performed at the following frequency:

- Initial baseline sampling and analysis event – prior to soil surcharging activities
- During construction sampling and analysis events – monthly (after surcharging commences) until construction activities are completed
- Post-construction sampling and analysis events – every 6 months until NYSDEC allows for discontinuation based on review of results

3.3 Groundwater Sampling Methodology and Field Measurements

Each sampling event will include collection of groundwater samples from the 5 monitoring wells. Prior to sample collection, measurements for groundwater depth and indicator field parameters (pH, oxidation reduction potential, dissolved oxygen) will be obtained. Monitoring wells will be initially purged, and samples will be collected using low-stress/low-flow sampling procedures (e.g., inertial pump, submersible pump). Stabilization of indicator field parameters will be used to determine when conditions are suitable for commencement of sampling. If field indicators have not stabilized after 2 hours of purging, additional purging may be performed or the samples will be collected and efforts to achieve stabilization documented.

IDW associated with the monitoring well sampling will be containerized on-site and labeled, for temporary storage prior to receipt of laboratory analysis results for the groundwater samples. The owner will subsequently coordinate requisite waste handling, sampling, analysis, and disposal.

3.4 Laboratory Analysis

While the primary contaminants of concern for the waste coal ash material are metals, laboratory analysis will initially be performed for Target Analyte List (TAL) metals, hexavalent chromium, cyanide, VOC, semi-VOC, pesticides, PCB, and PFAS (herein referred to as full suite). The TAL metals analysis will include the following:

- Aluminum
- Antimony
- Arsenic
- Barium
- Beryllium
- Boron
- Cadmium
- Calcium
- Chromium
- Cobalt
- Copper
- Iron
- Lead
- Magnesium
- Manganese
- Mercury
- Nickel
- Potassium
- Selenium
- Silver
- Sodium
- Thallium
- Vanadium
- Zinc

The full suite of analysis will be provided for samples collected during the initial baseline sampling and analysis event, and during all subsequent sampling and analysis events. If it is determined certain analytical parameters would no longer be considered necessary, based on review of analytical results for a series of events, the Port of Albany will petition the NYSDEC for consideration to discontinue that analysis. Each analysis would continue to be applicable to the sampling and analysis program until the NYSDEC provides affirmation to discontinue.

In addition to the defined full suite of analytical parameters, there is a potential concern for mercury and speciation may be considered applicable as the groundwater monitoring events progress. If deemed necessary at any point during the groundwater monitoring program, analysis for methyl mercury may be performed for collected groundwater samples. It is noted that NYSDOH Environmental Laboratory Approval Program (ELAP) does not include accreditation for analysis of methyl mercury. This analysis will be performed via EPA Method 1630, by a laboratory without NYSDOH ELAP accreditation.

One field duplicate sample will be collected during each sampling event, and the field duplicate will be laboratory analyzed for the same parameters as the other groundwater samples. A trip blank (for VOC analysis) will be included with each sampling and analysis event that includes analysis for VOC in the groundwater samples. Dedicated sampling equipment will be used for each monitoring well, such that a rinse blank would not be considered applicable. Matrix spike/matrix spike duplicate (MS/MSD) or other types of field quality assurance/quality control (QA/QC) samples are also not planned. Laboratory QA/QC samples will be included pursuant to the selected laboratory's typical procedures and protocol.

Samples will be submitted to a New York State Department of Health (NYSDOH) Environmental Laboratory Approval Program (ELAP) approved laboratory for analysis. The laboratory analysis reports will be provided as a NYSDEC Analytical Services Protocol (ASP) Category B deliverable.

3.5 Protocol for Exceedances

Analytical results for groundwater samples collected during construction and post-construction will be compared to the analytical results for groundwater samples collected during the initial baseline sampling event. The following protocol will be implemented if concentrations of target compounds for during construction and post-construction sampling events exceed the concentrations reported for the initial baseline sampling event.

a. Target compound concentrations higher than baseline data will also be compared to groundwater standards and guidance values listed in NYSDEC TOGS 1.1.1. If concentrations remain below the NYSDEC TOGS 1.1.1 standards/guidance values, groundwater monitoring will continue as-is.
b. If concentrations exceed baseline conditions and NYSDEC TOGS 1.1.1 standards/guidance values, the monitoring would continue in order to assess trends or indications of potential permanent impacts to groundwater quality. Immediate response action would not be considered to be pragmatic, as the baseline conditions will be based on a single sampling and analysis event as opposed to a more representative series of events, and there would be a natural inclination towards variations in concentrations of compounds in groundwater based solely on disturbance of a site regardless of the presence or absence of a contaminant source.
c. If groundwater remediation is considered necessary at any point during the groundwater monitoring program, site conditions and available data will be evaluated to select an appropriate remedial option. Specific remedial action cannot be defined at this time as there are several unknowns; however, possible alternatives for this site may include a cut-off wall system with treatment media, biological treatment (e.g., enhanced biodegradation, bioaugmentation), and/or chemical remediation (e.g., carbon absorption, chemical precipitation, oxidation). Prior to implementation of any remedial action, a remedial action work plan would be developed and submitted to the NYSDEC for review.

3.6 Reporting

A report will be prepared for the monitoring well installation and initial baseline sampling and analysis event, to include the following:

- A description of monitoring well installation methods and monitoring well logs showing construction details for each well
- Well development and sampling methodologies and summary of readings for indicator field parameters
- Laboratory analysis reports and associated sample custody documentation
- A tabular summary of the laboratory analysis results, with comparison to NYSDEC Technical and Operational Guidance Series (TOGS) 1.1.1 standards and guidance values
- A Monitoring Well Location Plan
- A discussion of findings

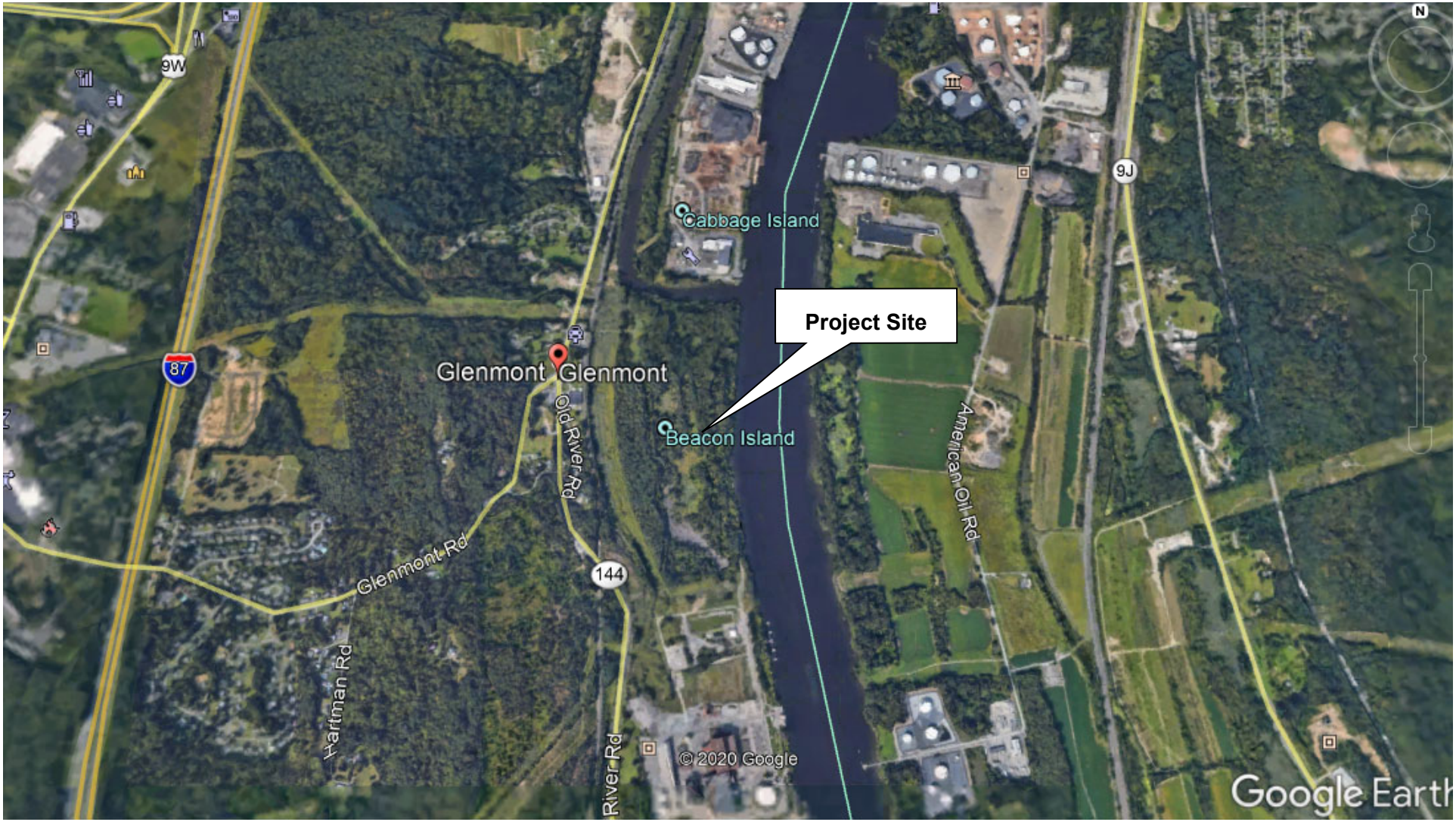
A report will be prepared for each during construction and post-construction monitoring well sampling and analysis event, to include the following:

- A description of sampling methodologies and summary of readings for indicator field parameters
- Laboratory analysis reports and associated sample custody documentation
- A tabular summary of the laboratory analysis results, with comparison to baseline concentrations and NYSDEC TOGS 1.1.1 standards and guidance values
- A Monitoring Well Location Plan
- A discussion of findings

Laboratory analysis results will typically be available within 1 to 2 weeks subsequent to sample collection. Reports will be submitted within 2 weeks subsequent to receipt of the laboratory analysis results. If requested, a copy of laboratory analysis results and tabular summary of the results can be provided ahead of the completed reports for earlier review.

APPENDIX A

SITE LOCATION MAP



Site Location Map	Drawn by: CJD	Scale: Not to scale	Project No.: AT5596	Date: November 2022
Beacon Island Parcel **Bethlehem, New York**	***ATLANTIC TESTING LABORATORIES*, Limited** Albany, NY · Binghamton, NY · Canton, NY · Elmira, NY · Plattsburgh, NY Poughkeepsie, NY · Syracuse, NY · Rochester, NY · Utica, NY · Watertown, NY			

APPENDIX B

PROPOSED MONITORING WELL LOCATION PLAN

LEGEND :

Approximate Aerial Extents of Coal Ash Material

Note: Proposed locations shown are not exact. Monitoring wells are proposed to be installed in these general areas with the approximate spacing identified. Actual locations are subject to modification in the field to avoid planned locations of structures (e.g., wharf) or other site development features to limit potential for disturbance to the wells.

Proposed Monitoring Well Location Plan

Beacon Island Parcel
Bethlehem, Albany County, New York

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