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Alternatives Analysis Report and Remedial Action Work Plan

Old Erie Commons
160 Center Street, Canastota, New York
BCP Site No. C727015

Prepared for:

Old Erie Commons, LLC
1201 East Fayette Street
Syracuse, New York

August 2026

C&S Project No. W96.013.001

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HOUSINGVISIONS
Real Plans. Real People. Real Progress.

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Prepared by:

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I, H. Nevin Bradford, certify that I am currently a New York State Registered Professional Engineer and that this Alternatives Analysis Report and Remedial Action Work Plan was prepared in accordance with applicable statutes and regulations and in substantial conformance with the DER Technical Guidance for Site Investigation and Remediation (DER-10) and Green Remediation (DER-31).

H. Nevin Bradford
State of New York Professional Engineer No. 086008

August 25, 2026

C&S Project#: W96.013.001

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ACRONYMS

AAR – Alternatives Analysis Report

ACM – Asbestos Containing Material

AMSL – Above Mean Sea Level

AOC – Area of Concern

ASTM – American Society for Testing and Materials

AWQS – Ambient Water Quality Standards

BCA – Brownfield Cleanup Agreement

BCP – Brownfield cleanup Program

BER – Business Environmental Risk

BGS – Below Ground Surface

BMP – Best Management Practice

BTOR – Below Top of Riser

CAMP – Community Air Monitoring Plan

CJWG – Climate Justice Working Group

CM – Commercial Use

CO_2 – Carbon Dioxide

COC – Certificate of Completion

CP – Commissioners Policy

CPP – Community Participation Plan

CQAP – Construction Quality Assurance Plan

CVA – Climate Change Vulnerability Assessment

DAC – Disadvantaged Community

DD – Decision Document

DER – Department of Environmental Remediation

DMM – Division of Materials Management

DOB – Department of Buildings

EC – Engineering Control

ECL – Environmental Conservation Law

EE – Environmental Easement

ESA – Environmental Site Assessment

FEMA – Federal Emergency Management Agency

FER – Final Engineering Report

GAC – Granular Activated Carbon

GHG – Greenhouse Gas

GPR – Ground Penetrating Radar

GRT – Green Remediation Technique

GSR – Green and Sustainable Remediation

HAP – Hazardous Air Pollutant

HASP – Health and Safety Plan

HCR – Homes and Community Renewal

HDPE – High Density Polyethylene

HFM – Historic Fill Material

IC – Institutional Control

ISCO – In-Situ Chemical Oxidation

MMBtu – Metric Million British Thermal Unit

MS / MSD – Matrix Spike / Matrix Spike Duplicate

NAPL – Non-Aqueous Phase Liquid

NAVD – North American Vertical Datum

NIDIS – National Integrated Drought Information System

NOx – Nitrogen Oxides

NOAA – National Oceanic and Atmospheric Administration

NYCRR – New York Codes, Rules, and Regulations

NYSDEC – New York State Department of Environmental Conservation

NYSDOH – New York State Department of Health

NYSDOL – New York State Department of Labor

NYSDOT – New York State Department of Transportation

NYSERDA – New York State Energy Research and Development Authority

OCWA – Onondaga County Water Authority

OSHA – Occupational Safety and Health Administration

PAH – Polycyclic Aromatic Hydrocarbons

PCB – Polychlorinated Biphenyl

PFAS – Per- and Polyfluoroalkyl Substances

PFOA – Perfluorooctanoic Acid

PFOS – Perfluorooctanesulfonic Acid

PID – Photo-ionization Detector

PM – Particulate Matter

PPB – Parts per Billion

PPM – Parts per Million

PPT – Parts per Trillion

PVC – Polyvinyl Chloride

QA / QC – Quality Assurance / Quality Control

QAPP – Quality Assurance Project Plan

RAO – Remedial Action Objective

RAPT – Resilience Analysis and Planning Tool

RAWP – Remedial Action Work Plan

REC – Recognized Environmental Condition

RI – Remedial Investigation

RIWP – Remedial Investigation Work Plan

RR – Restricted Residential

SCG – Standards, Criteria, Guidance

SCO – Soil Cleanup Objective

SEFA – Spreadsheets for Environmental Footprint Analysis

SEQRA – State Environmental Quality Review Act

Site – 160 Center Street, Canastota, New York

SMMP – Soil / Material Management Plan

SMP – Site Management Plan

SOx – Sulfur Oxides

SOP – Site Operations Plan

SPDES – State Pollutant Discharge Elimination System

SURF – Sustainable Remediation Forum

SVOC – Semi volatile Organic Compound

SWPPP – Storm Water Pollution Prevention Plan

TAL – Target Analyte List

TCL – Target Compound List

TOGS – Technical and Operational Guidance Series

UR – Unrestricted Use

USDA – United States Department of Agriculture

USEPA – United States Environmental Protection Agency

USGS – United States Geologic Service

UST – Underground Storage Tank

VOC – Volatile Organic Compound

$\mu g/m^3$ – Microgram per Cubic Meter

EXECUTIVE SUMMARY

This document presents the Alternative Analysis Report (AAR) / Remedial Action Work Plan (RAWP) for Brownfield Cleanup Program (BCP) Site No. C727015 located at 160 Center Street, Canastota, Madison County, New York (the "Site"). This document reports on the data and findings from the New York State Department of Environmental Conservation (NYSDEC)-approved Remedial Investigation (RI), evaluates remedial alternatives to address the contamination at the Site, and provides details for elements of the proposed Remedial Action.

Site Description / Physical Setting / Site History

Savarino Companies LLC (previous developer) entered into a Brownfield Cleanup Agreement (BCA) with NYSDEC in November 2021. In March 2022, an amendment was executed to substitute 160 Center LLC (previous developer) as the sole BCP Volunteer on the existing BCA. 160 Center LLC was a related entity to Savarino Companies, LLC and was a single purpose entity formed for the proposed redevelopment project at the Site. Under 160 Center LLC, a Remedial Investigation Work Plan (RIWP) was submitted and approved by NYSDEC; however, investigation activities were never conducted at the Site at that time. In May 2025, a second amendment was executed to substitute Old Erie Commons, LLC (current developer) as the sole BCP Volunteer on the existing BCA. Old Erie Commons, LLC is a Volunteer in the BCP and performed the RI, with some minor changes to the previously approved RIWP.

The Site is located in the Village of Canastota in Madison County, New York and is identified as Block 36.63, Lot 1-2 on the Village of Canastota Tax Map. A United States Geological Survey (USGS) topographical quadrangle map (**Figure 1**) shows the Site location. The Site is situated on a +/- 2.56-acre parcel bounded by old Erie Canal (Pools Brook) to the north, Center Street to the south, a commercial property to the east, and residential and commercial properties to the west (see **Figure 2**).

For more than 120 years, the Site was utilized for various industrial operations, including varnishing, painting, and machining, as well as casket manufacturing, furniture manufacturing, and boat building. The former Site buildings, constructed prior to 1890 by the Canastota Casket Company, were subsequently occupied by several furniture manufacturers and later by an agricultural supply company before becoming largely vacant sometime between the 1990s and 2000s. The former buildings included the main manufacturing building on the south side of the Site, a secondary manufacturing building on the north side of the Site, storage buildings, dry houses, and sheds.

Three railroad spurs extended into the Site from its southeastern corner, remaining in use from before 1890 until after 1963. According to fire insurance maps, an underground storage tank (UST) of unknown capacity was reportedly installed at the Site between 1906 and 1911 for the storage of benzine (a mixture of various aliphatic hydrocarbon compounds, also known as petroleum ether or naphtha). No information is available regarding the UST's exact location (only an approximate location is provided on fire insurance maps), size, closure, or removal. A surface

feature with the potential to connect to subsurface structures was observed in the approximate vicinity of the reported UST; however, previous investigations have not been able to definitively conclude if the UST remains. The main Site building partially collapsed in July 2011 and was fully demolished under emergency conditions in August 2011. A large building debris pile consisting of brick, stone, concrete, and wood pieces remains along the southern portion of the Site, generally within the basement of the historical main Site building.

Summary of the Remedial Investigation

To characterize Site conditions and identify the appropriate remedy for the Site, a RI was implemented between July and October 2025. The RI included the collection and analysis of 16 surface soil samples, 28 subsurface soil samples, two rounds of groundwater sampling from four wells (8 total samples), and one soil vapor assessment consisting of 6 soil vapor samples and one outdoor air sample.

Based on the RI, contaminants of concern are generally within the historic fill material (HFM) across the Site and include semi-volatile organic compounds (SVOCs) and metals. The majority of the Site is underlain by HFM. The HFM ranges from approximately 0.5 to 5.5 feet below ground surface (bgs) and consists of coal, cinders, brick, concrete, slag, asphalt, wood, and other building materials. The distribution of contaminants and their concentrations within the HFM across the Site indicates that the observed contamination is attributable to the heterogeneous nature of the fill materials, with no discrete contaminant source identified on-site or off-site.

Groundwater is located at approximately three to five feet bgs across the Site. The groundwater contains acetone and p-isopropyltoluene (both volatile organic compounds or VOCs), phenol, and polycyclic aromatic hydrocarbons (PAHs, a subset of SVOCs) at relatively low concentrations, but above the corresponding groundwater standards. Based on the data gathered during the RI, it appears that VOCs and SVOCs in the groundwater are related to the presence of HFM across the Site (residual constituents from coal-tar, creosote, or petroleum). The acetone may be related to the microbial breakdown of natural organic matter. Low concentrations of per-and polyfluoroalkyl substance (PFAS) are present in groundwater on the western side of the Site. The likely reason for the presence of PFAS is not currently understood. Existing groundwater gradient data indicates a northeasterly flow direction. The groundwater gradient at the Site is low, averaging 0.0065 feet per foot.

The RI sampling results did not indicate a soil vapor intrusion concern.

The following green / sustainable elements may be considered during design and implementation of the remedy:

- Utilizing a cover system to isolate the HFM. This approach significantly reduces the use of fossil fuels that would be used to excavate and haul the HFM off-site for disposal, as well as bring replacement material to the Site. This option also limits the volume of soil to be managed in a landfill.

- Based on the RI findings, native soils excavated during site construction may be reused within the clean soil cover system, provided analytical results confirm they meet reuse criteria. This approach substantially reduces the need to import off-site topsoil, thereby minimizing fossil fuel consumption associated with transportation.

- Clean soil and aggregate needed to construct the cover system can be sourced from local pits / quarries, thus reducing emissions for transport vehicles.

Qualitative Human Health Exposure Assessment

The human health exposure assessment identified exposure scenarios for the Site.

- Exposed soil / HFM during construction presents a potential route of exposure to construction or remediation workers via contact, fugitive dust and surface water. Upon completion of planned construction activities, the Site will be covered by buildings, paved parking lots, as well as a vegetated soil cover system. The proposed structures / features will prevent direct human exposure to any materials that may be left in place.

- Groundwater is not considered a relevant mechanism for exposure due to the municipal water servicing the Site and requirement for an Environmental Easement (EE) that will restrict the use of groundwater. There is not a ban on groundwater use as a public drinking water supply in Village of Canastota. However, groundwater in the vicinity of the Site is not known to be utilized as a source of potable water. In addition, the depth of the groundwater (three to five feet below grade) reasonably precludes human contact.

Fish and Wildlife Assessment

There are no ecological resources present on or in the vicinity of the Site and, consequently, no fish and wildlife resource impacts have been identified.

Summary of the Remedy

1. A remedial program will be implemented to provide the details necessary for the construction, operation, optimization, maintenance, and monitoring of the remedial program. Green remediation principles and techniques will be implemented to the extent feasible in the design, implementation, and site management of the remedy as per DER-31. The major green remediation components are as follows:

    - Considering the environmental impacts of treatment technologies and remedy stewardship over the long term;

    - Reducing direct and indirect greenhouse gases and other emissions;

    - Increasing energy efficiency and minimizing use of non-renewable energy;

- Conserving and efficiently managing resources and materials;
- Reducing waste, increasing recycling and increasing reuse of materials which would otherwise be considered a waste;
- Maximizing habitat value and creating habitat when possible;
- Fostering green and healthy communities and working landscapes which balance ecological, economic and social goals;
- Integrating the remedy with the end use where possible and encouraging green and sustainable re-development; and
- Additionally, to incorporate green remediation principles and techniques to the extent feasible in the future development at this site, any future on-site buildings shall be constructed, at a minimum, to meet the 2020 Energy Conservation Construction Code of New York (or most recent edition) to improve energy efficiency as an element of construction.

As part of the remedial program, to evaluate the remedy with respect to green and sustainable remediation principles, an environmental footprint analysis will be completed. The environmental footprint analysis will be completed using an accepted environmental footprint analysis calculator such as SEFA (Spreadsheets for Environmental Footprint Analysis, USEPA), SiteWise™ (available in the Sustainable Remediation Forum [SURF] library) or similar Department accepted tool. Water consumption, greenhouse gas emissions, renewable and non-renewable energy use, waste reduction and material use will be estimated, and goals for the project related to these green and sustainable remediation metrics, as well as for minimizing community impacts, protecting habitats and natural and cultural resources, and promoting environmental justice, will be incorporated into the remedial program, as appropriate. The project will include detailed requirements to achieve the green and sustainable remediation goals. Further, progress with respect to green and sustainable remediation metrics will be tracked during implementation of the remedial action and reported in the Final Engineering Report (FER), including a comparison to the goals established during the remedial program.

Additionally, the remedial program will include a Climate Change Vulnerability Assessment (CVA), to evaluate the impact of climate change on the project site and the proposed remedy. Potential vulnerabilities associated with extreme weather events (e.g., hurricanes, lightning, heat stress and drought), flooding, and sea level rise will be identified, and the remedial program will incorporate measures to minimize the impact of climate change on potential identified vulnerabilities.

2. Screening for indications of contamination (by visual means, odor, and monitoring with a photoionization detector (PID) of all excavated soil during any intrusive Site work;

3. Appropriate off-Site disposal of all material removed from the Site in accordance with all Federal, State and local rules and regulations for handling, transport, and disposal;

4. Import of materials to be used for backfill and cover in compliance with: (1) chemical limits and other specifications established in 6 New York Codes, Rules, and Regulations (NYCRR) 375-6.7(d), NYSDEC DER-10 Appendix 5 – Allowable Constituent Levels for Imported Fill or Soil for Restricted Residential Use, and NYSDEC Sampling, Analysis, and Assessment of Per- and Polyfluoroalkyl Substances and (2) all Federal, State and local rules and regulations for handling and transport of material;

5. Construction and maintenance of a site cover consisting of either two feet of pervious clean material or hardscape to prevent human exposure to residual contaminated soil/fill remaining under the Site;

6. Recording of an EE, including Institutional Controls, to prevent future exposure to any residual contamination remaining at the Site (a copy of the EE will be provided in the Site Management Plan [SMP] and FER);

7. Publication of a Site Management Plan for long term management of residual contamination as required by the EE, including plans for: (1) Institutional and Engineering Controls, (2) monitoring, (3) operation and maintenance and (4) reporting;

8. All responsibilities associated with the Remedial Action, including permitting requirements and pretreatment requirements, will be addressed in accordance with all applicable Federal, State and local rules and regulations.

1.0 INTRODUCTION

Savarino Companies LLC (previous developer) entered into a Brownfield Cleanup Agreement (BCA) with the New York State Department of Environmental Conservation (NYSDEC) in November 2021. In March 2022, an amendment was executed to substitute 160 Center LLC (previous developer) as the sole Brownfield Cleanup Program (BCP) Volunteer on the existing BCA. 160 Center LLC was a related entity to Savarino Companies, LLC and was a single purpose entity formed for the proposed redevelopment project at the Site. Under 160 Center LLC, a Remedial Investigation Work Plan (RIWP) was submitted and approved by NYSDEC, however, investigation activities were never conducted at the Site at that time. In May 2025, a second amendment was executed to substitute Old Erie Commons, LLC (current developer) as the sole BCP Volunteer on the existing BCA. Old Erie Commons, LLC is a Volunteer in the BCP and performed the RI, with some minor changes to the previously approved RIWP. Under the BCA, Old Erie Commons, LLC has investigated and plans to remediate the 2.56-acre property located at 160 Center Street in the Village of Canastota, New York. Restricted Residential use is proposed for the Site. When completed, the Site will contain six newly constructed buildings, including three 2-story apartment buildings and one 2-story townhouse building arranged around a central shared greenspace and three-story community building. There will be 48 affordable residential units. The project includes a neighborhood bakery / café, creation of canal front public space, and enhancement to the Empire State Trail.

This Remedial Action Work Plan (RAWP) summarizes the nature and extent of contamination as determined from data gathered during the Remedial Investigation (RI), performed between July and October 2025. It provides an evaluation of a Track 1 cleanup and other applicable remedial action alternatives, their associated costs, and the recommended and preferred remedy. The remedy described in this document is consistent with the procedures defined in DER-10, DER-31, and complies with all applicable standards, criteria and guidance. The remedy described in this document also complies with all applicable Federal, State and local laws, regulations and requirements. The NYSDEC and New York State Department of Health (NYSDOH) have determined that the Site does not pose a significant threat to human health and the environment. The RI for this Site did not identify fish and wildlife resources.

A formal Remedial Design document will not be prepared.

1.1 Site Location Description

The Site is located in the Village of Canastota in Madison County, New York and is identified as Block 36.63, Lot 1-2 on the Village of Canastota Tax Map. A United States Geological Survey (USGS) topographical quadrangle map (**Figure 1**) shows the Site location. The Site is situated on a +/- 2.56-acre parcel bounded by old Erie Canal (Pools Brook) to the north, Center Street to the south, a commercial property to the east, and residential and commercial properties to the west (see **Figure 2**). A boundary map is attached to the BCA as required by Environmental Conservation

Law (ECL) Title 14 Section 27-1419. The 2.56-acre property is shown and fully described in **Appendix A**. A global positioning system coordinate for the starting point is included.

1.2 Contemplated Redevelopment Plan

The Remedial Action to be performed under the RAWP is intended to make the Site protective of human health and the environment consistent with the contemplated end use. The proposed redevelopment plan and end use is described here to provide the basis for this assessment. However, the Remedial Action contemplated under this RAWP may be implemented independent of the proposed redevelopment plan.

The proposed redevelopment plan for the Site is a pocket neighborhood and a multi-building residential project with on-site community and commercial spaces. The project includes six newly constructed buildings, including three 2-story apartment buildings and one 2-story townhouse building arranged around a central shared greenspace and three-story community building. There will be 48 affordable residential units. The project includes a neighborhood bakery / café, creation of canal front public space, and enhancement to the Empire State Trail. The proposed redevelopment would be considered restricted-residential.

The proposed redevelopment layout is shown on **Figure C-102.**

1.3 Description of Surrounding Property

The Site is located on the southeast side of the Village of Canastota, Madison County, New York. The Site is located directly south of the Erie Canal and is approximately 5.5 miles south of Oneida Lake.

Properties to the north consist of residences. Properties to the south consist of residences, a vacant warehouse / industrial building, and a rail line. Properties to the east consist of a large commercial building and forested land. Properties to the west consist of residences and commercial properties. Properties surrounding the Site are a mix of residential, commercial, and industrial in nature. Surrounding properties are zoned IN and R2 (Residential 2 District).

2.0 DESCRIPTION OF REMEDIAL INVESTIGATION FINDINGS

The Site was investigated in accordance with the scope of work presented in the NYSDEC-approved Remedial Investigation (RI) Work Plan dated June 2022 (prepared by Benchmark Civil / Environmental Engineering & Geology, PLLC on behalf of 160 Center LLC) and a supplemental RI Work Plan dated June 12, 2025 (prepared by C&S on behalf of Old Erie Commons, LLC). The investigation was conducted between July 2025 and October 2025. The RI report was submitted to NYSDEC on December 9, 2025 and was approved April 6, 2026.

2.1 Summary of Remedial Investigations Performed

The RI was conducted to assess the nature and extent of contamination at the Site and consisted of the following:

- The collection and analysis of 16 surface soil samples;
- The advancement of 15 test pits and collection and analysis of 28 subsurface soil samples;
- The installation of four groundwater monitoring wells and performance of two rounds of groundwater sampling from each;
- The installation of six soil vapor implants and collection of 6 soil vapor and 1 outdoor air samples; and
- The collection of quality assurance / quality control (QA / QC) samples.

Soil and groundwater samples were analyzed for a combination of volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), pesticides, herbicides, polychlorinated biphenyls (PCBs), metals, 1,4-dioxane, per- and polyfluoroalkyl substances (PFAS), and asbestos. Soil vapor samples were analyzed for VOCs. Sample locations are presented on **Figure 3**.

2.1.1 Surface Soil Characterization

Surface soil samples were collected across the Site to assess conditions in the vicinity of the building debris, to delineate lead impacts observed in the northern portion of the Site during the Phase II Environmental Site Assessment (ESA), and to provide general spatial representation across the Site. A total of 16 surface soil samples were collected and analyzed as shown on **Figure 4**.

A steel shovel was used to remove the overlying turf. The exposed soil located zero to two inches below the root zone was collected with a stainless-steel spoon or gloved hand. Soil from each location was screened in the field for visible impairment, olfactory indications of impairment, evidence of non-aqueous phase liquids (NAPLs), and / or indication of detectable volatile organic

vapors (VOVs) with a photoionization detector (PID), collectively referred to as "evidence of impairment".

2.1.2 Test Pits

A total of 15 test pits were excavated across the Site to visually assess subsurface conditions, document the presence of historic fill material (HFM) at the Site, and collect subsurface soil samples. Observations were used to evaluate the nature and extent of fill and to identify any subsurface structures or features. The location of the test pits are shown on **Figure 5a** and **Figure 5b**.

An excavator with an appropriately sized bucket was utilized to complete the excavations. Soils from the test pits were screened for evidence of impairment. The results were recorded on test pit logs.

The test pits were distributed to characterize both HFM and underlying native soils. At each location, two samples were generally collected: one from the HFM layer and one from the native soil beneath. Care was taken to prevent comingling of the HFM and native soil so that the respective samples were representative of each stratum. Test pit logs were prepared and include soil description / lithology, PID readings, relevant observations, etc. The test pit logs are provided in **Appendix B**.

2.1.3 Groundwater Monitoring Wells

To characterize groundwater conditions at the Site, four groundwater monitoring wells were installed. The wells were distributed across the Site, as shown in **Figure 6**, **Figure 7a**, and **Figure 7b**. The wells, identified as MW-101 through MW-104, were installed in July 2025 based on locations shown in the approved RIWP.

A rotary drill was used to advance 4-1/4-inch I.D. hollow stem augers. The wells were constructed to intersect the top of the water table. Each well was completed with approximately 10 to 11 feet of 2-inch Schedule 40 0.010-slot well screen connected to an appropriate length of schedule 40 polyvinyl chloride (PVC) well riser to complete the well. The annulus was sand packed with quartz sand to approximately 0.5 to 2 feet above the screened section and 1.5 feet of bentonite chips or pellets was placed above the sand. The remaining annulus was backfilled with soil cuttings to ground surface. Each well was completed with a flush-mount protective casing. Well construction logs are included in **Appendix B**.

At least 24 hours following installation, the monitoring wells were developed through the removal of a minimum of three well volumes using a peristaltic pump. Field measurements of groundwater quality parameters were conducted and recorded to document stabilization of water quality. The effluent was monitored for pH, temperature, dissolved oxygen, conductivity, oxidation / reduction potential, and turbidity.

Groundwater sampling was conducted immediately following well development using low-flow purging and sampling techniques. Before purging the wells, water levels were measured using an electric water level sounder capable of measuring to the 0.01-foot accuracy. A peristalic pump was utilized. According to the equipment supplier, the pumping system when fitted with high-density polyethylene (HDPE) tubing, does not contain materials that could affect PFAS sampling results. Calibration, purging and sampling procedures were performed as specified by the United States Environmental Protection Agency (USEPA) and NYSDEC[1] for low-flow and emerging contaminant sampling. Calibration times, purging volumes, water levels and field measurements were recorded in a field log included in **Appendix B**.

The first round of groundwater sampling was completed on July 30 and July 31, 2025. The second round of groundwater sampling was completed on October 21, 2025.

2.1.4 Soil Vapor / Air Sampling

Six semi-permanent soil vapor monitoring points were installed across the site. The soil vapor implants were installed using direct-push methods. Continuous soil sampling was conducted at each location using Geoprobe® Systems' Macro-Core® soil samplers, to create a nominal 2.25-inch diameter borehole. The direct-push borings were terminated at the target depth of the vapor implant placement. As consistent with NYSDOH guidance, the vapor implants were positioned to allow collection of vapor samples at depths comparable to the depths of nearby foundation footings (normally +/- five feet in depth), or at least 12 inches above the water table, if groundwater is present at a depth less than six feet below ground surface (bgs). The groundwater depth was determined based upon static water levels recorded in nearby wells.

Following creation of the borehole, the vapor implants were placed at the target sampling depth. For purposes of this Site, the borings were advanced to a depth of two to five feet bgs (since groundwater was observed less than 6 feet bgs) and the vapor implants were installed at depths ranging from 2 to 4.5 feet below grade. Each implant consisted of a six-inch long vapor implant with stainless steel mesh / screen. Polyethylene tubing was affixed to the top of the stainless-steel screen and extended to the ground surface. The borehole annulus below, surrounding, and to twelve inches above the top of the screen was filled with no. 00N sand to create an inert, porous vapor sampling zone. The remainder of the borehole annulus was filled with a bentonite slurry to minimize outdoor air from entering the sampling zone. Each vapor implant was completed with a flush-mount protective casing. Vapor implant construction logs are provided in **Appendix B**. Soil vapor sampling locations are shown on **Figure 8**.

2.1.5 Samples Collected

The following samples were collected throughout the RI:

[1] U.S. EPA Region 1 Low Stress (low-flow) Purging and Sampling Procedure for the Collection of Groundwater Samples from Monitoring Wells, September 19, 2017.
NYSDEC Guidelines for Sampling and Analysis of PFAS, January 2020.

- 16 surface soil samples;
- 28 subsurface soil samples;
- 8 groundwater samples;
- 6 soil vapor samples; and
- Appropriate QA / QC samples.

2.1.6 Chemical Analytical Work Performed

Table 1 provides a summary of all chemical analytical work performed during the RI.

2.1.7 Best Management Practices

Best Management Practices (BMPs) were implemented throughout the RI to best achieve the green remediation concepts described within NYSDEC DER-31. The following BMPs were identified in the RIWP for implementation:

- **Minimize Mobilizations** – All of the RI activities were completed within one mobilization to avoid transporting the backhoe / equipment trailer to and from Site multiple times.
- **No Idling of Equipment** – All equipment (backhoe, cars, trucks, etc.) was shut down when not in use.
- **On-site Waste Recycling** – Soil cuttings that did not exhibit evidence of contamination were put back in place. Soil cuttings generated during monitoring well installation also did not exhibit evidence of contamination and were spread in the general vicinity of the installed well.
- **Waste Storage Containers** – Cleaned, reclaimed 55-gallon drums were used for the collection and storage of purged groundwater. Approximately 50 gallons of purge water was generated during the RI. The water will be characterized and disposed of at an off-site facility.
- **Sustainable Laboratory Practices** – C&S utilized a lab shipping service, rather than shipping samples independently to the lab. C&S submitted samples to Pace, which implements the following sustainable practices:
    - Recycles paper products and shipping materials.
    - Uses energy-efficient lighting and other equipment.
    - Maintains a paperless reporting and invoicing program.
    - Minimizes waste through use of EPA-approved microscale methods.

- **Monitoring Equipment** – Rechargeable Battery-Powered Equipment such as Community Air Monitoring Plan (CAMP) equipment (PIDs, DustTraks, Tharmis Antenna), and any other battery-operated equipment was charged at the C&S facility. C&S estimated in 2024 that 28% of the electricity used at their facility is generated on-site through use of solar panels. This practice reduced the load on the electrical grid and allowed for the use of renewable energy source, indirectly minimizing the use of fossil fuels and reducing the generation of greenhouse gas emissions.

2.1.8 Documentation

Tables 2 through **5** include summaries of the analytical data. Sample locations are presented on **Figures 3** through **8**.

Below is a summary of RI findings.

2.2 Significant Threat

A *negative* significant threat determination to human health and the environment has been made.

2.3 Site History

2.3.1 Past Uses and Ownership

For more than 120 years, the Site was utilized for various industrial operations, including varnishing, painting, and machining, as well as casket manufacturing, furniture manufacturing, and boat building. The former Site buildings, constructed prior to 1890 by the Canastota Casket Company, was subsequently occupied by several furniture manufacturers and later by an agricultural supply company before becoming largely vacant sometime between the 1990s and 2000s. The former buildings included the main manufacturing building on the south side of the Site, a secondary manufacturing building on the north side of the Site, storage buildings, dry houses, and sheds. Three railroad spurs extended into the Site from its southeastern corner, remaining in use from before 1890 until after 1963. According to fire insurance maps, an underground storage tank (UST) of unknown capacity was reportedly installed at the Site between 1906 and 1911 for the storage of benzine (a mixture of various aliphatic hydrocarbon compounds, also known as petroleum ether or naphtha). No information is available regarding the UST's exact location (only an approximate location is provided on fire insurance maps), size, closure, or removal. A surface feature with the potential to connect to subsurface structures was observed in the approximate vicinity of the reported UST; however, previous investigations did not definitively conclude if the UST remained. The main Site building partially collapsed in July 2011 and was fully demolished under emergency conditions in August 2011. A large building debris pile consisting of brick, stone, concrete, and wood pieces remains along the southern portion of the Site, generally within the basement of the historical main Site building.

2.3.2 Phase I and Phase II Reports

The following Phase I and Phase II ESAs have been completed for the Site:

- Phase I ESA completed by GHD in August 2019
- Phase II ESA completed by GHD in November 2019
- Phase II ESA completed by Benchmark in December 2021
- Phase I ESA completed by C&S in August 2025

The following summarizes those efforts.

Phase I ESA, GHD – April 2019

The Phase I ESA revealed the following Recognized Environmental Conditions (RECs) associated with the Site:

- Potential Benzine (assumed to be benzene) UST: According to historical fire insurance maps, an unknown capacity UST was installed at the Site sometime between 1906 and 1911 and was reportedly used to store benzine. No additional information was provided or able to be reasonably ascertained, including information regarding specific location, closure, and removal. A surface feature with the potential to connect to subsurface structures was identified in the approximate reported location of the historical UST.

- Historical Site Use: The Site was utilized for various operations that involved varnishing, painting, and machining, including casket manufacturing, furniture manufacturing, and boat building, for over 120 years. These operations utilize significant quantities of petroleum products and hazardous substances.

- Historical Railroad Spurs: Historically, three railroad spurs were located on-Site and entered the Site from its southeastern corner. One railroad spur crossed the central portion of the Site and terminated on the adjoining property to the west. One railroad spur terminated in the central portion of the Site adjacent to the northern wall of the main historical Site building. One railroad spur crossed the central portion of the Site and terminated near the Site's northern boundary. In addition, one railroad spur was located immediately adjacent to the Site's eastern boundary and terminated near the Erie Canal, which adjoins the northern Site boundary. They were present from sometime prior to 1890 until an unknown date after 1963.

- On-Site Building Debris: A significant quantity of intermixed brick, stone, concrete, and wood pieces were observed along the southern portion of the Site, generally within the basement of the historical main Site building. The debris pile is documented to contain potential asbestos-containing materials.

- Former Septic Systems: Based on the development of the Site dating back to at least the 1890s, it is assumed that at some point in the Site's past, prior to connecting to the municipal sanitary sewer system, a septic system(s) was previously located on-Site.

Phase II ESA, GHD – November 2019

A Limited Phase II ESA was completed by GHD to assess soil and groundwater in the vicinity of the potential UST and was not intended to characterize subsurface conditions for the entirety of the Site. The Limited Phase II ESA activities consisted of a ground penetrating radar (GPR) survey to locate the UST, the completion of five soil borings around the UST area (SB-1 through SB-5), and the installation of three temporary groundwater wells (TW-1 through TW-3). GHD collected three soil samples and three groundwater samples for laboratory analysis of VOCs, SVOCs, metals, and PCBs. The findings of the Limited Phase II ESA are summarized below:

- The GPR survey did not confirm or deny the presence of the UST. The investigation identified the following noteworthy features:
    - A gas/flammable fuel line was mapped along the southern and western portions of the Site;
    - An unidentified subsurface line was detected trending across the western portion of the Site; and
    - A general area of a suspected UST was identified near the southwestern portion of the Site. GPR could not confirm or deny the presence of a tank in this area due to soil conditions and overgrown vegetation.

The extent and configuration of these features are illustrated on **Figure 9**.

- Subsurface conditions consisted of approximately 2 to 5 feet of fill material overlying native soils. Low-level (0.3 to 1.5 parts per million or ppm) total VOV field measurements were noted at the boring locations.

- Groundwater was encountered at approximately 3 feet bgs. One VOC (acetone) was detected exceeding its 6 New York Codes, Rules, and Regulations (NYCRR) Part 375 Unrestricted Use Soil Cleanup Objective (UR SCO) at SB-5 (4-6 ft).

- SVOCs, specifically polycyclic aromatic hydrocarbons (PAHs) were identified exceeding UR SCOs, Restricted Residential Use (RR) SCOs, and Industrial Use (IN) SCOs at SB-5 (4-6 ft).

- Metals, including arsenic, barium, chromium, lead, nickel, and/or zinc were identified at concentrations exceeding UR SCOs, Commercial Use (CM) SCOs, and IN SCOs at SB-1 (0-4 ft) and SB-3 (0-4 ft).

- Metals, including antimony, arsenic, barium, beryllium, cadmium, chromium, copper, iron, lead, magnesium, manganese, nickel, selenium, sodium, thallium, zinc, and / or mercury were identified at concentrations exceeding Technical and Operational Guidance Series

(TOGS) 1.1.1 Ambient Water Quality Standards / Guidance Values (AWQS) at TW-1, TW-2, and TW-3.

- The Limited Phase II ESA concluded the samples collected from the reported vicinity of the historical UST did not exhibit evidence of petroleum or chemical impacts.

A data summary table for the previous Phase II ESA soil sampling is provided as **Table 6**. The locations and results from the previous Phase II ESA soil sampling are presented in **Figure 3**, **Figure 5a**, and **Figure 5b**.

Phase II ESA, Benchmark – December 2021

Benchmark conducted a Phase II ESA at the Site in March and October 2021. The results are documented in a report dated March 2021 and revised in December 2021. The Phase II ESA activities consisted of 19 test pits (TP-1 through TP-19) completed across the Site to depths of approximately 3 to 7 feet bgs. Eight soil / fill samples were selected for laboratory analysis for SVOCs and metals. Three groundwater samples were also collected from test pit locations TP-3, TP-5, and TP-10 for laboratory analysis of VOCs. The findings of the Phase II ESA are summarized below:

- Fill materials consisting of black fines, ash, cinders, brick, glass, wood, concrete, asphalt, slag, plastic, and metal were observed across the Site to depths of approximately 1.5 to 6 feet bgs. Native soil and weathered bedrock were present underlying the fill materials.

- PAHs were detected in three of the six samples analyzed for SVOCs at concentrations exceeding their respective RR SCOs, CM SCOs, and / or IN SCOs.

- Metals (arsenic, barium, lead, and / or mercury) were detected in the eight samples analyzed for metals at concentrations exceeding respective RR SCOs, CM SCOs, and IN SCOs.

A data summary table for the previous Phase II ESA soil sampling is provided as **Table 6**. The locations and results from the previous Phase II ESA soil sampling are presented in **Figure 3**, **Figure 5a**, and **Figure 5b**.

Phase I ESA, C&S – August 2025

The Phase I ESA revealed the following REC associated with the Site:

- The historical land uses on and off the Site, in addition to the Site's inclusion in the NYSDEC BCP is considered a REC.

The Phase I ESA revealed the following Business Environmental Risk (BER) associated with the Site:

- Potential hazardous building materials in demolition debris.

Based on the results of this Phase I ESA, C&S recommended no further environmental investigation beyond activities required by the BCP.

2.3.3 Fire Insurance Maps

All fire insurance maps available for this Site were reviewed prior to preparation of the RAWP. The maps are provided in **Appendix C.** **Table 2-1** provides a summary of the map review.

Table 2-1: Fire Insurance Map Review

Year	Site Observations
1885	Coverage of the Site is not provided.
1890	Canastota Casket Co. and four rail spurs are located on the Site. The southern spur extends to the Casket manufacturing building. The spur to the north passes a lumber area and exits the Site through the west. The spur further north extends to a lumber shed, and the northernmost to Woodford Store House.
1895	Canastota Casket Co. has been replaced by Smith and Ellis Co. Furniture Factory. The lumber areas have been removed, and a dry house and smaller structure have been constructed east and north of the main building respectively.
1900	DM Tuttle Co. Boat Builders now occupies the northwest corner.
1906	Smith and Ellis Co. has extended to the west with a varnish vault and smaller addition. To the east they have constructed another dry house and a lumber shed. The second rail spur from the north has been removed. DM Tuttle Co. has added a lumber shed, paint shop, machine shop, storage building, and a lumber area along the rail spur. On the central portion just south of a rail spur, is a building identified as Benzine Storage.
1911	Smith and Ellis Co. is now Ellis Joyce & Hildreth Inc. Furniture Factory, but the buildings remain unchanged. DM Tuttle is now vacant, and their storage and paint shop buildings have been demolished.
1959	All buildings on the Site are now Queensborn Farm Products Co. Inc. The former DM Tuttle machine shop is now onion storage while all other DM Tuttle buildings have been demolished. A store house has been constructed along the eastern border. The Ellis Joyce & Hildreth Inc. dry houses have been consolidated into a utility area.
1963	The Site appears relatively unchanged.

2.4 Geologic and Hydrogeologic Conditions

2.4.1 Geology

The Site contains a surficial cover of topsoil, generally less than 1.5 feet thick, underlain by varying thicknesses of HFM. HFM was observed in the majority test pits and soil borings advanced during the RI and previous Phase II ESAs, with thicknesses ranging from approximately 0.5 to 5.5 feet bgs. Per 6 NYCRR Part 375, HFM is defined as: *non-indigenous or non-native material, historically deposited or disposed in the general area of, or on, a site to create useable land by filling water bodies, wetlands or topographic depressions, which is in no way connected with the subsequent*

operations at the location of the emplacement, and which was contaminated prior to emplacement. The HFM contains coal, cinders, brick, concrete, slag, asphalt, wood, and other building materials. Underlying the fill, stiff reddish brown lean clay with medium plasticity was encountered consistently across the Site at depths ranging from approximately 2 to 6 feet bgs. Below this layer, a hard gravelly lean clay was observed and was interpreted to be glacial till or highly weathered bedrock. Test pits and soil borings were generally terminated on refusal within the glacial till layer at depths ranging from 5.5 to 7 feet bgs.

According to Geologic Map of New York, bedrock at the Site consists of the Vernon Formation of the Upper Silurian age. The primary rock type is shale. The GHD Phase II ESA indicated "red weathered shale bedrock" was encountered from 5.5 to 8 feet bgs; however, both the C&S RI and Benchmark Phase II ESA classified this layer as a hard lean clay (interpreted to be glacial till or highly weathered bedrock) rather than competent bedrock.

The locations and depths of HFM at the Site are shown on **Figure 10**. Geologic cross sections are shown in **Figure 11A** and **Figure 11B**.

2.4.2 Hydrogeology

During the RI, groundwater was encountered between 3 and 5 feet bgs across the Site. The Site is located in the Oswego River / Finger Lakes major drainage basin, south of Oneida Lake. Most major rivers within the Finger Lakes major drainage basin flow northerly, with an ultimate discharge to Lake Ontario. The Site is located at approximately 432 feet above mean sea level (AMSL) and slopes downward slightly to the north. Based on local topography and confirmed by field measurements, groundwater in the vicinity of the Site flows generally to the northeast toward Pools Brook (formerly the Erie Canal), which is located adjacent to the Site.

The Site is located in the Village of Canastota, Oneida County, which is served by the municipal water supply system operated by the Onondaga County Water Authority (OCWA). Potable water processed by OCWA undergoes treatment to ensure compliance NYSDEC and USEPA drinking water standards. Groundwater within the municipal service area is not utilized as a public drinking water source.

Table 2-2 presents water level measurements and groundwater flow maps are provided as **Figure 7a** and **Figure 7b**. Groundwater contours were generally the same across the two sampling events and indicate a generally northeasterly flow direction. On average, the groundwater table was approximately 0.25 to 0.75 feet higher in July as compared to October, due to October being a drier month than July. The average groundwater gradient was 0.0074 feet per foot in July and 0.0053 feet per foot in October.

Table 2-2: Groundwater Elevations

Well No.	Ground Elevation (ft AMSL)	PVC Elevation (ft AMSL)	Depth (ft BTOR)	Elevation (ft AMSL)	Depth (ft BTOR)	Elevation (ft AMSL)
Date	--	--	***July 2025***		***October 2025***	
MW-101	428.18	427.91	3.07	424.84	3.37	424.54
MW-102	426.99	426.62	3.07	423.55	3.30	423.32
MW-103	427.37	427.06	4.40	422.66	5.15	421.91
MW-104	427.79	427.40	3.62	423.78	3.60	423.80

Table Notes:

- Survey performed by Passero Associates on October 2, 2025 using a RTK GPS on the New York State Network.
- Elevations tied to North American Vertical Datum (NAVD) 88.
- All units in feet.
- BTOR – Below top of riser
- AMSL – Above mean sea level

2.5 Contamination Conditions

2.5.1 Conceptual Model of Site Contamination

The Site, located in the Village of Canastota, is a former industrial property historically used for varnishing, painting, and machining, as well as casket manufacturing, furniture manufacturing, and boat building. In more recent years, the Site was used as an agricultural supply company before becoming largely vacant sometime between the 1990s and 2000s. The former buildings included the main manufacturing building on the south side of the Site, a secondary manufacturing building on the north side of the Site, storage buildings, dry houses, and sheds. The main Site building partially collapsed in July 2011 and was fully demolished under emergency conditions in August 2011. The Site is currently vacant and undeveloped, and it is not currently fenced. The proposed redevelopment will include the construction of six new buildings for residential and commercial use.

2.5.1.1 Extent and Source of Contamination

Soil contamination is limited to the HFM located across the Site with an observed thickness of 0.5 to 5.5 feet bgs. The HFM is located immediately below existing surfaces and is underlain by native soils. The observed HFM is shallowest on the southwest side of the Site and deepest in the center and northwest and southeast corners of the Site. The presence of HFM and the observed impacts are consistent with the Site's long history of industrial operations, including coal handling and delivery via multiple rail spurs, and the placement of unregulated fill. These historical activities are considered the primary contributors to the subsurface impacts observed across the Site.

Groundwater is located across the Site at approximately three to five feet bgs. The groundwater across the Site contains acetone, p-isopropyltoluene, phenol, and PAHs at relatively low concentrations, but above the corresponding groundwater standards. Based on the data gathered during the RI, it appears that VOCs and SVOCs in the groundwater are related to the presence of

HFM across the Site (residual constituents from coal-tar, creosote, or petroleum) or are related to the microbial breakdown of natural organic matter. Low-level PFAS contaminated groundwater is located on the western side of the Site. The likely reason for the presence of PFAS is not currently understood. Existing groundwater gradient data indicates a northeasterly flow direction. The groundwater gradient at the Site is low, averaging 0.0065 feet per foot.

2.5.1.2 Contaminant Fate and Transport

The probable fate and transport of contaminants detected on the Site is a function of the properties of the individual contaminants and available pathways for the contaminants to migrate. The Site is currently unoccupied; therefore, the degree to which and the route by which contaminants migrate is dependent on the physical characteristics of the site and the type and distribution of contaminants. The following sections discuss the probable fate and transport of contaminants in the different types of media at the Site.

Contaminants of concern at the Site are primarily associated with HFM and include SVOCs and metals, found in both surface soils and shallow subsurface soils. Additionally, VOCs, SVOCs, naturally occurring metals common in groundwater throughout the northeastern United States (iron, magnesium, sodium), and PFOS exceeded TOGS standards.

Acetone and p-isopropyltoluene are present in the groundwater at MW-103. VOCs are not strongly sorbed to soil and will transport through the soil into saturated zones. Due to chemical properties of VOCs, a portion of the VOCs will solubilize in water, while the rest will move upward through the water column and soil until to be released as a vapor. The presence of VOCs in the Site groundwater appear to be associated with the microbial breakdown of natural organic matter or residual / weathered constituents from coal-tar, creosote, or petroleum.

The PAHs detected are characterized by low water solubilities and, therefore, have a tendency to adsorb onto soil particles. Because of their low vapor pressures, compounds with five or more aromatic rings, which include a majority of the detected PAHs, will exist mainly adsorbed to airborne particulate matter, such as fly ash and soot. Those with four or fewer rings, such as benzo(a)anthracene, will occur both in the vapor phase and adsorbed to particles. The detected compounds have relatively low vapor pressures and are expected to remain in a solid or liquid state and undergo degradation via naturally occurring microbes. Due to the low solubility, these contaminants are not expected to impact groundwater quality or migrate substantially into the subsurface. This is supported by the low concentrations of these compounds in the on-site groundwater.

Heavy metals, such as arsenic and mercury, are non-biodegradable pollutants that are generally transported through anthropogenic activities. In contaminated soils, they tend to persist for many years in the surface layers of soil. In aquatic systems, heavy metals may become blocked as sinks in bottom sediments, where they may remain for many years. Metals can be remobilized in water if the pH falls increasing heavy metal solubility increases. Due to the low solubility, these contaminants are not expected to impact groundwater quality or migrate substantially into the

subsurface. This is supported by the low concentrations of these compounds in the on-site groundwater. Other metals were present in the groundwater that did exceed groundwater guidance values; these include naturally occurring metals such as iron, magnesium, and sodium. The metals detected at concentrations above the groundwater standards and guidance values appear to be representative of local groundwater quality. Metals do not readily break down and will persist in the environment.

PFAS includes a large group of compounds that vary in molecular weight, structures, and functional groups. They typically repel oil and water, resist extreme temperatures, and reduce friction. Most PFAS detected in the environment, including perfluorooctanoic acid (PFOA) and perfluorooctanesulfonic acid (PFOS), have a hydrophobic and lipophobic tail while the head is polar and hydrophilic. As a result, these compounds are relatively mobile in groundwater while also associating with the organic carbon fraction in soil or sediment. PFAS transport processes include advection, dispersion, diffusion, atmospheric deposition, and leaching. Many PFAS form films at the air-water interface which influences aerosol-based transport, deposition, vadose zone transport, and aqueous phase transport. At high concentrations, some PFAS can form micelles which could enhance or reduce adsorption in the environment. Most PFAS are resistant to biotic and abiotic degradation. PFOS and PFOA were detected in groundwater at concentrations that exceed applicable standards along the western portion of the Site. PFOS and PFOA are mobile, persistent, bioaccumulate, and are not known to degrade in the environment.

2.5.1.3 Potential Receptors

The Site is located in a mixed-use industrial and residential area adjacent to the Erie Canal. The Site is bounded to the north by the Erie Canal, to the south by industrial and residential properties, to the east by a mixture of vacant parcels and light industrial uses, and to the west by additional industrial and residential development.

The Site is 2.56 acres and is currently vacant and undeveloped. No standing buildings remain on the parcel. The southern portion of the Site contains a large debris pile consisting of brick, wood, metal, and suspect asbestos-containing materials, a remnant of the emergency demolition of the former main multi-story industrial building. Additional debris and fill materials, including brick and concrete, are present in mounded piles north of the building debris. Concrete slabs associated with former building foundations remain in the central portion of the Site, and a walkway with a concrete curb extends north from the former main building area. The northern portion of the Site is heavily overgrown with vegetation. Groundwater monitoring wells have been installed as part of the ongoing BCP RI.

The Site is not secured by fencing or gates, and no formal access restrictions are in place. Although the combination of overgrown vegetation and scattered building debris provides some physical limitation to movement across the property, the Site remains generally accessible to the public.

Under current conditions, potential human receptors include persons trespassing on the Site; persons living and working in the area surrounding the Site; and persons involved in utility work

on and adjacent to the Site. In addition, potential environmental receptors include wildlife living on and migrating through the Site (e.g., rodents, birds, etc.).

The planned future use of the Site is for a mixed use commercial and residential development. The redevelopment of the Site will need to be controlled through the implementation of engineering and institutional controls.

2.5.1.4 Potential Exposure Pathways

Under the current use, persons living and working in the vicinity of the Site and / or persons trespassing on the Site could be exposed to SVOCs and metals in the surface soil via inhalation of airborne particles, incidental ingestion of, or dermal contact with the contaminated media.

Under site redevelopment activities, construction workers, site visitors and persons living, working and traveling through the area near the project site could be exposed to the SVOCs and metals in the subsurface soil / HFM during excavation activities. Potential exposure routes for these receptors include inhalation of contaminated dust and incidental ingestion of, and / or dermal contact with the contaminated soil / HFM. However, the use of appropriate personal protective equipment, dust suppression techniques and personal/air monitoring, and the development and implementation of a Site-Specific Health and Safety Plan (HASP) would minimize the risk of exposure during this stage of the project.

Groundwater is not considered a relevant mechanism for exposure due to the municipal water servicing the Site and requirement for an Environmental Easement (EE) that will restrict the use of groundwater. There is not a ban on groundwater use as a public drinking water supply in Village of Canastota. However, groundwater in the vicinity of the project site is not known to be utilized as a source of potable water.

The RI sampling results did not indicate a soil vapor intrusion concern. Therefore, the vapor intrusion pathway is not relevant under current conditions.

2.5.2 Description of Areas of Concern

One area of concern (AOC) has been identified at the Site and is summarized below:

1. Site-wide Historic Fill Material
    - Contaminant concentrations in surface and subsurface soil exceeding the RR SCOs are associated with soil containing HFM. Constituents in the HFM at concentrations that exceed the RR SCOs include SVOCs and metals.

The on-site debris pile and former UST location were considered during the AOC evaluation process. However, analytical data generated during the Phase II ESAs and RI did not substantiate their designation as AOCs.

2.5.3 Identification of Standards, Criteria and Guidance

The following Standards, Criteria, and Guidance (SCG) are applicable to the Site:

- 6 NYCRR, Chapter IV, Subpart 375-6: *Remedial Program Soil Cleanup Objectives*, and *DEC CP-51 Soil Cleanup Guidance*, issued October 21, 2010.
- Sampling, Analysis, and Assessment of Per- and Polyfluoroalkyl Substances (PFAS) Under NYSDEC's Part 375 Remedial Programs.
- NYSDEC Technical and Operational Guidance Series (TOGS), Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations, June 1998.
- 6 NYCRR Part 703, Surface Water and Groundwater Quality Standards and Groundwater Effluent Limitations.
- NYSDOH Guidance for Evaluating Soil Vapor Intrusion in the State of New York, October 2006.
- NYSDEC 6 NYCRR Part 371, Identification and Listing of Hazardous Wastes.
- NYSDEC DER-10, Technical Guidance for Site Investigation and Remediation, May 2010.
- NYSDEC DER-31, Green Remediation, January 20, 2011

2.5.4 Soil / Fill Contamination

During the Phase II ESAs, 11 subsurface soil samples were collected across the Site. During the RI, 16 surface soil samples and 28 subsurface soil samples were collected across the Site. The subsurface soil samples represented both the HFM and underlying native soil regimes. The following sections summarize the analytical data generated and provide a comparison to relevant standards, criteria, and guidelines (SCGs).

2.5.4.1 Summary of Soil/Fill Data

Table 2-3 summarizes the contaminants identified in surface soil, subsurface HFM, and subsurface native soil along with the range of concentrations observed.

Table 2-3: Summary of Contaminants in Soil / Fill

Analyte	UR SCO (ppm)	RR SCO (ppm)	PGW SCO (ppm)	Range of Exceedances (ppm)		
				Surface Soil	***Subsurface HFM***	***Subsurface Native***
Acetone	0.05	100	0.05	0.054	0.063	--
Benzo(a)anthracene	1	1	1	1 – 6.2	1.2 – 12	--
Benzo(a)pyrene	1	1	22	1 – 6	1.1 – 11	--
Benzo(b)fluoranthene	1	1	1.7	1.3 – 7.8	1 – 14	--
Benzo(k)fluoranthene	0.8	3.9	1.7	1.4 – 2.4	0.84 – 3.9	--
Chrysene	1	3.9	1	1.2 – 5.8	1.1 – 12	--
Dibenzo(a,h)anthracene	0.33	0.33	1000	0.52 – 0.85	0.4 – 1.6	--
Indeno(1,2,3-cd)pyrene	0.5	0.5	8.2	0.64 – 3.6	0.69 – 8.3	--
Total PCBs	0.1	1	3.2	--	0.427	--
4,4′-DDD	0.0033	13	14	0.0165	0.0053	--
4,4′-DDE	0.0033	8.9	17	0.0331	0.00834 – 0.0329	--
4,4′-DDT	0.0033	7.9	136	0.0053 – 0.0131	0.00958 – 0.0463	--
Arsenic	13	16	16	13.6 – 34.8	14.5 – 63.8	--
Barium	350	400	820	351	408 – 1980	--
Cadmium	2.5	4.3	7.5	--	3.32	--
Chromium	30	180	-	--	32.5 – 69.8	--
Copper	50	270	1720	72 – 89.8	58.4 – 89.2	52.7
Lead	63	400	450	63.7 – 340	67.1 – 33500	178
Mercury	0.18	0.81	0.73	0.247 – 1.15	0.181 – 11	0.345
Nickel	30	310	130	--	31.2	--
Zinc	109	10000	2480	135 – 231	109 – 157	--
PFOS	0.88	44	1	1.14 – 1.53	1.03 – 2.16	1.32
PFOA	0.66	33	0.8	0.93	0.911	--

1. PFAS guidance values and concentrations are displayed in parts per billion (ppb).
2. "-" indicates that no applicable standard exists.
3. "--" indicates that there were no exceedances of the respective analyte in the medium.

2.5.4.2 Comparison of Soil/Fill with SCGs

Based on the information presented in **Table 2-3**Table 2-3, contamination within the soil / fill consists primarily of SVOCs and metals and is generally associated with HFM at the Site. Contaminant concentrations are generally higher in subsurface HFM in comparison to the concentrations observed in surface soil and subsurface native soil. Concentrations of six PAHs exceeded RR SCOs in surface soil and subsurface soil HFM whereas all PAH concentrations were below UR SCOs in subsurface native soil. Concentrations of four metals exceeded RR SCOs in surface soil and subsurface HFM whereas only three metals exceeded UR SCOs in subsurface native soil.

Table 2, **Table 3**, and **Table 6** show exceedances of Track 1 UR SCOs and Track 4 RR SCOs for all surface soil collected during the RI, all subsurface soil collected during the RI, and all subsurface soil collected during the Phase II ESAs, respectively. **Figure 4**, **Figure 5a**, and **Figure 5b** are spider

maps that show the location and summarize exceedances of Track 4 RR SCOs for surface soil, subsurface HFM, and subsurface native soil, respectively.

2.5.5 On-Site and Off-Site Groundwater Contamination

During the RI, eight groundwater samples were collected across the Site over two sampling events. The following sections summarize the analytical data generated and provide a comparison to relevant SCGs.

2.5.5.1 Summary of Groundwater Data

Table 2-4 summarizes the contaminants identified in groundwater along with the range of concentrations observed.

Table 2-4: Summary of Contaminants in Groundwater

Analyte	TOGS 1.1.1 AWQS (ppb)	Range of Exceedances (ppb)	
		July 2025	***October 2025***
Acetone	50	--	79
p-Isopropyltoluene	5	--	29
Phenol	1	--	1.3
Benzo(a)anthracene	0.002	0.03 – 0.04	0.11
Benzo(a)pyrene	0	--	0.06
Benzo(b)fluoranthene	0.002	--	0.11
Benzo(k)fluoranthene	0.002	--	0.06
Chrysene	0.002	--	0.10
Indeno(1,2,3-cd)pyrene	0.002	--	0.06
Iron, Total	300	1960 – 2720	2160 – 3160
Magnesium, Total	35,000	35300 – 63900	36500 – 67700
Magnesium, Dissolved	35,000	--	37900
Manganese, Total	300	--	423.1
Sodium, Total	20,000	22200 – 33000	21600 – 27000
Sodium, Dissolved	20,000	--	22600
PFOS[1]	2.7	8.1	2.94 – 8.89
PFOA[1]	6.7	--	6.71

1. PFAS guidance values and concentrations are displayed in parts per trillion (ppt).
2. "--" indicates that there were no exceedances of the respective analyte during the sampling event.

2.5.5.2 Comparison of Groundwater with SCGs

Based on the information presented in **Table 2-4**, exceedances of acetone, p-isopropyltoluene, and phenol were observed at one well (MW-103) during the second round of sampling. The detection of these analytes along with the hydrogen sulfide odor observed at MW-103 suggest reducing / anoxic conditions exist in the groundwater in this area. Under these conditions, the

detected analytes can be produced by microbial breakdown of natural organic matter or they can represent residual / weathered constituents from coal-tar, creosote, or petroleum.

PAH groundwater contamination exists across the Site with exceedances of benzo(a)anthracene observed in all wells during the first round of sampling and exceedances of six PAHs observed in the duplicate sample collected from MW-101 during the second round of sampling. In each case, the concentrations were a fraction of a ppb (maximum of 0.11 ppb and majority below 0.1 ppb) and the corresponding TOGS limit is very low (either 0.002 or non-detect).

Exceedances of iron, magnesium, manganese, and sodium were observed across the Site during both rounds of sampling. These metals are naturally occurring and common in groundwater throughout the northeastern United States and in this setting are likely unrelated to site activities.

The concentration of PFOS in MW-101 was 8.1 ppt during the first round of sampling and 8.8 ppt during the second round of sampling (exceeding the limit of 2.7 ppt). The concentration of PFOA and PFOS in MW-102 was 6.71 and 2.94 ppt, respectively, during the second round of sampling only. PFAS was not detected in the equipment blank during the first round of sampling; however, PFOS was detected in the equipment blank during the second round of sampling, but below standards. MW-101 and MW-102 are located on the western side of the Site and are hydraulically upgradient / cross-gradient of the other on-site monitoring wells. The reason for the presence of PFAS is not currently understood. Existing groundwater gradient data indicates a northeasterly groundwater flow direction, placing MW-101 and MW-102 hydraulically downgradient of the Canastota Volunteer Fire Department, which may represent a potential off-site source.

A table that indicates exceedances of Class GA AWQS in monitoring wells prior to the remedy is shown in **Table 4**. A spider map that indicates the locations of and summarizes exceedances of AWQS prior to the remedy is shown in **Figure 6.**

2.5.6 On-Site and Off-Site Soil Vapor Contamination

During the RI, six soil vapor samples and one outdoor air sample were collected. The following sections summarize the analytical data generated and provide a comparison to relevant SCGs.

2.5.6.1 Summary of Soil Vapor Data

Table 2-5 summarizes the contaminants identified in soil vapor along with the range of concentrations observed.

Table 2-5: Summary of Contaminants in Soil and Sub-Slab Vapor

Analyte	Lowest Sub-Slab Tier of NYSDOH Decision Matrix	Result of NYSDOH Decision Matrix	Range of Concentrations (µg/m³)	
			Soil Vapor	*Outdoor Air*
Carbon Tetrachloride	6	No further action	ND	ND
1,1-Dichloroethene	6	No further action	ND	ND
Cis-1,2-Dichloroethene	6	No further action	ND	ND
Trichloroethene	6	No further action	ND	ND
Methylene Chloride	100	No further action	ND	ND
Tetrachloroethene	100	No further action	ND – 14.6	ND
1,1,1-Trichloroethane	100	No further action	ND	ND
Vinyl Chloride	6	No further action	ND	ND
Benzene	60	No further action	ND – 8.69	0.76
Ethylbenzene	60	No further action	15.5 – 24.5	ND
Naphthalene	60	No further action	ND	ND
Cyclohexane	60	No further action	ND – 7.5	ND
2,2,4-Trimethylpentane	60	No further action	ND	ND
1,2,4-Trimethylbenzene	60	No further action	25.1 – 33.8	ND
1,3,5-Trimethylbenzene	60	No further action	ND – 8.21	ND
o-Xylene	60	No further action	25.8 – 41.8	ND
p/m-Xylene	200	No further action	66.9 – 99	ND
Heptane	200	No further action	ND – 6.27	ND
Hexane	200	No further action	ND – 8.46	4.23
Toluene	300	No further action	27 – 41.5	ND

1. ND indicates the analyte was not detected above laboratory detection limits in the respective air medium.

2.5.6.2 Comparison of Soil Vapor with SCGs

As summarized in the table above, no target analytes were detected in soil vapor at concentrations exceeding the lowest applicable thresholds in the applicable NYSDOH Soil Vapor Intrusion Decision Matrix for sub-slab soil vapor. Therefore, application of the NYSDOH Decision Matrix indicates that no further action is warranted with respect to vapor intrusion.

A table of soil vapor data collected prior to the remedy is shown in **Table 5**. A spider map that indicates the locations of and summarizes soil vapor data prior to the remedy is shown in **Figure 8**.

2.6 Environmental and Public Health Assessments

2.6.1 Qualitative Human Health Exposure Assessment

The human health exposure assessment identified exposure scenarios for the Site.

- Exposed soil / HFM during construction presents a potential route of exposure to construction or remediation workers via contact, fugitive dust and surface water. Upon completion of planned construction activities, the Site will be covered by buildings, paved parking lots, as well as a vegetated soil cover system. The proposed structures / features will prevent direct human exposure to any materials that may be left in place.

- Groundwater is not considered a relevant mechanism for exposure due to the municipal water servicing the Site and requirement for an EE that will restrict the use of groundwater. There is not a ban on groundwater use as a public drinking water supply in Village of Canastota. However, groundwater in the vicinity of the Site is not known to be utilized as a source of potable water. In addition, the depth of the groundwater (three to five feet below grade) reasonably precludes human contact.

2.6.2 Fish & Wildlife Remedial Impact Analysis

Based upon the information presented in Section 5.5 of the RI Report, there are no ecological resources present on or in the vicinity of the Site and, consequently, no fish and wildlife resource impacts are anticipated.

2.7 Interim Remedial Action

No interim remedial actions have been implemented or are planned to be implemented at the Site.

2.8 Remedial Action Objectives

Based on the results of the RI, the following Remedial Action Objectives (RAOs) have been identified for this Site.

2.8.1 Groundwater

RAOs for Public Health Protection

- Prevent ingestion of groundwater containing contaminant levels exceeding drinking water standards.

- Prevent contact with, or inhalation of, volatiles emanating from contaminated groundwater.

RAOs for Environmental Protection

- Restore ground water aquifer, to the extent practicable, to pre-disposal/pre-release conditions.

2.8.2 Soil

RAOs for Public Health Protection

- Prevent ingestion/direct contact with contaminated soil.

RAOs for Environmental Protection

- Prevent migration of contaminants that would result in groundwater or surface water contamination.

3.0 ALTERNATIVES ANALYSIS REPORT

3.1 Objectives

The objectives of this portion of the document, the Alternatives Analysis Report (AAR), is to evaluate remedial alternatives to address the contamination presented in the RI Report and select remedial actions to be implemented. As defined in NYSDEC DER-10 (Section 4.0) and DER-31, remedial alternatives will be evaluated based on the following criteria:

- Overall Protection of Public Health and the Environment: This criterion evaluates exposure and residual risks to human health and the environment during or subsequent to implementation of the alternative.

- Compliance with SCGs: This criterion evaluates whether the remedial alternative will ultimately result in compliance with SCGs, to the extent practicable.

- Long-Term Effectiveness and Permanence: This criterion evaluates if the remedy is effective in the long-term after implementation (e.g., potential rebound). In the event that residual impacts will remain as part of the alternative, then the risks and adequacy/reliability of the controls are also evaluated.

- Reduction of Toxicity, Mobility, or Volume with Treatment: This criterion evaluates the reduction of contaminant toxicity, mobility or volume as a result of the remedial alternative. In addition, the reversibility of the contaminant destruction or treatment is evaluated.

- Short-Term Effectives: This criterion evaluates if the remedial alternative protects the community, workers and the environment during implementation.

- Implementability: This criterion evaluates the remedial alternative based on its suitability, implementability at the specific site, and availability of services and materials that will be required.

- Cost: This criterion evaluates the capital, operation, maintenance, and monitoring costs for the remedial alternative. The estimated costs are presented on a present worth basis.

- Land Use: This criterion evaluates the proposed remedial approach against the current, intended, and reasonably anticipated future use of the land and its surroundings.

- Community Acceptance: This criterion takes into account concerns of the community regarding the proposed remedy. Any public comments and overall public perception are addressed as part of the criterion.

- Green Remediation: This criterion considers all environmental effects of remedy implementation and incorporates alternatives that minimize the environmental footprint of cleanup actions.

3.2 Applicable Standards, Criteria, and Guidance

The remedial alternatives were developed in consideration of the SCGs listed in **Section 2.5.3.**

3.3 Remedial Action Objectives

The remedial alternatives were developed in consideration of the RAOs listed in **Section 2.8.**

3.4 Future Use Evaluation

When evaluating remedial alternatives, reasonableness of the anticipated future land use should be considered.

The proposed redevelopment plan for the Site is a pocket neighborhood and a multi-building residential project with on-site community and commercial spaces. The project includes six newly constructed buildings, including three 2-story apartment buildings and one 2-story townhouse building arranged around a central shared greenspace and three-story community building. There will be 48 affordable residential units. The project includes a neighborhood bakery / café, creation of canal front public space, and enhancement to the Empire State Trail. The proposed redevelopment would be considered restricted-residential.

3.5 Development of Alternatives

This section identifies potential remedial alternatives being considered to address the Site. Per DER-10 4.2(a)(i), each alternative considered must be protective of human health and the environment and conform to officially promulgated SCGs. These two criteria are considered threshold criteria.

The following alternatives are discussed in the subsections below:

1. No Action – Although this alternative does not meet the DER-10 threshold criteria, is it provided to demonstrate the need to undertake some level of remedial action.

2. Limited Fill Removal and Cover System – This alternative is a Track 4 cleanup designed to meet Restricted Residential SCOs and prepare the Site for a residential and commercial mixed use development, subject to institutional controls (IC) and engineering controls (EC). The major element of this alternative includes removal of impacted soil (as needed) to accommodate the construction of an engineered cover system.

3. Complete Fill Removal and Groundwater Treatment – This alternative is a Track 1 cleanup designed to meet Unrestricted Use SCOs and prepare the Site for any type of development, and not subject to ECs / ICs. The major elements of this alternative includes complete fill removal and groundwater treatment.

These remedial alternatives evaluated are summarized below:

3.5.1 No Action

The No Action Alternative is included as a procedural requirement and as a baseline to evaluate other alternatives. Under this alternative, no further remedial or monitoring activities would occur and no controls would be employed to prevent exposure to contaminated HFM / soil or groundwater. No Action does not provide protection of human health or the environment and does not comply with SCGs.

3.5.2 Track 4 (Restricted Residential) – Limited Fill Removal & Cover System

3.5.2.1 Description

In general, the types and concentrations of contaminants in the soil / HFM across the Site are typical of an urban area and the RAOs can be achieved by a cover system. Therefore, complete removal of this soil / HFM is not warranted and the remainder of the Site will be remediated by installing a cover system. This will consist of impervious cover (asphalt or concrete surface) or the placement of a two-foot of clean imported soil in areas without an impervious cover.

Remediation of groundwater is not a part of this alternative. VOC and SVOC concentrations in groundwater only slightly exceeded TOGS 1.1.1 AWQS. Acetone, p-isopropyltoluene, and phenol were detected in excess of their TOGS limits in MW-103 during the second round of sampling. The presence of these analytes along with the hydrogen sulfide odor at MW-103 indicate that these compounds may be related to the presence of HFM across the Site (residual constituents from coal-tar, creosote, or petroleum) or are related to the microbial breakdown of natural organic matter. A singular PAH compound, benzo(a)anthracene, was detected in excess of the TOGS limits in all wells at the Site during the first round of sampling and six PAHs were detected in excess of the TOGS limit in MW-101 during the second round of sampling. In each case, the concentration was a fraction of a part per billion (ppb) (maximum of 0.11 ppb) and the corresponding TOGS limit is very low (0.002 ppb). There were also exceedances of typical hard water elements across the Site including iron, magnesium, and sodium. Groundwater PFAS concentrations on the western side of the Site exceeded applicable PFOS and PFOA guidance values. These contaminants are not present at concentrations that are indicative of a source area and are at low concentrations that make treatment impractical. Based on the above, remediation of groundwater is not warranted and is not a part of this alternative.

Vapor mitigation is not a part of this alternative because comparison of the analytical results to applicable NYSDOH Decision Matrices, indicates no further action is required. However, to comply

with New York State Homes and Community Renewal (HCR) requirements, radon mitigation systems will be installed in all newly constructed buildings at the Site.

3.5.2.2 Assessment

Overall Protection of Human Health and the Environment

As needed to meet new grades, make space for the new features (buildings, buried utilities, etc.), and accommodate the soil cover system; a portion of the excavated soil / HFM with contaminant concentrations above Residential Restricted SCOs would be removed and disposed off-site. Soil / HFM re-used onsite or otherwise remaining onsite will be isolated by the cover system.

Groundwater is not used for drinking water at the Site. Drinking water in the Village of Canastota is sourced from OCWA, which is treated prior to use to ensure the water meets NYSDEC and USEPA standards. Although there is not a ban on groundwater use as a public drinking water supply in the Village of Canastota, groundwater in the vicinity of the Site is not known to be utilized as a source of potable water.

Long term human health and environmental protection and control can be managed with a Site Management Plan (SMP), EE, deed restrictions, monitoring and other such IC / EC. This alternative would be protective of human health and the environment.

Compliance with SCGs

The alternative complies with the SCGs, as on-site HFM / soil with contaminant concentrations above the SCOs would either be removed and disposed off-site or left under the engineered cover system.

Some VOCs, SVOCs, metals, and PFAS in groundwater exceed TOGS on Site. However, there is no identifiable human exposure pathway given 1) the lack of drinking water wells in the vicinity of the Site and 2) an IC in the form of an EE that restricts groundwater use from the Site as potable or process water without necessary water quality treatment as determined by the NYSDOH or County DOH.

Although contaminants of concern were not identified in soil vapor at the Site, radon mitigation systems will be installed in all newly constructed buildings at the Site to comply with New York State HCR requirements.

Short-term Impacts and Effectiveness

This alternative increases the short-term risks for the community and the workers implementing the alternative (i.e., through the disturbance of impacted HFM / soil) because the Site will undergo removal and grading of contaminated HFM / soil. However, these risks would be minimized

through the implementation of appropriate HFM / soil handling procedures, air monitoring, and dust suppression techniques.

Long-term Effectiveness and Permanence

This alternative would be a permanent remedy to address the contaminant concentrations in the soil / HFM throughout the Site. The presence of a cover system will eliminate the potential for users of the Site to come into contact with the HFM.

Reduction of Toxicity, Mobility and Volume

This alternative would result in the reduction of the mobility and volume of contaminants in the HFM / soil. Mobility would be controlled by the cover system and the volume would be reduced as a result of the removal of HFM for the cover system and other redevelopment tasks that require displacement of existing soil.

Implementability

This alternative is implementable using existing construction methods and equipment. The expected duration is less than one construction season. This alternative would result in a Site suitable for redevelopment for residential use (except single-family homes).

Cost Effectiveness

The estimated cost of this alternative is $5.08 million as detailed in the table below.

Table 3-1: Track 4 Summary of Remedial Costs

Category	Unit Rate	Number	Units	Estimated Cost
Site Mobilization	$10,000	1	LS	$10,000
Erosion, Sediment, and Dust Control	$10,000	1	LS	$10,000
Site Clearing	$20,000	1	LS	$20,000
Site Control & Security	$20,000	1	LS	$20,000
Debris Pile Removal	$831,000	1	LS	$831,000
Contaminated Soil Excavation and Disposal	$100	12,200	ton	$1,220,000
Soil Disposal Sampling	$900	25	Sample	$22,500
Geotextile Fabric	$1	108,567	SF	$108,567
Backfill Procurement and Placement	$60	6,900	CY	$414,000
Topsoil Procurement and Placement	$90	150	CY	$13,500
Topsoil Import Composite Sampling	$1,500	1	Sample	$1,500
Topsoil Import Discrete Sampling	$125	3	Sample	$375
Native Soil Reuse and Placement	$0	600	CY	$0
Native Soil Reuse Composite Sampling	$1,500	2	Sample	$3,000

Category	Unit Rate	Number	Units	Estimated Cost
Native Soil Reuse Discrete Sampling	$125	6	Sample	$750
Topsoil Seeding	$0.20	37,804	SF	$7,561
Concrete Building Foundations	$18	24,637	SF	$443,466
Concrete Sidewalks, Curbs, and Patio	$26	18,034	SF	$468,884
Asphalt Pavement	$5.25	26,859	SF	$141,010
Playground Poured in Place Rubber	$15	567	SF	$8,505
Playground Mulching	$3	567	SF	$1,701
Site Survey	$10,000	1	LS	$10,000
C&S Construction Oversight & Consulting	$50,000	6	Month	$300,000
C&S Reporting	$50,000	1	LS	$50,000
C&S Inspections	$50,000	1	LS	$50,000
Subtotal				**$4,156,319**
Contingency	20 percent			$831,264
Construction Subtotal				**$4,987,582**
Annual Certification	$3,000	Year	30	$90,000
TOTAL				**$5,077,582**

Land Use

This alternative would allow for the use of the parcel for mixed use containing residential and commercial building space, which conforms to the Village of Canastota's development plans for the area. Therefore, this alternative would allow for the highest and best use of the land.

Community Acceptance

Based on the findings of the studies performed to date, it is anticipated that the results of this alternative would be acceptable to the community.

Green Remediation

This alternative could utilize the following green remediation options:

- Utilizing a cover system to isolate the HFM. This approach significantly reduces the use of fossil fuels that would be used to excavate and haul the HFM off-site for disposal, as well as bring replacement material to the Site. This option also limits the volume of soil to be managed in a landfill.

- Clean soil and aggregate needed to construct the cover system can be sourced from local pits / quarries, thus reducing emissions for transport vehicles.

- Natural degradation of low-level VOCs and SVOCs within the Site's groundwater. This remedial method reduces the amount of waste and products which would be used if an injection or source removal remedial method was implemented.

A detailed narrative of the green remediation approach for the remedy is provided in **Section 4.1.2**.

3.5.2.3 Summary

The Track 4 (Restricted Residential) – Limited Fill Removal & Cover System Alternative was designed to remediate the Site to a moderately restrictive level – Residential Restricted Use SCOs and prepare the Site for redevelopment for residential and commercial mixed use.

3.5.3 Track 1 (Unrestricted Use) – Complete Fill Removal and Groundwater Treatment

3.5.3.1 Description

Under this Unrestricted Use Alternative, HFM and soil impacted at concentrations greater than Unrestricted Use SCOs would be excavated and disposed off-site in accordance with applicable regulations. Based on the results of the RI and the generated fill depth contours, the estimated volume of soil requiring removal is 11,700 cubic yards. Assuming a conversion rate of 1.5 tons per cubic yard, the weight of this HFM is estimated to be 17,500 tons.

If contaminant concentrations in groundwater still exceed TOGS following HFM removal, the VOCs and SVOCs in groundwater could be addressed with an in-situ chemical oxidation (ISCO) product while the PFAS concentrations in groundwater could be remediated by either an ex-situ (i.e., pump and treat) or an in-situ treatment. Groundwater treatment technologies for PFAS continue to advance as research progresses and additional full-scale applications are implemented. Proven technologies currently include granular activated carbon (GAC), ion exchange resins, and membrane filtration systems such as reverse osmosis, while several emerging technologies are being evaluated for their ability to destroy PFAS compounds rather than simply remove them from groundwater. As treatment technologies continue to develop and regulatory requirements evolve, the selection of an appropriate groundwater remedy should consider both currently available treatment methods and emerging technologies that may provide improved long-term performance. The effectiveness of the ISCO and PFAS groundwater treatment would be verified by four rounds of groundwater sampling and analysis.

3.5.3.2 Assessment

<u>Overall Protection of Human Health and the Environment</u>

This alternative would be protective of human health and the environment, as: 1) all soil with contaminant concentrations above Unrestricted Use SCOs would be removed and disposed off-

site; and 2) groundwater would be treated to meet TOGS Standards (if necessary following HFM removal).

Compliance with SCGs

The alternative complies with the SCGs, as: 1) on-site HFM / soil with contaminant concentrations above Unrestricted Use SCOs would be removed and disposed off-site (as confirmed by analytical testing); and 2) groundwater would be treated to meet TOGS Standards (if necessary following HFM removal).

Short-term Impacts and Effectiveness

This alternative increases the short-term risks for the community and the workers implementing the alternative (i.e., through the disturbance of impacted HFM / soil), because the Site will undergo complete removal of contaminated HFM / soil. However, these risks would be minimized through the implementation of appropriate HFM / soil handling procedures, air monitoring, and dust suppression techniques.

Long-term Effectiveness and Permanence

The Unrestricted Use Alternative would be a permanent remedy to address the contaminant concentrations in the soil and groundwater on the Site.

Reduction of Toxicity, Mobility and Volume

This alternative would result in the reduction of the toxicity, mobility, and volume of contaminants on the Site since the remedy would include the removal of contaminated HFM / soil and treatment of groundwater.

Implementability

This alternative is implementable using existing construction methods and equipment. The expected duration is one construction season. This alternative would result in a Site suitable for redevelopment for any use.

Cost Effectiveness

The estimated cost of this alternative is $6.48 million as detailed in the table below.

Table 3-2: Track 1 Summary of Remedial Costs

Category	Unit Rate	Number	Units	Estimated Cost
Site Mobilization / Demobilization	$10,000	1	LS	$10,000
Erosion, Sediment, and Dust Control	$10,000	1	LS	$10,000
Site Clearing	$20,000	1	LS	$20,000
Site Control & Security	$20,000	1	LS	$20,000
Debris Pile Removal	$831,000	1	LS	$831,000
Excavation Shoring	$50,000	1	LS	$50,000
Contaminated Soil Excavation, Transport, Disposal	$100	19,300	ton	$1,930,000
Contaminated Soil Disposal Sampling	$900	39	Sample	$35,100
Confirmatory Soil Sampling	$400	201	Sample	$80,400
Backfill Procurement and Placement	$60	11,600	CY	$696,000
Topsoil Procurement and Placement	$90	150	CY	$13,500
Topsoil Import Composite Sampling	$1,500	1	Sample	$1,500
Topsoil Import Discrete Sampling	$125	3	Sample	$375
Native Soil Reuse and Placement	$0	600	CY	$0
Native Soil Reuse Composite Sampling	$1,500	2	Sample	$3,000
Native Soil Reuse Discrete Sampling	$125	6	Sample	$750
Topsoil Seeding	$0.20	37,804	SF	$7,561
Site Dewatering	$100,000	1	LS	$100,000
Groundwater Treatment Pilot Study (if needed)	$200,000	1	LS	$200,000
Groundwater Treatment (if needed)	$500,000	1	LS	$500,000
Groundwater Monitoring (if needed)	$10,000	10	Rounds	$100,000
Site Survey	$15,000	1	LS	$15,000
C&S Construction Oversight & Consulting	$50,000	12	Month	$600,000
C&S Reporting	$50,000	1	LS	$50,000
C&S Inspections	$50,000	1	LS	$50,000
Subtotal				**$5,324,186**
Contingency	20 percent			$1,064,837
Construction Subtotal				**$6,389,023**
Annual Certification	$3,000	Year	30	$90,000
TOTAL				**$6,479,023**

Land Use

This alternative would allow for the use of the parcel for any use, contingent on the requirements for zoning / land use in the Village of Canastota.

Community Acceptance

It is anticipated that this alternative would be acceptable to the community.

Green Remediation

Due to the magnitude of soil removal, backfilling, and landfill disposal required for this option, local resources may be affected. The remediation will require a significant expenditure of fossil fuels to fuel the approximate 1,000 trucks necessary to remove the HFM from the Site, as well as the approximate 1,000 trucks that will provide backfill materials for the Site. Green remediation alternatives will be limited to local sourcing of material and treatment of groundwater. However, the impacts related to soil management will far outweigh these benefits.

3.5.3.3 Summary

The Unrestricted Use Alternative was designed to remediate the Site to its least restrictive level – Unrestricted Use Soil SCOs and prepare the Site for redevelopment for any type of use. This alternative would not require ECs / ICs, and there would be no need for site management.

3.6 Comparative Evaluation of Alternatives and Recommended Actions

This section of the report compares the remedial alternatives proposed for each of the impacted media and presents the recommended action for each media group.

3.6.1 No Action Alternative

The No Action Alternative does not meet DER-10 threshold criteria and is therefore not protective of human health and the environment and would likely not be acceptable to the community in the long term. Therefore, this alternative is not the recommended remedy for the Site.

3.6.2 Track 4 (Residential Restricted) – Cover System

The Track 4 – Limited Fill Removal & Cover System Alternative would be a long-term remedy and is anticipated to be acceptable to the community. This alternative reduces the toxicity, mobility, and volume of impacted media through a) removal of surplus impacted soil / HFM; and b) installation of a cover system across the Site. This alternative was designed to:

- Remediate the Site to a reasonable level that protects human health and the environment
- Provide a cost-effective effort that meets SCGs and the future land use of the Site
- Prepare the Site for redevelopment for residential and commercial mixed uses

3.6.3 Track 1 (Unrestricted Use) – Complete Fill Removal and Groundwater Treatment

The Unrestricted Use Alternative would be a long-term remedy and is anticipated to be acceptable to the community. This alternative effectively reduces the toxicity, mobility, and volume of impacted media through the removal of all HFM from the Site and replacement with clean material, as well as the treatment of groundwater. However, this alternative will negatively impact the redevelopment because of increased complexity of the remediation due to multiple actions to reestablish the Site, increased time-frame to conduct the remediation, and a significantly higher remedial cost.

3.7 Selection of the Preferred Remedy

Based on the alternative analysis evaluation, the Track 4 (Restricted Residential) – Limited Fill Removal & Cover System remedy is the recommended final remedial approach for the Site. This alternative is fully protective of public health and the environment; significantly less disruptive to the community; consistent with current and future land use; and represents a more cost-effective approach than the Track 1 remedy, while fully satisfying the RAOs. The recommended remedial alternative is described in further detail below.

3.7.1 Zoning

The Site is currently zoned as the Industrial District (IN) under the Village of Canastota Zoning Map (December 2015). Enclosed manufacturing industries, enclosed warehouse or wholesale, public utility, enclosed service and repair, machinery and transportation equipment, sales, service, and repair, enclosed industrial process, service, and product packaging, freight or trucking terminal, contractor's yard, public garage, parking, and accessory use are permitted uses under the current IN zoning.

Since commercial and residential uses are not permitted in the current IN zoning, the Volunteers will re-zone the Site under the Planned Development District (PD). Under PD zoning, the Site may be developed as a coordinated mixed-use area that integrates residential, commercial, and industrial uses into a cohesive and compatible plan of development, consistent with the public interest and general welfare. This is consistent with the proposed redevelopment plan of a pocket neighborhood with residences, community, and commercial spaces.

3.7.2 Applicable Comprehensive Community Master Plans or Land Use Plans

In January 2026, the Village of Canastota adopted its first community comprehensive plan titled "Canastota Connected Comprehensive Plan." The Comprehensive Plan outlines a unified vision for the community and provides a framework for achieving it. The Plan identifies seven priority areas, including the Old Erie Canal corridor where the Site is located. Its vision for the Old Erie Canal is to *"create a destination waterfront along the Old Erie Canal that residents and visitors seek out to walk, dine, and spend time in,"* and to establish a safe and enjoyable public space with improved water access, kayak launches, and enhanced trails and streetscape along Canal Street.

The Plan also highlights the Old Erie Common BCP Site as an example of a future canalside neighborhood that will introduce new housing and canal-oriented amenities. The proposed redevelopment of the Site – including canalside residences, community areas, commercial space, and public amenities – directly supports and advances the goals of the Village's Comprehensive Plan.

3.7.3 Surrounding Property Uses

The anticipated future use of the Site and surrounding properties is consistent with the selected remedy. A key objective of the Canastota Connected Comprehensive Plan for the Old Erie Canal corridor is to *"focus on waterfront and streetscape redevelopment around the Old Erie Canal to create a destination waterfront in downtown Canastota."* Within the Village, land use transitions from dense commercial development and historic preservation in the downtown core to a mix of residential, industrial, and agricultural uses outward. Along the Old Erie Canal, land use is predominantly industrial and residential.

Situated directly south of the Old Erie Canal, the Site is well positioned to support the Plan's vision for the corridor. Its proposed redevelopment would contribute to establishing a waterfront destination for both residents and visitors. The project also complements other planned initiatives along the Old Erie Canal—such as reconnecting downtown to the waterfront, transforming the canal area into a canalside residential corridor, improving public access, enhancing use of the Old Erie Canal Waterway Trail, and linking the downtown waterfront with the Thruway Innovation District.

3.7.4 Citizen Participation

Citizens will be kept informed on the status of the Site through fact sheets and document repositories. Citizens are encouraged to provide public comment throughout the implementation of the remedy. The Citizen Participation Plan (CPP) is discussed further in **Section 4.1.10**.

3.7.5 Environmental Justice

New York's Climate Act recognizes that climate change doesn't affect all communities equally. The Climate Justic Working Group (CJWG) has developed criteria to identify Disadvantaged Communities (DACs) to ensure these underserved communities benefit from the statewide transition to cleaner, greener sources of energy, reduced pollution and cleaner air, and economic opportunities. The Site is located within a designated DAC. The proposed future use is not expected to increase or cause a disproportionate burden on the community but rather will support environmental justice goals by transforming an underutilized property into a vibrant, mixed-income pocket neighborhood and community hub. The project's affordable housing, improved public access to the canal waterfront, and enhancements to the Empire State Trail will provide long-term community benefits. In addition, the inclusion of on-site commercial space, including a neighborhood bakery/café, and the construction and ongoing operations associated with the multi-building residential development are anticipated to create new jobs and stimulate local

economic activity, thereby promoting equitable economic opportunities for residents of the surrounding community.

3.7.6 Proximity to Natural Resources

A review of information concerning endangered and threatened species in the Village of Canastota, available via the NYSDEC Environmental Resource Mapper, indicates that rare plants and animals are mapped in the broader Madison County area, although no records are documented for the Site itself or within the immediate vicinity (within approximately 0.5 mile). Wildlife that could potentially be present at the Site was determined using the NYSDEC Nature Explorer. The information in New York Nature Explorer was prepared by the New York State Department of Environmental Conservation using the data currently available. In addition, the species and locations reported by the online tool are not a definitive statement about the presence or absence of all plants and animals, including rare or state-listed species, and of all significant natural communities. According to the NYSDEC Nature Explorer, this generalized area contains species of conservation concern but no federally listed endangered or threatened species have been confirmed within or immediately adjacent to the Site. The Site is not located in or substantially contiguous to a Critical Environmental Area designated pursuant to Article 8 of the ECL and 6 NYCRR 617, nor are any state or federally designated wetlands mapped on or directly adjacent to the project site.

Based upon the information summarized above, there are no natural resources present on or in the vicinity of the Site.

3.7.7 Off-Site Groundwater Impacts

The Village of Canastota's public drinking water supply is sourced from OCWA. Although there is not a ban on groundwater use as a public drinking water supply in Village of Canastota, groundwater in the immediate vicinity of the project site is not known to be utilized as a source of potable water. Therefore, groundwater from the Site does not affect municipal water supplies.

3.7.8 Proximity to Floodplains

The Site is located in Federal Emergency Management Agency (FEMA) Flood Zone X, an area located outside the 1% and 0.2% annual chance floodplains.

3.7.9 Current Institutional Controls

There are currently no ICs being implemented at the Site.

3.8 Summary of Selected Remedial Actions

The Track 4 (Restricted Residential) – Limited Fill Removal & Cover System remedy would include the following:

1. Screening for indications of contamination (by visual means, odor, and monitoring with PID) of all excavated soil during any intrusive Site work;

2. Appropriate off-Site disposal of all material removed from the Site in accordance with all Federal, State and local rules and regulations for handling, transport, and disposal;

3. Import of materials to be used for backfill and cover in compliance with: (1) chemical limits and other specifications established in 6 NYCRR 375-6.7(d), NYSDEC DER-10 Appendix 5 – Allowable Constituent Levels for Imported Fill or Soil for Restricted Residential Use, and NYSDEC Sampling, Analysis, and Assessment of Per- and Polyfluoroalkyl Substances and (2) all Federal, State and local rules and regulations for handling and transport of material;

4. Construction and maintenance of a site cover consisting of either two feet of pervious clean material or hardscape to prevent human exposure to residual contaminated soil/fill remaining under the Site;

5. Recording of an EE, including ICs, to prevent future exposure to any residual contamination remaining at the Site (a copy of the EE will be provided in the SMP and Final Engineering Report [FER]);

6. Publication of a Site Management Plan for long term management of residual contamination as required by the EE, including plans for: (1) ICs and ECs, (2) monitoring, (3) operation and maintenance and (4) reporting;

7. All responsibilities associated with the Remedial Action, including permitting requirements and pretreatment requirements, will be addressed in accordance with all applicable Federal, State and local rules and regulations.

Remedial activities will be performed at the Site in accordance with this NYSDEC-approved RAWP and the NYSDEC-issued Decision Document (DD). All deviations from the RAWP and / or DD will be promptly reported to NYSDEC for approval and fully explained in the FER.

4.0 REMEDIAL ACTION PROGRAM

4.1 Governing Documents

The primary documents governing the remedial action program are summarized below.

4.1.1 Standards, Criteria and Guidance (SCGs)

The following standards, criteria, and guidance are typically applicable to Remedial Action projects in New York State, and will be consulted and adhered to as applicable:

- 6 NYCRR Part 364 – NYS Waste Transporter Permits
- 6 NYCRR Part 360 – NYS Solid Waste Management Requirements
- 6 NYCRR Part 371 – Identification and Listing of Hazardous Wastes
- 6 NYCRR Part 372 – Hazardous Waste Manifest System and Related Standards for Generators, Transporters and Facilities
- 6 NYCRR Subpart 374-2 – Standards for the Management of Used Oil
- 6 NYCRR Part 375 – Environmental Remediation Programs
- 6 NYCRR Part 376 – Land Disposal Restrictions
- 6 NYCRR Part 613 – Petroleum Bulk Storage
- 6 NYCRR Parts 700-706 – Classes and Standards of Quality and Purity
- 6 NYCRR Part 750 – State Pollutant Discharge Elimination System (SPDES) Permits
- 29 CFR Part 1910.120 – Hazardous Waste Operations and Emergency Response
- CP-43 – Commissioner Policy on Groundwater Monitoring Well Decommissioning (December 2009)
- CP-49 – Climate Change and DEC Action (2022)
- CP-51 – Soil Cleanup Guidance (2010)
- DER-2 - Making Changes to Selected Remedies (April 2008)
- DER-10 – Technical Guidance for Site Investigation and Remediation (2010)
- DER-13 – Strategy for Evaluating Soil Vapor Intrusion at Remedial Sites in New York (2006)
- DER-23 – Citizen Participation Handbook for Remedial Programs (2010)
- DER-31 – Green Remediation (2010)
- DER-32 – Brownfield Cleanup Program Applications and Agreements (2017)
- DER-33 – Guide to Drafting and Recording Institutional Controls (2010)
- TAGM 3028 – "Contained In" Criteria for Environmental Media: Soil Action Levels (August 1997)
- TOGS 1.1.1 – Ambient Water Quality Standards & Guidance Values and Groundwater Effluent Limitations (1998, Addenda 2000, 2004 and 2023)
- New York State Standards and Specifications for Erosion and Sediment Control (2016)
- U.S. EPA OSWER Directive 9200.4-17 – Use of Monitored Natural Attenuation at Superfund, RCRA Corrective Action, and Underground Storage Tank Sites (December 1997)
- New York State Department of Health (NYSDOH) Generic Community Air Monitoring Plan
- NYSDOH Guidance for Evaluating Soil Vapor Intrusion in the State of New York (2006)

- New York State Climate Act (2019)
- NYSDEC Sampling, Analysis, and Assessment of Per- and Polyfluoroalkyl Substances (2023)

4.1.2 Green and Sustainable Remediation and Climate Resiliency

NYSDEC's Program Policy DER-31 / Green Remediation and DER-31 Green and Sustainable Remediation Initiative Memorandum require that green remediation concepts and techniques be considered during all stages of the remedial program including remediation, with the goal of improving the sustainability of the cleanup and documenting the net environmental benefit of any implemented green technology. Green Remediation is defined as "the practice of considering all environmental effects of remedy implementation and incorporating options to minimize the environmental footprint of cleanup actions." The use of these practices and technologies during remediation should be less disruptive to the environment, generate less waste, increase reuse and recycling, and emit fewer pollutants, including greenhouse gases (GHGs), to the atmosphere.

4.1.2.1 Green Remediation Components

This RAWP identifies the green remediation components of the remedial design program, which will be implemented for the construction, operation, optimization, maintenance, and monitoring of the remedial program, and which also meet the requirements for the intended use of the Site for Restricted Residential Use. The purpose of this section is to identify concepts and develop a plan to best achieve a "Green Remediation" goal for each of the Sites selected remedies. The Green Remediation concepts considered during the development of the remedial alternatives include:

- Considering the environmental impacts of treatment technologies and remedy stewardship over the long term when choosing a site remedy;
- Reducing direct and indirect GHG and other emissions;
- Increasing energy efficiency and minimizing use of non-renewable energy;
- Conserving and efficiently managing resources and materials;
- Reducing waste, increasing recycling and increasing reuse of materials which would otherwise be considered a waste;
- Maximizing habitat value and creating habitat when possible;
- Fostering green and healthy communities and working landscapes which balance ecological, economic and social goals;

- Integrating the remedy with the end use where possible and encouraging green and sustainable re-development; and

- Designing buildings to meet the 2020 Energy Conservation Construction Code of New York.

Based on the type of remediation required for the Site, the principal green remediation goals for the Site are focused around the reduction of waste and the reuse of materials to extent feasible throughout the remediation process. The reduction in wastes indirectly reduces the consumption of fossil fuels and generation of greenhouse gases.

4.1.2.2 Environmental Footprint Analysis

As a part of the Green Remediation, the use of an environmental footprint analysis was completed to further evaluate the impact of the planned remedies for the Site. For the purpose of analyzing the overall impact and sustainability of the planned remediation activities, C&S developed a Green Remediation Calculator that contains pertinent content of the DER-31 referenced calculators [(e.g. SEFA (Spreadsheets for Environmental Footprint Analysis, USEPA) and SiteWise™ (developed by the US military)]. In addition to that content, C&S' Green Remediation calculator is based upon content previously created by engineers and scientists in C&S' air resources and aviation practices for use at industrial facilities to calculate emissions of GHGs, hazardous air pollutants (HAPs) and criteria pollutants for permitting, tracking, and reporting purposes; as well as for large airport construction projects to calculate potential and actual emissions from construction of terminals, taxiways, runways, etc.

Based on the anticipated elements of the implementation of the remedy, the Green Remediation Calculator was used to develop estimated values for:

- Water consumption
  - Wetting of the site during construction to comply with the CAMP
  - Water for miscellaneous construction activities (saw cutting, demolition, hydroseeding, decontamination, etc.)

- GHGs
  - Emissions related to the transportation of personnel to and from the Site
  - Emissions related to the export of contaminated soil
  - Emissions related to the export of hazardous building materials (i.e., debris pile)
  - Emissions related to the export of vegetation (trees, brush) for off-site recycling
  - Emissions related to the mining and import of clean soil / aggregate
  - Emissions related to the manufacture and import of asphalt, concrete, and rubber
  - Emissions related to the operation of site work equipment (excavators, loaders, dozers, rollers, etc.)
  - Emissions related to the laboratory analysis of waste characterization samples and import / reuse samples

- Renewable and non-renewable energy usage
    - Charging of environmental monitoring equipment

- Waste reduction and material usage
    - Reuse of materials on and off site

The analysis presented in this report includes an estimate of emissions from the mining and import of clean soil and aggregate, as well as for the production and import of asphalt and concrete. These upstream sources are not required by DER-31 but have been included for consistency with USEPA's SEFA.

Building envelope related construction is not part of the remedy. However, the building construction will meet or exceed the 2020 Energy Conservation Construction Code of New York.

Narratives regarding the various elements of the remedy, their potential impact on the environment, and strategies employed to reduce their footprint (BMPs) are provided in the following subsections.

4.1.2.3 Green Remediation Techniques

To further reduce the environmental footprint of the remediation, Green Remediation Techniques (GRTs) were identified and will be implemented.

NYSDEC DER-31 identifies a list of specific techniques which were considered during the development of this RAWP. This section further describes the techniques which were identified as being feasible to be implemented during the site redevelopment and remediation to best achieve a green remediation goal for the Site.

4.1.2.4 Best Management Practices

The section describes the BMPs which will be implemented throughout the implementation of the remedy to support green remediation goals. The following BMPs were identified for implementation:

- **Minimize Mobilizations** – C&S will coordinate with the site contractor(s) to best schedule site activities in conjunction to minimize the number of trips to the Site for field staff, workers, and mobilizing equipment.

- **Excavation Equipment** – Site contractor(s) will use equipment that is suitably sized to complete the anticipated sitework. The use of equipment which is undersized or oversized can decrease the efficiency of the equipment considerably. When possible, equipment will be used which can perform multiple types of tasks without mobilizing a single piece of equipment for each task. Contractors will be encouraged to utilize Clean Fuel Fleet vehicles and Tier 2 or higher Equipment and will burn ultra low sulfur diesel fuel.

- **Idling of Motorized Equipment** – Equipment and trucks will be shut down if left idling longer than 15-minutes.

- **Stormwater and Erosion Controls** – Where possible, the use of compost socks will be used for controlling sediment run-off, in leu of synthetic non-decomposable sediment fencing. Soil piles will be covered with tarps or plastic sheeting in a manner to allow for the reuse of the covers each day to minimize the generation of waste.

- **Soil Stockpiles** – Soil will be stockpiled within the planned areas needing additional soil to meet the final grading. This will reduce additional handling of waste soil and minimize mobilization to new sections of the Site.

- **C&S Battery-Powered Sampling Equipment** – CAMP equipment (PIDs, Dustraks, Thiamis Antenna), Geopump Peri groundwater Pump, Horiba Water Quality Meter, Data Loggers, and any other battery-operated equipment will be charged at the C&S facility. C&S estimated in 2024 that 28% of the electricity used at their facility is generated on-site through use of solar panels. This practice will reduce the load on the electrical grid and allow for the use of renewable energy source, and indirectly minimizing the use of fossil fuels and reducing the generation of greenhouse gas emissions.

- **Waste Storage Containers** – C&S uses cleaned reclaimed 5-gallon buckets and 55-gallon drums for the collection, transport, and storage of sampling wastes. The re-use of containers decreases the generation of waste.

- **Cover-System** – If possible, the selected geotextile fabric used for the demarcation barrier will be composed of recycled materials. The geotextile fabric will allow for the percolation of water through the cover system to control erosion and / or pooling of water.

- **Sustainable Laboratory Practices** – C&S will submit samples to a laboratory, which implements the following sustainable practices:
    - Recycles paper products and shipping materials.
    - Uses energy-efficient lighting and other equipment.
    - Maintains a paperless reporting and invoicing program.
    - Minimizes waste through use of USEPA-approved microscale methods.

4.1.2.5 Climate Change Vulnerability Assessment

The proposed remedy was assessed to identify its potential vulnerability to the changing climate and if needed, develop measures to ensure an increase in the remedy's resiliency. C&S conducted a climate screening to evaluate individual climate risks which might impact the Site's planned remedy. The completed NYSDEC Climate Screening Checklist is provided as **Appendix D**.

The climate screening was completed by reviewing data provided in the following:

- New York State Energy Research and Development Authority (NYSERDA) ClimAID Report (the Site is located in Region 5)
- National Oceanic and Atmospheric Administration (NOAA) Sea Level Rise Viewer
- NOAA National Hurricane Center Storm Surge Risk Maps
- NOAA National Integrated Drought Information System (NIDIS)
- FEMA Resilience Analysis and Planning Tool (RAPT)
- United States Department of Agriculture (USDA) Forest Service Wildfire Risk to Communities
- USGS Landslide Inventory and Susceptibility Map

The following provides a summary of the hazards identified for the Site:

- **Precipitation** – The NYSERDA ClimAID Report indicated that Region 5 received an average of 51 inches of precipitation between 1971 and 2000. The precipitation for the region is projected to increase by 0-5% in the 2020s, 0-5% in the 2050s, and 5-10% in the 2080s. This equates to an approximate 2.5-inch increase in the 2020s, 2.5-inch increase in the 2050s, and 5-inch increase in the 2080s. The proposed Site redevelopment includes the installation of new stormwater systems, designed to treat a 100-year storm event. Furthermore, the remedy is not reliant on electricity and will not be impacted by potential power outages.

- **Temperature** – The NYSERDA ClimAID Report indicated that Region 5 had a baseline of 10 days per year with the maximum temperature exceeding 90°F. This number is projected to increase to a central range of 14-20 in the 2020s, 20-35 in the 2050s, and 26-60 in the 2080s. Similarly, the NYSERDA ClimAID Report indicated that Region 5 had a baseline of 134 days per year with the minimum temperature at or below 32°F. This number is projected to decrease to a central range of 128-139 in the 2020s, 111-127 in the 2050s, and 90-120 in the 2080s. It is not expected that extreme heat or cold will impact the proposed remedy.

- **Sea Level Rise** – According to the NOAA Sea Level Rise Viewer, the Site is not likely to be influenced by sea level rise due to its location inland.

- **Flooding** – According to the FEMA National Flood Hazard Layer, the Site is located in an area determined to be outside the 0.2% annual chance floodplain.

- **Storm Surge** – According to the NOAA Storm Surge Risk Map, the Site is not likely to be influenced by storm surges due to its location inland.

- **Wildfires** – According to the USDA Forest Service Wildfire Risk to Communities, the likelihood of a wildfire in Canastota, New York is low. Canastota is in the lowest 7% of communities nationwide in terms of wildfire risk. Similarly, according to the FEMA RAPT, the Site is located in an area with Very Low Wildfire Risk.

- **Drought** – According to the NOAA NIDIS, Madison County is not affected by drought and had 4.86-inch increase in precipitation in 2025 from normal values. Furthermore, both the short-term and long-term Multi-Indicator Drought Index estimate wet conditions for Madison County and no droughts are expected in the monthly or season outlooks. According to the NYSERDA ClimAID Report, the number of droughts is likely to increase by the end of the century, however, drought projections are marked by relatively large uncertainty.

- **Storm Severity** – The NYSERDA ClimAID Report indicated that Region 5 had a baseline of 10 days per year with the amount of rainfall exceeding 1 inch. This number is projected to increase to a central range of 10-11 in the 2020s and 2050s and 10-12 in the 2080s. Similarly, the NYSERDA ClimAID Report indicated that Region 5 had a baseline of 1 day per year with the amount of rainfall exceeding 2 inches. This number is projected to increase to a central range of 1-2 in the 2020s, 2050s, and 2080s. The proposed Site redevelopment includes the installation of new stormwater systems, designed to treat a 100-year storm event. Furthermore, the remedy is not reliant on electricity and will not be impacted by potential power outages.

- **Landslides** – According to the USGS Landslide Inventory and Susceptibility Map, the Site is located in an area with very low landslide susceptibility.

Based on the above assessment of potential climate hazards, precipitation, temperature, and storm severity are relevant to the Site and precipitation and storm severity can have a potential impact to the Site remedy. However, the proposed Site redevelopment includes the installation of a new stormwater system, designed to handle large storm events, making the Site and remedy resilient to the climate hazards.

4.1.2.6 Summary

The elements of the remedy with a significant environmental footprint will be tracked to document metrics and identify reductions of the environmental footprint throughout the remediation planning and implementation. The expectation of the environmental footprint from these significant elements are shown in **Table 4-1** and **Table 4-2**. The inputs and outputs from C&S' Green Remediation Calculator are provided in **Appendix E.** The actual environmental footprint results will be summarized in the FER.

Table 4-1: Cover System Construction Metrics

Item / Activity	Volume / Unit	Note
Diesel Use	54,513.4 gallons	Operation of on-site equipment and transportation of materials, equipment, waste, workers
Gasoline Use	317.5 gallons	Operation of on-site equipment and transportation of workers

Item / Activity	Volume / Unit	Note
Grid Electricity Usage	0.319 MWh	Charging of CAMP stations each day (28% renewable from C&S facilities)
Public Water Use	20,000 gallons	Wetting of the Site for CAMP implementation, water for miscellaneous construction tasks
Solid waste to off-site non-hazardous waste landfill	12,200 tons	Export of excess contaminated soil generated during sitework
Solid waste to off-site hazardous waste landfill	6,500 tons	Export of the on-site debris pile which may contain hazardous building materials
Solid waste recycled / reused off-site	100 tons	Export of brush generated during Site clearing
Solid waste recycled / reused on-site	900 tons	Reuse of excavated native soil from the stormwater storage area
Import of Construction Materials	500 pounds	Polyethylene sheeting for soil stockpiles
	5,000 pounds	Geotextile demarcation barrier for the cover system
	10,350 tons	Stone base for the cover system
	225 tons	Topsoil for the cover system (grass areas)
	700 tons	Asphalt for the cover system (paved areas)
	860 tons	Concrete for the cover system (sidewalks, curbs, building foundations, and patio)
	12.5 tons	Rubber for the cover system (playground)
	100 tons	Mulch for the cover system (playground)
Off-site laboratory analyses	25 samples	Waste characterization sampling for export of contaminated soil (~11 analyses each)
	9 samples	Discrete characterization sampling for import of material (1 analysis each)
	3 samples	Composite characterization sampling for import of material (~10 analysis each)

Table 4-2: Environmental Footprint Summary

Activity	Total Energy (MMBtu)	lbs CO_2	lbs NOx	lbs SOx	lbs PM	lbs HAPs
On-Site Investigation	3,450	558,141	4,217	134	84	0
Grid Electricity Generation	2.210	359	1	1	0	0
Transportation	4,169	674,695	5,061	161	102	2
Off-Site Components	710,178	13,228,076	47,648	141,376	22,000	19,056
Total	**717,798**	**14,461,270**	**56,298**	**141,672**	**22,186**	**19,059**

MMBtu – Metric Million British Thermal Unit
CO_2 – Carbon Dioxide
lbs – Pounds
NOx – Nitrogen Oxides
SOx – Sulfur Oxides
PM – Particulate Matter
HAP – Hazardous Air Pollutants

4.1.3 Site Specific Health & Safety Plan

All remedial work performed under this plan will be in full compliance with governmental requirements, including Site and worker safety requirements mandated by Federal Occupational Safety and Health Administration (OSHA).

The Volunteer and associated parties preparing the remedial documents submitted to the State and those performing the construction work, are completely responsible for the preparation of an appropriate Health and Safety Plan and for the appropriate performance of work according to that plan and applicable laws.

The HASP and requirements defined in this RAWP pertain to all remedial and invasive work performed at the Site until the issuance of a Certificate of Completion (COC). A HASP was prepared that details procedures for maintaining safe working conditions and minimizing the potential for exposure to hazardous material. The HASP is provided in **Appendix F**.

The Site Safety Coordinator will be William Marshfield. A resume is provided in **Appendix G**.

Though not anticipated, confined space entry will comply with all OSHA requirements to address the potential risk posed by combustible and toxic gases.

4.1.4 Quality Assurance Project Plan (QAPP)

To ensure that suitable and verifiable data results are obtained from the information collected at the Site, a project Quality Assurance Project Plan (QAPP) has been prepared and outlines the following:

- Quality control objectives including sampling procedures, laboratory certifications, analytical methodologies, and data usability;
- Field sampling techniques including procedures, preparation, measurement, and decontamination; and
- Sample management and handling.

The QAPP is provided in **Appendix H**.

4.1.5 Construction Quality Assurance Plan (CQAP)

The Construction Quality Assurance Plan (CQAP) provides a detailed description of the observation and testing activities that will be used to monitor construction quality and confirm that remedy construction is in conformance with the remediation objectives and specifications. Since the remedial elements will be constructed in concurrence with general site construction, the Property Developer (Housing Visions) and their personnel will have the primary responsibility for

overall project execution, regulatory compliance, and construction quality. The Environmental Consultant (C&S) and their personnel will provide oversight of remedial construction, support regulatory reporting, and confirm adherence to this RAWP. A CQAP has been developed that pertains directly to the remediation objectives and specifications. The CQAP is included below:

- The quality assurance program will be managed by C&S personnel under the direction of the Volunteer and in coordination with the Property Developer. C&S personnel have full authority to halt construction, request corrective measures, or require additional verification testing if work is found to be noncompliant with remedial project requirements.

- All personnel involved in quality assurance activities will be trained in applicable American Society for Testing and Materials (ASTM) field procedures and regulatory requirements and will maintain current certifications such as OSHA 40-Hour HAZWOPER.

- C&S personnel will be on-Site during implementation of the RAWP to monitor particulates and organic vapor in accordance with the CAMP, discussed further in **Section 4.1.8**. C&S personnel will meet with the Construction Superintendent daily to discuss the plans for that day and schedule upcoming activities. Field personnel will document remedial activities. Field activities will be forwarded to the C&S Project Manager daily and to the Remedial Engineer on a weekly basis.

- Prior to placement of the final cover system, the prepared sub-grade will be surveyed by a licensed surveyor. The pre-cover elevations and the post-cover elevations will be compared to confirm that the Site cover is of adequate thickness.

- C&S personnel will conduct observation and testing throughout the duration of the remedial construction. Continuous visual inspections will be used to confirm that demarcation fabric is placed without gaps, tears, or misalignment, and that the clean soil layer is free from debris or unsuitable material. The thickness of the clean pervious cover will be pre-planned using grade stakes.

- Field personnel will screen excavations with a PID during ground-intrusive work. PID readings, including specifically elevated readings, will be recorded in the project field book (or on separate logs) and reported to the NYSDEC and NYSDOH. Field personnel under the direct supervision of the Remedial Engineer will collect documentation samples in accordance with this RAWP.

- Field observations will be recorded on appropriate project logs. Recorded field observations may take the form of notes, charts, sketches, and / or photographs. A photo log will be kept to document construction activities during remediation.

- Upon completion of the cover system installation, a licensed surveyor will conduct a detailed topographic and as-built survey to document the final extent of the cover system.

The survey will confirm that cover elements have been placed as specified, final site grades are consistent with the design, and that the delineation between pervious and impervious cover areas is properly established. Survey results will be reviewed by the remedial engineer and incorporated into the FER.

- Throughout construction, regular project coordination meetings will be held to facilitate communication among key project participants, including the Volunteer's representatives, Property Developer, Environmental Consultant, excavation and environmental contractors, and other relevant stakeholders. These meetings will cover progress updates, quality concerns, schedule adjustments, and any required corrective actions.

- Daily reports documenting field activities, weather conditions, personnel and equipment, community air monitoring results, and any observed deviations from the plans will be submitted to the NYSDEC and NYSDOH project managers by noon the following business day.

- C&S personnel will maintain original field paperwork during performance of the remedy. Remedial activities will be documented in the monthly BCP progress reports. The Project Manager will maintain the field paperwork after completion and will maintain submittal document files.

- Supporting data such as visual inspection logs, soil thickness verification, and survey data will be compiled and reviewed by the Remedial Engineer. Nonconformance reports and corrective action documentation will be generated as needed and retained in the project record. Upon completion of remedial construction, a summary of observations and testing, as-built documentation, and certifications by the Remedial Engineer confirming compliance with project specifications will be included in the FER.

4.1.6 Soil / Materials Management Plan (SMMP)

A Soil / Materials Management Plan (SMMP) has been prepared and includes detailed plans for managing all soils / materials that are disturbed at the Site, including excavation, handling, storage, transport and disposal. The SMMP also includes all controls that will be applied to these efforts to assure effective, nuisance-free performance in compliance with all applicable Federal, State and local laws and regulations. The SMMP is provided in **Section 5.4**.

4.1.7 Storm-Water Pollution Prevention Plan (SWPPP)

Since the Site is greater than 1 acre in size, a Storm Water Pollution Prevention Plan (SWPPP) has been prepared to address the requirements of New York State Storm-Water Management Regulations including physical methods to control and / or divert surface water flows and to limit the potential for erosion and migration of Site soils, via wind or water. The SWPPP was prepared by the Site civil engineering firm, Passero Associates.

The erosion and sediment controls will be in conformance with requirements presented in the New York State Standards and Specifications for Erosion and Sediment Control.

The SWPPP is provided in **Appendix I.**

4.1.8 Community Air Monitoring Plan (CAMP)

Air monitoring during ground-intrusive activities will be conducted using PIDs and real-time aerosol particle meters. Air monitoring will be conducted in the work zone for on-site health and safety. Details on air monitoring are provided in **Section 5.4.12**. The CAMP is provided in **Appendix J**.

4.1.9 Contractors Site Operations Plan (SOP)

The Remedial Engineer will review all plans and submittals for this remedial project (including those listed above and contractor / sub-contractor document submittals) and confirms that they comply with this RAWP. The Remedial Engineer is responsible to ensure that all later document submittals for this remedial project, including contractor / sub-contractor document submittals, comply with this RAWP. All remedial documents will be submitted to NYSDEC and NYSDOH in a timely manner and prior to the start of work.

4.1.10 Citizen Participation Plan

A certification of mailing will be sent by the Volunteer to the NYSDEC project manager following the distribution of all Fact Sheets and notices that includes: (1) certification that the Fact Sheets were mailed, (2) the date they were mailed; (3) a copy of the Fact Sheet, (4) a list of recipients (contact list); and (5) a statement that the repository was inspected and that it contained all of applicable project documents.

No changes will be made to approved Fact Sheets authorized for release by NYSDEC without written consent of the NYSDEC. No other information, such as brochures and flyers, will be included with the Fact Sheet mailing.

The approved CPP for this project is attached in **Appendix K**.

Document repositories have been established at the following locations and contain all applicable project documents:

Canastota Public Library
102 West Center Street
Canastota, New York 13032
(315) 697-7030
Mon – Thurs: 9 AM – 8 PM
Fri: 9 AM – 5 PM

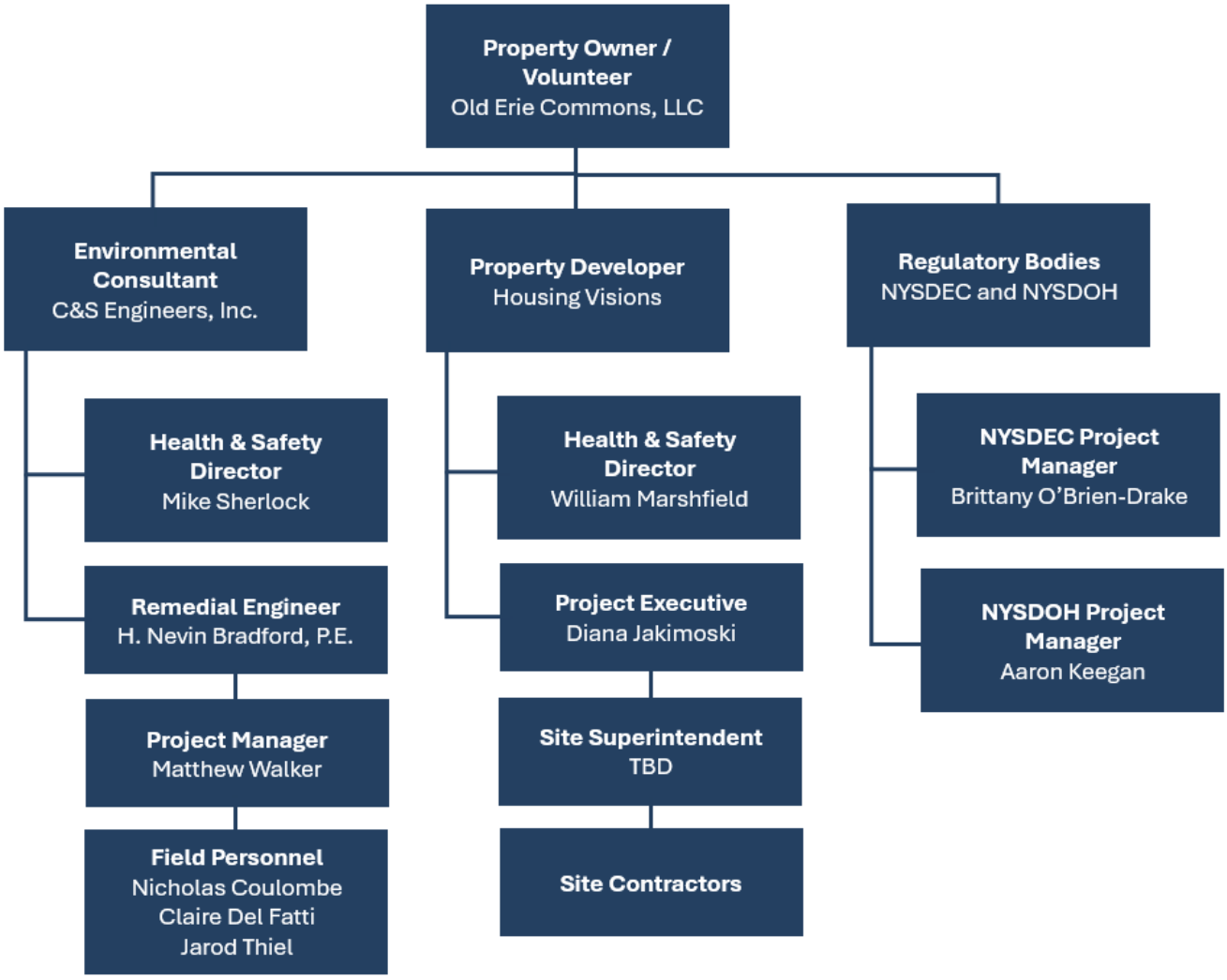
Sat: 9AM – 12 PM
Sun: Closed

In addition, an electronic repository can be accessed via DECInfo Locator at the following link: https://extapps.dec.ny.gov/data/DecDocs/C727015/

4.2 General Remedial Construction Information

4.2.1 Project Organization

An organization chart is included below:



Resumes of key personnel involved in the Remedial Action are included in **Appendix G**.

4.2.2 Remedial Engineer

The Remedial Engineer for this project will be H. Nevin Bradford. The Remedial Engineer is a registered professional engineer licensed by the State of New York. The Remedial Engineer will have primary direct responsibility for implementation of the remedial program for the Old Erie Commons BCP Site (NYSDEC BCA Index No. C727015-11-21 Site No. C727015). The Remedial Engineer will certify in the Final Engineering Report that the remedial activities were observed by qualified environmental professionals under his supervision and that the remediation requirements set forth in the RAWP and any other relevant provisions of ECL 27-1419 have been achieved in full conformance with that Plan. Other Remedial Engineer certification requirements are listed later in this RAWP.

The Remedial Engineer will coordinate the work of other contractors and subcontractors involved in all aspects of remedial construction, including soil excavation, stockpiling, characterization, removal and disposal, air monitoring, emergency spill response services, import of backfill material, and management of waste transport and disposal. The Remedial Engineer will be responsible for all appropriate communication with NYSDEC and NYSDOH.

The Remedial Engineer will review all pre-remedial plans submitted by contractors for compliance with this RAWP and will certify compliance in the Final Engineering Report.

The Remedial Engineer will provide the certifications listed in **Section 10.1** in the FER.

4.2.3 Remedial Action Construction Schedule

A remedial action construction schedule is provided below:

Table 4-3: Remedial Action Construction Schedule

Date	Task
Monthly by 10th day	Progress reports
August 2026	AAR / RAWP submitted to NYSDEC
Fall 2026	AAR / RAWP approved by NYSDEC and DD Issued
Spring 2027	Remedial Action Commences
Summer 2028	Remedial Action Complete
August 1, 2028	Draft EE Package Submitted to NYSDEC
August 1, 2028	Draft SMP submitted to NYSDEC
October 1, 2028	EE Executed and Final SMP submitted to NYSDEC
October 1, 2028	Draft FER submitted to NYSDEC
November 1, 2028	EE recorded and Notices provided
November 15, 2028	Final FER submitted in final form to NYSDEC

4.2.4 Work Hours

The hours for operation of remedial construction will conform to the Village of Canastota construction code requirements or according to specific variances issued by that agency. NYSDEC will be notified by the Volunteer of any variances issued by the Department of Building (DOB). NYSDEC reserves the right to deny alternate remedial construction hours.

4.2.5 Site Security

Site control is an important aspect of this remedial program. In order to safeguard the health and safety of site workers and the general public, access to all remedial work areas will be restricted. Perimeter fencing will be installed to facilitate site control. Additionally, temporary construction fencing will be erected around accessible excavations and staging areas to prevent unauthorized personnel from entering these areas.

4.2.6 Traffic Control

Traffic control will include clearly marked entry and exit points along Center Street, designated haul routes, and restricted zones to ensure the safe movement of vehicles and equipment. Traffic flow will be managed through signage, barricades, and flaggers as needed, particularly in high-risk areas. Vehicle access will be scheduled to minimize congestion and designated parking / staging areas will be established for equipment and personnel to prevent obstruction of active work zones. Emergency access routes will remain clear at all times, and dust suppression measures will be implemented to reduce airborne contaminants. Regular monitoring and adjustments will be made as site conditions change to maintain safety and efficiency.

4.2.7 Contingency Plan

It is not uncommon to encounter unforeseen conditions during remediation or construction at former industrial sites. This could include buried tanks, unknown utilities, fill materials that differ from those observed during the RI, and other similar issues. The discovery of such conditions will be communicated with NYSDEC to determine the appropriate course to address or document the concern.

4.2.8 Worker Training and Monitoring

Worker training and monitoring will be conducted in accordance with the HASP.

4.2.9 Agency Approvals

The Volunteer has addressed all State Environmental Quality Review Act (SEQRA) requirements for this Site. All permits or government approvals required for remedial construction have been, or will be, obtained prior to the start of remedial construction.

The planned end use for the Site is not in conformance with the current zoning for the property as determined by the Village of Canastota. The Site is currently zoned as the Industrial District (IN) under the Village of Canastota Zoning Map (December 2015). Since commercial and residential uses are not permitted in the current IN zoning, the Volunteers will re-zone the Site under the Planned Development District (PD). Under PD zoning, the Site may be developed as a coordinated mixed-use area that integrates residential, commercial, and industrial uses into a cohesive and compatible plan of development, consistent with the public interest and general welfare. This is consistent with the proposed redevelopment plan of a pocket neighborhood with residences, community, and commercial spaces. A COC will not be issued for the project unless conformance with zoning designation is demonstrated.

A complete list of all federal, state and local governmental permits, certificates or other approvals or authorizations required to perform the remedial and development work is attached in **Table 4-4**. This list includes a citation of the law, statute or code to be complied with, the originating agency, and a contact name and phone number in that agency. This list will be updated in the Final Engineering Report.

Table 4-4: Approvals and Authorizations for Remedial Work / Development

Authorization	Originating Agency	Contact Name	Phone Number
SEQRA Approval	Village of Canastota Board of Trustees	Deputy Mayor Doug Gustin	315-697-7559
	New York State Homes and Community Renewal	Sharon McLelland	516-486-3484
Site Plan and Planned Development District Approval	Village of Canastota Board of Trustees	Deputy Mayor Doug Gustin	315-697-7559
SWPPP Approval	Village of Canastota Board of Trustees	Deputy Mayor Doug Gustin	315-697-7559
Building Permit	Canastota Code Enforcement	Mike Adsit	315-697-7559
CPP Approval	NYSDEC DER Region 7	Brittany O'Brien-Drake	518-402-9672
RIWP Approval	NYSDEC DER Region 7	Brittany O'Brien-Drake	518-402-9672
RI Report Approval	NYSDEC DER Region 7	Brittany O'Brien-Drake	518-402-9672
AAR / RAWP Approval	NYSDEC DER Region 7	Brittany O'Brien-Drake	518-402-9672

All planned remedial or construction work in regulated wetlands and adjacent areas will be specifically approved by the NYSDEC Division of Natural Resources to ensure that it meets the requirements for substantive compliance with those regulations prior to the start of construction. Nothing in the approved RAWP or its approval by NYSDEC should be construed as an approval for this purpose.

4.2.10 Pre-Construction Meeting with NYSDEC

A pre-construction meeting will be held between NYSDEC, the Volunteer, the Remedial Engineer, the Construction Manager, and the remediation contractor to discuss roles, responsibilities, and expectations associated with this RAWP.

4.2.11 Emergency Contact Information

An emergency contact sheet with names and phone numbers is included in the HASP. That document will define the specific project contacts for use by NYSDEC and NYSDOH in the case of a day or night emergency.

4.2.12 Remedial Action Costs

The total estimated cost of the Remedial Action is $5.08 million. An itemized and detailed summary of estimated costs for all remedial activity is attached as **Appendix L**. This will be revised based on actual costs and submitted as an Appendix to the Final Engineering Report.

4.3 Site Preparation

4.3.1 Mobilization

Before beginning remedial activities, the remediation contractor will make necessary preparations. Mobilization tasks may include the following:

- Setting up temporary facilities such as offices, storage areas, and decontamination pads;
- Constructing a stabilized construction entrance to control sediment tracking;
- Installing perimeter controls such as fencing and silt fence for erosion control;
- Delivering and staging equipment and materials in designated areas;
- Establishing utility connections, if needed; and
- Implementing safety protocols, including signage and traffic control measures, to regulate site access.

4.3.2 Monitoring Well / Vapor Probe Decommissioning

Existing groundwater monitoring wells will either be protected during remediation and development for use in post-remedial monitoring or will be properly decommissioned in accordance with NYSDEC Commissioners Policy CP-43. The only exception to this is if the full length of the well is to be excavated during remediation.

Similarly, existing soil vapor probes will be properly decommissioned unless they are to be fully removed during remediation or used for post-remedial monitoring.

4.3.3 Erosion and Sedimentation Controls

As part of the remedial actions to be performed at the Site, measures will be needed to limit erosion and dust generation. Erosion control and dust suppression techniques will be employed as necessary to limit erosion and fugitive dust generated in disturbed areas during remediation and redevelopment activities. Such techniques may be employed even if the community air monitoring results indicate that particulate levels are below action levels. Techniques may include but are not limited to:

- Using silt fencing, hay bales, and / or mulching
- Applying water on haul roads and ingress / egress points
- Wetting equipment and excavation surfaces
- Hauling materials in properly tarped or watertight containers
- Limiting vehicle speed on the Site
- Limiting the size of excavations
- Covering excavated areas and materials following excavation

Effectiveness of the dust suppression measures will be evaluated based on the results of the air monitoring that will be conducted under the CAMP.

4.3.4 Stabilized Construction Entrance

A stabilized construction entrance for controlling tracking of sediment will be installed at the Center Street access points and will be properly operated. The entrance will be graded to ensure proper drainage. A geotextile fabric will be placed on the entrance to prevent soil migration and improve stability and a layer of coarse aggregate will be placed on top of the fabric (typically 2- to 3-inch crushed stone to a minimum thickness of 6 inches). The entrance will be wide enough for vehicles and extend at least 50 feet into the Site to reduce mud tracking. Regular maintenance, including adding fresh stone and removing accumulated sediment, will be performed to keep the entrance effective throughout the project.

4.3.5 Utility Marker and Easements Layout

The Volunteer and its contractors are solely responsible for the identification of utilities that might be affected by work under the RAWP and implementation of all required, appropriate, or necessary health and safety measures during performance of work under this RAWP. The Volunteer and its contractors are solely responsible for safe execution of all invasive and other work performed under this RAWP. The Volunteer and its contractors must obtain any local, State or Federal permits or approvals pertinent to such work that may be required to perform work under this RAWP. Approval of this RAWP by NYSDEC does not constitute satisfaction of these requirements.

The presence of utilities and easements on the Site has been investigated by the Remedial Engineer. It has been determined that no risk or impediment to the planned work under this Remedial Action Work Plan is posed by utilities or easements on the Site.

4.3.6 Sheeting and Shoring

Appropriate management of structural stability of on-Site or off-Site structures during on-Site activities include excavation is the sole responsibility of the Volunteer and its contractors. The Volunteer and its contractors are solely responsible for safe execution of all invasive and other work performed under this RAWP. The Volunteer and its contractors must obtain any local, State or Federal permits or approvals that may be required to perform work under this RAWP. Further, the Volunteer and its contractors are solely responsible for the implementation of all required, appropriate, or necessary health and safety measures during performance of work under the approved RAWP.

4.3.7 Equipment and Material Staging

Equipment and materials will be staged in designated areas to ensure organized storage and easy access for construction activities. These staging areas will be strategically located to minimize congestion, improve workflow, and enhance site safety. The remediation contractor will notify the Volunteer and Remedial Engineer in advance of site mobilization.

4.3.8 Decontamination Area

A truck wash will be operated on-site, as appropriate. The qualified environmental professional will be responsible for ensuring that all outbound trucks will be washed at the truck wash before leaving the Site until the activities performed under this RAWP are complete. Truck wash waters will be collected and disposed of off-site in an appropriate manner.

4.3.9 Site Fencing

Fencing will be installed around the perimeter to restrict unauthorized pedestrian access and enhance safety. The fencing will be secure, clearly marked with signs, and regularly inspected to maintain its effectiveness throughout the project.

4.3.10 Demobilization

Following the completion of remedial activities, the remediation contractor will demobilize equipment and materials not designated for off-site disposal. The Remedial Engineer will document the demobilization activities and confirm that the following has been completed:

- Restoration of areas that may have been disturbed to accommodate support areas (e.g., staging areas, decontamination areas, storage areas, temporary water management areas, and access area);

- Removal of security fencing;
- Removal of temporary access areas (whether on-Site or off-Site) and restoration of disturbed access areas to pre-remediation conditions;
- Removal of sediment and erosion control measures and disposal of materials in accordance with acceptable rules and regulations;
- Equipment decontamination; and
- General refuse disposal.

4.4 Reporting

All daily and monthly reports will be included in the Final Engineering Report.

4.4.1 Daily Reports

Daily reports will be submitted to NYSDEC and NYSDOH Project Managers by noon of each day following the reporting period and will include:

- An update of progress made during the reporting day;
- Locations of work and quantities of material imported and exported from the Site;
- References to alpha-numeric map for Site activities;
- A summary of any and all complaints with relevant details (names, phone numbers);
- A summary of CAMP finding, including excursions;
- Photographs of site activities;
- An explanation of notable Site conditions.

Daily reports are not intended to be the mode of communication for notification to the NYSDEC of emergencies (accident, spill), requests for changes to the RAWP or other sensitive or time critical information. However, such conditions must also be included in the daily reports. Emergency conditions and changes to the RAWP will be addressed directly to NYSDEC Project Manager via personal communication.

Daily Reports will include a description of daily activities keyed to an alpha-numeric map for the Site that identifies work areas. These reports will include a summary of CAMP results, odor and dust excursions and corrective actions, and all complaints received from the public.

A Site map that shows a predefined alpha-numeric grid for use in identifying locations described in reports submitted to NYSDEC is attached in **Figure 2**.

The NYSDEC assigned project number will appear on all reports.

4.4.2 Monthly Reports

Monthly reports will be submitted to NYSDEC and NYSDOH Project Managers by the 10th day of each month following the reporting period and will include:

- Activities relative to the Site during the previous reporting period and those anticipated for the next reporting period, including a quantitative presentation of work performed (e.g., tons/cubic yards of material exported and imported, etc.);
- Description of approved activity modifications, including changes of work scope and/or schedule;
- Sampling results received following internal data review and validation, as applicable; and,
- An update of the remedial schedule including the percentage of project completion, unresolved delays encountered or anticipated that may affect the future schedule, and efforts made to mitigate such delays.
- Tracking of Green and Sustainable Remediation (GSR) metrics determined during the design process should be included in monthly reports.

4.4.3 Other Reporting

Photographs will be taken of all remedial activities and submitted to NYSDEC in digital (JPEG) format. Photos will illustrate all remedial program elements and will be of acceptable quality. Representative photos of the Site prior to any Remedial Actions will be provided. Representative photos will be provided of each contaminant source, source area and Site structures before, during and after remediation. Photos will be included in the daily reports as needed, and a comprehensive collection of photos will be included in the FER.

Progress with respect to green and sustainable remediation metrics will be tracked during implementation of the remedial action and reported in the FER, including a comparison to the goals established during the remedial program. Regular updates to the metrics used (SEFA, SiteWise™ or otherwise approved method) should be included.

The Climate Screening process and results will be documented in the form of a completed checklist and brief letter report. If the Climate Screening results indicate that a Climate Change Vulnerability Assessment (CVA) is necessary, a complete CVA Report will be developed. The CVA Report will be included as an Appendix or Attachment in relevant documents and / or submitted as a standalone report.

Job-site record keeping for all remedial work will be appropriately documented. These records will be maintained on-Site at all times during the project and be available for inspection by NYSDEC and NYSDOH staff.

4.4.4 Complaint Management Plan

To address public complaints regarding nuisances such as noise, dust, or traffic disruptions, a structured complaint management process will be implemented. Each complaint will be logged with details such as the nature of the issue, time, and location. Upon receipt, the complaint will be investigated promptly, and appropriate corrective actions, such as dust suppression, noise reduction, or adjusted work hours, will be taken as necessary. The complainant will be informed

of the resolution steps, and follow-ups will be conducted if required. All complaints and responses will be recorded to ensure accountability and reported to NYSDEC.

4.4.5 Deviations from the Remedial Action Work Plan

Any deviations from the RAWP will be communicated to NYSDEC via telephone or email. All deviations will be documented and will include:

- Reasons for deviating from the approved RAWP;
- Approval process to be followed for changes / editions to the RAWP;
- Effect of the deviations on overall remedy.

5.0 REMEDIAL ACTION: MATERIAL REMOVAL FROM SITE

The remediation will include the excavation, stockpiling, and disposal of approximately 12,900 tons of contaminated fill / soil. The quantity of fill / soil to be disposed of off-site will be reduced through re-use of the existing contaminated fill / soil below the cover system.

5.1 Soil Cleanup Objectives

The Soil Cleanup Objectives for this Site are established in 6 NYCRR 375-6 for Restricted Residential Use and NYSDEC Sampling, Analysis, and Assessment of Per- and Polyfluoroalkyl Substances.

Soil and materials management on-Site and off-Site will be conducted in accordance with the SMMP as described below.

Table 2 and **Table 3** summarizes all soil samples that exceed the SCOs proposed for this Remedial Action. A spider map that shows all soil samples that exceed the SCOs proposed for this Remedial Action is shown in **Figure 4**, **Figure 5a**, and **Figure 5b**.

Although USTs are not believed to be present, any unanticipated UST closures will, at a minimum, conform to criteria defined in DER-10.

5.2 Remedial Performance Evaluation (Post Excavation End-Point Sampling)

Post-excavation end-point sampling is not required as part of this Remedial Action. The removal of the on-site debris pile will be conducted in accordance with all applicable New York State Department of Labor (NYSDOL) asbestos regulations, including Industrial Code Rule 56, as appropriate based on the materials encountered. If asbestos-containing material (ACM) is identified or presumed to be present, removal activities will be performed by appropriately licensed personnel using required engineering controls and work practices to prevent the release of asbestos fibers. Upon completion of debris removal, clearance sampling will be performed, as appropriate, and may include a combination of air and soil samples to document that the work area meets applicable clearance criteria prior to completion of the activity.

5.3 Estimated Material Removal Quantities

The estimated quantity of soil / fill to be removed from the Site is 12,200 tons. The estimated quantity of soil to be imported into the Site for backfill and cover soil is 7,050 cubic yards. The estimated quantity of native soil expected to be reused / relocated on Site is 600 cubic yards. The proposed grading plan is provided in **Figure C-105**.

5.4 Soil / Materials Management Plan

This SMMP outlines the procedures for handling, segregating, storing, transporting, reusing, and disposing of contaminated soil and materials at the Site. The plan establishes methods to be employed for successful soil and material management while minimizing potential risks such as cross-contamination, airborne dust, and runoff. The Remedial Engineer and field personnel working under his supervision, will be responsible for monitoring and documenting the handling and transport of material. The Remedial Engineer and appropriate field personnel will also be responsible for identifying materials to be transported off-site versus temporary on-site stockpiling, selection of samples for characterization, and determining appropriate off-site disposal facilities, if necessary.

5.4.1 Soil Screening Methods

Visual, olfactory and PID soil screening and assessment will be performed by a qualified environmental professional or experienced field geologist under the direction of the Remedial Engineer during all remedial and development excavations into known or potentially contaminated material. Soil screening will be performed regardless of when the invasive work is done and will include all excavation and invasive work performed during the remedy and during development phase, such as excavations for foundations and utility work, prior to issuance of the COC.

Screening will be completed using a portable PID, to document whether VOVs are released from the soil. The PID screening will be performed using headspace analysis methods, by placing a representative portion of the soil sample into a re-sealable plastic bag and monitoring the airspace surrounding the soil within the bag as the soil is agitated to promote the release of VOCs. The PID will be calibrated daily with a 100-ppm isobutylene / air calibration gas mixture.

As needed, soils will be segregated based on previous environmental data and screening results into material that requires off-site disposal and material that requires testing to determine if the material can be reused on-site as soil beneath a cover or if the material can be used as cover soil.

Although it is not anticipated, all primary contaminant sources (including but not limited to tanks and hotspots) identified during the Remedial Investigation and Remedial Action will be surveyed by a surveyor licensed to practice in the State of New York. This information will be provided on maps in the FER.

Screening will be performed by qualified environmental professionals. Resumes are provided in **Appendix G** for all personnel responsible for field screening (e.g., those representing the Remedial Engineer) of invasive work for unknown contaminant sources during remediation and development work.

5.4.2 Stockpile Methods

Stockpiles will be inspected at a minimum once each week and after every storm event. Results of inspections will be recorded in a logbook and maintained at the Site and available for inspection by NYSDEC. At a minimum, a storm event should be considered a rainfall of three inches or greater in 12 hours. Judgement should be used to evaluate water infiltration, nearby waterbodies where runoff is likely, and ECs that may be affected.

Stockpiles will be kept covered at all times with appropriately anchored tarps. Stockpiles will be routinely inspected and damaged tarp covers will be promptly replaced.
Soil stockpiles will be continuously encircled with silt fences. Hay bales will be used as needed near catch basins, surface waters and other discharge points.

Water will be available on-site at suitable supply and pressure for use in dust control.

5.4.3 Materials Excavation and Load Out

The Remedial Engineer or a qualified environmental professional under his supervision will oversee all invasive work and the excavation and load-out of all excavated material.

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

The presence of utilities and easements on the Site has been investigated by the Remedial Engineer. It has been determined that no risk or impediment to the planned work under this Remedial Action Work Plan is posed by utilities or easements on the Site. A Site utility stakeout will be completed for all utilities prior to any ground intrusive activities at the Site.

Loaded vehicles leaving the Site will be appropriately lined, tarped, securely covered, manifested, and placarded in accordance with appropriate Federal, State, local, and New York State Department of Transportation (NYSDOT) requirements (and all other applicable transportation requirements). Trucks transporting contaminated soil must have either tight-fitting opaque covers that are secured on the sides and / or back, or opaque covers that are locked on all sides.

Vehicles leaving the Site will not be overloaded. The Remedial Engineer's representative will make reasonable efforts to ensure that vehicles are not loaded beyond their NYSDOT weight rating and that all material is secured beneath the truck bed cover.

A truck wash will be operated on-Site. The Remedial Engineer will be responsible for ensuring that all outbound trucks will be washed at the truck wash before leaving the Site until the remedial construction is complete.

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

The Remedial Engineer will be responsible for ensuring that all egress points for truck and equipment transport from the Site will be clean of dirt and other materials derived from the Site during Site remediation and development. Cleaning of the adjacent streets will be performed as needed to maintain a clean condition with respect to Site -derived materials.

The Volunteer and associated parties preparing the remedial documents submitted to the State, and parties performing this work, are completely responsible for the safe performance of all invasive work, the structural integrity of excavations, and for structures that may be affected by excavations (such as building foundations and bridge footings).

The Remedial Engineer will ensure that Site development activities will not interfere with, or otherwise impair or compromise, remedial activities proposed in this RAWP.

Although it is not anticipated, any hotspots and structures to be remediated will be removed and end-point remedial performance sampling completed before excavations related to Site development commence proximal to the hotspot or structure.

Development-related grading cuts and fills will not be performed without NYSDEC approval and will not interfere with, or otherwise impair or compromise, the performance of remediation required by this plan.

Mechanical processing of historical fill and contaminated soil on-Site is prohibited.

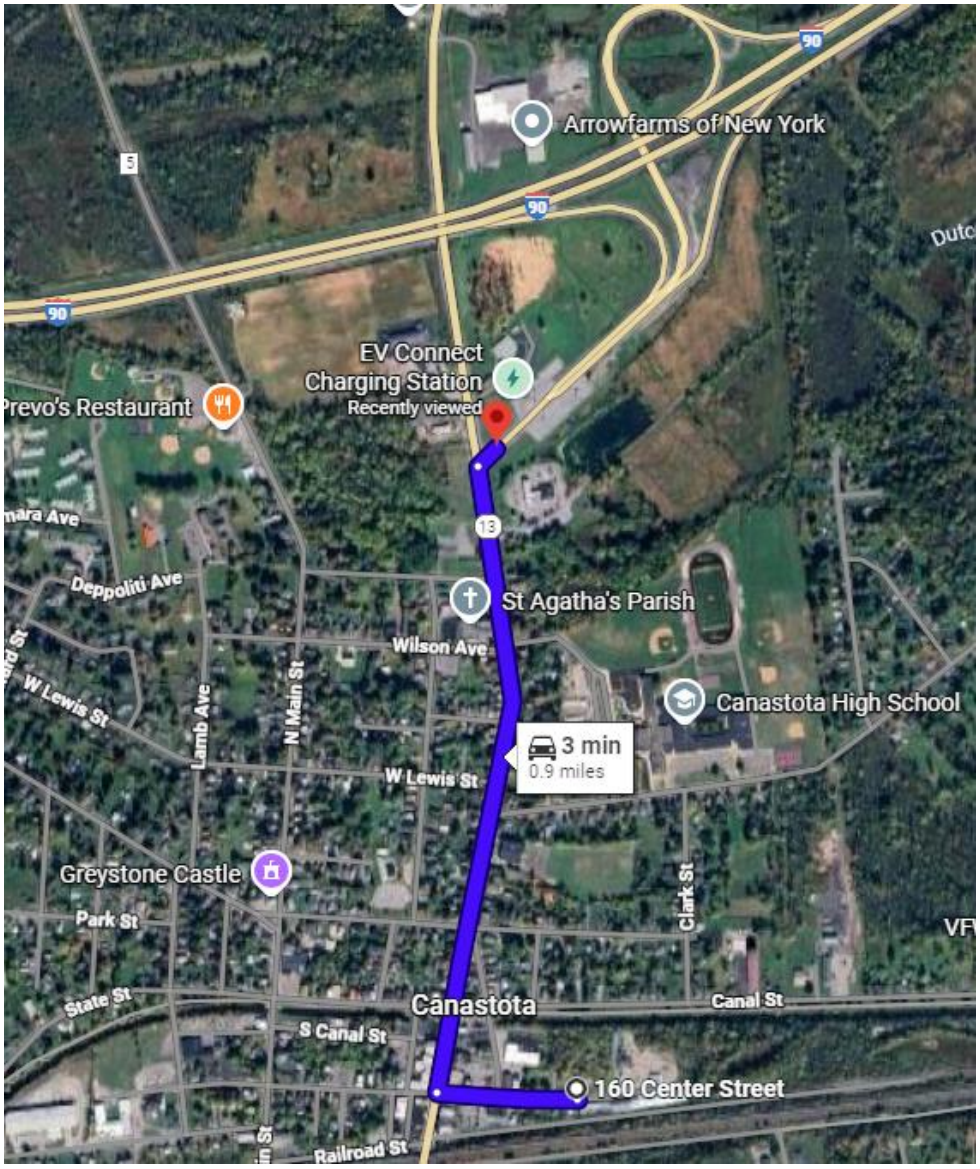
Although it is not anticipated, any primary contaminant sources identified during Site Characterization, Remedial Investigation, and Remedial Action will be surveyed by a surveyor licensed to practice in the State of New York. The survey information will be shown on maps to be reported in the FER.

5.4.4 Materials Transport Off-Site

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

Truck transport routes connect the Site to I-90 eastbound and westbound via Center Street and Peterboro Street, major transportation corridors. All trucks loaded with Site materials will exit the vicinity of the Site using only these approved truck routes.

Proposed in-bound and out-bound truck routes to the Site are shown below. This is the most appropriate route and takes into account: (a) limiting transport through residential areas and past sensitive sites; (b) use of city mapped truck routes; (c) prohibiting off- Site queuing of trucks entering the facility; (d) limiting total distance to major highways; (e) promoting safety in access to highways; and (f) overall safety in transport. Trucks will be prohibited from stopping and idling in the neighborhood outside the project Site.



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

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

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

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

5.4.5 Materials Disposal Off-Site

Disposal locations have not yet been established. Disposal locations established at a later date will be reported to the NYSDEC Project Manager.

The total quantity of material expected to be disposed off-Site is 12,900 tons of soil to a NYSDEC Part 360 permitted solid waste landfill.

All soil / fill / solid waste excavated and removed from the Site will be treated as contaminated and regulated material and will be disposed in accordance with all local, State (including 6NYCRR Part 360) and Federal regulations. If disposal of soil / fill from this Site is proposed for unregulated disposal (i.e. clean soil removed for development purposes), a formal request with an associated plan will be made to NYSDEC's Project Manager. Unregulated off-Site management of materials from this Site is prohibited without formal NYSDEC approval.

Material that does not meet Track 1 unrestricted SCOs is prohibited from being taken to a New York State recycling facility (6NYCRR Part 360.15 Registration Facility).

The following documentation will be obtained and reported by the Remedial Engineer for each disposal location used in this project to fully demonstrate and document that the disposal of material derived from the Site conforms with all applicable laws: (1) a letter from the Remedial Engineer or BCP Volunteer to the receiving facility describing the material to be disposed and requesting formal written acceptance of the material. This letter will state that material to be disposed is contaminated material generated at an environmental remediation Site in New York State. The letter will provide the project identity and the name and phone number of the Remedial Engineer. The letter will include as an attachment a summary of all chemical data for the material being transported (including Site Characterization data); and (2) a letter from all receiving facilities stating it is in receipt of the correspondence (above) and is approved to accept the material. These documents will be included in the FER.

Non-hazardous historic fill and contaminated soils taken off-Site will be handled, at minimum, as a Municipal Solid Waste per 6NYCRR Part 360.2. The Remedial Engineer is responsible for assuring material is properly characterized and determining the appropriate disposal methods based on the characterization results.

Historical fill and contaminated soils from the Site are prohibited from being disposed at Part 360.15 Registration Facilities (also known as Soil Recycling Facilities).

Soils that are contaminated but non-hazardous and are being removed from the Site are considered by the NYSDEC Division of Materials Management (DMM) to be Construction and Demolition (C/D) materials with contamination not typical of virgin soils. These soils may be sent to a permitted Part 360 landfill. They may be sent to a permitted C/D processing facility without permit modifications only upon prior notification of NYSDEC DMM. This material is prohibited from being sent or redirected to a Part 360-15 Registration Facility. In this case, as dictated by

DMM, special procedures will include, at a minimum, a letter to the C/D facility that provides a detailed explanation that the material is derived from a DER remediation Site, that the soil material is contaminated and that it must not be redirected to on-Site or off-Site Soil Recycling Facilities. The letter will provide the project identity and the name and phone number of the Remedial Engineer. The letter will include as an attachment a summary of all chemical data for the material being transported.

The FER will include an accounting of the destination of all material removed from the Site during this Remedial Action, including excavated soil, contaminated soil, historic fill, solid waste, and hazardous waste, non-regulated material, and fluids. Documentation associated with disposal of all material must also include records and approvals for receipt of the material. This information will also be presented in a tabular form in the FER.

Bill of Lading system or equivalent will be used for off-Site movement of non-hazardous wastes and contaminated soils. This information will be reported in the FER.

Hazardous wastes derived from on-Site will be stored, transported, and disposed of in full compliance with applicable local, State, and Federal regulations.

Appropriately licensed haulers will be used for material removed from this Site and will be in full compliance with all applicable local, State and Federal regulations.

Waste characterization sampling will be performed exclusively for the purposes of off-Site soil disposal in a manner suitable to receiving facilities and in conformance with applicable federal, state and local laws rules and regulations and facility-specific permits. Sampling and analytical methods, sampling frequency, analytical results and QA/QC associated with waste characterization activities will be reported in the FER. All data available for soil/material to be disposed at a given facility must be submitted to the disposal facility with suitable explanation prior to shipment and receipt. Waste characterization data will be used solely for complying with requirements for off-site disposal. Waste Characterization sampling cannot be utilized for:

- Delineating the extent of contamination required for remediation at a Site.
- Replacing or substituting data collected as part of Site Characterization and/or Remedial Investigation.
- Replacing or substituting confirmation or documentation sampling as described in NYSDEC DER-10, Section 5.4.
- To modify remedial decisions as formalized in a NYSDEC approved DD or Record of Decision.

5.4.6 Materials Reuse On-Site

Proposed materials for reuse on-site must be sampled for full suite analytical parameters including PFAS and 1,4-dioxane. The sampling frequency will be in accordance with DER-10 Table 5.4(e)10 unless prior approval is obtained from the NYSDEC project manager for modification of the sampling frequency.

Chemical criteria for on-Site reuse of material have been approved by NYSDEC. These criteria are listed in NYSDEC DER-10 Appendix 5 – Allowable Constituent Levels for Imported Fill or Soil for Restricted Residential Use, and NYSDEC Sampling, Analysis, and Assessment of Per- and Polyfluoroalkyl Substances. The Remedial Engineer will ensure that procedures defined for materials reuse in this RAWP are followed and that unacceptable material will not remain on-Site. Approvals for modifications to the analytical parameters must be obtained from the NYSDEC project manager prior to the sampling event.

Soil / fill material for reuse on-site will be segregated and staged as described in **Section 5.4.1** and **Section 5.4.2**. Stockpile locations will be based on the location of Site excavation activities and proximity to nearby Site features. Material reuse on-site will comply with requirements of NYSDEC DER-10 Section 5.4(e)4. Any modifications to the requirements of DER-10 Section 5.4(e)4 must be approved by the NYSDEC project manager.

Sampling conducted to determine acceptable reuse must include collection of all necessary QA / QC samples, including, matrix spike / matrix spike duplicate (MS / MSD) samples, duplicate samples, equipment blanks for applicable parameters, etc. Laboratory deliverables will be Category B deliverables. Laboratory reporting limits will be sufficient to determine compliance with the SCOs. VOC samples will be collected in accordance with USEPA Method 5035.

A "Request to Import/Reuse Fill Material" form will be filed with the NYSDEC project manager for review and approval prior to material reuse on the site. A copy of the form is presented in **Appendix M**. Acceptable demolition material proposed for reuse on-Site, if any, will be sampled for asbestos.

Concrete crushing or processing on-Site is prohibited, unless NYSDEC has specifically approved on-site processing and reuse of acceptable demolition material.

Organic matter (wood, roots, stumps, etc.) or other solid waste derived from clearing and grubbing of the Site is prohibited for reuse on-Site.

Contaminated on-Site material, including historic fill and contaminated soil, removed for grading or other purposes will not be reused within a cover soil layer, within landscaping berms, or as backfill for subsurface utility lines. This will be expressed in the SMP.

5.4.7 Fluids Management

All liquids to be removed from the Site, including dewatering fluids, will be handled, transported and disposed in accordance with applicable local, State, and Federal regulations.

Dewatered fluids will not be recharged back to the land surface or subsurface of the Site. Dewatering fluids will be managed off-Site.

Discharge of water generated during remedial construction to surface waters (i.e. a local pond, stream, river and/or storm sewer) is prohibited without a SPDES permit.

5.4.8 Demarcation

After the completion of soil removal, site grading, sub-grade preparation, and any other invasive remedial activities and prior to backfilling, a land survey will be performed by a New York State licensed surveyor. The survey will define the top elevation of residual contaminated soils. A physical demarcation layer, consisting of orange snow fencing material, high visibility geotextile, or equivalent material will be placed on this surface to provide a visual reference. This demarcation layer will constitute the top of the 'Residuals Management Zone', the zone that requires adherence to special conditions for disturbance of contaminated residual soils defined in the SMP. The survey will measure the grade covered by the demarcation layer before the placement of cover soils, pavement and sub-soils, structures, or other materials. This survey and the demarcation layer placed on this grade surface will constitute the physical and written record of the upper surface of the 'Residuals Management Zone' in the SMP. A map showing the survey results will be included in the FER and the SMP.

5.4.9 Backfill from Off-Site Sources

All materials proposed for import onto the Site will be approved by the Remedial Engineer and will be in compliance with provisions in this RAWP prior to receipt at the Site.

Material from industrial sites, spill sites, other environmental remediation sites or other potentially contaminated sites will not be imported to the Site. Solid waste will not be imported onto the Site.

The FER will include the following certification by the Remedial Engineer: "I certify that all import of soils from off-Site, including source evaluation, approval and sampling, has been performed in a manner that is consistent with the methodology defined in the Remedial Action Work Plan".

All imported soils will meet NYSDEC approved backfill or cover soil quality objectives for this Site as established in 6 NYCRR 375-6.7(d), NYSDEC DER-10 Appendix 5 – Allowable Constituent Levels for Imported Fill or Soil for Restricted Residential Use, and NYSDEC Sampling, Analysis, and Assessment of Per- and Polyfluoroalkyl Substances. Non-compliant soils will not be imported onto the Site without prior approval by NYSDEC. Nothing in the approved RAWP or its approval by NYSDEC should be construed as an approval for this purpose.

Soils that meet 'general fill' requirements under 6 NYCRR Part 360.13, but do not meet backfill or cover soil objectives for this Site, will not be imported onto the Site without prior approval by NYSDEC. Nothing in this RAWP should be construed as an approval for this purpose.

A "Request to Import/Reuse Fill Material" form will be filed with the NYSDEC project manager for review and approval prior to import to the site. A copy of the form is presented in **Appendix M**.

5.4.10 Stormwater Pollution Prevention

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

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

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

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

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

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

A complete SWPPP is included in **Appendix I**.

5.4.11 Contingency Plan

If underground tanks or other previously unidentified contaminant sources are found during on-Site remedial excavation or development related construction, sampling will be performed on product, sediment and surrounding soils, etc. in accordance with DER-10. Chemical analytical work will be for full scan parameters (Target Analyte List [TAL] metals; Target Compound List [TCL] volatiles and semi-volatiles, TCL pesticides, PCBs and PFAS). Analyses will not be otherwise limited without NYSDEC approval.

Identification of unknown or unexpected contaminated media identified by screening during invasive Site work will be promptly communicated by phone to NYSDEC's Project Manager. These findings will be also included in daily and periodic electronic media reports.

5.4.11.1 Extreme Storm Preparedness and Response Contingency Plan

Damage from flooding or storm surge can include dislocation of soil and stockpiled materials, dislocation of site structures and construction materials and equipment, and dislocation of support of excavation structures. Damage from wind during an extreme storm event can create unsafe or unstable structures, damage safety structures and cause downed power lines creating dangerous site conditions and loss of power. In the event of emergency conditions caused by an extreme storm event, the Volunteer will undertake the following steps for site preparedness prior to the event and response after the event.

Storm Preparedness

Preparations in advance of an extreme storm event will include the following: containerized hazardous materials and fuels will be removed from the property; loose materials will be secured to prevent dislocation and blowing by wind or water; heavy equipment such as excavators and generators will be removed from excavated areas, trenches and depressions on the property to high ground or removed from the property; an inventory of the property with photographs will be performed to establish conditions for the site and equipment prior to the event; stockpile covers for soil and fill will be secured by adding weights such as sandbags for added security and worn or ripped stockpile covers will be replaced with competent covers; stockpiled hazardous wastes will be removed from the property; stormwater management systems will be inspected and fortified, including, as necessary: clean and reposition silt fences, hay bales; clean storm sewer filters and traps; and secure and protect pumps and hosing.

Storm Response

At the conclusion of an extreme storm event, as soon as it is safe to access the property, a complete inspection of the property will be performed. A site inspection report will be submitted to NYSDEC at the completion of site inspection and after the site security is assessed. Site conditions will be compared to the inventory of site conditions and material performed prior to the storm event and significant differences will be noted. Damage from storm conditions that result in acute public safety threats, such as downed power lines or imminent collapse of buildings, structures or equipment will be reported to public safety authorities via appropriate means such as calling 911.

Petroleum spills will be reported to NYSDEC within 2 hours of identification and consistent with State regulations. Public safety structures, such as construction security fences will be repaired promptly to eliminate public safety threats. Debris will be collected and removed.

Dewatering will be performed in compliance with existing laws and regulations and consistent with emergency notifications, if any, from proper authorities. Eroded areas of soil including unsafe slopes will be stabilized and fortified. Dislocated materials will be collected and appropriately managed. Support of excavation structure will be inspected and fortified as necessary. Impacted stockpiles will be contained and damaged stockpile covers will be replaced. Stormwater control systems and structures will be inspected and maintained as necessary.

If soil or fill materials are discharged off site to adjacent properties, property owners and NYSDEC will be notified, and corrective measure plan designed to remove and clean dislocated material will be submitted to NYSDEC and implemented following approval by NYSDEC and granting of site access by the property owner. Impacted offsite areas may require characterization based on site conditions, at the discretion of NYSDEC.

If onsite petroleum spills are identified, a qualified environmental professional will determine the nature and extent of the spill and report to NYSDEC's spill hotline at (800) 457-7362 within statutory defined timelines. If the source of the spill is ongoing and can be identified, it should be stopped if this can be done safely. Potential hazards will be addressed immediately, consistent with guidance issued by NYSDEC.

Storm Response Reporting

A site inspection report will be submitted to NYSDEC at the completion of site inspection. An inspection report will be used for this purpose. Site conditions will be compared to the inventory of site conditions and material performed prior to the storm event and significant differences will be noted. The site inspection report will be sent to the NYSDEC project manager and will include the site name, address, tax block and lot, site primary and alternate contact name and phone number.

Damage and soil release assessment will include: whether the project had stockpiles; whether stockpiles were damaged; photographs of damage and notice of plan for repair; report of whether soil from the site was dislocated and whether any of the soil left the site; estimates of the volume of soil that left the site, nature of impact, and photographs; description of erosion damage; description of equipment damage; description of damage to the remedial program or the construction program, such as damage to the support of excavation; presence of onsite or offsite exposure pathways caused by the storm; presence of petroleum or other spills and status of spill reporting to NYSDEC; description of corrective actions; schedule for corrective actions.

This report should be completed and submitted to NYSDEC project manager with photographs within 24 hours of the time of safe entry to the property after the storm event.

5.4.12 Community Air Monitoring Plan

Air sampling locations are to be determined and adjusted on a daily or more frequent basis based on actual wind directions to provide an upwind and downwind monitoring station. Exceedances of action levels listed in the CAMP will be reported to NYSDEC and NYSDOH Project Managers.

Community air monitoring will be conducted according to the CAMP provided in **Appendix J**. If particulate levels at the Site exceed the thresholds listed in the CAMP or if airborne dust is observed on the Site or leaving the Site, the dust suppression techniques listed below will be employed. The remedial party will also take measures listed below to prevent dust production on the Site.

Exceedances observed in the CAMP will be reported to NYSDEC and NYSDOH Project Managers and included in the Daily Report.

5.4.13 Odor, Dust and Nuisance Control Plan

The FER will include the following certification by the Remedial Engineer: "I certify that all invasive work during the remediation and all invasive development work were conducted in accordance with dust and odor suppression methodology defined in the Remedial Action Work Plan."

5.4.13.1 Odor Control Plan

This odor control plan is capable of controlling emissions of nuisance odors off-Site. Specific odor control methods to be used on a routine basis is not anticipated to be necessary due to lack of petroleum or chemical impacts. If nuisance odors are identified, work will be halted and the source of odors will be identified and corrected. Work will not resume until all nuisance odors have been abated. NYSDEC and NYSDOH will be notified of all odor events and of all other complaints about the project. Implementation of all odor controls, including the halt of work, will be the responsibility of the Volunteer's Remedial Engineer, who is responsible for certifying the FER.

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

Where odor nuisances have developed during remedial work and cannot be corrected, or where the release of nuisance odors cannot otherwise be avoided due to on-Site conditions or close proximity to sensitive receptors, odor control will be achieved by sheltering excavation and handling areas under tented containment structures equipped with appropriate air venting/filtering systems.

5.4.13.2 Dust Control Plan

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

- Water will be available on-site at suitable supply and pressure for use in dust control.
- Clearing and grubbing of larger sites will be done in stages to limit the area of exposed, unvegetated soils vulnerable to dust production.
- Gravel will be used on roadways to provide a clean and dust-free road surface.

- On-Site roads will be limited in total area to minimize the area required for water spraying.

5.4.13.3 Other Nuisances

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

If necessary, a plan will be developed and utilized by the contractor for all remedial work and will conform, at a minimum, to Village of Canastota noise control standards.

6.0 RESIDUAL CONTAMINATION TO REMAIN ON-SITE

Since residual contaminated soil and groundwater will exist beneath the Site after the remedy is complete, ECs and ICs are required to protect human health and the environment. These ECs and ICs are described hereafter. Long-term management of EC / ICs and of residual contamination will be executed under a Site specific SMP that will be developed and included in the FER.

ECs will be implemented to protect public health and the environment by appropriately managing residual contamination. The Controlled Property (the Site) will have one primary EC system:

- A composite cover system consisting of asphalt covered roads, concrete covered sidewalks, concrete building slabs, and clean pervious cover.

The FER will report residual contamination on the Site in tabular and map form. This will include presentation of exceedances of both Track 1 and Track 4 sites.

7.0 ENGINEERING CONTROLS: SITE COVER SYSTEM

Exposure to residual contaminated soils will be prevented by an engineered site cover system that will be built on the Site. This site cover system will be comprised of pervious elements (clean soil cover and a rubber playground) and impervious elements (asphalt covered roads, concrete covered sidewalks, curbs, and patios, and concrete building slabs).

Green remediation BMPs for designing and installing a conventional cover system include:

- Design in ways that mimic rather than alter the site's natural setting, to improve the cover's long-term performance and protect ecosystem services such as potable water, wildlife habitat, and carbon storage;
- Design a cover accounting for potential effects of climate change, which could involve changes in onsite soil development or increased vulnerability to flooding;
- Use uncontaminated soil or sediment from onsite excavation instead of imported soil / sediment for the cover's frost prevention and erosion control layers; similarly, uncontaminated sand, gravel, and rocks from onsite instead of offsite areas may be used for drainage;
- Apply low impact development strategies such as installing earthen berms to manage stormwater;
- Choose geotextile fabric or drainage tubing composed of 100% recycled materials rather than virgin materials for lining, erosion control, and drainage;
- Select materials with biobased content for daily activities during cover construction;
- Use clean fuel and emission control technologies for routine field vehicles and machinery such as backhoes and bulldozers to reduce fuel consumption and emission of air pollutants such as GHGs and particulate matter; and
- Investigate onsite solar and wind resources to power equipment such as leachate pumps and flare units.

For alternative cover designs

- Consider using asphalt rubber (containing recycled tires) where the cover system includes a layer of asphalt;
- Substitute concrete with high albedo pavement, which reflects sunlight and heat away from the cover surface and may aid growth of nearby vegetation; and

- Consider using concrete containing a high percentage of industrial waste by-products as a substitute for cement, if tests show no contaminant leaching.

In addition to BMPs that apply to conventional covers, BMPs for designing and installing an evapotranspiration cover include:

- Choose recycled (crushed) concrete for biobarriers or capillary breaks instead of natural rock;
- Select native drought-resistant plants for the upper vegetative layer to reduce maintenance needs;
- Preserve biodiversity and related ecosystem services by installing a suitable mix of native shrubs, grasses, and forbs; and
- Use non-synthetic amendments such as compost instead of chemical fertilizers if the soil or vegetation is found to need supplementation over time.

7.1 Pervious Cover System

The following criteria apply to the construction of the pervious cover system:

- The pervious cover will be a minimum of two feet of clean material placed over a fabric demarcation layer and will be installed in areas shown as grass, gravel, and playground in **Figure 12**.
- Pervious cover material, including any fill material brought to the site, will meet the requirements in 6 NYCRR Part 375-6.7(d) and approved by NYSDEC prior to import.
- Existing surfaces and grades will be adjusted (excavated or filled) to accommodate a minimum of two feet of pervious cover system to meet proposed final grades.
- The upper six inches of soil in the grass areas will be of sufficient quality to maintain a vegetative cover. The soil cover will be planted with grasses, shrubs, trees, and other vegetation suited for growing in the Northeast.
- In the proposed playground, poured in place rubber and wood mulch will be placed over clean stone to create a 2 foot cover of clean material.
- The Site will be surveyed prior and subsequent to material placement to confirm that a minimum of two feet of pervious cover has been placed over the demarcation layer.

- The pervious cover will extend to the hardscape cover system (buildings, asphalt pavement or concrete pavement as detailed below) and / or property boundaries.

- Onsite HFM which needs to be excavated to accommodate the pervious cover system may be beneficially reused onsite by being placed below the demarcation layer and pervious cover system. HFM that cannot be beneficially used below the pervious cover system or hardscape cover system will be transported off-site for proper disposal.

7.2 Hardscape Cover System

The hardscape cover system will be installed in areas of the Site not protected by the pervious cover system. The hardscape cover system will consist of either building foundations / floor slabs or asphalt pavement or concrete pavement. Asphalt pavement will be used in vehicle circulation and parking areas and will consist of a minimum of four inches of compacted asphaltic concrete. Concrete sidewalks, pads, and ramps will consist of Portland cement-based concrete.

A diagram showing the design detail for each cover type is shown in **Figure 12**.

A map showing the aerial distribution of each of the cover types to be built at the Site is included in **Figure 12**.

An Excavation Plan will be included in the Site Management Plan and will outline the procedures to be followed if the site cover system and underlying residual contamination are disturbed after the Remedial Action is complete.

The components of the site cover system will be documented in the FER. Maintenance of this site cover system will be described in the SMP.

8.0 CRITERIA FOR COMPLETION OF REMEDIATION/TERMINATION OF REMEDIAL SYSTEMS

8.1 Composite Cover System

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

9.0 INSTITUTIONAL CONTROLS

After the remedy is complete, the Site will have residual contamination remaining in place. ECs for the residual contamination have been incorporated into the remedy to render the overall Site remedy protective of public health and the environment. Two elements have been designed to ensure continual and proper management of residual contamination in perpetuity: an EE and a SMP.

All as-built drawings, diagrams, calculation and manufacturer documentation for treatment systems will be presented in the FER. A Site -specific EE will be recorded with Onondaga County to provide an enforceable means of ensuring the continual and proper management of residual contamination and protection of public health and the environment in perpetuity or until released in writing by NYSDEC. It requires that the grantor of the EE and the grantor's successors and assigns adhere to all ECs / ICs placed on this Site by this NYSDEC-approved remedy. ICs provide restrictions on Site usage and mandate operation, maintenance, monitoring and reporting measures for all ECs and ICs. The SMP describes appropriate methods and procedures to ensure compliance with all ECs and ICs that are required by the EE. Once the SMP has been approved by the NYSDEC, compliance with the SMP is required by the grantor of the EE and grantor's successors and assigns.

9.1 Environmental Easement

An EE, as defined in Article 71 Title 36 of the Environmental Conservation Law, is required when residual contamination is left on-Site after the Remedial Action is complete. As part of this remedy, an EE approved by NYSDEC will be filed and recorded with the Onondaga County Office of the City Register. The EE will be submitted as part of the Final Engineering Report.

The EE renders the Site a Controlled Property. The EE must be recorded with Onondaga County before the COC can be issued by NYSDEC. A series of ICs are required under this remedy to implement, maintain and monitor these EC systems, prevent future exposure to residual contamination by controlling disturbances of the subsurface soil and restricting the use of the Site to Restricted Residential use only. These ICs are requirements or restrictions placed on the Site that are listed in, and required by, the EE. ICs can, generally, be subdivided between controls that support ECs, and those that place general restrictions on Site usage or other requirements. ICs in both of these groups are closely integrated with the SMP, which provides all of the methods and procedures to be followed to comply with this remedy.

The ICs that support ECs are:

- Compliance with the EE by the Grantee and the Grantee's successors and adherence of all elements of the SMP is required;
- All ECs must be operated and maintained as specified in this SMP;

- A site cover system consisting of asphalt covered roads, concrete covered sidewalks, and concrete building slabs must be inspected, certified and maintained as required in the SMP;

- All ECs on the Controlled Property must be inspected and certified at a frequency and in a manner defined in the SMP;

- Data and information pertinent to Site Management for the Controlled Property must be reported at the frequency and in a manner defined in the SMP;

- ECs may not be discontinued without an amendment or extinguishment of the EE.

Adherence to these ICs for the Site is mandated by the EE and will be implemented under the SMP (discussed in the next section). The Controlled Property (Site) will also have a series of ICs in the form of Site restrictions and requirements. The Site restrictions that apply to the Controlled Property are:

- Vegetable gardens and farming on the Controlled Property are prohibited;

- Use of groundwater underlying the Controlled Property is prohibited without treatment rendering it safe for intended purpose;

- All future activities on the Controlled Property that will disturb residual contaminated material are prohibited unless they are conducted in accordance with the soil management provisions in the SMP;

- The Controlled Property may be used for restricted residential use only, provided the long-term Engineering and ICs included in the SMP are employed;

- The Controlled Property may not be used for a higher level of use, such as residential or unrestricted use without an amendment or extinguishment of this EE;

- Grantor agrees to submit to NYSDEC a written statement that certifies, under penalty of perjury, that: (1) controls employed at the Controlled Property are unchanged from the previous certification or that any changes to the controls were approved by the NYSDEC; and, (2) nothing has occurred that impairs the ability of the controls to protect public health and environment or that constitute a violation or failure to comply with the SMP. NYSDEC retains the right to access such Controlled Property at any time in order to evaluate the continued maintenance of any and all controls. This certification shall be submitted annually, or an alternate period of time that NYSDEC may allow. This annual statement must be certified by an expert that the NYSDEC finds acceptable.

9.2 Site Management Plan

Site Management is the last phase of remediation and begins with the approval of the FER and issuance of the COC for the Remedial Action. The SMP is submitted as part of the FER but will be written in a manner that allows its removal and use as a complete and independent document. Site Management continues in perpetuity or until released in writing by NYSDEC. The property owner is responsible to ensure that all Site Management responsibilities defined in the EE and the SMP are performed.

The SMP should include methods to incorporate and track GSR. Measures should be taken to maintain a cost-effective, protective remedy that remains conscientious of the Site's environmental footprint. At a minimum, the following should be assessed: waste generation, energy usage, emissions, and water usage.

The SMP is intended to provide a detailed description of the procedures required to manage residual contamination left in place at the Site following completion of the Remedial Action in accordance with the BCA with the NYSDEC. This includes: (1) development, implementation, and management of all ECs and ICs; (2) development and implementation of monitoring systems and a Monitoring Plan; (3) development of a plan to operate and maintain any treatment, collection, containment, or recovery systems (including, where appropriate, preparation of an Operation and Maintenance Manual); (4) submittal of Site Management Reports, performance of inspections and certification of results, and demonstration of proper communication of Site information to NYSDEC; and (5) defining criteria for termination of treatment system operation.

To address these needs, this SMP will include four plans: (1) an EC and IC Plan for implementation and management of EC/ICs; (2) a Monitoring Plan for implementation of Site Monitoring; (3) an Operation and Maintenance Plan for implementation of remedial collection, containment, treatment, and recovery systems; and (4) a Site Management Reporting Plan for submittal of data, information, recommendations, and certifications to NYSDEC. The SMP will be prepared in accordance with the requirements in NYSDEC DER-10 Technical Guidance for Site Investigation and Remediation and the guidelines provided by NYSDEC.

Site management activities, reporting, and EC/IC certification will be scheduled on a certification period basis. The certification period will be annually. The SMP will be based on the certifying period relative to the date of issuance of the COC. The first submission will be due16 months after the issuance of the COC, and annually (or at another frequency as approved by NYSDEC) thereafter.

No exclusions for handling of residual contaminated soils will be provided in the SMP. All handling of residual contaminated material will be subject to provisions contained in the SMP.

10.0 FINAL ENGINEERING REPORT

A FER will be submitted to NYSDEC following implementation of the Remedial Action defined in this RAWP. The FER provides the documentation that the remedial work required under this RAWP has been completed and has been performed in compliance with this plan. The FER will provide a comprehensive account of the locations and characteristics of all material removed from the Site including the surveyed map(s) of all sources. The Final Engineering Report will include as-built drawings for all constructed elements, calculation and manufacturer documentation for treatment systems, certifications, manifests, bills of lading as well as the complete SMP. The FER will provide a description of the changes in the Remedial Action from the elements provided in the RAWP and associated design documents. The FER will provide a tabular summary of all performance evaluation sampling results and all material characterization results and other sampling, and chemical analysis performed as part of the Remedial Action. The FER will provide test results demonstrating that all mitigation and remedial systems are functioning properly. The FER will be prepared in conformance with DER-10.

Where determined to be necessary by NYSDEC, a Financial Assurance Plan will be required to ensure the sufficiency of revenue to perform long-term operations, maintenance and monitoring tasks defined in the Site Management Plan and EE. This determination will be made by NYSDEC in the context of the FER review.

The FER will include written and photographic documentation of all remedial work performed under this remedy.

The FER will include an itemized tabular description of actual costs incurred during all aspects of the Remedial Action.

The FER will provide a thorough summary of all residual contamination left on the Site after the remedy is complete. Residual contamination includes all contamination that exceeds the Track 1 Unrestricted Use SCO in 6NYCRR Part 375-6. A table that shows exceedances from Track 1 Unrestricted SCOs for all soil/fill remaining at the Site after the Remedial Action and a map that shows the location and summarizes exceedances from Track 1 Unrestricted SCOs for all soil/fill remaining at the Site after the Remedial Action will be included in the FER.

The FER will provide a thorough summary of all residual contamination that exceeds the SCOs defined for the Site in the RAWP and must provide an explanation for why the material was not removed as part of the Remedial Action. A table that shows residual contamination in excess of Site SCOs and a map that shows residual contamination in excess of Site SCOs will be included in the FER.

The FER will include an accounting of the destination of all material removed from the Site, including excavated contaminated soil, historic fill, solid waste, hazardous waste, non-regulated material, and fluids. Documentation associated with disposal of all material must also include

records and approvals for receipt of the material. It will provide an accounting of the origin and chemical quality of all material imported onto the Site.

The FER must include a discussion of the green remediation practices/technologies employed throughout the remedial program. A final footprint analysis using a DER accepted model, and any tracking methods used through the construction including restoration activities. Before approval of a FER and issuance of a COC, all project reports must be submitted in digital form on electronic media (PDF).

10.1 Certifications

The following certification will appear in front of the Executive Summary of the Final Engineering Report. The FER will be prepared, stamped and the following certification signed by an individual licensed or otherwise authorized in accordance with article 145 of the education law to practice the profession of engineering. The certification will include the following statements:

I, H. Nevin Bradford, III, am currently a registered professional engineer licensed by the State of New York, I had primary direct responsibility for implementation of the remedial program activities, and I certify that the Remedial Action Work Plan was implemented and that all construction activities were completed in substantial conformance with the Department-approved Remedial Action Work Plan.

I certify that the data submitted to the Department with this Final Engineering Report demonstrates that the remediation requirements set forth in the [Remedial Action Work Plan or Remedial Design] and in all applicable statutes and regulations have been or will be achieved in accordance with the time frames, if any, established for the remedy.

I certify that all use restrictions, ICs, ECs, and/or any operation and maintenance requirements applicable to the Site are contained in an EE created and recorded pursuant ECL 71-3605 and that all affected local governments, as defined in ECL 71-3603, have been notified that such easement has been recorded.

I certify that a Site Management Plan has been submitted for the continual and proper operation, maintenance, and monitoring of all ECs employed at the Site, including the proper maintenance of all remaining monitoring wells, and that such plan has been approved by Department.

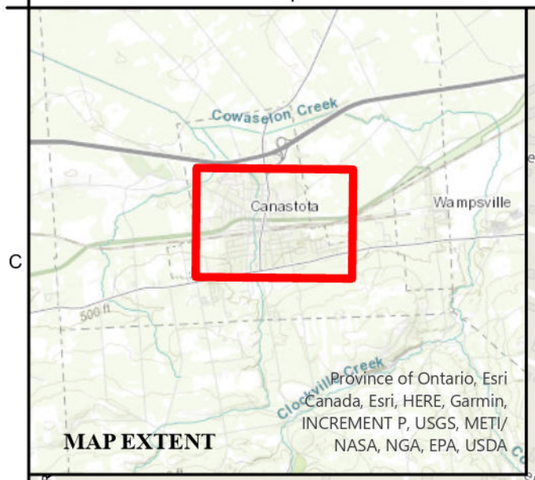
11.0 SCHEDULE

The following is the schedule to implement the remedy and achieve a COC:

Table 11-1: Certificate of Completion Schedule

Date	Task
Monthly by 10th day	Progress reports
August 2026	AAR / RAWP Report submitted to NYSDEC
Fall 2026	AAR / RAWP approved by NYSDEC and DD Issued
Spring 2027	Remedial Action Commences
Summer 2028	Remedial Action Complete
August 1, 2028	Draft EE Package Submitted to NYSDEC
August 1, 2028	Draft SMP submitted to NYSDEC
October 1, 2028	EE Executed and Final SMP submitted to NYSDEC
October 1, 2028	Draft FER submitted to NYSDEC
November 1, 2028	EE recorded and Notices provided
November 15, 2028	Final FER submitted in final form to NYSDEC
End of 2028	COC Issued

Figures



Legend

Site

NAD 1983 CORS96 StatePlane New York Central FIPS 3102 Ft US
Projection: Transverse Mercator
Datum: NAD 1983 CORS96
False Easting: 820,208.3333
False Northing: 0.0000
Central Meridian: -76.5833
Scale Factor: 0.9999
Latitude Of Origin: 40.0000
Units: Foot US

Document Path: F:\Project\W96 - Housing Visions ADHV Redevelopment\W96.013.001 - Old Erie Commons BCP RI\Planning-Study\GIS\Projects\Old Erie Commons BCP Figures - AAR-RAWP.aprx

Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User Community, Sources: Esri, Vantor, Airbus DS, USGS, NGA, NASA, CGIAR, N Robinson, NCEAS, NLS, OS, NMA, Geodatastyrelsen, Rijkswaterstaat, GSA, Geoland, FEMA, Intermap, and the GIS user community

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SITE LOCATION

Figure 1



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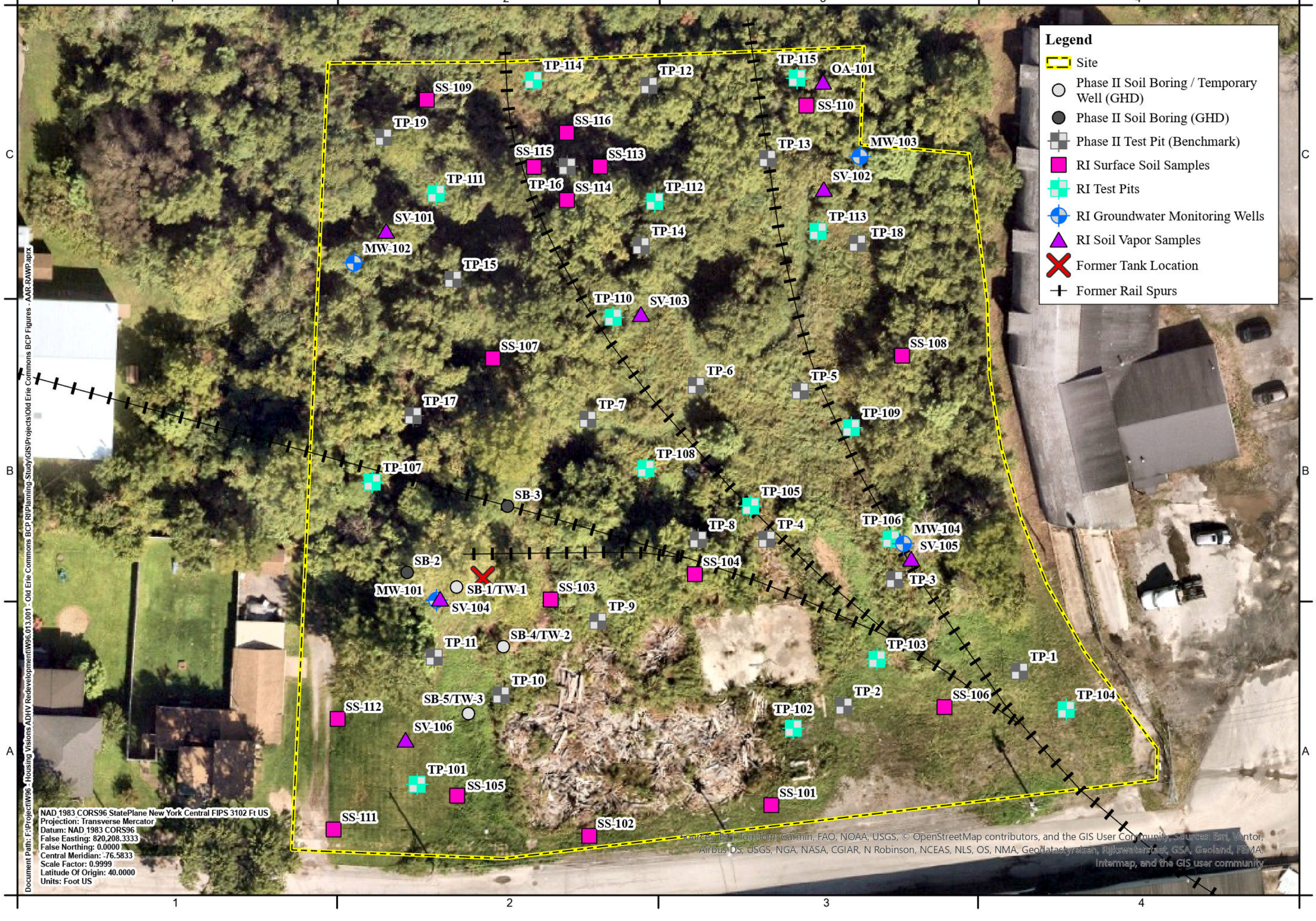
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SITE DETAIL

Figure 2



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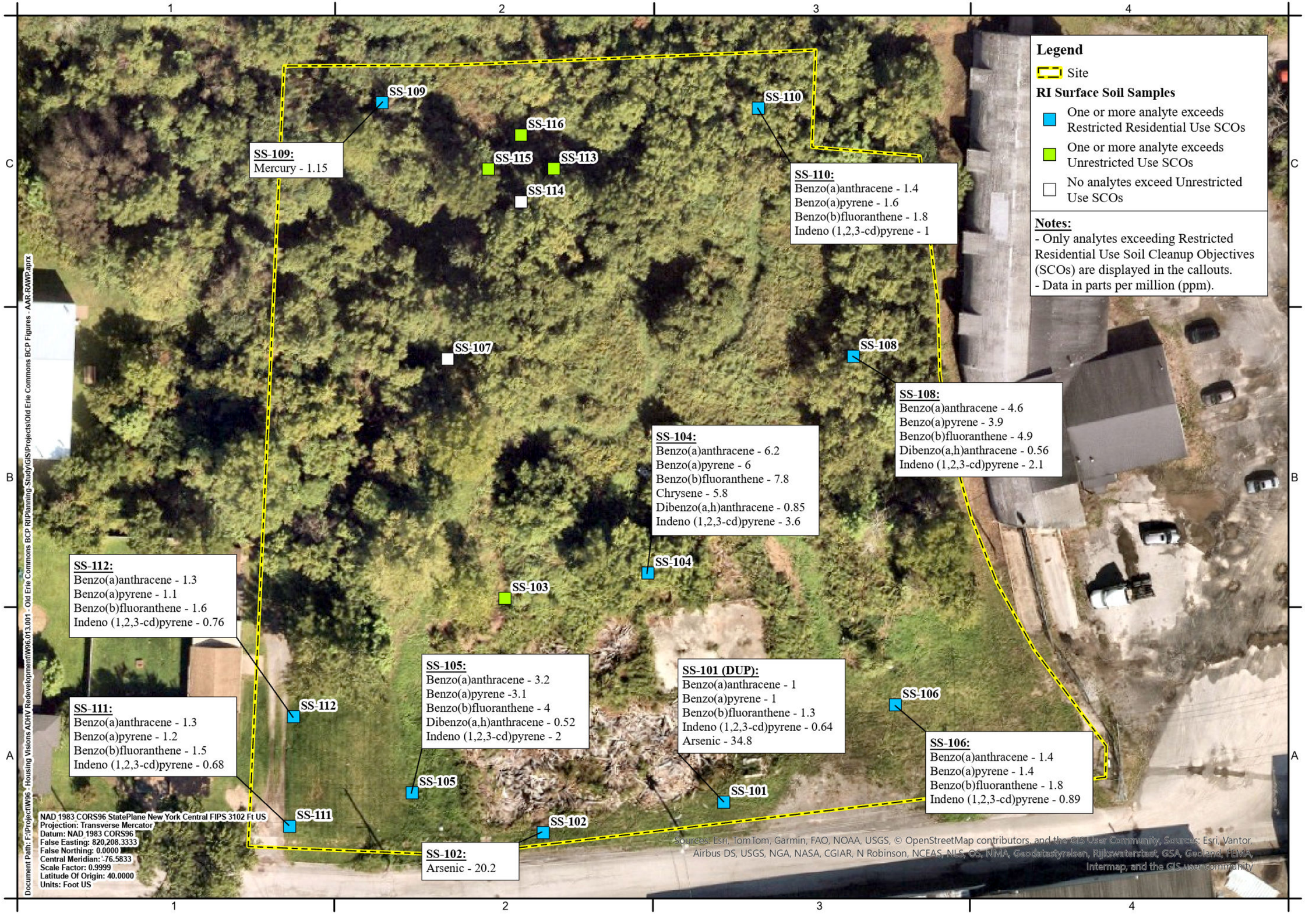
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RI SAMPLE LOCATIONS

Figure 3



Legend

Site

RI Surface Soil Samples

- One or more analyte exceeds Restricted Residential Use SCOs
- One or more analyte exceeds Unrestricted Use SCOs
- No analytes exceed Unrestricted Use SCOs

Notes:

- Only analytes exceeding Restricted Residential Use Soil Cleanup Objectives (SCOs) are displayed in the callouts.
- Data in parts per million (ppm).

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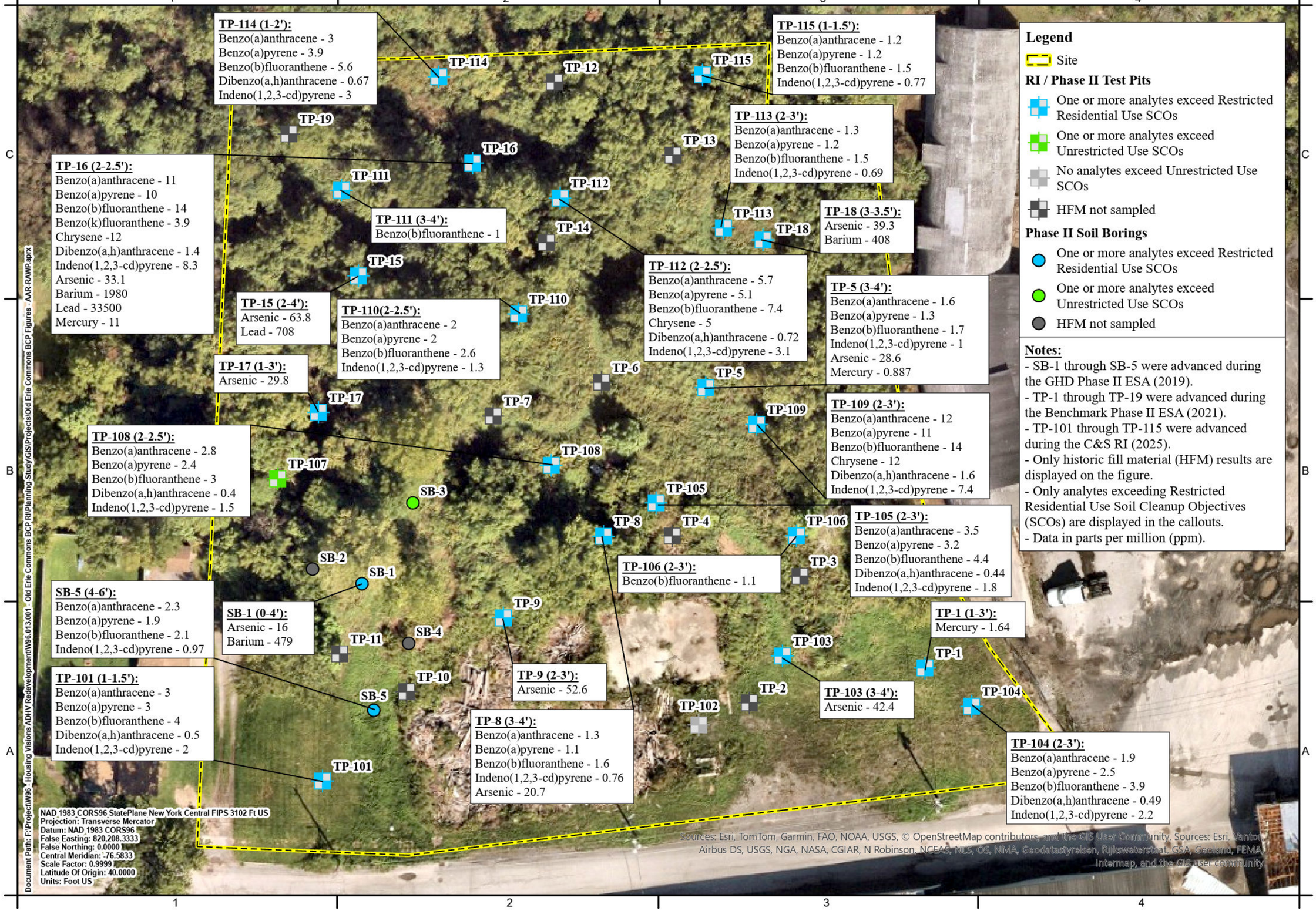
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SURFACE SOIL SAMPLE RESULTS

Figure 4



Legend

- Site

RI / Phase II Test Pits

- One or more analytes exceed Restricted Residential Use SCOs
- One or more analytes exceed Unrestricted Use SCOs
- No analytes exceed Unrestricted Use SCOs
- HFM not sampled

Phase II Soil Borings

- One or more analytes exceed Restricted Residential Use SCOs
- One or more analytes exceed Unrestricted Use SCOs
- HFM not sampled

Notes:

- SB-1 through SB-5 were advanced during the GHD Phase II ESA (2019).
- TP-1 through TP-19 were advanced during the Benchmark Phase II ESA (2021).
- TP-101 through TP-115 were advanced during the C&S RI (2025).
- Only historic fill material (HFM) results are displayed on the figure.
- Only analytes exceeding Restricted Residential Use Soil Cleanup Objectives (SCOs) are displayed in the callouts.
- Data in parts per million (ppm).

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HFM SAMPLE RESULTS

Figure 5A



Legend

- Site

RI / Phase II Test Pits

- One or more analytes exceed Unrestricted Use SCOs
- No analytes exceed Unrestricted Use SCOs
- Native soil not sampled

Phase II Soil Borings

- Native soil not sampled

Notes:

- SB-1 through SB-5 were advanced during the GHD Phase II ESA (2019).
- TP-1 through TP-19 were advanced during the Benchmark Phase II ESA (2021).
- TP-101 through TP-115 were advanced during the C&S RI (2025).
- Only subsurface native soil results are displayed on the figure.
- No analytes exceeded Restricted Residential Use Soil Cleanup Objectives (SCOs).

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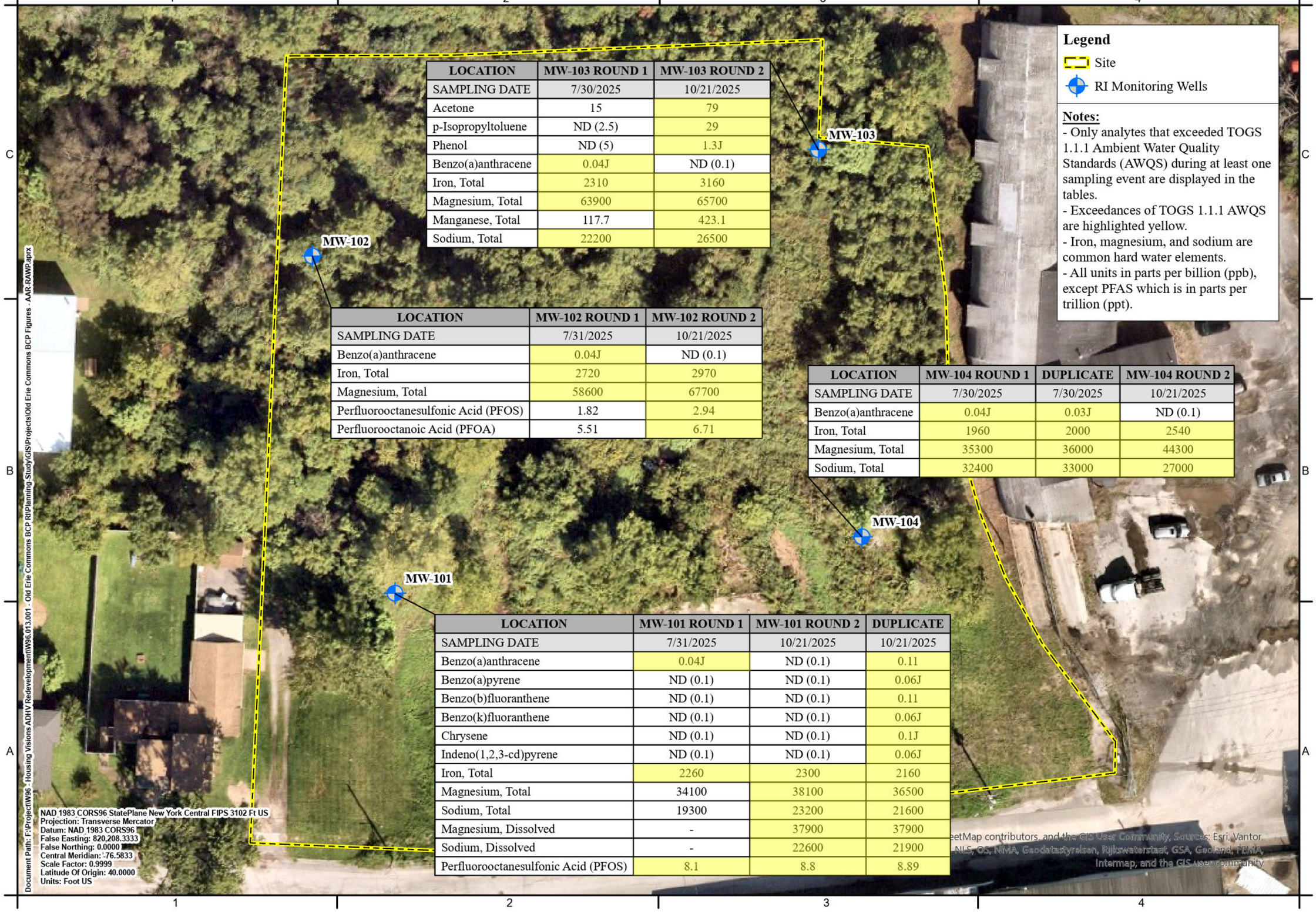
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SUBSURFACE NATIVE SOIL SAMPLE RESULTS

Figure 5B



LOCATION	MW-103 ROUND 1	MW-103 ROUND 2
SAMPLING DATE	7/30/2025	10/21/2025
Acetone	15	79
p-Isopropyltoluene	ND (2.5)	29
Phenol	ND (5)	1.3J
Benzo(a)anthracene	0.04J	ND (0.1)
Iron, Total	2310	3160
Magnesium, Total	63900	65700
Manganese, Total	117.7	423.1
Sodium, Total	22200	26500

LOCATION	MW-102 ROUND 1	MW-102 ROUND 2
SAMPLING DATE	7/31/2025	10/21/2025
Benzo(a)anthracene	0.04J	ND (0.1)
Iron, Total	2720	2970
Magnesium, Total	58600	67700
Perfluorooctanesulfonic Acid (PFOS)	1.82	2.94
Perfluorooctanoic Acid (PFOA)	5.51	6.71

LOCATION	MW-104 ROUND 1	DUPLICATE	MW-104 ROUND 2
SAMPLING DATE	7/30/2025	7/30/2025	10/21/2025
Benzo(a)anthracene	0.04J	0.03J	ND (0.1)
Iron, Total	1960	2000	2540
Magnesium, Total	35300	36000	44300
Sodium, Total	32400	33000	27000

LOCATION	MW-101 ROUND 1	MW-101 ROUND 2	DUPLICATE
SAMPLING DATE	7/31/2025	10/21/2025	10/21/2025
Benzo(a)anthracene	0.04J	ND (0.1)	0.11
Benzo(a)pyrene	ND (0.1)	ND (0.1)	0.06J
Benzo(b)fluoranthene	ND (0.1)	ND (0.1)	0.11
Benzo(k)fluoranthene	ND (0.1)	ND (0.1)	0.06J
Chrysene	ND (0.1)	ND (0.1)	0.1J
Indeno(1,2,3-cd)pyrene	ND (0.1)	ND (0.1)	0.06J
Iron, Total	2260	2300	2160
Magnesium, Total	34100	38100	36500
Sodium, Total	19300	23200	21600
Magnesium, Dissolved	-	37900	37900
Sodium, Dissolved	-	22600	21900
Perfluorooctanesulfonic Acid (PFOS)	8.1	8.8	8.89

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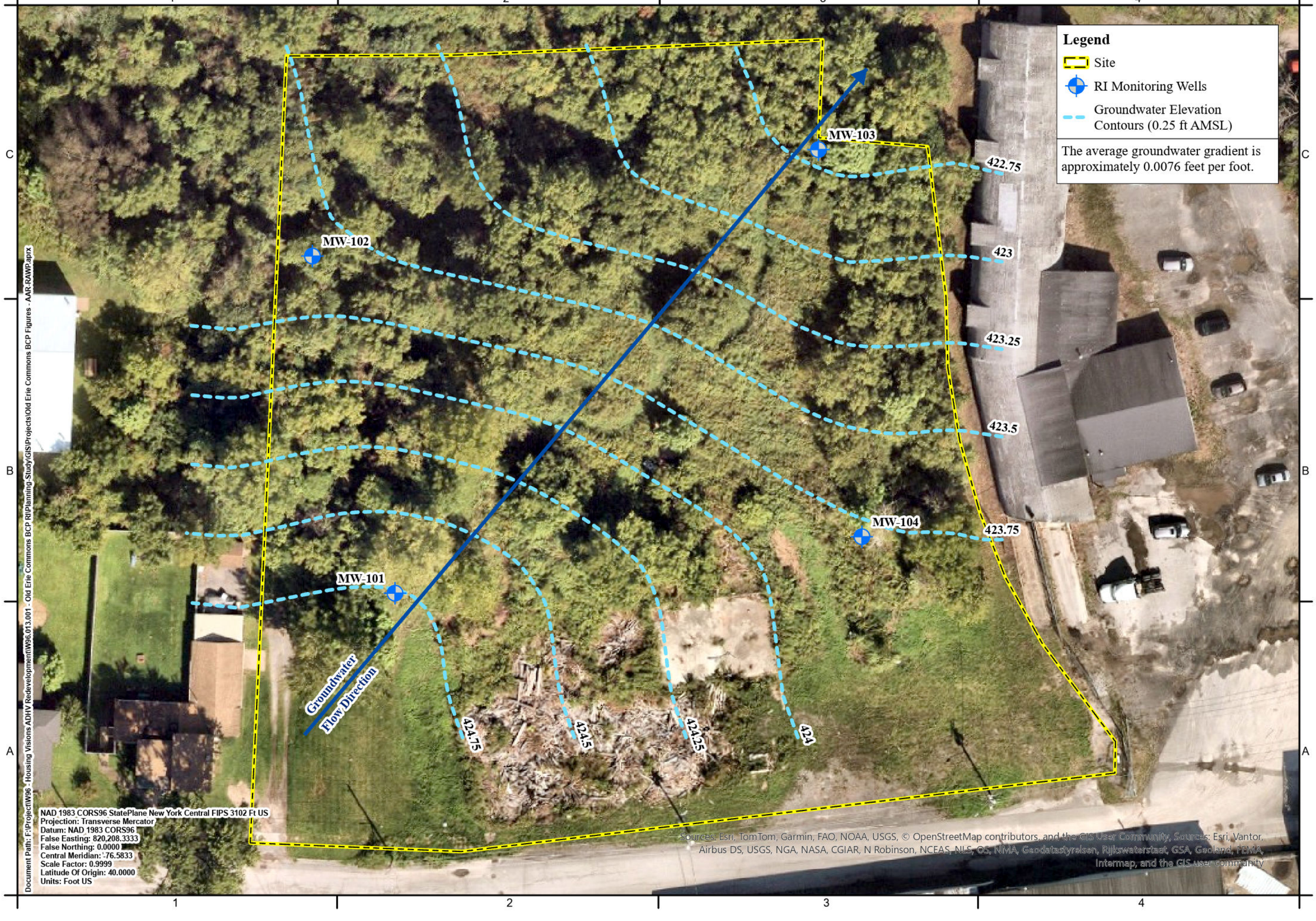
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GROUNDWATER SAMPLE RESULTS

Figure 6



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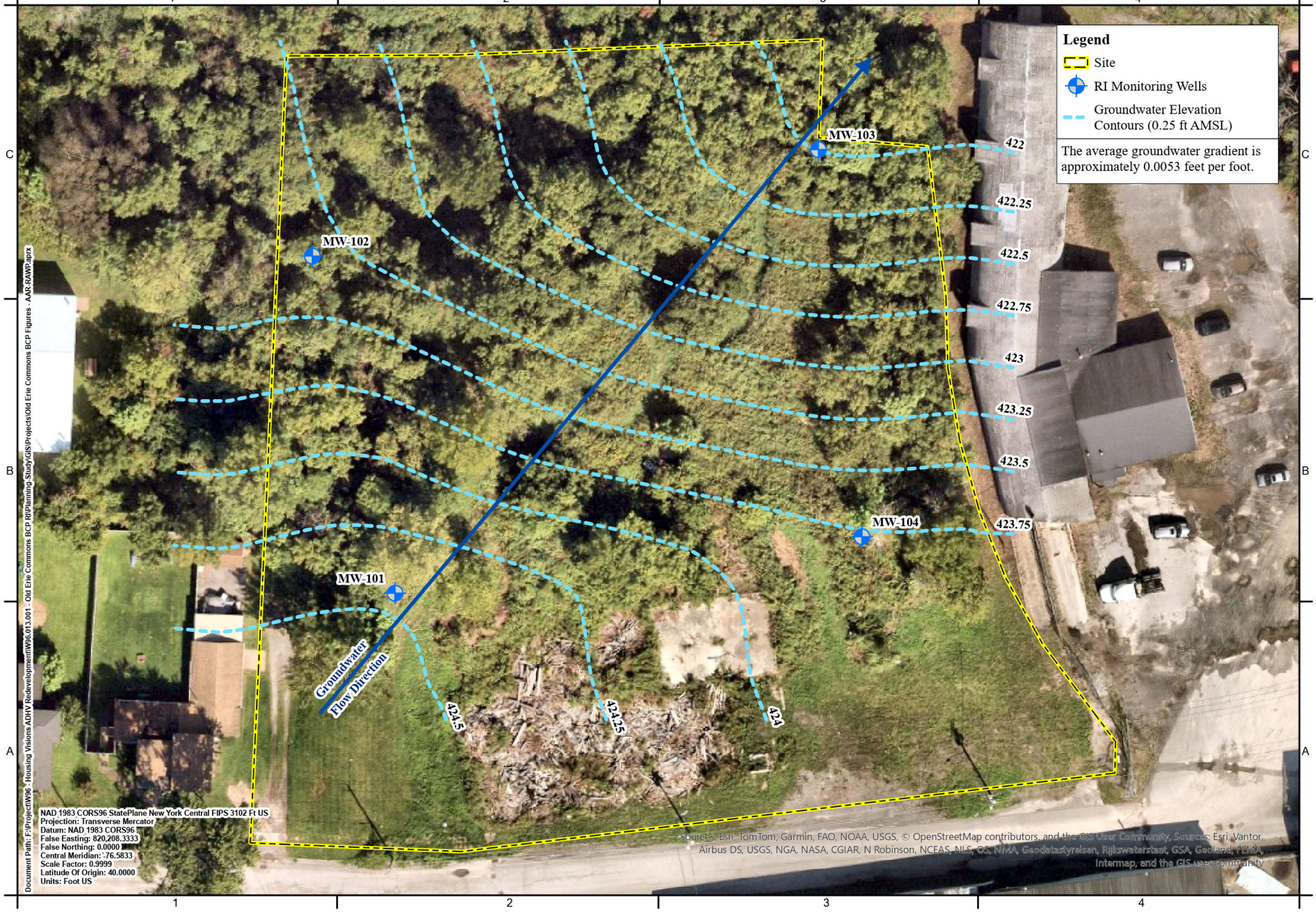
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GROUNDWATER CONTOUR MAP - JULY 2025

Figure 7A



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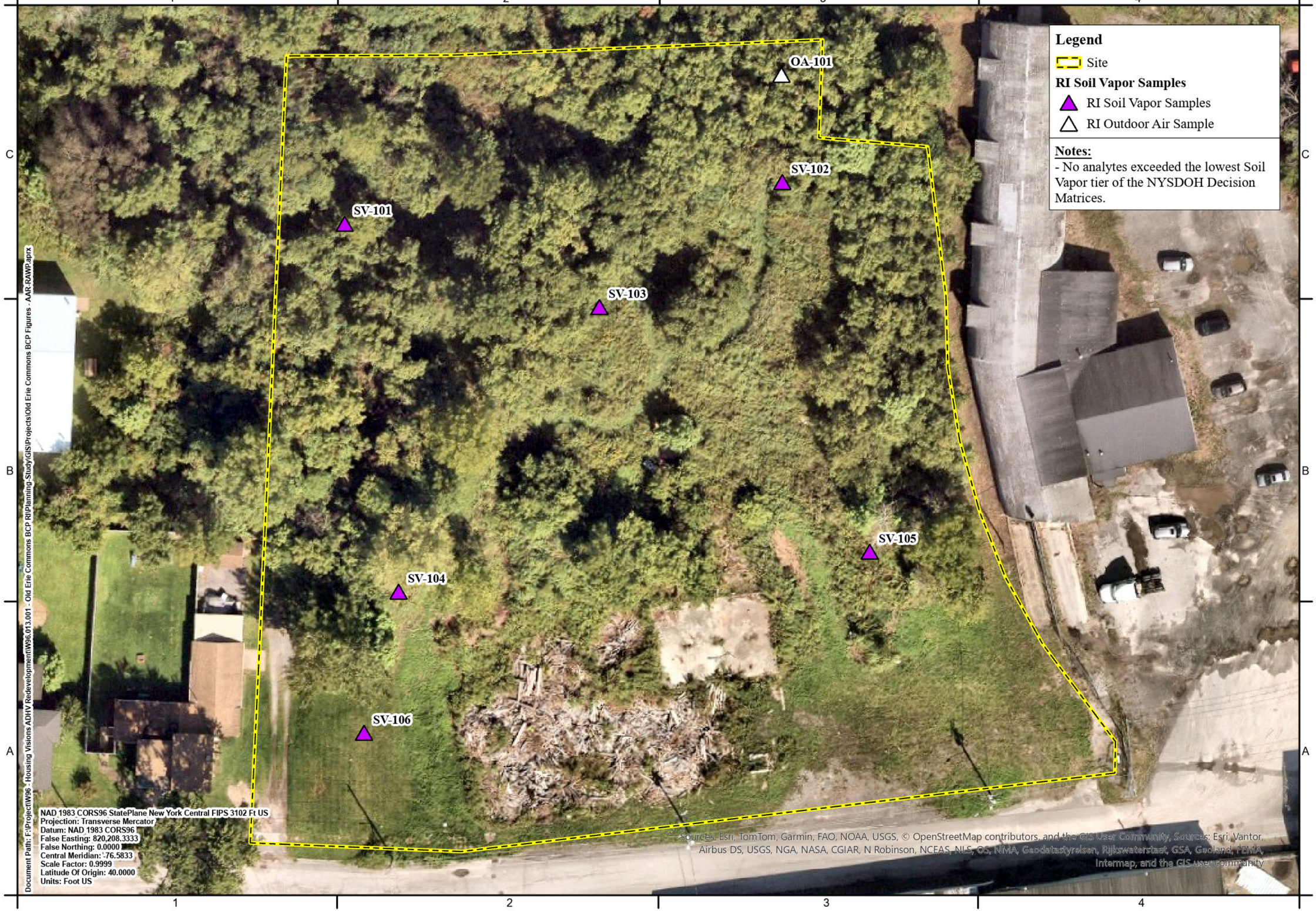
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GROUNDWATER CONTOUR MAP - OCTOBER 2025

Figure 7B



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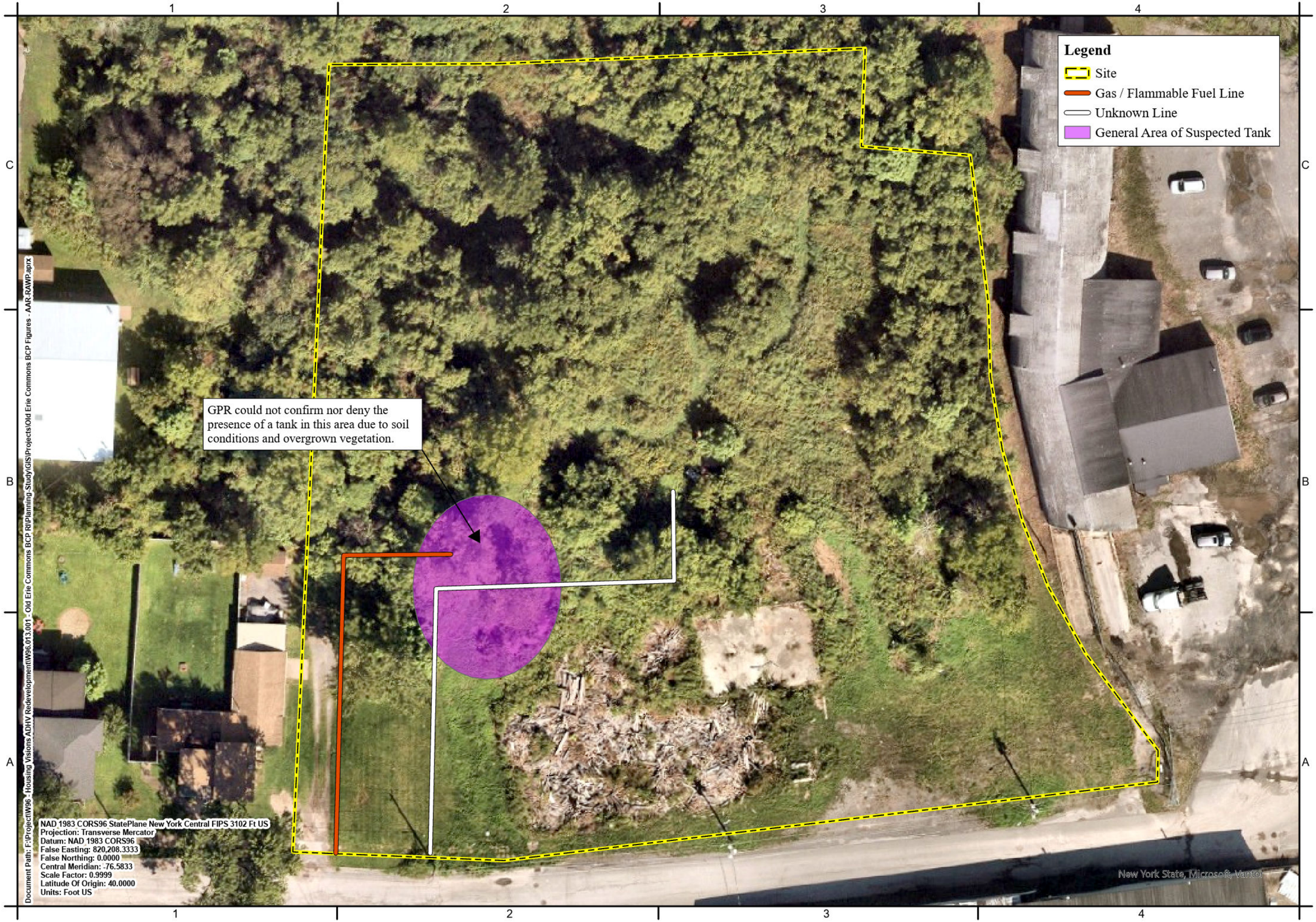
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SOIL VAPOR SAMPLE RESULTS

Figure 8



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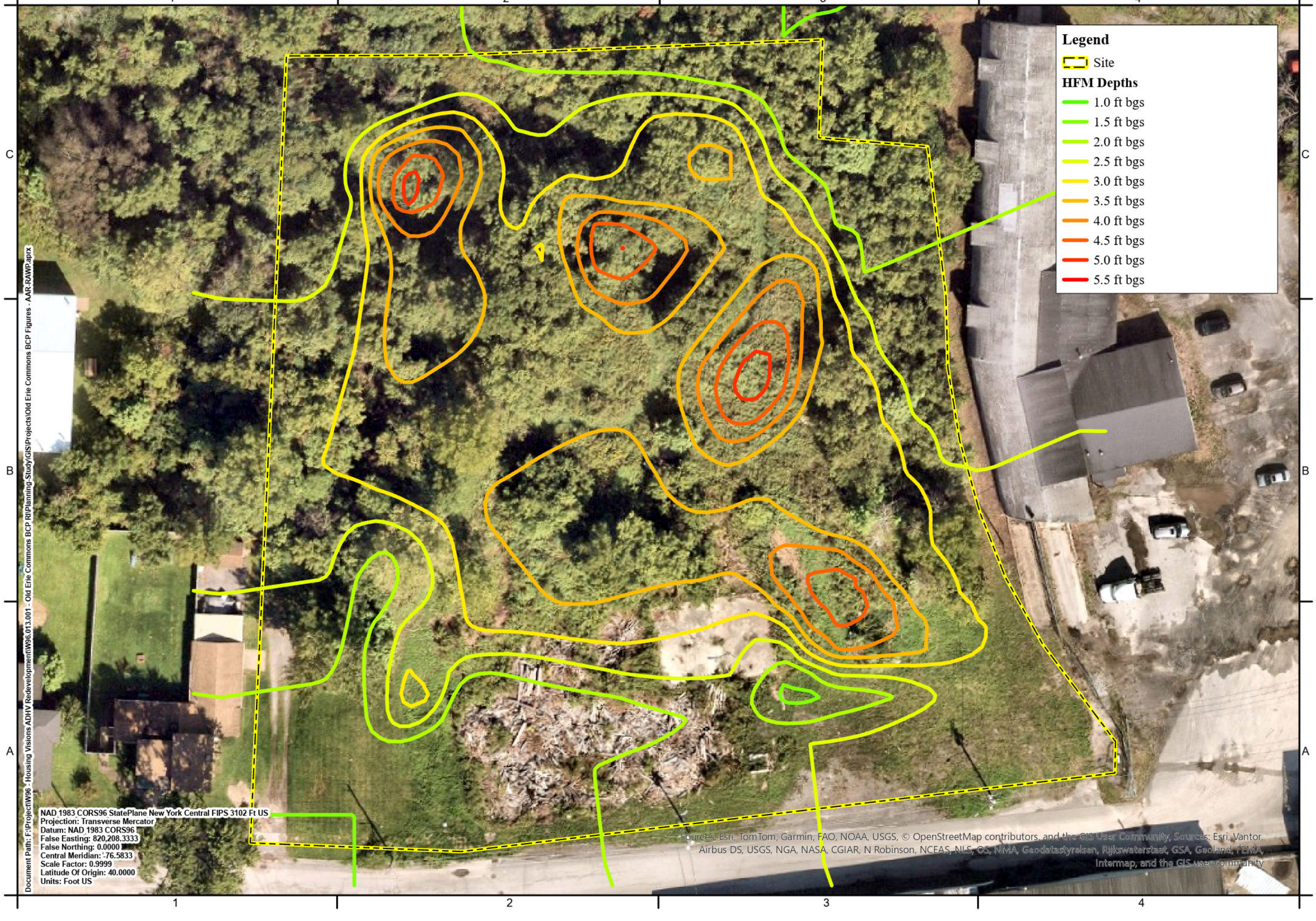
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PHASE II ESA GEOPHYSICAL STUDY RESULTS

Figure 9



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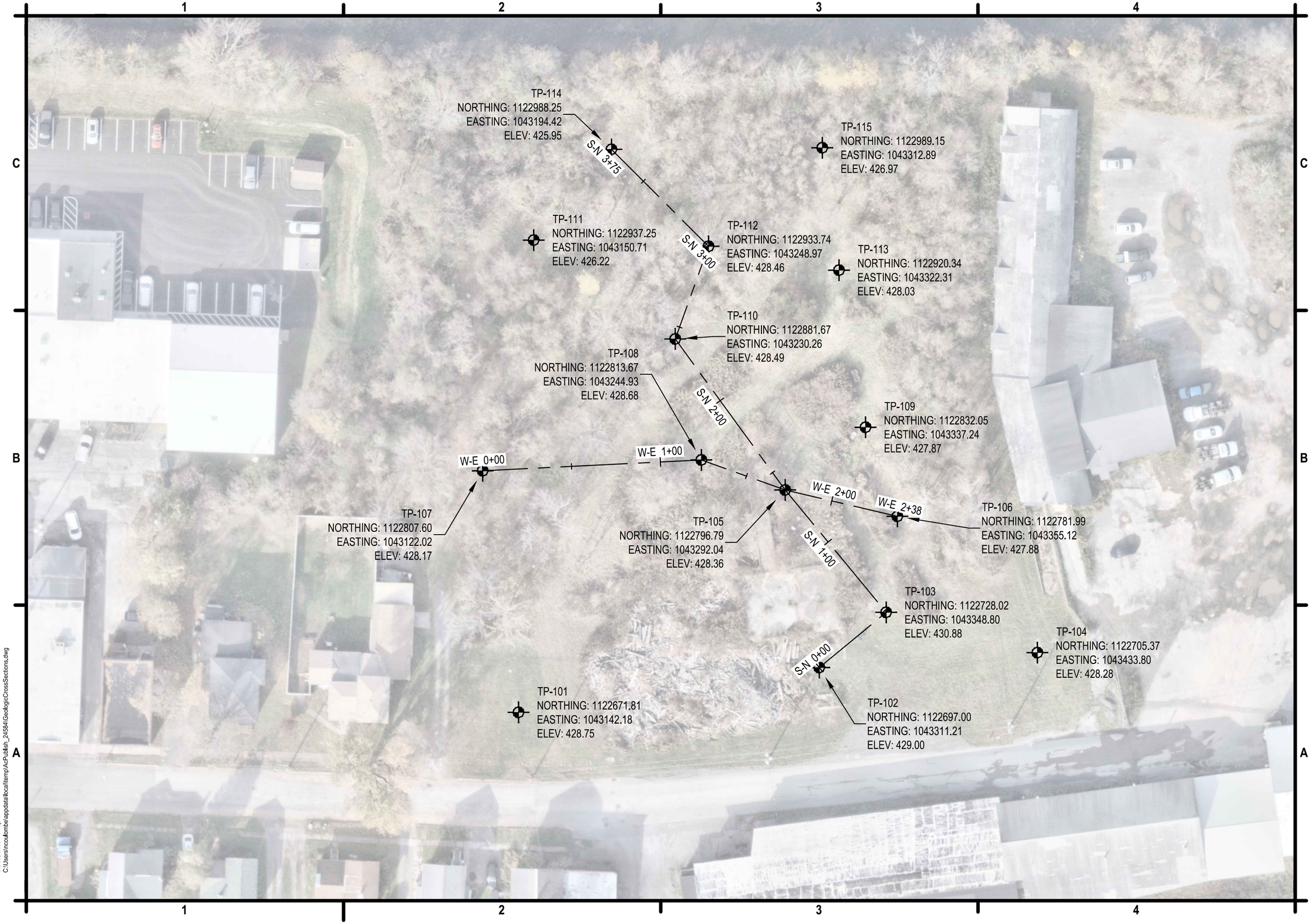
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FILL DEPTHS

Figure 10



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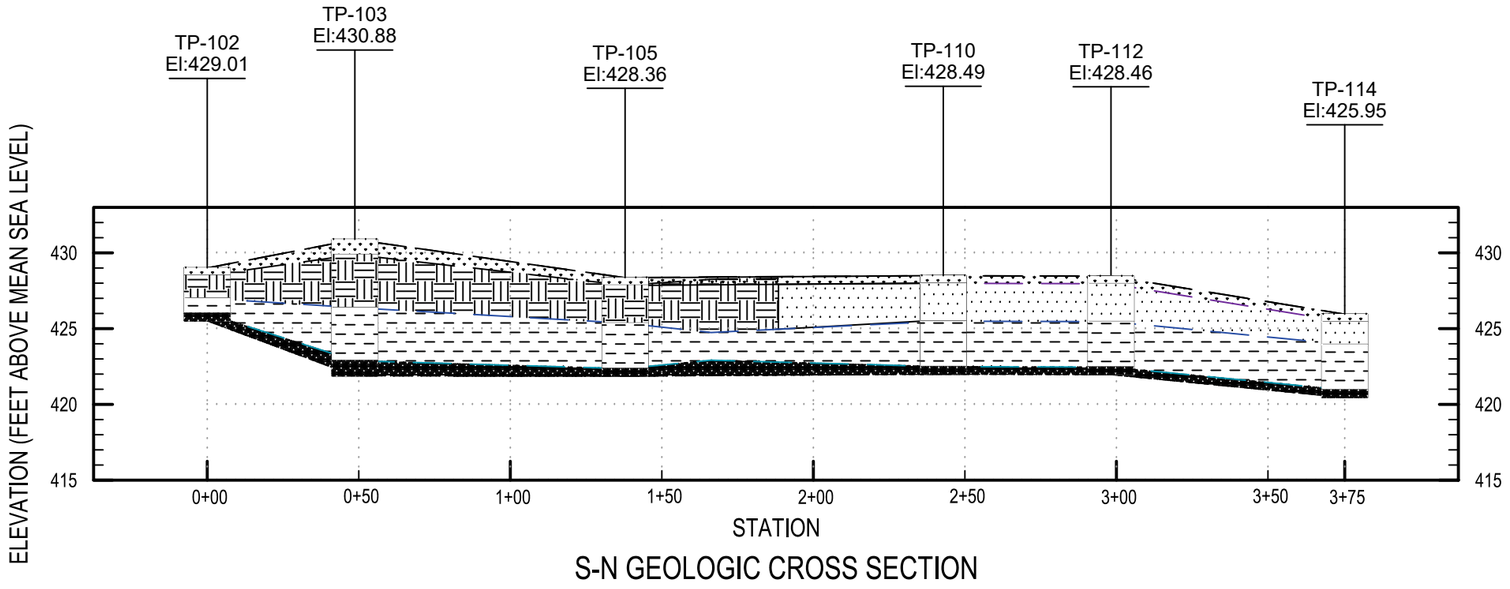
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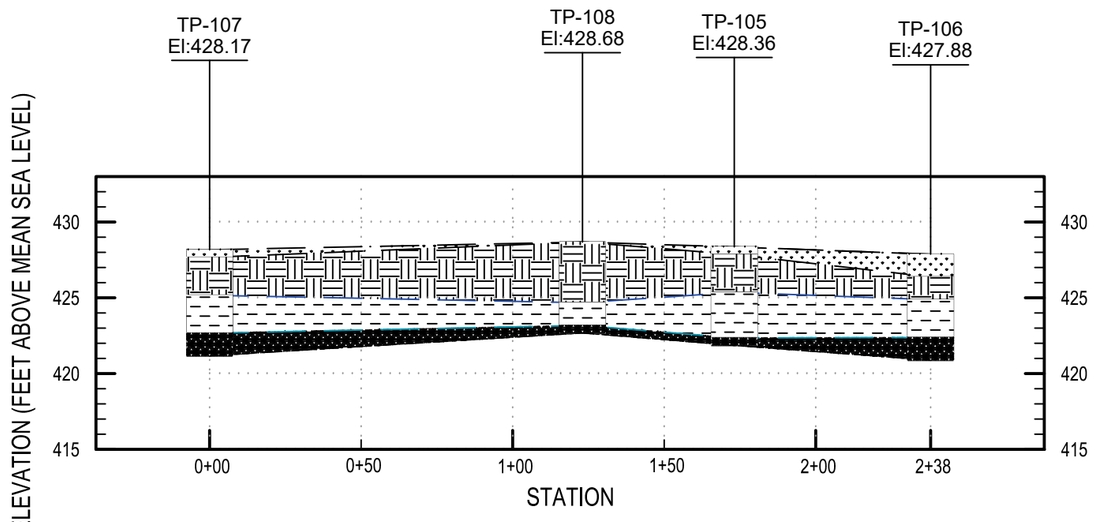
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GEOLOGIC CROSS SECTIONS - SOIL BORING AND ALIGNMENT LOCATIONS

Figure 11A



S-N GEOLOGIC CROSS SECTION



W-E GEOLOGIC CROSS SECTION

LEGEND

- TOPSOIL
- SILT & HFM
- HFM
- CLAY
- GLACIAL TILL

0 50' 100'

20' 10' 0

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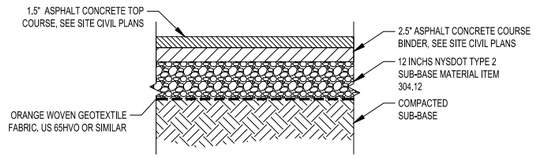
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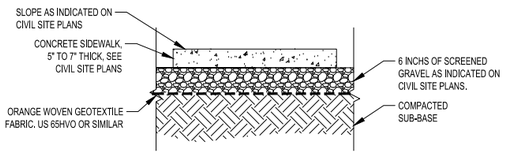
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GEOLOGIC CROSS SECTIONS

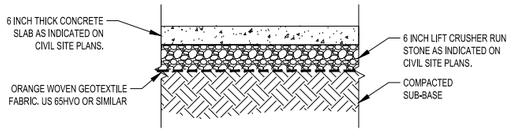
Figure 11B



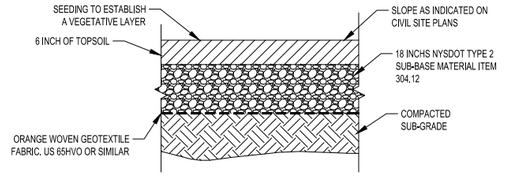
ASPHALT DETAIL



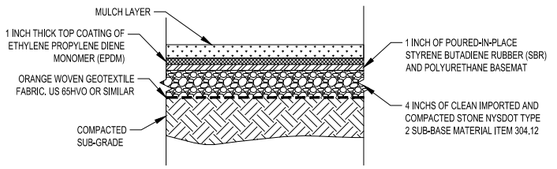
CONCRETE SIDEWALK DETAIL



CONCRETE DUMPSTER PAD DETAIL



CLEAN SOIL COVER DETAIL



PLAYGROUND COVER DETAIL

LEGEND:

- GRASS - 37,804 SF
- FOUNDATION - 24,637 SF
- ASPHALT - 26,859 SF
- SIDEWALK - 15,633 SF
- CURB - 1,476 SF
- PAVERS - 925 SF
- GRAVEL - 666 SF
- PLAYGROUND - 567 SF
- UNDERGROUND STORM WATER INFILTRATION SYSTEM - 4,000 SF



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1 inch equals 20'

Alternatives Analysis Report (AAR) / Remedial Action Work Plan (RAWP)
Old Erie Commons (BCP Site No. C727015)
160 Center Street, Canastota, New York

MARK	DATE	DESCRIPTION

REVISIONS

PROJECT NO:	W96.013.001
DATE:	July 2026
DRAWN BY:	NJC
DESIGNED BY:	NJC
CHECKED BY:	MLW

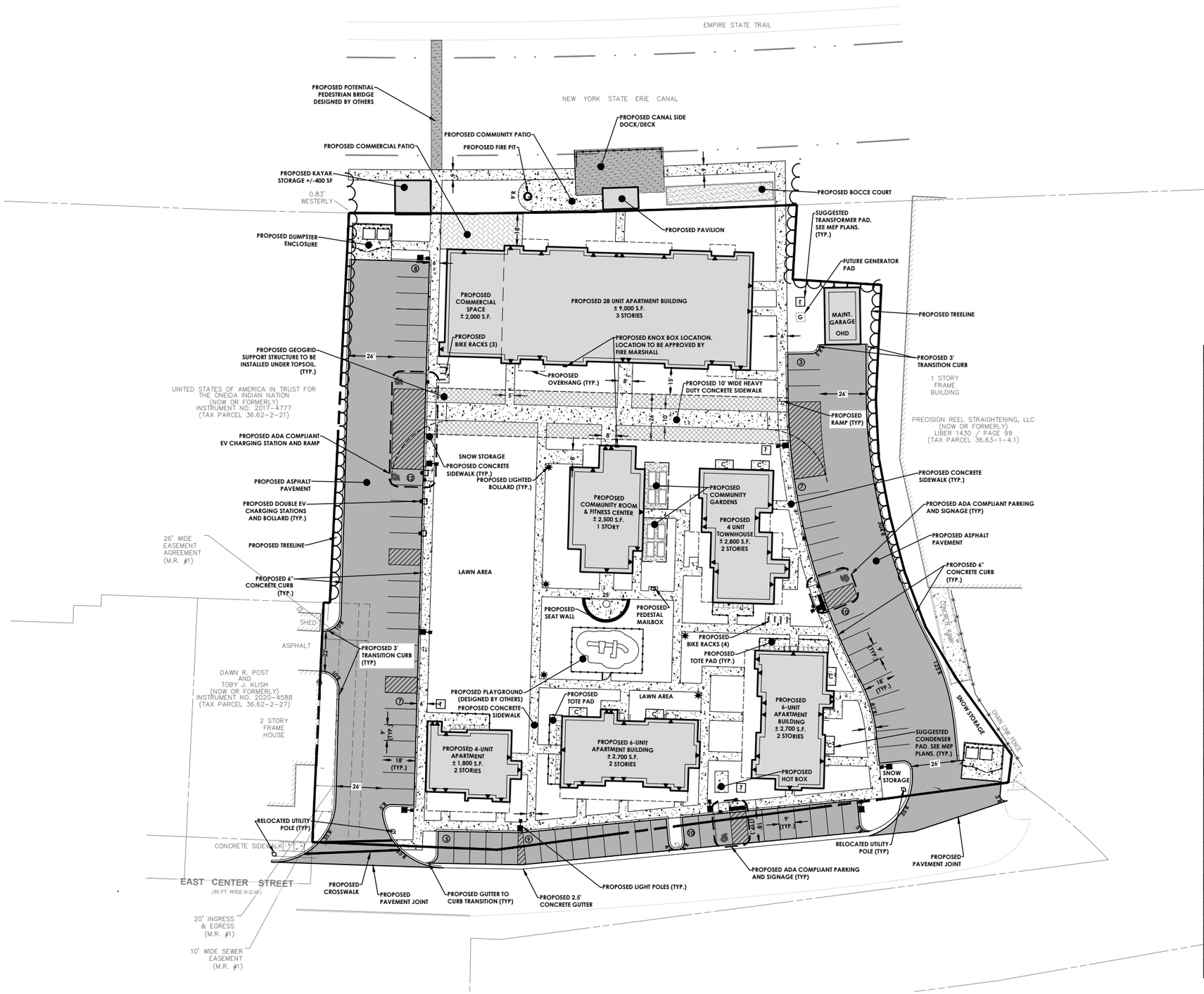
NO ALTERATION PERMITTED HEREON EXCEPT AS PROVIDED UNDER SECTION 7209 SUBDIVISION 2 OF THE NEW YORK EDUCATION LAW

ENGINEERED COVER SYSTEM

Figure 12

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Jul 09, 2026 - 4:09pm
F:\Projects\W96 - Housing Visions ADHV Redevelopment\W96.013.001 - Old Erie Commons BCP RI\Planning-Study\CADD\Sheet Files\Figure 12_Old Erie Commons BCP_Cover System Drawing - Copy.dwg



HORIZONTAL SCALE

30 0 15 30 60

SCALE: 1"=30'

LEGEND - SITE:

- PROPERTY BOUNDARY
- R.O.W. RIGHT OF WAY
- EXISTING CENTER LINE ROAD
- SETBACK
- PROPOSED EASEMENT LINE
- EXISTING EASEMENT LINE
- EXISTING BUILDING
- PROPOSED BUILDING
- (14) PROPOSED PARKING COUNT
- PROPOSED CONCRETE
- PROPOSED ACCESS RAMP
- PROPOSED PAVEMENT STRIPING
- PROPOSED CURB
- PROPOSED SIGN
- PROPOSED LIGHT POLE
- PROPOSED FENCE
- PROPOSED BUILDING MOUNTED LIGHT
- PROPOSED LIGHTED BOLLARD
- C SUGGESTED CONDENSER PAD SEE MEP PLANS
- T SUGGESTED TRANSFORMER PAD SEE MEP PLANS
- G SUGGESTED GENERATOR SEE MEP PLANS

SITE DATA	
TAX ACCOUNT NUMBER:	36.63-1-2
PARCEL ADDRESS:	160 EAST CENTER STREET
MUNICIPALITY:	VILLAGE OF CANASTOTA
COUNTY:	MADISON COUNTY
TOTAL PARCEL AREA:	2.56 ACRES (111,721 S.F.)
AREA OF DISTURBANCE:	2.56 ACRES
EXISTING ZONING:	INDUSTRIAL DISTRICT (IN)
PROPOSED ZONING:	PLANNED DEVELOPMENT DISTRICT (PD)
EXISTING USE:	VACANT
PROPOSED USE:	POCKET NEIGHBORHOOD

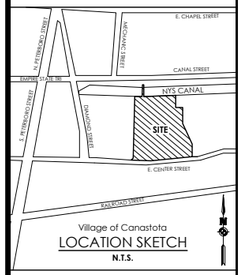
ZONING DATA	REQUIRED	PROPOSED
ZONING DISTRICT: PLANNED DEVELOPMENT DISTRICT (PD)		
LOT		
WIDTH		394.15'
DEPTH		354.5'
AREA		2.56 AC (111,721 S.F.)
COVERAGE		63.3%
BUILDING		
SETBACK - FRONT		10.2'
SETBACK - SIDE		10.0'
SETBACK - REAR		2.1'
HEIGHT		3 STORIES
DENSITY		18.75 UNITS/ACRE
UNIT QTY		48 UNITS
PARKING		
STALLS QTY		71 SPACES/48 UNITS = 1.48 SPACES PER UNIT
STALL SIZE - PERPENDICULAR		9' X 18'
DRIVE AISLE WIDTH - 90/60/45 DEG		26'
NOTES:		

ENVIRONMENTAL DATA	NO	YES
STATE REGULATED WETLANDS (NYSDEC ERM):	X	
FEDERALLY REGULATED WETLANDS (USFWS NWI):	X	
FLOOD PLAIN (FEMA NFHL): FIRM PANEL: 36093C0001E DATED: 4/15/1988	X	
ENDANGERED SPECIES (NYSDEC ERM):	X	

UTLITIES DATA	
PUBLIC WATER PROVIDED BY:	ONONDAGA COUNTY WATER AUTHORITY
ELECTRIC SERVICE PROVIDED BY:	NATIONAL GRID
GAS SERVICE SUPPLIED BY:	NATIONAL GRID
SANITARY SEWER PROVIDED BY:	VILLAGE OF CANASTOTA
STORM SEWER & DRAINAGE WILL BE: (MAINTAINED BY THE OWNER)	PRIVATE
ALL IMPROVEMENTS SHALL BE MADE IN ACCORDANCE WITH THE CURRENT DEVELOPMENT STANDARDS AND SPECIFICATIONS OF THE MUNICIPALITY	

HCR PRELIMINARY SUBMISSION - SEPTEMBER 2025

PASSERO engineering architecture



LOCATION SKETCH

N.T.S.

STAMP:

CLIENT:
HOUSING VISIONS CONSULTANTS
1201 E. FAYETTE ST. SYRACUSE, NY 13210

Passero Associates
242 WEST MAIN ST., SUITE 100 ROCHESTER, NY 14614
(585) 325-1000 FAX: (585) 325-1691
PROJECT MANAGER: ANDREW BURNS, P.E.
PROJECT ENGINEER: ANDREW BURNS, P.E.
DESIGNER: JACOB LEWIS, E.I.T.

NO.	DATE	BY	DESCRIPTION

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SITE PLAN

160 EAST CENTER STREET

OLD ERIE COMMONS

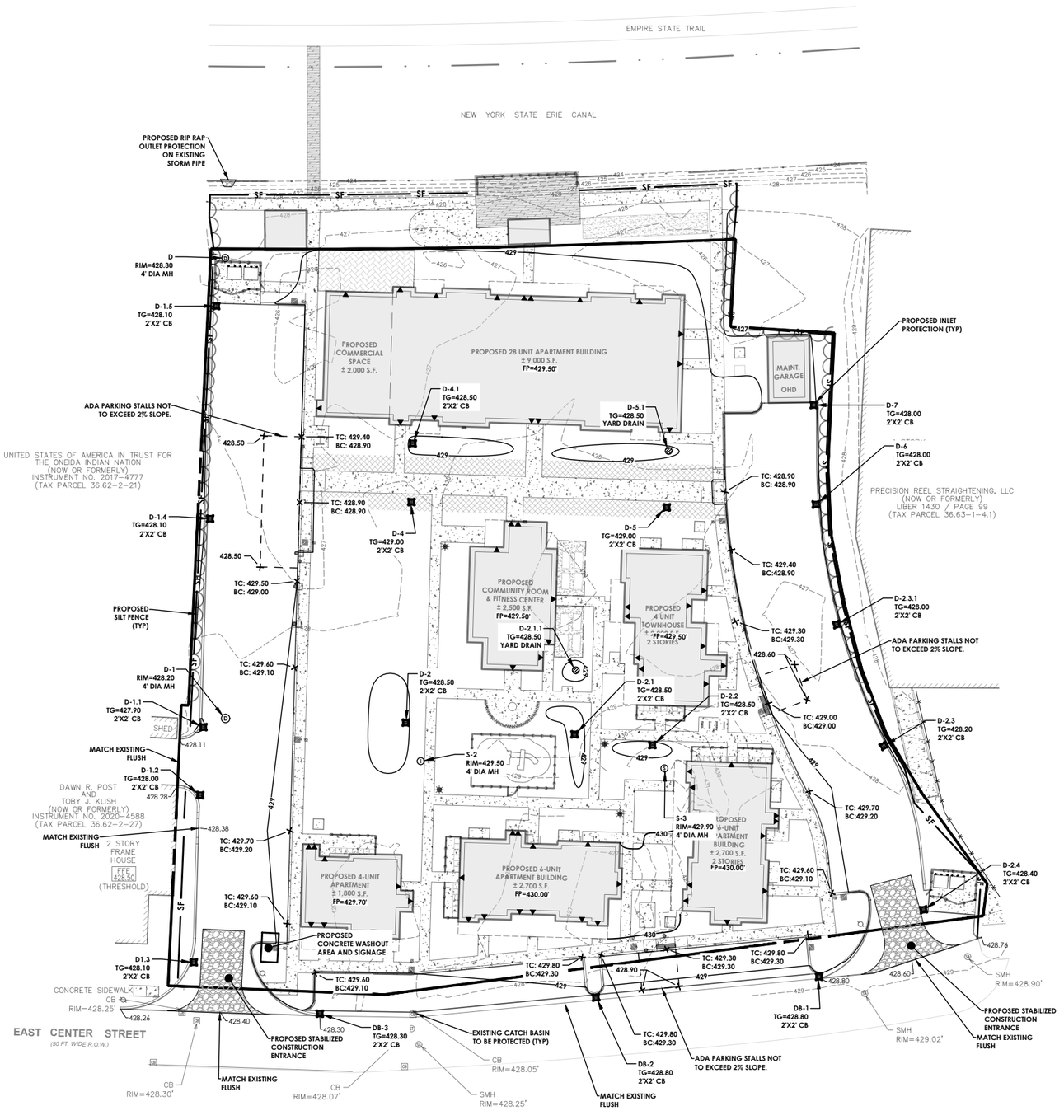
MUNICIPALITY: **CANASTOTA**
COUNTY: **MADISON** STATE: **NY**

PROJECT NO.: **20202975.0001**

DRAWING NO.: C-102

DATE: **SEPTEMBER 2025**

Y:\PROJECTS-NEW \2020\20202975\20202975.0001\01 CAD-BIM-MODELS \CIVIL \20202975.0001 SITE.DWG 9/10/2025 11:41 AM Jacob Lewis



HORIZONTAL SCALE

30 0 15 30 60

SCALE: 1"=30'

LEGEND - GRADING & UTILITY:

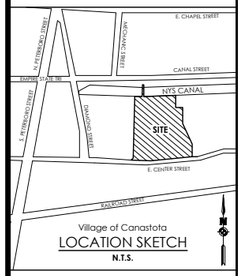
- PROPERTY BOUNDARY
- R.O.W.
- EXISTING CENTER LINE ROAD
- EXISTING BUILDING
- EXISTING FENCE
- EXISTING EASEMENT LINE
- PROPOSED EASEMENT LINE
- PROPOSED BUILDING
- PROPOSED CONCRETE
- PROPOSED SIGN
- PROPOSED LIGHT
- 520 EXISTING MAJOR CONTOUR
- 521 EXISTING MINOR CONTOUR
- 520 PROPOSED MAJOR CONTOUR
- 521 PROPOSED MINOR CONTOUR
- SF SILT FENCE
- PROPOSED STORM SEWER, INLET MH, CB & END SECTION
- EXISTING STORM SEWER & MH
- PROPOSED WATER SERVICE W/ HYDRANT & VALVE
- EXISTING WATER SERVICE & VALVE
- PROPOSED SANITARY SEWER AND MANHOLE
- EXISTING SANITARY SEWER AND MANHOLE
- EXISTING ELECTRIC LINE & POLE
- EXIST. LIGHT POLE
- EXIST. ELECTRIC MANHOLE
- EXIST. ELECTRIC HANDHOLE
- EXIST. GAS VALVE
- EXIST. GAS MAIN
- EXIST. WATER MAIN
- EXIST. ELECTRIC LINE
- PROPOSED UNDERGROUND ELECTRIC
- PROPOSED STONE CHECK DAM
- PROPOSED INLET PROTECTION
- PROPOSED TREE/BRUSH LINE
- EXISTING TREE/BRUSH LINE
- SF SILT FENCE
- TC:492.9 BC:492.4 TOP OF: CURB (C), WALL (W), STAIRS (S), RAMP (R) BOTTOM OF: CURB (C), WALL (W), STAIRS (S), RAMP (R)
- X 492.7 492.7 PROPOSED SPOT ELEVATION
- X 491.5 EXISTING SPOT ELEVATION

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LOCATION SKETCH

N.T.S.

STAMP:

PASSERO
engineering architecture

CLIENT:
HOUSING VISIONS CONSULTANTS
1201 E. FAYETTE ST. SYRACUSE, NY 13210

Passero Associates
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GRADING & EROSION CONTROL PLAN

160 EAST CENTER STREET

OLD ERIE COMMONS

MUNICIPALITY: **CANASTOTA**
COUNTY: **MADISON** STATE: **NY**

PROJECT NO.: **20202975.0001**

DRAWING NO.: C-105

DATE: **SEPTEMBER 2025**

HCR PRELIMINARY SUBMISSION - SEPTEMBER 2025

Y:\PROJECTS-NEW\2020\20202975\20202975.0001\01_CAD-BIM-MODELS\CIVIL\20202975.0001_GRAD.DWG 9/10/2025 11:42 AM Jacob Lewis

Tables

Table 1
Old Erie Commons - Remedial Investigation
Master Sample Log

Lab Report #	Sample ID	Investigation	Date	Time	Matrix	Sample Type SS - Surface Soil SB - Soil Boring TP - Test Pit SV - Soil Vapor OA - Outdoor Air W - Groundwater	Depth (ft)	VOCs	SVOCs	Metals	Asbestos	PCBs	Pesticides	Herbicides	1,4-Dioxane	PFAS	MS	MSD	DUP
480-161635-1	SB-1	Phase II ESA (GHD)	10/25/19	12:20	SOIL	SB	0-4	X	X	X		X							
	SB-3	Phase II ESA (GHD)	10/25/19	12:40	SOIL	SB	0-4	X	X	X		X							
	SB-5	Phase II ESA (GHD)	10/25/19	13:00	SOIL	SB	4-6	X	X	X		X							
L2115023	TP-1 1-3 ft	Phase II ESA (Benchmark)	03/24/21	9:30	SOIL	TP	1-3		X	X									
	TP-5 3-4 ft	Phase II ESA (Benchmark)	03/24/21	11:00	SOIL	TP	3-4		X	X									
	TP-8 3-4 ft	Phase II ESA (Benchmark)	03/24/21	12:45	SOIL	TP	3-4		X	X									
	TP-9 2-3 ft	Phase II ESA (Benchmark)	03/24/21	13:00	SOIL	TP	2-3		X	X									
L2157533	TP-15	Phase II ESA (Benchmark)	10/20/21	10:00	SOIL	TP	2-4		X	X									
	TP-16	Phase II ESA (Benchmark)	10/20/21	10:30	SOIL	TP	2-2.5		X	X									
	TP-17	Phase II ESA (Benchmark)	10/20/21	11:00	SOIL	TP	1-3		X	X									
	TP-18	Phase II ESA (Benchmark)	10/20/21	11:30	SOIL	TP	3-3.5		X	X									
L2543652 634914	SS-101	RI	07/11/25	9:10	SOIL	SS	0-2 in	X	X	X	X	X	X	X	X	X	X	X	X
	SS-102	RI	07/11/25	9:30	SOIL	SS	0-2 in	X	X	X	X								
	SS-103	RI	07/11/25	9:50	SOIL	SS	0-2 in	X	X	X	X	X	X	X	X	X			
	SS-104	RI	07/11/25	10:20	SOIL	SS	0-2 in	X	X	X	X								
	SS-106	RI	07/11/25	9:00	SOIL	SS	0-2 in	X	X	X									
	SS-107	RI	07/11/25	12:30	SOIL	SS	0-2 in	X	X	X		X	X	X	X	X			
	SS-108	RI	07/11/25	11:15	SOIL	SS	0-2 in	X	X	X		X	X	X	X	X			
	SS-109	RI	07/11/25	11:40	SOIL	SS	0-2 in	X	X	X		X	X	X	X	X			
	SS-110	RI	07/11/25	12:00	SOIL	SS	0-2 in	X	X	X									
L2547832	SS-105	RI	07/30/25	10:00	SOIL	SS	0-2 in	X	X	X					X				
	SS-111	RI	07/30/25	9:40	SOIL	SS	0-2 in	X	X	X					X				
	SS-112	RI	07/30/25	9:50	SOIL	SS	0-2 in	X	X	X					X				
L2547833	SS-113	RI	07/30/25	10:15	SOIL	SS	0-2 in			X - Pb only									
	SS-114	RI	07/30/25	10:20	SOIL	SS	0-2 in												
	SS-115	RI	07/30/25	10:25	SOIL	SS	0-2 in												
	SS-116	RI	07/30/25	10:30	SOIL	SS	0-2 in												
L2547174 637838	TP-102 FILL	RI	07/28/25	11:40	SOIL	TP	1.5-2		X	X	X				X				
	TP-102 NATIVE	RI	07/28/25	11:50	SOIL	TP	3-3.5		X	X	X				X				
	TP-103 FILL	RI	07/28/25	11:05	SOIL	TP	3-4		X	X		X	X	X	X	X			
	TP-103 NATIVE	RI	07/28/25	11:10	SOIL	TP	6-7		X	X		X	X	X	X	X			
	TP-104 FILL	RI	07/28/25	12:00	SOIL	TP	2-3		X	X					X				
	TP-104 NATIVE	RI	07/28/25	12:15	SOIL	TP	6-6.5		X	X					X				
	TP-106 FILL	RI	07/28/25	10:20	SOIL	TP	2-3	X	X	X		X	X	X	X	X			
	TP-106 NATIVE	RI	07/28/25	10:30	SOIL	TP	6-7	X	X	X		X	X	X	X	X			
	TP-109 FILL	RI	07/28/25	13:30	SOIL	TP	2-3		X	X		X	X	X	X	X			
	TP-109 NATIVE	RI	07/28/25	13:35	SOIL	TP	5-6		X	X		X	X	X	X	X			
	TP-113 FILL	RI	07/28/25	14:00	SOIL	TP	2-3	X	X	X					X				
	TP-113 NATIVE	RI	07/28/25	14:10	SOIL	TP	5-5.5	X	X	X					X				

Table 1
Old Erie Commons - Remedial Investigation
Master Sample Log

Lab Report #	Sample ID	Investigation	Date	Time	Matrix	Sample Type SS - Surface Soil SB - Soil Boring TP - Test Pit SV - Soil Vapor OA - Outdoor Air W - Groundwater	Depth (ft)	VOCs	SVOCs	Metals	Asbestos	PCBs	Pesticides	Herbicides	1,4-Dioxane	PFAS	MS	MSD	DUP
L2547432	TP-101 FILL	RI	07/29/25	14:20	SOIL	TP	1-1.5	X	X	X		X	X	X	X	X			
	TP-101 NATIVE	RI	07/29/25	14:30	SOIL	TP	2.5-3	X	X	X		X	X	X	X	X			
	TP-105 FILL	RI	07/29/25	13:40	SOIL	TP	2.-3	X	X	X		X	X	X	X	X	X	X	X
	TP-105 NATIVE	RI	07/29/25	13:50	SOIL	TP	6-6.5	X	X	X		X	X	X	X	X			
	TP-107 FILL	RI	07/29/25	14:05	SOIL	TP	2-3		X	X									
	TP-108 FILL	RI	07/29/25	11:20	SOIL	TP	2-2.5		X	X		X	X	X	X	X			
	TP-108 NATIVE[1]	RI	07/29/25	11:30	SOIL	TP	5.5-6		X	X		X	X	X	X	X			
	TP-110 FILL	RI	07/29/25	11:00	SOIL	TP	2-2.5		X	X		X	X	X	X	X			
	TP-110 NATIVE	RI	07/29/25	11:05	SOIL	TP	5.5-6		X	X		X	X	X	X	X			
	TP-111 FILL	RI	07/29/25	10:30	SOIL	TP	3-4	X	X	X		X	X	X	X	X			
	TP-112 FILL	RI	07/29/25	9:05	SOIL	TP	2-2.5		X	X		X	X	X	X	X			
	TP-112 NATIVE	RI	07/29/25	9:15	SOIL	TP	4-4.5		X	X		X	X	X	X	X			
	TP-114 NATIVE	RI	07/29/25	9:45	SOIL	TP	1-2	X	X	X		X	X	X	X	X			
	TP-114 FILL	RI	07/29/25	9:55	SOIL	TP	3-4	X	X	X		X	X	X	X	X			
	TP-115 FILL	RI	07/29/25	8:45	SOIL	TP	1-1.5	X	X	X		X	X	X	X	X			
	TP-115 NATIVE	RI	07/29/25	8:50	SOIL	TP	5-5.5	X	X	X		X	X	X	X	X			
L2547831	MW-103	RI	07/30/25	14:40	WATER	W	12	X	X	X		X	X	X	X	X			
	MW-104	RI	07/30/25	10:21	WATER	W	15	X	X	X		X	X	X	X	X			X
	TRIP BLANK	RI	07/30/25	--	WATER	W	-	X											
L2548090	MW-101	RI	07/31/25	10:20	WATER	W	12	X	X	X		X	X	X	X	X	X	X	
	MW-102	RI	07/31/25	13:05	WATER	W	11	X	X	X		X	X	X	X	X			
	TRIP BLANK	RI	07/31/25	--	WATER	W	-	X											
	EQUIPMENT BLANK	RI	07/31/25	--	WATER	W	-	X								X			
L2566646	MW-101[2]	RI	10/21/25	10:35	WATER	W	12	X	X	X		X	X	X	X	X	X	X	X
	MW-102	RI	10/21/25	12:45	WATER	W	11	X	X	X		X	X	X	X	X			
	MW-103	RI	10/21/25	13:45	WATER	W	12	X	X	X		X	X	X	X	X			
	MW-104	RI	10/21/25	15:15	WATER	W	15	X	X	X		X	X	X	X	X			
	TRIP BLANK	RI	10/21/25	--	WATER	W	-	X											
	EQUIPMENT BLANK	RI	10/21/25	--	WATER	W	-	X								X			
L2548247	SV-101	RI	07/31/25	13:12	SOIL VAPOR	SV	2	X											
	SV-102	RI	07/31/25	13:17	SOIL VAPOR	SV	3	X											
	SV-103	RI	07/31/25	13:14	SOIL VAPOR	SV	2	X											
	SV-104	RI	07/31/25	13:05	SOIL VAPOR	SV	2	X											
	SV-105[3]	RI	07/31/25	14:00	SOIL VAPOR	SV	4.5	X											
	SV-106	RI	07/31/25	13:40	SOIL VAPOR	SV	2	X											
	OA-101	RI	07/31/25	13:20	OUTDOOR AIR	OA	-	X											

1. Native material from TP-108 was sampled instead of native material from TP-111. This change was made in the field because no native material was encountered in TP-111.
2. MW-101 was above 50 NTU during the second round of sampling so the sample was analyzed for dissolved metals in addition to total metals.
3. SV-105 could not be analyzed because the sample was impacted by groundwater.

Table 2
Old Erie Commons - Remedial Investigation
Surface Soil Data Summary

LOCATION				SS-101		DUP-01		SS-102		SS-103		SS-104		SS-105		SS-106		SS-107		SS-108	
SAMPLING DATE				7/11/2025		7/11/2025		7/11/2025		7/11/2025		7/11/2025		7/30/2025		7/11/2025		7/11/2025		7/11/2025	
LAB SAMPLE ID				L2543652-01		L2543652-10		L2543652-02		L2543652-03		L2543652-04		L2547832-03		L2543652-05		L2543652-06		L2543652-07	
SAMPLE TYPE				SOIL		SOIL		SOIL		SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
SAMPLE DEPTH (in.)				0-2		0-2		0-2		0-2		0-2		0-2		0-2		0-2		0-2	
	Unrestricted Use SCO	Restricted Residential Use SCO	Protection of Groundwater SCO	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual
Volatile Organics by EPA 5035																					
1,1,1-Trichloroethane	0.68	100	0.68	0.00072	U	0.00066	U	0.00078	U	0.00077	U	0.00084	U	0.0005	U	0.0016	U	0.00055	U	0.00069	U
1,1,2,2-Tetrachloroethane				0.00072	U	0.00066	U	0.00078	U	0.00077	U	0.00084	U	0.0005	U	0.0016	U	0.00055	U	0.00069	U
1,1,2-Trichloroethane				0.0014	U	0.0013	U	0.0016	U	0.0015	U	0.0017	U	0.001	U	0.0033	U	0.0011	U	0.0014	U
1,1-Dichloroethane	0.27	26	0.27	0.0014	U	0.0013	U	0.0016	U	0.0015	U	0.0017	U	0.001	U	0.0033	U	0.0011	U	0.0014	U
1,1-Dichloroethene	0.33	100	0.33	0.0014	U	0.0013	U	0.0016	U	0.0015	U	0.0017	U	0.001	U	0.0033	U	0.0011	U	0.0014	U
1,2,4-Trichlorobenzene				0.0029	U	0.0026	U	0.0031	U	0.0031	U	0.0033	U	0.002	U	0.0066	U	0.0022	U	0.0028	U
1,2,4-Trimethylbenzene	3.6	52	3.6	**0.00062**	J	0.0026	U	0.0031	U	0.0031	U	0.0033	U	0.002	U	0.0066	U	0.0022	U	0.0028	U
1,2-Dibromo-3-chloropropane				0.0043	U	0.0039	U	0.0047	U	0.0046	U	0.005	U	0.003	U	0.0099	U	0.0033	U	0.0042	U
1,2-Dibromoethane				0.0014	U	0.0013	U	0.0016	U	0.0015	U	0.0017	U	0.001	U	0.0033	U	0.0011	U	0.0014	U
1,2-Dichlorobenzene	1.1	100	1.1	0.0029	U	0.0026	U	0.0031	U	0.0031	U	0.0033	U	0.002	U	0.0066	U	0.0022	U	0.0028	U
1,2-Dichloroethane	0.02	3.1	0.02	0.0014	U	0.0013	U	0.0016	U	0.0015	U	0.0017	U	0.001	U	0.0033	U	0.0011	U	0.0014	U
1,2-Dichloropropane				0.0014	U	0.0013	U	0.0016	U	0.0015	U	0.0017	U	0.001	U	0.0033	U	0.0011	U	0.0014	U
1,3,5-Trimethylbenzene	8.4	52	8.4	0.0029	U	0.0026	U	0.0031	U	0.0031	U	0.0033	U	0.002	U	0.0066	U	0.0022	U	0.0028	U
1,3-Dichlorobenzene	2.4	49	2.4	0.0029	U	0.0026	U	0.0031	U	0.0031	U	0.0033	U	0.002	U	0.0066	U	0.0022	U	0.0028	U
1,4-Dichlorobenzene	1.8	13	1.8	0.0029	U	0.0026	U	0.0031	U	0.0031	U	0.0033	U	0.002	U	0.0066	U	0.0022	U	0.0028	U
2-Butanone	0.12	100	0.12	**0.0071**	J	**0.003**	J	**0.012**	J	0.015	U	0.017	U	**0.0065**	J	0.033	U	0.011	U	0.014	U
2-Hexanone				0.014	U	0.013	U	0.016	U	0.015	U	0.017	U	0.01	U	0.033	U	0.011	U	0.014	U
4-Methyl-2-pentanone				0.014	U	0.013	U	0.016	U	0.015	U	0.017	U	0.01	U	0.033	U	0.011	U	0.014	U
Acetone	0.05	100	0.05	**0.054**		**0.013**		**0.016**		0.015	U	0.017	U	**0.011**		0.033	U	0.011	U	0.014	U
Benzene	0.06	4.8	0.06	0.00072	U	0.00066	U	0.00078	U	0.00077	U	0.00084	U	0.0005	U	0.0016	U	0.00055	U	0.00069	U
Bromodichloromethane				0.00072	U	0.00066	U	0.00078	U	0.00077	U	0.00084	U	0.0005	U	0.0016	U	0.00055	U	0.00069	U
Bromoform				0.0058	U	0.0052	U	0.0062	U	0.0062	U	0.0067	U	0.004	U	0.013	U	0.0044	U	0.0056	U
Bromomethane				0.0029	U	0.0026	U	0.0031	U	0.0031	U	0.0033	U	0.002	U	0.0066	U	0.0022	U	0.0028	U
Carbon disulfide				0.014	U	0.013	U	0.016	U	0.015	U	0.017	U	0.01	U	0.033	U	0.011	U	0.014	U
Carbon tetrachloride	0.76	2.4	0.76	0.0014	U	0.0013	U	0.0016	U	0.0015	U	0.0017	U	0.001	U	0.0033	U	0.0011	U	0.0014	U
Chlorobenzene	1.1	100	1.1	0.00072	U	0.00066	U	0.00078	U	0.00077	U	0.00084	U	0.0005	U	0.0016	U	0.00055	U	0.00069	U
Chloroethane				0.0029	U	0.0026	U	0.0031	U	0.0031	U	0.0033	U	0.002	U	0.0066	U	0.0022	U	0.0028	U
Chloroform	0.37	49	0.37	0.0022	U	0.002	U	0.0023	U	0.0023	U	0.0025	U	0.0015	U	0.005	U	0.0016	U	0.0021	U
Chloromethane				0.0058	U	0.0052	U	0.0062	U	0.0062	U	0.0067	U	0.004	U	0.013	U	0.0044	U	0.0056	U
cis-1,2-Dichloroethene	0.25	100	0.25	0.0014	U	0.0013	U	0.0016	U	0.0015	U	0.0017	U	0.001	U	0.0033	U	0.0011	U	0.0014	U
cis-1,3-Dichloropropene				0.00072	U	0.00066	U	0.00078	U	0.00077	U	0.00084	U	0.0005	U	0.0016	U	0.00055	U	0.00069	U
Cyclohexane				0.014	U	0.013	U	0.016	U	0.015	U	0.017	U	0.01	U	0.033	U	0.011	U	0.014	U
Dibromochloromethane				0.0014	U	0.0013	U	0.0016	U	0.0015	U	0.0017	U	0.001	U	0.0033	U	0.0011	U	0.0014	U
Dichlorodifluoromethane				0.014	U	0.013	U	0.016	U	0.015	U	0.017	U	0.01	U	0.033	U	0.011	U	0.014	U
Ethylbenzene	1	41	1	0.0014	U	0.0013	U	0.0016	U	0.0015	U	0.0017	U	0.001	U	0.0033	U	0.0011	U	0.0014	U
Freon-113				0.0058	U	0.0052	U	0.0062	U	0.0062	U	0.0067	U	0.004	U	0.013	U	0.0044	U	0.0056	U
Isopropylbenzene				0.0014	U	0.0013	U	0.0016	U	0.0015	U	0.0017	U	0.001	U	0.0033	U	0.0011	U	0.0014	U
Methyl Acetate				**0.086**		0.0052	U	**0.011**		0.0062	U	0.0067	U	0.004	U	0.013	U	0.0044	U	0.0056	U
Methyl cyclohexane				0.0058	U	0.0052	U	0.0062	U	0.0062	U	0.0067	U	0.004	U	0.013	U	0.0044	U	0.0056	U
Methyl tert butyl ether	0.93	100	0.93	0.0029	U	0.0026	U	0.0031	U	0.0031	U	0.0033	U	0.002	U	0.0066	U	0.0022	U	0.0028	U
Methylene chloride	0.05	100	0.05	0.0072	U	0.0066	U	0.0078	U	0.0077	U	0.0084	U	0.005	U	0.016	U	0.0055	U	0.0069	U
n-Butylbenzene	12	100	12	0.0014	U	0.0013	U	0.0016	U	0.0015	U	0.0017	U	0.001	U	0.0033	U	0.0011	U	0.0014	U
n-Propylbenzene	3.9	100	3.9	0.0014	U	0.0013	U	0.0016	U	0.0015	U	0.0017	U	0.001	U	0.0033	U	0.0011	U	0.0014	U
Naphthalene	12	100	12	**0.0011**	J	0.0052	U	0.0062	U	0.0062	U	0.0067	U	0.004	U	0.013	U	0.0044	U	0.0056	U
o-Xylene				0.0014	U	0.0013	U	0.0016	U	0.0015	U	0.0017	U	0.001	U	0.0033	U	0.0011	U	0.0014	U
p-Isopropyltoluene				**0.00093**	J	**0.00056**	J	**0.00071**	J	0.0015	U	0.0017	U	0.001	U	**0.0021**	J	0.0011	U	0.0014	U
p/m-Xylene				0.0029	U	0.0026	U	0.0031	U	0.0031	U	0.0033	U	0.002	U	0.0066	U	0.0022	U	0.0028	U
sec-Butylbenzene	11	100	11	0.0014	U	0.0013	U	0.0016	U	0.0015	U	0.0017	U	0.001	U	0.0033	U	0.0011	U	0.0014	U
Styrene				**0.00096**	J	**0.0023**	J	**0.00091**	J	0.0015	U	**0.00097**	J	0.001	U	**0.0019**	J	0.0011	U	**0.00079**	J
tert-Butylbenzene	5.9	100	5.9	0.0029	U	0.0026	U	0.0031	U	0.0031	U	0.0033	U	0.002	U	0.0066	U	0.0022	U	0.0028	U
Tetrachloroethene	1.3	19	1.3	0.00072	U	0.00066	U	0.00078	U	0.00077	U	0.00084	U	0.0005	U	0.0016	U	0.00055	U	0.00069	U
Toluene	0.7	100	0.7	0.0014	U	0.0013	U	0.0016	U	0.0015	U	0.0017	U	0.001	U	0.0033	U	0.0011	U	0.0014	U
trans-1,2-Dichloroethene	0.19	100	0.19	0.0022	U	0.002	U	0.0023	U	0.0023	U	0.0025	U	0.0015	U	0.005	U	0.0016	U	0.0021	U
trans-1,3-Dichloropropene				0.0014	U	0.0013	U	0.0016	U	0.0015	U	0.0017	U	0.001	U	0.0033	U	0.0011	U	0.0014	U
Trichloroethene	0.47	21	0.47	0.00072	U	0.00066	U	0.00078	U	0.00077	U	0.00084	U	0.0005	U	0.0016	U	0.00055	U	0.00069	U
Trichlorofluoromethane				0.0058	U	0.0052	U	0.0062	U	0.0062	U	0.0067	U	0.004	U	0.013	U	0.0044	U	0.0056	U
Vinyl chloride	0.02	0.9	0.02	0.0014	U	0.0013	U	0.0016	U	0.0015	U	0.0017	U	0.001	U	0.0033	U	0.0011	U	0.0014	U

Table 2
Old Erie Commons - Remedial Investigation
Surface Soil Data Summary

LOCATION				SS-101		DUP-01		SS-102		SS-103		SS-104		SS-105		SS-106		SS-107		SS-108	
SAMPLING DATE				7/11/2025		7/11/2025		7/11/2025		7/11/2025		7/11/2025		7/30/2025		7/11/2025		7/11/2025		7/11/2025	
LAB SAMPLE ID				L2543652-01		L2543652-10		L2543652-02		L2543652-03		L2543652-04		L2547832-03		L2543652-05		L2543652-06		L2543652-07	
SAMPLE TYPE				SOIL		SOIL		SOIL		SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
SAMPLE DEPTH (in.)				0-2		0-2		0-2		0-2		0-2		0-2		0-2		0-2		0-2	
	Unrestricted Use SCO	Restricted Residential Use SCO	Protection of Groundwater SCO	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual
Semivolatile Organics by GC/MS																					
1,2,4,5-Tetrachlorobenzene				0.2 U		0.19 U		0.2 U		0.22 U		0.22 U		0.17 U		0.19 U		0.2 U		0.2 U	
1,4-Dioxane	0.1	13	0.1	0.03 U		0.028 U		- -		0.033 U		- -		0.026 U		- -		0.029 U		0.031 U	
2,3,4,6-Tetrachlorophenol				0.2 U		0.19 U		0.2 U		0.22 U		0.22 U		0.17 U		0.19 U		0.2 U		0.2 U	
2,4,5-Trichlorophenol				0.2 U		0.19 U		0.2 U		0.22 U		0.22 U		0.17 U		0.19 U		0.2 U		0.2 U	
2,4,6-Trichlorophenol				0.12 U		0.11 U		0.12 U		0.13 U		0.13 U		0.1 U		0.11 U		0.12 U		0.12 U	
2,4-Dichlorophenol				0.18 U		0.17 U		0.18 U		0.2 U		0.2 U		0.15 U		0.17 U		0.18 U		0.18 U	
2,4-Dimethylphenol				0.2 U		0.19 U		0.2 U		0.22 U		0.22 U		0.17 U		0.19 U		0.2 U		0.2 U	
2,4-Dinitrophenol				0.98 U		0.9 U		0.98 U		1.1 U		1 U		0.82 U		0.91 U		0.94 U		0.98 U	
2,4-Dinitrotoluene				0.2 U		0.19 U		0.2 U		0.22 U		0.22 U		0.17 U		0.19 U		0.2 U		0.2 U	
2,6-Dinitrotoluene				0.2 U		0.19 U		0.2 U		0.22 U		0.22 U		0.17 U		0.19 U		0.2 U		0.2 U	
2-Chloronaphthalene				0.2 U		0.19 U		0.2 U		0.22 U		0.22 U		0.17 U		0.19 U		0.2 U		0.2 U	
2-Chlorophenol				0.2 U		0.19 U		0.2 U		0.22 U		0.22 U		0.17 U		0.19 U		0.2 U		0.2 U	
2-Methylnaphthalene				**0.034** J		**0.067** J		**0.082** J		**0.04** J		**0.46**		**0.29**		**0.94**		0.23 U		**0.34**	
2-Methylphenol	0.33	100	0.33	0.2 U		0.19 U		0.2 U		0.22 U		0.22 U		0.17 U		0.19 U		0.2 U		0.2 U	
2-Nitroaniline				0.2 U		0.19 U		0.2 U		0.22 U		0.22 U		0.17 U		0.19 U		0.2 U		0.2 U	
2-Nitrophenol				0.44 U		0.41 U		0.44 U		0.48 U		0.47 U		0.37 U		0.41 U		0.42 U		0.44 U	
3,3'-Dichlorobenzidine				0.2 U		0.19 U		0.2 U		0.22 U		0.22 U		0.17 U		0.19 U		0.2 U		0.2 U	
3-Methylphenol/4-Methylphenol	0.33	100	0.33	0.29 U		0.27 U		0.3 U		0.32 U		**0.069** J		**0.11** J		0.27 U		0.28 U		0.29 U	
3-Nitroaniline				0.2 U		0.19 U		0.2 U		0.22 U		0.22 U		0.17 U		0.19 U		0.2 U		0.2 U	
4,6-Dinitro-o-cresol				0.53 U		0.49 U		0.53 U		0.58 U		0.57 U		0.44 U		0.49 U		0.51 U		0.53 U	
4-Bromophenyl phenyl ether				0.2 U		0.19 U		0.2 U		0.22 U		0.22 U		0.17 U		0.19 U		0.2 U		0.2 U	
4-Chloroaniline				0.2 U		0.19 U		0.2 U		0.22 U		0.22 U		0.17 U		0.19 U		0.2 U		0.2 U	
4-Chlorophenyl phenyl ether				0.2 U		0.19 U		0.2 U		0.22 U		0.22 U		0.17 U		0.19 U		0.2 U		0.2 U	
4-Nitroaniline				0.2 U		0.19 U		0.2 U		0.22 U		0.22 U		0.17 U		0.19 U		0.2 U		0.2 U	
4-Nitrophenol				0.28 U		0.26 U		0.29 U		0.31 U		0.31 U		0.24 U		0.26 U		0.27 U		0.28 U	
Acenaphthene	20	100	98	**0.1** J		**0.17**		**0.022** J		**0.12** J		**0.97**		**0.09** J		**0.28**		0.16 U		**0.66**	
Acenaphthylene	100	100	107	**0.046** J		**0.11** J		0.16 U		**0.041** J		**0.49**		**1.6**		**0.16**		0.16 U		**0.56**	
Acetophenone				0.2 U		0.19 U		0.2 U		0.22 U		0.22 U		0.17 U		**0.096** J		0.2 U		0.2 U	
Anthracene	100	100	1000	**0.25**		**0.48**		**0.069** J		**0.28**		**2.5**		**1.2**		**0.62**		0.12 U		**2.2**	
Atrazine				0.16 U		0.15 U		0.16 U		0.18 U		0.18 U		0.14 U		0.15 U		0.16 U		0.16 U	
Benzaldehyde				0.27 U		0.25 U		**0.068** J		0.29 U		**0.12** J		**0.048** J		**0.27**		0.26 U		0.27 U	
Benzo(a)anthracene	1	1	1	**0.5**		**1**		**0.22**		**0.64**		**6.2**		**3.2**		**1.4**		0.12 U		**4.6**	
Benzo(a)pyrene	1	1	22	**0.47**		**1**		**0.22**		**0.59**		**6**		**3.1**		**1.4**		0.16 U		**3.9**	
Benzo(b)fluoranthene	1	1	1.7	**0.57**		**1.3**		**0.3**		**0.75**		**7.8**		**4**		**1.8**		0.12 U		**4.9**	
Benzo(ghi)perylene	100	100	1000	**0.26**		**0.58**		**0.14** J		**0.34**		**3.1**		**2**		**0.78**		0.16 U		**1.8**	
Benzo(k)fluoranthene	0.8	3.9	1.7	**0.21**		**0.45**		**0.086** J		**0.25**		**2.4**		**1.4**		**0.61**		0.12 U		**1.6**	
Biphenyl				0.46 U		0.43 U		0.47 U		0.51 U		**0.089** J		**0.052** J		**0.1** J		0.44 U		**0.036** J	
Bis(2-chloroethoxy)methane				0.22 U		0.2 U		0.22 U		0.24 U		0.24 U		0.18 U		0.2 U		0.21 U		0.22 U	
Bis(2-chloroethyl)ether				0.18 U		0.17 U		0.18 U		0.2 U		0.2 U		0.15 U		0.17 U		0.18 U		0.18 U	
Bis(2-chloroisopropyl)ether				0.24 U		0.23 U		0.25 U		0.27 U		0.26 U		0.2 U		0.23 U		0.23 U		0.24 U	
Bis(2-ethylhexyl)phthalate				0.2 U		0.19 U		0.2 U		0.22 U		**0.082** J		0.17 U		**0.15** J		0.2 U		0.2 U	
Butyl benzyl phthalate				**0.13** J		**0.094** J		0.2 U		**0.12** J		0.22 U		0.17 U		**0.097** J		0.2 U		**0.1** J	
Caprolactam				0.2 U		0.19 U		0.2 U		0.22 U		0.22 U		0.17 U		0.19 U		0.2 U		0.2 U	
Carbazole				**0.11** J		**0.23**		**0.03** J		**0.11** J		**1**		**0.14** J		**0.31**		0.2 U		**0.23**	
Chrysene	1	3.9	1	**0.45**		**0.98**		**0.25**		**0.61**		**5.8**		**2.8**		**1.3**		0.12 U		**3.8**	
Di-n-butylphthalate				0.2 U		**0.042** J		0.2 U		0.22 U		0.22 U		0.17 U		0.19 U		0.2 U		0.2 U	
Di-n-octylphthalate				0.2 U		0.19 U		0.2 U		0.22 U		0.22 U		0.17 U		0.19 U		0.2 U		0.2 U	
Dibenzo(a,h)anthracene	0.33	0.33	1000	**0.065** J		**0.14**		**0.04** J		**0.085** J		**0.85**		**0.52**		**0.2**		0.12 U		**0.56**	
Dibenzofuran	7	59	210	**0.062** J		**0.12** J		**0.025** J		**0.06** J		**0.6**		**0.16** J		**0.35**		0.2 U		**0.46**	
Diethyl phthalate				0.2 U		0.19 U		0.2 U		0.22 U		0.22 U		0.17 U		0.19 U		0.2 U		0.2 U	
Dimethyl phthalate				0.2 U		0.19 U		0.2 U		0.22 U		0.22 U		0.17 U		0.19 U		0.2 U		0.2 U	
Fluoranthene	100	100	1000	**1.1**		**2.2**		**0.41**		**1.3**		**15**		**3.4**		**2.8**		0.12 U		**7.1**	
Fluorene	30	100	386	**0.11** J		**0.19**		**0.033** J		**0.12** J		**0.96**		**0.2**		**0.3**		0.2 U		**0.74**	
Hexachlorobenzene	0.33	1.2	3.2	0.12 U		0.11 U		0.12 U		0.13 U		0.13 U		0.1 U		0.11 U		0.12 U		0.12 U	
Hexachlorobutadiene				0.2 U		0.19 U		0.2 U		0.22 U		0.22 U		0.17 U		0.19 U		0.2 U		0.2 U	
Hexachlorocyclopentadiene				0.58 U		0.54 U		0.59 U		0.64 U		0.63 U		0.49 U		0.54 U		0.56 U		0.58 U	
Hexachloroethane				0.16 U		0.15 U		0.16 U		0.18 U		0.18 U		0.14 U		0.15 U		0.16 U		0.16 U	
Indeno(1,2,3-cd)pyrene	0.5	0.5	8.2	**0.28**		**0.64**		**0.14** J		**0.37**		**3.6**		**2**		**0.89**		0.16 U		**2.1**	
Isophorone				0.18 U		0.17 U		0.18 U		0.2 U		0.2 U		0.15 U		0.17 U		0.18 U		0.18 U	
n-Nitrosodi-n-propylamine				0.2 U		0.19 U		0.2 U		0.22 U		0.22 U		0.17 U		0.19 U		0.2 U		0.2 U	
Naphthalene	12	100	12	**0.065** J		**0.15** J		**0.055** J		**0.05** J		**0.78**		**0.89**		**0.76**		0.2 U		**0.11** J	
NDPA/DPA				0.16 U		0.15 U		0.16 U		0.18 U		0.18 U		0.14 U		0.15 U		0.16 U		0.16 U	
Nitrobenzene				0.18 U		0.17 U		0.18 U		0.2 U		0.2 U		0.15 U		0.17 U		0.18 U		0.18 U	
p-Chloro-m-cresol				0.2 U		0.19 U		0.2 U		0.22 U		0.22 U		0.17 U		0.19 U		0.2 U		0.2 U	

Table 2
Old Erie Commons - Remedial Investigation
Surface Soil Data Summary

LOCATION				SS-101		DUP-01		SS-102		SS-103		SS-104		SS-105		SS-106		SS-107		SS-108	
SAMPLING DATE				7/11/2025		7/11/2025		7/11/2025		7/11/2025		7/11/2025		7/30/2025		7/11/2025		7/11/2025		7/11/2025	
LAB SAMPLE ID				L2543652-01		L2543652-10		L2543652-02		L2543652-03		L2543652-04		L2547832-03		L2543652-05		L2543652-06		L2543652-07	
SAMPLE TYPE				SOIL		SOIL		SOIL		SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
SAMPLE DEPTH (in.)				0-2		0-2		0-2		0-2		0-2		0-2		0-2		0-2		0-2	
	Unrestricted Use SCO	Restricted Residential Use SCO	Protection of Groundwater SCO	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual
Pentachlorophenol	0.8	6.7	0.8	0.16 U		0.15 U		0.16 U		0.18 U		0.18 U		0.14 U		0.15 U		0.16 U		0.16 U	
Phenanthrene	100	100	1000	**0.93**		**1.8**		**0.36**		**1.1**		**10**		**1.2**		**2.5**		0.12 U		**6**	
Phenol	0.33	100	0.33	0.2 U		0.19 U		0.2 U		0.22 U		0.22 U		**0.059** J		0.19 U		0.2 U		0.2 U	
Pyrene	100	100	1000	**0.85**		**1.8**		**0.34**		**1.1**		**12**		**3.1**		**2.1**		0.12 U		**5.6**	
Polychlorinated Biphenyls by GC																					
Aroclor 1016	0.1	1	3.2	0.0589 U		0.0535 U		- -		0.0636 U		- -		- -		- -		0.0565 U		0.06 U	
Aroclor 1221	0.1	1	3.2	0.0589 U		0.0535 U		- -		0.0636 U		- -		- -		- -		0.0565 U		0.06 U	
Aroclor 1232	0.1	1	3.2	0.0589 U		0.0535 U		- -		0.0636 U		- -		- -		- -		0.0565 U		0.06 U	
Aroclor 1242	0.1	1	3.2	0.0589 U		0.0535 U		- -		0.0636 U		- -		- -		- -		0.0565 U		0.06 U	
Aroclor 1248	0.1	1	3.2	0.0589 U		0.0535 U		- -		0.0636 U		- -		- -		- -		0.0565 U		0.06 U	
Aroclor 1254	0.1	1	3.2	0.0589 U		0.0535 U		- -		0.0636 U		- -		- -		- -		0.0565 U		0.06 U	
Aroclor 1260	0.1	1	3.2	0.0589 U		0.0535 U		- -		0.0636 U		- -		- -		- -		0.0565 U		0.06 U	
Aroclor 1262	0.1	1	3.2	0.0589 U		0.0535 U		- -		0.0636 U		- -		- -		- -		0.0565 U		0.06 U	
Aroclor 1268	0.1	1	3.2	0.0589 U		0.0535 U		- -		0.0636 U		- -		- -		- -		0.0565 U		0.06 U	
PCBs, Total	0.1	1	3.2	0.0589 U		0.0535 U		- -		0.0636 U		- -		- -		- -		0.0565 U		0.06 U	
Organochlorine Pesticides by GC																					
4,4'-DDD	0.0033	13	14	0.00186 U		0.00178 U		- -		**0.0165**		- -		- -		- -		0.00183 U		0.00194 U	
4,4'-DDE	0.0033	8.9	17	**0.00247**		**0.00199**		- -		**0.0331**		- -		- -		- -		0.00183 U		**0.00229**	
4,4'-DDT	0.0033	7.9	136	**0.00696**		**0.0053**		- -		**0.0131**		- -		- -		- -		0.00183 U		**0.00814**	
Aldrin	0.005	0.097	0.19	0.00186 U		0.00178 U		- -		0.0021 U		- -		- -		- -		0.00183 U		0.00194 U	
Alpha-BHC	0.02	0.48	0.02	0.000777 U		0.000742 U		- -		0.000873 U		- -		- -		- -		0.000762 U		0.000811 U	
Beta-BHC	0.036	0.36	0.09	0.00186 U		0.00178 U		- -		0.0021 U		- -		- -		- -		0.00183 U		0.00194 U	
Chlordane				**0.0777**		**0.0492**		- -		0.0175 U		- -		- -		- -		0.0152 U		0.0162 U	
cis-Chlordane	0.094	4.2	2.9	**0.0102** IP		**0.00751** IP		- -		0.00262 U		- -		- -		- -		0.00228 U		0.00243 U	
Delta-BHC	0.04	100	0.25	0.00186 U		0.00178 U		- -		0.0021 U		- -		- -		- -		0.00183 U		0.00194 U	
Dieldrin	0.005	0.2	0.1	0.00116 U		0.00111 U		- -		0.00131 U		- -		- -		- -		0.00114 U		0.00122 U	
Endosulfan I	2.4	24	102	0.00186 U		0.00178 U		- -		0.0021 U		- -		- -		- -		0.00183 U		0.00194 U	
Endosulfan II	2.4	24	102	0.00186 U		0.00178 U		- -		0.0021 U		- -		- -		- -		0.00183 U		0.00194 U	
Endosulfan sulfate	2.4	24	1000	0.000777 U		0.000742 U		- -		0.000873 U		- -		- -		- -		0.000762 U		0.000811 U	
Endrin	0.014	11	0.06	0.000777 U		0.000742 U		- -		0.000873 U		- -		- -		- -		0.000762 U		0.000811 U	
Endrin aldehyde				0.00233 U		0.00222 U		- -		0.00262 U		- -		- -		- -		0.00228 U		0.00243 U	
Endrin ketone				0.00186 U		0.00178 U		- -		0.0021 U		- -		- -		- -		0.00183 U		0.00194 U	
Heptachlor	0.042	2.1	0.38	0.000932 U		0.00089 U		- -		0.00105 U		- -		- -		- -		0.000914 U		0.000973 U	
Heptachlor epoxide				0.0035 U		0.00334 U		- -		0.00393 U		- -		- -		- -		0.00343 U		0.00365 U	
Lindane	0.1	1.3	0.1	0.000777 U		0.000742 U		- -		0.000873 U		- -		- -		- -		0.000762 U		0.000811 U	
Methoxychlor				0.0035 U		0.00334 U		- -		0.00393 U		- -		- -		- -		0.00343 U		0.00365 U	
Toxaphene				0.035 U		0.0334 U		- -		0.0393 U		- -		- -		- -		0.0343 U		0.0365 U	
trans-Chlordane				**0.01**		**0.00584**		- -		0.00262 U		- -		- -		- -		0.00228 U		0.00243 U	
Chlorinated Herbicides by GC																					
2,4,5-T				0.2 U		0.188 U		- -		0.222 U		- -		- -		- -		0.199 U		0.2 U	
2,4,5-TP (Silvex)	3.8	100	3.8	0.2 U		0.188 U		- -		0.222 U		- -		- -		- -		0.199 U		0.2 U	
2,4-D				0.2 U		0.188 U		- -		0.222 U		- -		- -		- -		0.199 U		0.2 U	
Total Metals																					
Aluminum, Total				**3420**		**3710**		**5250**		**5600**		**3400**		**2880**		**2300**		**6620**		**4740**	
Antimony, Total				23.6 U		22.5 U		4.84 U		5.42 U		50.4 U		19.8 U		45.7 U		4.7 U		23.6 U	
Arsenic, Total	13	16	16	**14.1**		**34.8**		**20.2**		**13.6**		**8.97** J		**3.72** J		**8.42** J		**4.52**		**5.82**	
Barium, Total	350	400	820	**40.4**		**44.2**		**351**		**76.5**		**57.6**		**36.6**		**31.6**		**142**		**72.8**	
Beryllium, Total	7.2	72	47	2.36 U		2.25 U		**0.549**		**0.362** J		5.04 U		1.98 U		4.57 U		**0.444** J		**0.318** J	
Cadmium, Total	2.5	4.3	7.5	4.72 U		4.5 U		**0.391** J		**0.168** J		10.1 U		3.97 U		9.14 U		0.94 U		4.73 U	
Calcium, Total				**217000**		**124000**		**19900**		**25800**		**150000**		**150000**		**208000**		**2940**		**112000**	
Chromium, Total				**7.39**		**8.71**		**12.2**		**11.5**		10.1 U		**5.1**		9.14 U		**12.7**		**9.06**	
Cobalt, Total				**4.51** J		**4.56** J		**4.58**		**6.53**		**4.14** J		**2.86** J		**4.18** J		**5.53**		**5.26** J	
Copper, Total	50	270	1720	**37.1**		**21.8**		**37**		**33.5**		**28.3**		**27.8**		**20.2**		**4.83**		**15.5**	
Cyanide, Total	27	27	40	1.2 U		1.1 U		1.2 U		1.3 U		1.3 U		1 U		1.1 U		1.1 U		1.2 U	
Iron, Total				**8220**		**9670**		**11000**		**12500**		**8840**		**6220**		**7280**		**17600**		**11300**	
Lead, Total	63	400	450	**73.4**		**86**		**340**		**58.9**		**58.3**		**42.2**		**51.2**		**11.4**		**31**	
Magnesium, Total				**18400**		**17300**		**2480**		**5950**		**7030**		**15200**		**12800**		**3460**		**14600**	
Manganese, Total	1600	2000	2000	**381**		**298**		**252**		**293**		**225**		**260**		**254**		**127**		**355**	
Mercury, Total	0.18	0.81	0.73	**0.065** J		**0.051** J		**0.247**		**0.116**		**0.121**		**0.076**		0.077 U		0.082 U		**0.085** J	
Nickel, Total	30	310	130	**9.85** J		**12.7**		**9.54**		**18.4**		**11.7** J		**6.91** J		**8.86** J		**21.8**		**17.8**	
Potassium, Total				**569** J		**485** J		**688**		**1050**		**700** J		**348** J		2280 U		**980**		**1010** J	
Selenium, Total	3.9	180	4	9.45 U		**2.73** J		**0.516** J		**0.602** J		20.2 U		7.94 U		18.3 U		1.88 U		**2.76** J	
Silver, Total	2	180	8.3	2.36 U		2.25 U		0.484 U		0.542 U		5.04 U		1.98 U		4.57 U		0.47 U		2.36 U	
Sodium, Total				945 U		901 U		**246**		217 U		2020 U		794 U		1830 U		188 U		945 U	
Thallium, Total				9.45 U		9.01 U		1.94 U		2.17 U		20.2 U		7.94 U		18.3 U		1.88 U		9.45 U	
Vanadium, Total				**11.5**		**10.6**		**16.7**		**13.1**		**9.47** J		**8.64**		**10.5**		**14.2**		**10.8**	
Zinc, Total	109	10000	2480	**74.7**		**73**		**135**		**93.9**		**90.6**		**38.3**		**69.2**		**23.4**		**39.4**	

Table 2
Old Erie Commons - Remedial Investigation
Surface Soil Data Summary

LOCATION				SS-101		DUP-01		SS-102		SS-103		SS-104		SS-105		SS-106		SS-107		SS-108	
SAMPLING DATE				7/11/2025		7/11/2025		7/11/2025		7/11/2025		7/11/2025		7/30/2025		7/11/2025		7/11/2025		7/11/2025	
LAB SAMPLE ID				L2543652-01		L2543652-10		L2543652-02		L2543652-03		L2543652-04		L2547832-03		L2543652-05		L2543652-06		L2543652-07	
SAMPLE TYPE				SOIL		SOIL		SOIL		SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
SAMPLE DEPTH (in.)				0-2		0-2		0-2		0-2		0-2		0-2		0-2		0-2		0-2	
	Unrestricted Use SCO	**Restricted Residential Use SCO**	**Protection of Groundwater SCO**	**Results**	**Qual**	**Results**	**Qual**	**Results**	**Qual**	**Results**	**Qual**	**Results**	**Qual**	**Results**	**Qual**	**Results**	**Qual**	**Results**	**Qual**	**Results**	**Qual**
Perfluorinated Alkyl Acids by EPA 1633																					
11-Chloroeicosafluoro-3-Oxaundecane-1-Sulfonic Acid (11Cl-PF3OUdS)				0.798	U	0.8	U	- -		0.796	U	- -		- -		- -		0.797	U	0.8	U
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)				0.798	U	0.8	U	- -		0.796	U	- -		- -		- -		0.797	U	0.8	U
1H,1H,2H,2H-Perfluorohexanesulfonic Acid (4:2FTS)				0.798	U	0.8	U	- -		0.796	U	- -		- -		- -		0.797	U	0.8	U
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)				0.798	U	0.8	U	- -		0.796	U	- -		- -		- -		0.797	U	0.8	U
2H,2H,3H,3H-Perfluorooctanoic Acid (5:3FTCA)				4.99	U	5	U	- -		4.98	U	- -		- -		- -		4.98	U	5	U
3-Perfluoroheptyl Propanoic Acid (7:3FTCA)				4.99	U	5	U	- -		4.98	U	- -		- -		- -		4.98	U	5	U
3-Perfluoropropyl Propanoic Acid (3:3FTCA)				0.998	U	1	U	- -		0.996	U	- -		- -		- -		0.996	U	1	U
4,8-Dioxa-3h-Perfluorononanoic Acid (ADONA)				0.798	U	0.8	U	- -		0.796	U	- -		- -		- -		0.797	U	0.8	U
9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid (9Cl-PF3ONS)				0.798	U	0.8	U	- -		0.796	U	- -		- -		- -		0.797	U	0.8	U
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)				0.798	U	0.8	U	- -		0.796	U	- -		- -		- -		0.797	U	0.8	U
N-Ethyl Perfluorooctane Sulfonamide (NEtFOSA)				0.2	U	0.2	U	- -		0.199	U	- -		- -		- -		0.199	U	0.2	U
N-Ethyl Perfluorooctanesulfonamido Ethanol (NEtFOSE)				2	U	2	U	- -		1.99	U	- -		- -		- -		1.99	U	2	U
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)				0.2	U	0.2	U	- -		0.199	U	- -		- -		- -		0.199	U	0.2	U
N-Methyl Perfluorooctane Sulfonamide (NMeFOSA)				0.2	U	0.2	U	- -		0.199	U	- -		- -		- -		0.199	U	0.2	U
N-Methyl Perfluorooctanesulfonamido Ethanol (NMeFOSE)				2	U	2	U	- -		1.99	U	- -		- -		- -		1.99	U	2	U
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)				0.2	U	0.2	U	- -		0.199	U	- -		- -		- -		0.199	U	0.2	U
Nonafluoro-3,6-Dioxaheptanoic Acid (NFDHA)				0.399	U	0.4	U	- -		0.398	U	- -		- -		- -		0.398	U	0.4	U
Perfluoro(2-Ethoxyethane)Sulfonic Acid (PFEESA)				0.399	U	0.4	U	- -		0.398	U	- -		- -		- -		0.398	U	0.4	U
Perfluoro-3-Methoxypropanoic Acid (PFMPA)				0.399	U	0.4	U	- -		0.398	U	- -		- -		- -		0.398	U	0.4	U
Perfluoro-4-Methoxybutanoic Acid (PFMBA)				0.399	U	0.4	U	- -		0.398	U	- -		- -		- -		0.398	U	0.4	U
Perfluorobutanesulfonic Acid (PFBS)				0.2	U	0.2	U	- -		0.199	U	- -		- -		- -		0.199	U	0.2	U
Perfluorobutanoic Acid (PFBA)				**0.082**	J	**0.088**	J	- -		**0.342**	J	- -		- -		- -		**0.129**	J	**0.17**	J
Perfluorodecanesulfonic Acid (PFDS)				0.2	U	0.2	U	- -		0.199	U	- -		- -		- -		0.199	U	0.2	U
Perfluorodecanoic Acid (PFDA)				**0.065**	J	**0.046**	J	- -		**0.454**		- -		- -		- -		0.199	U	**0.053**	J
Perfluorododecanesulfonic Acid (PFDoS)				0.2	U	0.2	U	- -		0.199	U	- -		- -		- -		0.199	U	0.2	U
Perfluorododecanoic Acid (PFDoA)				0.2	U	0.2	U	- -		**0.169**	J	- -		- -		- -		0.199	U	**0.034**	J
Perfluoroheptanesulfonic Acid (PFHpS)				0.2	U	0.2	U	- -		0.199	U	- -		- -		- -		0.199	U	0.2	U
Perfluoroheptanoic Acid (PFHpA)				**0.043**	J	**0.048**	J	- -		**0.212**		- -		- -		- -		**0.045**	J	**0.082**	J
Perfluorohexanesulfonic Acid (PFHxS)				0.2	U	0.2	U	- -		0.199	U	- -		- -		- -		0.199	U	**0.042**	J
Perfluorohexanoic Acid (PFHxA)				**0.03**	JF	0.2	U	- -		**0.112**	J	- -		- -		- -		0.199	U	**0.046**	J
Perfluorononanesulfonic Acid (PFNS)				0.2	U	0.2	U	- -		0.199	U	- -		- -		- -		0.199	U	0.2	U
Perfluorononanoic Acid (PFNA)				**0.054**	J	**0.066**	J	- -		**0.427**		- -		- -		- -		**0.052**	J	**0.152**	J
Perfluorooctanesulfonamide (PFOSA)				0.2	U	0.2	U	- -		0.199	U	- -		- -		- -		0.199	U	0.2	U
Perfluorooctanesulfonic Acid (PFOS)	0.88	44	1	**0.26**		**0.31**		- -		**1.14**		- -		- -		- -		**0.108**	J	**0.239**	
Perfluorooctanoic Acid (PFOA)	0.66	33	0.8	**0.052**	J	**0.045**	J	- -		**0.567**		- -		- -		- -		**0.096**	J	**0.112**	J
Perfluoropentanesulfonic Acid (PFPeS)				0.2	U	0.2	U	- -		0.199	U	- -		- -		- -		0.199	U	0.2	U
Perfluoropentanoic Acid (PFPeA)				0.399	U	0.4	U	- -		**0.121**	J	- -		- -		- -		0.398	U	**0.047**	J
Perfluorotetradecanoic Acid (PFTeDA)				0.2	U	0.2	U	- -		**0.049**	J	- -		- -		- -		0.199	U	0.2	U
Perfluorotridecanoic Acid (PFTrDA)				0.2	U	0.2	U	- -		**0.096**	JF	- -		- -		- -		0.199	U	0.2	U
Perfluoroundecanoic Acid (PFUnA)				**0.058**	J	**0.054**	J	- -		**0.288**		- -		- -		- -		0.199	U	**0.074**	J
Asbestos in Bulk																					
Asbestos Fibers				ND		- -		ND		ND		ND		- -		- -		- -		- -	

Notes:
- Analytical data compared to NYSDEC Part 375-6.
- Results and soil cleanup objectives (SCO) in parts per million (ppm), except for PFAS which is in parts per billion (ppb).
- Analytes detected at concentrations greater than laboratory detections limits are **bolded**.
- Highlighted color indicates the respective use SCO(s) exceeded. Use type SCOs are listed from left to right from most restrictive to least restrictive.
- Blank space indicates that a SCO does not exist.
- Duplicate sample shown to the right of the parent sample.
- "J" indicates estimated concentration.
- "U" indicates analyte not detected at concentration greater than laboratory detection limit.
- "F" indicates the ratio of quantifier ion response to qualifier ion response falls outside of the laboratory criteria. Results are considered to be an estimated maximum concentration.
- "I" indicates the lower value for the two columns has been reported due to obvious interference.
- "P" indicates the RPD between the results for the two columns exceeds the method-specified criteria.
- "ND" indicates that asbestos was not detected in the respective sample.
- "-" indicates that sample was not anlayzed for that parameter.

Table 2
Old Erie Commons - Remedial Investigation
Surface Soil Data Summary

LOCATION				SS-109		SS-110		SS-111		SS-112		SS-113		SS-114		SS-115		SS-116	
SAMPLING DATE				7/11/2025		7/11/2025		7/30/2025		7/30/2025		7/30/2025		7/30/2025		7/30/2025		7/30/2025	
LAB SAMPLE ID				L2543652-08		L2543652-09		L2547832-01		L2547832-02		L2547833-01		L2547833-02		L2547833-03		L2547833-04	
SAMPLE TYPE				SOIL		SOIL		SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
SAMPLE DEPTH (in.)				0-2		0-2		0-2		0-2		0-2		0-2		0-2		0-2	
	Unrestricted Use SCO	Restricted Residential Use SCO	Protection of Groundwater SCO	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual
Volatile Organics by EPA 5035																			
1,1,1-Trichloroethane	0.68	100	0.68	0.00093	U	0.00068	U	0.00057	U	0.00077	U	-	-	-	-	-	-	-	-
1,1,2,2-Tetrachloroethane				0.00093	U	0.00068	U	0.00057	U	0.00077	U	-	-	-	-	-	-	-	-
1,1,2-Trichloroethane				0.0019	U	0.0014	U	0.0011	U	0.0015	U	-	-	-	-	-	-	-	-
1,1-Dichloroethane	0.27	26	0.27	0.0019	U	0.0014	U	0.0011	U	0.0015	U	-	-	-	-	-	-	-	-
1,1-Dichloroethene	0.33	100	0.33	0.0019	U	0.0014	U	0.0011	U	0.0015	U	-	-	-	-	-	-	-	-
1,2,4-Trichlorobenzene				0.0037	U	0.0027	U	0.0023	U	0.0031	U	-	-	-	-	-	-	-	-
1,2,4-Trimethylbenzene	3.6	52	3.6	0.0037	U	0.0027	U	0.0023	U	0.0031	U	-	-	-	-	-	-	-	-
1,2-Dibromo-3-chloropropane				0.0056	U	0.0041	U	0.0034	U	0.0046	U	-	-	-	-	-	-	-	-
1,2-Dibromoethane				0.0019	U	0.0014	U	0.0011	U	0.0015	U	-	-	-	-	-	-	-	-
1,2-Dichlorobenzene	1.1	100	1.1	0.0037	U	0.0027	U	0.0023	U	0.0031	U	-	-	-	-	-	-	-	-
1,2-Dichloroethane	0.02	3.1	0.02	0.0019	U	0.0014	U	0.0011	U	0.0015	U	-	-	-	-	-	-	-	-
1,2-Dichloropropane				0.0019	U	0.0014	U	0.0011	U	0.0015	U	-	-	-	-	-	-	-	-
1,3,5-Trimethylbenzene	8.4	52	8.4	0.0037	U	0.0027	U	0.0023	U	0.0031	U	-	-	-	-	-	-	-	-
1,3-Dichlorobenzene	2.4	49	2.4	0.0037	U	0.0027	U	0.0023	U	0.0031	U	-	-	-	-	-	-	-	-
1,4-Dichlorobenzene	1.8	13	1.8	0.0037	U	0.0027	U	0.0023	U	0.0031	U	-	-	-	-	-	-	-	-
2-Butanone	0.12	100	0.12	0.019	U	0.014	U	0.011	U	0.015	U	-	-	-	-	-	-	-	-
2-Hexanone				0.019	U	0.014	U	0.011	U	0.015	U	-	-	-	-	-	-	-	-
4-Methyl-2-pentanone				0.019	U	0.014	U	0.011	U	0.015	U	-	-	-	-	-	-	-	-
Acetone	0.05	100	0.05	**0.013**	J	0.014	U	0.011	U	0.015	U	-	-	-	-	-	-	-	-
Benzene	0.06	4.8	0.06	0.00093	U	0.00068	U	0.00057	U	0.00077	U	-	-	-	-	-	-	-	-
Bromodichloromethane				0.00093	U	0.00068	U	0.00057	U	0.00077	U	-	-	-	-	-	-	-	-
Bromoform				0.0074	U	0.0055	U	0.0046	U	0.0061	U	-	-	-	-	-	-	-	-
Bromomethane				0.0037	U	0.0027	U	0.0023	U	0.0031	U	-	-	-	-	-	-	-	-
Carbon disulfide				0.019	U	0.014	U	0.011	U	0.015	U	-	-	-	-	-	-	-	-
Carbon tetrachloride	0.76	2.4	0.76	0.0019	U	0.0014	U	0.0011	U	0.0015	U	-	-	-	-	-	-	-	-
Chlorobenzene	1.1	100	1.1	0.00093	U	0.00068	U	0.00057	U	0.00077	U	-	-	-	-	-	-	-	-
Chloroethane				0.0037	U	0.0027	U	0.0023	U	0.0031	U	-	-	-	-	-	-	-	-
Chloroform	0.37	49	0.37	0.0028	U	0.002	U	0.0017	U	0.0023	U	-	-	-	-	-	-	-	-
Chloromethane				0.0074	U	0.0055	U	0.0046	U	0.0061	U	-	-	-	-	-	-	-	-
cis-1,2-Dichloroethene	0.25	100	0.25	0.0019	U	0.0014	U	0.0011	U	0.0015	U	-	-	-	-	-	-	-	-
cis-1,3-Dichloropropene				0.00093	U	0.00068	U	0.00057	U	0.00077	U	-	-	-	-	-	-	-	-
Cyclohexane				0.019	U	0.014	U	0.011	U	0.015	U	-	-	-	-	-	-	-	-
Dibromochloromethane				0.0019	U	0.0014	U	0.0011	U	0.0015	U	-	-	-	-	-	-	-	-
Dichlorodifluoromethane				0.019	U	0.014	U	0.011	U	0.015	U	-	-	-	-	-	-	-	-
Ethylbenzene	1	41	1	0.0019	U	0.0014	U	0.0011	U	0.0015	U	-	-	-	-	-	-	-	-
Freon-113				0.0074	U	0.0055	U	0.0046	U	0.0061	U	-	-	-	-	-	-	-	-
Isopropylbenzene				0.0019	U	0.0014	U	0.0011	U	0.0015	U	-	-	-	-	-	-	-	-
Methyl Acetate				0.0074	U	0.0055	U	0.0046	U	0.0061	U	-	-	-	-	-	-	-	-
Methyl cyclohexane				0.0074	U	0.0055	U	0.0046	U	0.0061	U	-	-	-	-	-	-	-	-
Methyl tert butyl ether	0.93	100	0.93	0.0037	U	0.0027	U	0.0023	U	0.0031	U	-	-	-	-	-	-	-	-
Methylene chloride	0.05	100	0.05	0.0093	U	0.0068	U	0.0057	U	0.0077	U	-	-	-	-	-	-	-	-
n-Butylbenzene	12	100	12	0.0019	U	0.0014	U	0.0011	U	0.0015	U	-	-	-	-	-	-	-	-
n-Propylbenzene	3.9	100	3.9	0.0019	U	0.0014	U	0.0011	U	0.0015	U	-	-	-	-	-	-	-	-
Naphthalene	12	100	12	0.0074	U	0.0055	U	0.0046	U	0.0061	U	-	-	-	-	-	-	-	-
o-Xylene				0.0019	U	0.0014	U	0.0011	U	0.0015	U	-	-	-	-	-	-	-	-
p-Isopropyltoluene				0.0019	U	0.0014	U	0.0011	U	0.0015	U	-	-	-	-	-	-	-	-
p/m-Xylene				0.0037	U	0.0027	U	0.0023	U	0.0031	U	-	-	-	-	-	-	-	-
sec-Butylbenzene	11	100	11	0.0019	U	0.0014	U	0.0011	U	0.0015	U	-	-	-	-	-	-	-	-
Styrene				0.0019	U	**0.00078**	J	0.0011	U	0.0015	U	-	-	-	-	-	-	-	-
tert-Butylbenzene	5.9	100	5.9	0.0037	U	0.0027	U	0.0023	U	0.0031	U	-	-	-	-	-	-	-	-
Tetrachloroethene	1.3	19	1.3	0.00093	U	0.00068	U	0.00057	U	0.00077	U	-	-	-	-	-	-	-	-
Toluene	0.7	100	0.7	0.0019	U	0.0014	U	0.0011	U	0.0015	U	-	-	-	-	-	-	-	-
trans-1,2-Dichloroethene	0.19	100	0.19	0.0028	U	0.002	U	0.0017	U	0.0023	U	-	-	-	-	-	-	-	-
trans-1,3-Dichloropropene				0.0019	U	0.0014	U	0.0011	U	0.0015	U	-	-	-	-	-	-	-	-
Trichloroethene	0.47	21	0.47	0.00093	U	0.00068	U	0.00057	U	0.00077	U	-	-	-	-	-	-	-	-
Trichlorofluoromethane				0.0074	U	0.0055	U	0.0046	U	0.0061	U	-	-	-	-	-	-	-	-
Vinyl chloride	0.02	0.9	0.02	0.0019	U	0.0014	U	0.0011	U	0.0015	U	-	-	-	-	-	-	-	-

Table 2
Old Erie Commons - Remedial Investigation
Surface Soil Data Summary

LOCATION				SS-109		SS-110		SS-111		SS-112		SS-113		SS-114		SS-115		SS-116	
SAMPLING DATE				7/11/2025		7/11/2025		7/30/2025		7/30/2025		7/30/2025		7/30/2025		7/30/2025		7/30/2025	
LAB SAMPLE ID				L2543652-08		L2543652-09		L2547832-01		L2547832-02		L2547833-01		L2547833-02		L2547833-03		L2547833-04	
SAMPLE TYPE				SOIL		SOIL		SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
SAMPLE DEPTH (in.)				0-2		0-2		0-2		0-2		0-2		0-2		0-2		0-2	
	Unrestricted Use SCO	Restricted Residential Use SCO	Protection of Groundwater SCO	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual
Semivolatile Organics by GC/MS																			
1,2,4,5-Tetrachlorobenzene				0.24	U	0.22	U	0.17	U	0.18	U	- -		- -		- -		-	-
1,4-Dioxane	0.1	13	0.1	0.036	U	- -		0.026	U	0.028	U	- -		- -		- -		-	-
2,3,4,6-Tetrachlorophenol				0.24	U	0.22	U	0.17	U	0.18	U	- -		- -		- -		-	-
2,4,5-Trichlorophenol				0.24	U	0.22	U	0.17	U	0.18	U	- -		- -		- -		-	-
2,4,6-Trichlorophenol				0.14	U	0.13	U	0.1	U	0.11	U	- -		- -		- -		-	-
2,4-Dichlorophenol				0.22	U	0.2	U	0.16	U	0.17	U	- -		- -		- -		-	-
2,4-Dimethylphenol				0.24	U	0.22	U	0.17	U	0.18	U	- -		- -		- -		-	-
2,4-Dinitrophenol				1.2	U	1.1	U	0.83	U	0.89	U	- -		- -		- -		-	-
2,4-Dinitrotoluene				0.24	U	0.22	U	0.17	U	0.18	U	- -		- -		- -		-	-
2,6-Dinitrotoluene				0.24	U	0.22	U	0.17	U	0.18	U	- -		- -		- -		-	-
2-Chloronaphthalene				0.24	U	0.22	U	0.17	U	0.18	U	- -		- -		- -		-	-
2-Chlorophenol				0.24	U	0.22	U	0.17	U	0.18	U	- -		- -		- -		-	-
2-Methylnaphthalene				0.29	U	**0.059**	J	**0.1**	J	**0.12**	J	- -		- -		- -		-	-
2-Methylphenol	0.33	100	0.33	0.24	U	0.22	U	0.17	U	0.18	U	- -		- -		- -		-	-
2-Nitroaniline				0.24	U	0.22	U	0.17	U	0.18	U	- -		- -		- -		-	-
2-Nitrophenol				0.52	U	0.48	U	0.37	U	0.4	U	- -		- -		- -		-	-
3,3'-Dichlorobenzidine				0.24	U	0.22	U	0.17	U	0.18	U	- -		- -		- -		-	-
3-Methylphenol/4-Methylphenol	0.33	100	0.33	0.35	U	0.32	U	**0.032**	J	0.27	U	- -		- -		- -		-	-
3-Nitroaniline				0.24	U	0.22	U	0.17	U	0.18	U	- -		- -		- -		-	-
4,6-Dinitro-o-cresol				0.63	U	0.58	U	0.45	U	0.48	U	- -		- -		- -		-	-
4-Bromophenyl phenyl ether				0.24	U	0.22	U	0.17	U	0.18	U	- -		- -		- -		-	-
4-Chloroaniline				0.24	U	0.22	U	0.17	U	0.18	U	- -		- -		- -		-	-
4-Chlorophenyl phenyl ether				0.24	U	0.22	U	0.17	U	0.18	U	- -		- -		- -		-	-
4-Nitroaniline				0.24	U	0.22	U	0.17	U	0.18	U	- -		- -		- -		-	-
4-Nitrophenol				0.34	U	0.31	U	0.24	U	0.26	U	- -		- -		- -		-	-
Acenaphthene	20	100	98	0.19	U	**0.091**	J	**0.3**		**0.17**		- -		- -		- -		-	-
Acenaphthylene	100	100	107	**0.064**	J	**0.1**	J	**0.24**		**0.23**		- -		- -		- -		-	-
Acetophenone				0.24	U	0.22	U	0.17	U	0.18	U	- -		- -		- -		-	-
Anthracene	100	100	1000	**0.068**	J	**0.46**		**0.72**		**0.55**		- -		- -		- -		-	-
Atrazine				0.19	U	0.18	U	0.14	U	0.15	U	- -		- -		- -		-	-
Benzaldehyde				0.32	U	0.29	U	0.23	U	**0.085**	J	- -		- -		- -		-	-
Benzo(a)anthracene	1	1	1	**0.3**		**1.4**		**1.3**		**1.3**		- -		- -		- -		-	-
Benzo(a)pyrene	1	1	22	**0.34**		**1.6**		**1.2**		**1.1**		- -		- -		- -		-	-
Benzo(b)fluoranthene	1	1	1.7	**0.49**		**1.8**		**1.5**		**1.6**		- -		- -		- -		-	-
Benzo(ghi)perylene	100	100	1000	**0.22**		**0.96**		**0.69**		**0.77**		- -		- -		- -		-	-
Benzo(k)fluoranthene	0.8	3.9	1.7	**0.15**		**0.63**		**0.49**		**0.44**		- -		- -		- -		-	-
Biphenyl				0.55	U	0.5	U	**0.029**	J	**0.026**	J	- -		- -		- -		-	-
Bis(2-chloroethoxy)methane				0.26	U	0.24	U	0.19	U	0.2	U	- -		- -		- -		-	-
Bis(2-chloroethyl)ether				0.22	U	0.2	U	0.16	U	0.17	U	- -		- -		- -		-	-
Bis(2-chloroisopropyl)ether				0.29	U	0.26	U	0.21	U	0.22	U	- -		- -		- -		-	-
Bis(2-ethylhexyl)phthalate				0.24	U	0.22	U	0.17	U	0.075	J	- -		- -		- -		-	-
Butyl benzyl phthalate				0.24	U	**0.1**	J	0.17	U	0.18	U	- -		- -		- -		-	-
Caprolactam				0.24	U	0.22	U	0.17	U	0.18	U	- -		- -		- -		-	-
Carbazole				**0.093**	J	**0.11**	J	**0.3**		**0.2**		- -		- -		- -		-	-
Chrysene	1	3.9	1	**0.37**		**1.3**		**1.2**		**1.2**		- -		- -		- -		-	-
Di-n-butylphthalate				0.24	U	0.22	U	0.17	U	0.18	U	- -		- -		- -		-	-
Di-n-octylphthalate				0.24	U	0.22	U	0.17	U	0.18	U	- -		- -		- -		-	-
Dibenzo(a,h)anthracene	0.33	0.33	1000	**0.05**	J	**0.23**		**0.18**		**0.21**		- -		- -		- -		-	-
Dibenzofuran	7	59	210	**0.031**	J	**0.076**	J	**0.2**		**0.14**	J	- -		- -		- -		-	-
Diethyl phthalate				0.24	U	0.22	U	0.17	U	0.18	U	- -		- -		- -		-	-
Dimethyl phthalate				0.24	U	0.22	U	0.17	U	0.18	U	- -		- -		- -		-	-
Fluoranthene	100	100	1000	**0.88**		**2.6**		**2.5**		**2.3**		- -		- -		- -		-	-
Fluorene	30	100	386	**0.035**	J	**0.14**	J	**0.35**		**0.2**		- -		- -		- -		-	-
Hexachlorobenzene	0.33	1.2	3.2	0.14	U	0.13	U	0.1	U	0.11	U	- -		- -		- -		-	-
Hexachlorobutadiene				0.24	U	0.22	U	0.17	U	0.18	U	- -		- -		- -		-	-
Hexachlorocyclopentadiene				0.7	U	0.63	U	0.49	U	0.53	U	- -		- -		- -		-	-
Hexachloroethane				0.19	U	0.18	U	0.14	U	0.15	U	- -		- -		- -		-	-
Indeno(1,2,3-cd)pyrene	0.5	0.5	8.2	**0.24**		**1**		**0.68**		**0.76**		- -		- -		- -		-	-
Isophorone				0.22	U	0.2	U	0.16	U	0.17	U	- -		- -		- -		-	-
n-Nitrosodi-n-propylamine				0.24	U	0.22	U	0.17	U	0.18	U	- -		- -		- -		-	-
Naphthalene	12	100	12	**0.04**	J	**0.11**	J	**0.28**		**0.21**		- -		- -		- -		-	-
NDPA/DPA				0.19	U	0.18	U	0.14	U	0.15	U	- -		- -		- -		-	-
Nitrobenzene				0.22	U	0.2	U	0.16	U	0.17	U	- -		- -		- -		-	-
p-Chloro-m-cresol				0.24	U	0.22	U	0.17	U	0.18	U	- -		- -		- -		-	-

Table 2
Old Erie Commons - Remedial Investigation
Surface Soil Data Summary

LOCATION				SS-109		SS-110		SS-111		SS-112		SS-113		SS-114		SS-115		SS-116	
SAMPLING DATE				7/11/2025		7/11/2025		7/30/2025		7/30/2025		7/30/2025		7/30/2025		7/30/2025		7/30/2025	
LAB SAMPLE ID				L2543652-08		L2543652-09		L2547832-01		L2547832-02		L2547833-01		L2547833-02		L2547833-03		L2547833-04	
SAMPLE TYPE				SOIL		SOIL		SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
SAMPLE DEPTH (in.)				0-2		0-2		0-2		0-2		0-2		0-2		0-2		0-2	
	Unrestricted Use SCO	**Restricted Residential Use SCO**	**Protection of Groundwater SCO**	**Results**	**Qual**	**Results**	**Qual**	**Results**	**Qual**	**Results**	**Qual**	**Results**	**Qual**	**Results**	**Qual**	**Results**	**Qual**	**Results**	**Qual**
Pentachlorophenol	0.8	6.7	0.8	0.19	U	0.18	U	0.14	U	0.15	U	- -		- -		- -		-	-
Phenanthrene	100	100	1000	**0.64**		**1.4**		**2.3**		**1.7**		- -		- -		- -		-	-
Phenol	0.33	100	0.33	0.24	U	0.22	U	0.17	U	0.18	U	- -		- -		- -		-	-
Pyrene	100	100	1000	**0.71**		**2.1**		**1.9**		**1.9**		- -		- -		- -		-	-
Polychlorinated Biphenyls by GC																			
Aroclor 1016	0.1	1	3.2	0.0684	U	- -		-	-	- -		- -		- -		- -		-	-
Aroclor 1221	0.1	1	3.2	0.0684	U	- -		-	-	- -		- -		- -		- -		-	-
Aroclor 1232	0.1	1	3.2	0.0684	U	- -		-	-	- -		- -		- -		- -		-	-
Aroclor 1242	0.1	1	3.2	0.0684	U	- -		-	-	- -		- -		- -		- -		-	-
Aroclor 1248	0.1	1	3.2	0.0684	U	- -		-	-	- -		- -		- -		- -		-	-
Aroclor 1254	0.1	1	3.2	0.0684	U	- -		-	-	- -		- -		- -		- -		-	-
Aroclor 1260	0.1	1	3.2	0.0684	U	- -		-	-	- -		- -		- -		- -		-	-
Aroclor 1262	0.1	1	3.2	0.0684	U	- -		-	-	- -		- -		- -		- -		-	-
Aroclor 1268	0.1	1	3.2	0.0684	U	- -		-	-	- -		- -		- -		- -		-	-
PCBs, Total	0.1	1	3.2	0.0684	U	- -		-	-	- -		- -		- -		- -		-	-
Organochlorine Pesticides by GC																			
4,4'-DDD	0.0033	13	14	0.00227	U	- -		-	-	- -		- -		- -		- -		-	-
4,4'-DDE	0.0033	8.9	17	0.00227	U	- -		-	-	- -		- -		- -		- -		-	-
4,4'-DDT	0.0033	7.9	136	0.00199	J	- -		-	-	- -		- -		- -		- -		-	-
Aldrin	0.005	0.097	0.19	0.00227	U	- -		-	-	- -		- -		- -		- -		-	-
Alpha-BHC	0.02	0.48	0.02	0.000944	U	- -		-	-	- -		- -		- -		- -		-	-
Beta-BHC	0.036	0.36	0.09	0.00227	U	- -		-	-	- -		- -		- -		- -		-	-
Chlordane				0.0189	U	- -		-	-	- -		- -		- -		- -		-	-
cis-Chlordane	0.094	4.2	2.9	0.00283	U	- -		-	-	- -		- -		- -		- -		-	-
Delta-BHC	0.04	100	0.25	0.00227	U	- -		-	-	- -		- -		- -		- -		-	-
Dieldrin	0.005	0.2	0.1	0.00142	U	- -		-	-	- -		- -		- -		- -		-	-
Endosulfan I	2.4	24	102	0.00227	U	- -		-	-	- -		- -		- -		- -		-	-
Endosulfan II	2.4	24	102	0.00227	U	- -		-	-	- -		- -		- -		- -		-	-
Endosulfan sulfate	2.4	24	1000	0.000944	U	- -		-	-	- -		- -		- -		- -		-	-
Endrin	0.014	11	0.06	0.000944	U	- -		-	-	- -		- -		- -		- -		-	-
Endrin aldehyde				0.00283	U	- -		-	-	- -		- -		- -		- -		-	-
Endrin ketone				0.00227	U	- -		-	-	- -		- -		- -		- -		-	-
Heptachlor	0.042	2.1	0.38	0.00113	U	- -		-	-	- -		- -		- -		- -		-	-
Heptachlor epoxide				0.00425	U	- -		-	-	- -		- -		- -		- -		-	-
Lindane	0.1	1.3	0.1	0.000944	U	- -		-	-	- -		- -		- -		- -		-	-
Methoxychlor				0.00425	U	- -		-	-	- -		- -		- -		- -		-	-
Toxaphene				0.0425	U	- -		-	-	- -		- -		- -		- -		-	-
trans-Chlordane				0.00283	U	- -		-	-	- -		- -		- -		- -		-	-
Chlorinated Herbicides by GC																			
2,4,5-T				0.242	U	- -		-	-	- -		- -		- -		- -		-	-
2,4,5-TP (Silvex)	3.8	100	3.8	0.242	U	- -		-	-	- -		- -		- -		- -		-	-
2,4-D				0.242	U	- -		-	-	- -		- -		- -		- -		-	-
Total Metals																			
Aluminum, Total				**6690**		**4600**		**1240**		**5230**		- -		- -		- -		-	-
Antimony, Total				5.92	U	5.3	U	41.1	U	4.22	U	- -		- -		- -		-	-
Arsenic, Total	13	16	16	**7.85**		**4.91**		8.23	U	**6.49**		- -		- -		- -		-	-
Barium, Total	350	400	820	**103**		**67.5**		**17.5**		**85.8**		- -		- -		- -		-	-
Beryllium, Total	7.2	72	47	**0.441**	J	**0.265**	J	4.11	U	**0.34**	J	- -		- -		- -		-	-
Cadmium, Total	2.5	4.3	7.5	**0.482**	J	1.06	U	8.23	U	**0.245**	J	- -		- -		- -		-	-
Calcium, Total				**14200**		**23400**		**270000**		**40800**		- -		- -		- -		-	-
Chromium, Total				**14.3**		**9.21**		8.23	U	**8.5**		- -		- -		- -		-	-
Cobalt, Total				**6.47**		**5.09**		16.4	U	**7.89**		- -		- -		- -		-	-
Copper, Total	50	270	1720	**72**		**14.4**		**7.7**	J	**89.8**		- -		- -		- -		-	-
Cyanide, Total	27	27	40	1.4	U	**0.31**	J	1	U	1.1	U	- -		- -		- -		-	-
Iron, Total				**17200**		**10300**		**3210**		**11400**		- -		- -		- -		-	-
Lead, Total	63	400	450	**190**		**33.8**		**18.6**	J	**92.5**		**81.9**		**33.1**		**63.7**		**212**	
Magnesium, Total				**5700**		**9290**		**6600**		**11900**		- -		- -		- -		-	-
Manganese, Total	1600	2000	2000	**396**		**311**		**137**		**302**		- -		- -		- -		-	-
Mercury, Total	0.18	0.81	0.73	**1.15**		**0.11**		**0.147**		**0.106**		- -		- -		- -		-	-
Nickel, Total	30	310	130	**15.9**		**15.3**		20.6	U	**14.1**		- -		- -		- -		-	-
Potassium, Total				**1100**		**941**		2060	U	**572**		- -		- -		- -		-	-
Selenium, Total	3.9	180	4	**0.896**	J	2.12	U	16.4	U	1.69	U	- -		- -		- -		-	-
Silver, Total	2	180	8.3	0.592	U	**0.809**		4.11	U	0.422	U	- -		- -		- -		-	-
Sodium, Total				237	U	212	U	1640	U	**176**		- -		- -		- -		-	-
Thallium, Total				2.37	U	2.12	U	16.4	U	1.69	U	- -		- -		- -		-	-
Vanadium, Total				**16.3**		**10.2**		**4**	J	**11.9**		- -		- -		- -		-	-
Zinc, Total	109	10000	2480	**231**		**46.8**		**19**	J	**77**		- -		- -		- -		-	-

Table 2
Old Erie Commons - Remedial Investigation
Surface Soil Data Summary

LOCATION				SS-109		SS-110		SS-111		SS-112		SS-113		SS-114		SS-115		SS-116	
SAMPLING DATE				7/11/2025		7/11/2025		7/30/2025		7/30/2025		7/30/2025		7/30/2025		7/30/2025		7/30/2025	
LAB SAMPLE ID				L2543652-08		L2543652-09		L2547832-01		L2547832-02		L2547833-01		L2547833-02		L2547833-03		L2547833-04	
SAMPLE TYPE				SOIL		SOIL		SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
SAMPLE DEPTH (in.)				0-2		0-2		0-2		0-2		0-2		0-2		0-2		0-2	
	Unrestricted Use SCO	**Restricted Residential Use SCO**	**Protection of Groundwater SCO**	**Results**	**Qual**	**Results**	**Qual**	**Results**	**Qual**	**Results**	**Qual**	**Results**	**Qual**	**Results**	**Qual**	**Results**	**Qual**	**Results**	**Qual**
Perfluorinated Alkyl Acids by EPA 1633																			
11-Chloroeicosafluoro-3-Oxaundecane-1-Sulfonic Acid (11Cl-PF3OUdS)				0.798	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)				0.798	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1H,1H,2H,2H-Perfluorohexanesulfonic Acid (4:2FTS)				0.798	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)				0.798	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2H,2H,3H,3H-Perfluorooctanoic Acid (5:3FTCA)				4.98	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3-Perfluoroheptyl Propanoic Acid (7:3FTCA)				4.98	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3-Perfluoropropyl Propanoic Acid (3:3FTCA)				0.997	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4,8-Dioxa-3h-Perfluorononanoic Acid (ADONA)				0.798	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-
9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid (9Cl-PF3ONS)				0.798	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)				0.798	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-
N-Ethyl Perfluorooctane Sulfonamide (NEtFOSA)				0.199	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-
N-Ethyl Perfluorooctanesulfonamido Ethanol (NEtFOSE)				1.99	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)				0.199	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-
N-Methyl Perfluorooctane Sulfonamide (NMeFOSA)				0.199	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-
N-Methyl Perfluorooctanesulfonamido Ethanol (NMeFOSE)				1.99	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)				0.199	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nonafluoro-3,6-Dioxaheptanoic Acid (NFDHA)				0.399	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Perfluoro(2-Ethoxyethane)Sulfonic Acid (PFEESA)				0.399	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Perfluoro-3-Methoxypropanoic Acid (PFMPA)				0.399	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Perfluoro-4-Methoxybutanoic Acid (PFMBA)				0.399	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Perfluorobutanesulfonic Acid (PFBS)				**0.057**	J	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Perfluorobutanoic Acid (PFBA)				**0.56**	J	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Perfluorodecanesulfonic Acid (PFDS)				0.199	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Perfluorodecanoic Acid (PFDA)				**0.144**	J	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Perfluorododecanesulfonic Acid (PFDoS)				0.199	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Perfluorododecanoic Acid (PFDoA)				**0.049**	J	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Perfluoroheptanesulfonic Acid (PFHpS)				0.199	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Perfluoroheptanoic Acid (PFHpA)				**0.283**		-	-	-	-	-	-	-	-	-	-	-	-	-	-
Perfluorohexanesulfonic Acid (PFHxS)				**0.056**	JF	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Perfluorohexanoic Acid (PFHxA)				**0.196**	J	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Perfluorononanesulfonic Acid (PFNS)				0.199	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Perfluorononanoic Acid (PFNA)				**0.436**		-	-	-	-	-	-	-	-	-	-	-	-	-	-
Perfluorooctanesulfonamide (PFOSA)				0.199	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Perfluorooctanesulfonic Acid (PFOS)	0.88	44	1	**1.53**		-	-	-	-	-	-	-	-	-	-	-	-	-	-
Perfluorooctanoic Acid (PFOA)	0.66	33	0.8	**0.93**		-	-	-	-	-	-	-	-	-	-	-	-	-	-
Perfluoropentanesulfonic Acid (PFPeS)				0.199	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Perfluoropentanoic Acid (PFPeA)				**0.19**	J	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Perfluorotetradecanoic Acid (PFTeDA)				0.199	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Perfluorotridecanoic Acid (PFTrDA)				**0.053**	JF	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Perfluoroundecanoic Acid (PFUnA)				**0.182**	J	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Asbestos in Bulk																			
Asbestos Fibers				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Notes:
- Analytical data compared to NYSDEC Part 375-6.
- Results and soil cleanup objectives (SCO) in parts per million (ppm), except for PFAS which is in parts per billion (ppb).
- Analytes detected at concentrations greater than laboratory detections limits are **bolded**.
- Highlighted color indicates the respective use SCO(s) exceeded. Use type SCOs are listed from left to right from most restrictive to least restrictive.
- Blank space indicates that a SCO does not exist.
- Duplicate sample shown to the right of the parent sample.
- "J" indicates estimated concentration.
- "U" indicates analyte not detected at concentration greater than laboratory detection limit.
- "F" indicates the ratio of quantifier ion response to qualifier ion response falls outside of the laboratory criteria. Results are considered to be an estimated maximum concentration.
- "I" indicates the lower value for the two columns has been reported due to obvious interference.
- "P" indicates the RPD between the results for the two columns exceeds the method-specified criteria.
- "ND" indicates that asbestos was not detected in the respective sample.
- "-" indicates that sample was not anlayzed for that parameter.

Table 3
Old Erie Commons - Remedial Investigation
Sub-Surface Soil Data Summary

LOCATION				TP-101 FILL		TP-101 NATIVE		TP-102 FILL		TP-102 NATIVE		TP-103 FILL		TP-103 NATIVE		TP-104 FILL		TP-104 NATIVE		TP-105 FILL		DUP-02	
SAMPLING DATE				7/29/2025		7/29/2025		7/28/2025		7/28/2025		7/28/2025		7/28/2025		7/28/2025		7/28/2025		7/29/2025		7/29/2025	
LAB SAMPLE ID				L2547432-01		L2547432-02		L2547174-01		L2547174-02		L2547174-03		L2547174-04		L2547174-05		L2547174-06		L2547432-15		L2547432-17	
SAMPLE TYPE				SOIL		SOIL		SOIL		SOIL		SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
SAMPLE DEPTH (ft.)				1-1.5		2.5-3		1.5-2		3-3.5		3-4		6-7		2-3		6-6.5		2-3		2-3	
	Unrestricted Use SCO	Restricted Residential Use SCO	Protection of Groundwater SCO	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual
Volatile Organics by EPA 5035																							
1,1,1-Trichloroethane	0.68	100	0.68	0.0006	U	0.00053	U	- -		- -		- -		- -		- -		- -		0.00085	U	0.00083	U
1,1,2,2-Tetrachloroethane				0.0006	U	0.00053	U	- -		- -		- -		- -		- -		- -		0.00085	U	0.00083	U
1,1,2-Trichloroethane				0.0012	U	0.001	U	- -		- -		- -		- -		- -		- -		0.0017	U	0.0016	U
1,1-Dichloroethane	0.27	26	0.27	0.0012	U	0.001	U	- -		- -		- -		- -		- -		- -		0.0017	U	0.0016	U
1,1-Dichloroethene	0.33	100	0.33	0.0012	U	0.001	U	- -		- -		- -		- -		- -		- -		0.0017	U	0.0016	U
1,2,4-Trichlorobenzene				0.0024	U	0.0021	U	- -		- -		- -		- -		- -		- -		0.0034	U	0.0033	U
1,2,4-Trimethylbenzene	3.6	52	3.6	0.0024	U	0.0021	U	- -		- -		- -		- -		- -		- -		0.0034	U	0.0033	U
1,2-Dibromo-3-chloropropane				0.0036	U	0.0032	U	- -		- -		- -		- -		- -		- -		0.0051	U	0.005	U
1,2-Dibromoethane				0.0012	U	0.001	U	- -		- -		- -		- -		- -		- -		0.0017	U	0.0016	U
1,2-Dichlorobenzene	1.1	100	1.1	0.0024	U	0.0021	U	- -		- -		- -		- -		- -		- -		0.0034	U	0.0033	U
1,2-Dichloroethane	0.02	3.1	0.02	0.0012	U	0.001	U	- -		- -		- -		- -		- -		- -		0.0017	U	0.0016	U
1,2-Dichloropropane				0.0012	U	0.001	U	- -		- -		- -		- -		- -		- -		0.0017	U	0.0016	U
1,3,5-Trimethylbenzene	8.4	52	8.4	0.0024	U	0.0021	U	- -		- -		- -		- -		- -		- -		0.0034	U	0.0033	U
1,3-Dichlorobenzene	2.4	49	2.4	0.0024	U	0.0021	U	- -		- -		- -		- -		- -		- -		0.0034	U	0.0033	U
1,4-Dichlorobenzene	1.8	13	1.8	0.0024	U	0.0021	U	- -		- -		- -		- -		- -		- -		0.0034	U	0.0033	U
2-Butanone	0.12	100	0.12	0.012	U	0.01	U	- -		- -		- -		- -		- -		- -		0.017	U	0.016	U
2-Hexanone				0.012	U	0.01	U	- -		- -		- -		- -		- -		- -		0.017	U	0.016	U
4-Methyl-2-pentanone				0.012	U	0.01	U	- -		- -		- -		- -		- -		- -		0.017	U	0.016	U
Acetone	0.05	100	0.05	0.012	U	0.01	U	- -		- -		- -		- -		- -		- -		0.017	U	0.016	U
Benzene	0.06	4.8	0.06	0.0006	U	0.00053	U	- -		- -		- -		- -		- -		- -		0.00085	U	0.00083	U
Bromodichloromethane				0.0006	U	0.00053	U	- -		- -		- -		- -		- -		- -		0.00085	U	0.00083	U
Bromoform				0.0048	U	0.0042	U	- -		- -		- -		- -		- -		- -		0.0068	U	0.0066	U
Bromomethane				0.0024	U	0.0021	U	- -		- -		- -		- -		- -		- -		0.0034	U	0.0033	U
Carbon disulfide				0.012	U	0.01	U	- -		- -		- -		- -		- -		- -		0.017	U	0.016	U
Carbon tetrachloride	0.76	2.4	0.76	0.0012	U	0.001	U	- -		- -		- -		- -		- -		- -		0.0017	U	0.0016	U
Chlorobenzene	1.1	100	1.1	0.0006	U	0.00053	U	- -		- -		- -		- -		- -		- -		0.00085	U	0.00083	U
Chloroethane				0.0024	U	0.0021	U	- -		- -		- -		- -		- -		- -		0.0034	U	0.0033	U
Chloroform	0.37	49	0.37	0.0018	U	0.0016	U	- -		- -		- -		- -		- -		- -		0.0025	U	0.0025	U
Chloromethane				0.0048	U	0.0042	U	- -		- -		- -		- -		- -		- -		0.0068	U	0.0066	U
cis-1,2-Dichloroethene	0.25	100	0.25	0.0012	U	0.001	U	- -		- -		- -		- -		- -		- -		0.0017	U	0.0016	U
cis-1,3-Dichloropropene				0.0006	U	0.00053	U	- -		- -		- -		- -		- -		- -		0.00085	U	0.00083	U
Cyclohexane				0.012	U	0.01	U	- -		- -		- -		- -		- -		- -		0.017	U	0.016	U
Dibromochloromethane				0.0012	U	0.001	U	- -		- -		- -		- -		- -		- -		0.0017	U	0.0016	U
Dichlorodifluoromethane				0.012	U	0.01	U	- -		- -		- -		- -		- -		- -		0.017	U	0.016	U
Ethylbenzene	1	41	1	0.0012	U	0.001	U	- -		- -		- -		- -		- -		- -		0.0017	U	0.0016	U
Freon-113				0.0048	U	0.0042	U	- -		- -		- -		- -		- -		- -		0.0068	U	0.0066	U
Isopropylbenzene				0.0012	U	0.001	U	- -		- -		- -		- -		- -		- -		0.0017	U	0.0016	U
Methyl Acetate				0.0048	U	0.0042	U	- -		- -		- -		- -		- -		- -		0.0068	U	0.0066	U
Methyl cyclohexane				0.0048	U	0.0042	U	- -		- -		- -		- -		- -		- -		0.0068	U	0.0066	U
Methyl tert butyl ether	0.93	100	0.93	0.0024	U	0.0021	U	- -		- -		- -		- -		- -		- -		0.0034	U	0.0033	U
Methylene chloride	0.05	100	0.05	0.006	U	0.0053	U	- -		- -		- -		- -		- -		- -		0.0085	U	0.0083	U
n-Butylbenzene	12	100	12	0.0012	U	0.001	U	- -		- -		- -		- -		- -		- -		0.0017	U	0.0016	U
n-Propylbenzene	3.9	100	3.9	0.0012	U	0.001	U	- -		- -		- -		- -		- -		- -		0.0017	U	0.0016	U
Naphthalene	12	100	12	**0.0013**	J	0.0042	U	- -		- -		- -		- -		- -		- -		0.0068	U	0.0066	U
o-Xylene				0.0012	U	0.001	U	- -		- -		- -		- -		- -		- -		0.0017	U	0.0016	U
p-Isopropyltoluene				0.0012	U	0.001	U	- -		- -		- -		- -		- -		- -		0.0017	U	0.0016	U
p/m-Xylene				0.0024	U	0.0021	U	- -		- -		- -		- -		- -		- -		0.0034	U	0.0033	U
sec-Butylbenzene	11	100	11	0.0012	U	0.001	U	- -		- -		- -		- -		- -		- -		0.0017	U	0.0016	U
Styrene				0.0012	U	0.001	U	- -		- -		- -		- -		- -		- -		0.0017	U	0.0016	U
tert-Butylbenzene	5.9	100	5.9	0.0024	U	0.0021	U	- -		- -		- -		- -		- -		- -		0.0034	U	0.0033	U
Tetrachloroethene	1.3	19	1.3	0.0006	U	0.00053	U	- -		- -		- -		- -		- -		- -		0.00085	U	0.00083	U
Toluene	0.7	100	0.7	0.0012	U	0.001	U	- -		- -		- -		- -		- -		- -		0.0017	U	0.0016	U
trans-1,2-Dichloroethene	0.19	100	0.19	0.0018	U	0.0016	U	- -		- -		- -		- -		- -		- -		0.0025	U	0.0025	U
trans-1,3-Dichloropropene				0.0012	U	0.001	U	- -		- -		- -		- -		- -		- -		0.0017	U	0.0016	U
Trichloroethene	0.47	21	0.47	0.0006	U	0.00053	U	- -		- -		- -		- -		- -		- -		0.00085	U	0.00083	U
Trichlorofluoromethane				0.0048	U	0.0042	U	- -		- -		- -		- -		- -		- -		0.0068	U	0.0066	U
Vinyl chloride	0.02	0.9	0.02	0.0012	U	0.001	U	- -		- -		- -		- -		- -		- -		0.0017	U	0.0016	U

Table 3
Old Erie Commons - Remedial Investigation
Sub-Surface Soil Data Summary

LOCATION				TP-101 FILL		TP-101 NATIVE		TP-102 FILL		TP-102 NATIVE		TP-103 FILL		TP-103 NATIVE		TP-104 FILL		TP-104 NATIVE		TP-105 FILL		DUP-02	
SAMPLING DATE				7/29/2025		7/29/2025		7/28/2025		7/28/2025		7/28/2025		7/28/2025		7/28/2025		7/28/2025		7/29/2025		7/29/2025	
LAB SAMPLE ID				L2547432-01		L2547432-02		L2547174-01		L2547174-02		L2547174-03		L2547174-04		L2547174-05		L2547174-06		L2547432-15		L2547432-17	
SAMPLE TYPE				SOIL		SOIL		SOIL		SOIL		SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
SAMPLE DEPTH (ft.)				1-1.5		2.5-3		1.5-2		3-3.5		3-4		6-7		2-3		6-6.5		2-3		2-3	
	Unrestricted Use SCO	Restricted Residential Use SCO	Protection of Groundwater SCO	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual
Semivolatile Organics by GC/MS																							
1,2,4,5-Tetrachlorobenzene				0.18	U	0.21	U	0.19	U	0.21	U	0.22	U	0.2	U	1.1	U	0.2	U	0.22	U	0.22	U
1,4-Dioxane	0.1	13	0.1	0.027	U	0.031	U	0.028	U	0.032	U	0.034	U	0.029	U	0.16	U	0.029	U	0.033	U	0.033	U
2,3,4,6-Tetrachlorophenol				0.18	U	0.21	U	0.19	U	0.21	U	0.22	U	0.2	U	1.1	U	0.2	U	0.22	U	0.22	U
2,4,5-Trichlorophenol				0.18	U	0.21	U	0.19	U	0.21	U	0.22	U	0.2	U	1.1	U	0.2	U	0.22	U	0.22	U
2,4,6-Trichlorophenol				0.11	U	0.12	U	0.11	U	0.13	U	0.14	U	0.12	U	0.64	U	0.12	U	0.13	U	0.13	U
2,4-Dichlorophenol				0.16	U	0.19	U	0.17	U	0.19	U	0.2	U	0.18	U	0.96	U	0.18	U	0.2	U	0.2	U
2,4-Dimethylphenol				0.18	U	0.21	U	0.19	U	0.21	U	0.22	U	0.2	U	1.1	U	0.2	U	0.22	U	0.22	U
2,4-Dinitrophenol				0.87	U	1	U	0.9	U	1	U	1.1	U	0.94	U	5.1	U	0.94	U	1	U	1	U
2,4-Dinitrotoluene				0.18	U	0.21	U	0.19	U	0.21	U	0.22	U	0.2	U	1.1	U	0.2	U	0.22	U	0.22	U
2,6-Dinitrotoluene				0.18	U	0.21	U	0.19	U	0.21	U	0.22	U	0.2	U	1.1	U	0.2	U	0.22	U	0.22	U
2-Chloronaphthalene				0.18	U	0.21	U	0.19	U	0.21	U	0.22	U	0.2	U	1.1	U	0.2	U	**0.024**	J	0.22	U
2-Chlorophenol				0.18	U	0.21	U	0.19	U	0.21	U	0.22	U	0.2	U	1.1	U	0.2	U	0.22	U	0.22	U
2-Methylnaphthalene				**0.16**	J	0.25	U	0.22	U	0.26	U	**0.062**	J	0.24	U	**0.74**	J	0.23	U	**0.52**		**0.34**	
2-Methylphenol	0.33	100	0.33	0.18	U	0.21	U	0.19	U	0.21	U	0.22	U	0.2	U	1.1	U	0.2	U	0.22	U	0.22	U
2-Nitroaniline				0.18	U	0.21	U	0.19	U	0.21	U	0.22	U	0.2	U	1.1	U	0.2	U	0.22	U	0.22	U
2-Nitrophenol				0.39	U	0.45	U	0.4	U	0.46	U	0.49	U	0.42	U	2.3	U	0.42	U	0.47	U	0.48	U
3,3'-Dichlorobenzidine				0.18	U	0.21	U	0.19	U	0.21	U	0.22	U	0.2	U	1.1	U	0.2	U	0.22	U	0.22	U
3-Methylphenol/4-Methylphenol	0.33	100	0.33	**0.045**	J	0.3	U	0.27	U	0.31	U	0.32	U	0.28	U	1.5	U	0.28	U	**0.074**	J	**0.07**	J
3-Nitroaniline				0.18	U	0.21	U	0.19	U	0.21	U	0.22	U	0.2	U	1.1	U	0.2	U	0.22	U	0.22	U
4,6-Dinitro-o-cresol				0.47	U	0.54	U	0.48	U	0.56	U	0.58	U	0.51	U	2.8	U	0.51	U	0.57	U	0.57	U
4-Bromophenyl phenyl ether				0.18	U	0.21	U	0.19	U	0.21	U	0.22	U	0.2	U	1.1	U	0.2	U	0.22	U	0.22	U
4-Chloroaniline				0.18	U	0.21	U	0.19	U	0.21	U	0.22	U	0.2	U	1.1	U	0.2	U	0.22	U	0.22	U
4-Chlorophenyl phenyl ether				0.18	U	0.21	U	0.19	U	0.21	U	0.22	U	0.2	U	1.1	U	0.2	U	0.22	U	0.22	U
4-Nitroaniline				0.18	U	0.21	U	0.19	U	0.21	U	0.22	U	0.2	U	1.1	U	0.2	U	0.22	U	0.22	U
4-Nitrophenol				0.26	U	0.29	U	0.26	U	0.3	U	0.32	U	0.28	U	1.5	U	0.27	U	0.3	U	0.31	U
Acenaphthene	20	100	98	**0.18**		0.17	U	0.15	U	0.17	U	**0.075**	J	0.16	U	0.86	U	0.16	U	**0.87**		**0.52**	
Acenaphthylene	100	100	107	**1**		**0.12**	J	0.15	U	0.17	U	**0.22**		0.16	U	**1.2**		0.16	U	**0.14**	J	**0.15**	J
Acetophenone				0.18	U	0.21	U	0.19	U	0.21	U	0.22	U	0.2	U	1.1	U	0.2	U	**0.035**	J	0.22	U
Anthracene	100	100	1000	**0.96**		**0.094**	J	0.11	U	0.13	U	**0.29**		0.12	U	**0.56**	J	0.12	U	**1.6**		**1**	
Atrazine				0.14	U	0.17	U	0.15	U	0.17	U	0.18	U	0.16	U	0.86	U	0.16	U	0.17	U	0.18	U
Benzaldehyde				0.24	U	0.28	U	0.25	U	0.28	U	0.3	U	0.26	U	1.4	U	0.26	U	**0.11**	J	**0.086**	J
Benzo(a)anthracene	1	1	1	**3**		**0.34**		**0.073**	J	0.13	U	**0.67**		0.12	U	**1.9**		0.12	U	**3.5**		**2.4**	
Benzo(a)pyrene	1	1	22	**3**		**0.31**		**0.066**	J	0.17	U	**0.61**		0.16	U	**2.5**		0.16	U	**3.2**		**2.2**	
Benzo(b)fluoranthene	1	1	1.7	**4**		**0.39**		**0.088**	J	0.13	U	**0.81**		0.12	U	**3.9**		0.12	U	**4.4**		**3**	
Benzo(ghi)perylene	100	100	1000	**1.8**		**0.17**		**0.058**	J	0.17	U	**0.42**		0.16	U	**1.9**		0.16	U	**1.6**		**1**	
Benzo(k)fluoranthene	0.8	3.9	1.7	**1**		**0.13**		0.11	U	0.13	U	**0.21**		0.12	U	**1**		0.12	U	**1.1**		**0.84**	
Biphenyl				**0.033**	J	0.48	U	0.42	U	0.49	U	0.51	U	0.45	U	2.4	U	0.45	U	**0.095**	J	**0.064**	J
Bis(2-chloroethoxy)methane				0.2	U	0.22	U	0.2	U	0.23	U	0.24	U	0.21	U	1.2	U	0.21	U	0.24	U	0.24	U
Bis(2-chloroethyl)ether				0.16	U	0.19	U	0.17	U	0.19	U	0.2	U	0.18	U	0.96	U	0.18	U	0.2	U	0.2	U
Bis(2-chloroisopropyl)ether				0.22	U	0.25	U	0.22	U	0.26	U	0.27	U	0.24	U	1.3	U	0.23	U	0.26	U	0.26	U
Bis(2-ethylhexyl)phthalate				0.18	U	0.21	U	0.19	U	0.21	U	0.22	U	0.2	U	1.1	U	0.2	U	0.22	U	0.22	U
Butyl benzyl phthalate				0.18	U	0.21	U	0.19	U	0.21	U	0.22	U	0.2	U	1.1	U	0.2	U	0.22	U	0.22	U
Caprolactam				0.18	U	0.21	U	0.19	U	0.21	U	0.22	U	0.2	U	1.1	U	0.2	U	0.22	U	0.22	U
Carbazole				**0.21**		0.21	U	0.19	U	0.21	U	**0.15**	J	0.2	U	**0.73**	J	0.2	U	**0.8**		**0.49**	
Chrysene	1	3.9	1	**2.4**		**0.3**		**0.075**	J	0.13	U	**0.71**		0.12	U	**2.7**		0.12	U	**3.1**		**2.2**	
Di-n-butylphthalate				0.18	U	0.21	U	0.19	U	0.21	U	0.22	U	0.2	U	**0.22**	J	0.2	U	0.22	U	0.22	U
Di-n-octylphthalate				0.18	U	0.21	U	0.19	U	0.21	U	0.22	U	0.2	U	1.1	U	0.2	U	0.22	U	0.22	U
Dibenzo(a,h)anthracene	0.33	0.33	1000	**0.5**		**0.051**	J	0.11	U	0.13	U	**0.1**	J	0.12	U	**0.49**	J	0.12	U	**0.44**		**0.28**	
Dibenzofuran	7	59	210	0.14	J	0.21	U	0.19	U	0.21	U	**0.063**	J	0.2	U	**0.46**	J	0.2	U	**0.55**		**0.34**	
Diethyl phthalate				0.18	U	0.21	U	0.19	U	0.21	U	0.22	U	0.2	U	1.1	U	0.2	U	0.22	U	0.22	U
Dimethyl phthalate				0.18	U	0.21	U	0.19	U	0.21	U	0.22	U	0.2	U	1.1	U	0.2	U	0.22	U	0.22	U
Fluoranthene	100	100	1000	**3.9**		**0.52**		**0.17**		0.13	U	**1.3**		0.12	U	**4.7**		0.12	U	**6**		**4**	
Fluorene	30	100	386	**0.25**		**0.026**	J	0.19	U	0.21	U	**0.1**	J	0.2	U	**0.34**	J	0.2	U	**0.8**		**0.44**	
Hexachlorobenzene	0.33	1.2	3.2	0.11	U	0.12	U	0.11	U	0.13	U	0.14	U	0.12	U	0.64	U	0.12	U	0.13	U	0.13	U
Hexachlorobutadiene				0.18	U	0.21	U	0.19	U	0.21	U	0.22	U	0.2	U	1.1	U	0.2	U	0.22	U	0.22	U
Hexachlorocyclopentadiene				0.52	U	0.6	U	0.53	U	0.61	U	0.64	U	0.56	U	3.1	U	0.56	U	0.62	U	0.63	U
Hexachloroethane				0.14	U	0.17	U	0.15	U	0.17	U	0.18	U	0.16	U	0.86	U	0.16	U	0.17	U	0.18	U
Indeno(1,2,3-cd)pyrene	0.5	0.5	8.2	**2**		**0.18**		**0.044**	J	0.17	U	**0.42**		0.16	U	**2.2**		0.16	U	**1.8**		**1.2**	
Isophorone				0.16	U	0.19	U	0.17	U	0.19	U	0.2	U	0.18	U	0.96	U	0.18	U	0.2	U	0.2	U
n-Nitrosodi-n-propylamine				0.18	U	0.21	U	0.19	U	0.21	U	0.22	U	0.2	U	1.1	U	0.2	U	0.22	U	0.22	U
Naphthalene	12	100	12	**0.28**		**0.033**	J	0.19	U	0.21	U	**0.11**	J	0.2	U	**0.55**	J	0.2	U	**0.96**		**0.64**	
NDPA/DPA				0.14	U	0.17	U	0.15	U	0.17	U	0.18	U	0.16	U	0.86	U	0.16	U	0.17	U	0.18	U
Nitrobenzene				0.16	U	0.19	U	0.17	U	0.19	U	0.2	U	0.18	U	0.96	U	0.18	U	0.2	U	0.2	U

Table 3
Old Erie Commons - Remedial Investigation
Sub-Surface Soil Data Summary

LOCATION				TP-101 FILL		TP-101 NATIVE		TP-102 FILL		TP-102 NATIVE		TP-103 FILL		TP-103 NATIVE		TP-104 FILL		TP-104 NATIVE		TP-105 FILL		DUP-02	
SAMPLING DATE				7/29/2025		7/29/2025		7/28/2025		7/28/2025		7/28/2025		7/28/2025		7/28/2025		7/28/2025		7/29/2025		7/29/2025	
LAB SAMPLE ID				L2547432-01		L2547432-02		L2547174-01		L2547174-02		L2547174-03		L2547174-04		L2547174-05		L2547174-06		L2547432-15		L2547432-17	
SAMPLE TYPE				SOIL		SOIL		SOIL		SOIL		SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
SAMPLE DEPTH (ft.)				1-1.5		2.5-3		1.5-2		3-3.5		3-4		6-7		2-3		6-6.5		2-3		2-3	
	Unrestricted Use SCO	**Restricted Residential Use SCO**	**Protection of Groundwater SCO**	**Results**	**Qual**	**Results**	**Qual**	**Results**	**Qual**	**Results**	**Qual**	**Results**	**Qual**	**Results**	**Qual**	**Results**	**Qual**	**Results**	**Qual**	**Results**	**Qual**	**Results**	**Qual**
p-Chloro-m-cresol				0.18 U		0.21 U		0.19 U		0.21 U		0.22 U		0.2 U		1.1 U		0.2 U		0.22 U		0.22 U	
Pentachlorophenol	0.8	6.7	0.8	0.14 U		0.17 U		0.15 U		0.17 U		0.18 U		0.16 U		0.86 U		0.16 U		0.17 U		0.18 U	
Phenanthrene	100	100	1000	**1.9**		**0.2**		**0.16**		0.13 U		**1.1**		0.12 U		**2.7**		0.12 U		**5.9**		**3.5**	
Phenol	0.33	100	0.33	0.18 U		0.21 U		0.19 U		0.21 U		0.22 U		0.2 U		1.1 U		0.2 U		0.22 U		0.22 U	
Pyrene	100	100	1000	**3.4**		**0.45**		**0.14**		0.13 U		**1.2**		0.12 U		**3.7**		0.12 U		**4.8**		**3.3**	
Polychlorinated Biphenyls by GC																							
Aroclor 1016	0.1	1	3.2	0.053 U		0.0584 U		- -		- -		0.0654 U		0.058 U		- -		- -		0.064 U		0.0642 U	
Aroclor 1221	0.1	1	3.2	0.053 U		0.0584 U		- -		- -		0.0654 U		0.058 U		- -		- -		0.064 U		0.0642 U	
Aroclor 1232	0.1	1	3.2	0.053 U		0.0584 U		- -		- -		0.0654 U		0.058 U		- -		- -		0.064 U		0.0642 U	
Aroclor 1242	0.1	1	3.2	0.053 U		0.0584 U		- -		- -		0.0654 U		0.058 U		- -		- -		0.064 U		0.0642 U	
Aroclor 1248	0.1	1	3.2	0.053 U		0.0584 U		- -		- -		0.0654 U		0.058 U		- -		- -		0.064 U		0.0642 U	
Aroclor 1254	0.1	1	3.2	0.053 U		0.0584 U		- -		- -		0.0654 U		0.058 U		- -		- -		0.064 U		0.0642 U	
Aroclor 1260	0.1	1	3.2	0.053 U		0.0584 U		- -		- -		0.0654 U		0.058 U		- -		- -		0.064 U		0.0642 U	
Aroclor 1262	0.1	1	3.2	0.053 U		0.0584 U		- -		- -		0.0654 U		0.058 U		- -		- -		0.064 U		0.0642 U	
Aroclor 1268	0.1	1	3.2	0.053 U		0.0584 U		- -		- -		0.0654 U		0.058 U		- -		- -		0.064 U		0.0642 U	
PCBs, Total	0.1	1	3.2	0.053 U		0.0584 U		- -		- -		0.0654 U		0.058 U		- -		- -		0.064 U		0.0642 U	
Organochlorine Pesticides by GC																							
4,4'-DDD	0.0033	13	14	**0.00188**	IP	**0.00073**	JIP	- -		- -		0.00215 U		0.00185 U		- -		- -		**0.000969**	JIP	0.0021 U	
4,4'-DDE	0.0033	8.9	17	**0.00246**		**0.000974**	J	- -		- -		0.00215 U		0.00185 U		- -		- -		**0.00326**		0.0021 U	
4,4'-DDT	0.0033	7.9	136	**0.00958**		**0.00292**		- -		- -		0.00215 U		0.00185 U		- -		- -		**0.00324**	IP	0.0021 U	
Aldrin	0.005	0.097	0.19	0.00174 U		0.00201 U		- -		- -		0.00215 U		0.00185 U		- -		- -		0.00204 U		0.0021 U	
Alpha-BHC	0.02	0.48	0.02	0.000725 U		0.000839 U		- -		- -		0.000898 U		0.000772 U		- -		- -		0.000848 U		0.000873 U	
Beta-BHC	0.036	0.36	0.09	0.00174 U		0.00201 U		- -		- -		0.00215 U		0.00185 U		- -		- -		0.00204 U		0.0021 U	
cis-Chlordane	0.094	4.2	2.9	**0.0148**	IP	**0.00948**		- -		- -		0.00269 U		0.00231 U		- -		- -		0.00254 U		**0.000773**	JIP
Delta-BHC	0.04	100	0.25	0.00174 U		0.00201 U		- -		- -		0.00215 U		0.00185 U		- -		- -		0.00204 U		0.0021 U	
Dieldrin	0.005	0.2	0.1	0.00109 U		0.00126 U		- -		- -		0.00135 U		0.00116 U		- -		- -		0.00127 U		0.00131 U	
Endosulfan I	2.4	24	102	0.00174 U		0.00201 U		- -		- -		0.00215 U		0.00185 U		- -		- -		0.00204 U		0.0021 U	
Endosulfan II	2.4	24	102	0.00174 U		0.00201 U		- -		- -		0.00215 U		0.00185 U		- -		- -		0.00204 U		0.0021 U	
Endosulfan sulfate	2.4	24	1000	0.000725 U		0.000839 U		- -		- -		0.000898 U		0.000772 U		- -		- -		0.000848 U		0.000873 U	
Endrin	0.014	11	0.06	0.000725 U		0.000839 U		- -		- -		0.000898 U		0.000772 U		- -		- -		0.000848 U		0.000873 U	
Heptachlor	0.042	2.1	0.38	0.00087 U		0.00101 U		- -		- -		0.00108 U		0.000926 U		- -		- -		0.00102 U		0.00105 U	
Lindane	0.1	1.3	0.1	0.000725 U		0.000839 U		- -		- -		0.000898 U		0.000772 U		- -		- -		0.000848 U		0.000873 U	
Chlorinated Herbicides by GC																							
2,4,5-TP (Silvex)	3.8	100	3.8	0.186 U		0.211 U		- -		- -		0.227 U		0.2 U		- -		- -		0.216 U		0.217 U	
Total Metals																							
Aluminum, Total				**1020**		**6750**		**2680**		**2460**		**7500**		**6180**		**2760**		**5610**		**3030**		**5510**	
Antimony, Total				4.35 U		4.87 U		4.3 U		26.1 U		5.29 U		4.74 U		4.96 U		4.67 U		5.15 U		5.17 U	
Arsenic, Total	13	16	16	**3.02**		**3.88**		**12.6**		**3.14**	J	**42.4**		**4.16**		**9.8**		**3.66**		**12.4**		**14.5**	
Barium, Total	350	400	820	**68.3**		**52.4**		**29.6**		**70.1**		**104**		**69.7**		**92.3**		**105**		**139**		**167**	
Beryllium, Total	7.2	72	47	**0.075**	J	**0.348**	J	**0.169**	J	2.61 U		**0.463**	J	**0.358**	J	**0.474**	J	**0.334**	J	**0.652**		**1.16**	
Cadmium, Total	2.5	4.3	7.5	**0.14**	J	**0.202**	J	0.86 U		5.22 U		**0.068**	J	0.949 U		**0.184**	J	0.933 U		**0.474**	J	**0.529**	J
Calcium, Total				**31900**		**23300**		**12300**		**194000**		**30600**		**19500**		**13600**		**2140**		**14800**		**22100**	
Chromium, Total				**2.66**		**10.8**		**5.38**		**4.97**	J	**12.4**		**10.6**		**6.75**		**11.5**		**7.69**		**9.82**	
Cobalt, Total				**1.14**	J	**6.62**		**4.01**		**2.06**	J	**7.24**		**6.09**		**4.99**		**5.2**		**4.58**		**5.89**	
Copper, Total	50	270	1720	**13.8**		**52.7**		**40.1**		**2.8**	J	**14.3**		**1.01**		**71.6**		**1.24**		**30**		**43.6**	
Cyanide, Total	27	27	40	1.1 U		1.2 U		1.1 U		1.3 U		1.3 U		1.1 U		**0.36**	J	1.1 U		1.2 U		1.2 U	
Iron, Total				**2830**		**14700**		**6710**		**8790**		**19900**		**17000**		**11500**		**12300**		**11400**		**11300**	
Lead, Total	63	400	450	**51.6**		**178**		**44.6**		**17.5**	J	**67.1**		**2.66**	J	**128**		**1.96**	J	**118**		**203**	
Magnesium, Total				**4150**		**14200**		**11300**		**6840**		**8290**		**6460**		**2340**		**4140**		**6580**		**4380**	
Manganese, Total	1600	2000	2000	**102**		**341**		**215**		**1130**		**468**		**335**		**160**		**111**		**223**		**226**	
Mercury, Total	0.18	0.81	0.73	**0.162**		**0.345**		0.075 U		0.105 U		**0.069**	J	0.088 U		**0.131**		0.076 U		**0.089**		**0.172**	
Nickel, Total	30	310	130	**2.79**		**17**		**8.2**		**6.86**	J	**14.4**		**23.2**		**10.8**		**22.1**		**9.16**		**12.9**	
Potassium, Total				**189**	J	**664**		**384**		**615**	J	**856**		**1240**		**368**		**1250**		**427**		**725**	
Selenium, Total	3.9	180	4	1.74 U		1.95 U		1.72 U		10.4 U		**0.547**	J	1.9 U		**0.847**	J	1.87 U		**0.569**	J	**0.539**	J
Silver, Total	2	180	8.3	0.435 U		0.487 U		0.43 U		2.61 U		0.529 U		0.474 U		0.496 U		0.467 U		0.515 U		0.517 U	
Sodium, Total				174 U		195 U		172 U		1040 U		212 U		190 U		199 U		187 U		206 U		**162**	J
Thallium, Total				1.74 U		1.95 U		1.72 U		10.4 U		2.12 U		1.9 U		1.99 U		1.87 U		2.06 U		2.07 U	
Vanadium, Total				**3.09**		**11.5**		**10.5**		**6.42**		**20**		**12.8**		**13.8**		**11.7**		**20.9**		**18.6**	
Zinc, Total	109	10000	2480	**41.6**		**95.9**		**30.4**		**9.4**	J	**67.6**		**18.9**		**138**		**18.8**		**114**		**157**	

Table 3
Old Erie Commons - Remedial Investigation
Sub-Surface Soil Data Summary

LOCATION				TP-101 FILL		TP-101 NATIVE		TP-102 FILL		TP-102 NATIVE		TP-103 FILL		TP-103 NATIVE		TP-104 FILL		TP-104 NATIVE		TP-105 FILL		DUP-02	
SAMPLING DATE				7/29/2025		7/29/2025		7/28/2025		7/28/2025		7/28/2025		7/28/2025		7/28/2025		7/28/2025		7/29/2025		7/29/2025	
LAB SAMPLE ID				L2547432-01		L2547432-02		L2547174-01		L2547174-02		L2547174-03		L2547174-04		L2547174-05		L2547174-06		L2547432-15		L2547432-17	
SAMPLE TYPE				SOIL		SOIL		SOIL		SOIL		SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
SAMPLE DEPTH (ft.)				1-1.5		2.5-3		1.5-2		3-3.5		3-4		6-7		2-3		6-6.5		2-3		2-3	
	Unrestricted Use SCO	**Restricted Residential Use SCO**	**Protection of Groundwater SCO**	**Results**	**Qual**	**Results**	**Qual**	**Results**	**Qual**	**Results**	**Qual**	**Results**	**Qual**	**Results**	**Qual**	**Results**	**Qual**	**Results**	**Qual**	**Results**	**Qual**	**Results**	**Qual**
Perfluorinated Alkyl Acids by EPA 1633																							
11-Chloroeicosafluoro-3-Oxaundecane-1-Sulfonic Acid (11Cl-PF3OUdS)				0.896	U	1.02	U	- -		- -		0.8	U	0.799	U	- -		- -		1.06	U	1.07	U
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)				0.896	U	1.02	U	- -		- -		0.8	U	0.799	U	- -		- -		1.06	U	1.07	U
1H,1H,2H,2H-Perfluorohexanesulfonic Acid (4:2FTS)				0.896	U	1.02	U	- -		- -		0.8	U	0.799	U	- -		- -		1.06	U	1.07	U
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)				0.896	U	1.02	U	- -		- -		0.8	U	0.799	U	- -		- -		1.06	U	**0.238**	J
2H,2H,3H,3H-Perfluorooctanoic Acid (5:3FTCA)				5.6	U	6.38	U	- -		- -		5	U	5	U	- -		- -		6.61	U	6.68	U
3-Perfluoroheptyl Propanoic Acid (7:3FTCA)				5.6	U	6.38	U	- -		- -		5	U	5	U	- -		- -		6.61	U	6.68	U
3-Perfluoropropyl Propanoic Acid (3:3FTCA)				1.12	U	1.28	U	- -		- -		1	U	0.999	U	- -		- -		1.32	U	1.34	U
4,8-Dioxa-3h-Perfluorononanoic Acid (ADONA)				0.896	U	1.02	U	- -		- -		0.8	U	0.799	U	- -		- -		1.06	U	1.07	U
9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid (9Cl-PF3ONS)				0.896	U	1.02	U	- -		- -		0.8	U	0.799	U	- -		- -		1.06	U	1.07	U
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)				0.896	U	1.02	U	- -		- -		0.8	U	0.799	U	- -		- -		1.06	U	1.07	U
N-Ethyl Perfluorooctane Sulfonamide (NEtFOSA)				0.224	U	0.255	U	- -		- -		0.2	U	0.2	U	- -		- -		0.264	U	0.267	U
N-Ethyl Perfluorooctanesulfonamido Ethanol (NEtFOSE)				2.24	U	2.55	U	- -		- -		2	U	2	U	- -		- -		2.64	U	2.67	U
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)				0.224	U	0.255	U	- -		- -		0.2	U	0.2	U	- -		- -		0.264	U	0.267	U
N-Methyl Perfluorooctane Sulfonamide (NMeFOSA)				0.224	U	0.255	U	- -		- -		0.2	U	0.2	U	- -		- -		0.264	U	0.267	U
N-Methyl Perfluorooctanesulfonamido Ethanol (NMeFOSE)				2.24	U	2.55	U	- -		- -		2	U	2	U	- -		- -		2.64	U	2.67	U
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)				0.224	U	0.255	U	- -		- -		0.2	U	0.2	U	- -		- -		0.264	U	0.267	U
Nonafluoro-3,6-Dioxaheptanoic Acid (NFDHA)				0.448	U	0.51	U	- -		- -		0.4	U	0.4	U	- -		- -		0.529	U	0.534	U
Perfluoro(2-Ethoxyethane)Sulfonic Acid (PFEESA)				0.448	U	0.51	U	- -		- -		0.4	U	0.4	U	- -		- -		0.529	U	0.534	U
Perfluoro-3-Methoxypropanoic Acid (PFMPA)				0.448	U	0.51	U	- -		- -		0.4	U	0.4	U	- -		- -		0.529	U	0.534	U
Perfluoro-4-Methoxybutanoic Acid (PFMBA)				0.448	U	0.51	U	- -		- -		0.4	U	0.4	U	- -		- -		0.529	U	0.534	U
Perfluorobutanesulfonic Acid (PFBS)				0.224	U	0.255	U	- -		- -		0.2	U	0.2	U	- -		- -		0.264	U	0.267	U
Perfluorobutanoic Acid (PFBA)				**0.138**	J	**0.053**	J	- -		- -		**0.049**	J	0.799	U	- -		- -		**0.202**	J	**0.176**	J
Perfluorodecanesulfonic Acid (PFDS)				0.224	U	0.255	U	- -		- -		0.2	U	0.2	U	- -		- -		0.264	U	0.267	U
Perfluorodecanoic Acid (PFDA)				**0.124**	J	**0.056**	J	- -		- -		0.2	U	0.2	U	- -		- -		0.264	U	0.267	U
Perfluorododecanesulfonic Acid (PFDoS)				0.224	U	0.255	U	- -		- -		0.2	U	0.2	U	- -		- -		0.264	U	0.267	U
Perfluorododecanoic Acid (PFDoA)				**0.049**	J	0.255	U	- -		- -		0.2	U	0.2	U	- -		- -		0.264	U	0.267	U
Perfluoroheptanesulfonic Acid (PFHpS)				0.224	U	0.255	U	- -		- -		0.2	U	0.2	U	- -		- -		0.264	U	0.267	U
Perfluoroheptanoic Acid (PFHpA)				**0.09**	J	**0.089**	J	- -		- -		0.2	U	0.2	U	- -		- -		**0.085**	J	**0.141**	J
Perfluorohexanesulfonic Acid (PFHxS)				**0.05**	J	**0.12**	J	- -		- -		0.2	U	0.2	U	- -		- -		**0.075**	J	**0.036**	J
Perfluorohexanoic Acid (PFHxA)				**0.082**	J	**0.079**	J	- -		- -		0.2	U	0.2	U	- -		- -		**0.089**	J	**0.104**	J
Perfluorononanesulfonic Acid (PFNS)				0.224	U	0.255	U	- -		- -		0.2	U	0.2	U	- -		- -		0.264	U	0.267	U
Perfluorononanoic Acid (PFNA)				**0.093**	J	**0.156**	J	- -		- -		0.2	U	0.2	U	- -		- -		**0.04**	J	**0.098**	J
Perfluorooctanesulfonamide (PFOSA)				0.224	U	0.255	U	- -		- -		0.2	U	0.2	U	- -		- -		0.264	U	0.267	U
Perfluorooctanesulfonic Acid (PFOS)	0.88	44	1	**1.03**		**1.32**		- -		- -		**0.06**	J	0.2	U	- -		- -		**0.251**	J	**0.287**	
Perfluorooctanoic Acid (PFOA)	0.66	33	0.8	**0.254**		**0.424**		- -		- -		**0.054**	J	0.2	U	- -		- -		**0.261**	J	**0.363**	
Perfluoropentanesulfonic Acid (PFPeS)				0.224	U	0.255	U	- -		- -		0.2	U	0.2	U	- -		- -		0.264	U	0.267	U
Perfluoropentanoic Acid (PFPeA)				**0.093**	J	**0.06**	J	- -		- -		0.4	U	0.4	U	- -		- -		**0.08**	J	**0.079**	J
Perfluorotetradecanoic Acid (PFTeDA)				0.224	U	0.255	U	- -		- -		0.2	U	0.2	U	- -		- -		0.264	U	0.267	U
Perfluorotridecanoic Acid (PFTrDA)				0.224	U	0.255	U	- -		- -		0.2	U	0.2	U	- -		- -		0.264	U	0.267	U
Perfluoroundecanoic Acid (PFUnA)				**0.039**	JF	0.255	U	- -		- -		0.2	U	0.2	U	- -		- -		0.264	U	**0.033**	J
Asbestos in Bulk																							
Asbestos Fibers				- -		- -		ND		ND		- -		- -		- -		- -		- -		- -	

Notes:
- Analytical data compared to NYSDEC Part 375-6.
- Results and soil cleanup objectives (SCO) in parts per million (ppm), except for PFAS which is in parts per billion (ppb).
- Analytes detected at concentrations greater than laboratory detections limits are **bolded**.
- Highlighted color indicates the respective use SCO(s) exceeded. Use type SCOs are listed from left to right from most restrictive to least restrictive.
- Blank space indicates that a SCO does not exist.
- Duplicate sample results are located to the right of the parent sample results.
- "J" indicates estimated concentration.
- "U" indicates analyte not detected at concentration greater than laboratory detection limit.
- "F" indicates the ratio of quantifier ion response to qualifier ion response falls outside of the laboratory criteria. Results are considered to be an estimated maximum concentration.
- "I" indicates the lower value for the two columns has been reported due to obvious interference.
- "P" indicates the RPD between the results for the two columns exceeds the method-specified criteria.
- "ND" indicates that asbestos was not detected in the respective sample.
- "-" indicates that sample was not anlayzed for that parameter.

Table 3
Old Erie Commons - Remedial Investigation
Sub-Surface Soil Data Summary

LOCATION				TP-105 NATIVE		TP-106 FILL		TP-106 NATIVE		TP-107 FILL		TP-108 FILL		TP-108 NATIVE		TP-109 FILL		TP-109 NATIVE		TP-110 FILL		TP-110 NATIVE	
SAMPLING DATE				7/29/2025		7/28/2025		7/28/2025		7/29/2025		7/29/2025		7/29/2025		7/28/2025		7/28/2025		7/29/2025		7/29/2025	
LAB SAMPLE ID				L2547432-16		L2547174-07		L2547174-08		L2547432-03		L2547432-04		L2547432-05		L2547174-09		L2547174-10		L2547432-06		L2547432-07	
SAMPLE TYPE				SOIL		SOIL		SOIL		SOIL		SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
SAMPLE DEPTH (ft.)				6-6.5		2-3		6-7		2-3		2-2.5		5.5-6		2-3		5-6		2-2.5		5.5-6	
	Unrestricted Use SCO	Restricted Residential Use SCO	Protection of Groundwater SCO	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual
Volatile Organics by EPA 5035																							
1,1,1-Trichloroethane	0.68	100	0.68	0.00051	U	0.00091	U	0.00069	U	- -		- -		- -		- -		- -		- -		- -	
1,1,2,2-Tetrachloroethane				0.00051	U	0.00091	U	0.00069	U	- -		- -		- -		- -		- -		- -		- -	
1,1,2-Trichloroethane				0.001	U	0.0018	U	0.0014	U	- -		- -		- -		- -		- -		- -		- -	
1,1-Dichloroethane	0.27	26	0.27	0.001	U	0.0018	U	0.0014	U	- -		- -		- -		- -		- -		- -		- -	
1,1-Dichloroethene	0.33	100	0.33	0.001	U	0.0018	U	0.0014	U	- -		- -		- -		- -		- -		- -		- -	
1,2,4-Trichlorobenzene				0.002	U	0.0036	U	0.0027	U	- -		- -		- -		- -		- -		- -		- -	
1,2,4-Trimethylbenzene	3.6	52	3.6	0.002	U	0.0036	U	0.0027	U	- -		- -		- -		- -		- -		- -		- -	
1,2-Dibromo-3-chloropropane				0.0031	U	0.0054	U	0.0041	U	- -		- -		- -		- -		- -		- -		- -	
1,2-Dibromoethane				0.001	U	0.0018	U	0.0014	U	- -		- -		- -		- -		- -		- -		- -	
1,2-Dichlorobenzene	1.1	100	1.1	0.002	U	0.0036	U	0.0027	U	- -		- -		- -		- -		- -		- -		- -	
1,2-Dichloroethane	0.02	3.1	0.02	0.001	U	0.0018	U	0.0014	U	- -		- -		- -		- -		- -		- -		- -	
1,2-Dichloropropane				0.001	U	0.0018	U	0.0014	U	- -		- -		- -		- -		- -		- -		- -	
1,3,5-Trimethylbenzene	8.4	52	8.4	0.002	U	0.0036	U	0.0027	U	- -		- -		- -		- -		- -		- -		- -	
1,3-Dichlorobenzene	2.4	49	2.4	0.002	U	0.0036	U	0.0027	U	- -		- -		- -		- -		- -		- -		- -	
1,4-Dichlorobenzene	1.8	13	1.8	0.002	U	0.0036	U	0.0027	U	- -		- -		- -		- -		- -		- -		- -	
2-Butanone	0.12	100	0.12	0.01	U	0.018	U	0.014	U	- -		- -		- -		- -		- -		- -		- -	
2-Hexanone				0.01	U	0.018	U	0.014	U	- -		- -		- -		- -		- -		- -		- -	
4-Methyl-2-pentanone				0.01	U	0.018	U	0.014	U	- -		- -		- -		- -		- -		- -		- -	
Acetone	0.05	100	0.05	0.01	U	0.018	U	**0.0097**	J	- -		- -		- -		- -		- -		- -		- -	
Benzene	0.06	4.8	0.06	0.00051	U	0.00091	U	0.00069	U	- -		- -		- -		- -		- -		- -		- -	
Bromodichloromethane				0.00051	U	0.00091	U	0.00069	U	- -		- -		- -		- -		- -		- -		- -	
Bromoform				0.0041	U	0.0072	U	0.0055	U	- -		- -		- -		- -		- -		- -		- -	
Bromomethane				0.002	U	0.0036	U	0.0027	U	- -		- -		- -		- -		- -		- -		- -	
Carbon disulfide				0.01	U	0.018	U	0.014	U	- -		- -		- -		- -		- -		- -		- -	
Carbon tetrachloride	0.76	2.4	0.76	0.001	U	0.0018	U	0.0014	U	- -		- -		- -		- -		- -		- -		- -	
Chlorobenzene	1.1	100	1.1	0.00051	U	0.00091	U	0.00069	U	- -		- -		- -		- -		- -		- -		- -	
Chloroethane				0.002	U	0.0036	U	0.0027	U	- -		- -		- -		- -		- -		- -		- -	
Chloroform	0.37	49	0.37	0.0015	U	0.0027	U	0.002	U	- -		- -		- -		- -		- -		- -		- -	
Chloromethane				0.0041	U	0.0072	U	0.0055	U	- -		- -		- -		- -		- -		- -		- -	
cis-1,2-Dichloroethene	0.25	100	0.25	0.001	U	0.0018	U	0.0014	U	- -		- -		- -		- -		- -		- -		- -	
cis-1,3-Dichloropropene				0.00051	U	0.00091	U	0.00069	U	- -		- -		- -		- -		- -		- -		- -	
Cyclohexane				0.01	U	0.018	U	0.014	U	- -		- -		- -		- -		- -		- -		- -	
Dibromochloromethane				0.001	U	0.0018	U	0.0014	U	- -		- -		- -		- -		- -		- -		- -	
Dichlorodifluoromethane				0.01	U	0.018	U	0.014	U	- -		- -		- -		- -		- -		- -		- -	
Ethylbenzene	1	41	1	0.001	U	0.0018	U	0.0014	U	- -		- -		- -		- -		- -		- -		- -	
Freon-113				0.0041	U	0.0072	U	0.0055	U	- -		- -		- -		- -		- -		- -		- -	
Isopropylbenzene				0.001	U	0.0018	U	0.0014	U	- -		- -		- -		- -		- -		- -		- -	
Methyl Acetate				0.0041	U	0.0072	U	0.0055	U	- -		- -		- -		- -		- -		- -		- -	
Methyl cyclohexane				0.0041	U	0.0072	U	0.0055	U	- -		- -		- -		- -		- -		- -		- -	
Methyl tert butyl ether	0.93	100	0.93	0.002	U	0.0036	U	0.0027	U	- -		- -		- -		- -		- -		- -		- -	
Methylene chloride	0.05	100	0.05	0.0051	U	0.0091	U	0.0069	U	- -		- -		- -		- -		- -		- -		- -	
n-Butylbenzene	12	100	12	0.001	U	0.0018	U	0.0014	U	- -		- -		- -		- -		- -		- -		- -	
n-Propylbenzene	3.9	100	3.9	0.001	U	0.0018	U	0.0014	U	- -		- -		- -		- -		- -		- -		- -	
Naphthalene	12	100	12	0.0041	U	0.0072	U	0.0055	U	- -		- -		- -		- -		- -		- -		- -	
o-Xylene				0.001	U	0.0018	U	0.0014	U	- -		- -		- -		- -		- -		- -		- -	
p-Isopropyltoluene				0.001	U	**0.00051**	J	**0.00037**	J	- -		- -		- -		- -		- -		- -		- -	
p/m-Xylene				0.002	U	0.0036	U	0.0027	U	- -		- -		- -		- -		- -		- -		- -	
sec-Butylbenzene	11	100	11	0.001	U	0.0018	U	0.0014	U	- -		- -		- -		- -		- -		- -		- -	
Styrene				0.001	U	0.0018	U	0.0014	U	- -		- -		- -		- -		- -		- -		- -	
tert-Butylbenzene	5.9	100	5.9	0.002	U	0.0036	U	0.0027	U	- -		- -		- -		- -		- -		- -		- -	
Tetrachloroethene	1.3	19	1.3	0.00051	U	0.00091	U	0.00069	U	- -		- -		- -		- -		- -		- -		- -	
Toluene	0.7	100	0.7	0.001	U	0.0018	U	0.0014	U	- -		- -		- -		- -		- -		- -		- -	
trans-1,2-Dichloroethene	0.19	100	0.19	0.0015	U	0.0027	U	0.002	U	- -		- -		- -		- -		- -		- -		- -	
trans-1,3-Dichloropropene				0.001	U	0.0018	U	0.0014	U	- -		- -		- -		- -		- -		- -		- -	
Trichloroethene	0.47	21	0.47	0.00051	U	0.00091	U	0.00069	U	- -		- -		- -		- -		- -		- -		- -	
Trichlorofluoromethane				0.0041	U	0.0072	U	0.0055	U	- -		- -		- -		- -		- -		- -		- -	
Vinyl chloride	0.02	0.9	0.02	0.001	U	0.0018	U	0.0014	U	- -		- -		- -		- -		- -		- -		- -	

Table 3
Old Erie Commons - Remedial Investigation
Sub-Surface Soil Data Summary

LOCATION				TP-105 NATIVE		TP-106 FILL		TP-106 NATIVE		TP-107 FILL		TP-108 FILL		TP-108 NATIVE		TP-109 FILL		TP-109 NATIVE		TP-110 FILL		TP-110 NATIVE	
SAMPLING DATE				7/29/2025		7/28/2025		7/28/2025		7/29/2025		7/29/2025		7/29/2025		7/28/2025		7/28/2025		7/29/2025		7/29/2025	
LAB SAMPLE ID				L2547432-16		L2547174-07		L2547174-08		L2547432-03		L2547432-04		L2547432-05		L2547174-09		L2547174-10		L2547432-06		L2547432-07	
SAMPLE TYPE				SOIL		SOIL		SOIL		SOIL		SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
SAMPLE DEPTH (ft.)				6-6.5		2-3		6-7		2-3		2-2.5		5.5-6		2-3		5-6		2-2.5		5.5-6	
	Unrestricted Use SCO	Restricted Residential Use SCO	Protection of Groundwater SCO	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual
Semivolatile Organics by GC/MS																							
1,2,4,5-Tetrachlorobenzene				0.19	U	0.2	U	0.19	U	0.2	U	0.21	U	0.19	U	1	U	0.2	U	0.18	U	0.19	U
1,4-Dioxane	0.1	13	0.1	0.028	U	0.03	U	0.028	U	- -		0.031	U	0.028	U	0.16	U	0.03	U	0.027	U	0.029	U
2,3,4,6-Tetrachlorophenol				0.19	U	0.2	U	0.19	U	0.2	U	0.21	U	0.19	U	1	U	0.2	U	0.18	U	0.19	U
2,4,5-Trichlorophenol				0.19	U	0.2	U	0.19	U	0.2	U	0.21	U	0.19	U	1	U	0.2	U	0.18	U	0.19	U
2,4,6-Trichlorophenol				0.11	U	0.12	U	0.11	U	0.12	U	0.12	U	0.11	U	0.63	U	0.12	U	0.11	U	0.12	U
2,4-Dichlorophenol				0.17	U	0.18	U	0.17	U	0.18	U	0.19	U	0.17	U	0.94	U	0.18	U	0.16	U	0.17	U
2,4-Dimethylphenol				0.19	U	0.2	U	0.19	U	0.2	U	0.21	U	0.19	U	1	U	0.2	U	0.18	U	0.19	U
2,4-Dinitrophenol				0.89	U	0.95	U	0.9	U	0.95	U	0.99	U	0.91	U	5	U	0.96	U	0.86	U	0.92	U
2,4-Dinitrotoluene				0.19	U	0.2	U	0.19	U	0.2	U	0.21	U	0.19	U	1	U	0.2	U	0.18	U	0.19	U
2,6-Dinitrotoluene				0.19	U	0.2	U	0.19	U	0.2	U	0.21	U	0.19	U	1	U	0.2	U	0.18	U	0.19	U
2-Chloronaphthalene				0.19	U	0.2	U	0.19	U	0.2	U	0.21	U	0.19	U	1	U	0.2	U	0.18	U	0.19	U
2-Chlorophenol				0.19	U	0.2	U	0.19	U	0.2	U	0.21	U	0.19	U	1	U	0.2	U	0.18	U	0.19	U
2-Methylnaphthalene				0.22	U	**0.11**	J	0.22	U	**0.069**	J	**0.43**		0.23	U	**0.84**	J	0.24	U	**0.1**	J	0.23	U
2-Methylphenol	0.33	100	0.33	0.19	U	0.2	U	0.19	U	0.2	U	0.21	U	0.19	U	1	U	0.2	U	0.18	U	0.19	U
2-Nitroaniline				0.19	U	0.2	U	0.19	U	0.2	U	0.21	U	0.19	U	1	U	0.2	U	0.18	U	0.19	U
2-Nitrophenol				0.4	U	0.43	U	0.4	U	0.43	U	0.45	U	0.41	U	2.2	U	0.43	U	0.38	U	0.41	U
3,3'-Dichlorobenzidine				0.19	U	0.2	U	0.19	U	0.2	U	0.21	U	0.19	U	1	U	0.2	U	0.18	U	0.19	U
3-Methylphenol/4-Methylphenol	0.33	100	0.33	0.27	U	0.28	U	0.27	U	0.29	U	**0.04**	J	0.27	U	1.5	U	0.29	U	0.26	U	0.28	U
3-Nitroaniline				0.19	U	0.2	U	0.19	U	0.2	U	0.21	U	0.19	U	1	U	0.2	U	0.18	U	0.19	U
4,6-Dinitro-o-cresol				0.48	U	0.51	U	0.49	U	0.52	U	0.54	U	0.49	U	2.7	U	0.52	U	0.46	U	0.5	U
4-Bromophenyl phenyl ether				0.19	U	0.2	U	0.19	U	0.2	U	0.21	U	0.19	U	1	U	0.2	U	0.18	U	0.19	U
4-Chloroaniline				0.19	U	0.2	U	0.19	U	0.2	U	0.21	U	0.19	U	1	U	0.2	U	0.18	U	0.19	U
4-Chlorophenyl phenyl ether				0.19	U	0.2	U	0.19	U	0.2	U	0.21	U	0.19	U	1	U	0.2	U	0.18	U	0.19	U
4-Nitroaniline				0.19	U	0.2	U	0.19	U	0.2	U	0.21	U	0.19	U	1	U	0.2	U	0.18	U	0.19	U
4-Nitrophenol				0.26	U	0.28	U	0.26	U	0.28	U	0.29	U	0.27	U	1.5	U	0.28	U	0.25	U	0.27	U
Acenaphthene	20	100	98	0.15	U	**0.11**	J	0.15	U	0.16	U	**0.37**		0.15	U	**2.6**		0.16	U	**0.095**	J	0.15	U
Acenaphthylene	100	100	107	0.15	U	**0.15**	J	0.15	U	0.16	U	**0.53**		0.15	U	**0.59**	J	0.16	U	**0.12**	J	0.15	U
Acetophenone				0.19	U	0.2	U	0.19	U	0.2	U	**0.051**	J	0.19	U	1	U	0.2	U	0.18	U	0.19	U
Anthracene	100	100	1000	0.11	U	**0.37**		0.11	U	**0.04**	J	**1**		0.11	U	**6.5**		0.12	U	**0.51**		0.12	U
Atrazine				0.15	U	0.16	U	0.15	U	0.16	U	0.16	U	0.15	U	0.84	U	0.16	U	0.14	U	0.15	U
Benzaldehyde				0.24	U	**0.075**	J	0.25	U	0.26	U	**0.18**	J	0.25	U	1.4	U	0.26	U	0.24	U	0.25	U
Benzo(a)anthracene	1	1	1	0.11	U	**0.9**		**0.026**	J	**0.26**		**2.8**		0.11	U	**12**		0.12	U	**2**		0.12	U
Benzo(a)pyrene	1	1	22	0.15	U	**0.81**		0.15	U	**0.26**		**2.4**		0.15	U	**11**		0.16	U	**2**		0.15	U
Benzo(b)fluoranthene	1	1	1.7	0.11	U	**1.1**		0.11	U	**0.36**		**3**		0.11	U	**14**		0.12	U	**2.6**		0.12	U
Benzo(ghi)perylene	100	100	1000	0.15	U	**0.48**		0.15	U	**0.16**		**1.5**		0.15	U	**6.5**		0.16	U	**1.2**		0.15	U
Benzo(k)fluoranthene	0.8	3.9	1.7	0.11	U	**0.3**		0.11	U	**0.11**	J	**1.2**		0.11	U	**3.8**		0.12	U	**0.79**		0.12	U
Biphenyl				0.42	U	0.45	U	0.43	U	0.45	U	**0.071**	J	0.43	U	**0.2**	J	0.46	U	0.41	U	0.44	U
Bis(2-chloroethoxy)methane				0.2	U	0.21	U	0.2	U	0.21	U	0.22	U	0.2	U	1.1	U	0.22	U	0.19	U	0.21	U
Bis(2-chloroethyl)ether				0.17	U	0.18	U	0.17	U	0.18	U	0.19	U	0.17	U	0.94	U	0.18	U	0.16	U	0.17	U
Bis(2-chloroisopropyl)ether				0.22	U	0.24	U	0.22	U	0.24	U	0.25	U	0.23	U	1.2	U	0.24	U	0.21	U	0.23	U
Bis(2-ethylhexyl)phthalate				0.19	U	0.2	U	0.19	U	0.2	U	0.21	U	0.19	U	1	U	0.2	U	0.18	U	0.19	U
Butyl benzyl phthalate				0.19	U	0.2	U	0.19	U	0.2	U	0.21	U	0.19	U	1	U	0.2	U	0.18	U	0.19	U
Caprolactam				0.19	U	0.2	U	0.19	U	0.2	U	0.21	U	0.19	U	1	U	0.2	U	0.18	U	0.19	U
Carbazole				0.19	U	**0.12**	J	0.19	U	**0.04**	J	**0.46**		0.19	U	**1.6**		0.2	U	**0.06**	J	0.19	U
Chrysene	1	3.9	1	0.11	U	**0.82**		**0.028**	J	**0.29**		**2.8**		0.11	U	**12**		0.12	U	**1.7**		0.12	U
Di-n-butylphthalate				0.19	U	0.2	U	0.19	U	0.2	U	0.21	U	0.19	U	1	U	0.2	U	0.18	U	0.19	U
Di-n-octylphthalate				0.19	U	0.2	U	0.19	U	0.2	U	0.21	U	0.19	U	1	U	0.2	U	0.18	U	0.19	U
Dibenzo(a,h)anthracene	0.33	0.33	1000	0.11	U	**0.1**	J	0.11	U	**0.044**	J	**0.4**		0.11	U	**1.6**		0.12	U	**0.26**		0.12	U
Dibenzofuran	7	59	210	0.19	U	**0.09**	J	0.19	U	**0.023**	J	**0.31**		0.19	U	**1.8**		0.2	U	**0.093**	J	0.19	U
Diethyl phthalate				0.19	U	0.2	U	0.19	U	0.2	U	0.21	U	0.19	U	1	U	0.2	U	0.18	U	0.19	U
Dimethyl phthalate				0.19	U	0.2	U	0.19	U	0.2	U	0.21	U	0.19	U	1	U	0.2	U	0.18	U	0.19	U
Fluoranthene	100	100	1000	0.11	U	**1.7**		**0.025**	J	**0.46**		**4.6**		0.11	U	**27**		0.12	U	**3.5**		0.12	U
Fluorene	30	100	386	0.19	U	**0.14**	J	0.19	U	0.2	U	**0.4**		0.19	U	**3.2**		0.2	U	**0.12**	J	0.19	U
Hexachlorobenzene	0.33	1.2	3.2	0.11	U	0.12	U	0.11	U	0.12	U	0.12	U	0.11	U	0.63	U	0.12	U	0.11	U	0.12	U
Hexachlorobutadiene				0.19	U	0.2	U	0.19	U	0.2	U	0.21	U	0.19	U	1	U	0.2	U	0.18	U	0.19	U
Hexachlorocyclopentadiene				0.53	U	0.56	U	0.54	U	0.57	U	0.59	U	0.54	U	3	U	0.57	U	0.51	U	0.55	U
Hexachloroethane				0.15	U	0.16	U	0.15	U	0.16	U	0.16	U	0.15	U	0.84	U	0.16	U	0.14	U	0.15	U
Indeno(1,2,3-cd)pyrene	0.5	0.5	8.2	0.15	U	**0.46**		0.15	U	**0.17**		**1.5**		0.15	U	**7.4**		0.16	U	**1.3**		0.15	U
Isophorone				0.17	U	0.18	U	0.17	U	0.18	U	0.19	U	0.17	U	0.94	U	0.18	U	0.16	U	0.17	U
n-Nitrosodi-n-propylamine				0.19	U	0.2	U	0.19	U	0.2	U	0.21	U	0.19	U	1	U	0.2	U	0.18	U	0.19	U
Naphthalene	12	100	12	0.19	U	**0.19**	J	0.19	U	**0.04**	J	**0.51**		0.19	U	**1.1**		0.2	U	**0.17**	J	0.19	U
NDPA/DPA				0.15	U	0.16	U	0.15	U	0.16	U	0.16	U	0.15	U	0.84	U	0.16	U	0.14	U	0.15	U
Nitrobenzene				0.17	U	0.18	U	0.17	U	0.18	U	0.19	U	0.17	U	0.94	U	0.18	U	0.16	U	0.17	U

Table 3
Old Erie Commons - Remedial Investigation
Sub-Surface Soil Data Summary

LOCATION				TP-105 NATIVE		TP-106 FILL		TP-106 NATIVE		TP-107 FILL		TP-108 FILL		TP-108 NATIVE		TP-109 FILL		TP-109 NATIVE		TP-110 FILL		TP-110 NATIVE	
SAMPLING DATE				7/29/2025		7/28/2025		7/28/2025		7/29/2025		7/29/2025		7/29/2025		7/28/2025		7/28/2025		7/29/2025		7/29/2025	
LAB SAMPLE ID				L2547432-16		L2547174-07		L2547174-08		L2547432-03		L2547432-04		L2547432-05		L2547174-09		L2547174-10		L2547432-06		L2547432-07	
SAMPLE TYPE				SOIL		SOIL		SOIL		SOIL		SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
SAMPLE DEPTH (ft.)				6-6.5		2-3		6-7		2-3		2-2.5		5.5-6		2-3		5-6		2-2.5		5.5-6	
	Unrestricted Use SCO	**Restricted Residential Use SCO**	**Protection of Groundwater SCO**	**Results**	**Qual**	**Results**	**Qual**	**Results**	**Qual**	**Results**	**Qual**	**Results**	**Qual**	**Results**	**Qual**	**Results**	**Qual**	**Results**	**Qual**	**Results**	**Qual**	**Results**	**Qual**
p-Chloro-m-cresol				0.19	U	0.2	U	0.19	U	0.2	U	0.21	U	0.19	U	1	U	0.2	U	0.18	U	0.19	U
Pentachlorophenol	0.8	6.7	0.8	0.15	U	0.16	U	0.15	U	0.16	U	0.16	U	0.15	U	0.84	U	0.16	U	0.14	U	0.15	U
Phenanthrene	100	100	1000	0.11	U	**1.4**		0.11	U	**0.25**		**3.9**		0.11	U	**22**		**0.028**	J	**1.5**		0.12	U
Phenol	0.33	100	0.33	0.19	U	0.2	U	0.19	U	0.2	U	0.21	U	0.19	U	1	U	0.2	U	0.18	U	0.19	U
Pyrene	100	100	1000	0.11	U	**1.5**		**0.029**	J	**0.39**		**0.25**		0.11	U	**22**		0.12	U	**3**		0.12	U
Polychlorinated Biphenyls by GC																							
Aroclor 1016	0.1	1	3.2	0.0524	U	0.057	U	0.0535	U	- -		0.0622	U	0.0567	U	0.0608	U	0.0556	U	0.0539	U	0.0559	U
Aroclor 1221	0.1	1	3.2	0.0524	U	0.057	U	0.0535	U	- -		0.0622	U	0.0567	U	0.0608	U	0.0556	U	0.0539	U	0.0559	U
Aroclor 1232	0.1	1	3.2	0.0524	U	0.057	U	0.0535	U	- -		0.0622	U	0.0567	U	0.0608	U	0.0556	U	0.0539	U	0.0559	U
Aroclor 1242	0.1	1	3.2	0.0524	U	0.057	U	0.0535	U	- -		0.0622	U	0.0567	U	0.0608	U	0.0556	U	0.0539	U	0.0559	U
Aroclor 1248	0.1	1	3.2	0.0524	U	0.057	U	0.0535	U	- -		0.0622	U	0.0567	U	0.0608	U	0.0556	U	0.0539	U	0.0559	U
Aroclor 1254	0.1	1	3.2	0.0524	U	0.057	U	0.0535	U	- -		0.0622	U	0.0567	U	0.0608	U	0.0556	U	0.0539	U	0.0559	U
Aroclor 1260	0.1	1	3.2	0.0524	U	0.057	U	0.0535	U	- -		0.0622	U	0.0567	U	0.0608	U	0.0556	U	0.0539	U	0.0559	U
Aroclor 1262	0.1	1	3.2	0.0524	U	0.057	U	0.0535	U	- -		0.0622	U	0.0567	U	0.0608	U	0.0556	U	0.0539	U	0.0559	U
Aroclor 1268	0.1	1	3.2	0.0524	U	0.057	U	0.0535	U	- -		0.0622	U	0.0567	U	0.0608	U	0.0556	U	0.0539	U	0.0559	U
PCBs, Total	0.1	1	3.2	0.0524	U	0.057	U	0.0535	U	- -		0.0622	U	0.0567	U	0.0608	U	0.0556	U	0.0539	U	0.0559	U
Organochlorine Pesticides by GC																							
4,4'-DDD	0.0033	13	14	0.00172	U	0.00188	U	0.00177	U	- -		0.00194	U	0.00181	U	0.00194	U	0.00189	U	**0.0053**		0.0018	U
4,4'-DDE	0.0033	8.9	17	0.00172	U	**0.001**	J	0.00177	U	- -		**0.00171**	JIP	0.00181	U	**0.00102**	JIP	0.00189	U	**0.00834**		0.0018	U
4,4'-DDT	0.0033	7.9	136	0.00172	U	0.00188	U	0.00177	U	- -		**0.00204**		0.00181	U	**0.00161**	J	0.00189	U	**0.00304**		0.0018	U
Aldrin	0.005	0.097	0.19	0.00172	U	0.00188	U	0.00177	U	- -		0.00194	U	0.00181	U	0.00194	U	0.00189	U	0.00175	U	0.0018	U
Alpha-BHC	0.02	0.48	0.02	0.000718	U	0.000785	U	0.000738	U	- -		0.00081	U	0.000756	U	0.000808	U	0.000788	U	0.000728	U	0.000749	U
Beta-BHC	0.036	0.36	0.09	0.00172	U	0.00188	U	0.00177	U	- -		0.00194	U	0.00181	U	0.00194	U	0.00189	U	0.00175	U	0.0018	U
cis-Chlordane	0.094	4.2	2.9	0.00215	U	0.00235	U	0.00221	U	- -		0.00243	U	0.00227	U	**0.000736**	JIP	0.00236	U	0.00218	U	0.00225	U
Delta-BHC	0.04	100	0.25	0.00172	U	0.00188	U	0.00177	U	- -		0.00194	U	0.00181	U	0.00194	U	0.00189	U	0.00175	U	0.0018	U
Dieldrin	0.005	0.2	0.1	0.00108	U	0.00118	U	0.00111	U	- -		0.00122	U	0.00113	U	0.00121	U	0.00118	U	0.00109	U	0.00112	U
Endosulfan I	2.4	24	102	0.00172	U	0.00188	U	0.00177	U	- -		0.00194	U	0.00181	U	0.00194	U	0.00189	U	0.00175	U	0.0018	U
Endosulfan II	2.4	24	102	0.00172	U	0.00188	U	0.00177	U	- -		0.00194	U	0.00181	U	0.00194	U	0.00189	U	0.00175	U	0.0018	U
Endosulfan sulfate	2.4	24	1000	0.000718	U	0.000785	U	0.000738	U	- -		0.00081	U	0.000756	U	0.000808	U	0.000788	U	0.000728	U	0.000749	U
Endrin	0.014	11	0.06	0.000718	U	0.000785	U	0.000738	U	- -		0.00081	U	0.000756	U	0.000808	U	0.000788	U	0.000728	U	0.000749	U
Heptachlor	0.042	2.1	0.38	0.000861	U	0.000942	U	0.000886	U	- -		0.000973	U	0.000907	U	**0.000591**	J	0.000945	U	0.000874	U	0.000899	U
Lindane	0.1	1.3	0.1	0.000718	U	0.000785	U	0.000738	U	- -		0.00081	U	0.000756	U	0.000808	U	0.000788	U	0.000728	U	0.000749	U
Chlorinated Herbicides by GC																							
2,4,5-TP (Silvex)	3.8	100	3.8	0.187	U	0.195	U	0.184	U	- -		0.205	U	0.191	U	0.21	U	0.199	U	0.183	U	0.196	U
Total Metals																							
Aluminum, Total				**5120**		**795**		**4160**		**4760**		**3990**		**5750**		**3120**		**5880**		**2220**		**5010**	
Antimony, Total				4.26	U	4.68	U	4.3	U	4.6	U	4.86	U	4.55	U	5.01	U	4.63	U	4.2	U	4.45	U
Arsenic, Total	13	16	16	**0.508**	J	**4.17**		**2.83**		**10.1**		**6.24**		**2.79**		**9.02**		**2.07**		**2.74**		**1.71**	
Barium, Total	350	400	820	**38**		**27.5**		**28.6**		**153**		**83.2**		**52.9**		**50.5**		**52.5**		**25.6**		**57.7**	
Beryllium, Total	7.2	72	47	**0.298**	J	**0.158**	J	**0.269**	J	**0.561**		**0.323**	J	**0.337**	J	**0.319**	J	**0.349**	J	**0.131**	J	**0.3**	J
Cadmium, Total	2.5	4.3	7.5	0.853	U	0.935	U	0.861	U	**0.475**	J	**0.211**	J	**0.059**	J	**0.166**	J	0.925	U	**0.092**	J	0.89	U
Calcium, Total				**12000**		**41800**		**12200**		**11500**		**17400**		**1840**		**16900**		**1590**		**14500**		**12300**	
Chromium, Total				**8.01**		**2.03**		**6.49**		**8.5**		**4.68**		**9.98**		**5.23**		**9.47**		**3.5**		**9.19**	
Cobalt, Total				**4.71**		**2.23**		**4.2**		**5.12**		**2.18**		**7.8**		**3.23**		**5.22**		**4.12**		**4.12**	
Copper, Total	50	270	1720	**1.44**		**14.1**		**0.767**	J	**58.4**		**15.2**		**2.52**		**19.3**		**2.51**		**26.7**		**1.53**	
Cyanide, Total	27	27	40	1	U	**0.26**	J	1.1	U	1.1	U	1.2	U	1.1	U	1.2	U	1.2	U	1	U	**1.8**	
Iron, Total				**9830**		**5410**		**10100**		**11700**		**7210**		**17300**		**9940**		**16900**		**5250**		**10300**	
Lead, Total	63	400	450	**0.746**	J	**12.5**		**2.82**	J	**136**		**48.7**		**1.3**	J	**54**		**1.16**	J	**18.6**		**3.29**	J
Magnesium, Total				**8760**		**2510**		**9290**		**5690**		**3240**		**4080**		**3410**		**3630**		**3710**		**9880**	
Manganese, Total	1600	2000	2000	**194**		**72.7**		**265**		**228**		**123**		**539**		**190**		**121**		**204**		**161**	
Mercury, Total	0.18	0.81	0.73	0.074	U	0.083	U	0.075	U	**0.303**		**0.134**		0.079	U	0.095	U	0.091	U	**0.102**		0.087	U
Nickel, Total	30	310	130	**19.3**		**3.37**		**16.7**		**14.5**		**6.08**		**24.9**		**9.6**		**20.5**		**5.37**		**18**	
Potassium, Total				**1140**		**142**	J	**998**		**683**		**609**		**953**		**426**		**964**		**252**		**1140**	
Selenium, Total	3.9	180	4	1.71	U	**0.917**	J	1.72	U	1.84	U	**0.418**	J	1.82	U	**0.498**	J	1.85	U	1.68	U	1.78	U
Silver, Total	2	180	8.3	0.426	U	0.468	U	0.43	U	0.46	U	0.486	U	0.455	U	0.501	U	0.463	U	0.42	U	0.445	U
Sodium, Total				171	U	187	U	172	U	184	U	**124**	J	182	U	200	U	185	U	168	U	178	U
Thallium, Total				1.71	U	1.87	U	1.72	U	1.84	U	1.94	U	1.82	U	2	U	1.85	U	1.68	U	1.78	U
Vanadium, Total				**7.68**		**7.04**		**6.11**		**12.8**		**8.2**		**9.81**		**11.5**		**9.95**		**4.6**		**7.37**	
Zinc, Total	109	10000	2480	**16.7**		**24.8**		**14**		**154**		**40.6**		**18.2**		**72.4**		**23.3**		**25.4**		**16.2**	

Table 3
Old Erie Commons - Remedial Investigation
Sub-Surface Soil Data Summary

LOCATION				TP-105 NATIVE		TP-106 FILL		TP-106 NATIVE		TP-107 FILL		TP-108 FILL		TP-108 NATIVE		TP-109 FILL		TP-109 NATIVE		TP-110 FILL		TP-110 NATIVE	
SAMPLING DATE				7/29/2025		7/28/2025		7/28/2025		7/29/2025		7/29/2025		7/29/2025		7/28/2025		7/28/2025		7/29/2025		7/29/2025	
LAB SAMPLE ID				L2547432-16		L2547174-07		L2547174-08		L2547432-03		L2547432-04		L2547432-05		L2547174-09		L2547174-10		L2547432-06		L2547432-07	
SAMPLE TYPE				SOIL		SOIL		SOIL		SOIL		SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
SAMPLE DEPTH (ft.)				6-6.5		2-3		6-7		2-3		2-2.5		5.5-6		2-3		5-6		2-2.5		5.5-6	
	Unrestricted Use SCO	**Restricted Residential Use SCO**	**Protection of Groundwater SCO**	**Results**	**Qual**	**Results**	**Qual**	**Results**	**Qual**	**Results**	**Qual**	**Results**	**Qual**	**Results**	**Qual**	**Results**	**Qual**	**Results**	**Qual**	**Results**	**Qual**	**Results**	**Qual**
Perfluorinated Alkyl Acids by EPA 1633																							
11-Chloroeicosafluoro-3-Oxaundecane-1-Sulfonic Acid (11Cl-PF3OUdS)				0.903	U	0.799	U	0.799	U	- -		1	U	0.931	U	0.798	U	0.8	U	0.881	U	0.943	U
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)				0.903	U	0.799	U	0.799	U	- -		1	U	0.931	U	0.798	U	0.8	U	0.881	U	0.943	U
1H,1H,2H,2H-Perfluorohexanesulfonic Acid (4:2FTS)				0.903	U	0.799	U	0.799	U	- -		1	U	0.931	U	0.798	U	0.8	U	0.881	U	0.943	U
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)				0.903	U	0.799	U	0.799	U	- -		1	U	0.931	U	0.798	U	0.8	U	0.881	U	0.943	U
2H,2H,3H,3H-Perfluorooctanoic Acid (5:3FTCA)				5.64	U	4.99	U	4.99	U	- -		6.27	U	5.82	U	4.99	U	5	U	5.51	U	5.9	U
3-Perfluoroheptyl Propanoic Acid (7:3FTCA)				5.64	U	4.99	U	4.99	U	- -		6.27	U	5.82	U	4.99	U	5	U	5.51	U	5.9	U
3-Perfluoropropyl Propanoic Acid (3:3FTCA)				1.13	U	0.999	U	0.998	U	- -		1.25	U	1.16	U	0.998	U	1	U	1.1	U	1.18	U
4,8-Dioxa-3h-Perfluorononanoic Acid (ADONA)				0.903	U	0.799	U	0.799	U	- -		1	U	0.931	U	0.798	U	0.8	U	0.881	U	0.943	U
9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid (9Cl-PF3ONS)				0.903	U	0.799	U	0.799	U	- -		1	U	0.931	U	0.798	U	0.8	U	0.881	U	0.943	U
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)				0.903	U	0.799	U	0.799	U	- -		1	U	0.931	U	0.798	U	0.8	U	0.881	U	0.943	U
N-Ethyl Perfluorooctane Sulfonamide (NEtFOSA)				0.226	U	0.2	U	0.2	U	- -		0.251	U	0.233	U	0.2	U	0.2	U	0.22	U	0.236	U
N-Ethyl Perfluorooctanesulfonamido Ethanol (NEtFOSE)				2.26	U	2	U	2	U	- -		2.51	U	2.33	U	2	U	2	U	2.2	U	2.36	U
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)				0.226	U	0.2	U	0.2	U	- -		0.251	U	0.233	U	0.2	U	0.2	U	0.22	U	0.236	U
N-Methyl Perfluorooctane Sulfonamide (NMeFOSA)				0.226	U	0.2	U	0.2	U	- -		0.251	U	0.233	U	0.2	U	0.2	U	0.22	U	0.236	U
N-Methyl Perfluorooctanesulfonamido Ethanol (NMeFOSE)				2.26	U	2	U	2	U	- -		2.51	U	2.33	U	2	U	2	U	2.2	U	2.36	U
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)				0.226	U	0.2	U	0.2	U	- -		0.251	U	0.233	U	0.2	U	0.2	U	0.22	U	0.236	U
Nonafluoro-3,6-Dioxaheptanoic Acid (NFDHA)				0.451	U	0.399	U	0.399	U	- -		0.502	U	0.466	U	0.399	U	0.4	U	0.44	U	0.472	U
Perfluoro(2-Ethoxyethane)Sulfonic Acid (PFEESA)				0.451	U	0.399	U	0.399	U	- -		0.502	U	0.466	U	0.399	U	0.4	U	0.44	U	0.472	U
Perfluoro-3-Methoxypropanoic Acid (PFMPA)				0.451	U	0.399	U	0.399	U	- -		0.502	U	0.466	U	0.399	U	0.4	U	0.44	U	0.472	U
Perfluoro-4-Methoxybutanoic Acid (PFMBA)				0.451	U	0.399	U	0.399	U	- -		0.502	U	0.466	U	0.399	U	0.4	U	0.44	U	0.472	U
Perfluorobutanesulfonic Acid (PFBS)				0.226	U	0.2	U	0.2	U	- -		0.251	U	0.233	U	0.2	U	0.2	U	0.22	U	0.236	U
Perfluorobutanoic Acid (PFBA)				0.903	U	**0.063**	J	0.799	U	- -		**0.144**	J	0.931	U	**0.089**	J	0.8	U	**0.18**	J	0.943	U
Perfluorodecanesulfonic Acid (PFDS)				0.226	U	0.2	U	0.2	U	- -		0.251	U	0.233	U	0.2	U	0.2	U	0.22	U	0.236	U
Perfluorodecanoic Acid (PFDA)				0.226	U	0.2	U	0.2	U	- -		0.251	U	0.233	U	**0.035**	J	0.2	U	0.22	U	0.236	U
Perfluorododecanesulfonic Acid (PFDoS)				0.226	U	0.2	U	0.2	U	- -		0.251	U	0.233	U	0.2	U	0.2	U	0.22	U	0.236	U
Perfluorododecanoic Acid (PFDoA)				0.226	U	0.2	U	0.2	U	- -		0.251	U	0.233	U	0.2	U	0.2	U	0.22	U	0.236	U
Perfluoroheptanesulfonic Acid (PFHpS)				0.226	U	0.2	U	0.2	U	- -		0.251	U	0.233	U	0.2	U	0.2	U	0.22	U	0.236	U
Perfluoroheptanoic Acid (PFHpA)				0.226	U	**0.029**	J	0.2	U	- -		**0.114**	J	0.233	U	**0.049**	J	0.2	U	**0.056**	J	0.236	U
Perfluorohexanesulfonic Acid (PFHxS)				0.226	U	**0.045**	J	0.2	U	- -		**0.058**	J	**0.03**	J	**0.051**	J	0.2	U	**0.085**	J	0.236	U
Perfluorohexanoic Acid (PFHxA)				0.226	U	**0.031**	J	0.2	U	- -		**0.09**	J	0.233	U	0.041	J	0.2	U	**0.1**	J	0.236	U
Perfluorononanesulfonic Acid (PFNS)				0.226	U	0.2	U	0.2	U	- -		0.251	U	0.233	U	0.2	U	0.2	U	0.22	U	0.236	U
Perfluorononanoic Acid (PFNA)				0.226	U	**0.037**	J	0.2	U	- -		**0.088**	J	0.233	U	**0.082**	J	0.2	U	**0.063**	J	0.236	U
Perfluorooctanesulfonamide (PFOSA)				0.226	U	0.2	U	0.2	U	- -		0.251	U	0.233	U	0.2	U	0.2	U	0.22	U	0.236	U
Perfluorooctanesulfonic Acid (PFOS)	0.88	44	1	**0.039**	J	**0.327**		**0.034**	J	- -		**0.412**		0.233	U	**0.457**		0.2	U	**0.283**		0.049	J
Perfluorooctanoic Acid (PFOA)	0.66	33	0.8	0.226	U	**0.113**	J	0.2	U	- -		**0.412**		0.233	U	**0.162**	J	0.2	U	**0.248**		0.236	U
Perfluoropentanesulfonic Acid (PFPeS)				0.226	U	0.2	U	0.2	U	- -		0.251	U	0.233	U	0.2	U	0.2	U	0.22	U	0.236	U
Perfluoropentanoic Acid (PFPeA)				0.451	U	0.399	U	0.399	U	- -		**0.066**	J	0.466	U	0.399	U	0.4	U	**0.085**	J	0.472	U
Perfluorotetradecanoic Acid (PFTeDA)				0.226	U	0.2	U	0.2	U	- -		0.251	U	0.233	U	0.2	U	0.2	U	0.22	U	0.236	U
Perfluorotridecanoic Acid (PFTrDA)				0.226	U	0.2	U	0.2	U	- -		0.251	U	0.233	U	0.2	U	0.2	U	0.22	U	0.236	U
Perfluoroundecanoic Acid (PFUnA)				0.226	U	0.2	U	0.2	U	- -		**0.028**	J	0.233	U	**0.03**	J	0.2	U	0.22	U	0.236	U
Asbestos in Bulk																							
Asbestos Fibers				- -		- -		- -		- -		- -		- -		- -		- -		- -		- -	

Notes:
- Analytical data compared to NYSDEC Part 375-6.
- Results and soil cleanup objectives (SCO) in parts per million (ppm), except for PFAS which is in parts per billion (ppb).
- Analytes detected at concentrations greater than laboratory detections limits are **bolded**.
- Highlighted color indicates the respective use SCO(s) exceeded. Use type SCOs are listed from left to right from most restrictive to least restrictive.
- Blank space indicates that a SCO does not exist.
- Duplicate sample results are located to the right of the parent sample results.
- "J" indicates estimated concentration.
- "U" indicates analyte not detected at concentration greater than laboratory detection limit.
- "F" indicates the ratio of quantifier ion response to qualifier ion response falls outside of the laboratory criteria. Results are considered to be an estimated maximum concentration.
- "I" indicates the lower value for the two columns has been reported due to obvious interference.
- "P" indicates the RPD between the results for the two columns exceeds the method-specified criteria.
- "ND" indicates that asbestos was not detected in the respective sample.
- "-" indicates that sample was not anlayzed for that parameter.

Table 3
Old Erie Commons - Remedial Investigation
Sub-Surface Soil Data Summary

LOCATION				TP-111 FILL		TP-112 FILL		TP-112 NATIVE		TP-113 FILL		TP-113 NATIVE		TP-114 FILL		TP-114 NATIVE		TP-115 FILL		TP-115 NATIVE	
SAMPLING DATE				7/29/2025		7/29/2025		7/29/2025		7/28/2025		7/28/2025		7/29/2025		7/29/2025		7/29/2025		7/29/2025	
LAB SAMPLE ID				L2547432-08		L2547432-09		L2547432-10		L2547174-11		L2547174-12		L2547432-11		L2547432-12		L2547432-13		L2547432-14	
SAMPLE TYPE				SOIL		SOIL		SOIL		SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
SAMPLE DEPTH (ft.)				3-4		2-2.5		4-4.5		2-3		5-5.5		1-2		3-4		1-1.5		5-5.5	
	Unrestricted Use SCO	Restricted Residential Use SCO	Protection of Groundwater SCO	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual
Volatile Organics by EPA 5035																					
1,1,1-Trichloroethane	0.68	100	0.68	0.00044 U		- -		- -		0.00062 U		0.00061 U		0.00098 U		0.0006 U		0.00074 U		0.0005 U	
1,1,2,2-Tetrachloroethane				0.00044 U		- -		- -		0.00062 U		0.00061 U		0.00098 U		0.0006 U		0.00074 U		0.0005 U	
1,1,2-Trichloroethane				0.00088 U		- -		- -		0.0012 U		0.0012 U		0.002 U		0.0012 U		0.0015 U		0.001 U	
1,1-Dichloroethane	0.27	26	0.27	0.00088 U		- -		- -		0.0012 U		0.0012 U		0.002 U		0.0012 U		0.0015 U		0.001 U	
1,1-Dichloroethene	0.33	100	0.33	0.00088 U		- -		- -		0.0012 U		0.0012 U		0.002 U		0.0012 U		0.0015 U		0.001 U	
1,2,4-Trichlorobenzene				0.0018 U		- -		- -		0.0025 U		0.0024 U		0.0039 U		0.0024 U		0.003 U		0.002 U	
1,2,4-Trimethylbenzene	3.6	52	3.6	0.0018 U		- -		- -		0.0025 U		0.0024 U		0.0039 U		0.0024 U		0.003 U		0.002 U	
1,2-Dibromo-3-chloropropane				0.0026 U		- -		- -		0.0037 U		0.0036 U		0.0059 U		0.0036 U		0.0044 U		0.003 U	
1,2-Dibromoethane				0.00088 U		- -		- -		0.0012 U		0.0012 U		0.002 U		0.0012 U		0.0015 U		0.001 U	
1,2-Dichlorobenzene	1.1	100	1.1	0.0018 U		- -		- -		0.0025 U		0.0024 U		0.0039 U		0.0024 U		0.003 U		0.002 U	
1,2-Dichloroethane	0.02	3.1	0.02	0.00088 U		- -		- -		0.0012 U		0.0012 U		0.002 U		0.0012 U		0.0015 U		0.001 U	
1,2-Dichloropropane				0.00088 U		- -		- -		0.0012 U		0.0012 U		0.002 U		0.0012 U		0.0015 U		0.001 U	
1,3,5-Trimethylbenzene	8.4	52	8.4	0.0018 U		- -		- -		0.0025 U		0.0024 U		0.0039 U		0.0024 U		0.003 U		0.002 U	
1,3-Dichlorobenzene	2.4	49	2.4	0.0018 U		- -		- -		0.0025 U		0.0024 U		0.0039 U		0.0024 U		0.003 U		0.002 U	
1,4-Dichlorobenzene	1.8	13	1.8	0.0018 U		- -		- -		0.0025 U		0.0024 U		0.0039 U		0.0024 U		0.003 U		0.002 U	
2-Butanone	0.12	100	0.12	0.0088 U		- -		- -		0.012 U		0.012 U		0.02 U		0.012 U		0.015 U		0.01 U	
2-Hexanone				0.0088 U		- -		- -		0.012 U		0.012 U		0.02 U		0.012 U		0.015 U		0.01 U	
4-Methyl-2-pentanone				0.0088 U		- -		- -		0.012 U		0.012 U		0.02 U		0.012 U		0.015 U		0.01 U	
Acetone	0.05	100	0.05	0.0088 U		- -		- -		0.012 U		**0.019**		0.02 U		0.012 U		0.015 U		0.01 U	
Benzene	0.06	4.8	0.06	0.00044 U		- -		- -		0.00062 U		0.00061 U		0.00098 U		0.0006 U		0.00074 U		0.0005 U	
Bromodichloromethane				0.00044 U		- -		- -		0.00062 U		0.00061 U		0.00098 U		0.0006 U		0.00074 U		0.0005 U	
Bromoform				0.0035 U		- -		- -		0.0049 U		0.0049 U		0.0078 U		0.0048 U		0.0059 U		0.004 U	
Bromomethane				0.0018 U		- -		- -		0.0025 U		0.0024 U		0.0039 U		0.0024 U		0.003 U		0.002 U	
Carbon disulfide				0.0088 U		- -		- -		0.012 U		0.012 U		0.02 U		0.012 U		0.015 U		0.01 U	
Carbon tetrachloride	0.76	2.4	0.76	0.00088 U		- -		- -		0.0012 U		0.0012 U		0.002 U		0.0012 U		0.0015 U		0.001 U	
Chlorobenzene	1.1	100	1.1	0.00044 U		- -		- -		0.00062 U		0.00061 U		0.00098 U		0.0006 U		0.00074 U		0.0005 U	
Chloroethane				0.0018 U		- -		- -		0.0025 U		0.0024 U		0.0039 U		0.0024 U		0.003 U		0.002 U	
Chloroform	0.37	49	0.37	0.0013 U		- -		- -		0.0018 U		0.0018 U		0.0029 U		0.0018 U		0.0022 U		0.0015 U	
Chloromethane				0.0035 U		- -		- -		0.0049 U		0.0049 U		0.0078 U		0.0048 U		0.0059 U		0.004 U	
cis-1,2-Dichloroethene	0.25	100	0.25	0.00088 U		- -		- -		0.0012 U		0.0012 U		0.002 U		0.0012 U		0.0015 U		0.001 U	
cis-1,3-Dichloropropene				0.00044 U		- -		- -		0.00062 U		0.00061 U		0.00098 U		0.0006 U		0.00074 U		0.0005 U	
Cyclohexane				0.0088 U		- -		- -		0.012 U		0.012 U		0.02 U		0.012 U		0.015 U		0.01 U	
Dibromochloromethane				0.00088 U		- -		- -		0.0012 U		0.0012 U		0.002 U		0.0012 U		0.0015 U		0.001 U	
Dichlorodifluoromethane				0.0088 U		- -		- -		0.012 U		0.012 U		0.02 U		0.012 U		0.015 U		0.01 U	
Ethylbenzene	1	41	1	0.00088 U		- -		- -		0.0012 U		0.0012 U		0.002 U		0.0012 U		0.0015 U		0.001 U	
Freon-113				0.0035 U		- -		- -		0.0049 U		0.0049 U		0.0078 U		0.0048 U		0.0059 U		0.004 U	
Isopropylbenzene				0.00088 U		- -		- -		0.0012 U		0.0012 U		0.002 U		0.0012 U		0.0015 U		0.001 U	
Methyl Acetate				0.0035 U		- -		- -		0.0049 U		0.0049 U		0.0078 U		0.0048 U		0.0059 U		0.004 U	
Methyl cyclohexane				0.0035 U		- -		- -		0.0049 U		0.0049 U		0.0078 U		0.0048 U		0.0059 U		0.004 U	
Methyl tert butyl ether	0.93	100	0.93	0.0018 U		- -		- -		0.0025 U		0.0024 U		0.0039 U		0.0024 U		0.003 U		0.002 U	
Methylene chloride	0.05	100	0.05	0.0044 U		- -		- -		0.0062 U		0.0061 U		0.0098 U		0.006 U		0.0074 U		0.005 U	
n-Butylbenzene	12	100	12	0.00088 U		- -		- -		0.0012 U		0.0012 U		0.002 U		0.0012 U		0.0015 U		0.001 U	
n-Propylbenzene	3.9	100	3.9	0.00088 U		- -		- -		0.0012 U		0.0012 U		0.002 U		0.0012 U		0.0015 U		0.001 U	
Naphthalene	12	100	12	0.0035 U		- -		- -		0.0049 U		0.0049 U		0.0078 U		0.0048 U		0.0059 U		0.004 U	
o-Xylene				0.00088 U		- -		- -		0.0012 U		0.0012 U		0.002 U		0.0012 U		0.0015 U		0.001 U	
p-Isopropyltoluene				0.00088 U		- -		- -		0.0012 U		0.0012 U		0.002 U		0.0012 U		0.0015 U		0.001 U	
p/m-Xylene				0.0018 U		- -		- -		0.0025 U		0.0024 U		0.0039 U		0.0024 U		0.003 U		0.002 U	
sec-Butylbenzene	11	100	11	0.00088 U		- -		- -		0.0012 U		0.0012 U		0.002 U		0.0012 U		0.0015 U		0.001 U	
Styrene				0.00088 U		- -		- -		0.0012 U		0.0012 U		0.002 U		0.0012 U		0.0015 U		0.001 U	
tert-Butylbenzene	5.9	100	5.9	0.0018 U		- -		- -		0.0025 U		0.0024 U		0.0039 U		0.0024 U		0.003 U		0.002 U	
Tetrachloroethene	1.3	19	1.3	0.00044 U		- -		- -		0.00062 U		0.00061 U		0.00098 U		0.0006 U		0.00074 U		0.0005 U	
Toluene	0.7	100	0.7	0.00088 U		- -		- -		0.0012 U		0.0012 U		0.002 U		0.0012 U		0.0015 U		0.001 U	
trans-1,2-Dichloroethene	0.19	100	0.19	0.0013 U		- -		- -		0.0018 U		0.0018 U		0.0029 U		0.0018 U		0.0022 U		0.0015 U	
trans-1,3-Dichloropropene				0.00088 U		- -		- -		0.0012 U		0.0012 U		0.002 U		0.0012 U		0.0015 U		0.001 U	
Trichloroethene	0.47	21	0.47	0.00044 U		- -		- -		0.00062 U		0.00061 U		0.00098 U		0.0006 U		0.00074 U		0.0005 U	
Trichlorofluoromethane				0.0035 U		- -		- -		0.0049 U		0.0049 U		0.0078 U		0.0048 U		0.0059 U		0.004 U	
Vinyl chloride	0.02	0.9	0.02	0.00088 U		- -		- -		0.0012 U		0.0012 U		0.002 U		0.0012 U		0.0015 U		0.001 U	

Table 3
Old Erie Commons - Remedial Investigation
Sub-Surface Soil Data Summary

LOCATION				TP-111 FILL		TP-112 FILL		TP-112 NATIVE		TP-113 FILL		TP-113 NATIVE		TP-114 FILL		TP-114 NATIVE		TP-115 FILL		TP-115 NATIVE	
SAMPLING DATE				7/29/2025		7/29/2025		7/29/2025		7/28/2025		7/28/2025		7/29/2025		7/29/2025		7/29/2025		7/29/2025	
LAB SAMPLE ID				L2547432-08		L2547432-09		L2547432-10		L2547174-11		L2547174-12		L2547432-11		L2547432-12		L2547432-13		L2547432-14	
SAMPLE TYPE				SOIL		SOIL		SOIL		SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
SAMPLE DEPTH (ft.)				3-4		2-2.5		4-4.5		2-3		5-5.5		1-2		3-4		1-1.5		5-5.5	
	Unrestricted Use SCO	Restricted Residential Use SCO	Protection of Groundwater SCO	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual
Semivolatile Organics by GC/MS																					
1,2,4,5-Tetrachlorobenzene				0.21	U	0.19	U	0.2	U	0.18	U	0.2	U	0.21	U	0.2	U	0.2	U	0.19	U
1,4-Dioxane	0.1	13	0.1	0.031	U	0.029	U	0.03	U	0.027	U	0.03	U	0.032	U	0.03	U	0.03	U	0.029	U
2,3,4,6-Tetrachlorophenol				0.21	U	0.19	U	0.2	U	0.18	U	0.2	U	0.21	U	0.2	U	0.2	U	0.19	U
2,4,5-Trichlorophenol				0.21	U	0.19	U	0.2	U	0.18	U	0.2	U	0.21	U	0.2	U	0.2	U	0.19	U
2,4,6-Trichlorophenol				0.12	U	0.11	U	0.12	U	0.11	U	0.12	U	0.13	U	0.12	U	0.12	U	0.12	U
2,4-Dichlorophenol				0.19	U	0.17	U	0.18	U	0.16	U	0.18	U	0.19	U	0.18	U	0.18	U	0.17	U
2,4-Dimethylphenol				0.21	U	0.19	U	0.2	U	0.18	U	0.2	U	0.21	U	0.2	U	0.2	U	0.19	U
2,4-Dinitrophenol				1	U	0.92	U	0.96	U	0.87	U	0.97	U	1	U	0.94	U	0.95	U	0.92	U
2,4-Dinitrotoluene				0.21	U	0.19	U	0.2	U	0.18	U	0.2	U	0.21	U	0.2	U	0.2	U	0.19	U
2,6-Dinitrotoluene				0.21	U	0.19	U	0.2	U	0.18	U	0.2	U	0.21	U	0.2	U	0.2	U	0.19	U
2-Chloronaphthalene				0.21	U	0.19	U	0.2	U	0.18	U	0.2	U	0.21	U	0.2	U	0.2	U	0.19	U
2-Chlorophenol				0.21	U	0.19	U	0.2	U	0.18	U	0.2	U	0.21	U	0.2	U	0.2	U	0.19	U
2-Methylnaphthalene				**0.029**	J	**0.62**		0.24	U	**0.11**	J	0.24	U	**0.16**	J	0.24	U	**0.068**	J	0.23	U
2-Methylphenol	0.33	100	0.33	0.21	U	**0.031**	J	0.2	U	0.18	U	0.2	U	0.21	U	0.2	U	0.2	U	0.19	U
2-Nitroaniline				0.21	U	0.19	U	0.2	U	0.18	U	0.2	U	0.21	U	0.2	U	0.2	U	0.19	U
2-Nitrophenol				0.45	U	0.41	U	0.43	U	0.39	U	0.44	U	0.45	U	0.42	U	0.42	U	0.42	U
3,3'-Dichlorobenzidine				0.21	U	0.19	U	0.2	U	0.18	U	0.2	U	0.21	U	0.2	U	0.2	U	0.19	U
3-Methylphenol/4-Methylphenol	0.33	100	0.33	0.3	U	**0.087**	J	0.29	U	0.26	U	0.29	U	**0.081**	J	0.28	U	0.28	U	0.28	U
3-Nitroaniline				0.21	U	0.19	U	0.2	U	0.18	U	0.2	U	0.21	U	0.2	U	0.2	U	0.19	U
4,6-Dinitro-o-cresol				0.54	U	0.5	U	0.52	U	0.47	U	0.53	U	0.55	U	0.51	U	0.51	U	0.5	U
4-Bromophenyl phenyl ether				0.21	U	0.19	U	0.2	U	0.18	U	0.2	U	0.21	U	0.2	U	0.2	U	0.19	U
4-Chloroaniline				0.21	U	0.19	U	0.2	U	0.18	U	0.2	U	0.21	U	0.2	U	0.2	U	0.19	U
4-Chlorophenyl phenyl ether				0.21	U	0.19	U	0.2	U	0.18	U	0.2	U	0.21	U	0.2	U	0.2	U	0.19	U
4-Nitroaniline				0.21	U	0.19	U	0.2	U	0.18	U	0.2	U	0.21	U	0.2	U	0.2	U	0.19	U
4-Nitrophenol				0.29	U	0.27	U	0.28	U	0.25	U	0.28	U	0.29	U	0.28	U	0.28	U	0.27	U
Acenaphthene	20	100	98	0.17	U	**0.87**		0.16	U	**0.16**		0.16	U	**0.11**	J	0.16	U	**0.072**	J	0.15	U
Acenaphthylene	100	100	107	**0.16**	J	**0.58**		0.16	U	**0.17**		0.16	U	**0.38**		0.16	U	**0.14**	J	0.15	U
Acetophenone				0.21	U	**0.031**	J	0.2	U	0.18	U	0.2	U	0.21	U	0.2	U	0.2	U	0.19	U
Anthracene	100	100	1000	**0.15**		**2.4**		0.12	U	**0.47**		0.12	U	**0.5**		0.12	U	**0.3**		0.12	U
Atrazine				0.17	U	0.15	U	0.16	U	0.14	U	0.16	U	0.17	U	0.16	U	0.16	U	0.15	U
Benzaldehyde				0.27	U	**0.16**	J	0.26	U	0.24	U	0.27	U	**0.12**	J	0.26	U	0.26	U	0.25	U
Benzo(a)anthracene	1	1	1	**0.75**		**5.7**		0.12	U	**1.3**		**0.03**	J	**3**		0.12	U	**1.2**		0.12	U
Benzo(a)pyrene	1	1	22	**0.72**		**5.1**		0.16	U	**1.2**		0.16	U	**3.9**		0.16	U	**1.2**		0.15	U
Benzo(b)fluoranthene	1	1	1.7	**1**		**7.4**		0.12	U	**1.5**		0.12	U	**5.6**		0.12	U	**1.5**		0.12	U
Benzo(ghi)perylene	100	100	1000	**0.42**		**2.7**		0.16	U	**0.73**		0.16	U	**2.9**		0.16	U	**0.68**		0.15	U
Benzo(k)fluoranthene	0.8	3.9	1.7	**0.34**		**1.8**		0.12	U	**0.44**		0.12	U	**1.4**		0.12	U	**0.45**		0.12	U
Biphenyl				0.47	U	**0.12**	J	0.46	U	0.41	U	0.46	U	**0.04**	J	0.45	U	0.45	U	0.44	U
Bis(2-chloroethoxy)methane				0.22	U	0.21	U	0.22	U	0.2	U	0.22	U	0.23	U	0.21	U	0.21	U	0.21	U
Bis(2-chloroethyl)ether				0.19	U	0.17	U	0.18	U	0.16	U	0.18	U	0.19	U	0.18	U	0.18	U	0.17	U
Bis(2-chloroisopropyl)ether				0.25	U	0.23	U	0.24	U	0.22	U	0.24	U	0.25	U	0.24	U	0.24	U	0.23	U
Bis(2-ethylhexyl)phthalate				**0.11**	J	**0.085**	J	0.2	U	0.18	U	0.2	U	**0.09**	J	0.2	U	0.2	U	0.19	U
Butyl benzyl phthalate				0.21	U	0.19	U	0.2	U	0.18	U	0.2	U	0.21	U	0.2	U	0.2	U	0.19	U
Caprolactam				0.21	U	0.19	U	0.2	U	0.18	U	0.2	U	0.21	U	0.2	U	0.2	U	0.19	U
Carbazole				**0.16**	J	**1**		0.2	U	**0.25**		0.2	U	**0.47**		0.2	U	**0.12**	J	0.19	U
Chrysene	1	3.9	1	**0.78**		**5**		0.12	U	**1.3**		**0.024**	J	**3.4**		0.12	U	**1.1**		0.12	U
Di-n-butylphthalate				0.21	U	**4.4**		0.2	U	0.18	U	0.2	U	0.21	U	0.2	U	0.2	U	0.19	U
Di-n-octylphthalate				0.21	U	0.19	U	0.2	U	0.18	U	0.2	U	0.21	U	0.2	U	0.2	U	0.19	U
Dibenzo(a,h)anthracene	0.33	0.33	1000	**0.11**	J	**0.72**		0.12	U	**0.15**		0.12	U	**0.67**		0.12	U	**0.16**		0.12	U
Dibenzofuran	7	59	210	**0.026**	J	**0.7**		0.2	U	**0.11**	J	0.2	U	**0.2**	J	0.2	U	**0.073**	J	0.19	U
Diethyl phthalate				0.21	U	0.19	U	0.2	U	0.18	U	0.2	U	0.21	U	0.2	U	0.2	U	0.19	U
Dimethyl phthalate				0.21	U	0.19	U	0.2	U	0.18	U	0.2	U	0.21	U	0.2	U	0.2	U	0.19	U
Fluoranthene	100	100	1000	**1.5**		**9.4**		0.12	U	**2.5**		**0.034**	J	**5.7**		0.12	U	**2.3**		0.12	U
Fluorene	30	100	386	**0.034**	J	**1.1**		0.2	U	**0.17**	J	0.2	U	**0.18**	J	0.2	U	**0.1**	J	0.19	U
Hexachlorobenzene	0.33	1.2	3.2	0.12	U	0.11	U	0.12	U	0.11	U	0.12	U	0.13	U	0.12	U	0.12	U	0.12	U
Hexachlorobutadiene				0.21	U	0.19	U	0.2	U	0.18	U	0.2	U	0.21	U	0.2	U	0.2	U	0.19	U
Hexachlorocyclopentadiene				0.59	U	0.54	U	0.57	U	0.52	U	0.58	U	0.6	U	0.56	U	0.56	U	0.55	U
Hexachloroethane				0.17	U	0.15	U	0.16	U	0.14	U	0.16	U	0.17	U	0.16	U	0.16	U	0.15	U
Indeno(1,2,3-cd)pyrene	0.5	0.5	8.2	**0.49**		**3.1**		0.16	U	**0.69**		0.16	U	**3**		0.16	U	**0.77**		0.15	U
Isophorone				0.19	U	0.17	U	0.18	U	0.16	U	0.18	U	0.19	U	0.18	U	0.18	U	0.17	U
n-Nitrosodi-n-propylamine				0.21	U	0.19	U	0.2	U	0.18	U	0.2	U	0.21	U	0.2	U	0.2	U	0.19	U
Naphthalene	12	100	12	**0.072**	J	**0.91**		0.2	U	**0.18**		0.2	U	**0.26**		0.2	U	**0.1**	J	0.19	U
NDPA/DPA				0.17	U	0.15	U	0.16	U	0.14	U	0.16	U	0.17	U	0.16	U	0.16	U	0.15	U
Nitrobenzene				0.19	U	0.17	U	0.18	U	0.16	U	0.18	U	0.19	U	0.18	U	0.18	U	0.17	U

Table 3
Old Erie Commons - Remedial Investigation
Sub-Surface Soil Data Summary

LOCATION				TP-111 FILL		TP-112 FILL		TP-112 NATIVE		TP-113 FILL		TP-113 NATIVE		TP-114 FILL		TP-114 NATIVE		TP-115 FILL		TP-115 NATIVE	
SAMPLING DATE				7/29/2025		7/29/2025		7/29/2025		7/28/2025		7/28/2025		7/29/2025		7/29/2025		7/29/2025		7/29/2025	
LAB SAMPLE ID				L2547432-08		L2547432-09		L2547432-10		L2547174-11		L2547174-12		L2547432-11		L2547432-12		L2547432-13		L2547432-14	
SAMPLE TYPE				SOIL		SOIL		SOIL		SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
SAMPLE DEPTH (ft.)				3-4		2-2.5		4-4.5		2-3		5-5.5		1-2		3-4		1-1.5		5-5.5	
	Unrestricted Use SCO	**Restricted Residential Use SCO**	**Protection of Groundwater SCO**	**Results**	**Qual**	**Results**	**Qual**	**Results**	**Qual**	**Results**	**Qual**	**Results**	**Qual**	**Results**	**Qual**	**Results**	**Qual**	**Results**	**Qual**	**Results**	**Qual**
p-Chloro-m-cresol				0.21	U	0.19	U	0.2	U	0.18	U	0.2	U	0.21	U	0.2	U	0.2	U	0.19	U
Pentachlorophenol	0.8	6.7	0.8	0.17	U	0.15	U	0.16	U	0.14	U	0.16	U	0.17	U	0.16	U	0.16	U	0.15	U
Phenanthrene	100	100	1000	**0.65**		**8.3**		0.12	U	**1.9**		0.12	U	**3.8**		0.12	U	**1.4**		0.12	U
Phenol	0.33	100	0.33	0.21	U	0.19	U	0.2	U	0.18	U	0.2	U	**0.032**	J	0.2	U	0.2	U	0.19	U
Pyrene	100	100	1000	**1.2**		**7.6**		0.12	U	**2.3**		**0.032**	J	**4.7**		0.12	U	**1.9**		0.12	U
Polychlorinated Biphenyls by GC																					
Aroclor 1016	0.1	1	3.2	0.0599	U	0.0571	U	0.0593	U	- -		- -		0.0612	U	0.0551	U	0.0569	U	0.0383	U
Aroclor 1221	0.1	1	3.2	0.0599	U	0.0571	U	0.0593	U	- -		- -		0.0612	U	0.0551	U	0.0569	U	0.0383	U
Aroclor 1232	0.1	1	3.2	0.0599	U	0.0571	U	0.0593	U	- -		- -		0.0612	U	0.0551	U	0.0569	U	0.0383	U
Aroclor 1242	0.1	1	3.2	0.0599	U	0.0571	U	0.0593	U	- -		- -		0.0612	U	0.0551	U	0.0569	U	0.0383	U
Aroclor 1248	0.1	1	3.2	0.0599	U	0.0571	U	0.0593	U	- -		- -		0.0612	U	0.0551	U	0.0569	U	0.0383	U
Aroclor 1254	0.1	1	3.2	**0.427**		0.0571	U	0.0593	U	- -		- -		0.0612	U	0.0551	U	0.0569	U	0.0383	U
Aroclor 1260	0.1	1	3.2	0.0599	U	**0.0137**	J	0.0593	U	- -		- -		**0.0127**	J	0.0551	U	0.0569	U	0.0383	U
Aroclor 1262	0.1	1	3.2	0.0599	U	0.0571	U	0.0593	U	- -		- -		0.0612	U	0.0551	U	0.0569	U	0.0383	U
Aroclor 1268	0.1	1	3.2	0.0599	U	0.0571	U	0.0593	U	- -		- -		0.0612	U	0.0551	U	0.0569	U	0.0383	U
PCBs, Total	0.1	1	3.2	**0.427**		**0.0137**	J	0.0593	U	- -		- -		**0.0127**	J	0.0551	U	0.0569	U	0.0383	U
Organochlorine Pesticides by GC																					
4,4'-DDD	0.0033	13	14	**0.00223**	IP	**0.00173**	JIP	0.0019	U	- -		- -		**0.00231**		0.00187	U	0.00188	U	0.00182	U
4,4'-DDE	0.0033	8.9	17	**0.0121**		**0.00949**		0.0019	U	- -		- -		**0.0329**		0.00187	U	**0.00164**	J	0.00182	U
4,4'-DDT	0.0033	7.9	136	**0.0463**	P	**0.0238**		0.0019	U	- -		- -		**0.0366**		0.00187	U	0.00188	U	0.00182	U
Aldrin	0.005	0.097	0.19	0.00194	U	0.00183	U	0.0019	U	- -		- -		0.00197	U	0.00187	U	0.00188	U	0.00182	U
Alpha-BHC	0.02	0.48	0.02	0.00081	U	0.000761	U	0.000791	U	- -		- -		0.000822	U	0.000779	U	0.000782	U	0.000757	U
Beta-BHC	0.036	0.36	0.09	0.00194	U	0.00183	U	0.0019	U	- -		- -		0.00197	U	0.00187	U	0.00188	U	0.00182	U
cis-Chlordane	0.094	4.2	2.9	0.00243	U	**0.00176**	JIP	0.00237	U	- -		- -		0.00246	U	0.00234	U	0.00234	U	0.00227	U
Delta-BHC	0.04	100	0.25	0.00194	U	0.00183	U	0.0019	U	- -		- -		0.00197	U	0.00187	U	0.00188	U	0.00182	U
Dieldrin	0.005	0.2	0.1	0.00122	U	**0.000913**	JIP	0.00118	U	- -		- -		0.00123	U	0.00117	U	0.00117	U	0.00114	U
Endosulfan I	2.4	24	102	0.00194	U	0.00183	U	0.0019	U	- -		- -		0.00197	U	0.00187	U	0.00188	U	0.00182	U
Endosulfan II	2.4	24	102	0.00194	U	0.00183	U	0.0019	U	- -		- -		0.00197	U	0.00187	U	0.00188	U	0.00182	U
Endosulfan sulfate	2.4	24	1000	0.00081	U	0.000761	U	0.000791	U	- -		- -		0.000822	U	0.000779	U	0.000782	U	0.000757	U
Endrin	0.014	11	0.06	0.00081	U	0.000761	U	0.000791	U	- -		- -		0.000822	U	0.000779	U	0.000782	U	0.000757	U
Heptachlor	0.042	2.1	0.38	0.000972	U	0.000914	U	0.000949	U	- -		- -		0.000986	U	0.000934	U	0.000938	U	0.000908	U
Lindane	0.1	1.3	0.1	0.00081	U	0.000761	U	0.000791	U	- -		- -		0.000822	U	0.000779	U	0.000782	U	0.000757	U
Chlorinated Herbicides by GC																					
2,4,5-TP (Silvex)	3.8	100	3.8	0.207	U	0.19	U	0.198	U	- -		- -		0.21	U	0.196	U	0.2	U	0.191	U
Total Metals																					
Aluminum, Total				**5240**		**4340**		**7260**		**5130**		**6440**		**4250**		**5040**		**4660**		**5940**	
Antimony, Total				4.88	U	4.47	U	4.58	U	4.31	U	4.74	U	4.99	U	4.56	U	4.62	U	4.44	U
Arsenic, Total	13	16	16	**2.89**		**9.53**		**2.36**		**8.18**		**2.18**		**5.52**		**1.18**		**10.8**		**2.66**	
Barium, Total	350	400	820	**84.7**		**148**		**133**		**77.3**		**64.6**		**77**		**29**		**84.6**		**37.4**	
Beryllium, Total	7.2	72	47	**0.358**	J	**0.514**		**0.515**		**0.395**	J	**0.454**	J	**0.301**	J	**0.333**	J	**0.376**	J	**0.392**	J
Cadmium, Total	2.5	4.3	7.5	**0.19**	J	**0.804**	J	**0.239**	J	**0.159**	J	0.948	U	**0.5**	J	0.912	U	**0.366**	J	**0.098**	J
Calcium, Total				**5570**		**11700**		**2530**		**13000**		**2960**		**8120**		**14000**		**8240**		**1920**	
Chromium, Total				**7.97**		**8.75**		**10.9**		**8.54**		**10**		**9.58**		**6.16**		**8.27**		**9.78**	
Cobalt, Total				**7.03**		**5.22**		**6.96**		**5.68**		**5.43**		**3.56**		**4.73**		**4.35**		**4.7**	
Copper, Total	50	270	1720	**6.74**		**46.6**		**4.99**		**21.2**		**1.82**		**89.2**		**1.72**		**22.1**		**2.37**	
Cyanide, Total	27	27	40	1.2	U	**0.25**	J	1.1	U	1.1	U	1.2	U	**0.38**	J	1.1	U	1.1	U	1.1	U
Iron, Total				**12400**		**12800**		**15400**		**11300**		**13600**		**11600**		**9490**		**14700**		**16100**	
Lead, Total	63	400	450	**22.9**		**104**		**2.35**	J	**96**		**1.79**	J	**144**		**0.724**	J	**144**		**1.26**	J
Magnesium, Total				**5680**		**4180**		**3840**		**7410**		**4020**		**3640**		**10200**		**3530**		**3570**	
Manganese, Total	1600	2000	2000	**522**		**280**		**1140**		**388**		**252**		**240**		**187**		**269**		**152**	
Mercury, Total	0.18	0.81	0.73	**0.078**	J	**0.401**		0.077	U	**0.615**		0.099	U	**0.38**		0.084	U	**0.181**		0.078	U
Nickel, Total	30	310	130	**21.2**		**11.2**		**26.5**		**12.5**		**23.1**		**10.2**		**19.6**		**13.3**		**20.2**	
Potassium, Total				**1080**		**513**		**783**		**532**		**946**		**614**		**1060**		**717**		**1240**	
Selenium, Total	3.9	180	4	1.95	U	**0.492**	J	1.83	U	**0.476**	J	1.9	U	**0.544**	J	1.82	U	**0.427**	J	1.78	U
Silver, Total	2	180	8.3	0.488	U	0.447	U	0.458	U	0.431	U	0.474	U	0.499	U	0.456	U	0.462	U	0.444	U
Sodium, Total				195	U	179	U	183	U	172	U	190	U	200	U	182	U	185	U	178	U
Thallium, Total				1.95	U	1.79	U	1.83	U	1.72	U	1.9	U	2	U	1.82	U	1.85	U	1.78	U
Vanadium, Total				**8.28**		**13.7**		**11.6**		**11.6**		**8.44**		**9.53**		**5.44**		**10.4**		**8.95**	
Zinc, Total	109	10000	2480	**32.6**		**123**		**21.2**		**76.1**		**21**		**150**		**16.4**		**132**		**21.9**	

Table 3
Old Erie Commons - Remedial Investigation
Sub-Surface Soil Data Summary

LOCATION				TP-111 FILL		TP-112 FILL		TP-112 NATIVE		TP-113 FILL		TP-113 NATIVE		TP-114 FILL		TP-114 NATIVE		TP-115 FILL		TP-115 NATIVE	
SAMPLING DATE				7/29/2025		7/29/2025		7/29/2025		7/28/2025		7/28/2025		7/29/2025		7/29/2025		7/29/2025		7/29/2025	
LAB SAMPLE ID				L2547432-08		L2547432-09		L2547432-10		L2547174-11		L2547174-12		L2547432-11		L2547432-12		L2547432-13		L2547432-14	
SAMPLE TYPE				SOIL		SOIL		SOIL		SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
SAMPLE DEPTH (ft.)				3-4		2-2.5		4-4.5		2-3		5-5.5		1-2		3-4		1-1.5		5-5.5	
	Unrestricted Use SCO	**Restricted Residential Use SCO**	**Protection of Groundwater SCO**	**Results**	**Qual**	**Results**	**Qual**	**Results**	**Qual**	**Results**	**Qual**	**Results**	**Qual**	**Results**	**Qual**	**Results**	**Qual**	**Results**	**Qual**	**Results**	**Qual**
Perfluorinated Alkyl Acids by EPA 1633																					
11-Chloroeicosafluoro-3-Oxaundecane-1-Sulfonic Acid (11Cl-PF3OUdS)				1	U	0.927	U	0.971	U	- -		- -		1.02	U	0.951	U	0.96	U	0.934	U
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)				1	U	0.927	U	0.971	U	- -		- -		1.02	U	0.951	U	0.96	U	0.934	U
1H,1H,2H,2H-Perfluorohexanesulfonic Acid (4:2FTS)				1	U	0.927	U	0.971	U	- -		- -		1.02	U	0.951	U	0.96	U	0.934	U
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)				1	U	0.927	U	0.971	U	- -		- -		1.02	U	0.951	U	0.96	U	0.934	U
2H,2H,3H,3H-Perfluorooctanoic Acid (5:3FTCA)				6.27	U	5.79	U	6.07	U	- -		- -		6.38	U	5.94	U	6	U	5.84	U
3-Perfluoroheptyl Propanoic Acid (7:3FTCA)				6.27	U	5.79	U	6.07	U	- -		- -		6.38	U	5.94	U	6	U	5.84	U
3-Perfluoropropyl Propanoic Acid (3:3FTCA)				1.25	U	1.16	U	1.21	U	- -		- -		1.28	U	1.19	U	1.2	U	1.17	U
4,8-Dioxa-3h-Perfluorononanoic Acid (ADONA)				1	U	0.927	U	0.971	U	- -		- -		1.02	U	0.951	U	0.96	U	0.934	U
9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid (9Cl-PF3ONS)				1	U	0.927	U	0.971	U	- -		- -		1.02	U	0.951	U	0.96	U	0.934	U
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)				1	U	0.927	U	0.971	U	- -		- -		1.02	U	0.951	U	0.96	U	0.934	U
N-Ethyl Perfluorooctane Sulfonamide (NEtFOSA)				**0.04**	J	0.232	U	0.243	U	- -		- -		0.255	U	0.238	U	0.24	U	0.234	U
N-Ethyl Perfluorooctanesulfonamido Ethanol (NEtFOSE)				2.51	U	2.32	U	2.43	U	- -		- -		2.55	U	2.38	U	2.4	U	2.34	U
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)				**1.02**		0.232	U	0.243	U	- -		- -		0.255	U	0.238	U	0.24	U	0.234	U
N-Methyl Perfluorooctane Sulfonamide (NMeFOSA)				0.251	U	0.232	U	0.243	U	- -		- -		0.255	U	0.238	U	0.24	U	0.234	U
N-Methyl Perfluorooctanesulfonamido Ethanol (NMeFOSE)				2.51	U	2.32	U	2.43	U	- -		- -		2.55	U	2.38	U	2.4	U	2.34	U
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)				0.251	U	0.232	U	0.243	U	- -		- -		0.255	U	0.238	U	0.24	U	0.234	U
Nonafluoro-3,6-Dioxaheptanoic Acid (NFDHA)				0.502	U	0.463	U	0.485	U	- -		- -		0.51	U	0.476	U	0.48	U	0.467	U
Perfluoro(2-Ethoxyethane)Sulfonic Acid (PFEESA)				0.502	U	0.463	U	0.485	U	- -		- -		0.51	U	0.476	U	0.48	U	0.467	U
Perfluoro-3-Methoxypropanoic Acid (PFMPA)				0.502	U	0.463	U	0.485	U	- -		- -		0.51	U	0.476	U	0.48	U	0.467	U
Perfluoro-4-Methoxybutanoic Acid (PFMBA)				0.502	U	0.463	U	0.485	U	- -		- -		0.51	U	0.476	U	0.48	U	0.467	U
Perfluorobutanesulfonic Acid (PFBS)				0.251	U	0.232	U	0.243	U	- -		- -		**0.077**	J	0.238	U	**0.029**	J	0.234	U
Perfluorobutanoic Acid (PFBA)				**0.055**	J	**0.298**	J	0.971	U	- -		- -		**0.676**	J	0.951	U	**0.331**	J	**0.046**	J
Perfluorodecanesulfonic Acid (PFDS)				0.251	U	0.232	U	0.243	U	- -		- -		0.255	U	0.238	U	0.24	U	0.234	U
Perfluorodecanoic Acid (PFDA)				0.251	U	0.232	U	0.243	U	- -		- -		**0.094**	J	0.238	U	**0.057**	J	0.234	U
Perfluorododecanesulfonic Acid (PFDoS)				0.251	U	0.232	U	0.243	U	- -		- -		0.255	U	0.238	U	0.24	U	0.234	U
Perfluorododecanoic Acid (PFDoA)				0.251	U	0.232	U	0.243	U	- -		- -		**0.032**	J	0.238	U	0.24	U	0.234	U
Perfluoroheptanesulfonic Acid (PFHpS)				0.251	U	0.232	U	0.243	U	- -		- -		0.255	U	0.238	U	0.24	U	0.234	U
Perfluoroheptanoic Acid (PFHpA)				**0.035**	J	**0.089**	J	0.243	U	- -		- -		**0.28**		0.238	U	**0.128**	J	0.234	U
Perfluorohexanesulfonic Acid (PFHxS)				0.251	U	**0.062**	J	0.243	U	- -		- -		**0.148**	J	0.238	U	**0.159**	J	0.234	U
Perfluorohexanoic Acid (PFHxA)				0.251	U	**0.119**	J	0.243	U	- -		- -		**0.231**	J	0.238	U	**0.15**	J	0.234	U
Perfluorononanesulfonic Acid (PFNS)				0.251	U	0.232	U	0.243	U	- -		- -		0.255	U	0.238	U	0.24	U	0.234	U
Perfluorononanoic Acid (PFNA)				**0.095**	J	**0.102**	J	0.243	U	- -		- -		**0.193**	J	0.238	U	**0.142**	J	0.234	U
Perfluorooctanesulfonamide (PFOSA)				**0.175**	JF	0.232	U	0.243	U	- -		- -		0.255	U	0.238	U	0.24	U	0.234	U
Perfluorooctanesulfonic Acid (PFOS)	0.88	44	1	**2.16**		**0.777**		0.243	U	- -		- -		**1.45**		**0.108**	J	**0.737**		0.234	U
Perfluorooctanoic Acid (PFOA)	0.66	33	0.8	**0.248**	J	**0.564**		0.243	U	- -		- -		**0.911**		0.238	U	**0.582**		0.234	U
Perfluoropentanesulfonic Acid (PFPeS)				0.251	U	0.232	U	0.243	U	- -		- -		0.255	U	0.238	U	0.24	U	0.234	U
Perfluoropentanoic Acid (PFPeA)				0.502	U	**0.084**	J	0.485	U	- -		- -		**0.226**	J	0.476	U	**0.1**	J	0.467	U
Perfluorotetradecanoic Acid (PFTeDA)				0.251	U	0.232	U	0.243	U	- -		- -		0.255	U	0.238	U	0.24	U	0.234	U
Perfluorotridecanoic Acid (PFTrDA)				0.251	U	0.232	U	0.243	U	- -		- -		**0.031**	J	0.238	U	0.24	U	0.234	U
Perfluoroundecanoic Acid (PFUnA)				**0.04**	J	**0.032**	J	0.243	U	- -		- -		**0.071**	J	0.238	U	**0.052**	J	0.234	U
Asbestos in Bulk																					
Asbestos Fibers				- -		- -		- -		- -		- -		- -		- -		- -		- -	

Notes:
- Analytical data compared to NYSDEC Part 375-6.
- Results and soil cleanup objectives (SCO) in parts per million (ppm), except for PFAS which is in parts per billion (ppb).
- Analytes detected at concentrations greater than laboratory detections limits are **bolded**.
- Highlighted color indicates the respective use SCO(s) exceeded. Use type SCOs are listed from left to right from most restrictive to least restrictive.
- Blank space indicates that a SCO does not exist.
- Duplicate sample results are located to the right of the parent sample results.
- "J" indicates estimated concentration.
- "U" indicates analyte not detected at concentration greater than laboratory detection limit.
- "F" indicates the ratio of quantifier ion response to qualifier ion response falls outside of the laboratory criteria. Results are considered to be an estimated maximum concentration.
- "I" indicates the lower value for the two columns has been reported due to obvious interference.
- "P" indicates the RPD between the results for the two columns exceeds the method-specified criteria.
- "ND" indicates that asbestos was not detected in the respective sample.
- "-" indicates that sample was not anlayzed for that parameter.

Table 4
Old Erie Commons - Remedial Investigation
Groundwater Data Summary

LOCATION		MW-101		MW-101		DUP_102125		MW-102		MW-102		MW-103		MW-103		MW-104		DUP-03		MW-104		EQUIPMENT BLANK		EQUIPMENT BLANK		TRIP BLANK		TRIP BLANK		TRIP BLANK	
SAMPLING DATE		7/31/2025		10/21/2025		10/21/2025		7/31/2025		10/21/2025		7/30/2025		10/21/2025		7/30/2025		7/30/2025		10/21/2025		7/31/2025		10/21/2025		7/30/2025		7/31/2025		10/21/2025	
LAB SAMPLE ID		L2548090-01		L2566646-01		L2566646-05		L2548090-02		L2566646-02		L2547831-02		L2566646-03		L2547831-01		L2547831-03		L2566646-04		L2548090-03		L2566646-06		L2547831-06		L2548090-05		L2566646-07	
SAMPLE TYPE		WATER		WATER		WATER		WATER		WATER		WATER		WATER		WATER		WATER		WATER		WATER		WATER		WATER		WATER		WATER	
SAMPLE DEPTH (ft.)		12		12		15		11		11		12		12		15		15		15		--		--		--		--		--	
	TOGS 1.1.1 AWQS	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual
Volatile Organics by GC/MS																															
1,1,1-Trichloroethane	5	2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U	
1,1,2,2-Tetrachloroethane	5	0.5 U		0.5 U		0.5 U		0.5 U		0.5 U		0.5 U		0.5 U		0.5 U		0.5 U		0.5 U		0.5 U		0.5 U		0.5 U		0.5 U		0.5 U	
1,1,2-Trichloroethane	1	1.5 U		1.5 U		1.5 U		1.5 U		1.5 U		1.5 U		1.5 U		1.5 U		1.5 U		1.5 U		1.5 U		1.5 U		1.5 U		1.5 U		1.5 U	
1,1-Dichloroethane	5	2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U	
1,1-Dichloroethene	5	0.5 U		0.5 U		0.5 U		0.5 U		0.5 U		0.5 U		0.5 U		0.5 U		0.5 U		0.5 U		0.5 U		0.5 U		0.5 U		0.5 U		0.5 U	
1,2,4-Trichlorobenzene	5	2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U	
1,2,4-Trimethylbenzene	5	2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U	
1,2-Dibromo-3-chloropropane	0.04	2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U	
1,2-Dibromoethane	0.0006	2 U		2 U		2 U		2 U		2 U		2 U		2 U		2 U		2 U		2 U		2 U		2 U		2 U		2 U		2 U	
1,2-Dichlorobenzene	3	2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U	
1,2-Dichloroethane	0.6	0.5 U		0.5 U		0.5 U		0.5 U		0.5 U		0.5 U		0.5 U		0.5 U		0.5 U		0.5 U		0.5 U		0.5 U		0.5 U		0.5 U		0.5 U	
1,2-Dichloropropane	1	1 U		1 U		1 U		1 U		1 U		1 U		1 U		1 U		1 U		1 U		1 U		1 U		1 U		1 U		1 U	
1,3,5-Trimethylbenzene	5	2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U	
1,3-Dichlorobenzene	3	2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U	
1,4-Dichlorobenzene	3	2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U	
2-Butanone	50	5 U		5 U		5 U		5 U		5 U		5 U		**46**		5 U		5 U		5 U		5 U		5 U		5 U		5 U		5 U	
2-Hexanone	50	5 U		5 U		5 U		5 U		5 U		5 U		5 U		5 U		5 U		5 U		5 U		5 U		5 U		5 U		5 U	
4-Methyl-2-pentanone		5 U		5 U		5 U		5 U		5 U		5 U		5 U		5 U		5 U		5 U		5 U		5 U		5 U		5 U		5 U	
Acetone	50	**3.6** J		**5.2**		**8.6**		**3.7** J		**4.4** J		**15**		**79**		**2.8** J		**2.8** J		**4** J		5 U		**2** J		**3.2** J		**2.6** J		**3.6** J	
Benzene	1	0.5 U		0.5 U		0.5 U		0.5 U		0.5 U		0.5 U		0.5 U		0.5 U		0.5 U		0.5 U		0.5 U		0.5 U		0.5 U		0.5 U		0.5 U	
Bromodichloromethane	50	0.5 U		0.5 U		0.5 U		0.5 U		0.5 U		0.5 U		0.5 U		0.5 U		0.5 U		0.5 U		0.5 U		0.5 U		0.5 U		0.5 U		0.5 U	
Bromoform	50	2 U		2 U		2 U		2 U		2 U		2 U		2 U		2 U		2 U		2 U		2 U		2 U		2 U		2 U		2 U	
Bromomethane	5	2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U	
Carbon disulfide	60	5 U		5 U		5 U		5 U		5 U		5 U		5 U		5 U		5 U		5 U		5 U		5 U		5 U		5 U		5 U	
Carbon tetrachloride	5	0.5 U		0.5 U		0.5 U		0.5 U		0.5 U		0.5 U		0.5 U		0.5 U		0.5 U		0.5 U		0.5 U		0.5 U		0.5 U		0.5 U		0.5 U	
Chlorobenzene	5	2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U	
Chloroethane	5	2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U	
Chloroform	7	2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U	
Chloromethane		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U	
cis-1,2-Dichloroethene	5	2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U	
cis-1,3-Dichloropropene	0.4	0.5 U		0.5 U		0.5 U		0.5 U		0.5 U		0.5 U		0.5 U		0.5 U		0.5 U		0.5 U		0.5 U		0.5 U		0.5 U		0.5 U		0.5 U	
Cyclohexane		10 U		10 U		10 U		10 U		10 U		10 U		10 U		10 U		10 U		**0.53** J		10 U		10 U		10 U		10 U		10 U	
Dibromochloromethane	50	0.5 U		0.5 U		0.5 U		0.5 U		0.5 U		0.5 U		0.5 U		0.5 U		0.5 U		0.5 U		0.5 U		0.5 U		0.5 U		0.5 U		0.5 U	
Dichlorodifluoromethane	5	5 U		5 U		5 U		5 U		5 U		5 U		5 U		5 U		5 U		5 U		5 U		5 U		5 U		5 U		5 U	
Ethylbenzene	5	2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U	
Freon-113	5	2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U	
Isopropylbenzene	5	2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U	
Methyl Acetate		2 U		2 U		2 U		2 U		2 U		2 U		2 U		2 U		2 U		2 U		2 U		2 U		2 U		2 U		2 U	
Methyl cyclohexane		10 U		10 U		10 U		10 U		10 U		10 U		10 U		10 U		10 U		10 U		10 U		10 U		10 U		10 U		10 U	
Methyl tert butyl ether	10	2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U	
Methylene chloride	5	2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U	
n-Butylbenzene	5	2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U	
n-Propylbenzene	5	2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U	
Naphthalene	10	2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U	
o-Xylene	5	2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U	
p-Isopropyltoluene	5	2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		**29**		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U	
p/m-Xylene	5	2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U	
sec-Butylbenzene	5	2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U	
Styrene	5	2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U	
tert-Butylbenzene	5	2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U	
Tetrachloroethene	5	0.5 U		0.5 U		0.5 U		0.5 U		0.5 U		0.5 U		0.5 U		0.5 U		0.5 U		0.5 U		0.5 U		0.5 U		0.5 U		0.5 U		0.5 U	
Toluene	5	2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U	
trans-1,2-Dichloroethene	5	2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U	
trans-1,3-Dichloropropene	0.4	0.5 U		0.5 U		0.5 U		0.5 U		0.5 U		0.5 U		0.5 U		0.5 U		0.5 U		0.5 U		0.5 U		0.5 U		0.5 U		0.5 U		0.5 U	
Trichloroethene	5	0.5 U		0.5 U		0.5 U		0.5 U		0.5 U		0.5 U		0.5 U		0.5 U		0.5 U		0.5 U		0.5 U		0.5 U		0.5 U		0.5 U		0.5 U	
Trichlorofluoromethane	5	2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U	
Vinyl chloride	2	1 U		1 U		1 U		1 U		1 U		1 U		1 U		1 U		1 U		1 U		1 U		1 U		1 U		1 U		1 U	

Table 4
Old Erie Commons - Remedial Investigation
Groundwater Data Summary

LOCATION		MW-101		MW-101		DUP_102125		MW-102		MW-102		MW-103		MW-103		MW-104		DUP-03		MW-104		EQUIPMENT BLANK		EQUIPMENT BLANK		TRIP BLANK		TRIP BLANK		TRIP BLANK	
SAMPLING DATE		7/31/2025		10/21/2025		10/21/2025		7/31/2025		10/21/2025		7/30/2025		10/21/2025		7/30/2025		7/30/2025		10/21/2025		7/31/2025		10/21/2025		7/30/2025		7/31/2025		10/21/2025	
LAB SAMPLE ID		L2548090-01		L2566646-01		L2566646-05		L2548090-02		L2566646-02		L2547831-02		L2566646-03		L2547831-01		L2547831-03		L2566646-04		L2548090-03		L2566646-06		L2547831-06		L2548090-05		L2566646-07	
SAMPLE TYPE		WATER		WATER		WATER		WATER		WATER		WATER		WATER		WATER		WATER		WATER		WATER		WATER		WATER		WATER		WATER	
SAMPLE DEPTH (ft.)		12		12		15		11		11		12		12		15		15		15		--		--		--		--		--	
	TOGS 1.1.1 AWQS	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual
Semivolatile Organics by GC/MS																															
1,2,4,5-Tetrachlorobenzene	5	10 U		10 U		10 U		10 U		10 U		10 U		10 U		10 U		10 U		10 U		- -		- -		- -		- -		- -	
2,3,4,6-Tetrachlorophenol		5 U		5 U		5 U		5 U		5 U		5 U		5 U		5 U		5 U		5 U		- -		- -		- -		- -		- -	
2,4,5-Trichlorophenol		5 U		5 U		5 U		5 U		5 U		5 U		5 U		5 U		5 U		5 U		- -		- -		- -		- -		- -	
2,4,6-Trichlorophenol		5 U		5 U		5 U		5 U		5 U		5 U		5 U		5 U		5 U		5 U		- -		- -		- -		- -		- -	
2,4-Dichlorophenol	1	5 U		5 U		5 U		5 U		5 U		5 U		5 U		5 U		5 U		5 U		- -		- -		- -		- -		- -	
2,4-Dimethylphenol	50	5 U		5 U		5 U		5 U		5 U		5 U		5 U		5 U		5 U		5 U		- -		- -		- -		- -		- -	
2,4-Dinitrophenol	10	20 U		20 U		20 U		20 U		20 U		20 U		20 U		20 U		20 U		20 U		- -		- -		- -		- -		- -	
2,4-Dinitrotoluene	5	5 U		5 U		5 U		5 U		5 U		5 U		5 U		5 U		5 U		5 U		- -		- -		- -		- -		- -	
2,6-Dinitrotoluene	5	5 U		5 U		5 U		5 U		5 U		5 U		5 U		5 U		5 U		5 U		- -		- -		- -		- -		- -	
2-Chlorophenol		2 U		2 U		2 U		2 U		2 U		2 U		2 U		2 U		2 U		2 U		- -		- -		- -		- -		- -	
2-Methylphenol		5 U		5 U		5 U		5 U		5 U		5 U		5 U		5 U		5 U		5 U		- -		- -		- -		- -		- -	
2-Nitroaniline	5	5 U		5 U		5 U		5 U		5 U		5 U		5 U		5 U		5 U		5 U		- -		- -		- -		- -		- -	
2-Nitrophenol		10 U		10 U		10 U		10 U		10 U		10 U		10 U		10 U		10 U		10 U		- -		- -		- -		- -		- -	
3,3'-Dichlorobenzidine	5	5 U		5 U		5 U		5 U		5 U		5 U		5 U		5 U		5 U		5 U		- -		- -		- -		- -		- -	
3-Methylphenol/4-Methylphenol		5 U		5 U		5 U		5 U		5 U		5 U		**1.7** J		5 U		5 U		5 U		- -		- -		- -		- -		- -	
3-Nitroaniline	5	5 U		5 U		5 U		5 U		5 U		5 U		5 U		5 U		5 U		5 U		- -		- -		- -		- -		- -	
4,6-Dinitro-o-cresol		10 U		10 U		10 U		10 U		10 U		10 U		10 U		10 U		10 U		10 U		- -		- -		- -		- -		- -	
4-Bromophenyl phenyl ether		2 U		2 U		2 U		2 U		2 U		2 U		2 U		2 U		2 U		2 U		- -		- -		- -		- -		- -	
4-Chloroaniline	5	5 U		5 U		5 U		5 U		5 U		5 U		5 U		5 U		5 U		5 U		- -		- -		- -		- -		- -	
4-Chlorophenyl phenyl ether		2 U		2 U		2 U		2 U		2 U		2 U		2 U		2 U		2 U		2 U		- -		- -		- -		- -		- -	
4-Nitroaniline	5	5 U		5 U		5 U		5 U		5 U		5 U		5 U		5 U		5 U		5 U		- -		- -		- -		- -		- -	
4-Nitrophenol		10 U		10 U		10 U		10 U		10 U		10 U		10 U		10 U		10 U		10 U		- -		- -		- -		- -		- -	
Acetophenone		5 U		5 U		5 U		5 U		5 U		5 U		5 U		5 U		5 U		5 U		- -		- -		- -		- -		- -	
Atrazine	7.5	10 U		10 U		10 U		10 U		10 U		10 U		10 U		10 U		10 U		10 U		- -		- -		- -		- -		- -	
Benzaldehyde		5 U		5 U		5 U		5 U		5 U		**1.2** J		5 U		5 U		5 U		5 U		- -		- -		- -		- -		- -	
Biphenyl		2 U		2 U		2 U		2 U		2 U		2 U		2 U		2 U		2 U		2 U		- -		- -		- -		- -		- -	
Bis(2-chloroethoxy)methane	5	5 U		5 U		5 U		5 U		5 U		5 U		5 U		5 U		5 U		5 U		- -		- -		- -		- -		- -	
Bis(2-chloroethyl)ether	1	2 U		2 U		2 U		2 U		2 U		2 U		2 U		2 U		2 U		2 U		- -		- -		- -		- -		- -	
Bis(2-chloroisopropyl)ether	5	2 U		2 U		2 U		2 U		2 U		2 U		2 U		2 U		2 U		2 U		- -		- -		- -		- -		- -	
Bis(2-ethylhexyl)phthalate	5	3 U	**2.1** J		**1.9** J		3 U	**2** J		3 U	**2** J		3 U		3 U		3 U	**2.2** J		- -		- -		- -		- -		- -			
Butyl benzyl phthalate	50	5 U		5 U		5 U		5 U		5 U		5 U		5 U		5 U		5 U		5 U		- -		- -		- -		- -		- -	
Caprolactam		10 U	1.3 J		**1.5** J		10 U	**1.6** J		10 U		10 U		10 U		10 U		10 U	**2.1** J		- -		- -		- -		- -		- -			
Carbazole		2 U		2 U		2 U		2 U		2 U		2 U		2 U		2 U		2 U		2 U		- -		- -		- -		- -		- -	
Di-n-butylphthalate	50	5 U	**1.9** J		**2.4** J		5 U	**2.5** J		**5.2**		**1.9** J		**4.7** J		**4.6** J		**3.6** J		- -		- -		- -		- -		- -			
Di-n-octylphthalate	50	5 U		5 U		5 U		5 U		5 U		5 U		5 U		5 U		5 U		5 U		- -		- -		- -		- -		- -	
Dibenzofuran		2 U		2 U		2 U		2 U		2 U		2 U		2 U		2 U		2 U		2 U		- -		- -		- -		- -		- -	
Diethyl phthalate	50	5 U		5 U		5 U		5 U		5 U		5 U		5 U		5 U		5 U		5 U		- -		- -		- -		- -		- -	
Dimethyl phthalate	50	5 U		5 U		5 U		5 U		5 U		5 U		5 U		5 U		5 U		5 U		- -		- -		- -		- -		- -	
Hexachlorocyclopentadiene	5	20 U		20 U		20 U		20 U		20 U		20 U		20 U		20 U		20 U		20 U		- -		- -		- -		- -		- -	
Isophorone	50	5 U		5 U		5 U		5 U		5 U		5 U		5 U		5 U		5 U		5 U		- -		- -		- -		- -		- -	
n-Nitrosodi-n-propylamine		5 U		5 U		5 U		5 U		5 U		5 U		5 U		5 U		5 U		5 U		- -		- -		- -		- -		- -	
NDPA/DPA	50	2 U		2 U		2 U		2 U		2 U		2 U		2 U		2 U		2 U		2 U		- -		- -		- -		- -		- -	
Nitrobenzene	0.4	2 U		2 U		2 U		2 U		2 U		2 U		2 U		2 U		2 U		2 U		- -		- -		- -		- -		- -	
p-Chloro-m-cresol		2 U		2 U		2 U		2 U		2 U		2 U		2 U		2 U		2 U		2 U		- -		- -		- -		- -		- -	
Phenol	1	**0.94** J		5 U		5 U		5 U		5 U		5 U		**1.3** J		5 U		5 U		5 U		- -		- -		- -		- -		- -	

Table 4
Old Erie Commons - Remedial Investigation
Groundwater Data Summary

LOCATION		MW-101		MW-101		DUP_102125		MW-102		MW-102		MW-103		MW-103		MW-104		DUP-03		MW-104		EQUIPMENT BLANK		EQUIPMENT BLANK		TRIP BLANK		TRIP BLANK		TRIP BLANK	
SAMPLING DATE		7/31/2025		10/21/2025		10/21/2025		7/31/2025		10/21/2025		7/30/2025		10/21/2025		7/30/2025		7/30/2025		10/21/2025		7/31/2025		10/21/2025		7/30/2025		7/31/2025		10/21/2025	
LAB SAMPLE ID		L2548090-01		L2566646-01		L2566646-05		L2548090-02		L2566646-02		L2547831-02		L2566646-03		L2547831-01		L2547831-03		L2566646-04		L2548090-03		L2566646-06		L2547831-06		L2548090-05		L2566646-07	
SAMPLE TYPE		WATER		WATER		WATER		WATER		WATER		WATER		WATER		WATER		WATER		WATER		WATER		WATER		WATER		WATER		WATER	
SAMPLE DEPTH (ft.)		12		12		15		11		11		12		12		15		15		15		--		--		--		--		--	
	TOGS 1.1.1 AWQS	**Results**	**Qual**	**Results**	**Qual**	**Results**	**Qual**	**Results**	**Qual**	**Results**	**Qual**	**Results**	**Qual**	**Results**	**Qual**	**Results**	**Qual**	**Results**	**Qual**	**Results**	**Qual**	**Results**	**Qual**	**Results**	**Qual**	**Results**	**Qual**	**Results**	**Qual**	**Results**	**Qual**
Semivolatile Organics by GC/MS-SIM																															
1,4-Dioxane	0.35	**0.104**	J	0.268	U	0.268	U	**0.147**	J	0.268	U	**0.173**	J	0.268	U	**0.171**	J	**0.0931**	J	0.268	U	- -		- -		- -		- -		- -	
2-Chloronaphthalene	10	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	- -		- -		- -		- -		- -	
2-Methylnaphthalene		**0.03**	J	0.1	U	0.1	U	**0.04**	J	0.1	U	**0.03**	J	**0.03**	J	**0.04**	J	**0.06**	J	**0.03**	J	- -		- -		- -		- -		- -	
Acenaphthene	20	**0.15**		**0.16**		**0.18**		0.1	U	0.1	U	**0.04**	J	**0.06**	J	0.1	U	0.1	U	0.1	U	- -		- -		- -		- -		- -	
Acenaphthylene		0.1	U	0.1	U	**0.03**	J	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	- -		- -		- -		- -		- -	
Anthracene	50	**0.05**	J	**0.08**	J	**0.12**		0.1	U	**0.03**	J	0.1	U	**0.03**	J	**0.05**	J	**0.06**	J	**0.06**	J	- -		- -		- -		- -		- -	
Benzo(a)anthracene	0.002	**0.04**	J	0.1	U	**0.11**		**0.04**	J	0.1	U	**0.04**	J	0.1	U	**0.04**	J	**0.03**	J	0.1	U	- -		- -		- -		- -		- -	
Benzo(a)pyrene	0	0.1	U	0.1	U	**0.06**	J	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	- -		- -		- -		- -		- -	
Benzo(b)fluoranthene	0.002	0.1	U	0.1	U	**0.11**		0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	- -		- -		- -		- -		- -	
Benzo(ghi)perylene		0.1	U	0.1	U	**0.05**	J	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	- -		- -		- -		- -		- -	
Benzo(k)fluoranthene	0.002	0.1	U	0.1	U	**0.06**	J	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	- -		- -		- -		- -		- -	
Chrysene	0.002	0.1	U	0.1	U	**0.1**	J	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	- -		- -		- -		- -		- -	
Dibenzo(a,h)anthracene		0.1	U	0.1	U	**0.03**	J	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	- -		- -		- -		- -		- -	
Fluoranthene	50	**0.08**	J	**0.04**	J	**0.15**		**0.06**	J	**0.05**	J	**0.07**	J	**0.07**	J	**0.06**	J	**0.05**	J	**0.05**	J	- -		- -		- -		- -		- -	
Fluorene	50	**0.04**	J	**0.03**	J	**0.04**	J	**0.04**	J	0.1	U	**0.04**	J	**0.04**	J	**0.03**	J	**0.03**	J	**0.04**	J	- -		- -		- -		- -		- -	
Hexachlorobenzene	0.04	0.8	U	**0.02**	J	**0.02**	J	0.8	U	0.8	U	0.8	U	0.8	U	0.8	U	**0.03**	J	**0.01**	J	- -		- -		- -		- -		- -	
Hexachlorobutadiene	0.5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	- -		- -		- -		- -		- -	
Hexachloroethane	5	0.8	U	0.8	U	0.8	U	0.8	U	0.8	U	0.8	U	0.8	U	0.8	U	0.8	U	0.8	U	- -		- -		- -		- -		- -	
Indeno(1,2,3-cd)pyrene	0.002	0.1	U	0.1	U	**0.06**	J	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	- -		- -		- -		- -		- -	
Naphthalene	10	**0.03**	J	**0.03**	J	**0.03**	J	**0.04**	J	**0.03**	J	**0.06**	J	**0.07**	J	**0.04**	J	**0.05**	J	**0.06**	J	- -		- -		- -		- -		- -	
Pentachlorophenol	1	**0.26**	J	0.8	U	0.8	U	0.8	U	0.8	U	**0.25**	J	0.8	U	0.8	U	**0.24**	J	0.8	U	- -		- -		- -		- -		- -	
Phenanthrene	50	**0.15**		**0.08**	J	**0.1**	J	**0.2**		**0.1**		**0.18**		**0.14**		**0.14**		**0.12**		**0.12**		- -		- -		- -		- -		- -	
Pyrene	50	**0.07**	J	0.1	U	**0.12**		**0.05**	J	0.1	U	**0.04**	J	0.1	U	**0.07**	J	**0.07**	J	**0.08**	J	- -		- -		- -		- -		- -	
Polychlorinated Biphenyls by GC																															
Aroclor 1016	0.09	0.071	U	0.071	U	0.071	U	0.071	U	0.071	U	0.071	U	0.071	U	0.071	U	0.071	U	0.071	U	- -		- -		- -		- -		- -	
Aroclor 1221	0.09	0.071	U	0.071	U	0.071	U	0.071	U	0.071	U	0.071	U	0.071	U	0.071	U	0.071	U	0.071	U	- -		- -		- -		- -		- -	
Aroclor 1232	0.09	0.071	U	0.071	U	0.071	U	0.071	U	0.071	U	0.071	U	0.071	U	0.071	U	0.071	U	0.071	U	- -		- -		- -		- -		- -	
Aroclor 1242	0.09	0.071	U	0.071	U	0.071	U	0.071	U	0.071	U	0.071	U	0.071	U	0.071	U	0.071	U	0.071	U	- -		- -		- -		- -		- -	
Aroclor 1248	0.09	0.071	U	0.071	U	0.071	U	0.071	U	0.071	U	0.071	U	0.071	U	0.071	U	0.071	U	0.071	U	- -		- -		- -		- -		- -	
Aroclor 1254	0.09	0.071	U	0.071	U	0.071	U	0.071	U	0.071	U	0.071	U	0.071	U	0.071	U	0.071	U	0.071	U	- -		- -		- -		- -		- -	
Aroclor 1260	0.09	0.071	U	0.071	U	0.071	U	0.071	U	0.071	U	0.071	U	0.071	U	0.071	U	0.071	U	0.071	U	- -		- -		- -		- -		- -	
Aroclor 1262	0.09	0.071	U	0.071	U	0.071	U	0.071	U	0.071	U	0.071	U	0.071	U	0.071	U	0.071	U	0.071	U	- -		- -		- -		- -		- -	
Aroclor 1268	0.09	0.071	U	0.071	U	0.071	U	0.071	U	0.071	U	0.071	U	0.071	U	0.071	U	0.071	U	0.071	U	- -		- -		- -		- -		- -	
PCBs, Total	0.09	0.071	U	0.071	U	0.071	U	0.071	U	0.071	U	0.071	U	0.071	U	0.071	U	0.071	U	0.071	U	- -		- -		- -		- -		- -	
Organochlorine Pesticides by GC																															
4,4'-DDD	0.3	0.029	U	0.029	U	0.029	U	0.029	U	0.029	U	0.029	U	0.029	U	0.029	U	0.029	U	0.029	U	- -		- -		- -		- -		- -	
4,4'-DDE	0.2	0.029	U	0.029	U	0.029	U	0.029	U	0.029	U	0.029	U	0.029	U	0.029	U	0.029	U	0.029	U	- -		- -		- -		- -		- -	
4,4'-DDT	0.2	0.029	U	0.029	U	0.029	U	0.029	U	0.029	U	0.029	U	0.029	U	0.029	U	0.029	U	0.029	U	- -		- -		- -		- -		- -	
Aldrin	0	0.014	U	0.014	U	0.014	U	0.014	U	0.014	U	0.014	U	0.014	U	0.014	U	0.014	U	0.014	U	- -		- -		- -		- -		- -	
Alpha-BHC	0.01	0.014	U	0.014	U	0.014	U	0.014	U	0.014	U	0.014	U	0.014	U	0.014	U	0.014	U	0.014	U	- -		- -		- -		- -		- -	
Beta-BHC	0.04	0.02	U	0.02	U	0.02	U	0.02	U	0.02	U	0.02	U	0.02	U	0.02	U	0.02	U	0.02	U	- -		- -		- -		- -		- -	
Chlordane	0.05	0.143	U	0.143	U	0.143	U	0.143	U	0.143	U	0.143	U	0.143	U	0.143	U	0.143	U	0.143	U	- -		- -		- -		- -		- -	
cis-Chlordane		0.02	U	0.02	U	0.02	U	0.02	U	0.02	U	0.02	U	0.02	U	0.02	U	0.02	U	0.02	U	- -		- -		- -		- -		- -	
Delta-BHC	0.04	0.014	U	0.014	U	0.014	U	0.014	U	0.014	U	0.014	U	0.014	U	0.014	U	0.014	U	0.014	U	- -		- -		- -		- -		- -	
Dieldrin	0.004	0.029	U	0.029	U	0.029	U	0.029	U	0.029	U	0.029	U	0.029	U	0.029	U	0.029	U	0.029	U	- -		- -		- -		- -		- -	
Endosulfan I		0.014	U	0.014	U	0.014	U	0.014	U	0.014	U	0.014	U	0.014	U	0.014	U	0.014	U	0.014	U	- -		- -		- -		- -		- -	
Endosulfan II		0.029	U	0.029	U	0.029	U	0.029	U	0.029	U	0.029	U	0.029	U	0.029	U	0.029	U	0.029	U	- -		- -		- -		- -		- -	
Endosulfan sulfate		0.029	U	0.029	U	0.029	U	0.029	U	0.029	U	0.029	U	0.029	U	0.029	U	0.029	U	0.029	U	- -		- -		- -		- -		- -	
Endrin	0	0.029	U	0.029	U	0.029	U	0.029	U	0.029	U	0.029	U	0.029	U	0.029	U	0.029	U	0.029	U	- -		- -		- -		- -		- -	
Endrin aldehyde	5	0.03	U	0.03	U	0.03	U	0.03	U	0.03	U	0.03	U	0.03	U	0.03	U	0.03	U	0.03	U	- -		- -		- -		- -		- -	
Endrin ketone	5	0.029	U	0.029	U	0.029	U	0.029	U	0.029	U	**0.031**	IP	0.029	U	0.029	U	0.029	U	0.029	U	- -		- -		- -		- -		- -	
Heptachlor	0.04	0.014	U	0.014	U	0.014	U	0.014	U	0.014	U	0.014	U	0.014	U	0.014	U	0.014	U	0.014	U	- -		- -		- -		- -		- -	
Heptachlor epoxide	0.03	0.014	U	0.014	U	0.014	U	0.014	U	0.014	U	0.014	U	0.014	U	0.014	U	0.014	U	0.014	U	- -		- -		- -		- -		- -	
Lindane	0.05	0.014	U	0.014	U	0.014	U	0.014	U	0.014	U	0.014	U	0.014	U	0.014	U	0.014	U	0.014	U	- -		- -		- -		- -		- -	
Methoxychlor	35	0.143	U	0.143	U	0.143	U	0.143	U	0.143	U	0.143	U	0.143	U	0.143	U	0.143	U	0.143	U	- -		- -		- -		- -		- -	
Toxaphene	0.06	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	- -		- -		- -		- -		- -	
trans-Chlordane		0.02	U	0.02	U	0.02	U	0.02	U	0.02	U	0.02	U	0.02	U	0.02	U	0.02	U	0.02	U	- -		- -		- -		- -		- -	
Chlorinated Herbicides by GC																															
2,4,5-T	35	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	- -		- -		- -		- -		- -	
2,4,5-TP (Silvex)		2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	- -		- -		- -		- -		- -	
2,4-D	50	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	- -		- -		- -		- -		- -	

Table 4
Old Erie Commons - Remedial Investigation
Groundwater Data Summary

LOCATION		MW-101		MW-101		DUP_102125		MW-102		MW-102		MW-103		MW-103		MW-104		DUP-03		MW-104		EQUIPMENT BLANK		EQUIPMENT BLANK		TRIP BLANK		TRIP BLANK		TRIP BLANK	
SAMPLING DATE		7/31/2025		10/21/2025		10/21/2025		7/31/2025		10/21/2025		7/30/2025		10/21/2025		7/30/2025		7/30/2025		10/21/2025		7/31/2025		10/21/2025		7/30/2025		7/31/2025		10/21/2025	
LAB SAMPLE ID		L2548090-01		L2566646-01		L2566646-05		L2548090-02		L2566646-02		L2547831-02		L2566646-03		L2547831-01		L2547831-03		L2566646-04		L2548090-03		L2566646-06		L2547831-06		L2548090-05		L2566646-07	
SAMPLE TYPE		WATER		WATER		WATER		WATER		WATER		WATER		WATER		WATER		WATER		WATER		WATER		WATER		WATER		WATER		WATER	
SAMPLE DEPTH (ft.)		12		12		15		11		11		12		12		15		15		15		--		--		--		--		--	
	TOGS 1.1.1 AWQS	**Results**	**Qual**	**Results**	**Qual**	**Results**	**Qual**	**Results**	**Qual**	**Results**	**Qual**	**Results**	**Qual**	**Results**	**Qual**	**Results**	**Qual**	**Results**	**Qual**	**Results**	**Qual**	**Results**	**Qual**	**Results**	**Qual**	**Results**	**Qual**	**Results**	**Qual**	**Results**	**Qual**
Total Metals																															
Aluminum, Total		**204**		**39**		**57.4**		**86.9**		**14.8**		**40.3**		**16.7**		**14.3**		**9.67**	J	**18.6**		- -		- -		- -		- -		- -	
Antimony, Total	3	4	U	4	U	4	U	4	U	4	U	4	U	4	U	4	U	4	U	4	U	- -		- -		- -		- -		- -	
Arsenic, Total	25	**1.2**		**0.7**		**0.61**		**0.61**		**1.3**		**1.39**		**9.27**		**0.59**		**0.49**	J	**2.52**		- -		- -		- -		- -		- -	
Barium, Total	1000	**57.8**		**44.11**		**42**		**71.9**		**55.4**		**106.5**		**106.1**		**45.67**		**42.25**		**36.85**		- -		- -		- -		- -		- -	
Beryllium, Total	3	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	- -		- -		- -		- -		- -	
Cadmium, Total	5	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	- -		- -		- -		- -		- -	
Calcium, Total		**78700**		**109000**		**98400**		**99100**		**122000**		**119000**		**147000**		**85400**		**86300**		**111000**		- -		- -		- -		- -		- -	
Chromium, Total	50	**0.4**	J	1	U	1	U	**0.2**	J	1	U	1	U	**0.17**	J	1	U	1	U	1	U	- -		- -		- -		- -		- -	
Cobalt, Total		**0.24**	J	0.5	U	0.5	U	**0.2**	J	**0.22**	J	**0.23**	J	**0.21**	J	0.5	U	0.5	U	0.5	U	- -		- -		- -		- -		- -	
Copper, Total	200	1	U	1	U	1	U	1	U	1	U	**0.47**	J	1	U	1	U	1	U	1	U	- -		- -		- -		- -		- -	
Cyanide, Total	200	**2**	J	5	U	5	U	**2**	J	5	U	5	U	5	U	5	U	5	U	5	U	- -		- -		- -		- -		- -	
Iron, Total	300	**2260**		**2300**		**2160**		**2720**		**2970**		**2310**		**3160**		**1960**		**2000**		**2540**		- -		- -		- -		- -		- -	
Lead, Total	25	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	- -		- -		- -		- -		- -	
Magnesium, Total	35000	**34100**		**38100**		**36500**		**58600**		**67700**		**63900**		**65700**		**35300**		**36000**		**44300**		- -		- -		- -		- -		- -	
Manganese, Total	300	**48.78**		**39.41**		**37.55**		**113.5**		**125.9**		**117.7**		**423.1**		**77.02**		**75.87**		**116.5**		- -		- -		- -		- -		- -	
Mercury, Total	0.7	**0.1**	J	0.2	U	0.2	U	**0.12**	J	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	- -		- -		- -		- -		- -	
Nickel, Total	100	**1.75**	J	2	U	2	U	**0.87**	J	2	U	**0.67**	J	2	U	2	U	2	U	2	U	- -		- -		- -		- -		- -	
Potassium, Total		**13700**		**10000**		**9340**		**17200**		**15000**		**35000**		**37100**		**15400**		**15200**		**17300**		- -		- -		- -		- -		- -	
Selenium, Total	10	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	- -		- -		- -		- -		- -	
Silver, Total	50	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	- -		- -		- -		- -		- -	
Sodium, Total	20000	**19300**		**23200**		**21600**		**11700**		**11700**		**22200**		**26500**		**32400**		**33000**		**27000**		- -		- -		- -		- -		- -	
Thallium, Total	0.5	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	- -		- -		- -		- -		- -	
Vanadium, Total		5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	- -		- -		- -		- -		- -	
Zinc, Total	2000	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	- -		- -		- -		- -		- -	
Dissolved Metals																															
Aluminum, Dissolved		- -		10	U	10	U	- -		- -		- -		- -		- -		- -		- -		- -		- -		- -		- -		- -	
Antimony, Dissolved	3	- -		4	U	4	U	- -		- -		- -		- -		- -		- -		- -		- -		- -		- -		- -		- -	
Arsenic, Dissolved	25	- -		**0.28**	J	**0.28**	J	- -		- -		- -		- -		- -		- -		- -		- -		- -		- -		- -		- -	
Barium, Dissolved	1000	- -		**40.33**		**40.98**		- -		- -		- -		- -		- -		- -		- -		- -		- -		- -		- -		- -	
Beryllium, Dissolved	3	- -		0.5	U	0.5	U	- -		- -		- -		- -		- -		- -		- -		- -		- -		- -		- -		- -	
Cadmium, Dissolved	5	- -		0.2	U	0.2	U	- -		- -		- -		- -		- -		- -		- -		- -		- -		- -		- -		- -	
Calcium, Dissolved		- -		**95100**		**93600**		- -		- -		- -		- -		- -		- -		- -		- -		- -		- -		- -		- -	
Chromium, Dissolved	50	- -		1	U	1	U	- -		- -		- -		- -		- -		- -		- -		- -		- -		- -		- -		- -	
Cobalt, Dissolved		- -		0.5	U	0.5	U	- -		- -		- -		- -		- -		- -		- -		- -		- -		- -		- -		- -	
Copper, Dissolved	200	- -		1	U	1	U	- -		- -		- -		- -		- -		- -		- -		- -		- -		- -		- -		- -	
Iron, Dissolved	300	- -		**25.9**	J	**73**		- -		- -		- -		- -		- -		- -		- -		- -		- -		- -		- -		- -	
Lead, Dissolved	25	- -		1	U	1	U	- -		- -		- -		- -		- -		- -		- -		- -		- -		- -		- -		- -	
Magnesium, Dissolved	35000	- -		**37900**		**37900**		- -		- -		- -		- -		- -		- -		- -		- -		- -		- -		- -		- -	
Manganese, Dissolved	300	- -		**37.02**		**35.91**		- -		- -		- -		- -		- -		- -		- -		- -		- -		- -		- -		- -	
Mercury, Dissolved	0.7	- -		0.2	U	0.2	U	- -		- -		- -		- -		- -		- -		- -		- -		- -		- -		- -		- -	
Nickel, Dissolved	100	- -		**0.72**	J	2	U	- -		- -		- -		- -		- -		- -		- -		- -		- -		- -		- -		- -	
Potassium, Dissolved		- -		**8990**		**8780**		- -		- -		- -		- -		- -		- -		- -		- -		- -		- -		- -		- -	
Selenium, Dissolved	10	- -		5	U	5	U	- -		- -		- -		- -		- -		- -		- -		- -		- -		- -		- -		- -	
Silver, Dissolved	50	- -		0.4	U	0.4	U	- -		- -		- -		- -		- -		- -		- -		- -		- -		- -		- -		- -	
Sodium, Dissolved	20000	- -		**22600**		**21900**		- -		- -		- -		- -		- -		- -		- -		- -		- -		- -		- -		- -	
Thallium, Dissolved	0.5	- -		1	U	1	U	- -		- -		- -		- -		- -		- -		- -		- -		- -		- -		- -		- -	
Vanadium, Dissolved		- -		5	U	5	U	- -		- -		- -		- -		- -		- -		- -		- -		- -		- -		- -		- -	
Zinc, Dissolved	2000	- -		10	U	10	U	- -		- -		- -		- -		- -		- -		- -		- -		- -		- -		- -		- -	

Table 4
Old Erie Commons - Remedial Investigation
Groundwater Data Summary

LOCATION		MW-101		MW-101		DUP_102125		MW-102		MW-102		MW-103		MW-103		MW-104		DUP-03		MW-104		EQUIPMENT BLANK		EQUIPMENT BLANK		TRIP BLANK		TRIP BLANK		TRIP BLANK	
SAMPLING DATE		7/31/2025		10/21/2025		10/21/2025		7/31/2025		10/21/2025		7/30/2025		10/21/2025		7/30/2025		7/30/2025		10/21/2025		7/31/2025		10/21/2025		7/30/2025		7/31/2025		10/21/2025	
LAB SAMPLE ID		L2548090-01		L2566646-01		L2566646-05		L2548090-02		L2566646-02		L2547831-02		L2566646-03		L2547831-01		L2547831-03		L2566646-04		L2548090-03		L2566646-06		L2547831-06		L2548090-05		L2566646-07	
SAMPLE TYPE		WATER		WATER		WATER		WATER		WATER		WATER		WATER		WATER		WATER		WATER		WATER		WATER		WATER		WATER		WATER	
SAMPLE DEPTH (ft.)		12		12		15		11		11		12		12		15		15		15		--		--		--		--		--	
	TOGS 1.1.1 AWQS	**Results**	**Qual**	**Results**	**Qual**	**Results**	**Qual**	**Results**	**Qual**	**Results**	**Qual**	**Results**	**Qual**	**Results**	**Qual**	**Results**	**Qual**	**Results**	**Qual**	**Results**	**Qual**	**Results**	**Qual**	**Results**	**Qual**	**Results**	**Qual**	**Results**	**Qual**	**Results**	**Qual**
Perfluorinated Alkyl Acids by EPA 1633																															
11-Chloroeicosafluoro-3-Oxaundecane-1-Sulfonic Acid (11Cl-PF3OUdS)		5.79	U	6.37	U	5.74	U	5.7	U	5.52	U	5.58	U	5.69	U	5.63	U	5.69	U	5.66	U	6.55	U	6.07	U	- -		- -		- -	
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)		5.79	U	6.37	U	5.74	U	5.7	U	5.52	U	5.58	U	5.69	U	5.63	U	5.69	U	5.66	U	6.55	U	6.07	U	- -		- -		- -	
1H,1H,2H,2H-Perfluorohexanesulfonic Acid (4:2FTS)		5.79	U	6.37	U	5.74	U	5.7	U	5.52	U	5.58	U	5.69	U	5.63	U	5.69	U	5.66	U	6.55	U	6.07	U	- -		- -		- -	
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)		5.79	U	6.37	U	5.74	U	5.7	U	5.52	U	5.58	U	5.69	U	5.63	U	5.69	U	5.66	U	6.55	U	6.07	U	- -		- -		- -	
2H,2H,3H,3H-Perfluorooctanoic Acid (5:3FTCA)		36.2	U	39.8	U	35.9	U	35.6	U	34.5	U	34.9	U	35.6	U	35.2	U	35.6	U	35.3	U	40.9	U	38	U	- -		- -		- -	
3-Perfluoroheptyl Propanoic Acid (7:3FTCA)		36.2	U	39.8	U	35.9	U	35.6	U	34.5	U	34.9	U	35.6	U	35.2	U	35.6	U	35.3	U	40.9	U	38	U	- -		- -		- -	
3-Perfluoropropyl Propanoic Acid (3:3FTCA)		7.24	U	7.97	U	7.18	U	7.12	U	6.9	U	6.98	U	7.11	U	7.03	U	7.12	U	7.07	U	8.19	U	7.59	U	- -		- -		- -	
4,8-Dioxa-3h-Perfluorononanoic Acid (ADONA)		5.79	U	6.37	U	5.74	U	5.7	U	5.52	U	5.58	U	5.69	U	5.63	U	5.69	U	5.66	U	6.55	U	6.07	U	- -		- -		- -	
9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid (9Cl-PF3ONS)		5.79	U	6.37	U	5.74	U	5.7	U	5.52	U	5.58	U	5.69	U	5.63	U	5.69	U	5.66	U	6.55	U	6.07	U	- -		- -		- -	
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)		5.79	U	6.37	U	5.74	U	5.7	U	5.52	U	5.58	U	5.69	U	5.63	U	5.69	U	5.66	U	6.55	U	6.07	U	- -		- -		- -	
N-Ethyl Perfluorooctane Sulfonamide (NEtFOSA)		**0.318**	J	1.59	U	1.44	U	1.42	U	1.38	U	1.4	U	1.42	U	1.41	U	1.42	U	1.41	U	1.64	U	1.52	U	- -		- -		- -	
N-Ethyl Perfluorooctanesulfonamido Ethanol (NEtFOSE)		14.5	U	15.9	U	14.4	U	14.2	U	13.8	U	14	U	14.2	U	14.1	U	14.2	U	14.1	U	16.4	U	15.2	U	- -		- -		- -	
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)		**0.774**	J	1.59	U	1.44	U	1.42	U	1.38	U	1.4	U	1.42	U	1.41	U	1.42	U	1.41	U	1.64	U	1.52	U	- -		- -		- -	
N-Methyl Perfluorooctane Sulfonamide (NMeFOSA)		1.45	U	1.59	U	1.44	U	1.42	U	1.38	U	1.4	U	1.42	U	1.41	U	1.42	U	1.41	U	1.64	U	1.52	U	- -		- -		- -	
N-Methyl Perfluorooctanesulfonamido Ethanol (NMeFOSE)		14.5	U	15.9	U	14.4	U	14.2	U	13.8	U	14	U	14.2	U	14.1	U	14.2	U	14.1	U	16.4	U	15.2	U	- -		- -		- -	
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)		1.45	U	1.59	U	1.44	U	1.42	U	1.38	U	1.4	U	1.42	U	1.41	U	1.42	U	1.41	U	1.64	U	1.52	U	- -		- -		- -	
Nonafluoro-3,6-Dioxaheptanoic Acid (NFDHA)		2.9	U	3.19	U	2.87	U	2.85	U	2.76	U	2.79	U	2.84	U	2.81	U	2.85	U	2.83	U	3.28	U	3.04	U	- -		- -		- -	
Perfluoro(2-Ethoxyethane)Sulfonic Acid (PFEESA)		2.9	U	3.19	U	2.87	U	2.85	U	2.76	U	2.79	U	2.84	U	2.81	U	2.85	U	2.83	U	3.28	U	3.04	U	- -		- -		- -	
Perfluoro-3-Methoxypropanoic Acid (PFMPA)		2.9	U	3.19	U	2.87	U	2.85	U	2.76	U	2.79	U	2.84	U	2.81	U	2.85	U	2.83	U	3.28	U	3.04	U	- -		- -		- -	
Perfluoro-4-Methoxybutanoic Acid (PFMBA)		2.9	U	3.19	U	2.87	U	2.85	U	2.76	U	2.79	U	2.84	U	2.81	U	2.85	U	2.83	U	3.28	U	3.04	U	- -		- -		- -	
Perfluorobutanesulfonic Acid (PFBS)		**2.37**		**2.09**		**1.92**		**3.48**		**2.69**		**0.879**	J	**0.555**	J	**1.22**	J	**0.946**	J	**0.806**	J	1.64	U	1.52	U	- -		- -		- -	
Perfluorobutanoic Acid (PFBA)		**6.96**		**6.98**		**6.72**		**9.53**		**5.87**		**4.93**	J	**2.66**	J	**4.14**	J	**4.41**	J	**4**	J	6.55	U	6.07	U	- -		- -		- -	
Perfluorodecanesulfonic Acid (PFDS)		1.45	U	1.59	U	1.44	U	1.42	U	1.38	U	1.4	U	1.42	U	1.41	U	1.42	U	1.41	U	1.64	U	1.52	U	- -		- -		- -	
Perfluorodecanoic Acid (PFDA)		**0.275**	J	1.59	U	1.44	U	1.42	U	1.38	U	1.4	U	1.42	U	1.41	U	1.42	U	1.41	U	1.64	U	1.52	U	- -		- -		- -	
Perfluorododecanesulfonic Acid (PFDoS)		1.45	U	1.59	U	1.44	U	1.42	U	1.38	U	1.4	U	1.42	U	1.41	U	1.42	U	1.41	U	1.64	U	1.52	U	- -		- -		- -	
Perfluorododecanoic Acid (PFDoA)		1.45	U	1.59	U	1.44	U	1.42	U	1.38	U	1.4	U	1.42	U	1.41	U	1.42	U	1.41	U	1.64	U	1.52	U	- -		- -		- -	
Perfluoroheptanesulfonic Acid (PFHpS)		1.45	U	1.59	U	1.44	U	1.42	U	1.38	U	1.4	U	1.42	U	1.41	U	1.42	U	1.41	U	1.64	U	1.52	U	- -		- -		- -	
Perfluoroheptanoic Acid (PFHpA)		**1.34**	J	**1.59**		**1.55**		**1.84**		**2.36**		**1.16**	J	**0.911**	J	**0.528**	J	**0.498**	J	**0.919**	J	1.64	U	1.52	U	- -		- -		- -	
Perfluorohexanesulfonic Acid (PFHxS)		**1.6**		**3.41**		**3.29**		**1.27**	J	**1.67**		**2**		**1.2**	J	**0.9**	J	**1.13**	J	**1**	J	1.64	U	1.52	U	- -		- -		- -	
Perfluorohexanoic Acid (PFHxA)		**1.87**		**2.17**		**2.33**		**3.17**		**3.3**		**1.84**		**0.939**	J	**0.914**	J	**0.996**	J	**1.14**	J	1.64	U	1.52	U	- -		- -		- -	
Perfluorononanesulfonic Acid (PFNS)		1.45	U	1.59	U	1.44	U	1.42	U	1.38	U	1.4	U	1.42	U	1.41	U	1.42	U	1.41	U	1.64	U	1.52	U	- -		- -		- -	
Perfluorononanoic Acid (PFNA)		**0.528**	J	**0.558**	J	**0.445**	J	**0.449**	J	**0.676**	J	**0.461**	J	**0.341**	J	**0.422**	J	**0.349**	J	**0.325**	J	1.64	U	1.52	U	- -		- -		- -	
Perfluorooctanesulfonamide (PFOSA)		**0.427**	J	1.59	U	1.44	U	1.42	U	1.38	U	1.4	U	1.42	U	1.41	U	1.42	U	1.41	U	1.64	U	1.52	U	- -		- -		- -	
Perfluorooctanesulfonic Acid (PFOS)	2.7	**8.1**		**8.8**		**8.89**		**1.82**		**2.94**		**0.858**	J	**0.74**	J	**1.66**		**1.97**		**2.35**		1.64	U	**0.562**	J	- -		- -		- -	
Perfluorooctanoic Acid (PFOA)	6.7	**3.52**		**4.35**		**4.19**		**5.51**		**6.71**		**1.87**		**1.17**	J	**2.14**		**1.85**		**2.9**		1.64	U	1.52	U	- -		- -		- -	
Perfluoropentanesulfonic Acid (PFPeS)		**0.326**	J	1.59	U	1.44	U	**0.392**	J	1.38	U	1.4	U	1.42	U	1.41	U	1.42	U	1.41	U	1.64	U	1.52	U	- -		- -		- -	
Perfluoropentanoic Acid (PFPeA)		**1.51**	J	**2.42**	J	**2.05**	J	**3.29**		**3.46**		**1.26**	J	**0.612**	J	**1.04**	J	**0.754**	J	**1.29**	J	3.28	U	3.04	U	- -		- -		- -	
Perfluorotetradecanoic Acid (PFTeDA)		1.45	U	1.59	U	1.44	U	1.42	U	1.38	U	1.4	U	1.42	U	1.41	U	1.42	U	1.41	U	1.64	U	1.52	U	- -		- -		- -	
Perfluorotridecanoic Acid (PFTrDA)		1.45	U	1.59	U	1.44	U	1.42	U	1.38	U	1.4	U	1.42	U	1.41	U	1.42	U	1.41	U	1.64	U	1.52	U	- -		- -		- -	
Perfluoroundecanoic Acid (PFUnA)		1.45	U	1.59	U	1.44	U	1.42	U	1.38	U	1.4	U	1.42	U	1.41	U	1.42	U	1.41	U	1.64	U	1.52	U	- -		- -		- -	

Notes:

- Except for PFAS, analytical results compared to NYSDEC Division of Water Technical and Operational Guidance Series (1.1.1) Ambient Water Quality Standards and Guidance Values.
- PFAS compounds compared to thresholds provided in Sampling, Analysis, and Assessment of Per- and Polyfluoroalkyl Substances (PFAS) Under NYSDEC's Part 375 Remedial Programs, April 2023.
- Results and groundwater standards are in parts per billion (ppb), except for PFAS which is in parts per trillion (ppt).
- Analytes detected at concentrations greater than laboratory detections limits are **bolded**.
- Highlighted cell indicates the respective use groundwater limitation exceeded.
- Blank space indicates that a groundwater limitation does not exist.
- Duplicate sample results are provided to the right of the parent sample results.
- "J" indicates estimated concentration.
- "U" indicates analyte not detected at concentration greater than laboratory detection limit.
- "-" indicates that sample was not anlayzed for that parameter.
- Equipment blank was collected through unused sampling tubing.

Table 5
Old Erie Commons - Remedial Investigation
Soil Vapor Data Summary

LOCATION			SV-101		SV-102		SV-103		SV-104		SV-106		OA-101	
SAMPLING DATE			7/31/2025		7/31/2025		7/31/2025		7/31/2025		7/31/2025		7/31/2025	
LAB SAMPLE ID			L2548247-01		L2548247-02		L2548247-03		L2548247-04		L2548247-06		L2548247-07	
SAMPLE TYPE			SOIL VAPOR		SOIL VAPOR		SOIL VAPOR		SOIL VAPOR		SOIL VAPOR		AIR	
SAMPLE DEPTH (ft.)			2		3		2		2		2		--	
	NYSDOH Air Guideline Value	NYSDOH Decision Matrix - Soil Vapor	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual
Volatile Organics in Air														
1,1,1-Trichloroethane		100	3.64	U	5.46	U	5.46	U	3.64	U	10.9	U	1.09	U
1,1,2,2-Tetrachloroethane			4.58	U	6.87	U	6.87	U	4.58	U	13.7	U	1.37	U
1,1,2-Trichloroethane			3.64	U	5.46	U	5.46	U	3.64	U	10.9	U	1.09	U
1,1-Dichloroethane			2.7	U	4.05	U	4.05	U	2.7	U	8.09	U	0.809	U
1,1-Dichloroethene		6	2.64	U	3.96	U	3.96	U	2.64	U	7.93	U	0.793	U
1,2,4-Trichlorobenzene			4.95	U	7.42	U	7.42	U	4.95	U	14.8	U	1.48	U
1,2,4-Trimethylbenzene		60	**26.4**		**25.1**		**30.8**		**27.3**		**33.8**		0.983	U
1,2-Dibromoethane			5.13	U	7.69	U	7.69	U	5.13	U	15.4	U	1.54	U
1,2-Dichlorobenzene			4.01	U	6.01	U	6.01	U	4.01	U	12	U	1.2	U
1,2-Dichloroethane			2.7	U	4.05	U	4.05	U	2.7	U	8.09	U	0.809	U
1,2-Dichloropropane			3.08	U	4.62	U	4.62	U	3.08	U	9.24	U	0.924	U
1,3,5-Trimethylbenzene		60	**7.03**		**7.03**		**8.21**		**7.33**		9.83	U	0.983	U
1,3-Butadiene			1.48	U	2.21	U	2.21	U	1.48	U	4.42	U	0.442	U
1,3-Dichlorobenzene			4.01	U	6.01	U	6.01	U	4.01	U	12	U	1.2	U
1,4-Dichlorobenzene			4.01	U	6.01	U	6.01	U	4.01	U	12	U	1.2	U
1,4-Dioxane			2.4	U	3.6	U	3.6	U	2.4	U	7.21	U	0.721	U
2,2,4-Trimethylpentane		60	3.12	U	4.67	U	4.67	U	3.12	U	9.34	U	0.934	U
2-Butanone			**843**		**1930**		**1480**		**1330**		**2670**		**1.69**	
2-Hexanone			**201**		**335**		**245**		**261**		**387**		0.82	U
3-Chloropropene			2.09	U	3.13	U	3.13	U	2.09	U	6.26	U	0.626	U
4-Ethyltoluene			**6.83**		4.92	U	4.92	U	**3.49**		9.83	U	0.983	U
4-Methyl-2-pentanone			6.84	U	10.2	U	10.2	U	6.84	U	20.5	U	2.05	U
Acetone			**150**		**499**		**359**		**316**		**717**		**16.2**	
Benzene		60	2.13	U	3.19	U	**8.69**		2.13	U	6.39	U	**0.76**	
Benzyl chloride			3.45	U	5.18	U	5.18	U	3.45	U	10.4	U	1.04	U
Bromodichloromethane			4.47	U	6.7	U	6.7	U	4.47	U	13.4	U	1.34	U
Bromoform			6.9	U	10.3	U	10.3	U	6.9	U	20.7	U	2.07	U
Bromomethane			2.59	U	3.88	U	3.88	U	2.59	U	7.77	U	0.777	U
Carbon disulfide			**3.52**		**4.05**		**12.3**		**20.6**		**6.51**		0.623	U
Carbon tetrachloride		6	4.2	U	6.29	U	6.29	U	4.2	U	12.6	U	1.26	U
Chlorobenzene			3.07	U	4.61	U	4.61	U	3.07	U	9.21	U	0.921	U
Chloroethane			1.76	U	2.64	U	2.64	U	1.76	U	5.28	U	0.528	U
Chloroform			**6.69**		4.88	U	4.88	U	**5.13**		**11.1**		0.977	U
Chloromethane			1.38	U	2.07	U	2.07	U	1.38	U	4.13	U	**1.36**	
cis-1,2-Dichloroethene		6	2.64	U	3.96	U	3.96	U	2.64	U	7.93	U	0.793	U
cis-1,3-Dichloropropene			3.03	U	4.54	U	4.54	U	3.03	U	9.08	U	0.908	U
Cyclohexane		60	2.3	U	3.44	U	**7.5**		**2.43**		6.88	U	0.688	U
Dibromochloromethane			5.68	U	8.52	U	8.52	U	5.68	U	17	U	1.7	U
Dichlorodifluoromethane			3.3	U	4.94	U	4.94	U	3.3	U	9.89	U	**2.12**	
Ethanol			**38.8**		**52**		47.1	U	**1740**		94.2	U	9.42	U
Ethyl Acetate			6.02	U	9.01	U	9.01	U	6.02	U	18	U	1.8	U
Ethylbenzene		60	**16.3**		**17.8**		**18.9**		**15.5**		**24.5**		0.869	U
Freon-113			5.11	U	7.66	U	7.66	U	5.11	U	15.3	U	1.53	U
Freon-114			4.66	U	6.99	U	6.99	U	4.66	U	14	U	1.4	U
Heptane		200	2.73	U	**4.47**		**6.27**		**4.34**		8.2	U	0.82	U
Hexachlorobutadiene			7.11	U	10.7	U	10.7	U	7.11	U	21.3	U	2.13	U
Isopropanol			8.19	U	12.3	U	12.3	U	8.19	U	24.6	U	38.8	
Methyl tert butyl ether			2.4	U	3.61	U	3.61	U	2.4	U	7.21	U	0.721	U
Methylene chloride	60	100	5.8	U	8.69	U	8.69	U	5.8	U	17.4	U	1.74	U
n-Hexane		200	2.35	U	**3.95**		**8.11**		**6.13**		**8.46**		**4.23**	
Naphthalene		60	3.32	U	4.98	U	4.98	U	3.32	U	9.96	U	0.996	U
o-Xylene		60	**25.8**		**29.3**		**31.7**		**27.1**		**41.8**		0.869	U
p/m-Xylene		200	**70.4**		**76.4**		**76.4**		**66.9**		**99**		1.74	U
Styrene			2.84	U	4.26	U	4.26	U	2.84	U	8.52	U	0.852	U
Tertiary butyl Alcohol			**5.58**		**14.8**		7.58	U	**8.31**		**21**		1.52	U
Tetrachloroethene	30	100	4.52	U	6.78	U	**14.6**		4.52	U	13.6	U	1.36	U
Tetrahydrofuran			4.93	U	7.37	U	7.37	U	4.93	U	14.7	U	1.47	U
Toluene		300	**29.5**		**36.5**		**36.6**		**27**		**41.5**		0.754	U
trans-1,2-Dichloroethene			2.64	U	3.96	U	3.96	U	2.64	U	7.93	U	0.793	U
trans-1,3-Dichloropropene			3.03	U	4.54	U	4.54	U	3.03	U	9.08	U	0.908	U
Trichloroethene	2	6	3.58	U	5.37	U	5.37	U	3.58	U	10.7	U	1.07	U
Trichlorofluoromethane			**15.5**		5.62	U	5.62	U	3.75	U	11.2	U	1.12	U
Vinyl bromide			2.92	U	4.37	U	4.37	U	2.92	U	8.74	U	0.874	U
Vinyl chloride		6	1.71	U	2.56	U	2.56	U	1.71	U	5.11	U	0.511	U

Notes:
- Analytical data compared to NYSDOH Final Guidance for Evaluating Soil Vapor Intrusion in the State of New York and NYSDOH Soil Vapor / Indoor Air Decision Matrices.
- Results and guidance values in micrograms per cubic meter (ug/m3).
- Analytes detected at concentrations greater than laboratory detections limits are **bolded**.
- Highlighted color indicates AGV exceeded. Red text indicates sub-slab decision matrice value exceeded.
- Blank space indicates that a standard does not exist.
- "U" indicates analyte not detected at concentration greater than laboratory detection limit.
- "-" indicates that sample was not anlayzed for that parameter.
- SV-105 could not be analyzed because the sample was impacted by groundwater.

Table 6

SUMMARY OF PREVIOUS PHASE II INVESTIGATIONS SOIL/FIII ANALYTICAL RESULTS
REMEDIAL INVESTIGATION/ALTERNATIVES ANALYSIS WORK PLAN
OLD ERIE COMMONS SITE
VILLAGE OF CANASTOTA, NEW YORK

PARAMETER [1]	Unrestricted Use SCOs [2]	Restricted Residential Use SCOs [2]	Commercial Use SCOs [2]	Industrial Use SCOs [2]	SB-1 0 to 4 ft	SB-3 0 to 4 ft	SB-5 4 to 6 ft	TP-1 1 to 3 ft	TP-5 3 to 4 ft	TP-8 3 to 4 ft	TP-9 2 to 3 ft	TP-15 2 to 4 ft	TP-16 2 to 2.5 ft	TP-17 1 to 3 ft	TP-18 3 to 3.5 ft
Sample Date					10/25/2019			03/24/2021				10/20/2021			
Volatile Organic Compounds (VOCs) - mg/kg [3]															
Acetone	**0.05**	**100**	**500**	**1000**	0.032	0.019	**0.063**	--	--	--	--	--	--	--	--
Methylene Chloride	**0.05**	**100**	**500**	**1000**	0.0052 JB	0.004 JB	0.0034 JB	--	--	--	--	--	--	--	--
Semi-Volatile Organic Compounds (SVOCs) - mg/kg [3]															
Acenaphthene	**20**	**100**	**500**	**1000**	ND	ND	0.52 J	ND	0.15 J	0.12 J	0.028 J	--	1.2	ND	--
Fluoranthene	**100**	**100**	**500**	**1000**	0.11 J	0.043 J	5.1	0.24	2.7	2.5	0.28	--	31 D	0.41	--
Naphthalene	**12**	**100**	**500**	**1000**	ND	ND	0.53 J	0.038 J	0.19 J	0.93	0.061 J	--	--	--	--
Benzo(a)anthracene	**1**	**1**	**5.6**	**11**	0.065 J	0.028 J	**2.3**	0.16	**1.6**	**1.3**	0.19	--	**11**	0.21 J	--
Benzo(a)pyrene	**1**	**1**	**1**	**1.1**	0.042 J	ND	**1.9**	0.13 J	**1.3**	**1.1**	0.14 J	--	**10**	0.18 J	--
Benzo(b)fluoranthene	**1**	**1**	**5.6**	**11**	0.069 J	ND	**2.1**	0.19	**1.7**	**1.6**	0.2	--	**14**	0.26 J	--
Benzo(k)fluoranthene	**0.8**	**3.9**	**56**	**110**	ND	ND	**1.2**	0.054 J	0.57	0.56	0.07 J	--	**3.9**	ND	--
Chrysene	**1**	**3.9**	**56**	**110**	0.073 J	ND	**2.2**	0.16	**1.4**	**1.4**	0.23	--	**12**	0.23 J	--
Acenaphthylene	**100**	**100**	**500**	**1000**	ND	ND	0.21 J	ND	0.24	0.31	0.038 J	--	2.3	ND	--
Anthracene	**100**	**100**	**500**	**1000**	ND	ND	1.2	ND	0.59	0.38	0.076 J	--	5	ND	--
Benzo(ghi)perylene	**100**	**100**	**500**	**1000**	0.032 J	ND	1	0.088 J	0.95	0.65	0.099 J	--	7.1	0.13 J	--
Fluorene	**30**	**100**	**500**	**1000**	ND	ND	0.69 J	ND	0.17 J	0.14 J	0.038 J	--	2.4	ND	--
Phenanthrene	**100**	**100**	**500**	**1000**	0.083 J	0.039 J	4.7	0.17	2.1	1.8	0.34	--	28	0.32 J	--
Dibenzo(a,h)anthracene	**0.33**	**0.33**	**0.56**	**1.1**	ND	ND	0.29 J	ND	0.22	0.19	0.031 J	--	**1.4**	ND	--
Indeno(1,2,3-cd)pyrene	**0.5**	**0.5**	**5.6**	**11**	0.028 J	ND	**0.97 J**	0.092 J	**1**	**0.76**	0.083 J	--	**8.3**	0.15 J	--
Pyrene	**100**	**100**	**500**	**1000**	0.1 J	0.039 J	4	0.21	2.5	2.2	0.26	--	28	0.37 J	--
Biphenyl	**--**	**--**	**--**	**--**	ND	ND	ND	ND	ND	0.13 J	ND	--	--	--	--
2-Methylnaphthalene	**--**	**--**	**--**	**--**	ND	ND	0.2 J	0.044 J	0.18 J	1.1	ND	--	--	--	--
Dibenzofuran	**7**	**59**	**350**	**1000**	ND	ND	0.43 J	ND	0.13 J	0.33	0.033 J	--	--	--	--
Acetonphenone	**--**	**--**	**--**	**--**	ND	ND	ND	ND	ND	0.17 J	0.08 J	--	--	--	--
Carbazole	**--**	**--**	**--**	**--**	ND	ND	0.56 J	ND	0.2 J	0.19 J	0.032 J	--	--	--	--
Polychlorinated Biphenyls (PCBs) - mg/Kg															
Total PCBs	**0.1**	**1**	**1**	**25**	ND	ND	ND	--	--	--	--	--	--	--	--
Metals - mg/Kg															
Aluminum	**--**	**--**	**--**	**--**	10000	13000	15300	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**
Antimony	**--**	**--**	**--**	**--**	0.79 J	0.71 J	ND	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**
Arsenic	**13**	**16**	**16**	**16**	**16**	9.1	8.3	7.47	**28.6**	**20.7**	**52.6**	**63.8**	**33.1**	**29.8**	**39.3**
Barium	**350**	**400**	**400**	**10000**	**479**	312	170	349	241	168	31.4	310	**1980**	293	**408**
Beryllium	**7.2**	**72**	**590**	**2700**	1.3	1.3	0.75	--	--	--	--	--	--	--	--
Cadmium	**2.5**	**4.3**	**9.3**	**60**	0.27	ND	ND	0.587	0.452 J	0.703	0.436 J	0.587 J	**3.32**	1.33	0.349 J
Calcium	**--**	**--**	**--**	**--**	5540 B	3200 B	25200 B	--	--	--	--	--	--	--	--
Chromium	**30**	**180**	**1500**	**6800**	20.7	**69.8**	23.4	7.15	6.65	7.94	2.54	7.88	**32.5**	11.6	6.72
Cobalt	**--**	**--**	**--**	**--**	9.2	10.7	6.5	--	--	--	--	--	--	--	--
Copper	**50**	**270**	**270**	**10000**	33.6	22.3	2	--	--	--	--	--	--	--	--
Iron	**--**	**--**	**--**	**--**	17700	27000	33000	--	--	--	--	--	--	--	--
Lead	**63**	**400**	**1000**	**3900**	**104**	**142**	9.2	**93.6**	63.8	**127**	5.3	**708**	**33500**	**352**	25.8
Magnesium	**--**	**--**	**--**	**--**	2830	3620	15800	--	--	--	--	--	--	--	--
Manganese	**1600**	**2000**	**10000**	**10000**	184	195	427	--	--	--	--	--	--	--	--
Mercury	**0.18**	**0.81**	**2.8**	**5.7**	0.096	0.051	0.021 J	**1.64**	**0.887**	**0.553**	0.096	0.077 J	**11**	**0.32**	**0.28**
Nickel	**30**	**310**	**310**	**10000**	25.5	**31.2**	26.4	--	--	--	--	--	--	--	--
Potassium	**--**	**--**	**--**	**--**	2740	4300	7580	--	--	--	--	--	--	--	--
Selenium	**3.9**	**180**	**1500**	**6800**	ND	0.97 J	ND	0.405 J	1.03 J	1.32	1.12	0.399 J	0.654 J	1.09	0.62 J
Silver	**2**	**180**	**1500**	**6800**	ND	ND	ND	ND	ND	ND	ND	ND	0.373 J	0.37 J	ND
Sodium	**--**	**--**	**--**	**--**	204	136 J	157 J	--	--	--	--	--	--	--	--
Vanadium	**--**	**--**	**--**	**--**	26.4	25.9	26.3	--	--	--	--	--	--	--	--
Zinc	**109**	**10000**	**10000**	**10000**	79.8	**109**	31.7	--	--	--	--	--	--	--	--

Notes:

1. Only those parameters detected at a minimum of one sample location are presented in this table; all other compounds were reported as non-detect.
2. Values per 6NYCRR Part 375 Soil Cleanup Objectives (SCOs).
3. Sample results were reported by the laboratory in ug/kg and converted to mg/kg for comparisons to SCOs.

Definitions:

ND = Parameter not detected above laboratory detection limit.
"--" = No value available for the parameter. Or parameter not analyzed for.
B = Analyte was detected in associated method blank.

Bold	: Results Exceed Unrestricted Use Soil Cleanup Objectives
Bold	: Results Exceed Restricted Residential Use Soil Cleanup Objectives
Bold	: Results Exceed Commercial Use Soil Cleanup Objectives
Bold	: Results Exceed Industrial Use Soil Cleanup Objectives

Appendices

Appendix A

Property Survey and Metes and Bounds Description

Coordinate System NAD 83, Central Zone

North By The New York State Plane

North By Map Reference #1

MAP REFERENCE:

M.R. #1 "Lands Of Derald Jayson And Julie A. Heintz"
Village of Canastota, County of Madison, State of New York
By Myers And Associates, P.C., Dated May 25, 2018.

GENERAL NOTES:

1. Underground facilities, structures and utilities have been placed on this drawing from field locations, where visible or from recorded drawings provided to the undersigned. Therefore, locations should be considered approximate only. There may be other facilities or utilities, the existence of which are not known: for this reason, UFPO shall be contacted a minimum of 48 hours prior to any underground excavation.
2. Elevations shown are tied to the North American Vertical Datum of 1988 (NAVD 88). Elevations are based on field measurements. Contours are merely interpolation and should be considered as such only.
3. This survey was prepared without benefit of an updated abstract or title report and is therefore subject to any easements, covenants, or restrictions of record or any facts such documents would disclose.
4. Adjoining boundary lines are shown for reference only.

LEGEND:

- Denotes Existing Iron Pipe
- Denotes Existing Iron Rod
- Denotes Existing Sanitary Sewer Manhole
- Denotes Existing Storm Sewer Manhole
- Denotes Existing Square Catch Basin
- Denotes Existing Water Manhole
- FH — Denotes Existing Fire Hydrant
- FFE — Denotes Finish Floor Elevation
- Denotes Set Bench Mark
- WV — Denotes Existing Water Valve
- Denotes Existing Power Pole
- Denotes Spot Grade (See GN 2)
- Denotes Minor Contour Line (See GN 2)
- Denotes Major Contour Line (See GN 2)
- W — Denotes Water Line (See GN 1)
- ST — Denotes Storm Sewer Line (See GN 1)
- SA — Denotes Sanitary Sewer Line (See GN 1)
- G — Denotes Gas Line (See GN 1)
- OH — Denotes Overhead Power Pole Line (See GN 1)
- Denotes Centerline Of Creek (See GN 1)
- X — Denotes Existing Fence Line
- Denotes Edge Of Existing Tree Canopy
- Denotes Concrete Area

DEED REFERENCE:

D.R. #1
Derald Jayson and Julie A. Heintz
to
Madison County
Warranty Deed - Dated: January 2, 2020
Instrument No. 2020-015

Subject to any easements, covenants, or restrictions of record.

Being Tax Parcel 36.63-1-2

CALL BEFORE YOU DIG:
NYS CODE RULE 753
REQUIRES THAT YOU CALL
BEFORE YOU DIG
UDIG·NY
SAFE DIGGING STARTS HERE
CALL DIG SAFELY NEW
YORK AT 811 OR
1-800-962-7962

United States Of America In Trust For — The Oneida Indian Nation
(Now or Formerly)
Instrument No. 2017-4777
(Tax Parcel 36.62-2-21)

— Precision Reel Straightening, LLC —
(Now or Formerly)
Liber 1430 / Page 99
(Tax Parcel 36.63-1-4.1)

— Dawn R. Post — And Toby J. Klish
(Now or Formerly)
Instrument No. 2020-4588
(Tax Parcel 36.62-2-27)

New York State Erie Canal

"2.565± ACRES"

S80°58'51"E 66.96'
S82°00'51"E 67.79'
S83°02'41"E 67.23'
S83°25'51"E 50.12'
S12°00'00"W 42.03'
S77°45'00"E 50.00'
S11°30'00"W 64.00'
S06°00'00"W 33.00'
S82°00'00"E 33.00'
S06°00'00"E 33.00'
S12°00'00"E 33.00'
S22°00'00"E 33.00'
S27°00'00"E 54.50'
S16°00'00"W 15.50'
N88°45'00"W 290.40'
N78°53'02"W 103.75'
S79°13'50"E 3.42'
N11°26'10"E 134.92'
N11°33'34"E 219.69'

0.83' Westerly
1 Story Frame Building
2 Story Frame House
Shed
Asphalt
0.1' Over
FFE 428.50 (Threshold)
Gravel Driveway
0.8' Over
10' Wide Sewer Easement (M.R. #1)
1.8' Easterly
Concrete Sidewalk
26' Wide Easement Agreement (M.R. #1)
Outlet Location Unknown
20' Wide Ingress & Egress (M.R. #1)
Old Well Casing
Concrete Ramp
Old Foundation Remains
Debris Pile
Guy Wire
Pathway
Wooded Area
Wooded And Overgrown Area
Northerly Highway Boundary
EAST CENTER STREET
(50 Ft. Wide R.O.W.)

Catch Basin
Rim Elevation = 428.30
(10") SW Invert In = 425.30
(15") E Invert In = 424.60
(15") W Invert Out = 424.65
(18") N Invert Out = 424.50

Catch Basin
Rim Elevation = 428.25
Filled With Debris

Catch Basin
Rim Elevation = 428.05
(12") S Invert = 425.45

Catch Basin
Rim Elevation = 428.07
(12") N Invert In = 425.45
(12") S Invert In = 425.50
(12") E Invert In = 425.25
(15") W Invert Out = 425.00

Sanitary Manhole
Rim Elevation = 428.25
(8") Thru Invert = 421.75

Sanitary Manhole
Rim Elevation = 429.02
(8") Thru Invert = 421.25

Sanitary Manhole
Rim Elevation = 428.90
(6") E Inverts = 421.15
(8") W Invert In = 421.05
(12") S Invert In = 422.60
(15") NE Invert = 420.80

BENCHMARK:
Bench Tie Set In Power Pole 12
Elevation = 429.63 (NAVD 88)

SURVEYOR'S CERTIFICATION:

The undersigned hereby certifies that this is an accurate map of actual field survey dated: September 30, 2022 and that both map and survey are correct.

Christopher E. Jacobs L.S. #050952

Unauthorized alteration or addition to a survey map bearing a licensed land surveyor's seal is a violation of section 7209, sub-division 2, of the New York State Education Law.

The alteration of boundary survey maps by anyone other the the original preparer is misleading, confusing and not in the general welfare and benefit of the public.

Only boundary survey maps with the surveyor's embossed seal are genuine true and correct copies of the surveyor's original work and opinion.

No Title Report was furnished to nor done by this company. Said property subject to all notes, restrictions, covenants, and easements of record. Any restrictions and easements not shown on record plats may not be shown hereon.

NO.	DATE	REVISION	BY

SCALE: 1" = 20 FEET

20 0 20 40 60

JACOBS
LAND SURVEYING
5553 West Road
Munnsville, NY 13409
(tf) 315.495.7114
(e) cjacobs@jacobslandsurveying.com

MAP OF SURVEY PREPARED FOR

Lands Of

Madison County

160 Center Street

Village of Canastota	Date: September 30, 2022
County of Madison	Project Number: 2022.122.001
State of New York	Tax Parcel: 36.63-1-2
CAD Drafter: C. Jacobs	Reviewer: C. Jacobs

EXHIBIT A

Legal Description

ALL THAT TRACT OR PARCEL OF LAND SITUATE IN VILLAGE OF CANASTOTA, COUNTY OF MADISON AND STATE OF NEW YORK, BOUNDED AND DESCRIBED AS FOLLOWS:

Beginning at a point on the northerly highway boundary of East Center Street, said point standing at the intersection of the northerly highway boundary of East Center Street with the easterly boundary of Billy R. Ball and Luella R. Ball (Now or Formerly) as described in an Executor's Deed dated July 31, 1979 and filed in the Madison County Clerk's Office in Liber 716 of Deeds at Page 742; thence N11°26'10"E 134.92 along the easterly boundary of Ball to an iron pin standing on the southerly boundary of United States of America in Trust for the Oneida Indian Nation (Now or Formerly); thence S79°13'50"E 3.42 feet along the southerly boundary of United States of America in Trust for the Oneida Indian Nation to an iron pin standing on the easterly boundary of United States of America in Trust for the Oneida Indian Nation; thence N11°33'34"E 219.69 feet along the easterly boundary of United States of America in Trust for the Oneida Indian Nation to a point standing on the southerly Blue Line of the New York State Erie Canal; thence S80°58'51"E 66.96 feet along the southerly Blue Line of the New York State Erie Canal to a point; thence S82°00'51"E 67.79 feet continuing along the southerly Blue Line of the New York State Erie Canal to a point; thence S83°02'41"E 67.23 feet to a point; thence S83°25'51"E 50.12 feet still along the southerly Blue Line of the New York State Erie Canal to an iron bolt in concrete standing on the westerly boundary of Precision Reel Straightening, LLC (Now or Formerly); thence S12°00'00"W 42.03 feet along the westerly boundary of Precision Reel Straightening, LLC to an iron bolt in concrete standing on the southerly boundary of Precision Reel Straightening, LLC; thence S77°45'00"E 50.00 feet along the southerly boundary of Precision Reel Straightening, LLC to an iron bolt in concrete standing on the westerly boundary of Precision Reel Straightening, LLC; thence S11°30'00"W 64.00 feet along the westerly boundary of Precision Reel Straightening, LLC to an iron bolt in concrete; thence S06°00'00"W 33.00 feet continuing along the westerly boundary of Precision Reel Straightening, LLC to an iron bolt in concrete; thence S02°00'00"E 33.00 feet to an iron bolt in concrete; thence S06°00'00"E 33.00 feet to an iron bolt in concrete; thence S12°00'00"E 33.00 feet to an iron bolt in concrete; thence S22°00'00"E 33.00 feet to a drill hole; thence S27°00'00"E 54.50 feet to an iron bolt in concrete; thence S16°00'00"W 15.50 feet still along the westerly boundary of Precision Reel Straightening to an iron bolt in concrete standing on the northerly highway boundary of East Center Street; thence N88°45'00"W 290.40 feet along the northerly highway boundary of East Center Street to a point; thence N78°53'02"W 103.75 feet along the northerly highway boundary of East Center Street to the point and place of beginning.

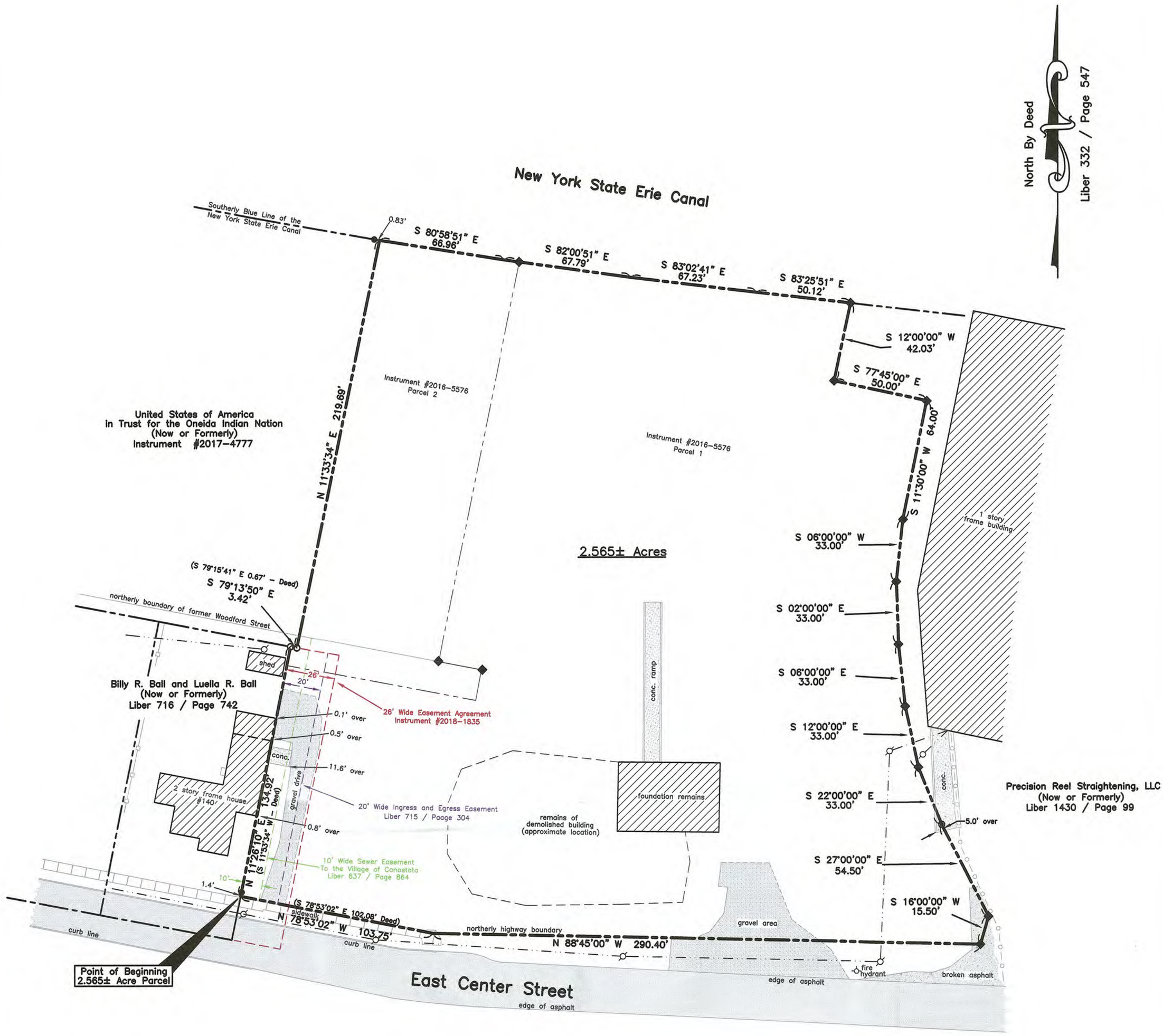
The above described parcel containing 2.565± acres of land, more or less.

Subject to a permanent 10 foot wide sewer easement granted to the Village of Canastota by deed filed in the Madison County Clerk's office in Liber 637 of Deeds at Page 864.

Also, subject to a 20 foot wide easement and right of way granted to Susan F. Schapiro and Sally F. Schapiro by deed filed in the Madison County Clerk's office in Liber 715 of Deeds at Page 304.

Further subject to a 26 foot wide easement granted to The Estate of Luella Ball by deed filed in the Madison County Clerk's office as Instrument #2018-1835.

Even further subject to any other easements, covenants or restrictions of record.



Deed Reference:

Dewane J. Jayson
To
Derald Jayson and Julie A. Heintz
Quit Claim Deed dated September 29, 2016
Filed in the Madison County Clerk's Office on
September 29, 2016 as Instrument #2016-5576

Legend:

- iron pin set
- existing pin in concrete
- existing iron pin
- drill hole
- utility pole
- overhead utility wires

Survey Redate: July 15, 2019

Frederick W. Myers Jr., L.S.#049229

Scale 1"=40 Feet

FILE NO. 18-57

UNAUTHORIZED ALTERATION OR ADDITION TO A SURVEY MAP BEARING A LICENSED LAND SURVEYOR'S SEAL IS A VIOLATION OF SECTION 7209, SUBDIVISION 2 OF THE NEW YORK STATE EDUCATION LAW.
THE ALTERATION OF SURVEY MAPS BY ANYONE OTHER THAN THE ORIGINAL PREPARER IS MISLEADING, CONFUSING, AND NOT IN THE GENERAL WELFARE AND BENEFIT OF THE PUBLIC. LICENSED LAND SURVEYORS SHALL NOT ALTER SURVEY MAPS, SURVEY PLANS, OR SURVEY PLATS PREPARED BY OTHERS.

MAP BY: BP
CHECKED BY: RM

It is hereby certified that this map was made from an actual field survey dated April 25, 2018 and that both map and survey are correct.

Frederick W. Myers Jr., L.S.#049229

STATE OF NEW YORK
FREDERICK W. MYERS, JR.
No. 49229
LICENSED LAND SURVEYOR

DATE OF DRAWING
4/25/2018

Lands of
Derald Jayson and Julie A. Heintz
160 East Center Street
Village of Canastota - Madison County
State of New York

Myers and Associates, P.C.
127 South Peterboro Street
Canastota, New York 13032
Telephone (315) 697-2281 Fax (315) 697-5232

Revisions

Appendix B

Remedial Investigation Field Logs

C&S Engineers, Inc.
499 Col. Eileen Collins Blvd
Syracuse, NY 13212
Phone: 315-455-2000
Fax: 315-455-9667
www.cscos.com

TEST PIT LOG

Test Pit:	TP-101
Northing:	1122671.80894
Easting:	1043142.18097

Project Number:	W96.013.001	**Start Date:**	7/29/2025
Project Name:	Old Erie Commons	**Finish Date:**	7/29/2025
Client:	Housing Visions	**Excavating Firm:**	Matrix Environmental Technologies
Address:	160 Center Street, Canastota	**Excavator:**	Kubota BT1000

Depth (ft)	Test Pit	Groundwater	Depth (ft)	USCS MATERIAL DESCRIPTION	PID (ppm)	Staining	Odor	Petroleum Impacts	Chemical Impacts	Sample
			0-0.5	Brown Topsoil, Moist	0.0	☐	☐	☐	☐	
1			0.5-1.5	Brown gravelly SILT with sand, Non-Plastic, Firm, Moist, Trace	0.0	☐	☐	☐	☐	
				HFM (brick, concrete)		☐	☐	☐	☐	▼
2			1.5-2.5	Reddish brown lean CLAY, Medium Plasticity, Stiff, Moist	0.0	☐	☐	☐	☐	
				Dark brown sandy lean CLAY with gravel, Medium Plasticity,		☐	☐	☐	☐	
3		▼	2.5-3	Soft, Moist	0.0	☐	☐	☐	☐	▼
			3-4	Grey silty GRAVEL with sand, Loose, Wet	0.0	☐	☐	☐	☐	
4						☐	☐	☐	☐	
			4	Test Pit Termination - Groundwater Infiltration		☐	☐	☐	☐	
5						☐	☐	☐	☐	
6						☐	☐	☐	☐	
7						☐	☐	☐	☐	
8						☐	☐	☐	☐	
9						☐	☐	☐	☐	
10						☐	☐	☐	☐	
11						☐	☐	☐	☐	
12						☐	☐	☐	☐	
13						☐	☐	☐	☐	
14						☐	☐	☐	☐	
15						☐	☐	☐	☐	
16						☐	☐	☐	☐	
17						☐	☐	☐	☐	
18						☐	☐	☐	☐	
19						☐	☐	☐	☐	
20						☐	☐	☐	☐	

C&S Engineers, Inc.
499 Col. Eileen Collins Blvd
Syracuse, NY 13212
Phone: 315-455-2000
Fax: 315-455-9667
www.cscos.com

TEST PIT LOG

Test Pit:	TP-102
Northing:	1122697.00351
Easting:	1043311.20658

Project Number:	W96.013.001	**Start Date:**	7/28/2025
Project Name:	Old Erie Commons	**Finish Date:**	7/28/2025
Client:	Housing Visions	**Excavating Firm:**	Matrix Environmental Technologies
Address:	160 Center Street, Canastota	**Excavator:**	Kubota BT1000

Depth (ft)	Test Pit	Groundwater	Depth (ft)	USCS MATERIAL DESCRIPTION	PID (ppm)	Staining	Odor	Petroleum Impacts	Chemical Impacts	Sample
			0-0.5	Brown Topsoil, Moist	0.0	☐	☐	☐	☐	
1			0.5-2	Brown HFM, Stone, brick, tar, wood, Moist	0.0	☐	☐	☐	☐	
2						☐	☐	☐	☐	▼
3			2-3	Reddish brown lean CLAY, Medium Plasticity, Stiff, Moist	0.0	☐	☐	☐	☐	
		▼				☐	☐	☐	☐	
			3-3.5	Reddish brown gravelly lean CLAY, Medium Plasticity, Stiff, Wet	0.0	☐	☐	☐	☐	▼
4			3.5	Test Pit Termination - Refusal		☐	☐	☐	☐	
5						☐	☐	☐	☐	
6						☐	☐	☐	☐	
7						☐	☐	☐	☐	
8						☐	☐	☐	☐	
9						☐	☐	☐	☐	
10						☐	☐	☐	☐	
11						☐	☐	☐	☐	
12						☐	☐	☐	☐	
13						☐	☐	☐	☐	
14						☐	☐	☐	☐	
15						☐	☐	☐	☐	
16						☐	☐	☐	☐	
17						☐	☐	☐	☐	
18						☐	☐	☐	☐	
19						☐	☐	☐	☐	
20						☐	☐	☐	☐	

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TEST PIT LOG

Test Pit:	TP-103
Northing:	1122728.02314
Easting:	1043348.79859

Project Number:	W96.013.001	**Start Date:**	7/28/2025
Project Name:	Old Erie Commons	**Finish Date:**	7/28/2025
Client:	Housing Visions	**Excavating Firm:**	Matrix Environmental Technologies
Address:	160 Center Street, Canastota	**Excavator:**	Kubota BT1000

Depth (ft)	Test Pit	Groundwater	Depth (ft)	USCS MATERIAL DESCRIPTION	PID (ppm)	Staining	Odor	Petroleum Impacts	Chemical Impacts	Sample
1			0-1	Brown Topsoil, Moist	0.1	☐	☐	☐	☐	
2			1-4.5	Black HFM, Brick, tar, cinder, Moist	0.1	☐	☐	☐	☐	
3						☐	☐	☐	☐	
4						☐	☐	☐	☐	▼
5			4.5-8	Reddish brown lean CLAY, Medium Plasticity, Stiff, Moist	0.0	☐	☐	☐	☐	
6						☐	☐	☐	☐	
7						☐	☐	☐	☐	▼
8		▼				☐	☐	☐	☐	
9			8-9	Reddish brown / grey gravelly lean CLAY, Medium Plasticity, Hard, Wet, (Glacial Till)	0.0	☐	☐	☐	☐	
10			9	Test Pit Termination - Refusal		☐	☐	☐	☐	
11						☐	☐	☐	☐	
12						☐	☐	☐	☐	
13						☐	☐	☐	☐	
14						☐	☐	☐	☐	
15						☐	☐	☐	☐	
16						☐	☐	☐	☐	
17						☐	☐	☐	☐	
18						☐	☐	☐	☐	
19						☐	☐	☐	☐	
20						☐	☐	☐	☐	

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TEST PIT LOG

Test Pit:	TP-104
Northing:	1122705.36953
Easting:	1043433.79607

Project Number:	W96.013.001	**Start Date:**	7/28/2025
Project Name:	Old Erie Commons	**Finish Date:**	7/28/2025
Client:	Housing Visions	**Excavating Firm:**	Matrix Environmental Technologies
Address:	160 Center Street, Canastota	**Excavator:**	Kubota BT1000

Depth (ft)	Test Pit	Groundwater	Depth (ft)	USCS MATERIAL DESCRIPTION	PID (ppm)	Staining	Odor	Petroleum Impacts	Chemical Impacts	Sample
			0-0.5	Brown Topsoil, Moist	0.0	☐	☐	☐	☐	
1			0.5-3	Black HFM, Coal, cinder, stone, Moist	0.0	☐	☐	☐	☐	
2						☐	☐	☐	☐	
3						☐	☐	☐	☐	— ▼
4			3-6	Reddish brown lean CLAY, Medium Plasticity, Stiff, Moist	0.0	☐	☐	☐	☐	
5						☐	☐	☐	☐	
6		▼	6-6.5	Reddish brown / grey gravelly lean CLAY, Medium Plasticity, Hard, Wet, (Glacial Till)	0.0	☐	☐	☐	☐	▼
7			6.5	Test Pit Termination - Refusal		☐	☐	☐	☐	
8						☐	☐	☐	☐	
9						☐	☐	☐	☐	
10						☐	☐	☐	☐	
11						☐	☐	☐	☐	
12						☐	☐	☐	☐	
13						☐	☐	☐	☐	
14						☐	☐	☐	☐	
15						☐	☐	☐	☐	
16						☐	☐	☐	☐	
17						☐	☐	☐	☐	
18						☐	☐	☐	☐	
19						☐	☐	☐	☐	
20						☐	☐	☐	☐	

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TEST PIT LOG

Test Pit:	TP-105
Northing:	1122796.79393
Easting:	1043292.04263

Project Number:	W96.013.001	**Start Date:**	7/29/2025
Project Name:	Old Erie Commons	**Finish Date:**	7/29/2025
Client:	Housing Visions	**Excavating Firm:**	Matrix Environmental Technologies
Address:	160 Center Street, Canastota	**Excavator:**	Kubota BT1000

Depth (ft)	Test Pit	Groundwater	Depth (ft)	USCS MATERIAL DESCRIPTION	PID (ppm)	Staining	Odor	Petroleum Impacts	Chemical Impacts	Sample
			0-0.5	Brown Topsoil, Moist	0.0	☐	☐	☐	☐	
1			0.5-3	Black HFM, Coal, cinder, stone, brick, Moist	0.0	☐	☐	☐	☐	
2						☐	☐	☐	☐	
3						☐	☐	☐	☐	— ▼
4			3-6	Reddish brown lean CLAY, Medium Plasticity, Stiff, Moist	0.0	☐	☐	☐	☐	
5						☐	☐	☐	☐	
6		▼	6-6.5	Reddish brown / grey gravelly lean CLAY, Medium Plasticity, Hard, Wet, (Glacial Till)	0.0	☐	☐	☐	☐	▼
7			6.5	Test Pit Termination - Refusal		☐	☐	☐	☐	
8						☐	☐	☐	☐	
9						☐	☐	☐	☐	
10						☐	☐	☐	☐	
11						☐	☐	☐	☐	
12						☐	☐	☐	☐	
13						☐	☐	☐	☐	
14						☐	☐	☐	☐	
15						☐	☐	☐	☐	
16						☐	☐	☐	☐	
17						☐	☐	☐	☐	
18						☐	☐	☐	☐	
19						☐	☐	☐	☐	
20						☐	☐	☐	☐	

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TEST PIT LOG

Test Pit:	TP-106
Northing:	1122781.98817
Easting:	1043355.11779

Project Number:	W96.013.001	**Start Date:**	7/28/2025
Project Name:	Old Erie Commons	**Finish Date:**	7/28/2025
Client:	Housing Visions	**Excavating Firm:**	Matrix Environmental Technologies
Address:	160 Center Street, Canastota	**Excavator:**	Kubota BT1000

Depth (ft)	Test Pit	Groundwater	Depth (ft)	USCS MATERIAL DESCRIPTION	PID (ppm)	Staining	Odor	Petroleum Impacts	Chemical Impacts	Sample
1			0-1.5	Brown Topsoil, Moist	0.1	☐	☐	☐	☐	
2			1.5-3	Black HFM, Wood, cinder, coal, slag, Moist	0.1	☐	☐	☐	☐	
3						☐	☐	☐	☐	▼
4			3-5.5	Reddish brown lean CLAY, Medium Plasticity, Stiff, Moist	0.0	☐	☐	☐	☐	
5						☐	☐	☐	☐	
6		▼	5.5-7	Reddish brown / grey gravelly lean CLAY, Medium Plasticity, Hard, Wet, (Glacial Till)	0.0	☐	☐	☐	☐	
7						☐	☐	☐	☐	▼
8			7	Test Pit Termination - Refusal		☐	☐	☐	☐	
9						☐	☐	☐	☐	
10						☐	☐	☐	☐	
11						☐	☐	☐	☐	
12						☐	☐	☐	☐	
13						☐	☐	☐	☐	
14						☐	☐	☐	☐	
15						☐	☐	☐	☐	
16						☐	☐	☐	☐	
17						☐	☐	☐	☐	
18						☐	☐	☐	☐	
19						☐	☐	☐	☐	
20						☐	☐	☐	☐	

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TEST PIT LOG

Test Pit:	TP-107
Northing:	1122807.60178
Easting:	1043122.02263

Project Number:	W96.013.001	**Start Date:**	7/29/2025
Project Name:	Old Erie Commons	**Finish Date:**	7/29/2025
Client:	Housing Visions	**Excavating Firm:**	Matrix Environmental Technologies
Address:	160 Center Street, Canastota	**Excavator:**	Kubota BT1000

Depth (ft)	Test Pit	Groundwater	Depth (ft)	USCS MATERIAL DESCRIPTION	PID (ppm)	Staining	Odor	Petroleum Impacts	Chemical Impacts	Sample
1			0-0.5	Brown Topsoil, Moist	0.0	☐	☐	☐	☐	
			0.5-3	Black HFM, Wood, cinder, coal, slag, Moist	0.1	☐	☐	☐	☐	
2						☐	☐	☐	☐	
						☐	☐	☐	☐	
3						☐	☐	☐	☐	▼
4			3-5.5	Reddish brown lean CLAY, Medium Plasticity, Stiff, Moist	0.0	☐	☐	☐	☐	
5						☐	☐	☐	☐	
						☐	☐	☐	☐	
6		▼	5.5-7	Reddish brown / grey gravelly lean CLAY, Medium Plasticity, Hard, Wet, (Glacial Till)	0.0	☐	☐	☐	☐	
7						☐	☐	☐	☐	
8			7	Test Pit Termination - Refusal		☐	☐	☐	☐	
9						☐	☐	☐	☐	
10						☐	☐	☐	☐	
11						☐	☐	☐	☐	
12						☐	☐	☐	☐	
13						☐	☐	☐	☐	
14						☐	☐	☐	☐	
15						☐	☐	☐	☐	
16						☐	☐	☐	☐	
17						☐	☐	☐	☐	
18						☐	☐	☐	☐	
19						☐	☐	☐	☐	
20						☐	☐	☐	☐	

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TEST PIT LOG

Test Pit:	TP-108
Northing:	1122813.66863
Easting:	1043244.92606

Project Number:	W96.013.001	**Start Date:**	7/29/2025
Project Name:	Old Erie Commons	**Finish Date:**	7/29/2025
Client:	Housing Visions	**Excavating Firm:**	Matrix Environmental Technologies
Address:	160 Center Street, Canastota	**Excavator:**	Kubota BT1000

Depth (ft)	Test Pit	Groundwater	Depth (ft)	USCS MATERIAL DESCRIPTION	PID (ppm)	Staining	Odor	Petroleum Impacts	Chemical Impacts	Sample
1			0-4	Black HFM, Coal, brick, concrete, asphalt, Moist	0.1	☐	☐	☐	☐	
2						☐	☐	☐	☐	
3						☐	☐	☐	☐	▼
4						☐	☐	☐	☐	
5			4-5.5	Reddish brown lean CLAY, Medium Plasticity, Stiff, Moist	0.0	☐	☐	☐	☐	
6		▼	5.5-6	Reddish brown / grey gravelly lean CLAY, Medium Plasticity, Hard, Wet, (Glacial Till)	0.0	☐	☐	☐	☐	▼
7			6	Test Pit Termination - Refusal		☐	☐	☐	☐	
8						☐	☐	☐	☐	
9						☐	☐	☐	☐	
10						☐	☐	☐	☐	
11						☐	☐	☐	☐	
12						☐	☐	☐	☐	
13						☐	☐	☐	☐	
14						☐	☐	☐	☐	
15						☐	☐	☐	☐	
16						☐	☐	☐	☐	
17						☐	☐	☐	☐	
18						☐	☐	☐	☐	
19						☐	☐	☐	☐	
20						☐	☐	☐	☐	

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TEST PIT LOG

Test Pit:	TP-109
Northing:	1122832.04979
Easting:	1043337.23515

Project Number:	W96.013.001	**Start Date:**	7/28/2025
Project Name:	Old Erie Commons	**Finish Date:**	7/28/2025
Client:	Housing Visions	**Excavating Firm:**	Matrix Environmental Technologies
Address:	160 Center Street, Canastota	**Excavator:**	Kubota BT1000

Depth (ft)	Test Pit	Groundwater	Depth (ft)	USCS MATERIAL DESCRIPTION	PID (ppm)	Staining	Odor	Petroleum Impacts	Chemical Impacts	Sample
1			0-0.5	Brown Topsoil, Moist	0.0	☐	☐	☐	☐	
			0.5-3	Black HFM, Brick, concrete, coal, cinder, wood, Moist	0.0	☐	☐	☐	☐	
2						☐	☐	☐	☐	
						☐	☐	☐	☐	
3						☐	☐	☐	☐	▼
4			3-5.5	Reddish brown lean CLAY, Medium Plasticity, Stiff, Moist	0.0	☐	☐	☐	☐	
						☐	☐	☐	☐	
5						☐	☐	☐	☐	
6		▼	5.5-6	Reddish brown / grey gravelly lean CLAY, Medium Plasticity, Hard, Wet, (Glacial Till)	0.0	☐	☐	☐	☐	▼
7			6	Test Pit Termination - Refusal		☐	☐	☐	☐	
8						☐	☐	☐	☐	
9						☐	☐	☐	☐	
10						☐	☐	☐	☐	
11						☐	☐	☐	☐	
12						☐	☐	☐	☐	
13						☐	☐	☐	☐	
14						☐	☐	☐	☐	
15						☐	☐	☐	☐	
16						☐	☐	☐	☐	
17						☐	☐	☐	☐	
18						☐	☐	☐	☐	
19						☐	☐	☐	☐	
20						☐	☐	☐	☐	

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TEST PIT LOG

Test Pit:	TP-110
Northing:	1122881.66791
Easting:	1043230.25863

Project Number:	W96.013.001	**Start Date:**	7/29/2025
Project Name:	Old Erie Commons	**Finish Date:**	7/29/2025
Client:	Housing Visions	**Excavating Firm:**	Matrix Environmental Technologies
Address:	160 Center Street, Canastota	**Excavator:**	Kubota BT1000

Depth (ft)	Test Pit	Groundwater	Depth (ft)	USCS MATERIAL DESCRIPTION	PID (ppm)	Staining	Odor	Petroleum Impacts	Chemical Impacts	Sample
			0-0.5	Brown Topsoil, Moist	0.0	☐	☐	☐	☐	
1			0.5-3	Brown gravelly SILT with sand, Non-Plastic, Firm, Moist, Trace HFM (brick, concrete, cinder)	0.0	☐	☐	☐	☐	
2						☐	☐	☐	☐	
3						☐	☐	☐	☐	▼
						☐	☐	☐	☐	
4			3-6	Reddish brown lean CLAY, Medium Plasticity, Stiff, Moist	0.1	☐	☐	☐	☐	
5						☐	☐	☐	☐	
						☐	☐	☐	☐	
6		▼	6-6.5	Reddish brown / grey gravelly lean CLAY, Medium Plasticity, Hard, Wet, (Glacial Till)	0.1	☐	☐	☐	☐	▼
7			6.5	Test Pit Termination - Refusal		☐	☐	☐	☐	
8						☐	☐	☐	☐	
9						☐	☐	☐	☐	
10						☐	☐	☐	☐	
11						☐	☐	☐	☐	
12						☐	☐	☐	☐	
13						☐	☐	☐	☐	
14						☐	☐	☐	☐	
15						☐	☐	☐	☐	
16						☐	☐	☐	☐	
17						☐	☐	☐	☐	
18						☐	☐	☐	☐	
19						☐	☐	☐	☐	
20						☐	☐	☐	☐	

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TEST PIT LOG

Test Pit:	TP-111
Northing:	1122937.24749
Easting:	1043150.71087

Project Number:	W96.013.001	**Start Date:**	7/29/2025
Project Name:	Old Erie Commons	**Finish Date:**	7/29/2025
Client:	Housing Visions	**Excavating Firm:**	Matrix Environmental Technologies
Address:	160 Center Street, Canastota	**Excavator:**	Kubota BT1000

Depth (ft)	Test Pit	Groundwater	Depth (ft)	USCS MATERIAL DESCRIPTION	PID (ppm)	Staining	Odor	Petroleum Impacts	Chemical Impacts	▶
1			0-3	Reddish brown HFM, Building materials (wood, metal, concrete, rail ties), Moist	0.0	☐	☐	☐	☐	
2						☐	☐	☐	☐	
3		▼				☐	☐	☐	☐	
4			3-6	Reddish brown HFM, Building materials (wood, metal, concrete, rail ties), Wet	0.0	☐	☐	☐	☐	▼
5						☐	☐	☐	☐	
6						☐	☐	☐	☐	
7			6	Test Pit Termination - Groundwater Infiltration		☐	☐	☐	☐	
8						☐	☐	☐	☐	
9						☐	☐	☐	☐	
10						☐	☐	☐	☐	
11						☐	☐	☐	☐	
12						☐	☐	☐	☐	
13						☐	☐	☐	☐	
14						☐	☐	☐	☐	
15						☐	☐	☐	☐	
16						☐	☐	☐	☐	
17						☐	☐	☐	☐	
18						☐	☐	☐	☐	
19						☐	☐	☐	☐	
20						☐	☐	☐	☐	

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TEST PIT LOG

Test Pit:	TP-112
Northing:	1122933.74166
Easting:	1043248.97218

Project Number:	W96.013.001	**Start Date:**	7/29/2025
Project Name:	Old Erie Commons	**Finish Date:**	7/29/2025
Client:	Housing Visions	**Excavating Firm:**	Matrix Environmental Technologies
Address:	160 Center Street, Canastota	**Excavator:**	Kubota BT1000

Depth (ft)	Test Pit	Groundwater	Depth (ft)	USCS MATERIAL DESCRIPTION	PID (ppm)	Staining	Odor	Petroleum Impacts	Chemical Impacts	Sample
			0-0.5	Brown Topsoil, Moist	0.0	☐	☐	☐	☐	
1			0.5-3	Brown gravelly SILT with sand, Non-Plastic, Firm, Moist, Trace HFM (brick, glass, concrete, styrofoam, tile, building materials)	0.0	☐	☐	☐	☐	
2						☐	☐	☐	☐	
3						☐	☐	☐	☐	▼
						☐	☐	☐	☐	
4			3-6	Reddish brown lean CLAY, Medium Plasticity, Stiff, Moist	0.0	☐	☐	☐	☐	
5						☐	☐	☐	☐	▼
						☐	☐	☐	☐	
6		▼	6-6.5	Reddish brown / grey gravelly lean CLAY, Medium Plasticity, Hard, Wet, (Glacial Till)	0.0	☐	☐	☐	☐	
7			6.5	Test Pit Termination - Refusal		☐	☐	☐	☐	
8						☐	☐	☐	☐	
9						☐	☐	☐	☐	
10						☐	☐	☐	☐	
11						☐	☐	☐	☐	
12						☐	☐	☐	☐	
13						☐	☐	☐	☐	
14						☐	☐	☐	☐	
15						☐	☐	☐	☐	
16						☐	☐	☐	☐	
17						☐	☐	☐	☐	
18						☐	☐	☐	☐	
19						☐	☐	☐	☐	
20						☐	☐	☐	☐	

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TEST PIT LOG

Test Pit:	TP-113
Northing:	1122920.34387
Easting:	1043322.3097

Project Number:	W96.013.001	**Start Date:**	7/28/2025
Project Name:	Old Erie Commons	**Finish Date:**	7/28/2025
Client:	Housing Visions	**Excavating Firm:**	Matrix Environmental Technologies
Address:	160 Center Street, Canastota	**Excavator:**	Kubota BT1000

Depth (ft)	Test Pit	Groundwater	Depth (ft)	USCS MATERIAL DESCRIPTION	PID (ppm)	Staining	Odor	Petroleum Impacts	Chemical Impacts	Sample
1			0-1	Brown Topsoil, Moist	0.0	☐	☐	☐	☐	
2			1-3	Black HFM, Coal, cinder, brick, Moist	0.0	☐	☐	☐	☐	
3						☐	☐	☐	☐	— ▼
4			3-5.5	Reddish brown lean CLAY, Medium Plasticity, Stiff, Moist	0.0	☐	☐	☐	☐	
5						☐	☐	☐	☐	
6		▼	5.5-6	Reddish brown / grey gravelly lean CLAY, Medium Plasticity, Hard, Wet, (Glacial Till)	0.0	☐	☐	☐	☐	▼
7			6	Test Pit Termination - Refusal		☐	☐	☐	☐	
8						☐	☐	☐	☐	
9						☐	☐	☐	☐	
10						☐	☐	☐	☐	
11						☐	☐	☐	☐	
12						☐	☐	☐	☐	
13						☐	☐	☐	☐	
14						☐	☐	☐	☐	
15						☐	☐	☐	☐	
16						☐	☐	☐	☐	
17						☐	☐	☐	☐	
18						☐	☐	☐	☐	
19						☐	☐	☐	☐	
20						☐	☐	☐	☐	

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Fax: 315-455-9667
www.cscos.com

TEST PIT LOG

Test Pit:	TP-114
Northing:	1122988.24738
Easting:	1043194.41621

Project Number:	W96.013.001	**Start Date:**	7/29/2025
Project Name:	Old Erie Commons	**Finish Date:**	7/29/2025
Client:	Housing Visions	**Excavating Firm:**	Matrix Environmental Technologies
Address:	160 Center Street, Canastota	**Excavator:**	Kubota BT1000

Depth (ft)	Test Pit	Groundwater	Depth (ft)	USCS MATERIAL DESCRIPTION	PID (ppm)	Staining	Odor	Petroleum Impacts	Chemical Impacts	Sample
			0-0.5	Brown Topsoil, Moist	0.0	☐	☐	☐	☐	
1			0.5-2	Brown gravelly SILT with sand, Non-Plastic, Firm, Moist, Trace HFM (glass, brick, coal)	0.0	☐	☐	☐	☐	|
2						☐	☐	☐	☐	▼
3			2-5	Reddish brown lean CLAY, Medium Plasticity, Stiff, Moist	0.0	☐	☐	☐	☐	
4						☐	☐	☐	☐	|
5		▼	5-5.5	Reddish brown / grey gravelly lean CLAY, Medium Plasticity, Hard, Wet, (Glacial Till)	0.0	☐	☐	☐	☐	▼
6			5.5	Test Pit Termination - Refusal		☐	☐	☐	☐	
7						☐	☐	☐	☐	
8						☐	☐	☐	☐	
9						☐	☐	☐	☐	
10						☐	☐	☐	☐	
11						☐	☐	☐	☐	
12						☐	☐	☐	☐	
13						☐	☐	☐	☐	
14						☐	☐	☐	☐	
15						☐	☐	☐	☐	
16						☐	☐	☐	☐	
17						☐	☐	☐	☐	
18						☐	☐	☐	☐	
19						☐	☐	☐	☐	
20						☐	☐	☐	☐	

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TEST PIT LOG

Test Pit:	TP-115
Northing:	1122989.14958
Easting:	1043312.88957

Project Number:	W96.013.001	**Start Date:**	7/29/2025
Project Name:	Old Erie Commons	**Finish Date:**	7/29/2025
Client:	Housing Visions	**Excavating Firm:**	Matrix Environmental Technologies
Address:	160 Center Street, Canastota	**Excavator:**	Kubota BT1000

Depth (ft)	Test Pit	Groundwater	Depth (ft)	USCS MATERIAL DESCRIPTION	PID (ppm)	Staining	Odor	Petroleum Impacts	Chemical Impacts	Sample
			0-0.5	Brown Topsoil, Moist	0.0	☐	☐	☐	☐	
1			0.5-1.5	Brown gravelly SILT with sand, Non-Plastic, Firm, Moist, Trace HFM (brick, glass)	0.0	☐	☐	☐	☐	▼
2			1.5-5.5	Reddish brown lean CLAY, Medium Plasticity, Stiff, Moist	0.0	☐	☐	☐	☐	
3						☐	☐	☐	☐	
4						☐	☐	☐	☐	
5						☐	☐	☐	☐	
		▼				☐	☐	☐	☐	▼
6			5.5-6.5	Reddish brown / grey gravelly lean CLAY, Medium Plasticity, Hard, Wet, (Glacial Till)	0.0	☐	☐	☐	☐	
7			6.5	Test Pit Termination - Refusal		☐	☐	☐	☐	
8						☐	☐	☐	☐	
9						☐	☐	☐	☐	
10						☐	☐	☐	☐	
11						☐	☐	☐	☐	
12						☐	☐	☐	☐	
13						☐	☐	☐	☐	
14						☐	☐	☐	☐	
15						☐	☐	☐	☐	
16						☐	☐	☐	☐	
17						☐	☐	☐	☐	
18						☐	☐	☐	☐	
19						☐	☐	☐	☐	
20						☐	☐	☐	☐	

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GROUNDWATER OBSERVATION WELL CONSTRUCTION LOG

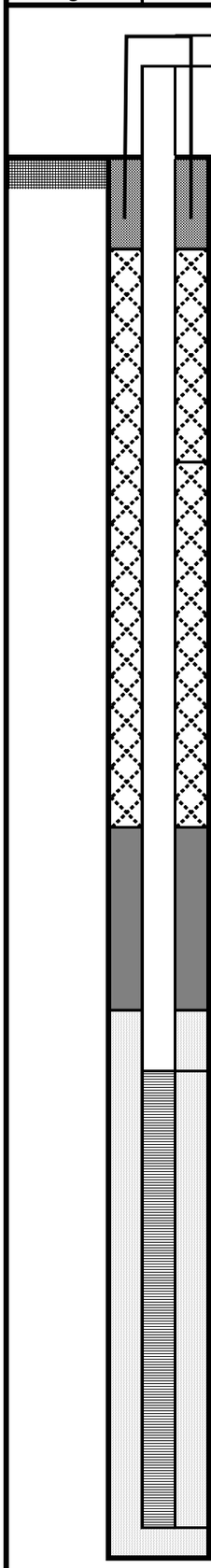
Well No.	**MW-101**
Project No.:	W96.013.001
Surface Elev.:	428.18'
Datum:	NAD83 NYSPCS Cen
Start Date:	7/30/25
Finish Date:	7/30/25
Inspector:	NC

Project Name:	Old Erie Commons
Location:	160 Center Street, Canastota
Client:	Housing Visions
Drilling Firm:	Matrix Environmental Technologies

Drill Rig: GeoProbe 7822DT **Casing:** 4.25" I.D. Auger

Notes: (provide description of observation well location, method of construction, development method and any other information)

- No water added during well construction
- Drill cuttings spread in general vicinity because no signs of contamination



0'-0" Top Protective Casing
-3.2" Top of Riser
0'-0" Ground Surface

Surface Backfill Material
- [ ] Soil Cuttings
- [ ] Bentonite Slurry
- [ ] Cement/Bentonite Grout
- [X] Concrete

8.5" Bore Hole Diameter

2" Well Diameter

Well Material
- [X] PVC
- [ ] Stainless Steel

Backfill Material
- [X] Soil Cuttings
- [ ] Bentonite Slurry
- [ ] Cement/Bentonite Grout
- [ ] Concrete

Depth To:
0.5' Top of Seal

Seal Material
- [X] Bentonite Chips/Pellets
- [ ] Bentonite Slurry
- [ ] Cement/Bentonite Grout

2' Top of Filter Pack

2.5' Top of Screen

Screen Slot Size
- [X] 010 in
- [ ] 015 in
- [ ] 020 in
- [ ] 025 in

Filter Material
- [ ] 00 Sand Pack
- [X] 0 Sand Pack
- [ ] 1 Sand Pack
- [ ] 2 Sand Pack
- [ ] 3 Sand Pack
- [ ] 4 Sand Pack

12.5' Bottom of Screen
12.5' Bottom of Bore Hole

Groundwater Measurement Data

Date	Time	Depth to Water	Water Elevation	Tide Status
7/31/2025	8:40	3.07		
10/21/2025	9:30	3.37		

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GROUNDWATER OBSERVATION WELL CONSTRUCTION LOG

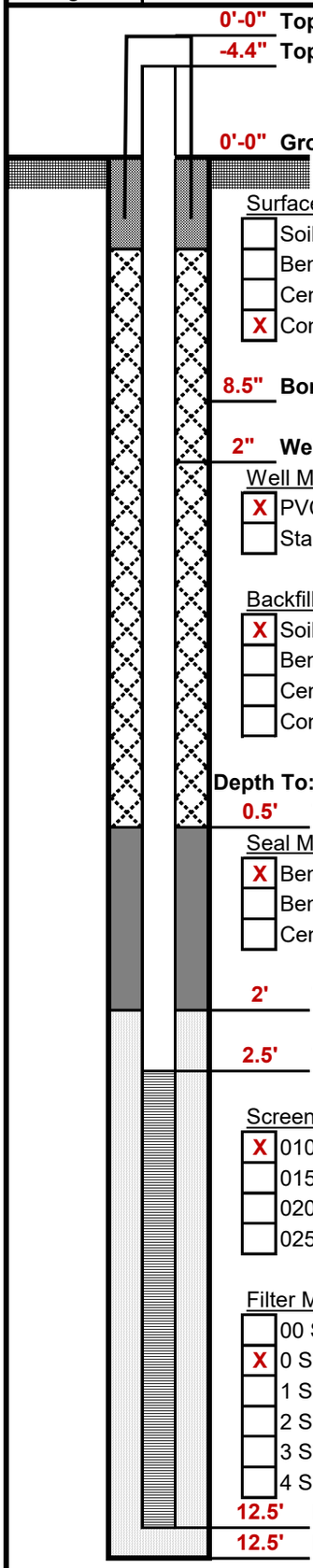
Well No.	**MW-102**
Project No.:	W96.013.001
Surface Elev.:	426.99'
Datum:	NAD83 NYSPCS Cen
Start Date:	7/29/25
Finish Date:	7/29/25
Inspector:	NC / CD

Project Name:	Old Erie Commons
Location:	160 Center Street, Canastota
Client:	Housing Visions
Drilling Firm:	Matrix Environmental Technologies

Drill Rig: GeoProbe 7822DT **Casing:** 4.25" I.D. Auger

Notes: (provide description of observation well location, method of construction, development method and any other information)

- No water added during well construction
- Drill cuttings spread in general vicinity because no signs of contamination



0'-0" Top Protective Casing

-4.4" Top of Riser

0'-0" Ground Surface

Surface Backfill Material
- [ ] Soil Cuttings
- [ ] Bentonite Slurry
- [ ] Cement/Bentonite Grout
- [X] Concrete

8.5" Bore Hole Diameter

2" Well Diameter

Well Material
- [X] PVC
- [ ] Stainless Steel

Backfill Material
- [X] Soil Cuttings
- [ ] Bentonite Slurry
- [ ] Cement/Bentonite Grout
- [ ] Concrete

Depth To:

0.5' Top of Seal

Seal Material
- [X] Bentonite Chips/Pellets
- [ ] Bentonite Slurry
- [ ] Cement/Bentonite Grout

2' Top of Filter Pack

2.5' Top of Screen

Screen Slot Size
- [X] 010 in
- [ ] 015 in
- [ ] 020 in
- [ ] 025 in

Filter Material
- [ ] 00 Sand Pack
- [X] 0 Sand Pack
- [ ] 1 Sand Pack
- [ ] 2 Sand Pack
- [ ] 3 Sand Pack
- [ ] 4 Sand Pack

12.5' Bottom of Screen

12.5' Bottom of Bore Hole

Groundwater Measurement Data

Date	Time	Depth to Water	Water Elevation	Tide Status
7/31/2025	11:10	3.07		
10/21/2025	9:40	3.3		

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GROUNDWATER OBSERVATION WELL CONSTRUCTION LOG

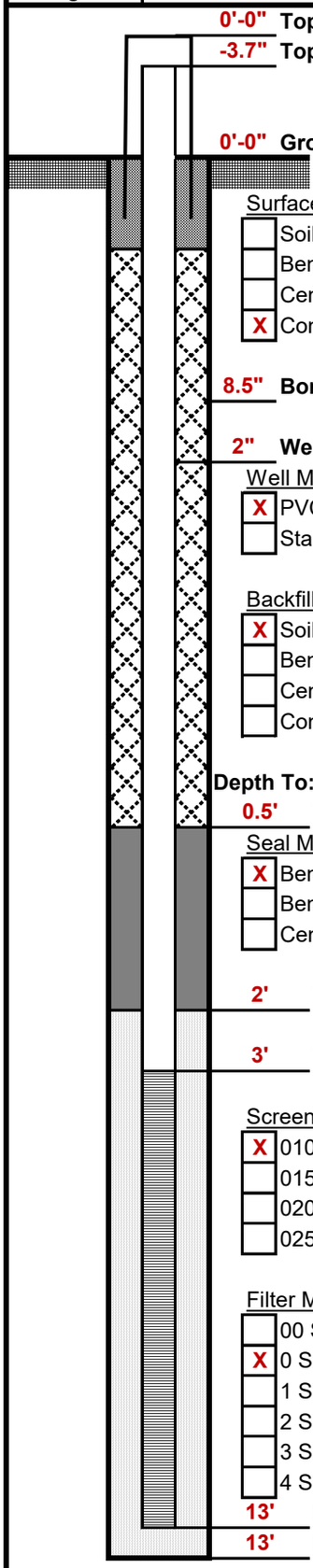
Well No.	**MW-103**
Project No.:	W96.013.001
Surface Elev.:	427.37'
Datum:	NAD83 NYSPCS Cen
Start Date:	7/29/25
Finish Date:	7/29/25
Inspector:	NC / CD

Project Name:	Old Erie Commons
Location:	160 Center Street, Canastota
Client:	Housing Visions
Drilling Firm:	Matrix Environmental Technologies

Drill Rig: GeoProbe 7822DT **Casing:** 4.25" I.D. Auger

Notes: (provide description of observation well location, method of construction, development method and any other information)

- No water added during well construction
- Drill cuttings spread in general vicinity because no signs of contamination



0'-0" Top Protective Casing

-3.7" Top of Riser

0'-0" Ground Surface

Surface Backfill Material
- [ ] Soil Cuttings
- [ ] Bentonite Slurry
- [ ] Cement/Bentonite Grout
- [X] Concrete

8.5" Bore Hole Diameter

2" Well Diameter

Well Material
- [X] PVC
- [ ] Stainless Steel

Backfill Material
- [X] Soil Cuttings
- [ ] Bentonite Slurry
- [ ] Cement/Bentonite Grout
- [ ] Concrete

Depth To:

0.5' Top of Seal

Seal Material
- [X] Bentonite Chips/Pellets
- [ ] Bentonite Slurry
- [ ] Cement/Bentonite Grout

2' Top of Filter Pack

3' Top of Screen

Screen Slot Size
- [X] 010 in
- [ ] 015 in
- [ ] 020 in
- [ ] 025 in

Filter Material
- [ ] 00 Sand Pack
- [X] 0 Sand Pack
- [ ] 1 Sand Pack
- [ ] 2 Sand Pack
- [ ] 3 Sand Pack
- [ ] 4 Sand Pack

13' Bottom of Screen

13' Bottom of Bore Hole

Groundwater Measurement Data

Date	Time	Depth to Water	Water Elevation	Tide Status
7/30/2025	11:30	4.4		
10/21/2025	9:45	5.15		

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GROUNDWATER OBSERVATION WELL CONSTRUCTION LOG

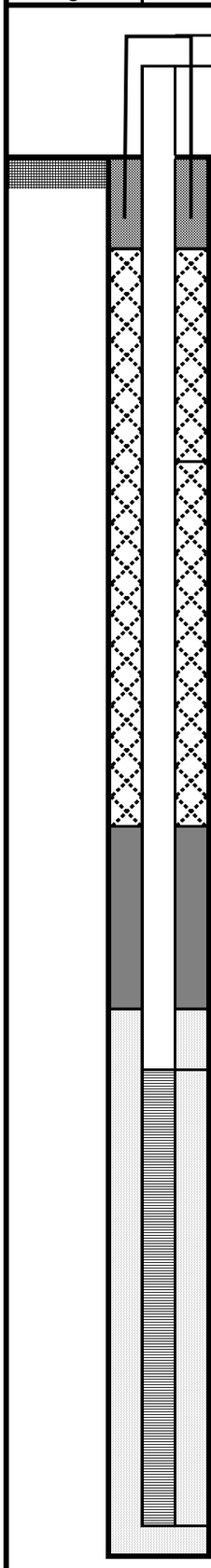
Well No.	**MW-104**
Project No.:	W96.013.001
Surface Elev.:	427.79'
Datum:	NAD83 NYSPCS Cen
Start Date:	7/28/25
Finish Date:	7/28/25
Inspector:	NC / CD

Project Name:	Old Erie Commons
Location:	160 Center Street, Canastota
Client:	Housing Visions
Drilling Firm:	Matrix Environmental Technologies

Drill Rig: GeoProbe 7822DT **Casing:** 4.25" I.D. Auger

Notes: (provide description of observation well location, method of construction, development method and any other information)

- Added 3 gallons of water during well construction
- Drill cuttings spread in general vicinity because no signs of contamination



0'-0" Top Protective Casing
-4.6" Top of Riser
0'-0" Ground Surface

Surface Backfill Material
- [ ] Soil Cuttings
- [ ] Bentonite Slurry
- [ ] Cement/Bentonite Grout
- [X] Concrete

8.5" Bore Hole Diameter

2" Well Diameter

Well Material
- [X] PVC
- [ ] Stainless Steel

Backfill Material
- [X] Soil Cuttings
- [ ] Bentonite Slurry
- [ ] Cement/Bentonite Grout
- [ ] Concrete

Depth To:

0.5' Top of Seal

Seal Material
- [X] Bentonite Chips/Pellets
- [ ] Bentonite Slurry
- [ ] Cement/Bentonite Grout

2' Top of Filter Pack

4' Top of Screen

Screen Slot Size
- [X] 010 in
- [ ] 015 in
- [ ] 020 in
- [ ] 025 in

Filter Material
- [ ] 00 Sand Pack
- [X] 0 Sand Pack
- [ ] 1 Sand Pack
- [ ] 2 Sand Pack
- [ ] 3 Sand Pack
- [ ] 4 Sand Pack

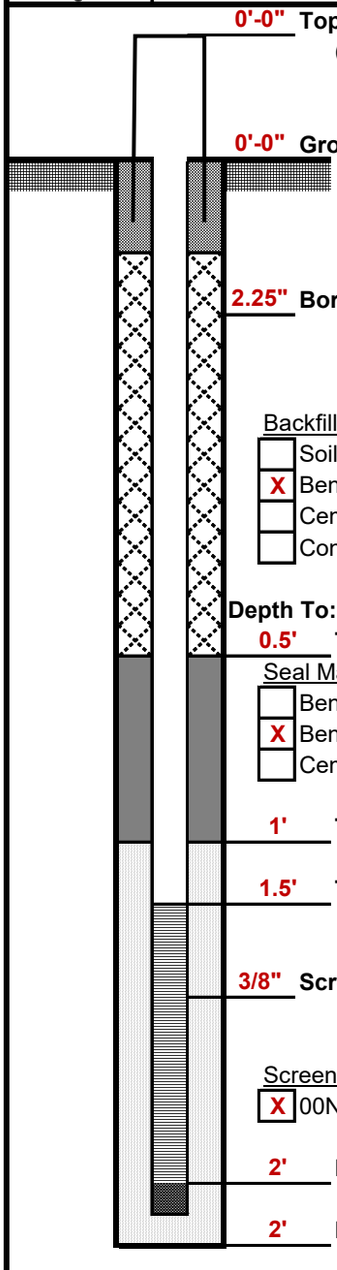
15' Bottom of Screen
15' Bottom of Bore Hole

Groundwater Measurement Data

Date	Time	Depth to Water	Water Elevation	Tide Status
7/29/2025	8:00	3.62		
7/30/2025	8:30	4.9		
10/21/2025	9:50	3.6		

C&S Engineers, Inc.	SOIL VAPOR IMPLANT CONSTRUCTION LOG	Soil Vapor Implant No.:	SV-101
499 Col Eileen Collins Blvd Syracuse, NY 13212 Phone: 315-455-2000 Fax: 315-455-9667 www.cscos.com		Project No.:	W96.013.001
		Surface Elev.:	

Project Name:	Old Erie Commons			Datum:	
Location:	160 Center Street, Canastota			Start Date/Time:	7/29/25
Client:	Housing Visions			Finish Date/Time:	7/29/25
Drilling Firm:	Matrix	Drill Rig:	GeoProbe 7822DT	Inspector:	NC / CD



0'-0" **Top Protective Casing**
(If used)

0'-0" **Ground Surface**

2.25" **Bore Hole Diameter**

Backfill Material
- [ ] Soil Cuttings
- [X] Bentonite Slurry
- [ ] Cement/Bentonite Grout
- [ ] Concrete

Depth To:

0.5' **Top of Seal**

Seal Material
- [ ] Bentonite Chips/Pellets
- [X] Bentonite Slurry
- [ ] Cement/Bentonite Grout

1' **Top of Filter Pack**

1.5' **Top of Screen**

3/8" **Screen Diameter**

Screen Filter Material
- [X] 00N Sand

2' **Bottom of Screen**

2' **Bottom of Bore Hole**

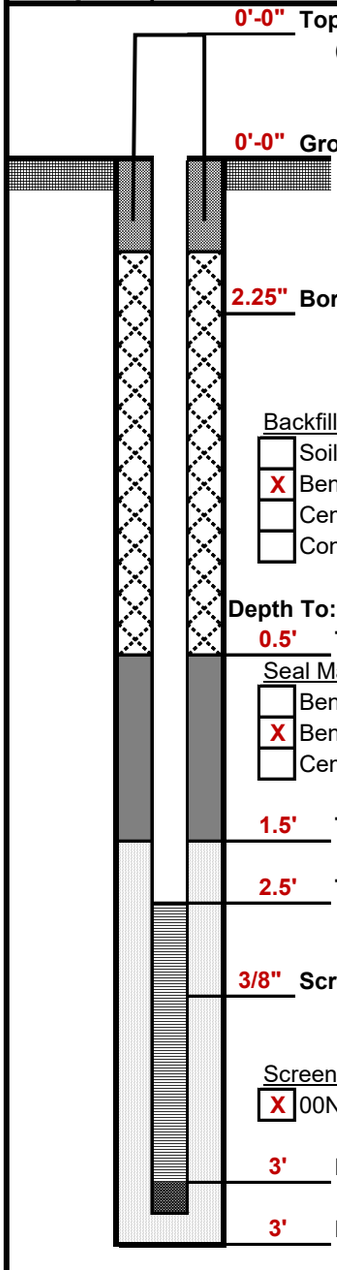
Depth to Groundwater
3' Feet Below Grade

Measure Length of Screen Weight
NA Length of Weight in Inches

Vapor Implant Material
6" **Length of Screen**
Stainless **Implant Material**

Notes:	(provide description of observation well location, method of construction, development method and any other information)

C&S COMPANIES	**C&S Engineers, Inc.** 499 Col Eileen Collins Blvd Syracuse, NY 13212 Phone: 315-455-2000 Fax: 315-455-9667 www.cscos.com	**SOIL VAPOR IMPLANT CONSTRUCTION LOG**		***Soil Vapor Implant No.:***	**SV-102**
				Project No.:	W96.013.001
				Surface Elev.:	
Project Name:	Old Erie Commons			***Datum:***	
Location:	160 Center Street, Canastota			***Start Date/Time:***	7/29/25
Client:	Housing Visions			***Finish Date/Time:***	7/29/25
Drilling Firm:	Matrix	***Drill Rig:***	GeoProbe 7822DT	***Inspector:***	NC / CD



0'-0" **Top Protective Casing**
(If used)

0'-0" **Ground Surface**

2.25" **Bore Hole Diameter**

Backfill Material
- [ ] Soil Cuttings
- [X] Bentonite Slurry
- [ ] Cement/Bentonite Grout
- [ ] Concrete

Depth To:

0.5' **Top of Seal**

Seal Material
- [ ] Bentonite Chips/Pellets
- [X] Bentonite Slurry
- [ ] Cement/Bentonite Grout

1.5' **Top of Filter Pack**

2.5' **Top of Screen**

3/8" **Screen Diameter**

Screen Filter Material
- [X] 00N Sand

3' **Bottom of Screen**

3' **Bottom of Bore Hole**

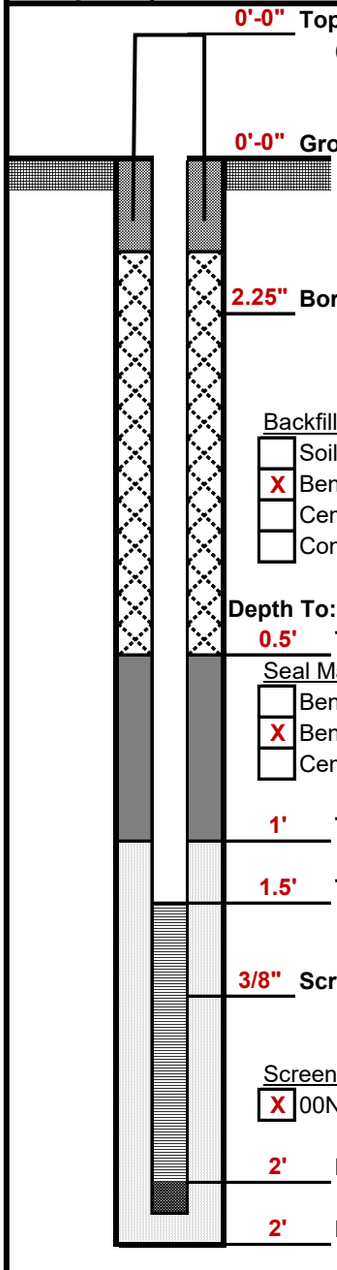
Depth to Groundwater
3.5' Feet Below Grade

Measure Length of Screen Weight
0 Length of Weight in Inches

Vapor Implant Material
6" **Length of Screen**
Stainless **Implant Material**

Notes:	(provide description of observation well location, method of construction, development method and any other information)

C&S COMPANIES	**C&S Engineers, Inc.** 499 Col Eileen Collins Blvd Syracuse, NY 13212 Phone: 315-455-2000 Fax: 315-455-9667 www.cscos.com	**SOIL VAPOR IMPLANT CONSTRUCTION LOG**		***Soil Vapor Implant No.:***	**SV-103**
				Project No.:	W96.013.001
				Surface Elev.:	
Project Name:	Old Erie Commons			***Datum:***	
Location:	160 Center Street, Canastota			***Start Date/Time:***	7/30/25
Client:	Housing Visions			***Finish Date/Time:***	7/30/25
Drilling Firm:	Matrix	***Drill Rig:***	GeoProbe 7822DT	***Inspector:***	NC / CD



0'-0" **Top Protective Casing**
(If used)

0'-0" **Ground Surface**

2.25" **Bore Hole Diameter**

Backfill Material
- [ ] Soil Cuttings
- [X] Bentonite Slurry
- [ ] Cement/Bentonite Grout
- [ ] Concrete

Depth To:

0.5' **Top of Seal**

Seal Material
- [ ] Bentonite Chips/Pellets
- [X] Bentonite Slurry
- [ ] Cement/Bentonite Grout

1' **Top of Filter Pack**

1.5' **Top of Screen**

3/8" **Screen Diameter**

Screen Filter Material
- [X] 00N Sand

2' **Bottom of Screen**

2' **Bottom of Bore Hole**

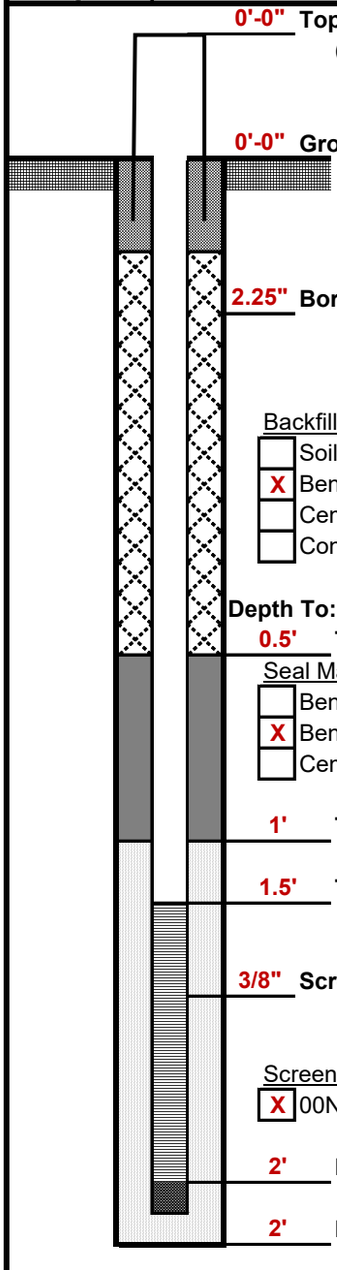
Depth to Groundwater
3' Feet Below Grade

Measure Length of Screen Weight
0 Length of Weight in Inches

Vapor Implant Material
6" **Length of Screen**
Stainless **Implant Material**

Notes:	(provide description of observation well location, method of construction, development method and any other information)

C&S COMPANIES	**C&S Engineers, Inc.** 499 Col Eileen Collins Blvd Syracuse, NY 13212 Phone: 315-455-2000 Fax: 315-455-9667 www.cscos.com	**SOIL VAPOR IMPLANT CONSTRUCTION LOG**		***Soil Vapor Implant No.:***	**SV-104**
				Project No.:	W96.013.001
				Surface Elev.:	
Project Name:	Old Erie Commons			***Datum:***	
Location:	160 Center Street, Canastota			***Start Date/Time:***	7/30/25
Client:	Housing Visions			***Finish Date/Time:***	7/30/25
Drilling Firm:	Matrix	***Drill Rig:***	GeoProbe 7822DT	***Inspector:***	NC / CD



0'-0" **Top Protective Casing**
(If used)

0'-0" **Ground Surface**

2.25" **Bore Hole Diameter**

Backfill Material
- [ ] Soil Cuttings
- [X] Bentonite Slurry
- [ ] Cement/Bentonite Grout
- [ ] Concrete

Depth To:

0.5' **Top of Seal**

Seal Material
- [ ] Bentonite Chips/Pellets
- [X] Bentonite Slurry
- [ ] Cement/Bentonite Grout

1' **Top of Filter Pack**

1.5' **Top of Screen**

3/8" **Screen Diameter**

Screen Filter Material
- [X] 00N Sand

2' **Bottom of Screen**

2' **Bottom of Bore Hole**

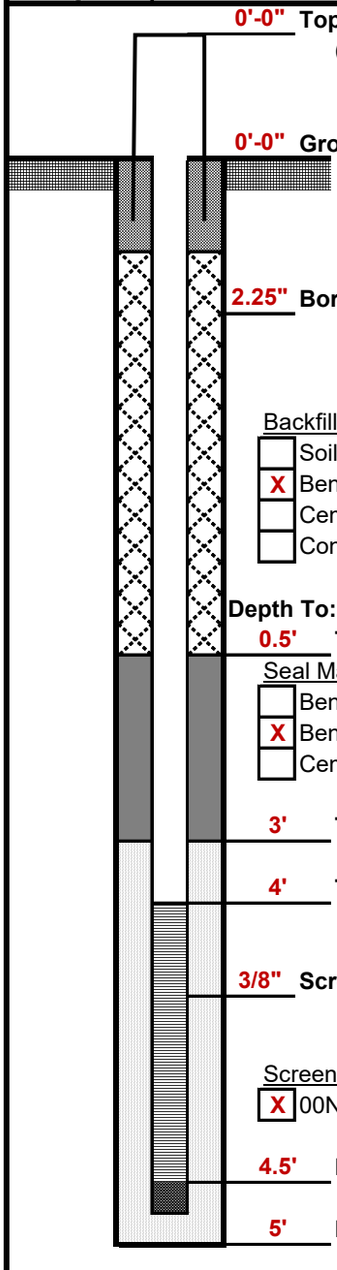
Depth to Groundwater
3' Feet Below Grade

Measure Length of Screen Weight
0 Length of Weight in Inches

Vapor Implant Material
6" **Length of Screen**
Stainless **Implant Material**

Notes:	(provide description of observation well location, method of construction, development method and any other information)

C&S COMPANIES	**C&S Engineers, Inc.** 499 Col Eileen Collins Blvd Syracuse, NY 13212 Phone: 315-455-2000 Fax: 315-455-9667 www.cscos.com	**SOIL VAPOR IMPLANT CONSTRUCTION LOG**		***Soil Vapor Implant No.:***	**SV-105**
				Project No.:	W96.013.001
				Surface Elev.:	
Project Name:	Old Erie Commons			***Datum:***	
Location:	160 Center Street, Canastota			***Start Date/Time:***	7/28/25
Client:	Housing Visions			***Finish Date/Time:***	7/28/25
Drilling Firm:	Matrix	***Drill Rig:***	GeoProbe 7822DT	***Inspector:***	NC / CD



0'-0" **Top Protective Casing**
(If used)

0'-0" **Ground Surface**

2.25" **Bore Hole Diameter**

Backfill Material
- [ ] Soil Cuttings
- [X] Bentonite Slurry
- [ ] Cement/Bentonite Grout
- [ ] Concrete

Depth To:

0.5' **Top of Seal**

Seal Material
- [ ] Bentonite Chips/Pellets
- [X] Bentonite Slurry
- [ ] Cement/Bentonite Grout

3' **Top of Filter Pack**

4' **Top of Screen**

3/8" **Screen Diameter**

Screen Filter Material
- [X] 00N Sand

4.5' **Bottom of Screen**

5' **Bottom of Bore Hole**

Depth to Groundwater
5.5' Feet Below Grade

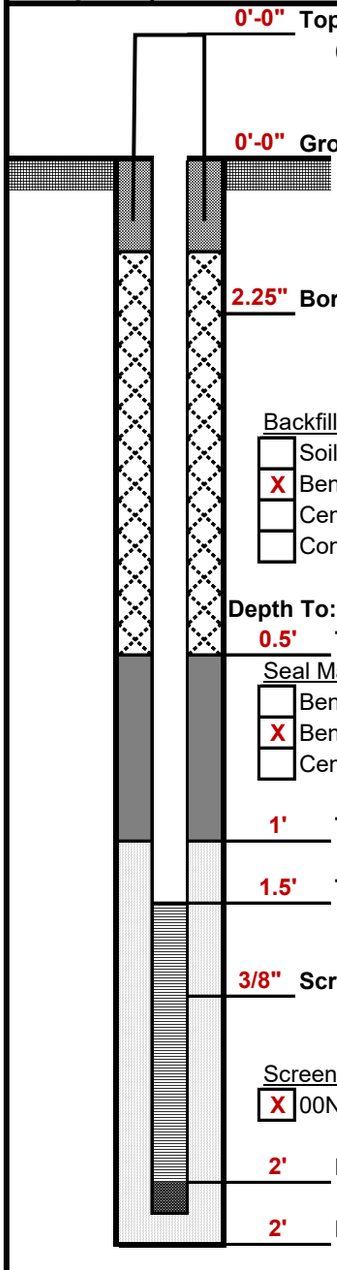
Measure Length of Screen Weight
0 Length of Weight in Inches

Vapor Implant Material
6" **Length of Screen**
Stainless **Implant Material**

Notes:	(provide description of observation well location, method of construction, development method and any other information)

C&S Engineers, Inc.	SOIL VAPOR IMPLANT CONSTRUCTION LOG	Soil Vapor Implant No.:	SV-106
499 Col Eileen Collins Blvd Syracuse, NY 13212 Phone: 315-455-2000 Fax: 315-455-9667 www.cscos.com		Project No.:	W96.013.001
		Surface Elev.:	

Project Name:	Old Erie Commons			Datum:	
Location:	160 Center Street, Canastota			Start Date/Time:	7/30/25
Client:	Housing Visions			Finish Date/Time:	7/30/25
Drilling Firm:	Matrix	Drill Rig:	GeoProbe 7822DT	Inspector:	NC / CD



0'-0" **Top Protective Casing**
(If used)

0'-0" **Ground Surface**

2.25" **Bore Hole Diameter**

Backfill Material
- [ ] Soil Cuttings
- [X] Bentonite Slurry
- [ ] Cement/Bentonite Grout
- [ ] Concrete

Depth To:

0.5' **Top of Seal**

Seal Material
- [ ] Bentonite Chips/Pellets
- [X] Bentonite Slurry
- [ ] Cement/Bentonite Grout

1' **Top of Filter Pack**

1.5' **Top of Screen**

3/8" **Screen Diameter**

Screen Filter Material
- [X] 00N Sand

2' **Bottom of Screen**

2' **Bottom of Bore Hole**

Depth to Groundwater
3' Feet Below Grade

Measure Length of Screen Weight
0 Length of Weight in Inches

Vapor Implant Material
6" **Length of Screen**
Stainless **Implant Material**

Notes:	(provide description of observation well location, method of construction, development method and any other information)

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Fax: 315-455-9667
www.cscos.com

Well Sampling Field Data Sheet

Well Casing Unit Volume (gal/l.f.)		
1¼" = 0.08	2" = 0.17	3" = 0.38
4" = 0.66	6" = 1.5	8" = 2.6

Client Name: Housing Visions
Site Name: Old Erie Commons
Project No.: W96.013.001
Field Staff: NC / CD

WELL DATA

Date	7/31/2025	
Time	8:40	
Water meter ID		
Well Number	**MW-101**	
PID Reading (ppm)	0.0	
Diameter (inches)	2.0	
Total Sounded Depth (feet)	12.28	
Static Water Level (feet)	3.07	
H_2O Column (feet)	9.21	
Pump Intake (feet)	12.00	
Well Volume (gal)	1.50	
Amount to Evacuate (gal)	4.50	
Amount Evacuated (gal)	4.80	

SAMPLE DATA

Sample Date	7/31/2025	
Sample Time	10:20	
Sampler Initials	CD	
Sample I.D.	MW-101	
Dupe Collected?	☐	ID:
MS Collected?	☑	ID: MS-03
MSD Collected?	☑	ID: MSD-03
Trip Blank Collected?	☑	ID: TRIP BLANK
EQ Blank Collected?	☑	ID: EQUIPMENT BLANK

Comments

FIELD READINGS

Date	Stabilization Criteria	7/31/2025							
Time		9:00	9:05	9:10	9:15	9:20	9:25	9:30	9:35
Volume Extracted	gallons	0.3	0.6	0.9	1.2	1.5	1.8	2.1	2.4
Flow Rate	mL/min	250	250	250	250	250	250	250	250
Static Water Level (feet)	NA	3.24	3.24	3.24	3.26	3.26	3.26	3.27	3.27
pH (Std. Units)	+/-0.1	8.3	8.15	8.13	8.12	8.1	8.08	8.07	8.06
Conductivity (mS/cm)	3%	0.746	0.798	0.805	0.806	0.807	0.809	0.808	0.81
Turbidity (NTU)	10%	1000	874	536	272	233	147	112	87.5
D.O. (mg/L)	10%	0.82	0.42	2.13	2.06	1.79	1.2	1.11	1.07
Temperature (ºC) (ºF)	3%	19.71	16.58	16.08	15.91	15.7	15.56	15.43	15.34
ORP[3](mV)	+/-10 mv	40	-110	-130	-137	-142	-144	-146	-148
Appearance		VT	VT	VT	T	T	ST	ST	ST
Color		Reddish	Reddish	Colorless	Colorless	Colorless	Colorless	Colorless	Colorless
Free Product (Yes/No)		No	No	No	No	No	No	No	No
Odor		None	None	None	None	None	None	None	None

Date	Stabilization Criteria	7/31/2025							
Time		9:40	9:45	9:50	9:55	10:00	10:05	10:10	10:15
Volume Extracted	gallons	2.7	3	3.3	3.6	3.9	4.2	4.5	4.8
Flow Rate	mL/min	250	250	250	250	250	250	250	250
Static Water Level (feet)	NA	3.27	3.27	3.27	3.27	3.27	3.27	3.27	3.27
pH (Std. Units)	+/-0.1	8.06	8.06	8.07	8.07	8.07	8.07	8.07	8.07
Conductivity (mS/cm)	3%	0.811	0.812	0.813	0.813	0.807	0.814	0.815	0.815
Turbidity (NTU)	10%	76.4	67.6	63.1	57.3	55.9	53.9	51.8	50
D.O. (mg/L)	10%	0.96	0.91	0.85	0.79	0.72	0.68	0.65	0.62
Temperature (ºC) (ºF)	3%	15.22	15.18	15.09	15.04	14.95	14.92	14.84	14.8
ORP[3](mV)	+/-10 mv	-149	-149	-150	-150	-150	-151	-150	-151
Appearance		ST	ST	ST	ST	ST	ST	ST	C
Color		Colorless	Colorless	Colorless	Colorless	Colorless	Colorless	Colorless	Colorless
Free Product (Yes/No)		No	No	No	No	No	No	No	No
Odor		None	None	None	None	None	None	None	None

C = Clear ST = Slightly Turbid T = Turbid VT = Very Turbid

Comments
All parameters stable, collecting sample.

Light yellow shading indicates the static water level is 0.3 feet or lower from initial level

Light green shading indicates that stabilization criteria have been achieved across three consecutive readings

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www.cscos.com

Well Sampling Field Data Sheet

Well Casing Unit Volume (gal/l.f.)		
1¼" = 0.08	2" = 0.17	3" = 0.38
4" = 0.66	6" = 1.5	8" = 2.6

Client Name: Housing Visions
Site Name: Old Erie Commons
Project No.: W96.013.001
Field Staff: NC / CD

WELL DATA

Date	7/31/2025	
Time	11:10	
Water meter ID		
Well Number	**MW-102**	
PID Reading (ppm)	0.0	
Diameter (inches)	2.0	
Total Sounded Depth (feet)	11.65	
Static Water Level (feet)	3.07	
H_2O Column (feet)	8.58	
Pump Intake (feet)	11.00	
Well Volume (gal)	1.40	
Amount to Evacuate (gal)	4.20	
Amount Evacuated (gal)	7.00	

SAMPLE DATA

Sample Date	7/31/2025	
Sample Time	13:05	
Sampler Initials	CD	
Sample I.D.	MW-102	
Dupe Collected?	☐	ID:
MS Collected?	☐	ID:
MSD Collected?	☐	ID:
Trip Blank Collected?	☑	ID: TRIP BLANK
EQ Blank Collected?	☑	ID: EQUIPMENT BLANK

Comments

FIELD READINGS

Date	Stabilization Criteria	7/31/2025							
Time		11:50	11:55	12:00	12:05	12:10	12:15	12:20	12:25
Volume Extracted	gallons	2	2.5	3	3.5	4	4.3	4.6	4.9
Flow Rate	mL/min	400	400	400	400	400	250	250	250
Static Water Level (feet)	NA	4.37	4.26	4.21	4.2	4.2	4.08	4	3.96
pH (Std. Units)	+/-0.1	8.07	7.9	7.85	7.81	7.79	7.78	7.77	7.77
Conductivity (mS/cm)	3%	1.04	1.06	1.06	1.06	1.06	1.06	1.06	1.06
Turbidity (NTU)	10%	1000	438	244	174	116	84.2	77.1	72.5
D.O. (mg/L)	10%	4.33	2.97	2.51	2.19	1.83	1.87	1.71	1.45
Temperature (ºC) (ºF)	3%	17.02	16.22	15.97	15.86	15.72	15.88	15.89	15.83
ORP[3](mV)	+/-10 mv	-57	-77	-82	-86	-90	-91	-92	-92
Appearance		VT	T	T	ST	ST	ST	ST	ST
Color		Reddish	Colorless	Colorless	Colorless	Colorless	Colorless	Colorless	Colorless
Free Product (Yes/No)		No	No	No	No	No	No	No	No
Odor		None	None	None	None	None	None	None	None

Date	Stabilization Criteria	7/31/2025							
Time		12:30	12:35	12:40	12:45	12:50	12:55	13:00	
Volume Extracted	gallons	5.2	5.5	5.8	6.1	6.4	6.7	7	
Flow Rate	mL/min	250	250	250	250	250	250	250	
Static Water Level (feet)	NA	3.97	3.97	3.97	3.97	3.95	3.94	3.93	
pH (Std. Units)	+/-0.1	7.76	7.76	7.76	7.75	7.75	7.75	7.75	
Conductivity (mS/cm)	3%	1.06	1.06	1.06	1.06	1.06	1.06	1.06	
Turbidity (NTU)	10%	74.3	70.6	70.5	69.5	72.6	74.5	69.3	
D.O. (mg/L)	10%	1.47	1.5	1.51	1.47	1.42	1.4	1.38	
Temperature (ºC) (ºF)	3%	15.78	15.75	15.73	15.69	15.68	15.68	15.71	
ORP[3](mV)	+/-10 mv	-93	-93	-93	-93	-93	-93	-93	
Appearance		ST	ST	ST	ST	ST	ST	ST	
Color		Colorless	Colorless	Colorless	Colorless	Colorless	Colorless	Colorless	
Free Product (Yes/No)		No	No	No	No	No	No	No	
Odor		None	None	None	None	None	None	None	

C = Clear ST = Slightly Turbid T = Turbid VT = Very Turbid

Comments
Very muddy on initial purge. Waited to connect Horiba.
All parameters stable, collecting sample.

Light yellow shading indicates the static water level is 0.3 feet or lower from initial level

Light green shading indicates that stabilization criteria have been achieved across three consecutive readings

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Well Sampling Field Data Sheet

Well Casing Unit Volume (gal/l.f.)		
1¼" = 0.08	2" = 0.17	3" = 0.38
4" = 0.66	6" = 1.5	8" = 2.6

Client Name: Housing Visions
Site Name: Old Erie Commons
Project No.: W96.013.001
Field Staff: NC / MC

WELL DATA

Date	7/30/2025	
Time	11:30	
Water meter ID		
Well Number	**MW-103**	
PID Reading (ppm)	0.6	
Diameter (inches)	2.0	
Total Sounded Depth (feet)	12.76	
Static Water Level (feet)	4.40	
H_2O Column (feet)	8.36	
Pump Intake (feet)	12.00	
Well Volume (gal)	1.36	
Amount to Evacuate (gal)	4.09	
Amount Evacuated (gal)	4.75	

SAMPLE DATA

Sample Date	7/30/2025	
Sample Time	14:40	
Sampler Initials	MCC	
Sample I.D.	MW-103	
Dupe Collected?	☐	ID:
MS Collected?	☐	ID:
MSD Collected?	☐	ID:
Trip Blank Collected?	☑	ID: TRIP BLANK
EQ Blank Collected?	☑	ID: EQUIPMENT BLANK

Comments

FIELD READINGS

Date	Stabilization Criteria	7/30/2025							
Time		12:30	12:35	12:40	12:45	12:50	12:55	13:00	13:05
Volume Extracted	gallons	0.25	0.5	0.75	1	1.25	1.5	1.75	2
Flow Rate	mL/min	200	200	200	200	200	200	200	200
Static Water Level (feet)	NA	5.52	5.94	6.02	6.18	6.35	6.39	6.51	6.6
pH (Std. Units)	+/-0.1	7.84	7.83	7.81	7.79	7.78	7.77	7.78	7.78
Conductivity (mS/cm)	3%	1.2	1.24	1.22	1.21	1.22	1.22	1.22	1.22
Turbidity (NTU)	10%	193	94.9	134	104	105	92.6	77.3	66.4
D.O. (mg/L)	10%	4.43	3.95	3.7	3.52	3.44	3.41	3.29	3.21
Temperature (ºC) (ºF)	3%	17.32	16.73	18.61	18.25	17.81	18.22	18.31	18.19
ORP[3](mV)	+/-10 mv	56	13	4	-12	-30	-38	-46	-51
Appearance		ST	ST	ST	ST	ST	ST	ST	ST
Color		Colorless	Colorless	Colorless	Colorless	Colorless	Colorless	Colorless	Colorless
Free Product (Yes/No)		No	No	No	No	No	No	No	No
Odor		None	None	None	None	None	None	None	None

Date	Stabilization Criteria								
Time		13:10	13:15	13:20	13:25	13:30	13:35	13:40	13:45
Volume Extracted	gallons	2.2	2.4	2.6	2.8	3	3.25	3.5	4
Flow Rate	mL/min	200	200	200	200	200	200	200	200
Static Water Level (feet)	NA	6.63	6.74	6.78	6.85	6.95	7.01	7.12	7.21
pH (Std. Units)	+/-0.1	7.78	7.77	7.77	7.77	7.78	7.78	7.78	7.78
Conductivity (mS/cm)	3%	1.22	1.22	1.22	1.22	1.22	1.22	1.21	1.22
Turbidity (NTU)	10%	52.4	43.2	39.4	33.3	33.1	28.7	25.6	25.7
D.O. (mg/L)	10%	3.21	3.09	3.09	3.1	2.97	2.78	2.65	2.78
Temperature (ºC) (ºF)	3%	17.95	17.86	17.86	17.78	17.7	17.59	17.43	17.31
ORP[3](mV)	+/-10 mv	-55	-59	-62	-65	-67	-71	-72	-72
Appearance		ST	C	C	C	C	C	C	C
Color		Colorless	Colorless	Colorless	Colorless	Colorless	Colorless	Colorless	Colorless
Free Product (Yes/No)		No	No	No	No	No	No	No	No
Odor		None	None	None	None	Sulfur	Sulfur	Sulfur	Sulfur

C = Clear ST = Slightly Turbid T = Turbid VT = Very Turbid

Comments
Slight sulfur odor observed.
All parameters stable, collecting sample.

Light yellow shading indicates the static water level is 0.3 feet or lower from initial level

Light green shading indicates that stabilization criteria have been achieved across three consecutive readings

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Well Sampling Field Data Sheet

Well Casing Unit Volume (gal/l.f.)		
1¼" = 0.08	2" = 0.17	3" = 0.38
4" = 0.66	6" = 1.5	8" = 2.6

Client Name: Housing Visions
Site Name: Old Erie Commons
Project No.: W96.013.001
Field Staff: NC / MC

WELL DATA

Date	7/30/2025	
Time	11:30	
Water meter ID		
Well Number	**MW-103**	
PID Reading (ppm)	0.6	
Diameter (inches)	2.0	
Total Sounded Depth (feet)	12.76	
Static Water Level (feet)	4.40	
H_2O Column (feet)	8.36	
Pump Intake (feet)	12.00	
Well Volume (gal)	1.36	
Amount to Evacuate (gal)	4.09	
Amount Evacuated (gal)	4.75	

SAMPLE DATA

Sample Date	7/30/2025	
Sample Time	14:40	
Sampler Initials	MCC	
Sample I.D.	MW-103	
Dupe Collected?	☐	ID:
MS Collected?	☐	ID:
MSD Collected?	☐	ID:
Trip Blank Collected?	☑	ID: TRIP BLANK
EQ Blank Collected?	☑	ID: EQUIPMENT BLANK

Comments:

FIELD READINGS

Date	Stabilization Criteria	7/30/2025							
Time		12:00	13:55	14:00					
Volume Extracted	gallons	4.25	4.5	4.75					
Flow Rate	mL/min	200	200	200					
Static Water Level (feet)	NA	7.26	7.39	7.44					
pH (Std. Units)	+/-0.1	7.77	7.76	7.76					
Conductivity (mS/cm)	3%	1.21	1.21	1.21					
Turbidity (NTU)	10%	21.9	20.1	19.9					
D.O. (mg/L)	10%	2.76	2.75	2.86					
Temperature (°C) (°F)	3%	17.11	17.23	17.47					
ORP[3](mV)	+/-10 mv	-74	-75	-75					
Appearance		C	C	C					
Color		Colorless	Colorless	Colorless					
Free Product (Yes/No)		No	No	No					
Odor		Sulfur	Sulfur	Sulfur					

Date	Stabilization Criteria								
Time									
Volume Extracted	gallons								
Flow Rate	mL/min								
Static Water Level (feet)	NA								
pH (Std. Units)	+/-0.1								
Conductivity (mS/cm)	3%								
Turbidity (NTU)	10%								
D.O. (mg/L)	10%								
Temperature (°C) (°F)	3%								
ORP[3](mV)	+/-10 mv								
Appearance									
Color									
Free Product (Yes/No)									
Odor									

C = Clear ST = Slightly Turbid T = Turbid VT = Very Turbid

Comments
Slight sulfur odor observed.
All parameters stable, collecting sample.

Light yellow shading indicates the static water level is 0.3 feet or lower from initial level

Light green shading indicates that stabilization criteria have been achieved across three consecutive readings

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Well Sampling Field Data Sheet

Well Casing Unit Volume (gal/l.f.)		
1¼" = 0.08	2" = 0.17	3" = 0.38
4" = 0.66	6" = 1.5	8" = 2.6

Client Name: Housing Visions
Site Name: Old Erie Commons
Project No.: W96.013.001
Field Staff: NC / MC

WELL DATA

Date	7/30/2025	
Time	8:30	
Water meter ID		
Well Number	**MW-104**	
PID Reading (ppm)	0.1	
Diameter (inches)	2.0	
Total Sounded Depth (feet)	16.27	
Static Water Level (feet)	4.90	
H_2O Column (feet)	11.37	
Pump Intake (feet)	15.00	
Well Volume (gal)	1.86	
Amount to Evacuate (gal)	5.57	
Amount Evacuated (gal)	6.50	

SAMPLE DATA

Sample Date	7/30/2025	
Sample Time	10:21	
Sampler Initials	MCC	
Sample I.D.	MW-104	
Dupe Collected?	☑	ID: DUP-03
MS Collected?	☐	ID:
MSD Collected?	☐	ID:
Trip Blank Collected?	☑	ID: TRIP BLANK
EQ Blank Collected?	☐	ID: EQUIPMENT BLANK

Comments

FIELD READINGS

Date	Stabilization Criteria	7/30/2025							
Time		9:10	9:15	9:20	9:25	9:35	9:40	9:45	9:50
Volume Extracted	gallons	0.5	1	1.5	2	2.5	3	3.5	4
Flow Rate	mL/min	400	400	400	400	400	400	400	400
Static Water Level (feet)	NA	5.22	5.35	5.39	5.45	5.48	5.68	5.83	5.87
pH (Std. Units)	+/-0.1	8.31	8.01	7.98	7.97	8.06	7.94	7.92	7.94
Conductivity (mS/cm)	3%	0.941	0.922	0.922	0.92	0.913	0.918	0.914	0.915
Turbidity (NTU)	10%	412	66.6	34.4	34.7	204	26.4	24.3	24.2
D.O. (mg/L)	10%	4.37	2.51	1.91	1.97	2.77	1.58	1.73	1.83
Temperature (ºC) (ºF)	3%	16.24	15.89	16.02	15.77	15.33	15.12	15.05	15.1
ORP[3](mV)	+/-10 mv	85	-1	-57	-72	-69	-94	-94	-97
Appearance		T	ST	C	C	T	C	C	C
Color		Brown	Colorless	Colorless	Colorless	Colorless	Colorless	Colorless	Colorless
Free Product (Yes/No)		No	No	No	No	No	No	No	No
Odor		None	None	None	None	None	None	None	None

Date	Stabilization Criteria								
Time		9:55	10:00	10:05	10:10	10:15			
Volume Extracted	gallons	4.5	5	5.5	6	6.5			
Flow Rate	mL/min	400	400	400	400	400			
Static Water Level (feet)	NA	5.98	5.96	5.9	5.89	5.89			
pH (Std. Units)	+/-0.1	7.91	7.9	7.9	7.88	7.88			
Conductivity (mS/cm)	3%	0.916	0.914	0.914	0.91	0.912			
Turbidity (NTU)	10%	18.3	16.1	13.4	13.9	12.6			
D.O. (mg/L)	10%	1.32	1.22	0.95	0.9	0.88			
Temperature (ºC) (ºF)	3%	15.01	15.03	15.07	15.1	14.95			
ORP[3](mV)	+/-10 mv	-103	-105	-108	-112	-113			
Appearance		C	C	C	C	C			
Color		Colorless	Colorless	Colorless	Colorless	Colorless			
Free Product (Yes/No)		No	No	No	No	No			
Odor		None	None	None	None	None			

C = Clear ST = Slightly Turbid T = Turbid VT = Very Turbid

Comments
All parameters stable, collecting sample.

Light yellow shading indicates the static water level is 0.3 feet or lower from initial level

Light green shading indicates that stabilization criteria have been achieved across three consecutive readings

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Well Sampling Field Data Sheet

Well Casing Unit Volume (gal/l.f.)		
1¼" = 0.08	2" = 0.17	3" = 0.38
4" = 0.66	6" = 1.5	8" = 2.6

Client Name: Housing Visions
Site Name: Old Erie Commons
Project No.: W96.013.001
Field Staff: CD

WELL DATA

Date	10/21/2025	
Time	9:30	
Water meter ID		
Well Number	**MW-101**	
PID Reading (ppm)	0.0	
Diameter (inches)	2.0	
Total Sounded Depth (feet)	12.28	
Static Water Level (feet)	3.37	
H_2O Column (feet)	8.91	
Pump Intake (feet)	12.00	
Well Volume (gal)	1.45	
Amount to Evacuate (gal)	NA	
Amount Evacuated (gal)	3.00	

SAMPLE DATA

Sample Date	10/21/2025	
Sample Time	10:35	
Sampler Initials	CD	
Sample I.D.	MW-101_102125	
Dupe Collected?	☑	ID: DUP_102125
MS Collected?	☑	ID: MS_102125
MSD Collected?	☑	ID: MSD_102125
Trip Blank Collected?	☑	ID: TRIP BLANK
EQ Blank Collected?	☑	ID: EQUIPMENT BLANK

Comments
Turbidity over 50 NTU, so collected dissolved metals.

FIELD READINGS

Date	Stabilization Criteria	10/21/2025							
Time		9:50	9:55	10:00	10:05	10:10	10:15	10:20	10:25
Volume Extracted	gallons	0.33	0.66	1	1.33	1.66	2	2.33	2.66
Flow Rate	mL/min	250	250	250	250	250	250	250	250
Static Water Level (feet)	NA	3.45	3.56	3.59	3.61	3.61	3.62	3.63	3.64
pH (Std. Units)	+/-0.1	9.14	8.58	8.31	8.16	8.09	8.03	8.01	7.98
Conductivity (mS/cm)	3%	0.884	0.872	0.87	0.865	0.862	0.861	0.858	0.859
Turbidity (NTU)	10%	615	285	165	104	98.7	83.9	77.1	82.7
D.O. (mg/L)	10%	12.16	0.81	0.49	0.36	0.32	0.3	0.28	0.27
Temperature (ºC) (ºF)	3%	13.18	13.49	13.68	13.82	13.91	14	14.04	14.08
ORP[3](mV)	+/-10 mv	-121	-130	-135	-138	-139	-141	-142	-142
Appearance		VT	T	ST	ST	ST	ST	ST	ST
Color		Red	Colorless	Colorless	Colorless	Colorless	Colorless	Colorless	Colorless
Free Product (Yes/No)		No	No	No	No	No	No	No	No
Odor		None	None	None	None	None	None	None	None

Date	Stabilization Criteria	10/21/2025							
Time		10:30							
Volume Extracted	gallons	3							
Flow Rate	mL/min	250							
Static Water Level (feet)	NA	3.65							
pH (Std. Units)	+/-0.1	7.97							
Conductivity (mS/cm)	3%	0.858							
Turbidity (NTU)	10%	79.6							
D.O. (mg/L)	10%	0.25							
Temperature (ºC) (ºF)	3%	14.13							
ORP[3](mV)	+/-10 mv	-143							
Appearance		ST							
Color		Colorless							
Free Product (Yes/No)		No							
Odor		None							

C = Clear ST = Slightly Turbid T = Turbid VT = Very Turbid

Comments
DO below 0.5 mg/L, all other parameters stable, collecting sample.

Light yellow shading indicates the static water level is 0.3 feet or lower from initial level

Light green shading indicates that stabilization criteria have been achieved across three consecutive readings

C&S Engineers, Inc.
499 Col. Eileen Collins Blvd
Syracuse, NY 13212
Phone: 315-455-2000
Fax: 315-455-9667
www.cscos.com

Well Sampling Field Data Sheet

Well Casing Unit Volume (gal/l.f.)		
1¼" = 0.08	2" = 0.17	3" = 0.38
4" = 0.66	6" = 1.5	8" = 2.6

Client Name: Housing Visions
Site Name: Old Erie Commons
Project No.: W96.013.001
Field Staff: CD

WELL DATA

Date	10/21/2025	
Time	9:40	
Water meter ID		
Well Number	**MW-102**	
PID Reading (ppm)	0.0	
Diameter (inches)	2.0	
Total Sounded Depth (feet)	11.81	
Static Water Level (feet)	3.30	
H_2O Column (feet)	8.51	
Pump Intake (feet)	11.00	
Well Volume (gal)	1.39	
Amount to Evacuate (gal)	NA	
Amount Evacuated (gal)	3.00	

SAMPLE DATA

Sample Date	10/21/2025	
Sample Time	12:45	
Sampler Initials	CD	
Sample I.D.	MW-102_102125	
Dupe Collected?	☐	ID:
MS Collected?	☐	ID:
MSD Collected?	☐	ID:
Trip Blank Collected?	☑	ID: TRIP BLANK
EQ Blank Collected?	☑	ID: EQUIPMENT BLANK

Comments
Turbidity under 50 NTU, so did not collect dissolved metals.

FIELD READINGS

Date	Stabilization Criteria	10/21/2025							
Time		12:00	12:05	12:10	12:15	12:20	12:25	12:30	12:35
Volume Extracted	gallons	0.33	0.66	1	1.33	1.66	2	2.33	2.66
Flow Rate	mL/min	250	250	250	250	250	250	250	250
Static Water Level (feet)	NA	3.83	3.87	3.92	3.95	3.97	3.97	3.98	3.99
pH (Std. Units)	+/-0.1	7.98	8	7.94	7.91	7.84	7.8	7.78	7.76
Conductivity (mS/cm)	3%	1.17	1.13	1.11	1.11	1.11	1.12	1.12	1.12
Turbidity (NTU)	10%	756	211	123	83.9	66.2	64.3	45.3	46.8
D.O. (mg/L)	10%	0.69	0.64	0.84	0.64	0.48	0.41	0.27	0.23
Temperature (ºC) (ºF)	3%	15.82	15.78	15.92	15.97	15.88	15.89	15.89	15.9
ORP[3](mV)	+/-10 mv	-50	-87	-89	-90	-92	-94	-95	-96
Appearance		VT	T	ST	ST	ST	ST	C	C
Color		Brown	Colorless	Colorless	Colorless	Colorless	Colorless	Colorless	Colorless
Free Product (Yes/No)		No	No	No	No	No	No	No	No
Odor		None	None	None	None	None	None	None	None

Date	Stabilization Criteria	10/21/2025							
Time		12:40							
Volume Extracted	gallons	3							
Flow Rate	mL/min	250							
Static Water Level (feet)	NA	4.01							
pH (Std. Units)	+/-0.1	7.76							
Conductivity (mS/cm)	3%	1.12							
Turbidity (NTU)	10%	45.9							
D.O. (mg/L)	10%	0.34							
Temperature (ºC) (ºF)	3%	15.91							
ORP[3](mV)	+/-10 mv	-98							
Appearance		C							
Color		Colorless							
Free Product (Yes/No)		No							
Odor		None							

C = Clear ST = Slightly Turbid T = Turbid VT = Very Turbid

Comments
DO below 0.5 mg/L, all other parameters stable, collecting sample.

Light yellow shading indicates the static water level is 0.3 feet or lower from initial level

Light green shading indicates that stabilization criteria have been achieved across three consecutive readings

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Well Sampling Field Data Sheet

Well Casing Unit Volume (gal/l.f.)		
1¼" = 0.08	2" = 0.17	3" = 0.38
4" = 0.66	6" = 1.5	8" = 2.6

Client Name: Housing Visions
Site Name: Old Erie Commons
Project No.: W96.013.001
Field Staff: CD

WELL DATA

Date	10/21/2025	
Time	9:45	
Water meter ID		
Well Number	**MW-103**	
PID Reading (ppm)	0.0	
Diameter (inches)	2.0	
Total Sounded Depth (feet)	12.69	
Static Water Level (feet)	5.15	
H_2O Column (feet)	7.54	
Pump Intake (feet)	12.00	
Well Volume (gal)	1.23	
Amount to Evacuate (gal)	NA	
Amount Evacuated (gal)	2.00	

SAMPLE DATA

Sample Date	10/21/2025	
Sample Time	13:45	
Sampler Initials	CD	
Sample I.D.	MW-103_102125	
Dupe Collected?	☐	ID:
MS Collected?	☐	ID:
MSD Collected?	☐	ID:
Trip Blank Collected?	☑	ID: TRIP BLANK
EQ Blank Collected?	☑	ID: EQUIPMENT BLANK

Comments
Turbidity under 50 NTU, so did not collect dissolved metals.

FIELD READINGS

Date	Stabilization Criteria	10/21/2025							
Time		13:15	13:20	13:25	13:30	13:35	13:40		
Volume Extracted	gallons	0.33	0.66	1	1.33	1.66	2		
Flow Rate	mL/min	250	250	250	250	250	250		
Static Water Level (feet)	NA	6.07	6.2	6.49	6.77	7.15	7.42		
pH (Std. Units)	+/-0.1	7.94	7.94	7.95	7.99	7.98	7.92		
Conductivity (mS/cm)	3%	1.32	1.32	1.32	1.32	1.33	1.32		
Turbidity (NTU)	10%	52.3	48.6	41.2	41.4	39.5	40.1		
D.O. (mg/L)	10%	0.61	0.43	0.33	0.31	0.29	0.27		
Temperature (ºC) (ºF)	3%	15.07	15.04	14.98	14.9	14.87	14.83		
ORP[3](mV)	+/-10 mv	-133	-140	-149	-152	-154	-155		
Appearance		ST	C	C	C	C	C		
Color		Colorless	Colorless	Colorless	Colorless	Colorleee	Colorless		
Free Product (Yes/No)		No	No	No	No	No	No		
Odor		Organic	Organic	None	None	None	None		

Date	Stabilization Criteria								
Time									
Volume Extracted	gallons								
Flow Rate	mL/min								
Static Water Level (feet)	NA								
pH (Std. Units)	+/-0.1								
Conductivity (mS/cm)	3%								
Turbidity (NTU)	10%								
D.O. (mg/L)	10%								
Temperature (ºC) (ºF)	3%								
ORP[3](mV)	+/-10 mv								
Appearance									
Color									
Free Product (Yes/No)									
Odor									

C = Clear ST = Slightly Turbid T = Turbid VT = Very Turbid

Comments
DO below 0.5 mg/L, all other parameters stable, collecting sample.

Light yellow shading indicates the static water level is 0.3 feet or lower from initial level

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Well Sampling Field Data Sheet

Well Casing Unit Volume (gal/l.f.)		
1¼" = 0.08	2" = 0.17	3" = 0.38
4" = 0.66	6" = 1.5	8" = 2.6

Client Name: Housing Visions
Site Name: Old Erie Commons
Project No.: W96.013.001
Field Staff: CD

WELL DATA

Date	10/21/2025	
Time	9:50	
Water meter ID		
Well Number	**MW-104**	
PID Reading (ppm)	0.0	
Diameter (inches)	2.0	
Total Sounded Depth (feet)	14.45	
Static Water Level (feet)	3.60	
H_2O Column (feet)	10.85	
Pump Intake (feet)	15.00	
Well Volume (gal)	1.77	
Amount to Evacuate (gal)	NA	
Amount Evacuated (gal)	3.00	

SAMPLE DATA

Sample Date	10/21/2025	
Sample Time	15:15	
Sampler Initials	CD	
Sample I.D.	MW-104_102125	
Dupe Collected?	☐	ID:
MS Collected?	☐	ID:
MSD Collected?	☐	ID:
Trip Blank Collected?	☑	ID: TRIP BLANK
EQ Blank Collected?	☑	ID: EQUIPMENT BLANK

Comments
Turbidity under 50 NTU, so did not collect dissolved metals.

FIELD READINGS

Date	Stabilization Criteria	10/21/2025							
Time		14:30	14:35	14:40	14:45	14:50	14:55	15:00	15:05
Volume Extracted	gallons	0.33	0.66	1	1.33	1.66	2	2.33	2.66
Flow Rate	mL/min	250	250	250	250	250	250	250	250
Static Water Level (feet)	NA	3.95	4.01	4.04	4.07	4.11	4.14	4.16	4.18
pH (Std. Units)	+/-0.1	8.05	7.99	7.96	7.95	7.93	7.91	7.9	7.88
Conductivity (mS/cm)	3%	0.97	0.958	0.955	0.951	0.949	0.948	0.945	0.947
Turbidity (NTU)	10%	166	83.4	69.5	58.5	55.9	54.1	49.5	46.1
D.O. (mg/L)	10%	0.54	0.36	0.29	0.25	0.22	0.2	0.18	0.17
Temperature (ºC) (ºF)	3%	15.65	15.58	15.5	15.42	15.35	15.31	15.29	15.25
ORP[3](mV)	+/-10 mv	-115	-115	-115	-116	-116	-115	-115	-116
Appearance		ST	ST	ST	ST	ST	ST	C	C
Color		Colorless	Colorless	Colorless	Colorless	Colorless	Colorless	Colorless	Colorless
Free Product (Yes/No)		No	No	No	No	No	No	No	No
Odor		None	None	None	None	None	None	None	None

Date	Stabilization Criteria	10/21/2025							
Time		15:10							
Volume Extracted	gallons	3							
Flow Rate	mL/min	250							
Static Water Level (feet)	NA	4.2							
pH (Std. Units)	+/-0.1	7.87							
Conductivity (mS/cm)	3%	0.944							
Turbidity (NTU)	10%	45.2							
D.O. (mg/L)	10%	0.15							
Temperature (ºC) (ºF)	3%	15.23							
ORP[3](mV)	+/-10 mv	-114							
Appearance		C							
Color		Colorless							
Free Product (Yes/No)		No							
Odor		None							

C = Clear ST = Slightly Turbid T = Turbid VT = Very Turbid

Comments
DO below 0.5 mg/L, all other parameters stable, collecting sample.

Light yellow shading indicates the static water level is 0.3 feet or lower from initial level

Light green shading indicates that stabilization criteria have been achieved across three consecutive readings

Appendix C

Fire Insurance Maps

FIRE INSURANCE MAPS

Project Property: Old Erie Commons - 160 Center Street
160 Center Street Canastota NY 13032
Project No: W96.015.001
Requested By: C&S Companies
Order No: 25071602222
Date Completed: July 17, 2025

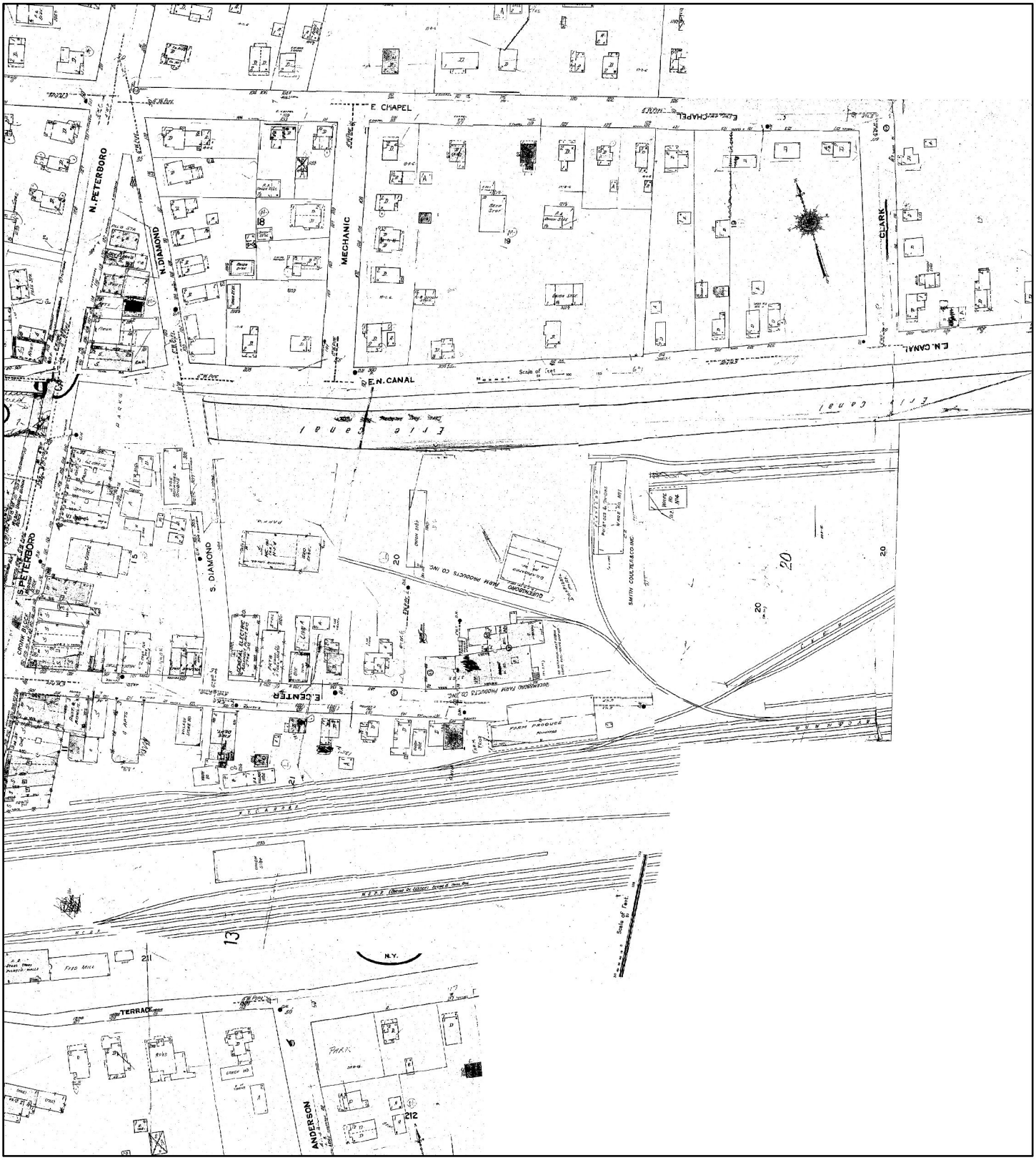
Environmental Risk Information Services
A division of Glacier Media Inc.
1.866.517.5204 | info@erisinfo.com | erisinfo.com

Listed below, please find the results of our search for historic fire insurance maps from our in-house collection, performed in conjuction with your ERIS report.

Date	City	State	Volume	Sheet Number(s)
1963	Canasota	New York		10, 13, 15, 6
1959	Canasota	New York		10, 13, 15, 6
1911	Canasota	New York		10, 13, 15, 6
1906	Canasota	New York		2, 3, 4, 7, 8
1900	Canasota	New York		2, 3, 4, 6
1895	Canasota	New York		2, 3, 4, 6
1890	Canasota	New York		2, 3, 4
1885	Canasota	New York		1, 2

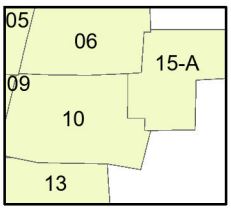
Individual Fire Insurance Maps for the subject property and/or adjacent sites are included with the ERIS environmental database report to be used for research purposes only and cannot be resold for any other commercial uses other than for use in a Phase I environmental assessment.

Fire Insurance Map



1963

Address: 160 Center Street Canastota NY 13032



Map sheet(s):
Volume NA: 10,13,15,6;

N

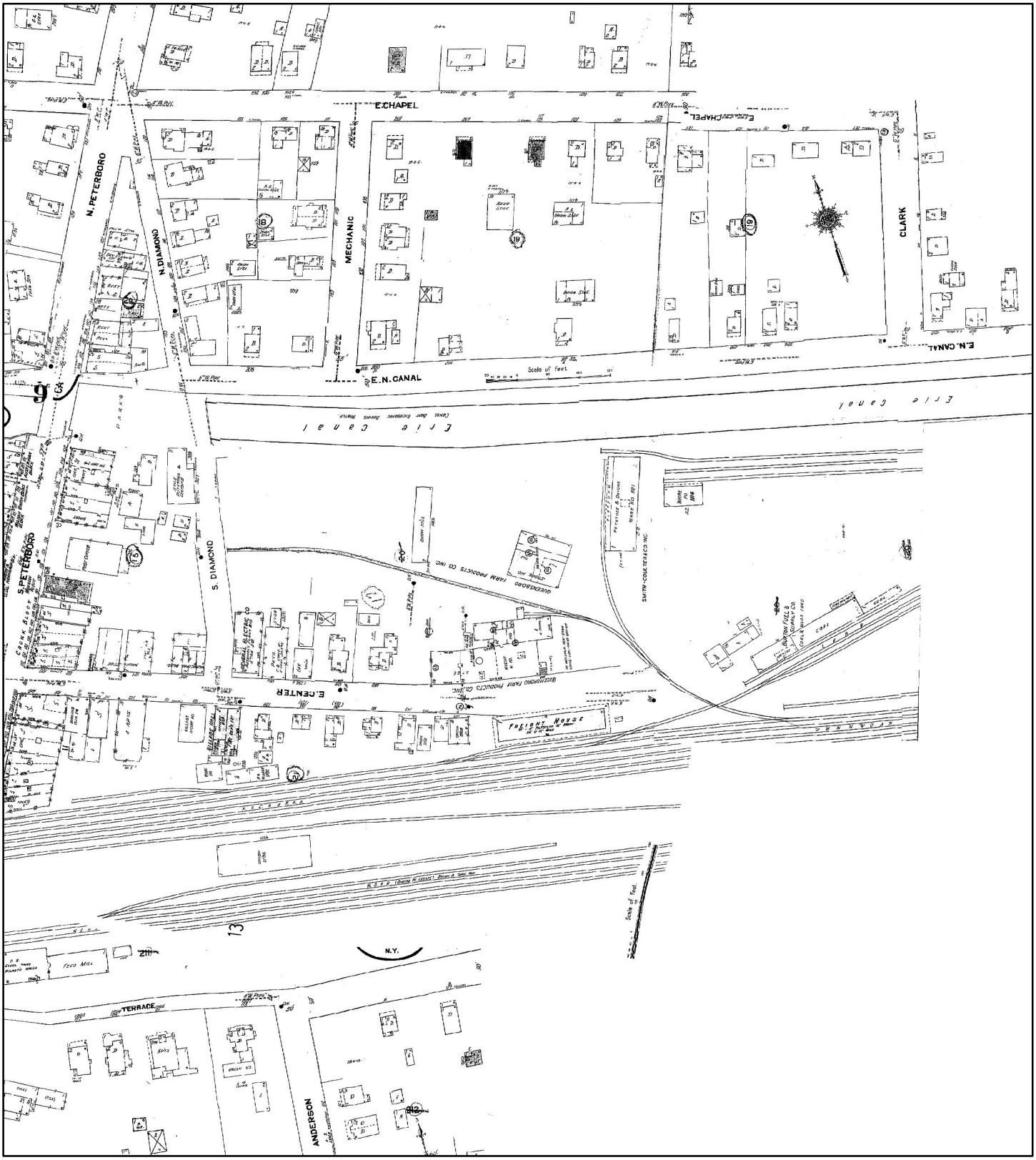
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Feet

Order Number 25071602222

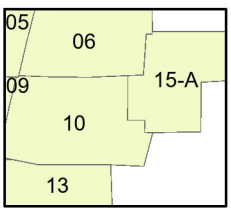
ERIS

Fire Insurance Map



1959

Address: 160 Center Street Canastota NY 13032



Map sheet(s):
Volume NA: 10,13,15,6;

N

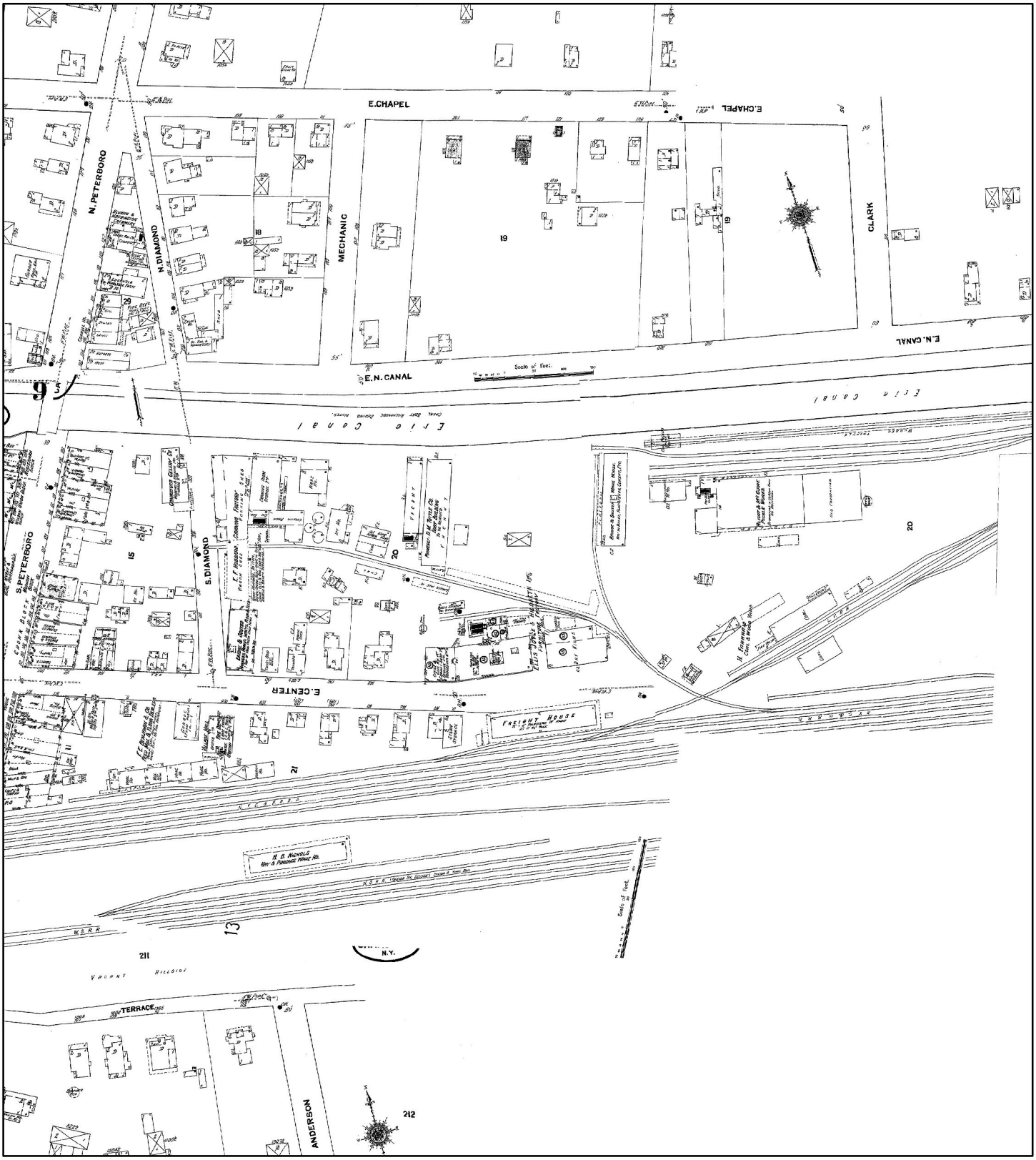
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Feet

Order Number 25071602222

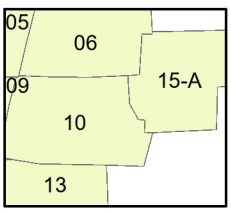
ERIS

Fire Insurance Map



1911

Address: 160 Center Street Canastota NY 13032



Map sheet(s):
Volume NA: 10,13,15,6;

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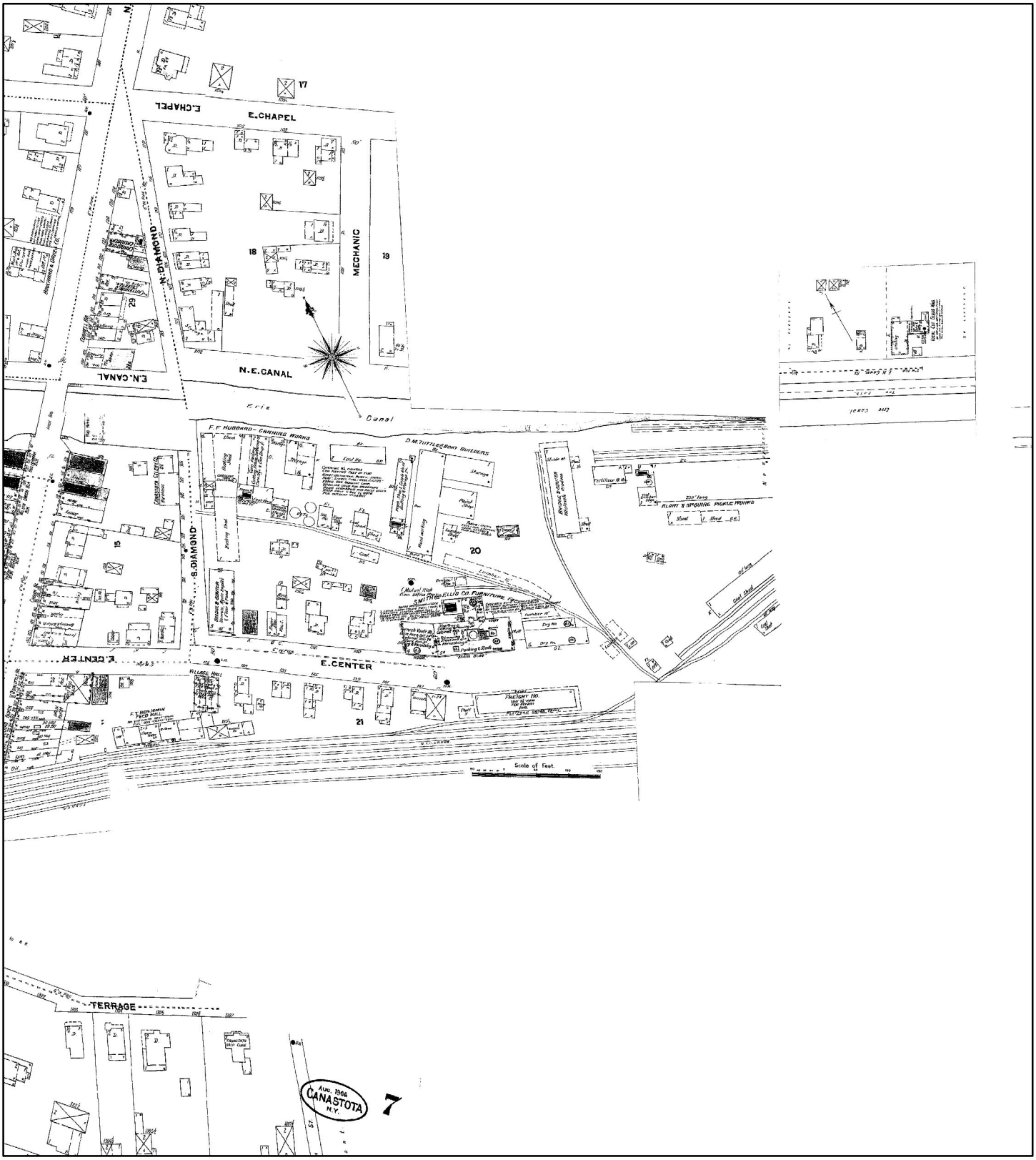
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Feet

Order Number 25071602222

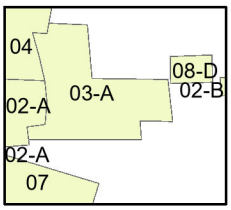
ERIS

Fire Insurance Map



1906

Address: 160 Center Street Canastota NY 13032



Map sheet(s):
Volume NA: 2,3,4,7,8;

N

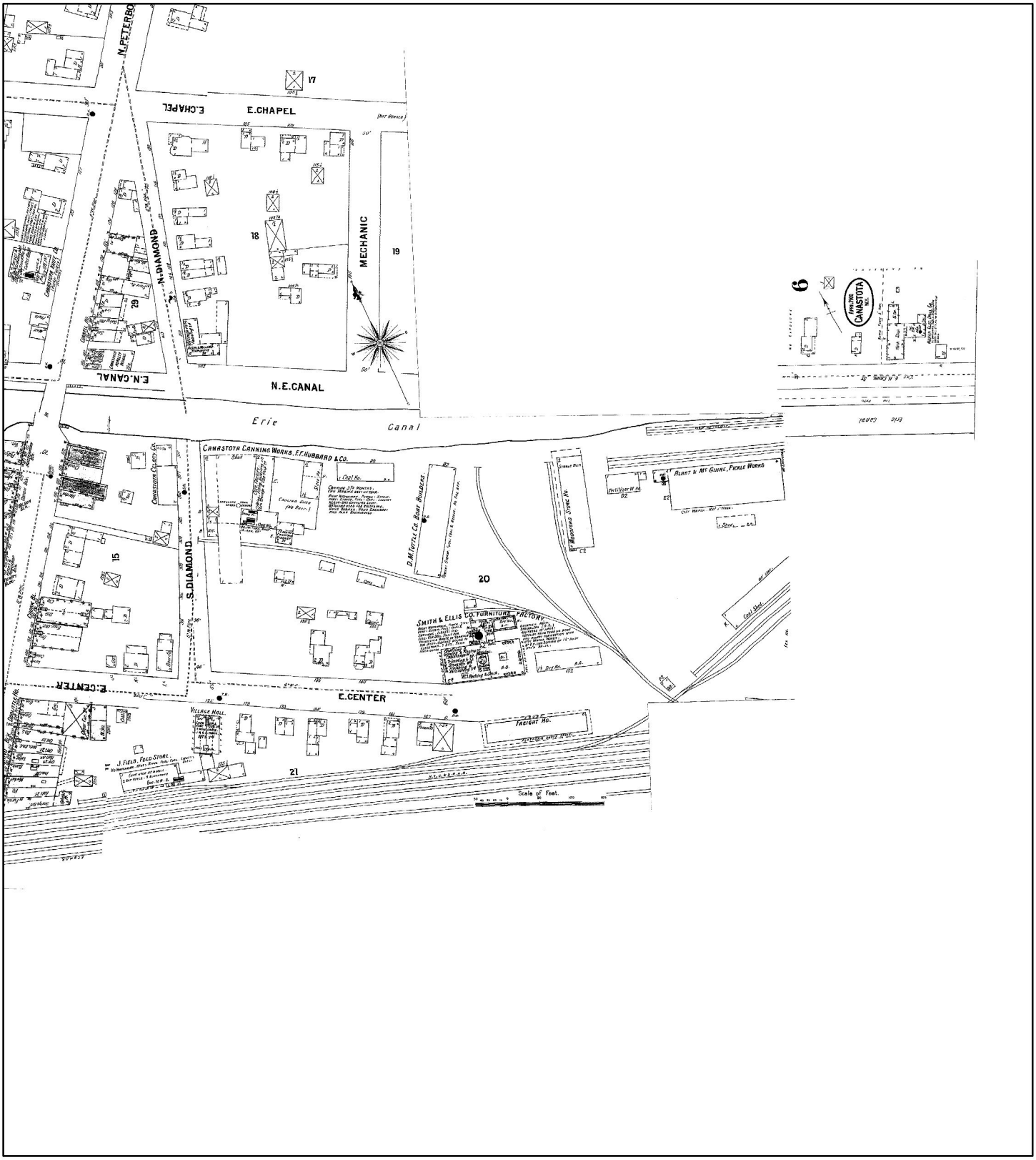
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Feet

Order Number 25071602222

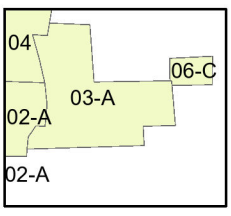
ERIS

Fire Insurance Map



1900

Address: 160 Center Street Canastota NY 13032



Map sheet(s):
Volume NA: 2,3,4,6;

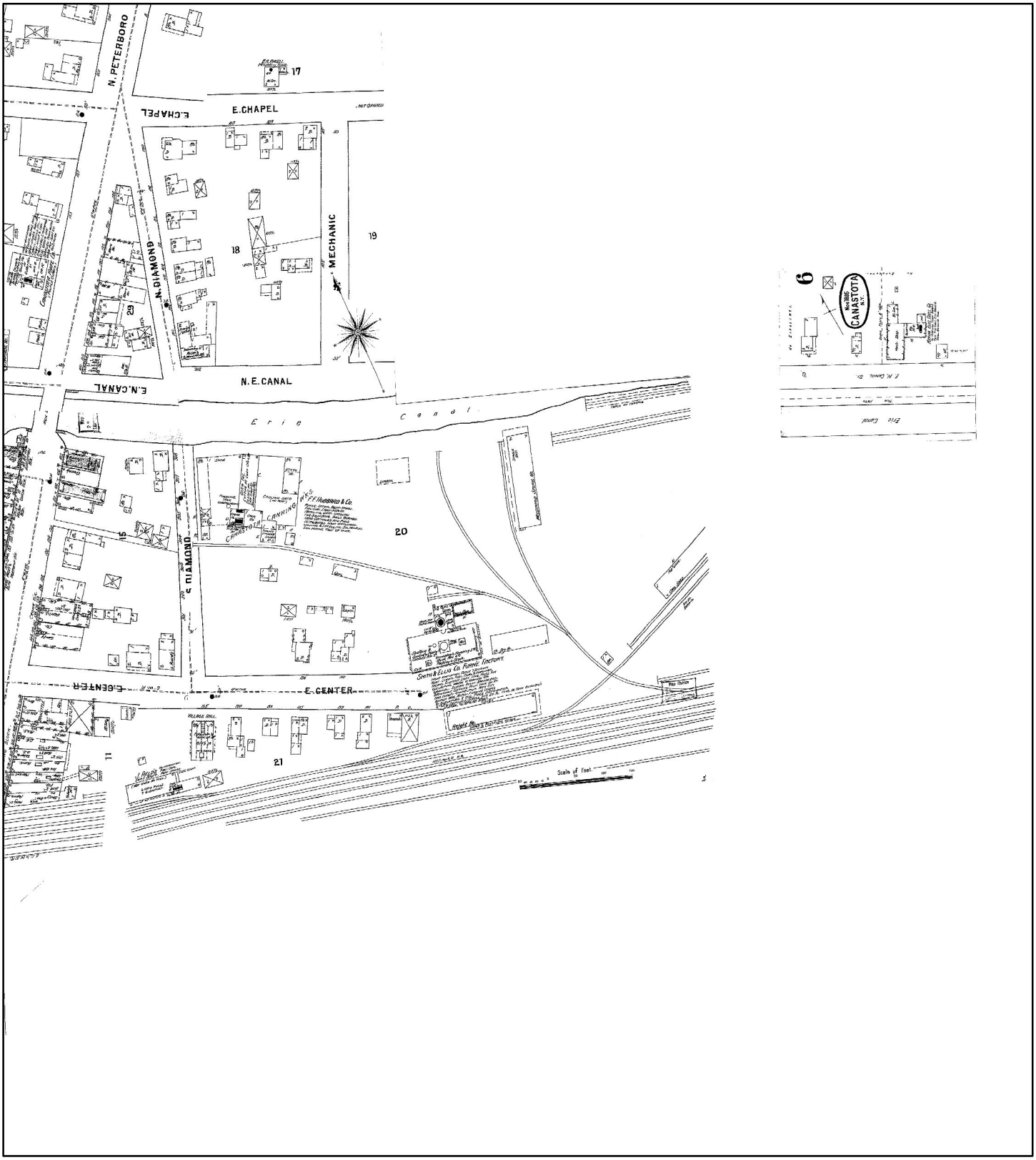
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Feet 0 210 420 840

Order Number 25071602222

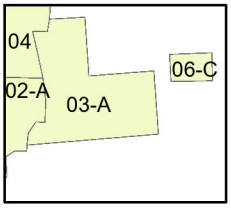
ERIS

Fire Insurance Map

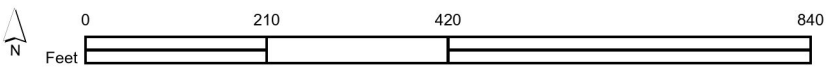


1895

Address: 160 Center Street Canastota NY 13032



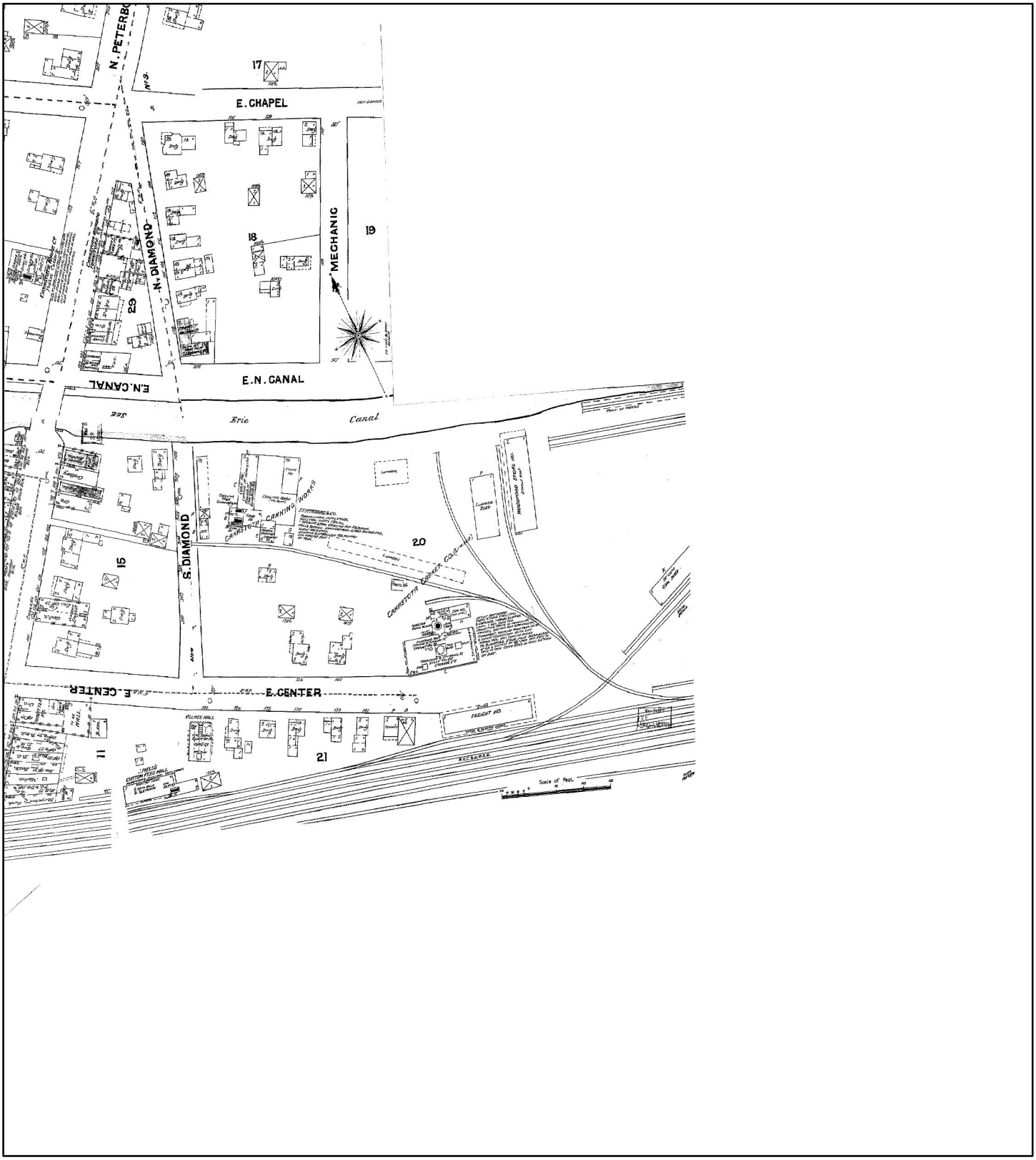
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Order Number 25071602222

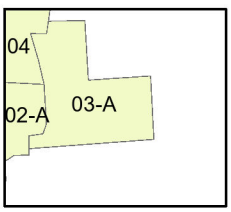
ERIS

Fire Insurance Map

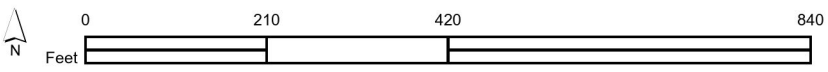


1890

Address: 160 Center Street Canastota NY 13032



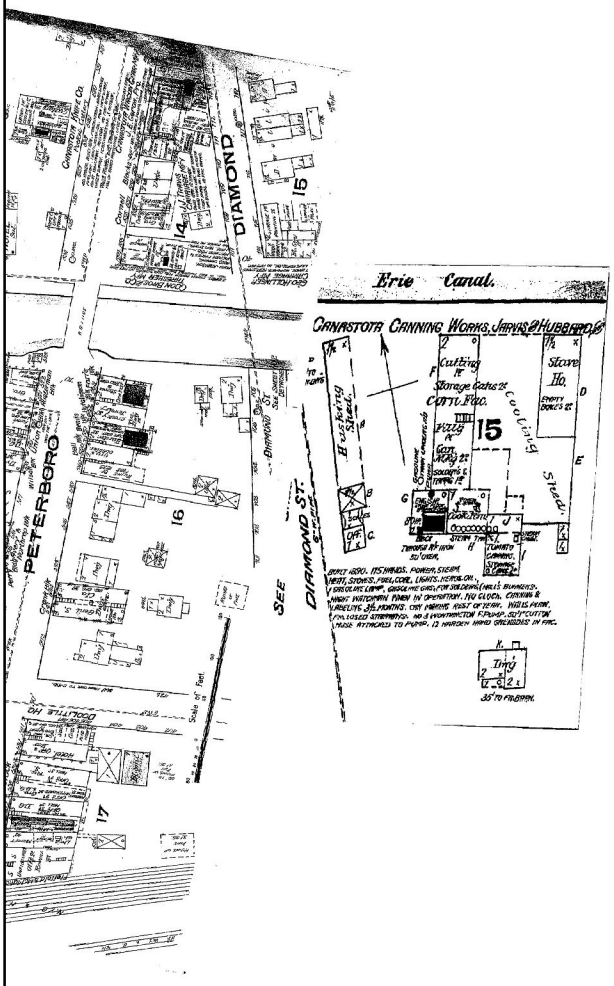
Map sheet(s):
Volume NA: 2,3,4;



Order Number 25071602222

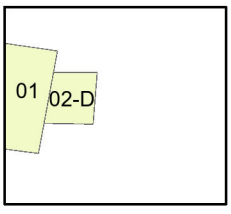
ERIS

Fire Insurance Map

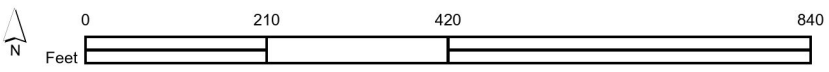


1885

Address: 160 Center Street Canastota NY 13032



Map sheet(s):
Volume NA: 1,2;



Order Number 25071602222

ERIS

Appendix D

Climate Screening Checklist

Climate Screening Checklist

Background Information

- Project Manager: Matt Walker - C&S Engineers, Inc.
- Site Name: Old Erie Commons BCP Site
- Site Number: C727015
- Site Location: 160 Center Street, Canastota, Madison County, New York 13032
- Site Elevation (average above sea level): 432 feet
- ClimAID Region (Responding Climate Change in New York State (ClimAID) - NYSERDA): Region 5
- Remedial Stage/site classification:
  Brownfield Cleanup Program (BCP Site ID C727015)
  Alternatives Analysis Report (AAR) / Remedial Action Work Plan (RAWP)
- Contamination - Media Impacted/ Contaminants of Concern:
  Surface and Subsurface Soil - SVOCs and metals as a result of historic fill material
  Groundwater - acetone, p-isopropyltoluene, SVOCs, and PFAS
- Proposed/Current Remedy:
  Proposed remedy includes construction of a cover system (combination of hardscape and clean soil), recording of an Environmental Easement, and publication of a Site Management Plan.
- What is the predicted timeframe of the remedy? Will components of the remedy still be in place in 10+ years?
  The proposed remedy completion is by the end of 2026. The remedy will remain in place for longer than 10 years.
- Is the site in proximity to any sensitive receptors? (e.g. wetlands, waterbodies, residential properties, hospitals, schools, drinking water supplies, etc.)
  The Erie Canal and residences are located adjacent to the Site. Rare plants and animals are not located within 0.5 miles of the Site.

Is the site in a disadvantaged community (DAC) or potential environmental justice area (PEJA) (Use DECinfolocator: DECinfo Locator (ny.gov))?

☒ **Yes** ☐ **No**

If the site is in a DAC or PEJA, will climate impacts be magnified? If yes, list how and why.

☐ **Yes** ☒ **No**

N/A

Should thresholds of concern be lowered to account for magnification of impacts? If yes, indicate how lower thresholds will be used in the screening.

☐ **Yes** ☒ **No**

N/A

Climate Screening Table*

Potential Climate Hazards	**Relevant to the Site Location** (Y/N/NA)[1]	**Projected Change** (Reference data source/Model)[3]	**Potential to Impact Remedy** (Y/N)	**Is remedy/site already resilient?** (Y/N)[4]
Precipitation	Y	0-5% increase by 2050	Y	Y
Temperature[2] (Extreme Heat or Cold Weather Impacts)	Y	Extreme heat to increase by 10-15 days and extreme cold to decrease by 7-23 days by 2050	N	N/A
Sea Level Rise	N	N/A	N/A	N/A
Flooding	N	N/A	N/A	N/A
Storm Surge	N	N/A	N/A	N/A
Wildfire	N	N/A	N/A	N/A
Drought	N	N/A	N/A	N/A
Storm Severity	Y	1 day increase by 2050	Y	Y
Landslides	N	N/A	N/A	N/A
Other Hazards:				

* Links to potential data sources can be found on the following page

[1] If the first column is N --> The rest of the columns will be N/A, the hazard is not applicable to the site.

[2] Extreme Heat: periods of three or more days above 90°F- Extreme Cold: Individual days with minimum temperatures at or below 0 degrees F (NYSERDA ClimAID report)

[3] List the projected change in specific terms or units e.g. inches of rain fall, feet of sea level rise, etc.

[4] If final column is Y, provide reasoning, if the final column is N --> Climate Vulnerability Assessment (CVA) required.

Required Next Steps (If no further action is required, provide justification):

No further actions at this time. The proposed Site redevelopment includes the installation of new stormwater systems which will be designed to handle large storm events. Furthermore, the remedy is not reliant on electricity and will not be impacted by potential power outages. Therefore, the remedy will be resilient.

Potential Data Sources (not an exhaustive list)- from Superfund Climate Resilience: Vulnerability Assessment | US EPA

NYSERDA ClimAID report- Responding Climate Change in New York State (ClimAID) - NYSERDA

FEMA- National Flood Hazard Layer | FEMA.gov

NOAA- National Storm Surge Risk Maps - Version 3 (noaa.gov)

Department of Agriculture Forest Service Wildfire Risk to Communities

EPA Climate Change Indicators in the United States

EPA Climate Resilience Evaluation & Awareness Tool (CREAT) | U.S. Climate Resilience Toolkit

EPA National Stormwater Calculator

National Integrated Drought Information System U.S. Drought Portal

National Interagency Coordination Center National Interagency Fire Center

National Oceanic and Atmospheric Administration Coastal Services Digital Coast

- Resources to help communities assess coastal hazards, such as the Sea Level Rise Viewer for visualizing community-level impacts of flooding or sea level rise and downloadable LIDAR data

National Oceanic and Atmospheric Administration National Centers for Environmental Information website

National Oceanic and Atmospheric Administration Sea Level Trends

National Weather Service Climate Prediction Center

National Weather Service National Hurricane Center

National Weather Service Sea, Lake, and Overland Surges from Hurricanes (SLOSH)

National Weather Service Storm Surge Hazard Maps

U.S. Federal Government Climate Resilience Toolkit: The Climate Explorer

U.S. Army Corps of Engineers Climate Prepardness and Resilience

U.S. Geological Survey Coastal Change Hazards Portal

U.S. Geological Survey Landslide Hazards Program

U.S. Geological Survey National Ground-water Monitoring Network Data Portal

U.S. Geological Survey National Climate Change Viewer

U.S. Geological Survey National Water Dashboard

U.S. Geological Survey StreamStats

NYS Department of State- Assess | Department of State (ny.gov)

NYSERDA NY Costal Floodplain Mapper- Home Page (ny.gov)

NYSDEC Costal Erosion Hazards- Coastal Areas Regulated By The CEHA Permit Program - NYDEC

NYSDOH Heat Index- health.ny.gov/environmental/weather/vulnerability_index/county_maps.htm

Appendix E

Green Remediation Evaluation

Input Summary

Remedy Component Number →		1	2	3	4	5	6									Remedy Component Subtotals						
		Column headings in Row 6 must match the name of "Input" tabs in this workbook for Columns C - P in this table to be populated ("0" in Row 4 means "Input" tab is turned Off and will not be grouped to a Remedy Component (Columns Q - V) or used in subsequent calculations)																				
Item		Cover System Construction	Cover System Construction (2)	Input Template (3)	Input Template (4)	Input Template (5)	Input Template (6)	Input Template (7)	Input Template (8)	Input Template (9)	Input Template (10)	Input Template (11)	Input Template (12)	Input Template (13)	Input Template (14)	1	2	3	4	5	6	Total
On-Site																						
On-site Renewable Energy																						
Renewable electricity generated on-site	MWh	0.125	0													0.125	0	0	0	0	0	0.125
Landfill gas combusted on-site for energy use	ccf CH_4	0	0													0	0	0	0	0	0	0
On-site biodiesel use	gal	0	0													0	0	0	0	0	0	0
On-site biodiesel use - Other	gal	0	0													0	0	0	0	0	0	0
User-defined on-site renewable energy use #1	TBD	0	0													0	0	0	0	0	0	0
User-defined on-site renewable energy use #2	TBD	0	0													0	0	0	0	0	0	0
On-Site Conventional Energy																						
Grid electricity	MWh	0.319	0													0.319	0	0	0	0	0	0.319
On-site diesel use - Other	Gal	21300	3506.25													21300	3506.25	0	0	0	0	24806.25
On-site diesel use <75 hp	Gal	0	0													0	0	0	0	0	0	0
On-site diesel use 75<hp<750	Gal	0	0													0	0	0	0	0	0	0
On-site diesel use >750 hp	Gal	0	0													0	0	0	0	0	0	0
On-site gasoline use - Other	Gal	0	0													0	0	0	0	0	0	0
On-site gasoline use <25 hp	Gal	0	0													0	0	0	0	0	0	0
On-site gasoline use >25 hp	Gal	0	0													0	0	0	0	0	0	0
On-site natural gas use	ccf	0	0													0	0	0	0	0	0	0
On-site compressed natural gas use - Other	ccf	0	0													0	0	0	0	0	0	0
On-site compressed natural gas use	ccf	0	0													0	0	0	0	0	0	0
On-site liquified petroleum gas use - Other	gal	0	0													0	0	0	0	0	0	0
On-site liquified petroleum gas use	gal	0	0													0	0	0	0	0	0	0
Other forms of on-site conventional energy use #1	TBD	0	0													0	0	0	0	0	0	0
Other forms of on-site conventional energy use #2	TBD	0	0													0	0	0	0	0	0	0
Other On-site Emissions																						
On-site HAP process emissions	Lbs	0	0													0	0	0	0	0	0	0
On-site GHG emissions	Lbs CO2e	0	0													0	0	0	0	0	0	0
On-site carbon storage	Lbs CO2e	0	0													0	0	0	0	0	0	0
GHG avoided by flaring on-site landfill methane	ccf CH4	0	0													0	0	0	0	0	0	0
Other on-site NOx emissions or reductions	Lbs	0	0													0	0	0	0	0	0	0
Other on-site SOx emissions or reductions	Lbs	0	0													0	0	0	0	0	0	0
Other on-site PM emissions or reductions	Lbs	0	0													0	0	0	0	0	0	0
Electricity Generation																						
Grid electricity	MWh	0.319	0													0.319	0	0	0	0	0	0.319
Voluntary purchase of renewable electricity	MWh	0	0													0	0	0	0	0	0	0
Voluntary purchase of RECs	MWh	0	0													0	0	0	0	0	0	0

Input Summary

Remedy Component Number →		1	2	3	4	5	6									Remedy Component Subtotals						
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Item		Cover System Construction	Cover System Construction (2)	Input Template (3)	Input Template (4)	Input Template (5)	Input Template (6)	Input Template (7)	Input Template (8)	Input Template (9)	Input Template (10)	Input Template (11)	Input Template (12)	Input Template (13)	Input Template (14)	1	2	3	4	5	6	Total
Transportation																						
Transportation Fuel Use Breakdown																						
Biodiesel use - Personnel Transport	gal	0	0													0	0	0	0	0	0	0
Biodiesel use - Personnel Transport - User Defined	gal	0	0													0	0	0	0	0	0	0
Biodiesel use - Equipment Transport	gal	0	0													0	0	0	0	0	0	0
Biodiesel use - Equipment Transport - User Defined	gal	0	0													0	0	0	0	0	0	0
Biodiesel use - Material Transport	gal	0	0													0	0	0	0	0	0	0
Biodiesel use - Material Transport - User Defined	gal	0	0													0	0	0	0	0	0	0
Biodiesel use - Waste Transport	gal	0	0													0	0	0	0	0	0	0
Biodiesel use - Waste Transport - User Defined	gal	0	0													0	0	0	0	0	0	0
Diesel use - Personnel Transport - other vehicles	gal	6357.6	0													6357.6	0	0	0	0	0	6357.6
Diesel use - Personnel Transport - car	gal	0	0													0	0	0	0	0	0	0
Diesel use - Personnel Transport - passenger truck	gal	0	0													0	0	0	0	0	0	0
Diesel use - Personnel Transport - User Defined	gal	0	0													0	0	0	0	0	0	0
Diesel use - Equipment Transport	gal	58.1	41.5													58.1	41.5	0	0	0	0	99.6
Diesel use - Equipment Transport - User Defined	gal	0	0													0	0	0	0	0	0	0
Diesel use - Material Transport	gal	6141.667	0													6141.667	0	0	0	0	0	6141.667
Diesel use - Material Transport - User Defined	gal	0	0													0	0	0	0	0	0	0
Diesel use - Waste Transport	gal	17108.3	0													17108.3	0	0	0	0	0	17108.3
Diesel use - Waste Transport - User Defined	gal	0	0													0	0	0	0	0	0	0
Gasoline use - Personnel Transport - other vehicles	gal	0	0													0	0	0	0	0	0	0
Gasoline use - Personnel Transport - car	gal	0	0													0	0	0	0	0	0	0
Gasoline use - Personnel Transport - passenger truck	gal	317.5	0													317.5	0	0	0	0	0	317.5
Gasoline use - Personnel Transport - User Defined	gal	0	0													0	0	0	0	0	0	0
Gasoline use - Equipment Transport	gal	0	0													0	0	0	0	0	0	0
Gasoline use - Equipment Transport - User Defined	gal	0	0													0	0	0	0	0	0	0
Natural Gas use - Personnel Transport	ccf	0	0													0	0	0	0	0	0	0
Natural Gas use - Personnel Transport - User Defined	ccf	0	0													0	0	0	0	0	0	0
Natural Gas use - Equipment Transport	ccf	0	0													0	0	0	0	0	0	0
Conventional Energy																						
Transportation diesel use	gal	29665.667	41.5													29665.667	41.5	0	0	0	0	29707.167
Transportation gasoline use	gal	317.5	0													317.5	0	0	0	0	0	317.5
Transportation natural gas use	ccf	0	0													0	0	0	0	0	0	0
User-defined conventional energy transportation #1	TBD	0	0													0	0	0	0	0	0	0
User-defined conventional energy transportation #2	TBD	0	0													0	0	0	0	0	0	0
Renewable Energy																						
Transportation biodiesel use	gal	0	0													0	0	0	0	0	0	0
User-defined renewable energy transportation #1	TBD	0	0													0	0	0	0	0	0	0
User-defined renewable energy transportation #2	TBD	0	0													0	0	0	0	0	0	0
Off-Site																						
Construction Materials																						
Aluminum, Rolled Sheet	lb	0	0													0	0	0	0	0	0	0
Asphalt, mastic	lb	0	0													0	0	0	0	0	0	0
Asphalt, paving-grade	lb	1400000	0													1400000	0	0	0	0	0	1400000
Ethanol, Corn, 95%	lb	0	0													0	0	0	0	0	0	0
Ethanol, Corn, 99.7%	lb	0	0													0	0	0	0	0	0	0
Ethanol, Petroleum, 99.7%	lb	0	0													0	0	0	0	0	0	0
Gravel/Sand Mix, 65% Gravel	lb	20700000	0													20700000	0	0	0	0	0	20700000
Gravel/sand/clay	lb	450000	0													450000	0	0	0	0	0	450000
HDPE	lb	500	0													500	0	0	0	0	0	500
Photovoltaic system (installed)	W	0	0													0	0	0	0	0	0	0
PVC	lb	0	0													0	0	0	0	0	0	0
Portland cement, US average	lb	0	0																			
Ready-mixed concrete, 20 MPa	ft3	22950	0													22950	0	0	0	0	0	22950
Round Gravel	lb	0	0													0	0	0	0	0	0	0
Sand	lb	0	0													0	0	0	0	0	0	0
Stainless Steel	lb	0	0													0	0	0	0	0	0	0
Steel	lb	0	0													0	0	0	0	0	0	0
Other refined construction materials	lb	30000	0													30000	0	0	0	0	0	30000
Other unrefined construction materials	lb	200000	0													200000	0	0	0	0	0	200000

Input Summary

Remedy Component Number →		1	2	3	4	5	6									Remedy Component Subtotals						
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Item		Cover System Construction	Cover System Construction (2)	Input Template (3)	Input Template (4)	Input Template (5)	Input Template (6)	Input Template (7)	Input Template (8)	Input Template (9)	Input Template (10)	Input Template (11)	Input Template (12)	Input Template (13)	Input Template (14)	1	2	3	4	5	6	Total
Treatment Materials & Chemicals																						
Cheese Whey	lbs	0	0													0	0	0	0	0	0	0
Emulsified vegetable oil	lbs	0	0													0	0	0	0	0	0	0
Granular activated carbon, primary	lbs	0	0													0	0	0	0	0	0	0
Granular activated carbon, regenerated	lbs	0	0													0	0	0	0	0	0	0
Hydrogen Peroxide, 50% in H2O	lbs	0	0													0	0	0	0	0	0	0
Iron (II) Sulfate	lbs	0	0													0	0	0	0	0	0	0
Lime, Hydrated, Packed	lbs	0	0													0	0	0	0	0	0	0
Molasses	lbs	0	0													0	0	0	0	0	0	0
Phosphoric Acid, 70% in H2O	lbs	0	0													0	0	0	0	0	0	0
Potassium Permanganate	lbs	0	0													0	0	0	0	0	0	0
Sodium Hydroxide, 50% in H2O	lbs	0	0													0	0	0	0	0	0	0
Other Treatment Chemicals & Materials	lbs	0	0													0	0	0	0	0	0	0
Material Type																						
Total Virgin Refined Materials	tons	11925.875	0													11925.875	0	0	0	0	0	11925.875
Total Recycled Refined Materials	tons	0	0													0	0	0	0	0	0	0
Total Reused Refined Materials	tons	0	0													0	0	0	0	0	0	0
Total Refined Material	tons	11925.875	0													11925.875	0	0	0	0	0	11925.875
Total Virgin Unrefined Materials	tons	325	0													325	0	0	0	0	0	325
Total Recycled Unrefined Materials	tons	0	0													0	0	0	0	0	0	0
Total Reused Unrefined Materials	tons	0	0													0	0	0	0	0	0	0
Total Unrefined Material	tons	325	0													325	0	0	0	0	0	325
Fuel Processing																						
Biodiesel produced	gal	0	0													0	0	0	0	0	0	0
Diesel produced	gal	50965.667	3547.75													50965.667	3547.75	0	0	0	0	54513.417
Gasoline produced	gal	317.5	0													317.5	0	0	0	0	0	317.5
Compressed natural gas produced	ccf	0	0													0	0	0	0	0	0	0
Liquified petroleum gas produced	gal	0	0													0	0	0	0	0	0	0
Natural gas produced	ccf	0	0													0	0	0	0	0	0	0
Water Use																						
Public Water Supply	gal x 1000	20	0													20	0	0	0	0	0	20
Extracted Groundwater	gal x 1000	0	0													0	0	0	0	0	0	0
Surface Water	gal x 1000	0	0													0	0	0	0	0	0	0
Reclaimed Water	gal x 1000	0	0													0	0	0	0	0	0	0
Collected/Diverted Storm Water	gal x 1000	0	0													0	0	0	0	0	0	0
User-defined water resource #1	gal x 1000	0	0													0	0	0	0	0	0	0
User-defined water resource #2	gal x 1000	0	0													0	0	0	0	0	0	0
Waste/Recycle Handling																						
Hazardous waste incineration	lbs	0	0													0	0	0	0	0	0	0
Off-site waste water treatment (POTW)	gal x 1000	0	0													0	0	0	0	0	0	0
Off-site non-hazardous waste landfill	tons	12200	0													12200	0	0	0	0	0	12200
Off-site hazardous waste landfill	tons	6500	0													6500	0	0	0	0	0	6500
Recycled/Reused On-Site	tons	900	0													900	0	0	0	0	0	900
Recycled/Reused Off-Site	tons	100	0													100	0	0	0	0	0	100
Solid Waste Totals																						
Total Non-Hazardous Waste	tons	12200	0													12200	0	0	0	0	0	12200
Total Hazardous Waste	tons	6500	0													6500	0	0	0	0	0	6500
Total Recycled/Reused	tons	1000	0													1000	0	0	0	0	0	1000
Total Waste (all types)	tons	19700	0													19700	0	0	0	0	0	19700

Input Summary

Remedy Component Number →		1	2	3	4	5	6									Remedy Component Subtotals						
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Item		Cover System Construction	Cover System Construction (2)	Input Template (3)	Input Template (4)	Input Template (5)	Input Template (6)	Input Template (7)	Input Template (8)	Input Template (9)	Input Template (10)	Input Template (11)	Input Template (12)	Input Template (13)	Input Template (14)	1	2	3	4	5	6	Total
Lab Services																						
Off-site Laboratory Analysis - Other	sample	168	0													168	0	0	0	0	0	168
Off-site Laboratory Analysis - Metals	sample	28	0													28	0	0	0	0	0	28
Off-site Laboratory Analysis - Mercury	sample	28	0													28	0	0	0	0	0	28
Off-site Laboratory Analysis - Inorganic Anions	sample	0	0													0	0	0	0	0	0	0
Off-site Laboratory Analysis - Alkalinity	sample	0	0													0	0	0	0	0	0	0
Off-site Laboratory Analysis - Perchlorate	sample	0	0													0	0	0	0	0	0	0
Off-site Laboratory Analysis - Nitrogen/Nitrate	sample	0	0													0	0	0	0	0	0	0
Off-site Laboratory Analysis - Sulfate	sample	0	0													0	0	0	0	0	0	0
Off-site Laboratory Analysis - PCBs	sample	28	0													28	0	0	0	0	0	28
Off-site Laboratory Analysis - VOCs	sample	34	0													34	0	0	0	0	0	34
Off-site Laboratory Analysis - SVOCs	sample	28	0													28	0	0	0	0	0	28
Resource Extraction for Electricity																						
Coal extraction and processing	MWh	0.097295	0													0.097295	0	0	0	0	0	0.097295
Natural gas extraction and processing	MWh	0.108141	0													0.108141	0	0	0	0	0	0.108141
Nuclear fuel extraction and processing	MWh	0.063162	0													0.063162	0	0	0	0	0	0.063162
Oil extraction and processing	MWh	0.002233	0													0.002233	0	0	0	0	0	0.002233
Other fuel extraction and processing	MWh	0.000319	0													0.000319	0	0	0	0	0	0.000319
Electricity Transmission																						
Transmission and distribution losses	MWh	0.319	0													0.319	0	0	0	0	0	0.319
Other																						
User-defined material #1	TBD	0	0													0	0	0	0	0	0	0
User-defined material #2	TBD	0	0													0	0	0	0	0	0	0
User-defined material #3	TBD	0	0													0	0	0	0	0	0	0
User-defined material #4	TBD	0	0													0	0	0	0	0	0	0
User-defined material #5	TBD	0	0													0	0	0	0	0	0	0
User-defined material #6	TBD	0	0													0	0	0	0	0	0	0
User-defined material #7	TBD	0	0													0	0	0	0	0	0	0
User-defined material #8	TBD	0	0													0	0	0	0	0	0	0
User-defined material #9	TBD	0	0													0	0	0	0	0	0	0
User-defined material #10	TBD	0	0													0	0	0	0	0	0	0
User-defined material #11	TBD	0	0													0	0	0	0	0	0	0
User-defined material #12	TBD	0	0													0	0	0	0	0	0	0
User-defined material #13	TBD	0	0													0	0	0	0	0	0	0
User-defined material #14	TBD	0	0													0	0	0	0	0	0	0
User-defined material #15	TBD	0	0													0	0	0	0	0	0	0
User-defined material #16	TBD	0	0													0	0	0	0	0	0	0
User-defined material #17	TBD	0	0													0	0	0	0	0	0	0
User-defined material #18	TBD	0	0													0	0	0	0	0	0	0
User-defined material #19	TBD	0	0													0	0	0	0	0	0	0
User-defined material #20	TBD	0	0													0	0	0	0	0	0	0
User-defined Waste Destinations																						
User-defined recycled/reused on-site #1	TBD	0	0													0	0	0	0	0	0	0
User-defined recycled/reused on-site #2	TBD	0	0													0	0	0	0	0	0	0
User-defined recycled/reused on-site #3	TBD	0	0													0	0	0	0	0	0	0
User-defined recycled/reused off-site #1	TBD	0	0													0	0	0	0	0	0	0
User-defined recycled/reused off-site #2	TBD	0	0													0	0	0	0	0	0	0
User-defined recycled/reused off-site #3	TBD	0	0													0	0	0	0	0	0	0
User-defined non-hazardous waste destination #1	TBD	0	0													0	0	0	0	0	0	0
User-defined non-hazardous waste destination #2	TBD	0	0													0	0	0	0	0	0	0
User-defined non-hazardous waste destination #3	TBD	0	0													0	0	0	0	0	0	0
User-defined hazardous waste destination #1	TBD	0	0													0	0	0	0	0	0	0
User-defined hazardous waste destination #2	TBD	0	0													0	0	0	0	0	0	0
User-defined hazardous waste destination #3	TBD	0	0													0	0	0	0	0	0	0

Input Worksheet for Cover System Construction

Please specify which Remedy Component this Input worksheet is part of: (Select "Off" to exclude this Input worksheet from calculations and results)	**Component 1**	**Cover System Construction**

General Scope

Removal of fill material and construction of a cover system consisting of soil, gravel, playground, concrete, patio, asphalt, and buildings. Reuse of approximately 600 CY of native soil removed as part of the stormwater basin.

Example Items Eliminated through Screening Process

Other Notes and References

Personnel Transportation

Participant	Number of Roundtrips to Site	Roundtrip Distance to Site (miles)	Mode of Transportation*	Transport Fuel Type*	Total Distance Transported (miles)	Default Fuel Usage Rate**	Fuel Usage Rate Override**	Fuel Used for Personnel Transport**	Activity or Notes
Site Work Contractor	960	50	Heavy-Duty Truck	Diesel	48000	7.55		6357.6	Contractor trip to site and back each day (8 pers - 6 months)
C&S Staff	120	50	Light-Duty/Passenger Truck	Gasoline	6000	18.9		317.5	C&S trip to site and back each day (1 pers - 6 months)

**** See the "Detailed Notes and Explanations" tab for explanation of transport and fuel options.***

***** for biodiesel, B20, diesel, and gasoline, units are gallons for Fuel Used and miles/gallon for Fuel Usage Rate; for natural gas, units are hundreds of cubic feet (ccf) for Fuel Used and ccf/miles for Fuel Usage Rate; for electricity, units are miles/kWh for Fuel Usage Rate and the kWh (Fuel Used) are added to total grid electricity used (cell G69).***

On-Site Equipment Use and Transportation

Equipment Type*	HP*	Load Factor (%)*	Equipment Fuel Type**	Equipment Fuel Usage Rate	Equipment Hours Operated	Fuel Used for On-site Equipment	Equipment weight (tons)	Number of Equipment Roundtrips to Site	Roundtrip Distance to Site (miles)	Total Distance Transported (miles)	Mode of Transportation	Transport Fuel Type***	Default Transport Fuel Usage Rate (gptm or mpg)	Transport Fuel Usage Rate Override (gptm or mpg)	Fuel Used for Equipment Transport (gallons)	Activity or Notes
Excavator - large (250 HP)	250	75%	Diesel	9.375	400	3750	40	1	50	50	Truck (mpg)	Diesel	6		8.3	For excavations and regrading
Excavator - medium (175 HP)	175	75%	Diesel	6.5625	400	2625	20	1	50	50	Truck (mpg)	Diesel	6		8.3	For excavations and regrading
Excavator/hoe - small (75 HP)	75	75%	Diesel	2.8125	800	2250	10	1	50	50	Truck (mpg)	Diesel	6		8.3	For excavations and regrading
Loader (200 HP)	200	75%	Diesel	7.5	800	6000	16	1	50	50	Truck (mpg)	Diesel	6		8.3	For excavations and regrading
Dozer - large (200 HP)	200	75%	Diesel	7.5	400	3000	10	1	50	50	Truck (mpg)	Diesel	6		8.3	For excavations and regrading
Dump truck (400 HP)	400	75%	Diesel	15	100	1500										Not transported to Site but driven
Skid-steer - small (60 HP)	60	75%	Diesel	2.25	800	1800	5	1	50	50	Truck (mpg)	Diesel	6		8.3	For transporting material
Roller (100 HP)	100	75%	Diesel	3.75	100	375	12	1	50	50	Truck (mpg)	Diesel	6		8.3	For cover system construction

**** HP and Load Factor must be entered by user in Columns C and D. Please see the "Detailed Notes and Explanations" tab for further explanation.***

***** For biodiesel, B20, diesel, gasoline, and liquified petroleum gas, units are gallons for Fuel Used for On-site Equipment and gallons/hr for Equipment Fuel Usage Rate; for compressed natural gas units are ccf (hundreds of cubic feet) for Fuel Used for On-site Equipment and ccf/hr for Equipment Fuel Usage Rate.***

****** Please see the "Detailed Notes and Explanations" tab for instructions on selecting mode of transportation and other aspects of data entry in Columns M, N, and P. Units are gallons for Fuel Used for Equipment Transport and miles/gallon (mpg) or gallons per ton-mile (gptm) for Transport Fuel Usage Rate.***

Input Worksheet for Cover System Construction

Remedy Component that this Input worksheet is part of:	Component 1	Cover System Construction

On-Site Electricity Use

Equipment Type	HP	Load Factor (%)	Efficiency (%)	Electrical Rating (kW)	Hours Used	Energy Used (kWh)	Notes
<Equip. with HP, Efficiency, and Hours>							
<Equip. with HP, Efficiency, and Hours>							
<Equip. with HP, Efficiency, and Hours>							
<Equip. with HP, Efficiency, and Hours>							
Concrete Core Drill							
<Equip. with known kW rating>							
<Equip. with known kW rating>							
<Equip. with known kW rating>							
Pair of CAMP stations						444	Charging of CAMP stations for 6 months
<Equip. with known total Energy Used>							
<Equip. with known total Energy Used>							
<Equip. with known total Energy Used>							
Estimated Total Electricity Usage Based on Above						444	
Renewable Electricity Generated On-Site*						125	
Total Electricity Usage Based on Personnel Transportation						0	
Total Grid Electricity Used						319	

**** Electricity generated on-site from renewable resources, for which the facility retains the rights to the renewable energy (i.e., does not sell renewable energy certificates associated with the renewable energy generation).***

On-Site Natural Gas Use

Equipment Type	Power Rating (Btu/hr)	Efficiency (%)	Hours Used	Energy Required (Btu)	Natural Gas Used (ccf)	Notes
					0	
				0		
Totals			0	0	0	

Landfill Gas Combusted On-Site for Energy Use

Equipment Type	Landfill Gas (ccf)	% Methane by volume	Used for electricity?	Landfill Gas Methane Used (ccf)	Notes
				0	
				0	
				0	
Total				0	

Please see the "Detailed Notes and Explanations" tab for instructions on using the two tables above ("On-site Natural Gas Use" and "Landfill Gas Combusted On-Site for Energy Use"). In the two tables above, ccf = hundreds of cubic feet.

Materials Use and Transportation

Material Type*	Unit	Quantity	Tons	Is the Material Refined or Unrefined?**	Material Source: Virgin, Recycled, or Reused?**	Calculate Item Footprint?**	Default One-way Distance to Site (miles)	One-way Distance to Site Override (miles)	Number of One-way Trips to Site	Include Return Trip in Calculations?	Total Distance Transported (miles)	Mode of Transportation***	Transport Fuel Type	Default Transport Fuel Usage Rate (gptm or mpg)	Transport Fuel Usage Rate Override (gptm or mpg)	Fuel Used for Materials Transport (gallons)	Notes and Description of Materials
Gravel/Sand Mix, 65% Gravel	lb	20700000	10350	Refined	Virgin	Yes	25		520	Yes	26000	Truck (mpg)	Diesel	6		4333.333	Imported stone for backfill
Asphalt, paving-grade	lb	1400000	700	Refined	Virgin	Yes	25		35	Yes	1750	Truck (mpg)	Diesel	6		291.667	Asphalt pavement
Gravel/sand/clay	lb	450000	225	Unrefined	Virgin	Yes	25		12	Yes	600	Truck (mpg)	Diesel	6		100.000	Imported topsoil
Ready-mixed concrete, 20 MPa	ft3	22950	860.625	Refined	Virgin	Yes	25		85	Yes	4250	Truck (mpg)	Diesel	6		708.333	Concrete sidewalks, curbs, slabs, patios
Other refined construction materials	lb	25000	12.5	Refined	Virgin	Yes	500		2	Yes	2000	Truck (mpg)	Diesel	6		333.333	Rubber for playground
HDPE	lb	500	0.25	Refined	Virgin	Yes	500		1	Yes	1000	Truck (mpg)	Diesel	6		166.667	Poly sheeting for soil stockpiles
Other refined construction materials	lb	5000	2.5	Refined	Virgin	Yes	500		1	Yes	1000	Truck (mpg)	Diesel	6		166.667	Geotextile fabric
Other unrefined construction materials	lb	200000	100	Unrefined	Virgin	Yes	25		5	Yes	250	Truck (mpg)	Diesel	6		41.667	Mulch for playground
			0														
			0														
			0														
			0														
			0														
			0														
			0														
			0														
			0														
			0														

**** Please see the "Detailed Notes and Explanations" tab for instructions on specifying "User-Defined Materials" in the dropdown menu.***

***** Selections must be made in Columns F - H in order for the footprint calculations to be performed. Please see the "Detailed Notes and Explanations" tab for further information.***

****** Please see the "Detailed Notes and Explanations" tab for instructions on selecting mode of transportation, accounting for empty return trips, and other aspects of data entry in Columns L, N, O, and Q. Units are gallons for Fuel Used for Materials Transport and miles/gallon (mpg) or gallons per ton-mile (gptm) for Transport Fuel Usage Rate.***

Input Worksheet for Cover System Construction

Remedy Component that this Input worksheet is part of:	Component 1	Cover System Construction

Waste Disposal and Transportation

Waste Destination*	Unit	Quantity	Tons	Default One-way Distance to Site (miles)	One-way Distance to Site Override (miles)	Number of One-way Trips to Site	Include Return Trip in Calculations?	Total Distance Transported (miles)	Mode of Transportation **	Transport Fuel Type	Default Transport Fuel Usage Rate (gptm or mpg)	Transport Fuel Usage Rate Override (gptm or mpg)	Fuel Used for Waste Transport (gallons)	Notes and Description of Waste
Recycled/reused on-site	tons	900	900	0		0	No	0						Reuse of removed native soil from the stormwater basin as soil cover
Off-site non-hazardous waste landfill	tons	12200	12200	25	70	610	Yes	85400	Truck (mpg)	Diesel	6		14233.3	Offsite disposal of excess site soil
Recycled/reused off-site	tons	100	100	50	25	20	Yes	1000	Truck (mpg)	Diesel	6		166.7	Offsite recycling of brush
Off-site hazardous waste landfill	tons	6500	6500	500	25	325	Yes	16250	Truck (mpg)	Diesel	6		2708.3	Asbestos debris pile removal
			0											
			0											
			0											
			0											
			0											
			0											
			0											
			0											

**** No footprint is calculated for the Recycled/Reused On-Site and Off-Site selections. Please see the "Detailed Notes and Explanations" tab for instructions on specifying "User-Defined" selections in the dropdown menu.***

***** Please see the "Detailed Notes and Explanations" tab for instructions on selecting mode of transportation, accounting for empty return trips, and other aspects of data entry in Columns I, K, L, and N. Units are gallons for Fuel Used for Waste Transport and miles/gallon (mpg) or gallons per ton-mile (gptm) for Transport Fuel Usage Rate.***

Type of Water Used

Source of Water Used*	Unit	Quantity	Tons	Source Location/Aquifer (optional)	Quality of Water Used (optional)	Water Uses (optional)	Fate of Used Water (optional)
Public Water	gal x 1000	20	83.4	Onondaga County Water Authority		CAMP implementation, decon, hydroseeding	
			0				
			0				
			0				
			0				
			0				
			0				
			0				
			0				
			0				
			0				
			0				

**** Only the "Public Water" selection has an associated footprint. No footprint is calculated for the other water source selections.***

Note: Information entered in Columns F - V (Source/Quality/Use/Fate) is not compiled or reported by SEFA.

Input Worksheet for Cover System Construction

Remedy Component that this Input worksheet is part of:	**Component 1**	**Cover System Construction**

Other Energy Use and Air Emissions

Item		**Units**	**Quantity**	**Notes**
On-Site				
User-defined on-site conventional energy use #1	*User-Defined	TBD		
User-defined on-site conventional energy use #2	*User-Defined	TBD		
On-site HAP process emissions**		lbs		
On-site GHG emissions**		lbs CO2e		
On-site carbon storage**		lbs CO2e		
Landfill gas flared on-site		ccf CH4		
Other on-site NOx emissions or reductions**		lbs		
Other on-site SOx emissions or reductions**		lbs		
Other on-site PM emissions or reductions**		lbs		
Transportation		**Units**	**Quantity**	**Notes**
User-defined conventional energy transportation #1	*User-Defined	TBD		
User-defined conventional energy transportation #2	*User-Defined	TBD		

**** Enter units and conversion factors on "User Defined Factors" tab***
***** Enter a positive number for emissions and a negative number for reductions, avoidances, or storage***
See the "Detailed Notes and Explanations" tab for use of this table.

Other Voluntary Renewable Energy Use

Item		**Units**	**Quantity**	**Notes**
User-defined on-site renewable energy use #1	*User-Defined	TBD		
User-defined on-site renewable energy use #2	*User-Defined	TBD		
User-defined renewable energy transportation #1	*User-Defined	TBD		
User-defined renewable energy transportation #2	*User-Defined	TBD		
Voluntary purchase of renewable electricity**		MWh		
Voluntary purchase of RECs**		MWh		

**** Enter units and conversion factors on "User Defined Factors" tab***
***** Complete information on provider in the table to the right. No footprint reductions are associated with the voluntary purchases.***
See the "Detailed Notes and Explanations" tab for use of this table

Off-Site Laboratory Analysis

Parameter and Notes	**Number of Samples**	**Comments**
Off-site Laboratory Analysis - VOCs	34	
Off-site Laboratory Analysis - SVOCs	28	
Off-site Laboratory Analysis - PCBs	28	
Off-site Laboratory Analysis - Metals	28	
Off-site Laboratory Analysis - Mercury	28	
Off-site Laboratory Analysis - Other	28	
Off-site Laboratory Analysis - Other	28	
Off-site Laboratory Analysis - Other	28	
Off-site Laboratory Analysis - Other	28	
Off-site Laboratory Analysis - Other	28	
Off-site Laboratory Analysis - Other	28	
Totals	**314**	

Description of purchased renewable electricity (green pricing product or green marketing product)	Provider:	
	Type of product:	
	Type of renewable energy source:	
	Date of renewable system installation:	
Description of purchased RECs	Provider:	
	Type of renewable energy source:	
	Date of renewable system installation:	
	Location of renewable system installation:	

Input Worksheet for Cover System Construction (2)

Please specify which Remedy Component this Input worksheet is part of: (Select "Off" to exclude this Input worksheet from calculations and results)	**Component 2**	**Cover System Construction (2)**

General Scope

Same scope as previous sheet, need more space for equipment emissions.

Example Items Eliminated through Screening Process

Other Notes and References

Personnel Transportation

Participant	Number of Roundtrips to Site	Roundtrip Distance to Site (miles)	Mode of Transportation*	Transport Fuel Type*	Total Distance Transported (miles)	Default Fuel Usage Rate**	Fuel Usage Rate Override**	Fuel Used for Personnel Transport**	Activity or Notes

**** See the "Detailed Notes and Explanations" tab for explanation of transport and fuel options.***

***** for biodiesel, B20, diesel, and gasoline, units are gallons for Fuel Used and miles/gallon for Fuel Usage Rate; for natural gas, units are hundreds of cubic feet (ccf) for Fuel Used and ccf/miles for Fuel Usage Rate; for electricity, units are miles/kWh for Fuel Usage Rate and the kWh (Fuel Used) are added to total grid electricity used (cell G69).***

On-Site Equipment Use and Transportation

Equipment Type*	HP*	Load Factor (%)*	Equipment Fuel Type**	Equipment Fuel Usage Rate	Equipment Hours Operated	Fuel Used for On-site Equipment	Equipment weight (tons)	Number of Equipment Roundtrips to Site	Roundtrip Distance to Site (miles)	Total Distance Transported (miles)	Mode of Transportation	Transport Fuel Type***	Default Transport Fuel Usage Rate (gptm or mpg)	Transport Fuel Usage Rate Override (gptm or mpg)	Fuel Used for Equipment Transport (gallons)	Activity or Notes
Asphalt paver (150 HP)	150	75%	Diesel	5.625	100	562.5	12	1	50	50	Truck (mpg)	Diesel	6		8.3	For cover system construction
Rotary-screw air compressor - 250 cfm (60 HP)	175	75%	Diesel	6.5625	100	656.25	25	1	50	50	Truck (mpg)	Diesel	6		8.3	For misc. site tasks
Generator - HP varies	200	75%	Diesel	7.5	100	750	25	1	50	50	Truck (mpg)	Diesel	6		8.3	For misc. site tasks
Other - HP varies	400	75%	Diesel	15	100	1500	15	1	50	50	Truck (mpg)	Diesel	6		8.3	Concrete curb machine / paver for cover system construction
Hydroseeder (20 HP)	20	75%	Diesel	0.75	50	37.5	1.5	1	50	50	Truck (mpg)	Diesel	6		8.3	Seeding the soil cover system

**** HP and Load Factor must be entered by user in Columns C and D. Please see the "Detailed Notes and Explanations" tab for further explanation.***

***** For biodiesel, B20, diesel, gasoline, and liquified petroleum gas, units are gallons for Fuel Used for On-site Equipment and gallons/hr for Equipment Fuel Usage Rate; for compressed natural gas units are ccf (hundreds of cubic feet) for Fuel Used for On-site Equipment and ccf/hr for Equipment Fuel Usage Rate.***

****** Please see the "Detailed Notes and Explanations" tab for instructions on selecting mode of transportation and other aspects of data entry in Columns M, N, and P. Units are gallons for Fuel Used for Equipment Transport and miles/gallon (mpg) or gallons per ton-mile (gptm) for Transport Fuel Usage Rate.***

Input Worksheet for Cover System Construction (2)

Remedy Component that this Input worksheet is part of:	Component 2	Cover System Construction (2)

On-Site Electricity Use

Equipment Type	HP	Load Factor (%)	Efficiency (%)	Electrical Rating (kW)	Hours Used	Energy Used (kWh)	Notes
<Equip. with HP, Efficiency, and Hours>							
<Equip. with HP, Efficiency, and Hours>							
<Equip. with HP, Efficiency, and Hours>							
<Equip. with HP, Efficiency, and Hours>							
Concrete Core Drill							
<Equip. with known kW rating>							
<Equip. with known kW rating>							
<Equip. with known kW rating>							
<Equip. with known total Energy Used>							
<Equip. with known total Energy Used>							
<Equip. with known total Energy Used>							
<Equip. with known total Energy Used>							
					Estimated Total Electricity Usage Based on Above	0	
					Renewable Electricity Generated On-Site*		
					Total Electricity Usage Based on Personnel Transportation	0	
					Total Grid Electricity Used	0	

**** Electricity generated on-site from renewable resources, for which the facility retains the rights to the renewable energy (i.e., does not sell renewable energy certificates associated with the renewable energy generation).***

On-Site Natural Gas Use

Equipment Type	Power Rating (Btu/hr)	Efficiency (%)	Hours Used	Energy Required (Btu)	Natural Gas Used (ccf)	Notes
					0	
				0		
			Totals	0	0	0

Landfill Gas Combusted On-Site for Energy Use

Equipment Type	Landfill Gas (ccf)	% Methane by volume	Used for electricity?	Landfill Gas Methane Used (ccf)	Notes
				0	
				0	
				0	
			Total	0	

Please see the "Detailed Notes and Explanations" tab for instructions on using the two tables above ("On-site Natural Gas Use" and "Landfill Gas Combusted On-Site for Energy Use"). In the two tables above, ccf = hundreds of cubic feet.

Materials Use and Transportation

Material Type*	Unit	Quantity	Tons	Is the Material Refined or Unrefined?**	Material Source: Virgin, Recycled, or Reused?**	Calculate Item Footprint?**	Default One-way Distance to Site (miles)	One-way Distance to Site Override (miles)	Number of One-way Trips to Site	Include Return Trip in Calculations?	Total Distance Transported (miles)	Mode of Transportation***	Transport Fuel Type	Default Transport Fuel Usage Rate (gptm or mpg)	Transport Fuel Usage Rate Override (gptm or mpg)	Fuel Used for Materials Transport (gallons)	Notes and Description of Materials
			0														
			0														
			0														
			0														
			0														
			0														
			0														
			0														
			0														
			0														
			0														
			0														
			0														
			0														
			0														
			0														
			0														
			0														
			0														

**** Please see the "Detailed Notes and Explanations" tab for instructions on specifying "User-Defined Materials" in the dropdown menu.***

***** Selections must be made in Columns F - H in order for the footprint calculations to be performed. Please see the "Detailed Notes and Explanations" tab for further information.***

****** Please see the "Detailed Notes and Explanations" tab for instructions on selecting mode of transportation, accounting for empty return trips, and other aspects of data entry in Columns L, N, O, and Q. Units are gallons for Fuel Used for Materials Transport and miles/gallon (mpg) or gallons per ton-mile (gptm) for Transport Fuel Usage Rate.***

Input Worksheet for Cover System Construction (2)

Remedy Component that this Input worksheet is part of:	Component 2	Cover System Construction (2)

Waste Disposal and Transportation

Waste Destination*	Unit	Quantity	Tons	Default One-way Distance to Site (miles)	One-way Distance to Site Override (miles)	Number of One-way Trips to Site	Include Return Trip in Calculations?	Total Distance Transported (miles)	Mode of Transportation **	Transport Fuel Type	Default Transport Fuel Usage Rate (gptm or mpg)	Transport Fuel Usage Rate Override (gptm or mpg)	Fuel Used for Waste Transport (gallons)	Notes and Description of Waste
			0											
			0											
			0											
			0											
			0											
			0											
			0											
			0											
			0											
			0											
			0											
			0											
			0											

** No footprint is calculated for the Recycled/Reused On-Site and Off-Site selections. Please see the "Detailed Notes and Explanations" tab for instructions on specifying "User-Defined" selections in the dropdown menu.*

*** Please see the "Detailed Notes and Explanations" tab for instructions on selecting mode of transportation, accounting for empty return trips, and other aspects of data entry in Columns I, K, L, and N. Units are gallons for Fuel Used for Waste Transport and miles/gallon (mpg) or gallons per ton-mile (gptm) for Transport Fuel Usage Rate.*

Type of Water Used

Source of Water Used*	Unit	Quantity	Tons	Source Location/Aquifer (optional)	Quality of Water Used (optional)	Water Uses (optional)	Fate of Used Water (optional)
			0			CAMP implementation, decon	
			0				
			0				
			0				
			0				
			0				
			0				
			0				
			0				
			0				
			0				
			0				

** Only the "Public Water" selection has an associated footprint. No footprint is calculated for the other water source selections.*

Note: Information entered in Columns F - V (Source/Quality/Use/Fate) is not compiled or reported by SEFA.

Input Worksheet for Cover System Construction (2)

Remedy Component that this Input worksheet is part of:	**Component 2**	**Cover System Construction (2)**

Other Energy Use and Air Emissions

Item		**Units**	**Quantity**	**Notes**
On-Site				
User-defined on-site conventional energy use #1	*User-Defined	TBD		
User-defined on-site conventional energy use #2	*User-Defined	TBD		
On-site HAP process emissions**		lbs		
On-site GHG emissions**		lbs CO2e		
On-site carbon storage**		lbs CO2e		
Landfill gas flared on-site		ccf CH4		
Other on-site NOx emissions or reductions**		lbs		
Other on-site SOx emissions or reductions**		lbs		
Other on-site PM emissions or reductions**		lbs		
Transportation		**Units**	**Quantity**	**Notes**
User-defined conventional energy transportation #1	*User-Defined	TBD		
User-defined conventional energy transportation #2	*User-Defined	TBD		

**** Enter units and conversion factors on "User Defined Factors" tab***
***** Enter a positive number for emissions and a negative number for reductions, avoidances, or storage***
See the "Detailed Notes and Explanations" tab for use of this table.

Other Voluntary Renewable Energy Use

Item		**Units**	**Quantity**	**Notes**
User-defined on-site renewable energy use #1	*User-Defined	TBD		
User-defined on-site renewable energy use #2	*User-Defined	TBD		
User-defined renewable energy transportation #1	*User-Defined	TBD		
User-defined renewable energy transportation #2	*User-Defined	TBD		
Voluntary purchase of renewable electricity**		MWh		
Voluntary purchase of RECs**		MWh		

**** Enter units and conversion factors on "User Defined Factors" tab***
***** Complete information on provider in the table to the right. No footprint reductions are associated with the voluntary purchases.***
See the "Detailed Notes and Explanations" tab for use of this table

Off-Site Laboratory Analysis

Parameter and Notes	**Number of Samples**	**Comments**
Off-site Laboratory Analysis - VOCs	0	
Off-site Laboratory Analysis - SVOCs	0	
Off-site Laboratory Analysis - Other	0	
Off-site Laboratory Analysis - Other	0	
Off-site Laboratory Analysis - PCBs	0	
Off-site Laboratory Analysis - Metals	0	
Off-site Laboratory Analysis - Mercury	0	
Off-site Laboratory Analysis - Other	0	
Off-site Laboratory Analysis - Other	0	
Off-site Laboratory Analysis - Other	0	
Totals	**0**	

Description of purchased renewable electricity (green pricing product or green marketing product)	Provider:	
	Type of product:	
	Type of renewable energy source:	
	Date of renewable system installation:	
Description of purchased RECs	Provider:	
	Type of renewable energy source:	
	Date of renewable system installation:	
	Location of renewable system installation:	

Cover System Construction - On-Site Footprint (Scope 1)

Contributors to Footprints	Units	Usage	Energy		GHG		NOx		SOx		PM		HAPs	
			Conv. Factor	MMBtus	Conv. Factor	lbs CO2e	Conv. Factor	lbs	Conv. Factor	lbs	Conv. Factor	lbs	Conv. Factor	lbs
On-Site														
On-site Renewable Energy														
Renewable electricity generated on-site	MWh	0.125	3.413	0.426625										
Landfill gas combusted on-site for energy use	ccf CH4	0	0.103	0	13.1	0	0.01	0	0.0000063	0	0.00076	0	0.0000084	0
On-site biodiesel use	gal	0	0.127	0	22.3	0	0.2	0	0	0	0.00099	0	NP	
On-site biodiesel use - User Defined	gal	0	0.127	0	22.3	0	0.2	0	0	0	0.00099	0	NP	
User-defined on-site renewable energy use #1	gal	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined on-site renewable energy use #2	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
On-site Renewable Energy Subtotals				**0**		**0**		**0**		**0**		**0**		**0**
Notes:														
On-site Conventional Energy														
On-site grid electricity	MWh	0.319	3.413	1.088747										
On-site diesel use - Other	Gal	21300	0.139	2960.7	22.5	479250	0.17	3621	0.0054	115.02	0.0034	72.42	0.0000052	0.11076
On-site diesel use <75 hp	Gal	0	0.139	0	22.21	0	0.1565	0	0.000145	0	0.0145	0	0.00004	0
On-site diesel use 75<hp<750	Gal	0	0.139	0	22.24	0	0.101	0	0.00013	0	0.009	0	0.00004	0
On-site diesel use >750 hp	Gal	0	0.139	0	22.24	0	0.149	0	0.00013	0	0.006	0	0.00004	0
On-site gasoline use - Other	Gal	0	0.124	0	19.6	0	0.11	0	0.0045	0	0.00054	0	0.000039	0
On-site gasoline use <25 hp	Gal	0	0.124	0	17.48	0	0.037	0	0.00025	0	0.165	0	0.00008	0
On-site gasoline use >25 hp	Gal	0	0.124	0	19.93	0	0.032	0	0.00029	0	0.002	0	0.00009	0
On-site natural gas use	ccf	0	0.103	0	13.1	0	0.01	0	0.0000063	0	0.00076	0	0.0000084	0
On-site compressed natural gas use - Other	ccf	0	NP		1957.835	0	16.0325	0	0.023045	0	0.2775	0	0	0
On-site compressed natural gas use	ccf	0	NP		1957.835	0	16.0325	0	0.023045	0	0.2775	0	0	0
On-site liquified petroleum gas use - Other	gal	0	NP		12.69	0	0.021	0	0.00013	0	0.001	0	0	0
On-site liquified petroleum gas use	gal	0	NP		12.69	0	0.021	0	0.00013	0	0.001	0	0	0
Other forms of on-site conventional energy use #1	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
Other forms of on-site conventional energy use #2	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
On-site Conventional Energy Subtotals				**2,962**		**479,250**		**3,621**		**115**		**72**		**0**
Notes:														
Other On-site Emissions														
On-site HAP process emissions	lbs	0											1	0
On-site GHG emissions	lbs CO2e	0			1	0								
On-site carbon storage	lbs CO2e	0			1	0								
GHG avoided by flaring on-site landfill methane	Lbs	0			-262	0	0.01	0	0.0000063	0	0.00076	0	0.0000084	0
Other on-site NOx emissions or reductions	lbs	0					1	0						
Other on-site SOx emissions or reductions	lbs	0							1	0				
Other on-site PM emissions or reductions	lbs	0									1	0		
User-defined recycled/reused on-site #2	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined recycled/reused on-site #3	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined recycled/reused off-site #1	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
Notes:														
On-site Totals				**2,962.22**		**479,250**		**3,621**		**115**		**72**		**0**

Cover System Construction - Electricity Generation Footprint (Scope 2)

Contributors to Footprints	Units	Usage	Energy		GHG		NOx		SOx		PM		HAPs	
			Conv. Factor	MMBtus	Conv. Factor	lbs CO2e	Conv. Factor	lbs	Conv. Factor	lbs	Conv. Factor	lbs	Conv. Factor	lbs
Electricity Generation														
Grid electricity	MWh	0.319	6.929	2.210351	1124.3	358.6517	2.2421	0.7152299	4.6078874	1.4699161	0.057518	0.0183482	0.2102371	0.0670656
Voluntary purchase of renewable electricity	MWh	0												
Voluntary purchase of RECs	MWh	0												
Notes:														

Cover System Construction - Transportation Footprint (Scope 3a)

Category	Units	Usage	Energy		Greenhouse Gas		NOx		SOx		PM		HAPs	
			Conv. Factor	MMBtus	Conv. Factor	lbs CO2e	Conv. Factor	lbs	Conv. Factor	lbs	Conv. Factor	lbs	Conv. Factor	lbs
Conventional Energy														
Transportation diesel use	gal	29665.667	0.139	4123.5277	22.5	667477.51	0.17	5043.1634	0.0054	160.1946	0.0034	100.86327	0.0000052	0.1542615
Transportation diesel use - car	gal	0	0.139	0	22.57	0	0.015	0	0.0002	0	0.003	0	0.00252	0
Transportation diesel use - passenger truck	gal	0	0.139	0	22.545	0	0.0585	0	0.0002	0	0.007	0	0.002605	0
Transportation diesel use - User Defined	gal	0	0.139	0	22.5	0	0.17	0	0.0054	0	0.0034	0	0.0000052	0
Transportation gasoline use	gal	0	0.124	0	19.6	0	0.11	0	0.0045	0	0.00054	0	0.000039	0
Transportation gasoline use - car	gal	0	0.124	0	19.77	0	0.027	0	0.00036	0	0.003	0	0.0067	0
Transportation gasoline use - passenger truck	gal	317.5	0.124	39.37	19.79	6283.325	0.035	11.1125	0.00036	0.1143	0.003	0.9525	0.00661	2.098675
Transportation gasoline use - User Defined	gal	0	0.124	0	19.6	0	0.11	0	0.0045	0	0.00054	0	0.000039	0
Transportation natural gas use	ccf	0	0.103	0	13.1	0	0.01	0	0.0000063	0	0.00076	0	0.0000084	0
Transportation natural gas use - User Defined	ccf	0	0.103	0	13.1	0	0.01	0	0.0000063	0	0.00076	0	0.0000084	0
User-defined conventional energy transportation #1	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined conventional energy transportation #2	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
Conventional Energy Subtotals				**4,163**		**673,761**		**5,054**		**160**		**102**		**2**
Notes:														
Renewable Energy														
Transportation biodiesel use	gal	0	0.127	0	22.3	0	0.2	0	0	0	0.00099	0	NP	
Transportation biodiesel use - User Defined	gal	0	0.127	0	22.3	0	0.2	0	0	0	0.00099	0	NP	
User-defined renewable energy transportation #1	TBD	0	Biodiesel		0	0	0	0	0	0	0	0	Ref.	
User-defined renewable energy transportation #2	TBD	0	mpg or pmp		0	0	0	0	0	0	0	0	0	0
Renewable Energy Subtotals				**0**		**0**		**0**		**0**		**0**		**0**
Notes:														
Transportation Totals				**4163**		**673761**		**5054**		**160**		**102**		**2**

Cover System Construction - Off-Site Footprint (Scope 3b)

Category	Units	Usage	Energy		Greenhouse Gas		NOx		SOx		PM		HAPs	
			Conv. Factor	MMBtus	Conv. Factor	lbs CO2e	Conv. Factor	lbs	Conv. Factor	lbs	Conv. Factor	lbs	Conv. Factor	lbs
Construction Materials														
Aluminum, Rolled Sheet	lb	0	0.0633	0	9.15	0	0.0148	0	0.0283	0	0.0088	0	0.00102	0
Asphalt, mastic	lb	0	0.0412	0	0.85	0	0.00271	0	0.00798	0	0.000766	0	0.00107	0
Asphalt, paving-grade	lb	1400000	0.5	700000	8.58	12012000	0.0299	41860	0.0969	135660	0.0091	12740	0.0133	18620
Ethanol, Corn, 95%	lb	0	0.0318	0	-0.0199	0	0.00425	0	0.00303	0	0.000469	0	0.0000846	0
Ethanol, Corn, 99.7%	lb	0	0.0324	0	0.0591	0	0.00431	0	0.0031	0	0.000472	0	0.000087	0
Ethanol, Petroleum, 99.7%	lb	0	0.0205	0	1.25	0	0.00199	0	0.00214	0	0.000277	0	0.0000589	0
Gravel/Sand Mix, 65% Gravel	lb	20700000	0.0000248	513.36	0.0024	49680	0.000018	372.6	4.52E-06	93.564	2.61E-06	54.027	3.08E-07	6.3756
Gravel/sand/clay	lb	450000	0.000028	12.6	0.00335	1507.5	0.0000165	7.425	0.000015	6.75	0.000002	0.9	2.05E-10	9.225E-05
HDPE	lb	500	0.0332	16.6	1.94	970	0.00325	1.625	0.00409	2.045	0.000439	0.2195	0.0000641	0.03205
Photovoltaic system (installed)	W	0	0.0336	0	4.47	0	0.015	0	0.032	0	0.00063	0	0.0000029	0
PVC	lb	0	0.0262	0	2.02	0	0.004	0	0.00274	0	0.000372	0	0.000375	0
Portland cement, US average	lb	0	0.0139	0	1.34	0	0.00654	0	0.0104	0	0.00378	0	0.00097	0
Ready-mixed concrete, 20 MPa	ft3	22950	0.217	4980.15	19.5	447525	0.0975	2237.625	0.154	3534.3	0.057	1308.15	0.0141	323.595
Round Gravel	lb	0	0.0000248	0	0.0024	0	0.000018	0	4.52E-06	0	2.61E-06	0	3.08E-07	0
Sand	lb	0	0.0000248	0	0.0024	0	0.000018	0	4.52E-06	0	2.61E-06	0	3.08E-07	0
Stainless Steel	lb	0	0.0116	0	3.4	0	0.0075	0	0.012	0	0.0044	0	0.000144	0
Steel	lb	0	0.0044	0	1.1	0	0.0014	0	0.0017	0	0.00056	0	0.000067	0
Other refined construction materials	lb	30000	0.01885	565.5	2.115	63450	0.0040375	121.125	0.0051325	153.975	0.0014428	43.2825	0.0001625	4.87575
Other unrefined construction materials	lb	200000	0.000028	5.6	0.00335	670	0.0000165	3.3	0.000015	3	0.000002	0.4	2.05E-10	0.000041

Notes:

Cover System Construction - Off-Site Footprint (Scope 3b)

Category	Units	Usage	Energy		Greenhouse Gas		NOx		SOx		PM		HAPs	
			Conv. Factor	MMBtus	Conv. Factor	lbs CO2e	Conv. Factor	lbs	Conv. Factor	lbs	Conv. Factor	lbs	Conv. Factor	lbs
Treatment Materials & Chemicals														
Cheese Whey	lbs	0	0.0025	0	0.031	0	0.000062	0	0.000033	0	0.000002	0	NP	
Emulsified vegetable oil	lbs	0	0.0077	0	3.44	0	0.0066	0	0.0019	0	0.000033	0	NP	
Granular activated carbon, primary	lbs	0	0.0356	0	4.82	0	0.0793	0	0.128	0	0.000987	0	0.000657	0
Granular activated carbon, regenerated	lbs	0	0.00873	0	1.7	0	0.00733	0	0.0129	0	0.000886	0	0.000671	0
Hydrogen Peroxide, 50% in H2O	lbs	0	0.00979	0	1.19	0	0.00142	0	0.0024	0	0.000308	0	0.0000629	0
Iron (II) Sulfate	lbs	0	0.00147	0	0.167	0	0.000316	0	0.000589	0	0.000103	0	0.000023	0
Lime, Hydrated, Packed	lbs	0	0.00206	0	0.762	0	0.000513	0	0.000358	0	0.00013	0	6.57E-06	0
Molasses	lbs	0	0.0044	0	0.48	0	0.0011	0	0.00024	0	0.0000041	0	NP	
Phosphoric Acid, 70% in H2O	lbs	0	0.0067	0	0.882	0	0.00282	0	0.0294	0	0.00171	0	0.000163	0
Potassium Permanganate	lbs	0	0.00981	0	1.16	0	0.00234	0	0.0032	0	0.000422	0	0.000122	0
Sodium Hydroxide, 50% in H2O	lbs	0	0.00977	0	1.09	0	0.00194	0	0.00352	0	0.000403	0	0.000129	0
Other Treatment Chemicals & Materials	lbs	0	0.015	0	1.67	0	0.003	0	0.0065	0	0.00061	0	0.000016	0
Notes:														
Fuel Processing														
Biodiesel produced	gal	0	0.029	0	-16.8	0	0.018	0	0.033	0	0.00082	0	NP	
Diesel produced	gal	50965.667	0.017	866.41634	3.02	153916.31	0.0051	259.9249	0.0062	315.98714	0.0017	86.641634	0.0011	56.062234
Gasoline produced	gal	317.5	0.033	10.4775	2.8	889	0.0046	1.4605	0.005	1.5875	0.0015	0.47625	0.001	0.3175
Liquefied Petroleum Gas Produced	gal	0	0.088	0	1.47	0	0.0016	0	0.0024	0	0.0007	0	0.0003	0
Natural Gas - Compressed Produced	ccf	0	19.983	0	343.92	0	0.4732	0	2.1651	0	0.1846	0	0.2895	0
Natural Gas Produced	ccf	0	0.0052	0	2.2	0	0.0037	0	0.0046	0	0.000072	0	0.0000061	0
Fuel Processing Subtotals				**876.89384**		**154805.31**		**261.3854**		**317.57464**		**87.117884**		**56.379734**
Notes:														
Public water	gal x 1000	20	0.0092	0.184	5	100	0.0097	0.194	0.0059	0.118	0.016	0.32	0.000015	0.0003
User-defined water resource #1	gal x 1000	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined water resource #2	gal x 1000	0	0	0	0	0	0	0	0	0	0	0	0	0
Notes:														

Cover System Construction - Off-Site Footprint (Scope 3b)

Category	Units	Usage	Energy		Greenhouse Gas		NOx		SOx		PM		HAPs	
			Conv. Factor	MMBtus	Conv. Factor	lbs CO2e	Conv. Factor	lbs	Conv. Factor	lbs	Conv. Factor	lbs	Conv. Factor	lbs
Off-Site Services														
Hazardous waste incineration	lb	0	0.00609	0	2.43	0	0.0016	0	0.00167	0	0.000209	0	0.000087	0
Off-site waste water treatment (POTW)	gal x 1000	0	0.015	0	4.4	0	0.016	0	0.015	0	NP		NP	
Off-site non-hazardous waste landfill	ton	12200	0.16	1952	25	305000	0.14	1708	0.075	915	0.4	4880	0.0014	17.08
Off-site hazardous waste landfill	ton	6500	0.18	1170	27.5	178750	0.154	1001	0.0825	536.25	0.44	2860	0.00154	10.01
Off-site Laboratory Analysis - Other	sample	168	0.058071	9.7559329	6.8534384	1151.3777	0.131402	22.075529	0.3038758	51.051129	0.0455698	7.6557305	0.0330165	5.5467768
Off-site Laboratory Analysis - Metals	sample	28	0.212	5.936	27.4693	769.1404	0.6423	17.9844	1.5072	42.2016	0.2264	6.3392	0.1643	4.6004
Off-site Laboratory Analysis - Mercury	sample	28	0.0731715	2.0488012	9.325458	261.11282	0.2127439	5.9568292	0.4982396	13.950709	0.0747359	2.0926063	0.0542332	1.5185285
Off-site Laboratory Analysis - Inorganic Anions	sample	0	0.0074025	0	0.6459478	0	0.0067681	0	0.0147929	0	0.0022024	0	0.0015542	0
Off-site Laboratory Analysis - Alkalinity	sample	0	0.0174398	0	1.3381922	0	0.0070106	0	0.0132496	0	0.00194	0	0.0012831	0
Off-site Laboratory Analysis - Perchlorate	sample	0	0.023885	0	1.8717054	0	0.0079807	0	0.0141535	0	0.0020547	0	0.0012875	0
Off-site Laboratory Analysis - Nitrogen/Nitrate	sample	0	0.0336475	0	4.29897	0	0.0954592	0	0.2226646	0	0.0335099	0	0.0242506	0
Off-site Laboratory Analysis - Sulfate	sample	0	0.0141225	0	1.4726728	0	0.0079807	0	0.0136024	0	0.0019797	0	0.0012015	0
Off-site Laboratory Analysis - PCBs	sample	28	0.0512769	1.4357532	5.224902	146.29726	0.0833339	2.3333486	0.1904774	5.3333683	0.0284393	0.7963015	0.0212083	0.5938311
Off-site Laboratory Analysis - VOCs	sample	34	0.0762045	2.5909526	9.016814	306.57168	0.104498	3.5529334	0.2270738	7.7205092	0.0339508	1.1543286	0.0235892	0.8020335
Off-site Laboratory Analysis - SVOCs	sample	28	0.0715602	2.0036851	7.870422	220.37182	0.1459445	4.0864466	0.3373038	9.4445064	0.0504853	1.4135895	0.0372577	1.0432167
Notes:														
Resource Extraction for Electricity														
Coal extraction and processing	MWh	0.097295	3.1	0.2971195	180.0	17.5131	0.8	0.0749172	0.2	0.0145943	0.0	0.0017513	NP	
Natural gas extraction and processing	MWh	0.108141	1.6	0.1764645	270.0	29.19807	0.2	0.0194654	13.0	1.405833	0.0	0.0007678	NP	
Nuclear fuel extraction and processing	MWh	0.063162	0.2	0.0098199	25.0	1.57905	0.2	0.0094743	0.5	0.031581	0.0	9.474E-05	NP	
Oil extraction and processing	MWh	0.002233	2.3	0.0051256	270.0	0.60291	1.7	0.0037961	0.1	0.0001541	0.0	9.379E-05	NP	
Other fuel extraction and processing	MWh	0.000319	0	0	0	0	0	0	0	0	0	0	0	0
Resource Extraction Subtotals				**0.4885295**		**48.89313**		**0.1076529**		**1.4521623**		**0.0027076**		**0**
Notes:														
Electricity Transmission														
Transmission and distribution losses	MWh	0.319	1.0342	0.3299098	112.43	35.86517	0.22421	0.071523	0.4607887	0.1469916	0.0057518	0.0018348	0.0210237	0.0067066
Notes:														

Cover System Construction - Off-Site Footprint (Scope 3b)

Category	Units	Usage	Energy		Greenhouse Gas		NOx		SOx		PM		HAPs	
			Conv. Factor	MMBtus	Conv. Factor	lbs CO2e	Conv. Factor	lbs	Conv. Factor	lbs	Conv. Factor	lbs	Conv. Factor	lbs
User-defined Materials														
User-defined material #1	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined material #2	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined material #3	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined material #4	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined material #5	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined material #6	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined material #7	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined material #8	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined material #9	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined material #10	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined material #11	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined material #12	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined material #13	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined material #14	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined material #15	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined material #16	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined material #17	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined material #18	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined material #19	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined material #20	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
Notes:														
User-defined Waste Destinations														
User-defined recycled/reused off-site #1	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined recycled/reused off-site #2	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined recycled/reused off-site #3	TBD	0	gy(MMBtu/u		(lbs CO2e/u		Ox(lbs/unit)		Ox(lbs/unit)		M(lbs/unit)		APs(lbs/unit	
User-defined non-hazardous waste destination #1	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined non-hazardous waste destination #2	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined non-hazardous waste destination #3	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined hazardous waste destination #1	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined hazardous waste destination #2	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined hazardous waste destination #3	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
Notes:														
Off-site Totals				**710117.48**		**13217397**		**47630.448**		**141353.88**		**21993.873**		**19052.46**

Cover System Construction - Intermediate Totals

Category	Units	Usage	Energy		Greenhouse Gas		NOx		SOx		PM		HAPs	
			Conv. Factor	MMBtus	Conv. Factor	lbs CO2e	Conv. Factor	lbs	Conv. Factor	lbs	Conv. Factor	lbs	Conv. Factor	lbs
Total Grid Electricity Footprint														
On-site grid electricity	MWh	0.319	3.413	1.088747										
Electricity Generation														
Grid electricity	MWh	0.319	6.929	2.210351	1124.3	358.6517	2.2421	0.7152299	4.6078874	1.4699161	0.057518	0.0183482	0.2102371	0.0670656
Resource Extraction for Electricity														
Coal extraction and processing	MWh	0.097295	3.1	0.2971195	180.0	17.5131	0.8	0.0749172	0.2	0.0145943	0.0	0.0017513	NP	
Natural gas extraction and processing	MWh	0.108141	1.6	0.1764645	270.0	29.19807	0.2	0.0194654	13.0	1.405833	0.0	0.0007678	NP	
Nuclear fuel extraction and processing	MWh	0.063162	0.2	0.0098199	25.0	1.57905	0.2	0.0094743	0.5	0.031581	0.0	9.474E-05	NP	
Oil extraction and processing	MWh	0.002233	2.3	0.0051256	270.0	0.60291	1.7	0.0037961	0.1	0.0001541	0.0	9.379E-05	NP	
Other fuel extraction and processing	MWh	0.000319	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0
Electricity Transmission														
Transmission and distribution losses	MWh	0.319	1.0342	0.3299098	112.43	35.86517	0.22421	0.071523	0.4607887	0.1469916	0.0057518	0.0018348	0.0210237	0.0067066
Total Grid Electricity Footprint				**4**		**443**		**1**		**3**		**0**		**0**
Total Fuel Footprints														
Total Gasoline Footprint														
On-site gasoline use - Other	gal	0	0.124	0	19.6	0	0.11	0	0.0045	0	0.00054	0	0.000039	0
On-site gasoline use <25 hp	gal	0	0.124	0	17.48	0	0.037	0	0.00025	0	0.165	0	0.00008	0
On-site gasoline use >25 hp	gal	0	0.124	0	19.93	0	0.032	0	0.00029	0	0.002	0	0.00009	0
Transportation gasoline use	gal	0	0.124	0	19.6	0	0.11	0	0.0045	0	0.00054	0	0.000039	0
Transportation gasoline use - car	gal	0	0.124	0	19.77	0	0.027	0	0.00036	0	0.003	0	0.0067	0
Transportation gasoline use - passenger truck	gal	317.5	0.124	39.37	19.79	6283.325	0.035	11.1125	0.00036	0.1143	0.003	0.9525	0.00661	2.098675
Transportation gasoline use - User Defined	gal	0	0.124	0	19.6	0	0.11	0	0.0045	0	0.00054	0	0.000039	0
Gasoline produced	gal	317.5	0.033	10.4775	2.8	889	0.0046	1.4605	0.005	1.5875	0.0015	0.47625	0.001	0.3175
Total Gasoline Footprint		**317.5**		**49.8475**		**7172.325**		**12.573**		**1.7018**		**1.42875**		**2.416175**
Total Diesel Footprint														
On-site diesel use - Other	gal	21300	0.139	2960.7	22.5	479250	0.17	3621	0.0054	115.02	0.0034	72.42	0.0000052	0.11076
On-site diesel use <75 hp	gal	0	0.139	0	22.21	0	0.1565	0	0.000145	0	0.0145	0	0.00004	0
On-site diesel use 75<hp<750	gal	0	0.139	0	22.24	0	0.101	0	0.00013	0	0.009	0	0.00004	0
On-site diesel use >750 hp	gal	0	0.139	0	22.24	0	0.149	0	0.00013	0	0.006	0	0.00004	0
Transportation diesel use	gal	29665.667	0.139	4123.5277	22.5	667477.51	0.17	5043.1634	0.0054	160.1946	0.0034	100.86327	0.0000052	0.1542615
Transportation diesel use - car	gal	0	0.139	0	22.57	0	0.015	0	0.0002	0	0.003	0	0.00252	0
Transportation diesel use - passenger truck	gal	0	0.139	0	22.545	0	0.0585	0	0.0002	0	0.007	0	0.002605	0
Transportation diesel use - User Defined	gal	0	0.139	0	22.5	0	0.17	0	0.0054	0	0.0034	0	0.0000052	0
Diesel produced	gal	50965.667	0.017	866.41634	3.02	153916.31	0.0051	259.9249	0.0062	315.98714	0.0017	86.641634	0.0011	56.062234
Total Diesel Footprint		**50965.667**		**7950.6441**		**1300643.8**		**8924.0883**		**591.20174**		**259.9249**		**56.327255**
Total Biodiesel Footprint														
On-site biodiesel use	gal	0	0.127	0	22.3	0	0.2	0	0	0	0.00099	0	NP	
On-site biodiesel use - User Defined	gal	0	0.127	0	22.3	0	0.2	0	0	0	0.00099	0	NP	
Transportation biodiesel use	gal	0	0.127	0	22.3	0	0.2	0	0	0	0.00099	0	NP	
Transportation biodiesel use - User Defined	gal	0	0.127	0	22.3	0	0.2	0	0	0	0.00099	0	NP	
Biodiesel produced	gal	0	0.029	0	-16.8	0	0.018	0	0.033	0	0.00082	0	NP	
Total Biodiesel Footprint		**0**		**0**		**0**		**0**		**0**		**0**		**0**
Total Natural Gas Footprint														
On-site natural gas use	ccf	0	0.103	0	13.1	0	0.01	0	0.0000063	0	0.00076	0	0.0000084	0
Transportation natural gas use	ccf	0	0.103	0	13.1	0	0.01	0	0.0000063	0	0.00076	0	0.0000084	0
Transportation natural gas use - User Defined	ccf	0	0.103	0	13.1	0	0.01	0	0.0000063	0	0.00076	0	0.0000084	0
Natural gas produced	ccf	0	0.0052	0	2.2	0	0.0037	0	0.0046	0	0.000072	0	0.0000061	0
Total Natural Gas Footprint		**0**		**0**		**0**		**0**		**0**		**0**		**0**
Total Liquified Petroleum Gas Footprint														
On-site liquified petroleum gas use - Other	ccf	0	NP		12.69	0	0.021	0	0.00013	0	0.001	0	0	0
On-site liquified petroleum gas use	ccf	0	NP		12.69	0	0.021	0	0.00013	0	0.001	0	0	0
Liquified petroleum gas produced	ccf	0	0.088	0	1.47	0	0.0016	0	0.0024	0	0.0007	0	0.0003	0
Total Natural Gas Footprint		**0**		**0**		**0**		**0**		**0**		**0**		**0**
Total Compressed Gas Footprint														
On-site compressed gas use - Other	ccf	0	NP		1957.835	0	16.0325	0	0.023045	0	0.2775	0	0	0
On-site compressed gas use	ccf	0	NP		1957.835	0	16.0325	0	0.023045	0	0.2775	0	0	0
Compressed gas produced	ccf	0	19.983	0	343.92	0	0.4732	0	2.1651	0	0.1846	0	0.2895	0
Total Natural Gas Footprint		**0**		**0**		**0**		**0**		**0**		**0**		**0**

Notes:

Note: Please refer to the "Default Conversions" tab for references for the default conversion factors used on this calculation sheet.

Space below available for notes and calculations:

Cover System Construction (2) - On-Site Footprint (Scope 1)

Contributors to Footprints	Units	Usage	Energy		GHG		NOx		SOx		PM		HAPs	
			Conv. Factor	MMBtus	Conv. Factor	lbs CO2e	Conv. Factor	lbs	Conv. Factor	lbs	Conv. Factor	lbs	Conv. Factor	lbs
On-Site														
On-site Renewable Energy														
Renewable electricity generated on-site	MWh	0	3.413	0										
Landfill gas combusted on-site for energy use	ccf CH4	0	0.103	0	13.1	0	0.01	0	0.0000063	0	0.00076	0	0.0000084	0
On-site biodiesel use	gal	0	0.127	0	22.3	0	0.2	0	0	0	0.00099	0	NP	
On-site biodiesel use - User Defined	gal	0	0.127	0	22.3	0	0.2	0	0	0	0.00099	0	NP	
User-defined on-site renewable energy use #1	gal	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined on-site renewable energy use #2	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
On-site Renewable Energy Subtotals				**0**		**0**		**0**		**0**		**0**		**0**
Notes:														
On-site Conventional Energy														
On-site grid electricity	MWh	0	3.413	0										
On-site diesel use - Other	Gal	3506.25	0.139	487.36875	22.5	78890.625	0.17	596.0625	0.0054	18.93375	0.0034	11.92125	0.0000052	0.0182325
On-site diesel use <75 hp	Gal	0	0.139	0	22.21	0	0.1565	0	0.000145	0	0.0145	0	0.00004	0
On-site diesel use 75<hp<750	Gal	0	0.139	0	22.24	0	0.101	0	0.00013	0	0.009	0	0.00004	0
On-site diesel use >750 hp	Gal	0	0.139	0	22.24	0	0.149	0	0.00013	0	0.006	0	0.00004	0
On-site gasoline use - Other	Gal	0	0.124	0	19.6	0	0.11	0	0.0045	0	0.00054	0	0.000039	0
On-site gasoline use <25 hp	Gal	0	0.124	0	17.48	0	0.037	0	0.00025	0	0.165	0	0.00008	0
On-site gasoline use >25 hp	Gal	0	0.124	0	19.93	0	0.032	0	0.00029	0	0.002	0	0.00009	0
On-site natural gas use	ccf	0	0.103	0	13.1	0	0.01	0	0.0000063	0	0.00076	0	0.0000084	0
On-site compressed natural gas use - Other	ccf	0	NP		1957.835	0	16.0325	0	0.023045	0	0.2775	0	0	0
On-site compressed natural gas use	ccf	0	NP		1957.835	0	16.0325	0	0.023045	0	0.2775	0	0	0
On-site liquified petroleum gas use - Other	gal	0	NP		12.69	0	0.021	0	0.00013	0	0.001	0	0	0
On-site liquified petroleum gas use	gal	0	NP		12.69	0	0.021	0	0.00013	0	0.001	0	0	0
Other forms of on-site conventional energy use #1	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
Other forms of on-site conventional energy use #2	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
On-site Conventional Energy Subtotals				**487**		**78,891**		**596**		**19**		**12**		**0**
Notes:														
Other On-site Emissions														
On-site HAP process emissions	lbs	0											1	0
On-site GHG emissions	lbs CO2e	0			1	0								
On-site carbon storage	lbs CO2e	0			1	0								
GHG avoided by flaring on-site landfill methane	Lbs	0			-262	0	0.01	0	0.0000063	0	0.00076	0	0.0000084	0
Other on-site NOx emissions or reductions	lbs	0					1	0						
Other on-site SOx emissions or reductions	lbs	0							1	0				
Other on-site PM emissions or reductions	lbs	0									1	0		
User-defined recycled/reused on-site #2	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined recycled/reused on-site #3	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined recycled/reused off-site #1	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
Notes:														
On-site Totals				**487.37**		**78,891**		**596**		**19**		**12**		**0**

Cover System Construction (2) - Electricity Generation Footprint (Scope 2)

Contributors to Footprints	Units	Usage	Energy		GHG		NOx		SOx		PM		HAPs	
			Conv. Factor	MMBtus	Conv. Factor	lbs CO2e	Conv. Factor	lbs	Conv. Factor	lbs	Conv. Factor	lbs	Conv. Factor	lbs
Electricity Generation														
Grid electricity	MWh	0	6.929	0	352	0	1.504	0	1.46966	0	0.07546	0	0.0454035	0
Voluntary purchase of renewable electricity	MWh	0												
Voluntary purchase of RECs	MWh	0												
Notes:														

Cover System Construction (2) - Transportation Footprint (Scope 3a)

Category	Units	Usage	Energy		Greenhouse Gas		NOx		SOx		PM		HAPs	
			Conv. Factor	MMBtus	Conv. Factor	lbs CO2e	Conv. Factor	lbs	Conv. Factor	lbs	Conv. Factor	lbs	Conv. Factor	lbs
Conventional Energy														
Transportation diesel use	gal	41.5	0.139	5.7685	22.5	933.75	0.17	7.055	0.0054	0.2241	0.0034	0.1411	0.0000052	0.0002158
Transportation diesel use - car	gal	0	0.139	0	22.57	0	0.015	0	0.0002	0	0.003	0	0.00252	0
Transportation diesel use - passenger truck	gal	0	0.139	0	22.545	0	0.0585	0	0.0002	0	0.007	0	0.002605	0
Transportation diesel use - User Defined	gal	0	0.139	0	22.5	0	0.17	0	0.0054	0	0.0034	0	0.0000052	0
Transportation gasoline use	gal	0	0.124	0	19.6	0	0.11	0	0.0045	0	0.00054	0	0.000039	0
Transportation gasoline use - car	gal	0	0.124	0	19.77	0	0.027	0	0.00036	0	0.003	0	0.0067	0
Transportation gasoline use - passenger truck	gal	0	0.124	0	19.79	0	0.035	0	0.00036	0	0.003	0	0.00661	0
Transportation gasoline use - User Defined	gal	0	0.124	0	19.6	0	0.11	0	0.0045	0	0.00054	0	0.000039	0
Transportation natural gas use	ccf	0	0.103	0	13.1	0	0.01	0	0.0000063	0	0.00076	0	0.0000084	0
Transportation natural gas use - User Defined	ccf	0	0.103	0	13.1	0	0.01	0	0.0000063	0	0.00076	0	0.0000084	0
User-defined conventional energy transportation #1	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined conventional energy transportation #2	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
Conventional Energy Subtotals				**6**		**934**		**7**		**0**		**0**		**0**
Notes:														
Renewable Energy														
Transportation biodiesel use	gal	0	0.127	0	22.3	0	0.2	0	0	0	0.00099	0	NP	
Transportation biodiesel use - User Defined	gal	0	0.127	0	22.3	0	0.2	0	0	0	0.00099	0	NP	
User-defined renewable energy transportation #1	TBD	0	Biodiesel		0	0	0	0	0	0	0	0	Ref.	
User-defined renewable energy transportation #2	TBD	0	mpg or pmp		0	0	0	0	0	0	0	0	0	0
Renewable Energy Subtotals				**0**		**0**		**0**		**0**		**0**		**0**
Notes:														
Transportation Totals				**6**		**934**		**7**		**0**		**0**		**0**

Cover System Construction (2) - Off-Site Footprint (Scope 3b)

Category	Units	Usage	Energy		Greenhouse Gas		NOx		SOx		PM		HAPs	
			Conv. Factor	MMBtus	Conv. Factor	lbs CO2e	Conv. Factor	lbs	Conv. Factor	lbs	Conv. Factor	lbs	Conv. Factor	lbs
Construction Materials														
Aluminum, Rolled Sheet	lb	0	0.0633	0	9.15	0	0.0148	0	0.0283	0	0.0088	0	0.00102	0
Asphalt, mastic	lb	0	0.0412	0	0.85	0	0.00271	0	0.00798	0	0.000766	0	0.00107	0
Asphalt, paving-grade	lb	0	0.5	0	8.58	0	0.0299	0	0.0969	0	0.0091	0	0.0133	0
Ethanol, Corn, 95%	lb	0	0.0318	0	-0.0199	0	0.00425	0	0.00303	0	0.000469	0	0.0000846	0
Ethanol, Corn, 99.7%	lb	0	0.0324	0	0.0591	0	0.00431	0	0.0031	0	0.000472	0	0.000087	0
Ethanol, Petroleum, 99.7%	lb	0	0.0205	0	1.25	0	0.00199	0	0.00214	0	0.000277	0	0.0000589	0
Gravel/Sand Mix, 65% Gravel	lb	0	0.0000248	0	0.0024	0	0.000018	0	4.52E-06	0	2.61E-06	0	3.08E-07	0
Gravel/sand/clay	lb	0	0.000028	0	0.00335	0	0.0000165	0	0.000015	0	0.000002	0	2.05E-10	0
HDPE	lb	0	0.0332	0	1.94	0	0.00325	0	0.00409	0	0.000439	0	0.0000641	0
Photovoltaic system (installed)	W	0	0.0336	0	4.47	0	0.015	0	0.032	0	0.00063	0	0.0000029	0
PVC	lb	0	0.0262	0	2.02	0	0.004	0	0.00274	0	0.000372	0	0.000375	0
Portland cement, US average	lb	0	0.0139	0	1.34	0	0.00654	0	0.0104	0	0.00378	0	0.00097	0
Ready-mixed concrete, 20 MPa	ft3	0	0.217	0	19.5	0	0.0975	0	0.154	0	0.057	0	0.0141	0
Round Gravel	lb	0	0.0000248	0	0.0024	0	0.000018	0	4.52E-06	0	2.61E-06	0	3.08E-07	0
Sand	lb	0	0.0000248	0	0.0024	0	0.000018	0	4.52E-06	0	2.61E-06	0	3.08E-07	0
Stainless Steel	lb	0	0.0116	0	3.4	0	0.0075	0	0.012	0	0.0044	0	0.000144	0
Steel	lb	0	0.0044	0	1.1	0	0.0014	0	0.0017	0	0.00056	0	0.000067	0
Other refined construction materials	lb	0	0.01885	0	2.115	0	0.0040375	0	0.0051325	0	0.0014428	0	0.0001625	0
Other unrefined construction materials	lb	0	0.000028	0	0.00335	0	0.0000165	0	0.000015	0	0.000002	0	2.05E-10	0

Notes:

Cover System Construction (2) - Off-Site Footprint (Scope 3b)

Category	Units	Usage	Energy		Greenhouse Gas		NOx		SOx		PM		HAPs	
			Conv. Factor	MMBtus	Conv. Factor	lbs CO2e	Conv. Factor	lbs	Conv. Factor	lbs	Conv. Factor	lbs	Conv. Factor	lbs
Treatment Materials & Chemicals														
Cheese Whey	lbs	0	0.0025	0	0.031	0	0.000062	0	0.000033	0	0.000002	0	NP	
Emulsified vegetable oil	lbs	0	0.0077	0	3.44	0	0.0066	0	0.0019	0	0.000033	0	NP	
Granular activated carbon, primary	lbs	0	0.0356	0	4.82	0	0.0793	0	0.128	0	0.000987	0	0.000657	0
Granular activated carbon, regenerated	lbs	0	0.00873	0	1.7	0	0.00733	0	0.0129	0	0.000886	0	0.000671	0
Hydrogen Peroxide, 50% in H2O	lbs	0	0.00979	0	1.19	0	0.00142	0	0.0024	0	0.000308	0	0.0000629	0
Iron (II) Sulfate	lbs	0	0.00147	0	0.167	0	0.000316	0	0.000589	0	0.000103	0	0.000023	0
Lime, Hydrated, Packed	lbs	0	0.00206	0	0.762	0	0.000513	0	0.000358	0	0.00013	0	6.57E-06	0
Molasses	lbs	0	0.0044	0	0.48	0	0.0011	0	0.00024	0	0.0000041	0	NP	
Phosphoric Acid, 70% in H2O	lbs	0	0.0067	0	0.882	0	0.00282	0	0.0294	0	0.00171	0	0.000163	0
Potassium Permanganate	lbs	0	0.00981	0	1.16	0	0.00234	0	0.0032	0	0.000422	0	0.000122	0
Sodium Hydroxide, 50% in H2O	lbs	0	0.00977	0	1.09	0	0.00194	0	0.00352	0	0.000403	0	0.000129	0
Other Treatment Chemicals & Materials	lbs	0	0.015	0	1.67	0	0.003	0	0.0065	0	0.00061	0	0.000016	0
Notes:														
Fuel Processing														
Biodiesel produced	gal	0	0.029	0	-16.8	0	0.018	0	0.033	0	0.00082	0	NP	
Diesel produced	gal	3547.75	0.017	60.31175	3.02	10714.205	0.0051	18.093525	0.0062	21.99605	0.0017	6.031175	0.0011	3.902525
Gasoline produced	gal	0	0.033	0	2.8	0	0.0046	0	0.005	0	0.0015	0	0.001	0
Liquefied Petroleum Gas Produced	gal	0	0.088	0	1.47	0	0.0016	0	0.0024	0	0.0007	0	0.0003	0
Natural Gas - Compressed Produced	ccf	0	19.983	0	343.92	0	0.4732	0	2.1651	0	0.1846	0	0.2895	0
Natural Gas Produced	ccf	0	0.0052	0	2.2	0	0.0037	0	0.0046	0	0.000072	0	0.0000061	0
Fuel Processing Subtotals				**60.31175**		**10714.205**		**18.093525**		**21.99605**		**6.031175**		**3.902525**
Notes:														
Public water	gal x 1000	0	0.0092	0	5	0	0.0097	0	0.0059	0	0.016	0	0.000015	0
User-defined water resource #1	gal x 1000	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined water resource #2	gal x 1000	0	0	0	0	0	0	0	0	0	0	0	0	0
Notes:														

Cover System Construction (2) - Off-Site Footprint (Scope 3b)

			Energy		Greenhouse Gas		NOx		SOx		PM		HAPs	
			Conv.		Conv.		Conv.		Conv.		Conv.		Conv.	
Category	**Units**	**Usage**	**Factor**	**MMBtus**	**Factor**	**lbs CO2e**	**Factor**	**lbs**	**Factor**	**lbs**	**Factor**	**lbs**	**Factor**	**lbs**
Off-Site Services														
Hazardous waste incineration	lb	0	0.00609	0	2.43	0	0.0016	0	0.00167	0	0.000209	0	0.000087	0
Off-site waste water treatment (POTW)	gal x 1000	0	0.015	0	4.4	0	0.016	0	0.015	0	NP		NP	
Off-site non-hazardous waste landfill	ton	0	0.16	0	25	0	0.14	0	0.075	0	0.4	0	0.0014	0
Off-site hazardous waste landfill	ton	0	0.18	0	27.5	0	0.154	0	0.0825	0	0.44	0	0.00154	0
Off-site Laboratory Analysis - Other	sample	0	0.058071	0	6.8534384	0	0.131402	0	0.3038758	0	0.0455698	0	0.0330165	0
Off-site Laboratory Analysis - Metals	sample	0	0.212	0	27.4693	0	0.6423	0	1.5072	0	0.2264	0	0.1643	0
Off-site Laboratory Analysis - Mercury	sample	0	0.0731715	0	9.325458	0	0.2127439	0	0.4982396	0	0.0747359	0	0.0542332	0
Off-site Laboratory Analysis - Inorganic Anions	sample	0	0.0074025	0	0.6459478	0	0.0067681	0	0.0147929	0	0.0022024	0	0.0015542	0
Off-site Laboratory Analysis - Alkalinity	sample	0	0.0174398	0	1.3381922	0	0.0070106	0	0.0132496	0	0.00194	0	0.0012831	0
Off-site Laboratory Analysis - Perchlorate	sample	0	0.023885	0	1.8717054	0	0.0079807	0	0.0141535	0	0.0020547	0	0.0012875	0
Off-site Laboratory Analysis - Nitrogen/Nitrate	sample	0	0.0336475	0	4.29897	0	0.0954592	0	0.2226646	0	0.0335099	0	0.0242506	0
Off-site Laboratory Analysis - Sulfate	sample	0	0.0141225	0	1.4726728	0	0.0079807	0	0.0136024	0	0.0019797	0	0.0012015	0
Off-site Laboratory Analysis - PCBs	sample	0	0.0512769	0	5.224902	0	0.0833339	0	0.1904774	0	0.0284393	0	0.0212083	0
Off-site Laboratory Analysis - VOCs	sample	0	0.0762045	0	9.016814	0	0.104498	0	0.2270738	0	0.0339508	0	0.0235892	0
Off-site Laboratory Analysis - SVOCs	sample	0	0.0715602	0	7.870422	0	0.1459445	0	0.3373038	0	0.0504853	0	0.0372577	0
Notes:														
Resource Extraction for Electricity														
Coal extraction and processing	MWh	0	3.1	0	180.0	0	0.8	0	0.2	0	0.0	0	NP	
Natural gas extraction and processing	MWh	0	1.6	0	270.0	0	0.2	0	13.0	0	0.0	0	NP	
Nuclear fuel extraction and processing	MWh	0	0.2	0	25.0	0	0.2	0	0.5	0	0.0	0	NP	
Oil extraction and processing	MWh	0	2.3	0	270.0	0	1.7	0	0.1	0	0.0	0	NP	
Other fuel extraction and processing	MWh	0	0	0	0	0	0	0	0	0	0	0	0	0
Resource Extraction Subtotals				**0**		**0**		**0**		**0**		**0**		**0**
Notes:														
Electricity Transmission														
Transmission and distribution losses	MWh	0	1.0342	0	35.2	0	0.1504	0	0.146966	0	0.007546	0	0.0045403	0
Notes:														

Cover System Construction (2) - Off-Site Footprint (Scope 3b)

			Energy		Greenhouse Gas		NOx		SOx		PM		HAPs	
Category	Units	Usage	Conv. Factor	MMBtus	Conv. Factor	lbs CO2e	Conv. Factor	lbs	Conv. Factor	lbs	Conv. Factor	lbs	Conv. Factor	lbs
User-defined Materials														
User-defined material #1	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined material #2	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined material #3	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined material #4	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined material #5	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined material #6	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined material #7	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined material #8	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined material #9	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined material #10	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined material #11	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined material #12	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined material #13	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined material #14	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined material #15	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined material #16	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined material #17	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined material #18	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined material #19	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Notes:														
User-defined Waste Destinations														
User-defined recycled/reused off-site #1	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined recycled/reused off-site #2	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined recycled/reused off-site #3	TBD	0	y(MMBtu/t		(lbs CO2e/t		Ox(lbs/unit)		Ox(lbs/unit)		M(lbs/unit)		APs(lbs/unit	
User-defined non-hazardous waste destination #1	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined non-hazardous waste destination #2	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined non-hazardous waste destination #3	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined hazardous waste destination #1	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined hazardous waste destination #2	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined hazardous waste destination #3	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
Notes:														
Off-site Totals				**60.31175**		**10714.205**		**18.093525**		**21.99605**		**6.031175**		**3.902525**

Cover System Construction (2) - Intermediate Totals

Category	Units	Usage	Energy		Greenhouse Gas		NOx		SOx		PM		HAPs	
			Conv. Factor	MMBtus	Conv. Factor	lbs CO2e	Conv. Factor	lbs	Conv. Factor	lbs	Conv. Factor	lbs	Conv. Factor	lbs
Total Grid Electricity Footprint														
On-site grid electricity	MWh	0	3.413	0										
Electricity Generation														
Grid electricity	MWh	0	6.929	0	1124.3	0	2.2421	0	4.6078874	0	0.057518	0	0.2102371	0
Resource Extraction for Electricity														
Coal extraction and processing	MWh	0	3.1	0	180.0	0	0.8	0	0.2	0	0.0	0	NP	
Natural gas extraction and processing	MWh	0	1.6	0	270.0	0	0.2	0	13.0	0	0.0	0	NP	
Nuclear fuel extraction and processing	MWh	0	0.2	0	25.0	0	0.2	0	0.5	0	0.0	0	NP	
Oil extraction and processing	MWh	0	2.3	0	270.0	0	1.7	0	0.1	0	0.0	0	NP	
Other fuel extraction and processing	MWh	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0
Electricity Transmission														
Transmission and distribution losses	MWh	0	1.0342	0	112.43	0	0.22421	0	0.4607887	0	0.0057518	0	0.0210237	0
Total Grid Electricity Footprint				**0**		**0**		**0**		**0**		**0**		**0**
Total Fuel Footprints														
Total Gasoline Footprint														
On-site gasoline use - Other	gal	0	0.124	0	19.6	0	0.11	0	0.0045	0	0.00054	0	0.000039	0
On-site gasoline use <25 hp	gal	0	0.124	0	17.48	0	0.037	0	0.00025	0	0.165	0	0.00008	0
On-site gasoline use >25 hp	gal	0	0.124	0	19.93	0	0.032	0	0.00029	0	0.002	0	0.00009	0
Transportation gasoline use	gal	0	0.124	0	19.6	0	0.11	0	0.0045	0	0.00054	0	0.000039	0
Transportation gasoline use - car	gal	0	0.124	0	19.77	0	0.027	0	0.00036	0	0.003	0	0.0067	0
Transportation gasoline use - passenger truck	gal	0	0.124	0	19.79	0	0.035	0	0.00036	0	0.003	0	0.00661	0
Transportation gasoline use - User Defined	gal	0	0.124	0	19.6	0	0.11	0	0.0045	0	0.00054	0	0.000039	0
Gasoline produced	gal	0	0.033	0	2.8	0	0.0046	0	0.005	0	0.0015	0	0.001	0
Total Gasoline Footprint		**0**		**0**		**0**		**0**		**0**		**0**		**0**
Total Diesel Footprint														
On-site diesel use - Other	gal	3506.25	0.139	487.36875	22.5	78890.625	0.17	596.0625	0.0054	18.93375	0.0034	11.92125	0.0000052	0.0182325
On-site diesel use <75 hp	gal	0	0.139	0	22.21	0	0.1565	0	0.000145	0	0.0145	0	0.00004	0
On-site diesel use 75<hp<750	gal	0	0.139	0	22.24	0	0.101	0	0.00013	0	0.009	0	0.00004	0
On-site diesel use >750 hp	gal	0	0.139	0	22.24	0	0.149	0	0.00013	0	0.006	0	0.00004	0
Transportation diesel use	gal	41.5	0.139	5.7685	22.5	933.75	0.17	7.055	0.0054	0.2241	0.0034	0.1411	0.0000052	0.0002158
Transportation diesel use - car	gal	0	0.139	0	22.57	0	0.015	0	0.0002	0	0.003	0	0.00252	0
Transportation diesel use - passenger truck	gal	0	0.139	0	22.545	0	0.0585	0	0.0002	0	0.007	0	0.002605	0
Transportation diesel use - User Defined	gal	0	0.139	0	22.5	0	0.17	0	0.0054	0	0.0034	0	0.0000052	0
Diesel produced	gal	3547.75	0.017	60.31175	3.02	10714.205	0.0051	18.093525	0.0062	21.99605	0.0017	6.031175	0.0011	3.902525
Total Diesel Footprint		**3547.75**		**553.449**		**90538.58**		**621.21103**		**41.1539**		**18.093525**		**3.9209733**
Total Biodiesel Footprint														
On-site biodiesel use	gal	0	0.127	0	22.3	0	0.2	0	0	0	0.00099	0	NP	
On-site biodiesel use - User Defined	gal	0	0.127	0	22.3	0	0.2	0	0	0	0.00099	0	NP	
Transportation biodiesel use	gal	0	0.127	0	22.3	0	0.2	0	0	0	0.00099	0	NP	
Transportation biodiesel use - User Defined	gal	0	0.127	0	22.3	0	0.2	0	0	0	0.00099	0	NP	
Biodiesel produced	gal	0	0.029	0	-16.8	0	0.018	0	0.033	0	0.00082	0	NP	
Total Biodiesel Footprint		**0**		**0**		**0**		**0**		**0**		**0**		**0**
Total Natural Gas Footprint														
On-site natural gas use	ccf	0	0.103	0	13.1	0	0.01	0	0.0000063	0	0.00076	0	0.0000084	0
Transportation natural gas use	ccf	0	0.103	0	13.1	0	0.01	0	0.0000063	0	0.00076	0	0.0000084	0
Transportation natural gas use - User Defined	ccf	0	0.103	0	13.1	0	0.01	0	0.0000063	0	0.00076	0	0.0000084	0
Natural gas produced	ccf	0	0.0052	0	2.2	0	0.0037	0	0.0046	0	0.000072	0	0.0000061	0
Total Natural Gas Footprint		**0**		**0**		**0**		**0**		**0**		**0**		**0**
Total Liquified Petroleum Gas Footprint														
On-site liquified petroleum gas use - Other	ccf	0	NP		12.69	0	0.021	0	0.00013	0	0.001	0	0	0
On-site liquified petroleum gas use	ccf	0	NP		12.69	0	0.021	0	0.00013	0	0.001	0	0	0
Liquified petroleum gas produced	ccf	0	0.088	0	1.47	0	0.0016	0	0.0024	0	0.0007	0	0.0003	0
Total Natural Gas Footprint		**0**		**0**		**0**		**0**		**0**		**0**		**0**
Total Compressed Gas Footprint														
On-site compressed gas use - Other	ccf	0	NP		1957.835	0	16.0325	0	0.023045	0	0.2775	0	0	0
On-site compressed gas use	ccf	0	NP		1957.835	0	16.0325	0	0.023045	0	0.2775	0	0	0
Compressed gas produced	ccf	0	19.983	0	343.92	0	0.4732	0	2.1651	0	0.1846	0	0.2895	0
Total Natural Gas Footprint		**0**		**0**		**0**		**0**		**0**		**0**		**0**

Notes:

Note: Please refer to the "Default Conversions" tab for references for the default conversion factors used on this calculation sheet.

Space below available for notes and calculations:

All Components - On-Site Footprint (Scope 1)

Contributors to Footprints	Units	Usage	Energy		GHG		NOx		SOx		PM		HAPs	
			Conv. Factor	MMBtus	Conv. Factor	lbs CO2e	Conv. Factor	lbs	Conv. Factor	lbs	Conv. Factor	lbs	Conv. Factor	lbs
On-Site														
On-site Renewable Energy														
Renewable electricity generated on-site	MWh	0.125	3.413	0.426625										
Landfill gas combusted on-site for energy use	ccf CH4	0	0.103	0	13.1	0	0.01	0	0.0000063	0	0.00076	0	0.0000084	0
On-site biodiesel use	gal	0	0.127	0	22.3	0	0.2	0	0	0	0.00099	0	NP	
On-site biodiesel use - User Defined	gal	0	0.127	0	22.3	0	0.2	0	0	0	0.00099	0	NP	
User-defined on-site renewable energy use #1	gal	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined on-site renewable energy use #2	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
On-site Renewable Energy Subtotals				**0**		**0**		**0**		**0**		**0**		**0**
Notes:														
On-site Conventional Energy														
On-site grid electricity	MWh	0.319	3.413	1.088747										
On-site diesel use - Other	Gal	24806.25	0.139	3448.0688	22.5	558140.63	0.17	4217.0625	0.0054	133.95375	0.0034	84.34125	0.0000052	0.1289925
On-site diesel use <75 hp	Gal	0	0.139	0	22.21	0	0.1565	0	0.000145	0	0.0145	0	0.00004	0
On-site diesel use 75<hp<750	Gal	0	0.139	0	22.24	0	0.101	0	0.00013	0	0.009	0	0.00004	0
On-site diesel use >750 hp	Gal	0	0.139	0	22.24	0	0.149	0	0.00013	0	0.006	0	0.00004	0
On-site gasoline use - Other	Gal	0	0.124	0	19.6	0	0.11	0	0.0045	0	0.00054	0	0.000039	0
On-site gasoline use <25 hp	Gal	0	0.124	0	17.48	0	0.037	0	0.00025	0	0.165	0	0.00008	0
On-site gasoline use >25 hp	Gal	0	0.124	0	19.93	0	0.032	0	0.00029	0	0.002	0	0.00009	0
On-site natural gas use	ccf	0	0.103	0	13.1	0	0.01	0	0.0000063	0	0.00076	0	0.0000084	0
On-site compressed natural gas use - Other	ccf	0	NP		1957.835	0	16.0325	0	0.023045	0	0.2775	0	0	0
On-site compressed natural gas use	ccf	0	NP		1957.835	0	16.0325	0	0.023045	0	0.2775	0	0	0
On-site liquified petroleum gas use - Other	gal	0	NP		12.69	0	0.021	0	0.00013	0	0.001	0	0	0
On-site liquified petroleum gas use	gal	0	NP		12.69	0	0.021	0	0.00013	0	0.001	0	0	0
Other forms of on-site conventional energy use #1	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
Other forms of on-site conventional energy use #2	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
On-site Conventional Energy Subtotals				**3,449**		**558,141**		**4,217**		**134**		**84**		**0**
Notes:														
Other On-site Emissions														
On-site HAP process emissions	lbs	0											1	0
On-site GHG emissions	lbs CO2e	0			1	0								
On-site carbon storage	lbs CO2e	0			1	0								
GHG avoided by flaring on-site landfill methane	Lbs	0			-262	0	0.01	0	0.0000063	0	0.00076	0	0.0000084	0
Other on-site NOx emissions or reductions	lbs	0					1	0						
Other on-site SOx emissions or reductions	lbs	0							1	0				
Other on-site PM emissions or reductions	lbs	0									1	0		
User-defined recycled/reused on-site #2	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined recycled/reused on-site #3	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined recycled/reused off-site #1	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
Notes:														
On-site Totals				**3,449.58**		**558,141**		**4,217**		**134**		**84**		**0**

All Components - Electricity Generation Footprint (Scope 2)

Contributors to Footprints	Units	Usage	Energy		GHG		NOx		SOx		PM		HAPs	
			Conv. Factor	MMBtus	Conv. Factor	lbs CO2e	Conv. Factor	lbs	Conv. Factor	lbs	Conv. Factor	lbs	Conv. Factor	lbs
Electricity Generation														
Grid electricity	MWh	0.319	6.929	2.210351	N/A*	358.6517	N/A*	0.7152299	N/A*	1.4699161	N/A*	0.0183482	N/A*	0.0670656
**** Conversion factors are not applied to grid electricity in the "All Components" tab since multiple fuel mixes may be used. The value for each cell shaded yellow in Row 51 is the sum of values from Components 1 - 6.***														
Voluntary purchase of renewable electricity	MWh	0												
Voluntary purchase of RECs	MWh	0												
Notes:														

All Components - Transportation Footprint (Scope 3a)

Category	Units	Usage	Energy		Greenhouse Gas		NOx		SOx		PM		HAPs	
			Conv. Factor	MMBtus	Conv. Factor	lbs CO2e	Conv. Factor	lbs	Conv. Factor	lbs	Conv. Factor	lbs	Conv. Factor	lbs
Conventional Energy														
Transportation diesel use	gal	29707.167	0.139	4129.2962	22.5	668411.26	0.17	5050.2184	0.0054	160.4187	0.0034	101.00437	0.0000052	0.1544773
Transportation diesel use - car	gal	0	0.139	0	22.57	0	0.015	0	0.0002	0	0.003	0	0.00252	0
Transportation diesel use - passenger truck	gal	0	0.139	0	22.545	0	0.0585	0	0.0002	0	0.007	0	0.002605	0
Transportation diesel use - User Defined	gal	0	0.139	0	22.5	0	0.17	0	0.0054	0	0.0034	0	0.0000052	0
Transportation gasoline use	gal	0	0.124	0	19.6	0	0.11	0	0.0045	0	0.00054	0	0.000039	0
Transportation gasoline use - car	gal	0	0.124	0	19.77	0	0.027	0	0.00036	0	0.003	0	0.0067	0
Transportation gasoline use - passenger truck	gal	317.5	0.124	39.37	19.79	6283.325	0.035	11.1125	0.00036	0.1143	0.003	0.9525	0.00661	2.098675
Transportation gasoline use - User Defined	gal	0	0.124	0	19.6	0	0.11	0	0.0045	0	0.00054	0	0.000039	0
Transportation natural gas use	ccf	0	0.103	0	13.1	0	0.01	0	0.0000063	0	0.00076	0	0.0000084	0
Transportation natural gas use - User Defined	ccf	0	0.103	0	13.1	0	0.01	0	0.0000063	0	0.00076	0	0.0000084	0
User-defined conventional energy transportation #1	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined conventional energy transportation #2	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
Conventional Energy Subtotals				**4,169**		**674,695**		**5,061**		**161**		**102**		**2**
Notes:														
Renewable Energy														
Transportation biodiesel use	gal	0	0.127	0	22.3	0	0.2	0	0	0	0.00099	0	NP	
Transportation biodiesel use - User Defined	gal	0	0.127	0	22.3	0	0.2	0	0	0	0.00099	0	NP	
User-defined renewable energy transportation #1	TBD	0	Biodiesel		0	0	0	0	0	0	0	0	Ref.	
User-defined renewable energy transportation #2	TBD	0	mpg or pmp		0	0	0	0	0	0	0	0	0	0
Renewable Energy Subtotals				**0**		**0**		**0**		**0**		**0**		**0**
Notes:														
Transportation Totals				**4169**		**674695**		**5061**		**161**		**102**		**2**

All Components - Off-Site Footprint (Scope 3b)

Category	Units	Usage	Energy		Greenhouse Gas		NOx		SOx		PM		HAPs	
			Conv. Factor	MMBtus	Conv. Factor	lbs CO2e	Conv. Factor	lbs	Conv. Factor	lbs	Conv. Factor	lbs	Conv. Factor	lbs
Construction Materials														
Aluminum, Rolled Sheet	lb	0	0.0633	0	9.15	0	0.0148	0	0.0283	0	0.0088	0	0.00102	0
Asphalt, mastic	lb	0	0.0412	0	0.85	0	0.00271	0	0.00798	0	0.000766	0	0.00107	0
Asphalt, paving-grade	lb	1400000	0.5	700000	8.58	12012000	0.0299	41860	0.0969	135660	0.0091	12740	0.0133	18620
Ethanol, Corn, 95%	lb	0	0.0318	0	-0.0199	0	0.00425	0	0.00303	0	0.000469	0	0.0000846	0
Ethanol, Corn, 99.7%	lb	0	0.0324	0	0.0591	0	0.00431	0	0.0031	0	0.000472	0	0.000087	0
Ethanol, Petroleum, 99.7%	lb	0	0.0205	0	1.25	0	0.00199	0	0.00214	0	0.000277	0	0.0000589	0
Gravel/Sand Mix, 65% Gravel	lb	20700000	0.0000248	513.36	0.0024	49680	0.000018	372.6	4.52E-06	93.564	2.61E-06	54.027	3.08E-07	6.3756
Gravel/sand/clay	lb	450000	0.000028	12.6	0.00335	1507.5	0.0000165	7.425	0.000015	6.75	0.000002	0.9	2.05E-10	9.225E-05
HDPE	lb	500	0.0332	16.6	1.94	970	0.00325	1.625	0.00409	2.045	0.000439	0.2195	0.0000641	0.03205
Photovoltaic system (installed)	W	0	0.0336	0	4.47	0	0.015	0	0.032	0	0.00063	0	0.0000029	0
PVC	lb	0	0.0262	0	2.02	0	0.004	0	0.00274	0	0.000372	0	0.000375	0
Portland cement, US average	lb	0	0.0139	0	1.34	0	0.00654	0	0.0104	0	0.00378	0	0.00097	0
Ready-mixed concrete, 20 MPa	ft3	22950	0.217	4980.15	19.5	447525	0.0975	2237.625	0.154	3534.3	0.057	1308.15	0.0141	323.595
Round Gravel	lb	0	0.0000248	0	0.0024	0	0.000018	0	4.52E-06	0	2.61E-06	0	3.08E-07	0
Sand	lb	0	0.0000248	0	0.0024	0	0.000018	0	4.52E-06	0	2.61E-06	0	3.08E-07	0
Stainless Steel	lb	0	0.0116	0	3.4	0	0.0075	0	0.012	0	0.0044	0	0.000144	0
Steel	lb	0	0.0044	0	1.1	0	0.0014	0	0.0017	0	0.00056	0	0.000067	0
Other refined construction materials	lb	30000	0.01885	565.5	2.115	63450	0.0040375	121.125	0.0051325	153.975	0.0014428	43.2825	0.0001625	4.87575
Other unrefined construction materials	lb	200000	0.000028	5.6	0.00335	670	0.0000165	3.3	0.000015	3	0.000002	0.4	2.05E-10	0.000041

Notes:

All Components - Off-Site Footprint (Scope 3b)

Category	Units	Usage	Energy		Greenhouse Gas		NOx		SOx		PM		HAPs	
			Conv. Factor	MMBtus	Conv. Factor	lbs CO2e	Conv. Factor	lbs	Conv. Factor	lbs	Conv. Factor	lbs	Conv. Factor	lbs
Treatment Materials & Chemicals														
Cheese Whey	lbs	0	0.0025	0	0.031	0	0.000062	0	0.000033	0	0.000002	0	NP	
Emulsified vegetable oil	lbs	0	0.0077	0	3.44	0	0.0066	0	0.0019	0	0.000033	0	NP	
Granular activated carbon, primary	lbs	0	0.0356	0	4.82	0	0.0793	0	0.128	0	0.000987	0	0.000657	0
Granular activated carbon, regenerated	lbs	0	0.00873	0	1.7	0	0.00733	0	0.0129	0	0.000886	0	0.000671	0
Hydrogen Peroxide, 50% in H2O	lbs	0	0.00979	0	1.19	0	0.00142	0	0.0024	0	0.000308	0	0.0000629	0
Iron (II) Sulfate	lbs	0	0.00147	0	0.167	0	0.000316	0	0.000589	0	0.000103	0	0.000023	0
Lime, Hydrated, Packed	lbs	0	0.00206	0	0.762	0	0.000513	0	0.000358	0	0.00013	0	6.57E-06	0
Molasses	lbs	0	0.0044	0	0.48	0	0.0011	0	0.00024	0	0.0000041	0	NP	
Phosphoric Acid, 70% in H2O	lbs	0	0.0067	0	0.882	0	0.00282	0	0.0294	0	0.00171	0	0.000163	0
Potassium Permanganate	lbs	0	0.00981	0	1.16	0	0.00234	0	0.0032	0	0.000422	0	0.000122	0
Sodium Hydroxide, 50% in H2O	lbs	0	0.00977	0	1.09	0	0.00194	0	0.00352	0	0.000403	0	0.000129	0
Other Treatment Chemicals & Materials	lbs	0	0.015	0	1.67	0	0.003	0	0.0065	0	0.00061	0	0.000016	0
Notes:														
Fuel Processing														
Biodiesel produced	gal	0	0.029	0	-16.8	0	0.018	0	0.033	0	0.00082	0	NP	
Diesel produced	gal	54513.417	0.017	926.72809	3.02	164630.52	0.0051	278.01843	0.0062	337.98319	0.0017	92.672809	0.0011	59.964759
Gasoline produced	gal	317.5	0.033	10.4775	2.8	889	0.0046	1.4605	0.005	1.5875	0.0015	0.47625	0.001	0.3175
Liquefied Petroleum Gas Produced	gal	0	0.088	0	1.47	0	0.0016	0	0.0024	0	0.0007	0	0.0003	0
Natural Gas - Compressed Produced	ccf	0	19.983	0	343.92	0	0.4732	0	2.1651	0	0.1846	0	0.2895	0
Natural Gas Produced	ccf	0	0.0052	0	2.2	0	0.0037	0	0.0046	0	0.000072	0	0.0000061	0
Fuel Processing Subtotals				**937.20559**		**165519.52**		**279.47893**		**339.57069**		**93.149059**		**60.282259**
Notes:														
Public water	gal x 1000	20	0.0092	0.184	5	100	0.0097	0.194	0.0059	0.118	0.016	0.32	0.000015	0.0003
User-defined water resource #1	gal x 1000	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined water resource #2	gal x 1000	0	0	0	0	0	0	0	0	0	0	0	0	0
Notes:														

All Components - Off-Site Footprint (Scope 3b)

Category	Units	Usage	Energy		Greenhouse Gas		NOx		SOx		PM		HAPs	
			Conv. Factor	MMBtus	Conv. Factor	lbs CO2e	Conv. Factor	lbs	Conv. Factor	lbs	Conv. Factor	lbs	Conv. Factor	lbs
Off-Site Services														
Hazardous waste incineration	lb	0	0.00609	0	2.43	0	0.0016	0	0.00167	0	0.000209	0	0.000087	0
Off-site waste water treatment (POTW)	gal x 1000	0	0.015	0	4.4	0	0.016	0	0.015	0	NP		NP	
Off-site non-hazardous waste landfill	ton	12200	0.16	1952	25	305000	0.14	1708	0.075	915	0.4	4880	0.0014	17.08
Off-site hazardous waste landfill	ton	6500	0.18	1170	27.5	178750	0.154	1001	0.0825	536.25	0.44	2860	0.00154	10.01
Off-site Laboratory Analysis - Other	sample	168	0.058071	9.7559329	6.8534384	1151.3777	0.131402	22.075529	0.3038758	51.051129	0.0455698	7.6557305	0.0330165	5.5467768
Off-site Laboratory Analysis - Metals	sample	28	0.212	5.936	27.4693	769.1404	0.6423	17.9844	1.5072	42.2016	0.2264	6.3392	0.1643	4.6004
Off-site Laboratory Analysis - Mercury	sample	28	0.0731715	2.0488012	9.325458	261.11282	0.2127439	5.9568292	0.4982396	13.950709	0.0747359	2.0926063	0.0542332	1.5185285
Off-site Laboratory Analysis - Inorganic Anions	sample	0	0.0074025	0	0.6459478	0	0.0067681	0	0.0147929	0	0.0022024	0	0.0015542	0
Off-site Laboratory Analysis - Alkalinity	sample	0	0.0174398	0	1.3381922	0	0.0070106	0	0.0132496	0	0.00194	0	0.0012831	0
Off-site Laboratory Analysis - Perchlorate	sample	0	0.023885	0	1.8717054	0	0.0079807	0	0.0141535	0	0.0020547	0	0.0012875	0
Off-site Laboratory Analysis - Nitrogen/Nitrate	sample	0	0.0336475	0	4.29897	0	0.0954592	0	0.2226646	0	0.0335099	0	0.0242506	0
Off-site Laboratory Analysis - Sulfate	sample	0	0.0141225	0	1.4726728	0	0.0079807	0	0.0136024	0	0.0019797	0	0.0012015	0
Off-site Laboratory Analysis - PCBs	sample	28	0.0512769	1.4357532	5.224902	146.29726	0.0833339	2.3333486	0.1904774	5.3333683	0.0284393	0.7963015	0.0212083	0.5938311
Off-site Laboratory Analysis - VOCs	sample	34	0.0762045	2.5909526	9.016814	306.57168	0.104498	3.5529334	0.2270738	7.7205092	0.0339508	1.1543286	0.0235892	0.8020335
Off-site Laboratory Analysis - SVOCs	sample	28	0.0715602	2.0036851	7.870422	220.37182	0.1459445	4.0864466	0.3373038	9.4445064	0.0504853	1.4135895	0.0372577	1.0432167
Notes:														
Resource Extraction for Electricity														
Coal extraction and processing	MWh	0.097295	3.1	0.2971195	180.0	17.5131	0.8	0.0749172	0.2	0.0145943	0.0	0.0017513	NP	
Natural gas extraction and processing	MWh	0.108141	1.6	0.1764645	270.0	29.19807	0.2	0.0194654	13.0	1.405833	0.0	0.0007678	NP	
Nuclear fuel extraction and processing	MWh	0.063162	0.2	0.0098199	25.0	1.57905	0.2	0.0094743	0.5	0.031581	0.0	9.474E-05	NP	
Oil extraction and processing	MWh	0.002233	2.3	0.0051256	270.0	0.60291	1.7	0.0037961	0.1	0.0001541	0.0	9.379E-05	NP	
Other fuel extraction and processing	MWh	0.000319	0	0	0	0	0	0	0	0	0	0	0	0
Resource Extraction Subtotals				**0.4885295**		**48.89313**		**0.1076529**		**1.4521623**		**0.0027076**		**0**
Notes:														
Electricity Transmission														
Transmission and distribution losses	MWh	0.319	1.0342	0.3299098										
Notes:														

All Components - Off-Site Footprint (Scope 3b)

Category	Units	Usage	Energy		Greenhouse Gas		NOx		SOx		PM		HAPs	
			Conv. Factor	MMBtus	Conv. Factor	lbs CO2e	Conv. Factor	lbs	Conv. Factor	lbs	Conv. Factor	lbs	Conv. Factor	lbs
User-defined Materials														
User-defined material #1	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined material #2	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined material #3	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined material #4	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined material #5	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined material #6	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined material #7	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined material #8	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined material #9	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined material #10	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined material #11	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined material #12	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined material #13	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined material #14	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined material #15	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined material #16	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined material #17	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined material #18	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined material #19	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined material #20	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
Notes:														
User-defined Waste Destinations														
User-defined recycled/reused off-site #1	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined recycled/reused off-site #2	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined recycled/reused off-site #3	TBD	0	y(MMBtu/t		(lbs CO2e/t		Ox(lbs/unit)		Ox(lbs/unit)		M(lbs/unit)		APs(lbs/unit	
User-defined non-hazardous waste destination #1	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined non-hazardous waste destination #2	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined non-hazardous waste destination #3	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined hazardous waste destination #1	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined hazardous waste destination #2	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined hazardous waste destination #3	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
Notes:														
Off-site Totals				**710177.79**		**13228076**		**47648.47**		**141375.73**		**21999.903**		**19056.356**

All Components - Intermediate Totals

Category	Units	Usage	Energy		Greenhouse Gas		NOx		SOx		PM		HAPs	
			Conv. Factor	MMBtus	Conv. Factor	lbs CO2e	Conv. Factor	lbs	Conv. Factor	lbs	Conv. Factor	lbs	Conv. Factor	lbs
Total Grid Electricity Footprint														
On-site grid electricity	MWh	0.319	3.413	1.088747										
Electricity Generation														
Grid electricity	MWh	0.319	6.929	2.210351	1124.3	358.6517	2.2421	0.7152299	4.6078874	1.4699161	0.057518	0.0183482	0.2102371	0.0670656
Resource Extraction for Electricity														
Coal extraction and processing	MWh	0.097295	3.1	0.2971195	180.0	17.5131	0.8	0.0749172	0.2	0.0145943	0.0	0.0017513	NP	
Natural gas extraction and processing	MWh	0.108141	1.6	0.1764645	270.0	29.19807	0.2	0.0194654	13.0	1.405833	0.0	0.0007678	NP	
Nuclear fuel extraction and processing	MWh	0.063162	0.2	0.0098199	25.0	1.57905	0.2	0.0094743	0.5	0.031581	0.0	9.474E-05	NP	
Oil extraction and processing	MWh	0.002233	2.3	0.0051256	270.0	0.60291	1.7	0.0037961	0.1	0.0001541	0.0	9.379E-05	NP	
Other fuel extraction and processing	MWh	0.000319	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0
Electricity Transmission														
Transmission and distribution losses	MWh	0.319	1.0342	0.3299098	112.43	35.86517	0.22421	0.071523	0.4607887	0.1469916	0.0057518	0.0018348	0.0210237	0.0067066
Total Grid Electricity Footprint				**4**		**443**		**1**		**3**		**0**		**0**
Total Fuel Footprints														
Total Gasoline Footprint														
On-site gasoline use - Other	gal	0	0.124	0	19.6	0	0.11	0	0.0045	0	0.00054	0	0.000039	0
On-site gasoline use <25 hp	gal	0	0.124	0	17.48	0	0.037	0	0.00025	0	0.165	0	0.00008	0
On-site gasoline use >25 hp	gal	0	0.124	0	19.93	0	0.032	0	0.00029	0	0.002	0	0.00009	0
Transportation gasoline use	gal	0	0.124	0	19.6	0	0.11	0	0.0045	0	0.00054	0	0.000039	0
Transportation gasoline use - car	gal	0	0.124	0	19.77	0	0.027	0	0.00036	0	0.003	0	0.0067	0
Transportation gasoline use - passenger truck	gal	317.5	0.124	39.37	19.79	6283.325	0.035	11.1125	0.00036	0.1143	0.003	0.9525	0.00661	2.098675
Transportation gasoline use - User Defined	gal	0	0.124	0	19.6	0	0.11	0	0.0045	0	0.00054	0	0.000039	0
Gasoline produced	gal	317.5	0.033	10.4775	2.8	889	0.0046	1.4605	0.005	1.5875	0.0015	0.47625	0.001	0.3175
Total Gasoline Footprint		**317.5**		**49.8475**		**7172.325**		**12.573**		**1.7018**		**1.42875**		**2.416175**
Total Diesel Footprint														
On-site diesel use - Other	gal	24806.25	0.139	3448.0688	22.5	558140.63	0.17	4217.0625	0.0054	133.95375	0.0034	84.34125	0.0000052	0.1289925
On-site diesel use <75 hp	gal	0	0.139	0	22.21	0	0.1565	0	0.000145	0	0.0145	0	0.00004	0
On-site diesel use 75<hp<750	gal	0	0.139	0	22.24	0	0.101	0	0.00013	0	0.009	0	0.00004	0
On-site diesel use >750 hp	gal	0	0.139	0	22.24	0	0.149	0	0.00013	0	0.006	0	0.00004	0
Transportation diesel use	gal	29707.167	0.139	4129.2962	22.5	668411.26	0.17	5050.2184	0.0054	160.4187	0.0034	101.00437	0.0000052	0.1544773
Transportation diesel use - car	gal	0	0.139	0	22.57	0	0.015	0	0.0002	0	0.003	0	0.00252	0
Transportation diesel use - passenger truck	gal	0	0.139	0	22.545	0	0.0585	0	0.0002	0	0.007	0	0.002605	0
Transportation diesel use - User Defined	gal	0	0.139	0	22.5	0	0.17	0	0.0054	0	0.0034	0	0.0000052	0
Diesel produced	gal	54513.417	0.017	926.72809	3.02	164630.52	0.0051	278.01843	0.0062	337.98319	0.0017	92.672809	0.0011	59.964759
Total Diesel Footprint		**54513.417**		**8504.0931**		**1391182.4**		**9545.2993**		**632.35564**		**278.01843**		**60.248228**
Total Biodiesel Footprint														
On-site biodiesel use	gal	0	0.127	0	22.3	0	0.2	0	0	0	0.00099	0	NP	
On-site biodiesel use - User Defined	gal	0	0.127	0	22.3	0	0.2	0	0	0	0.00099	0	NP	
Transportation biodiesel use	gal	0	0.127	0	22.3	0	0.2	0	0	0	0.00099	0	NP	
Transportation biodiesel use - User Defined	gal	0	0.127	0	22.3	0	0.2	0	0	0	0.00099	0	NP	
Biodiesel produced	gal	0	0.029	0	-16.8	0	0.018	0	0.033	0	0.00082	0	NP	
Total Biodiesel Footprint		**0**		**0**		**0**		**0**		**0**		**0**		**0**
Total Natural Gas Footprint														
On-site natural gas use	ccf	0	0.103	0	13.1	0	0.01	0	0.0000063	0	0.00076	0	0.0000084	0
Transportation natural gas use	ccf	0	0.103	0	13.1	0	0.01	0	0.0000063	0	0.00076	0	0.0000084	0
Transportation natural gas use - User Defined	ccf	0	0.103	0	13.1	0	0.01	0	0.0000063	0	0.00076	0	0.0000084	0
Natural gas produced	ccf	0	0.0052	0	2.2	0	0.0037	0	0.0046	0	0.000072	0	0.0000061	0
Total Natural Gas Footprint		**0**		**0**		**0**		**0**		**0**		**0**		**0**
Total Liquified Petroleum Gas Footprint														
On-site liquified petroleum gas use - Other	ccf	0	NP		12.69	0	0.021	0	0.00013	0	0.001	0	0	0
On-site liquified petroleum gas use	ccf	0	NP		12.69	0	0.021	0	0.00013	0	0.001	0	0	0
Liquified petroleum gas produced	ccf	0	0.088	0	1.47	0	0.0016	0	0.0024	0	0.0007	0	0.0003	0
Total Natural Gas Footprint		**0**		**0**		**0**		**0**		**0**		**0**		**0**
Total Compressed Gas Footprint														
On-site compressed gas use - Other	ccf	0	NP		1957.835	0	16.0325	0	0.023045	0	0.2775	0	0	0
On-site compressed gas use	ccf	0	NP		1957.835	0	16.0325	0	0.023045	0	0.2775	0	0	0
Compressed gas produced	ccf	0	19.983	0	343.92	0	0.4732	0	2.1651	0	0.1846	0	0.2895	0
Total Natural Gas Footprint		**0**		**0**		**0**		**0**		**0**		**0**		**0**

Notes:

Note: Please refer to the "Default Conversions" tab for references for the default conversion factors used on this calculation sheet.

Space below available for notes and calculations:

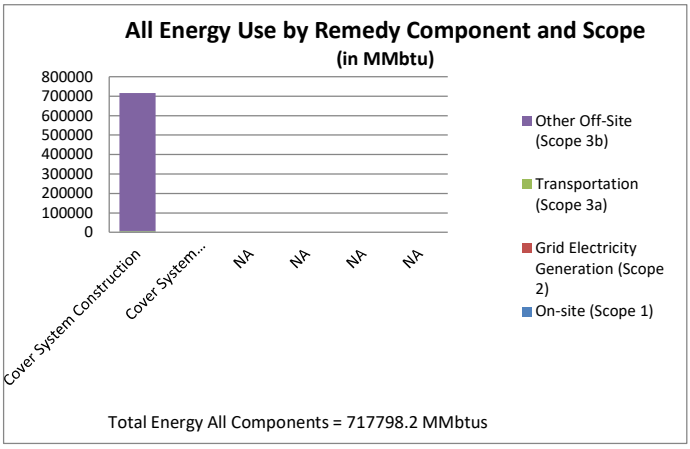
Environmental Footprint Summary

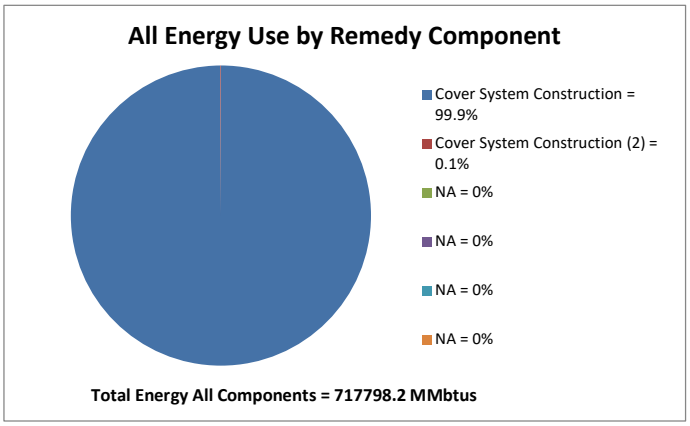
Core Element	Metric		Unit of Measure	Footprint						
				Cover System Construction	Cover System Construction (2)	NA	NA	NA	NA	Total
Materials & Waste	M&W-1	Refined materials used on-site	Tons	11,925.9	0.0	0.0	0.0	0.0	0.0	11,925.9
	M&W-2	% of refined materials from recycled or reused material	%	0.0%						0.0%
	M&W-3	Unrefined materials used on-site	Tons	325.000	0.000	0.000	0.000	0.000	0.000	325.0
	M&W-4	% of unrefined materials from recycled or reused material	%	0.0%						0.0%
	M&W-5	On-site hazardous waste disposed of off-site	Tons	6,500.0	0.0	0.0	0.0	0.0	0.0	6,500.0
	M&W-6	On-site non-hazardous waste disposed of off-site	Tons	12,200.0	0.0	0.0	0.0	0.0	0.0	12,200.0
	M&W-7	Recycled or reused waste	Tons	1,000.0	0.0	0.0	0.0	0.0	0.0	1,000.0
	M&W-8	% of total potential waste recycled or reused	%	5.1%						5.1%
Water (used on-site)	W-1	Public water use	MG	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	W-2	Groundwater use	MG	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	W-3	Surface water use	MG	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	W-4	Reclaimed water use	MG	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	W-5	Storm water use	MG	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	W-6	User-defined water resource #1	MG	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	W-7	User-defined water resource #2	MG	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	W-8	Wastewater generated	MG	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Energy	E-1	Total energy used (on-site and off-site)	MMBtu	717,244.8	553.4	0.0	0.0	0.0	0.0	717,798.2
	E-2	Energy voluntarily derived from renewable resources								
	E-2A	On-site renewable energy generation or use + on-site biodiesel use + biodiesel and other renewable resource use for transportation	MMBtu	0.4	0.0	0.0	0.0	0.0	0.0	0.4
	E-2B	Voluntary purchase of renewable electricity	MWh	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	E-3	Voluntary purchase of RECs	MWh	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	E-4	On-site grid electricity use	MWh	0.319	0.000	0.000	0.000	0.000	0.000	0.3
Air	A-1	On-site NOx, SOx, and PM emissions	Pounds	3,808.4	626.9	0.0	0.0	0.0	0.0	4,435.4
	A-2	On-site HAP emissions	Pounds	0.1	0.0	0.0	0.0	0.0	0.0	0.1
	A-3	Total NOx, SOx, and PM emissions	Pounds	220,105.2	680.5	0.0	0.0	0.0	0.0	220,785.7
	A-3A	Total NOx emissions	Pounds	56,306.4	621.2	0.0	0.0	0.0	0.0	56,927.7
	A-3B	Total SOx emissions	Pounds	141,630.7	41.2	0.0	0.0	0.0	0.0	141,671.8
	A-3C	Total PM emissions	Pounds	22,168.1	18.1	0.0	0.0	0.0	0.0	22,186.2
	A-4	Total HAP emissions	Pounds	19,054.9	3.9	0.0	0.0	0.0	0.0	19,058.8
	A-5	Total greenhouse gas emissions	Tons CO2e*	7,185.4	45.3	0.0	0.0	0.0	0.0	7,230.7
Land & Ecosystems	Qualitative Description									

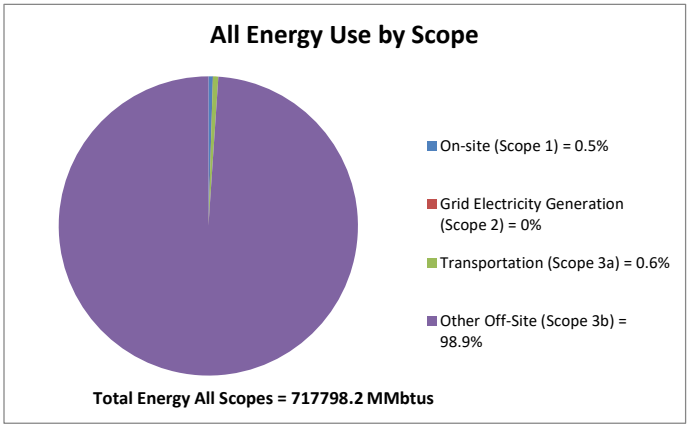
** Total greenhouse gases emissions (in CO2e) include consideration of CO2, CH4, and N2O (Nitrous oxide) emissions.*
"MMBtu" = millions of Btus
"MG" = millions of gallons
"CO2e" = carbon dioxide equivalents of global warming potential
"MWh" = megawatt hours (i.e., thousands of kilowatt-hours or millions of Watt-hours)
"Tons" = short tons (2,000 pounds)

The above metrics are consistent with EPA's Methodology for Understanding and Reducing a Project's Environmental Footprint (EPA 542-R-12-002), February 2012

Notes:







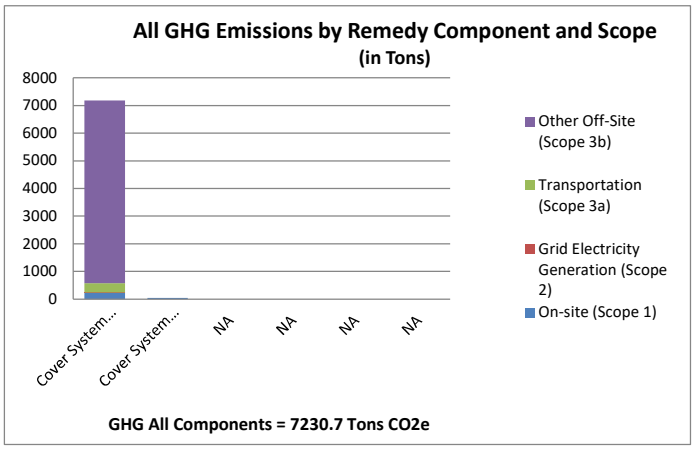
Total Energy MMbtus

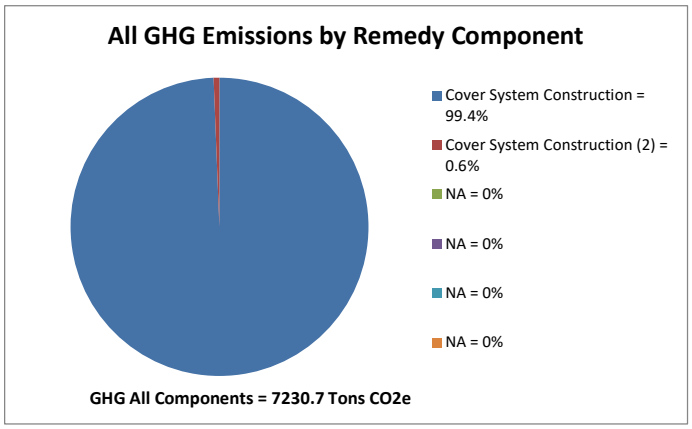
	Cover Syst	Cover Syst	NA	NA	NA	NA	Total	
On-site (Scope 1)	2,962.2	487.4	0.0	0.0	0.0	0.0	3,449.6	
Generation (Scope 2)	2.2	0.0	0.0	0.0	0.0	0.0	2.2	Electricity
nsportation (Scope 3a)	4,162.9	5.8	0.0	0.0	0.0	0.0	4,168.7	Tran
her Off-Site (Scope 3b)	710,117.5	60.3	0.0	0.0	0.0	0.0	710,177.8	Oth
Total	717,244.8	553.4	0.0	0.0	0.0	0.0	717,798.2	

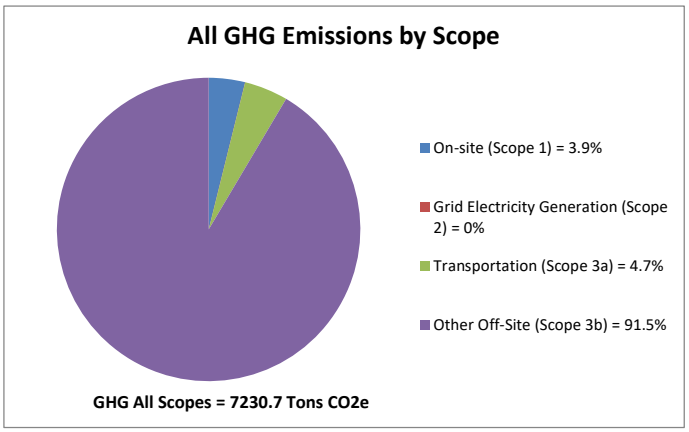
Cover System Construction = 99.9%
Cover System Construction (2) = 0.1%
NA = 0%
NA = 0%
NA = 0%
NA = 0%

On-site (Scope 1) = 0.5%
Grid Electricity Generation (Scope 2) = 0%
Transportation (Scope 3a) = 0.6%
Other Off-Site (Scope 3b) = 98.9%

Total Energy All Components = 717798.2 MMbtus
Total Energy All Scopes = 717798.2 MMbtus







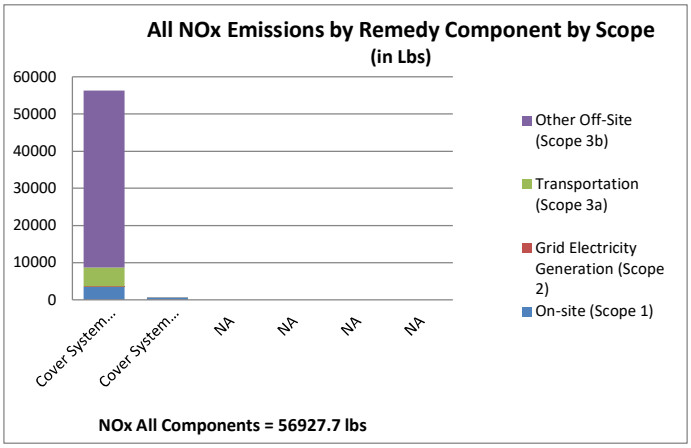
GHG
Tons CO2e

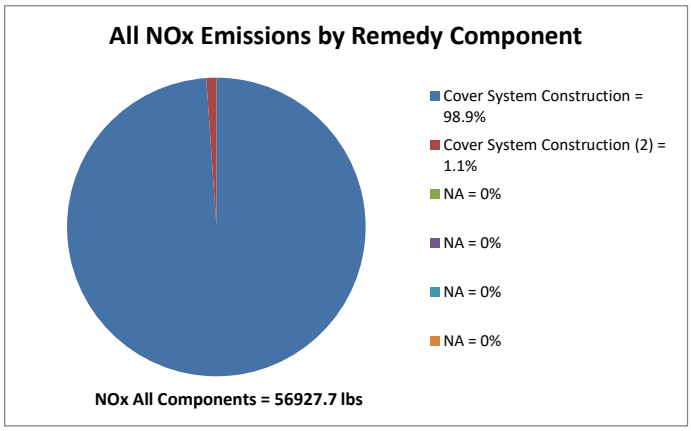
	Cover Syst	Cover Syst	NA	NA	NA	NA	Total	
On-site (Scope 1)	239.6	39.4	0.0	0.0	0.0	0.0	279.1	
Generation (Scope 2)	0.2	0.0	0.0	0.0	0.0	0.0	0.2	Electricity
sportation (Scope 3a)	336.9	0.5	0.0	0.0	0.0	0.0	337.3	Tran
er Off-Site (Scope 3b)	6,608.7	5.4	0.0	0.0	0.0	0.0	6,614.1	Oth
Total	7,185.4	45.3	0.0	0.0	0.0	0.0	7,230.7	

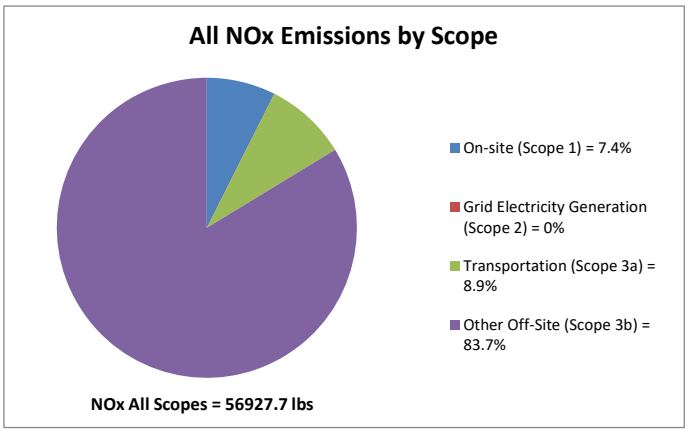
Cover System Construction = 99.4%
Cover System Construction (2) = 0.6%
NA = 0%
NA = 0%
NA = 0%
NA = 0%

On-site (Scope 1) = 3.9%
Grid Electricity Generation (Scope 2) = 0%
Transportation (Scope 3a) = 4.7%
Other Off-Site (Scope 3b) = 91.5%

GHG All Components = 7230.7 Tons CO2e
GHG All Scopes = 7230.7 Tons CO2e







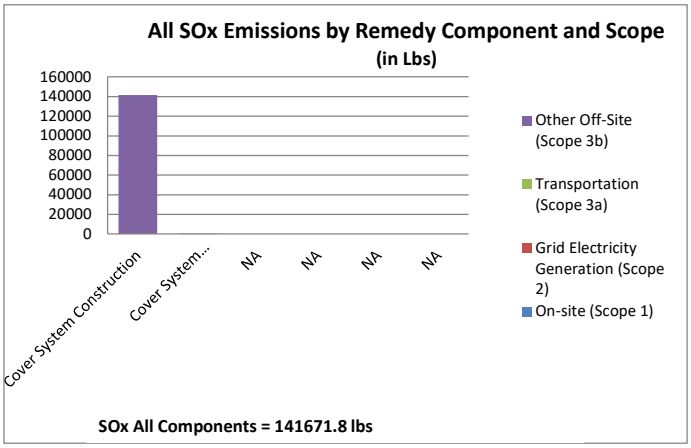
NOx lbs

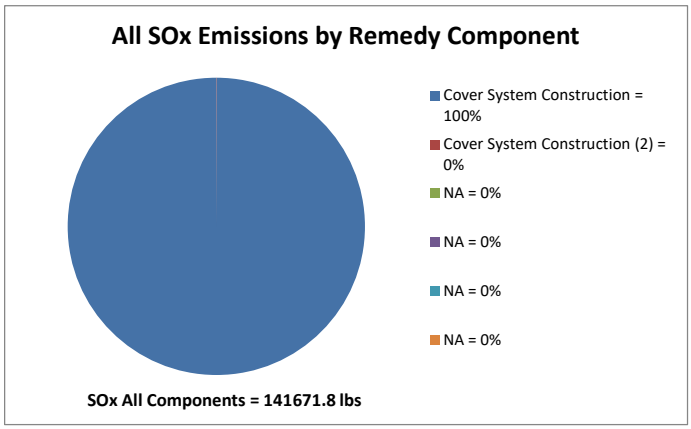
	Cover Syst	Cover Syst	NA	NA	NA	NA	Total	
On-site (Scope 1)	3,621.0	596.1	0.0	0.0	0.0	0.0	4,217.1	
Generation (Scope 2)	0.7	0.0	0.0	0.0	0.0	0.0	0.7	l Electricity
ısportation (Scope 3a)	5,054.3	7.1	0.0	0.0	0.0	0.0	5,061.3	Tran
ıer Off-Site (Scope 3b)	47,630.4	18.1	0.0	0.0	0.0	0.0	47,648.5	Oth
Total	56,306.4	621.2	0.0	0.0	0.0	0.0	56,927.7	

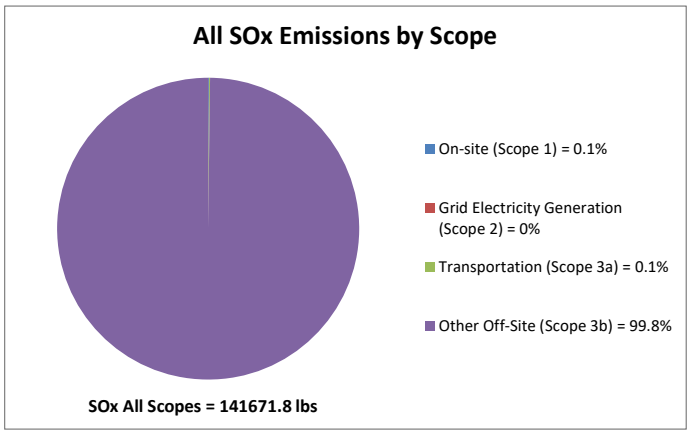
Cover System Construction = 98.9%
Cover System Construction (2) = 1.1%
NA = 0%
NA = 0%
NA = 0%
NA = 0%

On-site (Scope 1) = 7.4%
Grid Electricity Generation (Scope 2) = 0%
Transportation (Scope 3a) = 8.9%
Other Off-Site (Scope 3b) = 83.7%

NOx All Components = 56927.7 lbs
NOx All Scopes = 56927.7 lbs







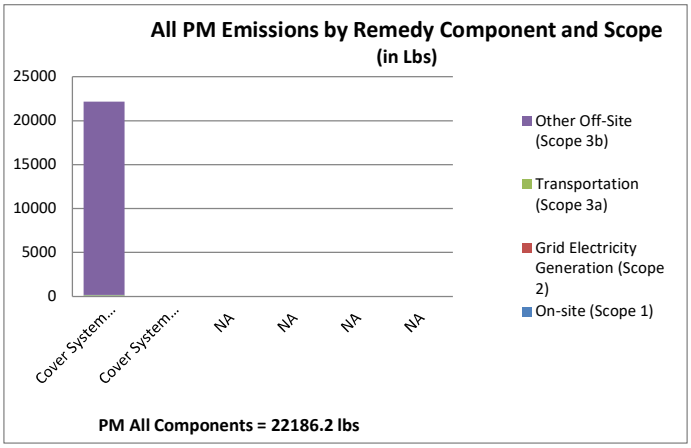
SOx lbs

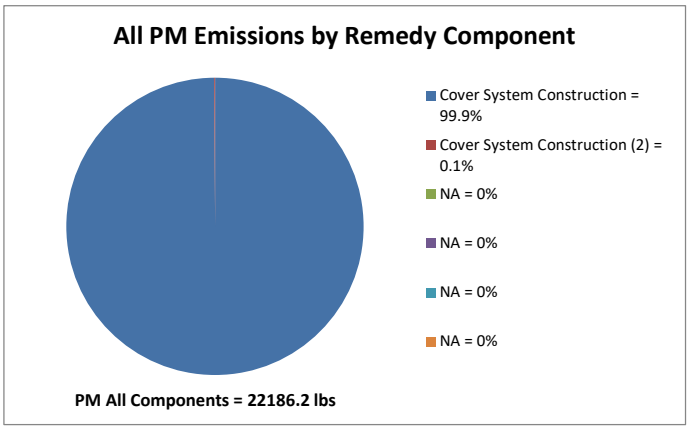
	Cover Syst	Cover Syst	NA	NA	NA	NA	Total	
On-site (Scope 1)	115.0	18.9	0.0	0.0	0.0	0.0	134.0	
Generation (Scope 2)	1.5	0.0	0.0	0.0	0.0	0.0	1.5	Electricity
sportation (Scope 3a)	160.3	0.2	0.0	0.0	0.0	0.0	160.5	Tran
er Off-Site (Scope 3b)	141,353.9	22.0	0.0	0.0	0.0	0.0	141,375.9	Oth
Total	141,630.7	41.2	0.0	0.0	0.0	0.0	141,671.8	

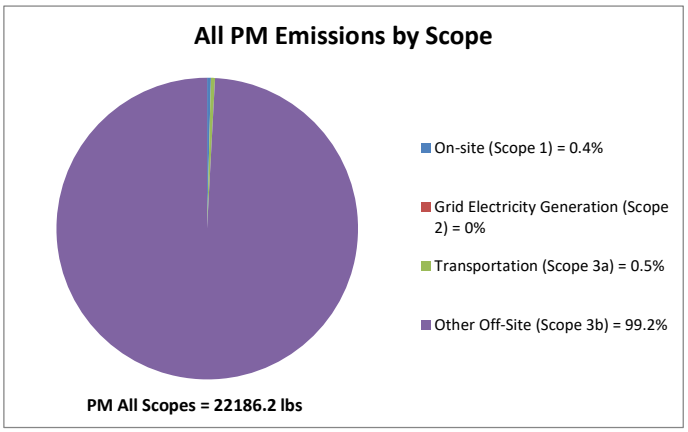
Cover System Construction = 100%
Cover System Construction (2) = 0%
NA = 0%
NA = 0%
NA = 0%
NA = 0%

On-site (Scope 1) = 0.1%
Grid Electricity Generation (Scope 2) = 0%
Transportation (Scope 3a) = 0.1%
Other Off-Site (Scope 3b) = 99.8%

SOx All Components = 141671.8 lbs
SOx All Scopes = 141671.8 lbs







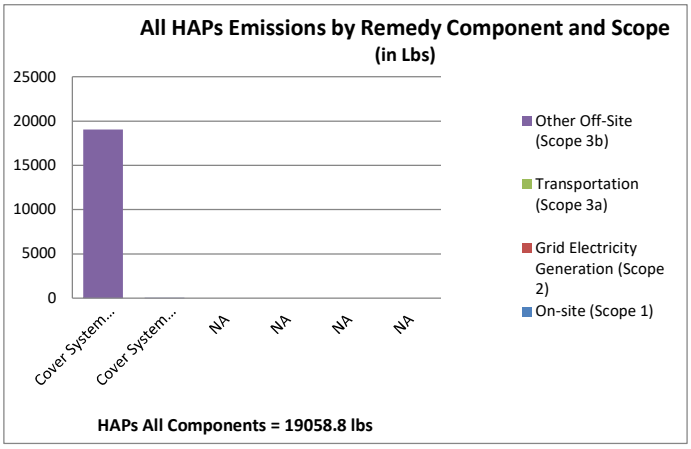
PM lbs

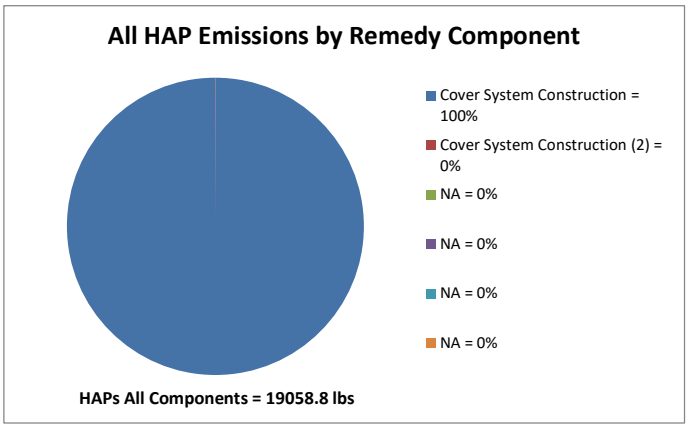
	Cover Syst	Cover Syst	NA	NA	NA	NA	Total	
On-site (Scope 1)	72.4	11.9	0.0	0.0	0.0	0.0	84.3	
Generation (Scope 2)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	l Electricity
sportation (Scope 3a)	101.8	0.1	0.0	0.0	0.0	0.0	102.0	Tran
er Off-Site (Scope 3b)	21,993.9	6.0	0.0	0.0	0.0	0.0	21,999.9	Oth
Total	22,168.1	18.1	0.0	0.0	0.0	0.0	22,186.2	

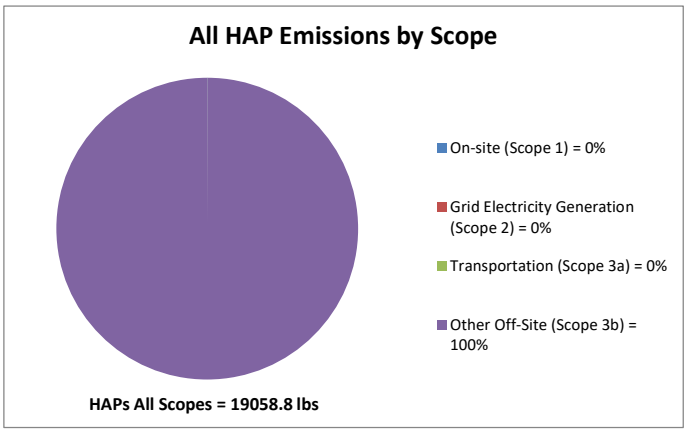
Cover System Construction = 99.9%
Cover System Construction (2) = 0.1%
NA = 0%
NA = 0%
NA = 0%
NA = 0%

On-site (Scope 1) = 0.4%
Grid Electricity Generation (Scope 2) = 0%
Transportation (Scope 3a) = 0.5%
Other Off-Site (Scope 3b) = 99.2%

PM All Components = 22186.2 lbs
PM All Scopes = 22186.2 lbs







HAPs
lbs

	Cover Syst	Cover Syst	NA	NA	NA	NA	Total
On-site (Scope 1)	0.1	0.0	0.0	0.0	0.0	0.0	0.1
Generation (Scope 2)	0.1	0.0	0.0	0.0	0.0	0.0	0.1
ısportation (Scope 3a)	2.3	0.0	0.0	0.0	0.0	0.0	2.3
ıer Off-Site (Scope 3b)	19,052.5	3.9	0.0	0.0	0.0	0.0	19,056.4
Total	19,054.9	3.9	0.0	0.0	0.0	0.0	19,058.8

Cover System Construction = 100%
Cover System Construction (2) = 0%
NA = 0%
NA = 0%
NA = 0%
NA = 0%

On-site (Scope 1) = 0%
Grid Electricity Generation (Scope 2) = 0%
Transportation (Scope 3a) = 0%
Other Off-Site (Scope 3b) = 100%

HAPs All Components = 19058.8 lbs
HAPs All Scopes = 19058.8 lbs

All - Energy & Air Compiled Results

Category	Total Energy	GHG	NOx	SOx	PM	NOx + SOx + PM	HAPs
	MMbtus	lbs CO2e	lbs	lbs	lbs	lbs	lbs
On-site (Scope 1)	**3,450**	**558,141**	**4,217**	**134**	**84**	**4,435**	**0**
Grid Electricity Generation (Scope 2)	**2.210**	**359**	**1**	**1**	**0**	**2**	**0**
Transportation (Scope 3a)	**4,169**	**674,695**	**5,061**	**161**	**102**	**5,324**	**2**
Other Off-Site (Scope 3b)	**710,178**	**13,228,076**	**47,648**	**141,376**	**22,000**	**211,024**	**19,056**
Remedy Totals	**717,798**	**14,461,270**	**56,928**	**141,672**	**22,186**	**220,785**	**19,059**

Values that are forwarded to the "Summary" tab are indicated in orange.

Voluntary Renewable Energy Use	Unit	Quantity	
On-site renewable energy generation or use	MMBtu	**0**	
On-site biodiesel use	MMBtu	**0**	
Biodiesel and other renewable resource use for transportation	MMBtu	**0**	
On-site renewable energy generation or use + on-site biodiesel use + biodiesel and other renewable resource use for transportation	MMBtu	**0**	*(This value is the sum of the three rows above)*
Voluntary purchase of renewable electricity	MWh	**0**	
Voluntary purchase of RECs	MWh	**0**	

This worksheet is not intended for user input. Values on this worksheet are obtained from the following file: SEFA_calculations_(121718).xlsx

Appendix F

Health and Safety Plan

C&S Engineers, Inc.
499 Colonel Eileen Collins Blvd.
Syracuse, New York 13212



Health and Safety Plan

Old Erie Commons
160 Center Street, Canastota, New York
BCP Site No. C727015

Prepared for:

Old Erie Commons, LLC
1201 East Fayette Street
Syracuse, New York

November 2025

C&S Project No. W96.013.001

Health and Safety Plan

Old Erie Commons
160 Center Street
Canastota, Madison County, New York
BCP Site No. C727015

Prepared for:

Old Erie Commons LLC
1201 East Fayette Street
Syracuse, New York

Prepared by:

C&S Engineers, Inc.
499 Col. Eileen Collins Boulevard
Syracuse, New York 13212

November 2025

C&S Project#: W96.013.001

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APPENDICES

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EMERGENCY PHONE NUMBERS

Emergency Service 911

Police: Canastota Village Police Department ..... (315) 697-8888

Fire: Canastota Village Fire Department ..... (315) 697-3341

Hospital: Oneida Health Emergency Room ..... (315) 361-2024

Village of Canastota Department of Public Works ..... (315) 697-7042

National Response Center ..... (800) 424-8802

Poison Control Center ..... (800) 222-1222

Center for Disease Control ..... (800) 311-3435

NYSDEC Region 7 (Syracuse, New York) ..... (315) 426-7551

Brittany O'Brien-Drake (NYSDEC Project Manager) ..... (518) 402-9672

Aaron Keegan (NYSDOH Public Health Specialist) ..... (518) 402-1943

C&S Engineers ..... (315) 455-2000

Jamie Kowalczk (Madison County) ..... (315) 366-2376

Diana Jakimoski (Old Erie Commons LLC) ..... (315) 472-3820

1.0 GENERAL INFORMATION

This Health and Safety Plan (HASP) addresses health and safety considerations for the activities that personnel employed by C&S Engineers, Inc., may be engaged in during site investigation and remedial activities at the Old Erie Commons BCP Site located at 160 Center Street, in the Village of Canastota, Madison County, New York; hereby, referred to as (Site). This HASP will be implemented by the Health and Safety Officer (HSO) during site work. All personnel engaged in the Phase II Environmental Site Investigation are required to maintain current HAZWOPER training, including initial 40-hour training, on-the-job training, and consistent annual 8-hour refresher training, as per the requirements of 29 CFR 1910.120.

Compliance with this HASP is required of C&S personnel who enter this Site. The content of the HASP may change or undergo revision based upon additional information made available to the health, safety, and training (H&S) committee, monitoring results or changes in the technical scope of work. Any changes proposed must be reviewed by the H&S committee.

1.1 Responsibilities

Project Manager ..... Matt Walker
Phone: (315) 703-4323
Cell: (315) 200-5872

C&S Health and Safety Director ..... Mike Sherlock
Phone: (315) 703-4210
Cell: (315) 420-3455

Site Health and Safety Officer ..... Nick Coulombe
Phone: (315) 703-4281
Cell: (315) 720-8682

Emergency Coordinator ..... Nick Coulombe
Phone: (315) 703-4281
Cell: (315) 720-8682

1.2 Applicable Standards and Regulations References

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by basic designation only. Where a conflict or overlap among regulations and/or these specifications exist, the most stringent requirements shall apply. C&S's Project Manager will determine which requirements are most stringent.

- **AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI)**
  - ANSI Z89.1, Personnel Protective Equipment-Protective Headwear for Industrial Workers-Requirements (Latest Revision)

- ANSI Z87.1, Occupational and Educational Personal Eye and Face Protection Devices
- ANSI Z9.2, Fundamentals Governing the Design and Operation of Local Exhaust Systems
- ANSI Z88.2-80, Practices for Respiratory Protection

- **CODE OF FEDERAL REGULATIONS (CFR)**
  - 29 CFR Subpart D Walking-Working Surfaces
  - 29 CFR 1910 Occupational Safety and Health Standards-All Sections
  - 29 CFR 1926 Safety and Health Regulations for Construction-All Sections
  - 40 CFR 50.6 National Primary and Secondary Ambient Air Quality Standards for Particulate Matter
  - 40 CFR 61 National Emissions Standards for Hazardous Air Pollutants (NESHAPS)-Subpart A-General Provisions
  - 49 CFR 172 Hazardous Material Table, Special Provisions, Hazardous Materials Communications, Emergency Response Information, and Training Requirements

- **NATIONAL INSTITUTE FOR OCCUPATIONAL SAFETY AND HEALTH (NIOSH)**
  - Publication Number 87-108 Respiratory Decision Logic
  - NIOSH/OSHA Booklet 3142 Lead in Construction
  - Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities (NIOSH Publication 85-115)

- **U.S. DEPARTMENT OF LABOR, OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA)**
  - PUB 3126 Working with Lead in the Construction Industry
  - 29 CFR 1910, Subpart I, Appendix B-Non-Mandatory Compliance Guidelines for Hazard Assessment and Personal Protective Equipment Selection

2.0 HEALTH AND SAFETY PERSONNEL

The following information briefly describes the health and safety designations and general responsibilities for this Site.

2.1 Project Manager (PM)

The PM is responsible for the overall project including the implementation of the HASP. Specifically, this includes allocating adequate manpower, equipment, and time resources to conduct Site activities safely.

2.2 Health and Safety Manager

- Has the overall responsibility for coordinating and reporting health and safety activities and the health and safety of Site Workers.
- Must have completed, at a minimum, the OSHA 30-Hour Construction Safety Training, and either the 24-Hour training course for the Occasional Hazardous Waste Site Worker or the 40-Hour training course for the Hazardous Waste Operations Worker that meets OHSA 29 CFR 1910.
- Must have completed the 8-Hour Site supervisor/manager's course for supervisors and managers having responsibilities for hazardous waste Site operations and management.
- Directs and coordinates health and safety monitoring activities.
- Ensures that field teams utilize proper personal protective equipment (PPE).
- Conducts initial on-site specific training prior to Site Workers commencing work.
- Conducts and documents daily and periodic safety briefings.
- Ensures that field team members comply with this HASP.
- Immediately notifies the Project Manager of all accident / incidents.
- Determines upgrading or downgrading of PPE based on Site conditions and/or real time monitoring results.
- Ensures that monitoring instruments are calibrated daily or as the manufacturer's instructions determine.
- Provides daily summaries of field operations and progress to the Project Manager.

- Submits and maintains all documentation required in this HASP and any other pertinent health and safety documentation.

2.3 Health and Safety Officer (HSO)

- Must be designated by the Health and Safety Manager and at a minimum, have the OSHA 10-Hour Construction Safety Training.

- Must schedule and attend a Pre-Construction Safety Meeting with the Health and Safety Manager to discuss the Subcontractor Safety Requirements and must attend the Weekly Subcontractor Coordination Meeting.

- Responsible for ensuring subcontractors and their lower tier contractors comply with project safety requirements.

- Must make frequent and regular inspections of their work areas and activities and ensure hazards that are under their control are corrected immediately and all other hazards are reported to the Project Manager and Health and Safety Manager.

- Must report all work-related injuries, regardless of severity, to the Project Manager and the Health and Safety Manager within 24 hours after they occur.

2.4 Emergency Coordinator

- The Emergency Coordinator or his on-site designee will, in coordination with the Authority / Agency having Jurisdiction, implement the emergency response procedures outlined in Section 12 whenever conditions at the Site warrant such action.

- The Emergency Coordinator or his on-site designee will be responsible for assuring the evacuation, emergency treatment, emergency transport of C&S personnel as necessary, and notification of emergency response units (refer to phone listing in the beginning of this HASP) and the appropriate management staff.

2.5 Site Workers

- Report any unsafe or potentially hazardous conditions to the HSO and the Health and Safety Manager.

- Maintain knowledge of the information, instructions, and emergency response actions contained in the HASP.

- Comply with rules, regulations, and procedures as set forth in this HASP, including any revisions that are instituted.

- Prevent unauthorized personnel from entering work Site.

3.0 SITE HAZARDS EVALUATION

3.1 Chemical Hazards

3.1.1 Nature of Chemical Hazards

The specific contaminants currently known to exist in each media are as follows:

Media	Contaminant Class	Identified Compounds
Soil	VOCs	Acetone
	SVOCs	Benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, chrysene, dibenzo(a,h)anthracene, indeno(1,2,3-cd)pyrene
	Pesticides	4,4'-DDD, 4,4-DDE, 4,4'-DDT
	PCBs	Aroclor 1254
	Metals	Arsenic, barium, copper, lead, mercury, zinc
	PFAS	PFOS, PFOA
Groundwater	SVOCs	Benzo(a)anthracene
	Metals	Iron, magnesium, sodium
	PFAS	PFOS

3.1.2 Common Routes of Exposure

The contaminants at the Site may enter the human body in a variety of ways. Based on the nature of site contaminants, the chemical routes of exposure anticipated from the remedial activities at this site include:

Table 3-1: Routes of Exposure

Route	Mechanism	Control
Absorption	Dermal (skin) contact with impacted soil on-site resulting in absorption of chemicals of concern through the skin and into the blood stream.	Proper use of PPE will minimize risks of exposure at the site.
Ingestion	Chemicals / materials of concern can come in direct contact with the mouth from soil or other contaminated areas (PPE, skin, tools, etc.) and enter the bloodstream through the stomach lining.	Proper care in handling PPE and tools, refraining from eating and drinking at the Site, and frequent hand washing with soap and water will minimize risks of exposure.

Route	Mechanism	Control
Inhalation	Volatile vapors and/or contaminants attached to dust and particulates can be entrained by wind and become airborne across the site and be subsequently inhaled through the nose and / or mouth. This exposure route is the most likely way for worker exposure to occur.	Conduct monitoring of air quality for VOCs in worker breathing zones. Employ methods that minimize the creation of dust and utilize dust suppression techniques to minimize dust and particulates. Respirators with appropriate filtration and organic adsorption cartridges should be available to on-site workers in case volatile compounds become a nuisance or health hazard.

3.2 Physical Hazards

Based upon the anticipated field activities, the following potential physical hazardous conditions may exist:

Table 3-2: Physical Hazards

Category	Mechanism	Control
Mechanical Equipment	The use of typical mechanical equipment such as drill rigs and sampling vehicles can create a potential for crushing and pinching hazards due to movement and positioning of the equipment, movement of lever arms and hydraulics, and entanglement of clothing and appendages in exposed drives and tracks. Mechanical equipment can also create a potential for impact of steel tools, masts, and cables should equipment rigging fail, or other structural failures occur during hydraulic equipment operation.	Heavy equipment work must be conducted only by trained, experienced personnel. If possible, personnel must remain outside the turning radius of large, moving equipment. At a minimum, personnel must maintain visual contact with the equipment operator. When not operational, equipment must be set and locked so that it cannot be activated, released, dropped, etc. The mechanical equipment stated above represents typical equipment that is ordinarily used during this scope of work, but is not meant to be an all-inclusive list. Similar precautions should be used around other mechanical equipment deployed to the Site that is not listed above.

Category	Mechanism	Control
Excavations and Trenches	The use of excavation/trenching such as removal of overburden soils, installation of utilities, and site grading operations can cause potential for suffocation, crushing, or other injury from falling material. Advancement of excavation and trenches can also create possible damage/failure of any installed underground utility services and create hazards. Other hazards created can included tripping, slipping, or falling. Entering an excavation or trench could have the possibility of an explosive, flammable, toxic, or oxygen-deficient atmosphere within the excavation or trench.	Ensure compliance with OSHA's construction standard for excavations (29 CFR 1926 Subpart P). Designate a Competent Person responsible for selecting and implementing the appropriate protective system(s), assuring appropriate means of access and egress for excavations greater than four (4) feet in depth, and for ensuring that potential atmospheric and physical hazards associated with any excavation / trenching activities are completed in accordance with Subpart P and other applicable OSHA Standards.
Noise	Work around large equipment often creates excessive noise. Noise can cause workers to be startled, annoyed, and/or distracted; as well as causing pain, physical damage to the ear, and temporary and/or permanent hearing loss; and can interfere with communication.	If workers are subjected to noise exceeding an 8-hour time-weighted average sound level of 85 dBA, hearing protection will be required with an appropriate noise reduction rating to comply with 29 CFR 1910.95 and to reduce noise levels below levels of concern.
Slips/Trips/Falls	Personnel may encounter slip, trip, and fall hazards associated with excavations, manways, and construction debris and materials. Precautionary measures should be taken by identifying and removing slip, trip, and fall hazards prior to commencing work.	In the event slip, trip, and fall hazards cannot be removed or minimized, site workers will be shown the location of the physical hazard and be asked to avoid it during work activities.
Fire/Explosion	The potential for fire and/or explosion emergencies is always present on the Site.	Field vehicles will be equipped with a fire extinguisher. Employees, contractors and workers must be trained in the proper use of fire suppression equipment. However, large fires that cannot be controlled with a fire extinguisher shall be handled by professionals. The proper authorities shall be notified in these instances, as well as the HSO and Health and Safety Manager.

Category	Mechanism	Control
Cold Exposure	Persons working in the outdoors in temperatures at or below freezing may be subject to frostbite. Extreme cold for a short time may cause injury to exposed body surfaces or result in a profound generalized cooling which can cause death. Areas of the body such as fingers, toes, and ears, are the most susceptible to cold stress. Ambient air temperature and wind velocity are two factors which influence the development of a cold weather injury. Local injury resulting from exposure to cold temperatures is known as "frostbite." There are several degrees of damage in which frostbite of the extremities can be categorized, as follows: • Frost nip or incipient frostbite is characterized by sudden bleaching or whitening of the skin. • Superficial frostbite occurs when the skin has a waxy or white appearance and is firm to the touch, but tissue beneath is resilient. • Deep frostbite is characterized by tissues that are cold, pale, and solid; this is an extremely serious injury.	Wear several layers of dry clothes so that you can vary the amount of clothing to match the conditions. If there is wind, wear a windbreaker, since wind increases the effects of cold air and in turn lowers your body's core temperature even faster. Don't get overheated. Sweat can dampen clothing and in turn lead to over-cooling. Keep hands, feet, ears, and face warm. These are the areas of the body where frostbite tends to strike first. Heart disease and the use of sedatives or excessive alcohol will make you more susceptible to cold stress. If you feel chilly or sleepy, or have pain in your extremities, go to a warm shelter to recover.

Category	Mechanism	Control
Heat Exposure/Stress	Heat stress can result from a number of contributing factors, including environmental conditions, clothing, and workload as well as the physical condition of the individual. Since heat stress is one of the most common injuries / symptoms associated with outdoor work conducted with direct solar load, and, in particular, because wearing PPE can increase the risk of developing heat stress, workers must be capable of recognizing the signs and symptoms of heat-related illnesses. Signs and symptoms of heat-related illnesses which all on-site personnel should be aware, include the following: • Heat rash may result from continuous exposure to heat or humid air. • Heat cramps are caused by heavy sweating and may include muscle spasms and pain in the hands, feet, and abdomen. • Heat exhaustion is indicated by pale, cool, and moist skin; heavy sweating; dizziness; nausea; and fainting. • Heat stroke is indicated by red, hot, and unusually dry skin; lack of or reduced perspiration; nausea; dizziness and confusion; rapid pulse; and coma. Immediate action must be taken to cool the body before serious injury or death occurs.	The following will steps will be taken to limit heat exposure: adjust schedules, take breaks, limit heavy work in protective clothing or in a hot environment may require more time resting than working. Schedule heavy work in the coolest part of the day. Have shaded rest shelters with chairs or benches. Drink Fluids. Sweating cools the body, but it also robs the body of fluid. Drink enough fluids to replace what you lose. You may not feel thirsty until you've become dehydrated. Drink regularly throughout the day. Don't wait until you're thirsty. Monitor for signs of potential heat exposure and stress through use of the "buddy system', with frequent communication between site personnel. Take scheduled breaks and hydrate frequently throughout the day. Maintain an adequate supply of cold water and electrolyte containing drinks in support zone of site. In the event that personnel are observed to exhibit dizziness, disorientation, heat rash, slurred speech, dry mouth, heat cramps, or other symptoms of heat stress, discontinue work immediately and move affected person(s) to a location that is free from direct sunlight and provide fluids (preferably "Gatorade" or similar product that will replenish electrolytes). Monitor condition during to evaluate whether there is notable improvement in their condition.
Utilities	Overhead and underground utilities may exist within the Work Area, which may expose workers to electrocution hazards, explosive hazards, and volatile vapors.	Dig Safely New York shall be contacted a minimum of three business days prior to initiating the field activities, to arrange for the identification and markout of buried utilities at the site. The contact number for Dig Safely New York is 1-800-962-7962. In the event of inadvertent damage to buried utilities, all work shall cease, and the situation shall be evaluated by the HSO.

3.3 Environmental Hazards

Based upon the anticipated field activities, the following potential environmental hazardous conditions may exist:

Table 3-3: Environmental Hazards

Category	Hazard	Control
Biological	Ticks, bees/wasps, mosquitos, spiders, snakes, rabid animals	There are no known species of poisonous spiders or snakes common to the area. Minimize potential exposure to by wearing wear long pants and safety shoes. Change clothing and carefully examine for evidence of insects and ticks upon undressing, immediately following return from the site. Avoid contact with any animals, either wild or domestic, that may be encountered while conducting the field activities, and notify the local office of the New York State Department of Health (NYSDOH) in the event that animals are observed to elicit strange behavior. In the event of contact with an animal that is behaving in a strange manner, the NYSDOH should be contacted immediately.
Biological	Poison Ivy, Poison Oak	Familiarize yourself with the characteristics and appearance of poison ivy and poison oak. Be cognizant of vegetation while conducting work activities. Minimize potential exposure to by wearing wear long pants and safety shoes. Change clothing immediately following return from the site.
Weather	Wet surfaces, lighting, high winds (falling objects, contaminated dust), hail, excessive heat, extreme cold, snow and ice.	Remain cognizant of weather conditions, forecasts, and changing weather conditions. Exercise extra caution during wet and inclement site conditions to minimize risk of slips and falls. Avoid work during periods of high winds to reduce risk of injury from falling objects and airborne contaminant migration. Cease work and monitor conditions in the event that lightning is observed or suspected in the area, or in the event that other weather conditions pose a health or safety hazard.

4.0 TRAINING

4.1 Site-Specific Training

Training will be provided that specifically addresses the activities, procedures, monitoring, and equipment for the Site operations prior to going on Site. Training will include familiarization with Site and facility layout, known and potential hazards, and emergency services at the Site, and details all provisions contained within this HASP. This training will also allow Site Workers to clarify anything they do not understand and to reinforce their responsibilities regarding safety and operations for their particular activity.

4.2 Task-Specific Training

For projects involving asbestos sampling, personnel will be trained to collect bulk asbestos samples using the requirements set forth in 40 CFR Part 763.92(a) (1) and (2) and 40 CFR Part. 763, Subpart. E, App. C. The training incorporates many sections of 40 CFR Part 763, but should focus on the sampling method listed in 40 CFR Part 763.86. The training includes inspection planning, bulk sampling, personal protection, and reporting. Personnel must demonstrate proficiency by identifying areas where asbestos may be found and properly collecting a bulk sample using proper methodology.

4.3 Safety Briefings

C&S project personnel will be given briefings by the HSO on a daily or as needed basis to further assist Site workers in conducting their activities safely. Pertinent information will be provided when new operations are to be conducted. Changes in work practices must be implemented due to new information made available, or if Site or environmental conditions change. Briefings will also be given to facilitate conformance with prescribed safety practices. When conformance with these practices is not occurring or if deficiencies are identified during safety audits, the project manager will be notified.

4.4 Daily Tailgate Safety Meeting

The HSO or the HSO designee will be responsible for conducting a daily tailgate safety meeting prior to start of any work activities. The contractor and workers will be responsible for attending daily tailgate safety meetings, as well as providing any additional insight into any possible hazards which might be anticipated or encountered throughout the day on the Site. The meeting will discuss any measures which will be implemented throughout the day to mitigate any hazards. The meetings are designed to create awareness of any hazards and their associated mitigation measures at the Site. If conditions at the Site change and new hazards are determined to be present, work will be stopped and an additional safety meeting will be conducted. The daily tailgate meetings discussions will be logged, as well as all who attended.

5.0 COMMUNICATIONS

A phone will be located on Site to be utilized by personnel conducting investigation. Cell phones will be the primary means of communicating with emergency support services/facilities.

6.0 PERSONAL PROTECTIVE EQUIPMENT

6.1 Personal Protective Equipment – General

The level of protection to be worn by field personnel will be defined and controlled by the HSO. Depending upon the type and levels of material present or anticipated at the site, varying degrees of protective equipment will be needed. If the possible hazards are unknown, a reasonable level of protection will be taken until sampling and monitoring results can ascertain potential risks. The levels of protection listed below are based on USEPA Guidelines. A list of the appropriate clothing for each level is also provided.

- Level A protection must be worn when a reasonable determination has been made that the highest available level of respiratory, skin, eye, and mucous membrane protection is needed. It should be noted that while Level A provides maximum available protection, it does not protect against all possible hazards. Consideration of the heat stress that can arise from wearing Level A protection should also enter into the decision-making process. Level A protection includes:
    - Open circuit, pressure-demand self-contained breathing apparatus (SCBA)
    - Totally encapsulated chemical resistant suit
    - Gloves, inner (surgical type)
    - Gloves, outer, chemical protective
    - Boots, chemical protective

- Level B protection must be used when the highest level of respiratory protection is needed, but hazardous material exposure to the few unprotected areas of the body (e.g., the back of the neck) is unlikely. Level B protection includes:
    - Open circuit, pressure-demand SCBA or pressure airline with escape air bottle
    - Chemical protective clothing: Overalls and long sleeved jacket; disposal chemical resistant coveralls; coveralls; one or two piece chemical splash suit with hood
    - Gloves, inner (surgical type)
    - Gloves, outer, chemical protective
    - Boots, chemical protective

- Level C must be used when the required level of respiratory protection is known, or reasonably assumed to be, not greater than the level of protection afforded by air purifying respirators; and hazardous materials exposure to the few unprotected areas of the body (e.g. the back of the neck) is unlikely. Level C protection includes:
    - Full or half face air-purifying respirator
    - Chemical protective clothing: Overalls and long-sleeve jacket; disposable chemical resistant coveralls; coveralls; one- or two-piece chemical splash suit
    - Gloves, inner (surgical type)
    - Gloves, outer, chemical protective
    - Boots, chemical protective

- Level D is the basic work uniform. It cannot be worn on any site where respiratory or skin hazards exist. Level D protection includes:
    - Safety boots/shoes
    - Safety glasses
    - Hard hat with optional face shield

Note that the use of SCBA and airline equipment is contingent upon the user receiving special training in the proper use and maintenance of such equipment.

6.2 Personal Protective Equipment – Site Specific

Level D with some modification will be required when working on this Site. In addition to the basic work uniform specified by Level D protection, Nitrile gloves will be required when contact with soil and/or groundwater is likely. Hearing protection will be worn when power equipment is used to perform subsurface work. An upgrade to a higher level (Level C) of protection may occur if determined necessary by the HSO.

7.0 MONITORING PROCEDURES

7.1 Monitoring During Site Operations

All Site environmental monitoring should be accompanied by periodic meteorological monitoring of appropriate climatic conditions.

7.1.1 Surface Soil Operation

Monitoring will be performed by the HSO or field personnel during the conduct of work. A photoionization detector (PID) equipped with a 10.6 eV lamp will be utilized to monitor for the presence of volatile organic vapors within the breathing zone, the surface soil holes, and subsurface samples upon their retrieval. The PID will be field checked for calibration accuracy three times per day (morning, lunch, and end of day).

7.1.2 Drilling / Test Pit Operations

Monitoring will be performed by the HSO or drilling observer during the conduct of work. A photoionization detector (PID) equipped with a 10.6 eV lamp will be utilized to monitor for the presence of volatile organic vapors within the breathing zone, the borehole, and subsurface samples upon their retrieval. Drill cuttings and excavation spoils will also be monitored by use of the PID. The PID will be field checked for calibration accuracy three times per day (morning, lunch, and end of day. If subsurface conditions warrant, a combustible gas indicator (CGI) with oxygen alarm may also be used to monitor the borehole for the presence of combustible gases. Similar monitoring of fluids produced during well development will also be conducted.

7.1.3 Soil Excavation and Trenching Operation

Monitoring will be performed by the HSO or remedial observer during the conduct of work. A photoionization detector (PID) equipped with a 10.6 eV lamp will be utilized to monitor for the presence of volatile organic vapors within the breathing zone, the excavation or trench, and any subsurface samples upon their retrieval. Excavation and trenching spoils will also be monitored by use of the PID. The PID will be field checked for calibration accuracy three times per day (morning, lunch, and end of day. If subsurface conditions warrant, a CGI with oxygen alarm may also be used to monitor the borehole for the presence of combustible gases.

7.2 Action Levels

If readings on the PID exceed 10 ppm for more than fifteen minutes consecutively, then personal protective equipment should be upgraded to Level C. The air purifying respirator used with Level C protective equipment must be equipped with organic vapor cartridges. If readings on the explosive gas meter are within a range of 10%-25% of the lower exposure limit (LEL) then continuous monitoring will be implemented. Readings above 25% of the LEL indicate the

potential for an explosive condition. Sources of ignition should be removed and the Site should be evacuated.

7.3 Personal Monitoring Procedures

Personal monitoring shall be performed as a contingency measure in the event that VOC concentrations are consistently above the 10-ppm action level as detected by the PID. If the concentration of VOCs is above this action level, then amendments to the HASP must be made before work can continue at the Site.

8.0 SECTION 8 – SAFETY CONSIDERATIONS FOR SITE OPERATIONS

8.1 General

Standard safe work practices that will be followed include:

- Do not climb over/under drums, or other obstacles.
- Do not work on the Site alone.
- Practice contamination avoidance, on and off-site.
- Plan activities ahead of time, and use caution when conducting concurrently running activities.
- No eating, drinking, chewing or smoking is permitted on the Site.
- Due to the unknown nature of waste placement at the Site, extreme caution should be practiced during excavation activities.
- Apply immediate first aid to any and all cuts, scratches, abrasions, etc.
- Be alert to your own physical condition. Watch your buddy for signs of fatigue, exposure, etc.
- A work/rest regimen will be initiated when ambient temperatures and protective clothing create a potential heat or cold stress situation.
- No work will be conducted without adequate natural light or without appropriate supervision.
- Task safety briefings will be held prior to onset of task work.
- Ignition of flammable liquids within or through improvised heating devices (barrels, etc.) or space heaters is forbidden.
- Entry into areas of spaces where toxic or explosive concentrations of gases or dust may exist without proper equipment is prohibited.
- Any injury or unusual health effect must be reported to the Site HSO.
- Prevent splashing or spilling of potentially contaminated materials.
- Use of contact lenses is prohibited while on site.

- Beards and other facial hair that would impair the effectiveness of respiratory protection are prohibited if respiratory protection is necessary.

- Field crew members should be familiar with the physical characteristics of investigations, including but not limited to:
    - Wind direction in relation to potential sources
    - Accessibility to co-workers, equipment, and vehicles
    - Communication
    - Hot zones (areas of known or suspected contamination)
    - Site access
    - Nearest water sources

- The number of personnel and equipment in potentially contaminated areas should be minimized consistent with site operations.

8.2 Field Operations

The HSO or designee will be present on-site during all intrusive work, e.g., drilling operations, excavations, trenching, and will provide monitoring to oversee that appropriate levels of protection and safety procedures are utilized by C&S Engineers, Inc., personnel. The use of salamanders or other equipment with an open flame is prohibited and the use of protective clothing, especially hard hats and boots, will be required during drilling or other heavy equipment operations.

8.3 General Asbestos Safety

Asbestos exposure is primarily an inhalation hazard. OSHA compliant respiratory protection should be worn if there is risk of asbestos becoming airborne. Personal Protective Equipment including protective clothing (suits/gloves, etc.) may be necessary to avoid contaminating the worker and/or the site.

Procedural Precautions - The sampler should be aware that disruption of asbestos-containing materials can create the potential for cross contamination when conducting bulk asbestos sampling.

The Sampler should take the following precautions to avoid cross contamination as well as disruption of material while sampling:

- The sampling tool must be cleaned with amended water after every sample is collected, or a different clean tool must be used.

- The sampler must avoid touching the material being sampled (utilize gloves).

- The area being sampled must be sufficiently wet before collecting the sample.

- The space left after sampling must be sealed with repair/patch material to reduce the chance of airborne exposure.

The object or material sampled should be minimally disturbed during the sampling process.

9.0 SECTION 9 – DECONTAMINATION PROCEDURES

9.1 General Decontamination

Decontamination involves physically removing contaminants and/or converting them chemically into innocuous substances. Only general guidance can be given on methods and techniques for decontamination. Decontamination procedures are designed to:

- Remove contaminant(s).
- Avoid spreading the contamination off Site.
- Avoid exposing unprotected personnel off Site to contaminants.

9.2 Contamination Avoidance

Contamination avoidance is the first and best method for preventing spread of contamination from a hazardous site. Each person involved in site operations must practice the basic methods of contamination avoidance listed below. Additional precautions may be required in the HASP.

- Know the limitations of all protective equipment being used.
- Use the proper tools necessary to safely conduct the work.

9.3 Reducing Contamination

Specific methods that may reduce the chance of contamination are:

- Use of remote sampling techniques.
- Opening containers by non-manual means.
- Bagging monitoring instruments.
- Use of drum grapplers.
- Watering down dusty areas.

9.4 Equipment Decontamination

Equipment which will need to be decontaminated includes tools, monitoring equipment, and personal protective equipment. Items to be decontaminated will be brushed off, rinsed, and dropped into a plastic container supplied for that purpose. They will then be washed with a detergent solution and rinsed with clean water. Instrumentation that is contaminated during field

operations will be carefully wiped down. Heavy equipment, if utilized for operations where it may be contaminated, will have prescribed decontamination procedures to prevent contaminant materials from potentially leaving the Site. On-site contractors, such as drillers or backhoe operators, will be responsible for decontaminating all construction equipment prior to demobilization.

10.0 DISPOSAL PROCEDURES

All discarded materials, waste materials, or other objects shall be handled in such a way as to reduce or eliminate the potential for spreading contamination, creating a sanitary hazard, or causing litter to be left on-site. All potentially contaminated materials, e.g., clothing, gloves, etc., will be bagged or drummed as necessary and segregated for proper disposal. All contaminated waste materials shall be disposed of as required by the provisions included in the contract and consistent with regulatory provisions. All non-contaminated materials shall be collected and bagged for appropriate disposal.

Investigation derived waste (IDW) that is free from physical indications of contamination such as odors, staining, and sheens will be placed back into the borehole of origin or in the case of well water allowed to infiltrate the Site surface. In cases where physical indications of contamination are evident, the affected media will be containerized per NYSDOT requirements pending proper disposal. Samples may be analyzed for toxicity characteristic leaching procedure (TCLP) VOCs, SVOCs, pesticides, herbicides, and metals; PCBs; pH (corrosivity), flash point (ignitability); reactivity; and paint filter (free liquids).

11.0 EMERGENCY RESPONSE PROCEDURES

As a result of the hazards at the Site, and the conditions under which operations are conducted, there is the possibility of emergency situations. This section establishes procedures for the implementation of an emergency plan.

11.1 Emergency Coordinator

Emergency Coordinator:..... Nick Coulombe..... Work Phone: (315) 703-4281

The Emergency Coordinator or his on-site designee will, in coordination with the Authority / Agency having Jurisdiction, implement the emergency response procedures whenever conditions at the site warrant such action. The Emergency Coordinator or his on-site designee will be responsible for assuring the evacuation, emergency treatment, emergency transport of C&S personnel or workers as necessary, and notification of emergency response units (**refer to phone listing** in the beginning of this HASP) and the appropriate management staff.

11.2 Evacuation

In the event of an emergency situation, such as fire, explosion, significant release of toxic gases, etc., all personnel will evacuate and assemble in a designated assembly area. The Emergency Coordinator or his on-site designee will have authority to contact outside services as required. Under no circumstances will incoming personnel or visitors be allowed to proceed into the area once the emergency signal has been given. The Emergency Coordinator or his on-site designee must see that access for emergency equipment is provided and that all ignition sources have been shut down once the emergency situation is established. Once the safety of all personnel is established, the Fire Department and other emergency response groups will be notified by telephone of the emergency.

11.3 Potential / Actual Fire or Explosion

Immediately evacuate the Site and notify local fire and police departments, and other appropriate emergency response groups, if LEL values are above 25% in the work zone or if an actual fire or explosion has taken place.

11.4 Environmental Incident (Spread or Release of Contamination)

Control or stop the spread of contamination if possible. Notify the Emergency Coordinator and the Project Manager. Other appropriate response groups will be notified as appropriate.

11.5 Personnel Injury

Emergency first aid shall be applied on-site as necessary. Then, decontaminate (en route if necessary) and transport the individual to nearest medical facility if needed. The ambulance/rescue squad shall be contacted for transport as necessary in an emergency. A map of directions to the nearest hospital is shown in **Appendix A**.

11.6 Personnel Exposure

- Skin Contact: Use copious amounts of soap and water. Wash/rinse affected area thoroughly, and then provide appropriate medical attention. Eyes should be thoroughly rinsed with water for at least 15 minutes.

- Inhalation: Move to fresh air and/or, if necessary, decontaminate and transport to emergency medical facility.

- Ingestion: Decontaminate and transport to emergency medical facility.

- Puncture Wound/Laceration: Decontaminate, if possible, and transport to emergency medical facility.

11.7 Adverse Weather Conditions

In the event of adverse weather conditions, the HSO will determine if work can continue without sacrificing the health and safety of field workers.

11.8 Incident Investigation and Reporting

In the event of an incident, procedures discussed in the Medical Emergency/Incident Response Protocol, presented in **Appendix B** of this HASP, shall be followed.

Appendices

Appendix A

Map and Directions to Hospital

Google Maps

160 Center St, Canastota, NY 13032 to Oneida Health Emergency Room, 321 Genesee St, Oneida, NY 13421

Drive 5.9 miles, 12 min



Map data ©2025 Google 1000 ft

160 Center St
Canastota, NY 13032

1. Head west on E Center St toward Diamond St
   0.2 mi
2. Turn left onto S Peterboro St
   0.6 mi
3. Turn left onto NY-5 E/E Seneca Ave/Seneca Turnpike
   Continue to follow NY-5 E
   5.0 mi
4. Turn right onto Fields Dr
   0.1 mi
5. Turn right
   62 ft
6. Turn right
   Destination will be on the right
   66 ft

Oneida Health Emergency Room
321 Genesee St, Oneida, NY 13421

Appendix B

Guidance on Incident Investigation and Reporting

Medical Emergency / Incident Response Protocol

Prepared by:

C&S Engineers, Inc.
499 Col Eileen Collins Blvd.
Syracuse, New York 13212

SECTION 1 – PURPOSE

From time to time employees of C&S Engineers, Inc. will sustain an injury while working on the job. While every effort is being made to prevent this, in the event of an injury or illness on the job, the following procedures will be implemented. This format may also be utilized in the event of a property damage incident.

SECTION 2 – SCOPE

This guideline applies to all C&S Engineers, Inc. job sites and employees.

SECTION 3 – GUIDELINES

3.1 First Response Procedures

Upon notification or awareness of an incident/accident with injuries or illness the Emergency Coordinator or his On-Site Designee will:

1. Ensure that the injured employee is receiving immediate first aid and medical care.
2. Notify Emergency Services (911) if injuries are severe.
3. Stabilize the work area; ensure that no one else can be injured.
4. Notify the Project Manager at the earliest possible convenience**.**
5. Notify the Owner/Client at the earliest possible convenience.

To assist the Health and Safety Manager in the root cause analysis, the Emergency Coordinator or his On-Site Designee will also make an attempt to:

1. Obtain the names and phone numbers of witnesses.
2. Preserve the accident scene if possible for analysis.

3.2 Injury Management

1. If the patient is stable with non-life threatening injuries, the foreman will ensure the employee is transported to the emergency medical facility listed in Section 1 of the HASP. Directions to the nearest emergency medical facility are located in **Attachment A** of the HASP.

At no time will an injured employee drive themselves to medical care.

2. If the patient has serious or life threatening injuries, the emergency coordinator or his on- site designee will notify the emergency services for the area for treatment and transport to a hospital or emergency room. Serious injuries can be considered but not limited to head injuries, loss of consciousness, severe laceration or amputation, fractured bones, burns and eye injuries.

3. Following the treatment and care of the injured employee, the emergency coordinator or his on-site designee and the project manager will initiate the completion of the first injury report. The Health & Safety Manager will assist.

3.3 Project Manager

1. Upon notification of a personal injury or illness on the job site, will notify C&S Engineers, Inc, President and Corporate Legal and C&S Companies Health and Safety Manager.
2. Will report to the worksite to initiate the first injury report.
3. Will report to the treatment facility to check on the well being of the injured employee.
4. The project manager will ensure that the treatment facility is aware that this is a workers compensation case.
5. Will assist the Health and Safety Manager in the analysis of the incident.

3.4 Health & Safety Manager

1. Upon notification of the personal injury will determined if it is necessary to report to the treatment facility or the accident site, depending on the nature of the injuries and the circumstances of the accident.
2. Will report to the worksite to begin a root cause analysis investigation of the accident.
3. The investigation may include interview of witnesses, field crew , and project manager, the photographing of the scene, reconstruction of the accident scene, using test instruments and taking measurements. The Health and Safety Manager may draw diagrams from the information learned.
4. The Health and Safety Manager will work with the owner/client as necessary to investigate the accident.
5. The Health & Safety manager will ensure that the site is safe to resume work.
6. The Health & Safety Manager shall initiate the New York State Compensation form requirements (C-2) and forward a copy of the C-2 to the C & S Engineers, Inc. controller for transmittal to the Compensation Carrier within 8 hrs of notification of the incident or by the end of the next business day.
7. The Health and Safety manager, upon completion of the investigation, will provide the
8. Project Manager with a written investigative report (copy to the President)
9. The accident will be reviewed at the next Project Managers meeting with the intent to prevent further or similar events on other projects.
10. The Health & Safety Manager will assess the incident to determine OSHA record ability and make record if necessary on the OSHA 300 form, within five working days.

SECTION 4 - INCIDENT RESPONSE

4.1 Purpose

To prevent the occurrence of accidents on C&S Engineers, Inc., work sites and to establish a procedure for investigation and reporting of incidents occurring in, or related to C&S work activities.

4.2 Scope

Applies to all incidents related to C&S Engineers, Inc. work activities.

4.3 Definitions

Accident - An undesired event resulting in personal injury and/or property damage, and/or equipment failure.

Fatality - An injury or illness resulting in death of the individual.

Incident - Any occurrence which results in, or could potentially result in, the need for medical care or property damage. Such incidents shall include lost time accidents or illness, medical treatment cases, unplanned exposure to toxic materials or any other significant occurrence resulting in property damage or in "near misses."

Incidence Rate - the number of injuries, illnesses, or lost workdays related to a common exposure base of 100 full-time workers. The rate is calculated as:

N/EH x 200,000

N = number of injuries and illnesses or lost workday cases; EH = total hours worked by all associates during calendar year. 200,000 = base for 100 full-time equivalent workers (working 40 hours per week, 50 weeks per year).

Injury - An injury such as a cut, fracture, sprain, amputation, etc. which results from a work accident or from a single instantaneous event in the work environment.

Lost Workday Case - A lost workday case occurs when an injured or ill employee experiences days away from work beginning with the next scheduled work day. Lost workday cases do not occur unless the employee is effected beyond the day of injury or onset of illness.

Recordable Illness - An illness that results from the course of employment and must be entered on the OSHA 300 Log and Summary of Occupational Injuries and Illnesses. These illnesses require medical treatment and evaluation of work related injury. For example, dermatitis, bronchitis, irritation of eyes, nose, and throat can result from work and non-work related incidents.

Recordable Injury - An injury that results from the course of employment and must be entered on the OSHA 300 Log and Summary of Occupational Injuries and Illnesses. These injuries require medical treatment; may involve loss of consciousness; may result in restriction of work or motion or transfer to another job; or result in a fatality.

Near Miss - An incident which, if occurring at a different time or in a different personnel or equipment configuration, would have resulted in an incident.

4.4 Responsibilities

Employees - It shall be the responsibility of all C&S Engineers, Inc. employees to report all incidents as soon as possible to the HSC, regardless of the severity.

Human Resources - has overall responsibility for maintaining accident/ incident reporting and investigations according to current regulations and recording injuries/ illness on the OSHA 300 log, and posting the OSHA 300 log.

Emergency Coordinator - It is the responsibility of the Emergency Coordinator to investigate and prepare an appropriate report of all accidents, illnesses, and incidents occurring on or related to C&S Engineers, Inc. work. The Emergency Coordinator shall complete Attachment A within 24 hours of the incident occurrence.

Health and Safety Manager (HSM) - It is the responsibility of the HSM to investigate and prepare an appropriate report of all lost time injuries and illnesses and significant incidents occurring on or related to C&S Companies. The HSM shall maintain the OSHA 300 form.

Project Managers (PM) - It shall be the PM's responsibility to promptly correct any deficiencies in personnel, training, actions, or any site or equipment deficiencies that were determined to cause or contribute to the incident investigated.

SECTION 5 – GUIDELINES

5.1 Incident Investigation

The Project Manager will immediately investigate the circumstances surrounding the incident and will make recommendations to prevent recurrence. The HSM shall be immediately notified by telephone if a serious accident/ incident occurs. The incident shall be evaluated to determine whether it is OSHA recordable. If the incident is determined to be OSHA 300 recordable, it shall be entered on the OSHA 300 form.

The Project Manager with assistance from the HSM must submit to the office an incident report form pertaining to any incident resulting in injury or property damage.

5.2 Incident Report

The completed incident report must be completed by the Project Manager within 12 hours of the incident and distributed to the HSM, and Human Resources. This form shall be maintained by Human Resources for at least five years for all OSHA recordable cases. This form serves as an equivalent to the OSHA 101 form.

5.3 Incident Follow-up Report

The Incident Follow-Up Report (Attachment B) shall be distributed with the Incident Report within one week of the incident. Delay in filing this report shall be explained in a brief memorandum.

5.4 Reporting of Fatalities or Multiple Hospitalization Accidents

Fatalities or accidents resulting in the hospitalization of three or more employees must be reported to OSHA verbally or in writing within 8 hours. The report must contain 1) circumstances surrounding the accident(s), 2) the number of fatalities, and 3) the extent of any injuries.

5.5 OSHA 300A Summary Form

Recordable cases must be entered on the log within six workdays of receipt of the information that a recordable case has occurred. The OSHA log must be kept updated to within 45 calendar days.

OSHA 300 forms must be updated during the 5 year retention period, if there is a change in the extent or outcome of an injury or illness which affects an entry on a log. If a change is necessary, the original entry should be lined out and a corrected entry made on that log. New entries should be made for previously unrecorded cases that are discovered or for cases that initially weren't recorded but were found to be recordable after the end of the year. Log totals should also be modified to reflect these changes.

5.6 Posting

The log must be summarized at the end of the calendar year and the summary must be posted from February 1 through May 31.

5.7 OSHA 300A

Facilities selected by the Bureau of Labor Statistics (BLS) to participate in surveys of occupational injuries and illnesses will receive the OSHA 300A. The data from the annual summary on the OSHA 300 log should be transferred to the OSHA 300A, other requested information provided and the form returned as instructed by the BLS.

5.8 Access to OSHA Records

All OSHA records (accident reporting forms and OSHA 300 logs) should be available for inspection and copying by authorized Federal and State government officials.

Employees, former employees, and their representatives must be given access for inspection and copying to only the log, OSHA No. 300, for the establishment in which the employee currently works or formerly worked.

SECTION 6 – REFERENCES

29 CFR Part 1904

7.0 ATTACHMENTS

Attachment A - Incident Investigation Form
Attachment B - Incident Follow-Up Report
Attachment C - Establishing Recordability

ATTACHMENT A

INCIDENT INVESTIGATION FORM

Accident investigation should include:

Location: _____

Time of Day: _____

Accident Type: _____

Victim: _____

Nature of Injury: _____

Released Injury: _____

Hazardous Material: _____

Unsafe Acts: _____

Unsafe Conditions: _____

Policies, Decisions: _____

_____

Personal Factors: _____

_____

Environmental Factors: _____

_____

_____

ATTACHMENT B

INCIDENT FOLLOW-UP REPORT

Date _____

Foreman: _____

Date of Incident: _____

Site: _____

Brief description of incident: _____

_____

_____

_____

_____

Outcome of incident: _____

_____

_____

_____

Physician's recommendations: _____

_____

_____

_____

Date the injured returned to work: _____

Project Manager Signature: _____

Date: _____

ATTACH ANY ADDITIONAL INFORMATION TO THIS FORM

ATTACHMENT C

ATTACHMENT ESTABLISHING RECORDABILITY

1. Deciding whether to record a case and how to classify the case.

   Determine whether a fatality, injury or illness is recordable.

   A fatality is recordable if:

   - Results from employment

   An injury is recordable if:

   - Results from employment and
   - It requires medical treatment beyond first aid or
   - Results in restricted work activity or job transfer, or
   - Results in lost work day or
   - Results in loss of consciousness

   An illness is recordable if:

   - It results from employment

2. Definition of "Resulting from Employment"

   Resulting from employment is when the injury or illness results from an event or exposure in the work environment. The work environment is primarily composed of: 1) The employer's premises, and 2) other locations where associates are engaged in work- related activities or are present as a condition of their employment.

   The employer's premises include company rest rooms, hallways, cafeterias, sidewalks and parking lots. Injuries occurring in these places are generally considered work related.

   The employer's premises EXCLUDES employer controlled ball fields, tennis courts, golf courses, parks, swimming pools, gyms, and other similar recreational facilities, used by associates on a voluntary basis for their own benefit, primarily during off work hours.

   Ordinary and customary commute, is not generally considered work related.

   Employees injured or taken ill while engaged in consuming food, as part of a normal break or activity is not considered work related. Employees injured or taken ill as the result of smoking, consuming illegal drugs, alcohol or applying make up are generally not considered work related. Employee injured by un authorized horseplay is generally not considered work related, however, an employee injured as a result of a fight or other

workplace violence act, may be considered work related. Associates who travel on company business are considered to be engaged in work related activities all the time they spend in the interest of the company. This includes travel to and from customer contacts, and entertaining or being entertained for purpose of promoting or discussing business. Incidents occurring during normal living activities (eating, sleeping, recreation) or if the associate deviates from a reasonably direct route of travel are not considered OSHA recordable.

3. Distinction between Medical Treatment and First Aid.

First aid:

Any one-time treatment, and any follow up visit for the purpose of observation, of minor scratches, cuts, burns, splinters, etc., which do not ordinarily require medical care. Such one time treatment, and follow up visit for the purpose of observation, is considered first aid even though provided by a physician or registered professional personnel.

Medical Treatment (recordable):

a) Must be treated only by a physician or licensed medical personnel.
b) Impairs bodily function (i.e. normal use of senses, limbs, etc.).
c) Results in damage to physical structure of a non-superficial nature (fractures).
d) Involves complications requiring follow up medical treatment.

Appendix G

Resumes of Key Personnel



H. Nevin Bradford, PE

Department Manager

Nevin Bradford is a New York State licensed professional engineer with over 37 years of experience in the environmental consulting industry. His expertise spans a variety of technical matters, including environmental due diligence assessments, remedial investigation, remedial design, remedial construction management, vapor intrusion assessment and mitigation, petroleum and chemical bulk storage compliance, facility decommissioning and demolition management, asbestos surveys and abatement design, hazardous materials and waste management.

Total Experience
37+ years

With C&S Since
2021

Education
A.A.S., SUNY Canton, 1988

B.A.,
SUNY Potsdam, 1990

Registrations
Professional Engineer—NY, 2008

Certifications
NYS Certified Asbestos Designer

NYS Certified Asbestos Building Inspector

NYS Certified Asbestos Management Planner

OSHA 40-Hour HAZWOPER

OSHA HAZWOPER Supervisor

Certified NORM/TNORM Surveyor

Professional Associations
Central New York Air and Waste Management Association

Brownfield Coalition of the Northeast

Genesee Finger Lakes Air and Waste Management Association

Experience

Environmental Assessments

Phase I and II Environmental Site Assessments, 1990 to Present—Planned, performed, and managed the completion of Phase I and II Environmental Site Assessments at hundreds of active and abandoned commercial, industrial, medical, agricultural, and residential facilities throughout the northeastern United States. Representative properties have included retail gasoline service stations, dry cleaning facilities, automobile dealerships, pulp and paper mills, automotive and auto body repair shops, retail shopping centers, hydroelectric facilities, machine shops, marinas, textile manufacturing mills, metals processing facilities, plating facilities, metals machining operations, steel fabrication plants, large agricultural properties (dairy, vegetables), medical facilities, former railyards, salvage yards, junkyards, funeral homes, concrete and asphalt batch plants, golf courses, and foundries.

Phase II Environmental Site Assessment, Vapor Intrusion Assessment, and New York State Brownfield Cleanup Program Application, Former Industrial Property, Wellington Ward, LLC, Syracuse NY, 2025 to Present— Planned and managed site investigation and vapor intrusion assessment in support of successful New York State Brownfield Cleanup Program (BCP) Application in connection with planned redevelopment of two former industrial buildings. Full site investigation and remediation under BCP is expected to begin in Spring 2026. Cost: $48,000.

Brownfield Investigation and Remediation, Former Will & Baumer Candle Company Site, UR-Ban Villages PFA, LLC, Syracuse, NY, 2022 to Present—Represented private developer with the investigation and remediation of former industrial property under the NYSDEC Brownfield Cleanup Program. Contaminants of concern included heavy metals, semi-volatile organic compounds, and petroleum products. Cost: $800,000.

Brownfield Investigation and Remediation, Former Ithaca Gun Company Site, Visum Development, LLC, Ithaca, NY, 2022 to Present—Represented private developer with the remediation design and remediation implementation at former industrial property under the NYSDEC Brownfield Cleanup Program. Contaminants of concern included heavy metals, semi-volatile organic compounds (SVOC), and PCBs in soil and chlorinated volatile organic compounds (CVOC) in the bedrock aquifer. Soil remediation involved on-site soil stabilization to treat soils having leachable lead at hazardous levels. Groundwater remediation involved reductive dechlorination by enhanced bioremediation and vapor intrusion concerns for new building were addressed by the design and installation of vapor mitigation systems. Cost: $3.5M.

Brownfield Investigation and Remediation, Former Penfield Manufacturing Company Site, Housing Visions, Syracuse, NY, 2021 to 2023—Engineer-of-Record for investigation and remediation of former industrial property under the NYSDEC Brownfield Cleanup Program. Contaminants of concern included chlorinated industrial solvents (groundwater contamination and vapor intrusion concern). Also provided asbestos and other regulated building material abatement design for facility renovations. Cost: $990,000.

Brownfield Investigation and Remediation, Former Industrial Property, 1117 MGMT, LLC, Syracuse, NY, 2024 to 2025— Engineer-of-Record for investigation and remediation for a former commercial property under the NYSDEC Brownfield Cleanup Program. Contaminants of concern included heavy metals and semi-volatile organic compounds associated with extensive historic urban fill and historic operations. Cost: $393,000.

Brownfield Investigation and Remediation, Former Industrial Property, 1153 Owner, LLC, LLC, Syracuse, NY, 2024 to Present— Engineer-of-Record for investigation and remediation for a former commercial property under the NYSDEC Brownfield Cleanup Program. Contaminants of concern included heavy metals and semi-volatile organic compounds associated with extensive historic urban fill and vapor intrusion concerns related to volatile organic compounds beneath building slab. Cost: $520,000.

Brownfield Investigation and Remediation, Former Mixed Commercial Property, Sinatra Development, Buffalo, NY, 2021 to 2024— Engineer-of-Record for investigation and remediation for a former commercial property under the NYSDEC Brownfield Cleanup Program. Contaminants of concern included heavy metals and semi-volatile organic compounds associated with extensive historic urban fill. Cost: $750.000.

Hazardous Waste Landfill Cover Repair (Design and Construction Oversight Services), Former Hazardous Waste Landfill, NRC Corporation/National Grid Corporation, Syracuse, NY, 2021 to 2022—Provided design and construction observation services for a regional utility company for the repair of a hazardous waste landfill cover system that was inadvertently breached during a utility line upgrade project. Cost: $200,000.

Former Tube Mill Decommissioning and Demolition, Revere Copper, Rome, NY, 2021 to 2022—Provided pre-demolition hazardous material surveys, universal and miscellaneous waste characterization and management, and abatement and cleanup design for 400,000 square foot unutilized industrial facility in preparation of facility demolition. Cost: $870,000.

Building Debris Cleanup, Former Apex Tool Site, Cortland County Industrial Development Agency, Cortland, NY, 2022—Provided design and oversight services on behalf of the Cortland County Industrial Development Agency in support of the cleanup of asbestos-containing building debris left at the site following material salvage and building demolition conducted by a salvage company. Debris was widespread over seven-acre property. Cost: $300,000.

Brownfield Investigation and Remediation and Radon Mitigation System Design, Former Industrial Properties, Zephyr Partners, Buffalo, NY, 2023 to 2024— Engineer-of-Record for investigation and remediation of former industrial property under the NYSDEC Brownfield Cleanup Program. Primary contaminant of concern was slag and fill material containing technologically enhanced radioactive material (TENORM) was present. Also provided design services for multiple sub-slab depressurization systems to address radon intrusion concerns in connection with the design of new commercial buildings to mitigate potential radon intrusion concerns posed by the TNORM material. Cost: $440,000.

Hazardous Building Material Survey and Abatement Design, Former Public School Building, Two Plus Four Companies, Waterloo, NY, 2021 to 2023—Provided Phase I Environmental Site Assessment, facility-wide regulated building material survey, noise study, railroad safety study, asbestos abatement design, lead-based paint management plan, universal waste management plan, and abatement management for a residential conversion of a former public school building. Cost: $65,000.



Michael Sherlock

Director of Safety and Health

Michael is an accomplished safety professional with 12 years' experience directing corporate health and safety programs. His proficiencies include the protection of workers, assets, and the community at both the field and corporate level. Mike utilizes his experience in commercial and industrial construction, demolition, and environmental remediation to develop and monitor the programs that protect employees and the public across all C&S projects and locations. In addition, Mike is an authorized trainer for the American Red Cross, Mobile Elevated Work Platforms (MEWP), Powered Industrial Vehicles (PIT), and OSHA Construction (OSHA 500).

Total Experience
12 years

With C&S Since
2022

Education
SUNY New Paltz,
Bachelor of Science in Biology,
Minor in Evolutionary Studies, 2012

Certifications
OSHA Authorized Construction Trainer (OSHA 500)

Class G Asbestos Supervisor NY–Department of Labor

American Red Cross Adult and Pediatric CPR/AED/First Aid Trainer

Hazardous Waste Operations and Emergency Response

Silica Competent Person

Drug and Alcohol Abuse Recognition and Intervention Supervisor

Ives Certified Powered Industrial Truck Operator Trainer

Mobile Crane Management

Underground Utility Damage Prevention – 811

Occupational Safety and Health Administration 30 Hour Construction

National Ranger Training Institute

Experience

C&S Worldwide Holdings, Inc., Syracuse, NY Director of Safety and Health
November 2022-Present

- Responsible for ensuring the safety and compliance of all C&S Companies across Engineering, Architectural, Construction, and Administrative operations throughout the United States.
- Lead the development, implementation, and continuous improvement of corporate safety management systems, Injury and Illness Prevention Programs, and project-specific safety plans.
- Lead incident investigation, root-cause analysis, and corrective action programs for injuries, near-misses, property damage, and environmental events.
- Drive measurable reductions in TRIR, DART, EMR, and severity rates through proactive hazard identification, leading indicators, and behavior-based safety initiatives.
- Serve as primary liaison with regulatory agencies, clients, and insurers during audits, inspections, and claims, achieving favorable outcomes and zero-penalty citations.
- Develop and deliver role-specific safety training for designers, engineers, construction supervisors, and craft labor, including OSHA 10/30, competent person, and task-specific programs.
- Lead emergency preparedness and crisis response planning, including serious injury/fatality protocols, environmental releases, and natural disaster response.
- Manage safety budgets, staffing, and consultants; Manage and mentor Health and Safety Specialists and project safety professionals to build internal technical capability.
- Collaborate with executive leadership, Legal, and People & Culture (HR) to align safety strategy with insurance, workers' compensation, claims management, and corporate risk objectives.
- Leverage safety data analytics, dashboards, and digital reporting platforms to improve transparency, accountability, and executive decision-making.
- Support business development efforts by contributing to safety narratives in proposals, client interviews, and pre-qualification packages for public and private sector work.

Sabre Demolition Corporation, Warners, NY Corporate Health and Safety Director, November 2018–2022 (Environmental Health and Safety Specialist, 2017–2018)

- Responsible for ensuring the safety and compliance of all project sites through regular inspections and by coordinating, administrating, and implementing comprehensive training programs in occupational, industrial, and environmental safety
- Responsible for implementation of the Loss Prevention System®
- Oversee site safety managers in ensuring compliance with company and site-specific safety plans, and maintaining hazard and incident-free project sites
- Perform and oversee investigation of accidents, injuries, and unsafe working conditions
- Plan and implement programs to train management and employees in site safety practices and safe operating techniques
- Manage medical surveillance program and records for all employees exposed to occupational hazards
- Act as the corporate contact for client, federal, state, or municipal safety or risk management authority

Eastman Associates, Inc., Oneonta, NY, Safety Director/Construction Services Coordinator/Asbestos Project Manager, 2014 –2017

- Responsible for ensuring the safety of all work sites through jobsite inspections and by coordinating, administrating, and implementing comprehensive training programs in occupational, industrial, and environmental safety
- Respond to and investigate all reported accidents and near misses in order to evaluate current best practices and recommend changes where necessary
- Assess and revise company safety and employee policies where necessary
- Manage company-owned vehicle fleet as well as equipment and material distribution at all jobsites
- Assess employees' progress through goal establishment and scheduling with daily reports from field superintendents
- Plan, organize, and execute all asbestos abatement projects from acceptance of contract to completion

New York Collegiate Baseball League, Sherrill, NY, Vice President/Treasurer, Sherrill Silversmiths Organization 2015–Current

- Direct all baseball operations for a 501(c)(3) organization affiliated with and sponsored by Major League Baseball, including, but not limited to, hiring coaches, staffing, roster development, fundraising, community relations, and finances.



Matthew Walker

Managing Environmental Scientist

Matt Walker is a Managing Environmental Scientist in the Environmental Group at C&S. He has 23 years of experience with brownfield redevelopment / remediation, environmental monitoring, regulatory compliance, data interpretation, and environmental assessment. Some of his responsibilities include management of brownfield cleanup program sites; managing environmental assessments and investigations; designing remedial straegies; gnerating environmental compliance plans; and environmental training.

Total Experience
23 years

With C&S Since
2008

Education
B.S., Environmental Resource Management, Keystone College

ASTM Environmental Professional

Organizations
Association of Vapor Intrusion Professionals

Air and Waste Management Association, Central New York Chapter

Publications and Presentations
PFAS Regulatory Update August 2024

Aqueous Film Forming Foam Transition Planning

PFAS Contamination, Remediate or Wait?

PFAS at Airports. Regulatory Developments/Legal and Environmental Ramifications

Experience

Subsurface Investigation, Monitoring, Remediation

Terminal Apron Design, PFAS Investigation, Monterey Regional Airport, Monterey, CA, 2023—C&S completed the final phase of a PFAS delineation for the proposed terminal apron design, which includes a stormwater infiltration basin adjacent to the Air Rescue Firefighting (ARFF) facility. The efforts included the advancement of numerous soil borings and the collection and analysis of PFAS soil and groundwater samples to determine total concentrations and to assess contaminant leachability. PFAS impacts were present in the sandy overburden as well as the shallow perched groundwater. C&S then worked with MRY and CWRCB to develop appropriate measures for soil and groundwater management during construction, which included the design of a containment cell to isolate the material while funding could be secured to ultimately dispose of or remediate the soil.

Centralized Deicing Facility, PFAS Investigation and Liner Design, Hancock International Airport, Syracuse, NY, 2025—C&S completed a PFAS testing program for the proposed location of a centralized deicing facility, which will be constructed at the location of the former Air Rescue Firefighting (ARFF) facility. The efforts included the advancement of numerous soil borings and the collection and analysis of soil samples for PFAS. PFAS impacts were identified across the area and particularly at the location of the former ARFF. C&S then worked with SRAA to develop appropriate measures for soil management during construction, which included the design of a 4-acre lined containment cell to isolate the material.

Taxiway Reconstruction, PFAS Investigation, Detroit Metro Airport, Detroit, MI, 2022, 2024, 2025—Similar to many airports across the country, PFAS from firefighting and fire training exercises have impacted airports. C&S has completed numerous rounds of testing and delineations for the proposed reconstruction of taxiways. The efforts included the advancement of dozens of soil borings and the collection and analysis of PFAS samples to determine total concentrations and assess contaminant leachability. C&S prepared work plans for approval by the Michigan Department of Environment, Great Lakes, and Energy (EGLE). C&S then worked with DTW and EGLE to develop appropriate measures for soil management during construction which included a combination of landfill disposal and onsite stockpiling.

Lofts at 1117, West Fayette Street, Redev CNY, Syracuse, NY, 2022-2025—This former commercial/manufacturing facility was redeveloped for mixed used residential and commercial purposes. C&S gathered preliminary subsurface investigation for the site

and entered it into the NYSDEC Brownfield Cleanup Program (BCP). The BCP Remedial Investigation (RI) was performed in 2023 and included the advancement of soil borings, construction of groundwater monitoring wells, and the collection and analysis of soil, groundwater, and air samples for the full suite of parameters including emerging contaminants. The remedy for the site was performed in 2025 and included the removal of several hundred cubic yards of soil impacted by heavy metals and the isolation of fill material, as well as the construction of an engineered cover system. C&S managed and oversaw the project and prepared the required reports. The remediation is complete and a Certificate of Completion was awarded in 2025.

West 1st Street, Harbor View Square, Oswego, NY, 2022-Ongoing—This former industrial facility underwent redevelopment to be utilized for housing. The Site was investigated and remediated under the NYSDEC Brownfield Cleanup Program (BCP). The Site was significantly impacted by chlorinated solvents in the soil, bedrock groundwater, and soil vapor. The Site is equipped with a sub-slab depressurization system (SSDS) to mitigate soil vapor. C&S was retained subsequent to the Certificate of Completion (COC) to design and perform a groundwater treatment program to destroy CVOCs in the bedrock aquifer. In summer 2023, C&S implemented the program which consisted of the installation of six additional bedrock groundwater monitoring wells and eight bedrock injection wells. The site was injected with approximately 17,000 gallons of ABC® solution by Redox Tech. Performance of the remedy is currently being verified by ongoing groundwater sampling.

Phase II Environmental Site Assessments for USEPA Assessment Grants, Various Locations, Central and Upstate NY, Ongoing—Managed Site Assessment Grants up to $1M for municipalities in NY. The grants include the preparation of Quality Assurance Project Plans (QAPP) and Sampling and Analysis Plans (SAPs) consistent with USEPA requirements and templates. Generally, the Phase II ESAs include the advancement of soil borings, installation of groundwater monitoring wells, the installation of soil vapor wells, and the testing of soil, groundwater, soil vapor, and indoor air for a broad range of contaminants. When contamination is identified, C&S works with the municipality and owner to develop a remedial strategy that aligns with the proposed site use. C&S also has utilized existing grant funds to apply for USEPA Cleanup Grants and recently helped one applicant receive nearly $4M in funding for two sites.

NYSDEC Part 360, Solid Waste Management Facilities Compliance—Provide internal training and as needed consulting and compliance assistance for matters involving compliance with Part 360, including testing program design, data interpretation, Beneficial Use Determinations, management of corrective actions at illegal dumping sites and fill material at Brownfield Cleanup Sites, and oversight of navigational dredged material (NDM) projects.

Expert Witness Project, Fill Material at Confidential Sites, NY, 2022-ongoing—C&S is routinely utilized as a consultant and/or expert witness for addressing fill material illegally placed at unpermitted disposal sites. Responsibilities generally include review of existing legal and site characterization information; identification of permanent placement locations; evaluation of potential remedies; and estimation of costs for each potential remedy.

Brownfield Redevelopment, Coventry Commons, Newark, NY, 2022-ongoing—The former industrial site is undergoing a $55M historic redevelopment for affordable housing. C&S performed a preliminary subsurface investigation for the site and entered it into the NYSDEC Brownfield Cleanup Program (BCP), and also collected soil and groundwater data across two rounds of Site Characterization sampling events to comply with a State Superfund Order on Consent. Due to well-documented soil vapor intrusion of chlorinated solvents, C&S also designed a sub-slab depressurization system (SSDS) for all site buildings. The BCP Remedial Investigation (RI) is pending and will likely include the advancement of soil borings, construction of groundwater monitoring wells, and the collection and analysis of soil, groundwater, and air samples. The

remedy for the site is not fully known, but is expected to include a cover system, mitigation of soil vapor, CVOC source removal, and in-situ groundwater injections. The remediation is expected to be performed in 2026.

Brownfield Redevelopment, Moyer Carriage Lofts, Syracuse, NY, 2020-2023—The former industrial site is now a $50M mixed use residential and commercial development in an area of the city desperately needing revitalization. C&S gathered preliminary subsurface investigation for the site and entered it into the NYSDEC Brownfield Cleanup Program (BCP). The BCP Remedial Investigation (RI) is complete and included the advancement of soil borings, construction of groundwater monitoring wells, and the collection and analysis of soil, groundwater, and air samples. The BCP RI included the collection of soil and groundwater for PFAS analysis (consistent with NYSDEC guidance), as well as data interpretation. The remedy for the site included a cover system, mitigation of soil vapor, CVOC source removal, in-situ soil and groundwater injections, and underground storage tank removal. C&S managed and oversaw the project and prepared the required reports. The remediation was completed in the fall of 2023 and C&S performs ongoing site management.

Maider Road Waterfront Environmental Restoration Program Site, Former CIBRO Bulk Terminal, Town of Clay, Clay, NY, 2021—On the behalf of the Town of Clay, C&S secured an approximate $3M NYSDEC ERP remediation grant for this site. Prior to remediation, C&S performed numerous environmental investigations and interim remedial measures. C&S also prepared the contract documents and assisted with bidding. The remedy for the site includes the excavation and disposal of approximately 20,000 cubic yards of petroleum contaminated soil, removal of more than 2,000 feet of buried piping, and the excavation and disposal of approximately 1,000 yards of arsenic contaminated soil. C&S provided oversight of the remediation, implementing community air monitoring, and reporting. The remedy was completed in Fall 2021.

Brownfield Redevelopment, 211 Main Street, Enterprise Lumber & Silo, Cheektowaga, NY, 2020-2022—The former industrial site is proposed to be a $4M commercial office space development. C&S gathered preliminary subsurface investigation for the site and entered it into the NYSDEC Brownfield Cleanup Program (BCP). The BCP Remedial Investigation (RI) is complete and included the advancement of soil borings, construction of groundwater monitoring wells, and the collection and analysis of soil and groundwater samples. The BCP RI included the collection of soil and groundwater for PFAS analysis (consistent with NYSDEC guidance), as well as data interpretation. The remedy for the site includes the complete removal of the approximate 2,000 cubic yards of fill on the site to achieve a Track 1 cleanup. The project received a COC in 2021.

Environmental Restoration Program Site, Former Industrial Noss Park, City of Corland, Cortland, New York, 2022—On the behalf of the City of Cortland, C&S secured an approximate $400,000 NYSDEC ERP remediation grant for this site. Prior to remediation, C&S performed numerous environmental investigations. C&S also prepared the contract documents and assisted with bidding. The remedy for the site included the excavation of approximately 1,000 cubic yards of metal impacted soil. C&S provided oversight of the remediation, implemented community air monitoring, and reporting. The remedy was completed in 2022.

Brownfield Redevelopment, Former ANSCO Camera Factory, Freewheelin ANSCO LLC (Paulus Development), Binghamton, New York, 2019—Oversaw the completion of a preliminary subsurface investigation and reporting for the factory, for the purpose of entering the property into the NYSDEC Brownfield Cleanup Program (BCP). Subsequently successfully managed the project through the BCP. The effort included the performance of the BCP Remedial Investigation (RI) and preparation of numerous reports (RI, AA, SMP, RWP, FER). The BCP RI included the collection of soil and groundwater for PFAS analysis (consistent with NYSDEC guidance), as well as data interpretation. Oversaw the team that provided construction oversight and environmental monitoring during interim remedial measures, site development, and remediation. The

remediation of the site was completed in 2019. C&S performs annual site management activities (inspections and sampling) and prepares Periodic Review Reports.

Brownfield Redevelopment, South Salina Street Parcels, City of Syracuse, Syracuse, NY, 2019—Oversaw the completion of a preliminary subsurface investigation and reporting for a vacant site in Downtown Syracuse that was the former location of various commercial entities, as well as a large, manufactured gas storage tank. The purpose of the investigation was to assess the level of impacts from previous uses in order to enter the property into the NYSDEC BCP. The BCP Remedial Investigation (RI) was completed in the Fall of 2019. The BCP RI included the collection of soil and groundwater for PFAS analysis (consistent with NYSDEC guidance), as well as data interpretation. Site redevelopment and remediation was paused due to Covid, but is scheduled to be performed in 2026. The redevelopment will include the construction of a $6 million dollar mixed use building.

Subsurface Investigation, Confidential Airport Client, NY, 2021—Oversaw the completion of a subsurface investigation and reporting for an active fuel farm at an international airport. The purpose of the investigation was to assess the level of impacts (if any) from various fixed base operators (FBO) use of the fuel farm for several decades. An isolated area of petroleum impacts was delineated and options for management are currently being discussed. Cost: $25,000.

Subsurface Investigation, Greater Syracuse Land Bank, Syracuse, NY, 2018—Oversaw the completion of a subsurface investigation and reporting for a former commercial site in Downtown Syracuse. The purpose of the investigation was to assess the level of impacts from the site's previous use as a dairy and gasoline station. The purpose of the investigation was to assess the level of risk for its potential acquisition by GSLB. Cost: $12,000.

Petroleum Contamination Remediation, Confidential Client, Waterloo, NY, 2017—Oversaw the completion of the remediation of this former gasoline service station. Use of the site a gasoline station and auto repair resulted in subsurface impacts, which were generally related to underground storage tank and piping release. The site was remediated by source removal and resulting in meeting NYSDEC Part 375 Unrestricted Use Soil Cleanup Objectives. Cost: $115,000.

Detailed Site Investigation for South Street Corridor Enhancement, City of Auburn, Auburn, NY, 2016—Oversaw the completion of a detailed site investigation due a former armory located adjacent to the Project area. The results were helpful for planning related to soil and groundwater management for the Project. Cost: $20,000.

Detailed Site Investigation for Route 104, Route 104A at Southwest Oswego to City of Oswego Line, City of Oswego, Oswego, NY, 2016—Prepared a Detailed Site Investigation Work Plan and oversaw the completion of a detailed site investigation for three separate automobile repair facilities and two gasoline stations along Route 104. The results identified the presence of contamination at several of the sites, which required special specifications for the construction phase of the Project. Cost: $30,000.

Subsurface Investigation and Groundwater Assessment, Former Town of Lafayette Highway Garage, Town of Lafeyette, Lafayette, NY, Ongoing—Oversaw the completion of a subsurface investigation, groundwater assessment, reporting, and development of a remedial plan for a former town highway garage in Central New York. Gasoline contamination in the site soil and groundwater was delineated and the remediation was performed in 2023. The remediation consisted of the installation and multiple rounds of testing of groundwater observation wells and drinking water wells, the removal of a UST, and the injection of Oxygen Biochem (OBC) into the saturated zone. The site received a no further action letter in 2024. Cost: $100,000.

Subsurface Investigations, State and Local Road Projects, Various Locations, Central and Upstate NY, Ongoing—Oversaw the completion of several subsurface investigations and reporting for miles of State and

Local roadways throughout central and upstate New York. The purpose of the investigations was to determine if petroleum or hazardous substances have impacted the subsurface along the corridors in order to effectively plan for the construction projects. Cost: $50,000.

Site Assessment

Due Diligence Projects, QA/QC Lead—Serves as the quality assurance/quality control lead for all C&S due diligence projects, which includes creating and setting standards and relevant training. Also manages the completion of Phase I Environmental Site Assessments for hundreds of parcels across the United States for various commercial/manufacturing/industrial sites, transportation corridors, solar projects, residential rehabilitation and redevelopment projects, oil and gas facilities, airport, etc. All assessments are performed under USEPA Site Assessment Grants, as components of NYSDEC Brownfield Projects, for Land Banks, private developers, business owners, etc. Phase I ESA Reports are completed consistent with the ASTM 1527-21 or ASTM E2247-16 standards.

Planning, Assessment, & Investigation Services, Chobani, Former Griffiss Air Force Base Rome NY, 2025—Managed various projects to address potential environmental concerns for the construction of a $1B dairy processing facility on a former US Air Force property. The work included the preparation of multiple Phase I Environmental Site Assessments for hundreds of acres of former air force base land and a golf course, a cultural resources survey, a wetland delineation, soil testing for PFAS, and the preparation of a PFAS Management Plan. The information will be utilized to mitigate potential concerns prior and during construction.

Phase I Environmental Site Assessments for USEPA Assessment Grants, Various Locations, Central and Upstate NY, Ongoing—Managed Site Assessment Grants up to $1M for municipalities in NY in which dozens of Phase I ESAs were completed. Parcels included dry cleaners, manufacturing facilities, gas stations, auto repair facilities, and vacant lots. When recognized environmental conditions (RECs) were identified, some sites were further investigated via a Phase II ESA.

Phase I Environmental Site Assessment, Bluesource, WV, 2022—Managed the completion of a Phase I Environmental Site Assessment for hundreds of parcels comprising approximately 30,000 acres in a mountainous area of northern West Virginia. The parcels included hundreds of former and active oil and gas wells. The site reconnaissance included numerous staff who logged hundreds of miles in off-road vehicles and on foot. The Phase I ESA Report was completed consistent with the ASTM E2247-16 standard.

Phase I Environmental Site Assessments and Hazardous Building Material Assessments, Syracuse University, Syracuse, NY, Ongoing—Managed the completion of numerous Phase I Environmental Site Assessments and Hazardous Building Material Assessments (asbestos, lead, mold) for various strategic residential and commercial properties on "University Hill". Phase I ESA Reports were completed consistent with the ASTM 1527 standard. Hazardous Building Material Assessment reports were prepared consistent with OSHA and NYS DOL requirements.

Phase I Environmental Site Assessments for Low Income Housing, Various Locations, NY—Managed the completion of a large number of Phase I Environmental Site Assessments for current and proposed low-income housing development projects. Phase I ESA Reports were completed consistent with the ASTM 1527-13 standard, as well as additional requirements of Housing and Urban Development (HUD), Housing and Community Renewal (HCR), and the USEPA.

Environmental Assessments and Phase I Environmental Site Assessments for Airport Improvement Projects, Various Clients and Locations across the US—Led the completion of dozens of Environmental Assessments and Phase I Environmental Site Assessments for airport development projects such as taxiway and runway improvements and extensions, terminal construction, land acquisition, and land clearing. Phase I ESA Reports

were completed consistent with the ASTM 1527 and FAA EDDA standards. When concerns are identified, mitigation and avoidance strategies were developed to meet FAA requirements.

Phase I Environmental Site Assessments, Greater Syracuse Land Bank, Syracuse, NY, Ongoing—Managed the completion of Phase I Environmental Site Assessments for dozens of tax delinquent and dilapidated properties across Onondaga County. The goal of the Phase I's are to gather sufficient documentation for GLSB to made decisions about their potential acquisition and redevelopment.

Phase I Environmental Site Assessment, Former Dunlop Tire Manufacturing Facility, Utica, NY, 2019—Managed the completion a Phase I Environmental Site Assessment for a 230,000-square foot industrial building, situated on 5 acres. The project included a site inspection, an extensive document and map review, and interviews. Cost: $5,000.

Phase I Environmental Site Assessments, Various Solar Developers, Various Properties, NY, Ongoing—Manage the completion Phase I Environmental Site Assessments for numerous greenfield sites across NYS. Sites range in size from 50 to more than 200 acres. Cost: $50,000.

Contaminated Materials and Hazardous Substances Screening, Downtown Mill and Pave Project, Syracuse, NY, 2018—Oversaw the completion of a NYSDOT Contaminated Materials and Hazardous Substances Screening for a three-mile corridor in downtown Syracuse. Because of the historical land use along the corridor and the number of spills in the area, the Project required the implementation of various environmental plans consistent with NYSDOT Standard Specification 205. Cost: $10,000.

Contaminated Materials and Hazardous Substances Screening, South Street Corridor Enhancement Project, City of Auburn, Auburn, NY, 2016—Oversaw the completion of a NYSDOT Contaminated Materials and Hazardous Substances Screening for an approximate half-mile corridor on the southern side of the city. Because of an adjacent spill closed as not meeting standards, the Project required the implementation of various environmental plans consistent with NYSDOT Standard Specification 205. A Detailed Site Investigation was performed by C&S. Cost: $10,000.

Phase I and Phase II Environmental Site Assessments, Confidential Client, Waterloo, NY, 2016—Oversaw the completion Phase I and Phase II Environmental Site Assessments for a former gasoline service station. The subsequent investigation utilized geophysical scanning techniques to locate former tanks and piping. The extent of petroleum impacts were defined by a soil boring and sampling program. The remediation of the site was subsequently overseen by Matthew. Cost: $15,000.

Phase I Environmental Site Assessments, Swedish American Hospital, Rockford, IL, 2014—Oversaw the completion of Phase I Environmental Site Assessments for the 1 million square foot main campus of the hospital as part of a potential acquisition by the University of Wisconsin. Cost: $30,000.

Phase I Environmental Site Assessments, Inner Harbor, Onondaga County, Syracuse, NY, 2015—Oversaw the completion of Phase I Environmental Site Assessments for several parcels that comprise the Syracuse Inner Harbor, so that it could be redeveloped and assist with economic development in the area. The project included a site inspection, an extensive document and map review, and interviews with previous facility operators. Cost: $20,000.

Phase I Environmental Site Assessments, Oneida Indian Nation, Oneida, NY, 2014—Phase I Environmental Site Assessment on a collection of 13,000 acres of Oneida Indian Nation properties, which was performed consistent with the American Society for Testing and Materials (ASTM) E1527–13, Standard Practice for Environmental Site Assessments – Phase I Environmental Site Assessment Process. Cost: $250,000.

Phase I and Phase II Environmental Site Assessments, Former Clinton County Airport, Clinton County, Plattsburgh, NY, 2012—Oversaw the completion of Phase I and Phase II Environmental Site Assessments for a

600-acre former County airport so that it could be redeveloped and assist with economic development in the area. The project included a site inspection, an extensive document and map review, interviews with previous facility operators, the completion / excavation of test borings / test pits, and the collection and analysis of soil samples. Cost: $200,000.

Phase I Environmental Site Assessment, Griffiss Utility Services Corporation Central Heat Plant, Rome, NY, 2009—Completed a Phase I Environmental Site Assessment for this steam plant which adjoins the former Griffiss International Airport: A National Priority List Site (NPL). The project included a site inspection, an extensive document and map review, and interviews with previous and current facility operators. The assessment was completed in anticipation of the construction of a biomass gasification plant at the property. Cost: $8,000.

Regulatory Compliance/Permitting

SPDES Permitting, Syracuse-Hancock International Airport and Ithaca Thompkins Regional Airport, Syracuse, NY, Ongoing—Prepared Best Management Practices Plans (BMPPs); developed site-specific training for the implementation of the Plans; and prepared permit applications for Individual SPDES permits. Worked closely with the facilities to provide guidance relative to stormwater reporting, PBS/SPCC compliance, etc.

Regulatory Compliance Services, Niagara Frontier Transportation Authority, Buffalo, NY, Ongoing—Prepared Stormwater Pollution Prevention Plans (SWPPPs) for Frontier Bus, South Park Rail, NFIA, and BNIA and also provided onsite site-specific training for the implementation of the Plans. Worked closely with the facilities to provide guidance relative to Federal Tier II reporting, hazardous waste management, stormwater reporting, PBS/SPCC compliance, etc.

Environmental Services Contract, Various Industrial Clients, NY, Ongoing—Oversee the completion of annual report submissions for approximately half-a-dozen industrial clients. The submissions include management of environmental management systems, Federal Tier I and II Forms, NYSDEC Hazardous Waste Reports, Federal Form R Reports, NYSDEC SPDES Reports and air emission modeling. Served as the interim EHS Coordinator for a local industry in 2016.

Storm Water Pollution Prevention Plans (SWPPP) and Spill Prevention Control and Countermeasure (SPCC) Plans, RockTenn, Northeast and Mid-Atlantic Region, 2009—Oversaw the completion of Plans for nine (9) corrugated box plants in the states of New York, New Jersey, Tennessee, North Carolina, South Carolina, and Pennsylvania. The Plans helped the facilities to comply with various NPDES General Permits and the Federal Oil Pollution Prevention Rule (40 CFR Part 112), respectively. Cost: $50,000.

Storm Water Pollution Prevention Plans (SWPPP), Spill Prevention Control and Countermeasure (SPCC) Plans, Spill Prevention Report (SPR), Central New York Regional Transportation Authority, Central New York, NY, 2018—Oversaw the completion of the creation and amendments of the above Plans for six (6) bus maintenance facilities. The projects helped the facilities to comply with NYSDEC Multi-Sector General Permit, the Federal Oil Pollution Prevention Rule (40 CFR Part 112), and NYSDEC CBS Regulations (6 NYCRR Parts 595-599), respectively. Cost: $60,000.

Spill Prevention Control and Countermeasure (SPCC) Plans, Various Clients, Various Locations, Ongoing—In addition to the above, oversaw the completion of SPCC Plans for 50+ facilities located throughout the region. Plans have been prepared consistent with 40 CFR Part 112 for facilities with diverse applications, including industrial and manufacturing facilities, commercial and general aviation airports, public and private universities, transportation/highway garages, solid waste operations, and hospitals/health care facilities.

Stormwater Pollution Prevention Plans (SWPPP), Various Clients, Various Locations, Ongoing—In addition to the above, oversaw the completion of SWPP Plans for ~30 facilities located throughout the region. Plans have been prepared consistent with the applicable NYSDEC SPDES MSGP for Stormwater Discharges Associated

with Industrial Activity and the EPA Guidance Manual "Developing Your Stormwater Pollution Prevention Plan – A Guide to Industrial Operators" (EPA 833-B-09-002) for a diverse set of facilities including: box/paperboard manufacturers, an automobile manufacturer, a locomotive airbrake manufacturer, an electrical equipment manufacturer, commercial and general aviation airports, regional transportation authorities, a communications manufacturer, a chocolate factory, a national defense contractor, and publicly owned wastewater treatment plants.

Environmental Compliance Auditing

Environmental Compliance Audits, New York Air Brake, 2010, 2012, 2015, 2021—Oversaw the completion of Environmental Compliance Audits for New York Air Brake's Watertown, New York, China Grove, North Carolina, and Kansas City, Missouri facilities. Auditing focused on state and federal regulations pertaining to petroleum and chemical storage tank management (e.g. PBS Regulations and SPCC Rule), chemical storage and use (i.e. EPCRA – Tier II and Form R Reporting), hazardous waste management (i.e. RCRA), stormwater pollution prevention (i.e. NPDES), air permitting, wastewater discharges, etc. Cost: $60,000.

Environmental Compliance Audits, NYSDEC / USEPA Compliance Binders, and Environmental Training, Central New York Regional Transportation Authority, Central New York, Ongoing—Oversaw the completion of multiple rounds of Environmental Compliance Audits, the preparation of Compliance Binders, and provided multiple rounds of Training for six (6) bus maintenance facilities. The projects helped to educate facility personnel as well as to identify items of non-compliance with respect to the NYSDEC Multi-Sector General Permit, the Federal Oil Pollution Prevention Rule (40 CFR Part 112), the Federal Underground Storage Tank Rule (40 CFR Part 280), NYSDEC PBS Regulations (6 NYCRR Parts 612-614), and NYSDEC CBS Regulations (6 NYCRR Parts 595-599), respectively. Cost: $100,000.



Nicholas Coulombe

Senior Project Environmental Scientist

Nicholas Coulombe is a Senior Project Environmental Scientist within C&S Engineers' Environmental Services Group with more than 17 years of experience in the environmental consulting industry. His responsibilities include project management; abatement and mitigation system design; variance preparation; hazardous building material surveys; remedial investigations; environmental site assessments; and radon and vapor intrusion inspection and design. Nicholas also provides CAD drafting and design support for the preparation of plans, details, and specifications for a wide range of environmental projects.

Total Experience
17+ years

With C&S Since
2021

Education
A.S., Occupational Studies
ITT Technical Institute, 2001

Registrations
New York Certified Asbestos Building Inspector

New York Certified Asbestos Project Designer

NRSB Certified Radon Measurement Specialist

Specialized Training
OSHA 40 Hour HAZWOPER Training

OSHA 10 Hour Construction Safety Training

Experience

Industrial Hygiene

Nunda Village Apartments Renovation Project, Nunda, NY, 2023 – Managed project from start to finish while performing all field activities such as, asbestos building inspections, asbestos sampling and lead in drinking water sampling. Prepared technical documents and CAD design services for the abatement of asbestos-containing materials. Cost $15,000.

Community Manor Apartments Renovation Project, Avon, NY, 2023 – Managed project from start to finish while performing all field activities such as, asbestos building inspections, asbestos sampling and lead in drinking water sampling. Prepared technical documents and CAD design services for the abatement of asbestos-containing materials. Cost $14,000.

Upper Crown Apartments Renovation Project, Marcellus, NY, 2025 – Managed project from start to finish while performing all field activities such as, asbestos building inspections, asbestos sampling and lead in drinking water sampling. Prepared technical documents and CAD design services for the abatement of asbestos-containing materials. Cost $13,000.

Nine Mile Landing Apartments Project, Marcellus, NY, 2025 – Managed project from start to finish while performing all field activities such as, asbestos building inspections, asbestos sampling, lead in paint sampling and PCB in caulk sampling. Prepared technical documents and CAD design services for the abatement of asbestos-containing materials. Cost $11,000.

*Term Asbestos Consulting Services, Cornell University, Ithaca, NY, 2015-2018—Project manager for asbestos projects. Performed more than 100 building surveys for suspect materials, completed hazardous material abatement design plans, and managed multiple projects for monitoring services.

*Balch Hall Renovation Project, Cornell University, Ithaca, NY, 2018-2021—Project manager and lead designer for asbestos consulting services. Collected 400+ samples for suspect materials, completed hazardous material abatement design plans, and assisted the project architect with hazardous material abatement-related questions throughout the project.

*Key Bank Renovation Projects, Various Locations, New York State, 2016-2020—Project manager for asbestos consulting services for more than 40 different buildings throughout New York State. Performed building surveys, which entailed the collection of 500+ samples for suspect materials and completed detailed drawings with locations of asbestos-containing materials for each building.

*Asbestos Consulting Services, Bristol-Myers Squibb, Syracuse, NY, 2016-2020—Heavily involved in the completion of more than 30 building pre-renovation surveys for hazardous materials, provided abatement-related project oversight for multiple large/small projects, and assisted Bristol-Myers project managers with hazardous material abatement-related questions throughout the projects.

K-12 School Districts – Asbestos Consulting Services

*Hazardous Material Consulting Services, Various Locations, New York State, 2008-2020—Assisted and/or managed more than 100 school-related projects within the State of New York. These projects involved abatement oversight, building surveys, tri-annual inspections, abatement design creation, contamination assessments, site specific variance writing, and project management.

Environmental Site Assessment

USEPA Phase I Environmental Site Assessment, Former Nestle Foods, Fulton, NY, 2023—Prepared a USEPA Phase 1 Environmental Site Assessment for several parcels that were once part of Nestle Foods. Cost $11,800.

USEPA Phase I Environmental Site Assessment, 2818 State Route 48, Minetto, NY, 2023—Prepared a USEPA Phase 1 Environmental Site Assessment for a parcel that was once part of the Former Columbia Mills Plant. Cost $6,000.

Phase I Environmental Site Assessments, TJA Clean Energy LLC, NY, 2021-ongoing—Prepared numerous Phase I Environmental Site Assessments for various potential solar development sites as part of a potential property acquisition. Cost approximately $3,200 each.

Phase I Environmental Site Assessments, OYA Solar NY LP, NY, 2023-ongoing—Prepared numerous Phase I Environmental Site Assessments for various potential solar development sites as part of a potential property acquisition. Cost approximately $3,200 each.

Phase I Environmental Site Assessments, Dimension Energy LLC, NY, 2021-ongoing—Prepared numerous Phase I Environmental Site Assessments for various potential solar development sites as part of a potential property acquisition. Cost approximately $3,200 each.

Phase I Environmental Site Assessment, Greater Syracuse Land Bank, Syracuse, NY 2023-ongoing—Prepared numerous Phase I Environmental Site Assessments for various properties in the City of Syracuse, for the Greater Syracuse Land Bank. Cost approximately $3,200 each.

Subsurface Investigation & Environmental Monitoring

Multiple Limited Subsurface Investigations, 1920 Park Street, Syracuse, NY, 2024–ongoing — Compiled and submitted a New York State Department of Environmental Conservation (NYSDEC) Brownfield Cleanup Program (BCP) application for a former manufacturing facility. Coordinated and led field activities including soil boring oversight, soil classification and screening, soil sampling, monitoring well installation oversight, monitoring well development and groundwater sampling, SVI sampling and passive soil gas sampling and compilation and evaluation of analytical data and prepared technical documents. Cost $65,000.

Brownfield Redevelopment, 1117 West Fayette Street, Syracuse, NY, 2023-2025 — Assisted with onsite field activities including soil boring oversight, soil classification and screening, soil sampling, monitoring well installation oversight, monitoring well development and groundwater sampling, SVI sampling. Cost $360.000.

Brownfield Redevelopment, Lofts at Gillette Skirt Factory, Cortland, NY, 2021-2023 — Assisted with oversight of a preliminary subsurface investigation and reporting in support of enrollment in the NYSDEC BCP. Cost: approximately $185,000.

Brownfield Redevelopment, Urban Villages, Syracuse, NY, 2023 — Assisted with preparation of technical documents including subsurface investigation reports, analytical data tables, and CAD design drawings. Performed field activities including soil boring oversight, soil classification and screening, soil sampling, monitoring well installation oversight, monitoring well development and groundwater sampling, and SVI sampling. Cost $800.00

Brownfield Redevelopment, Old Erie Commons Site, Canastota, NY, 2025–Ongoing — Assisted with preparation and submission of BCP technical documents including a Remedial Investigation Work Plan (RIWP), Remedial Investigation Report (RIR), and Citizen Participation Plan (CPP). Coordinated and led field activities including soil boring oversight, test pit oversight, soil classification and screening, soil sampling, monitoring well installation oversight, monitoring well development and groundwater sampling, and SVI sampling. Cost $200.00

Groundwater Monitoring, McKinney Lot, Syracuse Housing Authority, Syracuse, NY, 2023 — Conducted groundwater monitoring activities including site condition observations and low-flow groundwater sampling. Cost $17,000.

State Pollutant Discharge Elimination System (SPDES) Stormwater Monitoring, Syracuse Hancock International Airport, Syracuse, NY — Conducted stormwater sampling, monitoring, and reporting in accordance with NYSDEC SPDES permit requirements. Cost $60,000.

Radon Testing and Sub-Surface Depressurization System Design

Indoor Radon Testing, Multiple Apartment Complexes, Greater Syracuse Area, NY 2023-2025— Conducted short-term indoor radon testing in accordance with HUD and NYSDEC guidance. Prepared radon testing reports documenting sampling rationale, methodologies, and field conditions, and evaluated laboratory results relative to applicable action levels. Cost $2,500 to 7,500.

Soil Vapor / Radon Mitigation System Design, Moyer Carriage Lofts, Syracuse, NY, 2023–2025 — As part of a Brownfield redevelopment project led by C&S Engineers, Nick assisted with onsite pressure field extension (PFE) testing to support the design of a sub-slab depressurization system for mitigation of soil vapor and radon. Provided CAD design support and assisted in the preparation of design plans, details, and specifications. Work performed as a defined task within an overall $900,000 project.

Soil Vapor / Radon Mitigation System Design, Creekside Landing, Syracuse, NY, 2023 — Prepared plans, details, and specifications and provided CAD design services for a sub-slab depressurization system to mitigate soil vapor and radon for a former commercial building. Cost $15,000.

Radon Mitigation System Design, Marine Drive, Buffalo, NY, 2025-ongoing — As part of a Brownfield redevelopment project led by C&S Engineers, Nick reviewed foundation, architectural, and mechanical plans to determine appropriate sub-slab extraction point locations, piping layouts, and riser configurations. Provided CAD design services for a passive-to-active sub-slab depressurization system for three newly constructed multifamily buildings. Cost $240,000,000.

Radon Mitigation System Design, Robin Hill, Ithaca, NY, 2024 — Assisted with pressure field extension testing to evaluate sub-slab pressure differentials and air flow and provided CAD design services for an active sub-slab depressurization system for a single-family residence constructed on bedrock. Cost $14,000.

** Projects performed with a previous employer.*



Claire Del Fatti

Project Environmental Engineer

Claire Del Fatti works as a Project Environmental Engineer in C&S's Remediation Department of the Environmental Services Group. She has 6 years of experience with environmental contamination assessment and remediation, environmental emergency response, and project management. Her responsibilities include conducting environmental assessments, performing remedial investigations, developing remedial work plans and designs, and performing various project management tasks including coordination of field work and preparing cost estimates. Her project experience includes a wide variety of settings including residential homes, commercial buildings, industrial facilities, pipeline stations, and rail lines and yards.

Total Experience
6 years

With C&S Since
2023

Education
B.A.Sc., University of Toronto, 2021

Certifications
OSHA 40-Hour HAZWOPER

NRPP Certified Radon Measurement Professional

NRPP Certified Radon Mitigation Specialist

Incident Command System (ICS) 300

Transport Canada UAV Pilot – Advanced Operations

Experience

USEPA Site Assessment

USEPA Phase I/II Environmental Site Assessments, Oswego County, NY, 2023-2026 — Prepared numerous Phase I and II Environmental Site Assessments (ESAs) at priority brownfield sites within Oswego County. The work is funded by a USEPA Brownfield Assessment Grant. Responsibilities include preparing EPA compliant Phase I and Phase II reports, preparing Health and Safety Work Plans (HASPs) and Quality Assurance Project Plans (QAPPs), performing site walks and assessments, leading subsurface investigations, and assisting with project management tasks including preparation of proposals and approval forms. Cost: $500,000.

USEPA Phase I/II Environmental Site Assessments, Greater Syracuse Property Development Corporation, NY, Ongoing — Prepared numerous Phase I and II ESAs at priority brownfield sites within the City of Syracuse. The work is funded by a USEPA Brownfield Assessment Grant. Responsibilities include preparing EPA compliant Phase I and Phase II reports, preparing HASPs and QAPPs, performing site walks and assessments, leading subsurface investigations, and assisting with project management tasks including preparation of proposals and approval forms. Cost: $1,000,000.

Site Assessment

Phase I Environmental Site Assessments, Multiple Locations, NY, Ongoing — Coordinated, performed, and prepared technical documents and reports for Phase I ESAs at numerous sites throughout New York, including commercial, industrial, residential, and agricultural facilities. Responsibilities included preparing reports and performing site walks and assessments. Claire has been the project manager on a variety of these kinds of projects and is responsible for preparing proposals, cost estimates, and communicating with the client. Cost: Approximately $3,500 each.

Phase II Environmental Site Assessments, Multiple Locations, NY, Ongoing — Coordinated, performed, and prepared technical documents and reports for Phase II ESAs at numerous sites throughout New York, including commercial, industrial, residential, and agricultural facilities. Responsibilities included preparing reports, performing site walks and assessments, and leading subsurface investigations. Claire has been the project manager on a variety of these kinds of projects and is responsible for preparing proposals, cost estimates, coordinating with contractors, and communicating with the client. Cost: Approximately $15,000 to $25,000 each

Subsurface Investigation, Monitoring, Remediation

1153 West Fayette Street BCP Site, 1153 Owner LLC, Syracuse, NY, Ongoing — Lead the owner of a former manufacturing facility through the New York State Department of Environmental Conservation (NYSDEC) Brownfield Cleanup Program (BCP). Work consisted of conducting a Phase I ESA and Phase II ESA to gather sufficient data for acceptance into the program. Upon acceptance, Claire prepared multiple technical design documents, reports, and work plans. Claire has coordinated and lead all investigative and remedial work at the site to date. Field work included drilling oversight, monitoring well installation oversight, soil, groundwater, and soil vapor intrusion sampling, community air monitoring, and remedial construction oversight. Project management work consisted of preparing cost estimates and coordinating with NYSDEC. Cost: $500,000.

Groundwater Remediation Design, Yates County, Penn Yan, NY, 2024-2025 — Lead the remedial design efforts for groundwater remediation following a petroleum spill at a Highway Department Garage. Work consisted of researching various groundwater remediation technologies, presenting multiple feasible solutions to the client with estimated costs, identifying gaps in the conceptual site model, preparing a work plan to gather further information to refine the remedial design, performing a Pre-Design Investigation (PDI), and developing a Remedial Action Work Plan (RAWP) based on the results of the PDI. Claire lead an Activated Carbon Groundwater Injection Program at the Site which was successful in reducing contaminant concentrations by 84 to 99% from baseline values. The spill was closed by NYSDEC with a No Further Action letter. Cost: $615,500

Spill Investigation, Yates County, Penn Yan, NY, 2023 — Coordinated and performed a spill investigation at a Highway Department Garage following the closure of two underground storage tanks containing gasoline and diesel. Work consisted of overseeing and leading a borehole investigation to determine extent of impacts, soil classification and screening, soil sampling, monitoring well installation oversight, and monitoring well development and sampling. Following the field program, responsibilities included preparing a Spill Investigation Report, preparing preliminary models of the extent of soil and groundwater impact, and coordinating with the client and regulatory agencies. Cost: $70,000

Coventry Commons State Superfund Site, Coventry Commons LLC, Newark, NY, Ongoing — Conducted two rounds of Site Characterization sampling events to comply with a State Superfund Order on Consent. Due to well-documented soil vapor intrusion of chlorinated solvents, Claire also prepared an Interim Remedial Measure Work Plan (IRMWP) to address source contamination at the Site. Cost: $1,000,000

Former Ithaca Gun Factory BCP Site, 121-125 Lake Street LLC, Ithaca, NY, Ongoing — Prepared technical documents including work plans, reports, and cost estimates for a former gun factory. Claire also provided environmental oversight and sampling services. Cost: $1,300,000.

Harbor View Square BCP Site, Harbor View Square, LLC, Oswego, NY, Ongoing — Oversaw the remedial groundwater injection program for a NYSDEC BCP Site. Work included drilling oversight, monitoring well installation oversight, monitoring well development and sampling, injection oversight, and periodic groundwater sampling to determine the effectiveness of the remedy. Cost: $750,000.

Urban Villages BCP Site, UR-ban Villages PFA, LLC, Syracuse, NY, Ongoing — Prepared technical documents including work plans, reports, and cost estimates for a former manufacturing facility. Claire also provided environmental investigation and sampling services. Cost: $1,200,000.

Lofts at 1117 BCP Site, 1117 NEWCO, Corp., Syracuse, NY, 2023 – 2025 — Coordinated and performed a remedial investigation at a former manufacturing facility. Work consisted of drilling oversight, soil sampling, monitoring well installation oversight, monitoring well development and sampling, and preparing a Remedial Investigation Report (RIR) and an Alternatives Analysis Report (AAR) for submission to NYSDEC. Claire also provided periodic assistance throughout the remediation phase of the project. Cost: $365,000.

Environmental Investigation, Novelis, Oswego, NY, 2023 — Coordinated and performed an environmental investigation at a proposed expansion for an aluminum manufacturing facility. Work consisted of drilling oversight, soil classification and screening, soil sampling, monitoring well installation oversight, and monitoring well development and sampling. Claire also prepared technical documents including an investigation proposal, cost estimate, and investigation report. Cost: $6,000.

Soil Vapor Intrusion Sampling and Mitigation Design

Radon Sampling and Mitigation Design for Historical Property, Confidential Client, Ithaca, NY, 2024-2025 — Coordinated and performed radon testing in a historical property with multiple foundation types. Upon receipt of the results, Claire designed and developed technical documents for the construction of a radon mitigation system to reduce indoor air concentrations while preserving historical aspects of the property. Work consisted of ensuring compliance with relevant ANSI/AARST radon mitigation standards, performing pressure-field extension testing, designing sub-slab suction points and riser routes, and properly sizing radon mitigation piping and fans. Cost: $14,000

Radon Mitigation System Design for a New Build, SWBR, Buffalo, NY, 2025 — Designed and developed technical documents for the construction of a passive radon mitigation system in a new residential build. Work consisted of ensuring compliance with relevant ANSI/AARST radon mitigation standards, designing sub-slab suction points and riser routes, and properly sizing radon mitigation piping and fans. Cost: $32,000.

Radon Mitigation System Inspections for a New Build, Perrone Plumbing, Hamilton, NY, 2024-2025 — Performed periodic inspections of sub-slab components of a newly installed radon mitigation system. Work consisted of performing on-site inspections to ensure compliance with the approved design, preparing inspection logs, coordinating with the design engineer, and providing recommendations to the system installer. Cost: $2,500.

Soil Vapor Intrusion Mitigation Design for Coventry Commons State Superfund Site, Coventry Commons LLC, Newark, NY, 2024 — Assisted with soil vapor intrusion mitigation design services to address elevated concentrations of volatile organic compounds and the potential for elevated concentrations of radon in a former industrial building being renovated for residential use. Work consisted of coordinating/planning pressure field extension testing for the sub-slab depressurization system and assisting with data analysis and development of design specifications. Cost: $27,000.

Sub-Slab Soil Vapor Sampling for a Commercial Property, Oswego County Opportunities, Fulton, NY, 2023 — Coordinated, performed, and developed technical documents for the completion of a sub-slab soil vapor assessment through the installation of sub-slab sampling points and the collection of indoor air and outdoor ambient air samples. Cost: $6,500.

Environmental Emergency Response, Previous Employer

Crude Oil Pipeline Release Remediation and Monitoring, Abbotsford, BC, 2021-2022—Coordinated and performed environmental monitoring and remediation at a pipeline station following the release of 150,000 liters of crude oil. Work consisted of preparation of technical documents (including a remedial action plan), groundwater sampling, soil sampling, excavation oversight, drilling oversight, monitoring well installation, waste handling, unmanned aerial vehicle (UAV) surveys, and installation of a biosparging groundwater remediation system.

Train Derailment Emergency Response, Various Locations, 2021-2022—Performed contamination assessment and environmental monitoring on a variety of train derailment sites across Western Canada. Spilled products included gasoline, diesel, coal, grain, etc. Work consisted of preparation of technical documents, environmental monitoring and sampling, and UAV surveys.

Gasoline Truck Spill Emergency Response, Yellowknife, NT, 2022—Coordinated and performed contamination assessment and delineation following a truck rollover resulting in the release of 16,000 liters of gasoline. Work consisted of initial site walkthroughs, UAV surveys, borehole and test pit oversight, soil sampling, excavation oversight, and waste handling.

Gasoline Storage Tank Spill Emergency Response, Sidney, NS, 2022—Coordinated and performed work zone and community air monitoring following the release of 600,000 liters of gasoline from a storage facility. Work consisted of community and work zone air monitoring using stationary and handheld devices, implementing appropriate controls to minimize exposure, air data compilation, air data analysis, and preparation of technical reports such as daily air monitoring memos.

Diesel Release Environmental Investigation, Port Coquitlam, BC, 2022—Coordinated and performed an environmental investigation at a rail yard following the suspected release of diesel fuel. Work consisted of site walkthroughs, visual inspections, soil and surface water sampling, excavation oversight, off-site water monitoring and sampling, and preparation of technical reports.

Flooding Response and Environmental Investigation, Abbotsford, BC, 2021—Performed an environmental investigation throughout the City of Abbotsford following large scale flooding events. Work consisted of surface water and sediment sampling, data compilation and analysis, and preparation of an investigation report summarizing the findings.

Wildfire Response and Environmental Investigation, Lytton, BC, 2021—Performed an environmental investigation throughout the Town of Lytton following a wildfire that destroyed 90% of the infrastructure in the town. Work consisted of coordinating hazard assessments, performing real-time air monitoring for particulates, carbon monoxide, and other gases of concern, ash sampling, and UAV surveys.

Nuclear Power Plant Project Management/Controls, Previous Employer

Bruce Power Project Management/Controls, 2019-2020—Maintained healthy project schedules and created a variety of reports to capture project success at the world's second largest nuclear power plant. Work consisted of collecting and analyzing large sets of raw data from hundreds of active projects and transforming it into visually appealing and meaningful information for the client. Assisted in building an internal document management system that was used to migrate dated paper documents on to a user friendly and automated digital platform.



Jarod Thiel

Field Technician

Jarod Thiel is a Field Technician in the Remediation and Compliance Department of the Environmental Services Group at C&S. He has three years experience managing natural resources as a Forester and seven years experience in the commercial construction field. Some of his responsibilities include performing environmental assessments, plans, and audits; oversight of subsurface investigations; evaluation of compliance associated with the State Pollutant Discharge Elimination System SPDES. Jarod is OSHA 40 Hour HAZWOPER certified and has served as field lead on numerous Phase I and II Environmental Site Assessments for both public and private sector clients.

Total Experience
10 years

With C&S Since
2023

Education
Associates of Applied Science, SUNY ESF Ranger School, 2020

Associates of Occupational Studies, SUNY Alfred State, 2018

Specialized Training
OSHA 40 Hour HAZWOPER Training

OSHA 10 Hour Construction Safety Training

NYS DOL Asbestos Inspector

NYS DEC UST Class A/B Operator

NYS DEC Erosion & Sediment Control Certified

Experience

Site Assessment

USEPA Phase I/Phase II Environmental Site Assessments, Oswego County, Oswego, NY, 2024—Field lead for the execution of Phase I and II ESAs at the Former Columbia Hall buildings in Oswego County. The work is funded by a USEPA Brownfield Assessment Grant. Responsibilities include inspecting the site and identifying locations of environmental concerns and preparing a report of the findings.

Phase I Environmental Site Assessment, Bluesource, Multiple Cities, WI, 2024—Field lead for the Phase I Environmental Site Assessment for approximately 75,000 acres of Wisconsin timberlands. Responsibilities included: developing the investigation strategies and conducting the on-the-ground operations.

Phase I Environmental Site Assessment, Bluesource, Multiple Cities, MI, 2025—Field lead for the Phase I Environmental Site Assessment for approximately 25,000 acres of Michigan timberlands. Responsibilities included: developing the investigation strategies and conducting the on-the-ground operations.

Phase I Environmental Site Assessment, Fulton Downtown Revitalization Initiative, Fulton, NY, 2024—Field lead for the Phase I Environmental Site Assessments for ten separate parcels in the City of Fulton as part of the Downtown Revitalization Initiative program.

Phase I Environmental Site Assessment, Greater Syracuse Land Bank, Syracuse, NY, 2023-2025— Field lead for the Phase I Environmental Site Assessments for several parcels in the City of Syracuse as part of a potential property sale by Greater Syracuse Land Bank.

Phase I Environmental Site Assessment, Dimension Energy LLC, Multiple Cities, NY, 2023-2025—Field lead for numerous Phase I Environmental Site Assessments for various potential solar development sites as part of a potential property acquisition by Dimension Energy LLC.

Phase I Environmental Site Assessments, TJA Clean Energy LLC, Multiple Cities, NY, 2023-2025—Field lead for numerous Phase I Environmental Site Assessments for various potential solar development sites as part of a potential property acquisition by TJA Clean Energy LLC.

Phase I Environmental Site Assessments, Pfister Energy, Multiple Cities, NY, 2023-2025—Field lead for numerous Phase I Environmental Site Assessments for various potential solar development sites as part of a potential property acquisition by Pfister Energy Renewable Energy Systems.

Phase I Environmental Site Assessment, Bradley International Airport, Windsor Locks, CT, 2024—Field lead for a Phase I Environmental Site Assessments of 175 acres of undeveloped land in the western portion of the Bradley International Airport property.

Hazardous Waste Screening, Various Clients, NY—Field lead for Hazardous Waste Screening Reports for numerous clients across the public and private sector. The projects included site investigation, reconnaissance, and historical document review per the NYSDOT document TEM section 4.4.20.

Subsurface Investigation, Monitoring & Remediation

Phase II Limited Site Investigation, 2818 State Route 48, Nick Sandman, Minetto, NY, 2024—The project included multiple test borings, and permanent monitoring wells for the inspection, sampling, and analysis of: soil, water, and vapor, as part of a potential property acquisition.

Phase II Limited Site Investigation, 314 Fayette Street, Northern Credit Union, Manlius, NY, 2023—The project included multiple test borings, and temporary monitoring wells for the inspection, sampling, and analysis of: soil, water, and vapor, as part of a potential property acquisition.

Phase II Limited Supplemental Investigation, 3951 Port Street, PSP Holdings, Pulaski, NY, 2024—The project included multiple test borings, permanent monitoring wells, temporary and permanent sub-slab vapor points for the inspection, sampling, and analysis of: soil, water, and vapor, as part of a potential property acquisition.

ILG Soil Stockpile Sampling, Delaware River and Bay Authority, New Castle, DE, 2023—Conducted the sampling of three separate soil stockpiles located on the Wilmington Airport.

Phase II Limited Site Investigation Oversight, 2812 Bailey Avenue, Norfolk Southern, Buffalo, NY, 2024—Provided oversight as a subcontractor drilled sample borings and installed permanent monitoring wells.

Brownfield Redevelopment, South Salina Street Parcels, Taurus Development, Syracuse, NY, 2023—Provided oversight and air-quality monitoring of the removal of an approximately 35-ton stockpile of contaminated soil.

Brownfield Redevelopment, Moyer Carriage Lofts, Syracuse, NY, 2024—Field lead for the second round of subsurface investigation and reporting for the purpose of maintaining the property in the NYSDEC Brownfield Cleanup Program (BCP). Provided environmental monitoring oversight during interim remedial investigation efforts.

Brownfield Redevelopment, Harbor View Square, Oswego, NY, 2024—Field lead for the second round of subsurface investigations and reporting for the purpose of maintaining the property in the NYSDEC Brownfield Cleanup Program (BCP). Provided environmental monitoring oversight during interim remedial investigation efforts.

Brownfield Redevelopment, Lofts at 1117, REDEV, Syracuse, NY, 2025—Field lead for the subsurface investigations and reporting for the purpose of maintaining the property in the NYSDEC Brownfield Cleanup Program (BCP). Provided community air monitoring oversight during interim remedial investigation efforts.

Limited Site Investigation Oversight, Novelis, Oswego, NY, 2024—Provided oversight and collected soil/ bedrock samples as a subcontractor drilled the sample borings.

Limited Site Investigation, Former Chimes Building, Syracuse, NY, 2024—Assisted the project manager with sub-slab vapor sampling, and PCB sampling.

Underground Storage Tank Removal, 900 South Ave., Housing Visions of Syracuse, Syracuse, NY, 2024—Provided oversight and collected soil samples as a subcontractor removed three underground storage tanks. Responsibilities also included vapor sampling within the structure on property.

Coldbrook Sediment Removal, Coldbrook Drive, City of Syracuse, Syracuse, NY, 2024—Field lead for stream water sediment sampling event.

Furnace Brook FEMA Project, Elmwood Park, City of Syracuse, Syracuse, NY, 2024—Field lead for stream water sediment sampling event.

Highway Garage, Yates County, Penn Yan, NY, 2024—Field lead for the installation of six permanent groundwater monitoring wells. Responsibilities included capturing well locations using GPS, developing and sampling wells, and conducting a level run survey on the well locations.

Central Deicing Pad, Syracuse Hancock International Airport, Syracuse, NY, 2024—Provided oversight as a subcontractor drilled more than twenty geotechnical borings. Responsibilities included classifying soil cores, and taking PFAS samples.

Environmental Monitoring

State Pollutant Discharge Elimination System (SPDES) Stormwater Monitoring, Syracuse Hancock International Airport, Syracuse, NY, 2023-2025—Continuous stormwater sampling, monitoring, and reporting for the Syracuse Hancock International Airport.

State Pollutant Discharge Elimination System (SPDES) Application, SPDES Monitoring, Ithaca Tompkins Regional Airport, Ithaca, NY, 2023-2025—Continuous stormwater sampling data interpretation, reporting, and SPDES Application renewal for the Ithaca Tompkins Regional Airport.

State Pollutant Discharge Elimination System (SPDES) Stormwater Monitoring, CNYRTA, Syracuse, NY, 2023-2025—Manage stormwater sampling coordination, monitoring, data interpretation, and reporting for five Central New York Regional Transportation Authority facilities.

State Pollutant Discharge Elimination System (SPDES) Stormwater Monitoring, Lockheed Martin, Cazenovia NY, 2023-2025—Manage stormwater sampling coordination, monitoring, data interpretation, and reporting for the Lockheed Martin radar station in Cazenovia.

State Pollutant Discharge Elimination System (SPDES) Stormwater Monitoring, Circle T Enterprises, Mexico, NY, 2024—Manage stormwater sampling coordination, monitoring, data interpretation, and reporting for the Circle T Enterprises Ready Mix facility.

Stormwater Pollution Prevention Plan (SWPPP), Site wide inspection, Lockheed Martin, Cazenovia, NY, 2025—Responsible for conducting site wide SWPPP inspections and reporting for the Lockheed Martin radar station in Cazenovia.

McKinney Lot Periodic Review Reporting, Syracuse Housing Authority, Syracuse, NY, 2023-2024—Assists project manager with monitoring and reporting of groundwater and site conditions at the Syracuse Housing Authority McKinney Lot as part of the previously prepared Soil Management Plan. Work consists of conducting low-flow groundwater sampling, coordinating analysis with approved laboratories, communication with regulatory agencies, interpreting analytical data, completing comparisons with NYSDEC standards and guidance values, completing 15-month inspections, and report preparation.

Former Brown Manufacturing Periodic Review Reporting, Syracuse Housing Authority, Syracuse, NY, 2024—Assists project manager with monitoring and reporting of groundwater and site conditions at the City of Syracuse's Former Brown Manufacturing Site as part of the previously prepared Soil Management Plan. Work consists of conducting low-flow groundwater sampling, coordinating analysis with approved laboratories,

communication with regulatory agencies, interpreting analytical data, completing comparisons with NYSDEC standards and guidance values, completing annual inspections, and report preparation.

Former ANSCO Manufacturing Periodic Review Reporting, Paulus Development, Binghamton, NY, 2024-2025—Assists project manager with monitoring and reporting of groundwater and site conditions at the City of Syracuse's Former Brown Manufacturing Site as part of the previously prepared Soil Management Plan. Work consists of conducting low-flow groundwater sampling, coordinating analysis with approved laboratories, communication with regulatory agencies, interpreting analytical data, completing comparisons with NYSDEC standards and guidance values, completing annual inspections, and report preparation.

Former Town of Clay Landfill, Town of Clay, Liverpool, NY, 2023-2025—Filed lead for the periodic inspection of a capped landfill.

Former Floyd's Garage Demolition, Town of Mexico, Mexico, NY, 2024—Provided oversight as a sub-contractor performed the complete demolition and removal of an asbestos contaminated building.

Syracuse Developmental Center Demolition, City of Syracuse, Syracuse, NY, 2024—Provided oversight as a sub-contractor performed the complete demolition and removal of an asbestos contaminated building.

Former Will & Baumer Candle Factory Geothermal Well Drilling, Town of Salina, Liverpool, NY, 2024—Provided oversight and community air monitoring as a subcontractor performed the drilling and installation of 42 geothermal wells.

Lofts at 1117 BCP, REDEV, Syracuse, NY, 2025—Conducted oversight, sampling, and community air monitoring as a subcontractor performed the removal of contaminated soil and soil intrusive site work.

1153 LLC BCP, City of Syracuse, Syracuse, NY, 2025—Conducted oversight, sampling, and community air monitoring as a subcontractor performed the removal of contaminated soil and soil intrusive site work.

DIANA JAKIMOSKI

Vice President, Real Estate Development

HOUSINGVISIONS
Real Plans. Real People. Real Progress.



1201 E Fayette St
Syracuse, NY 13210
(315) 472-3820
djakimoski@housingvisions.org

EDUCATION

Bachelor of International Studies
Le Moyne College
Syracuse, New York

TRAININGS & AWARDS

Tax Credit Compliance Designation (TaCCs)

OSHA 30 Hour Outreach Training Program for the Construction Industry

Board of Directors – Housing & Homeless Coalition of Central New York

PROFESSIONAL EXPERIENCE

2022-Present

Vice President, Real Estate Development
Housing Visions Unlimited, Inc. – Syracuse, NY

- Responsible for planning and development of affordable housing projects throughout the northeast including property acquisitions, budget preparation, applications for financing (Federal Low Income Housing Tax Credits, NYS Housing Trust Funds, City CDBG and HOME Funds, HHAP and Equity Investments), preparing NYS, PA, City, and Investor project milestone documentation, public relations and outreach, and negotiations with local government for real estate tax abatement.
- Performs development tasks associated with the acquisition of land, buildings and/or rehabilitation of housing units for low-income residents. Housing development activities include, but are not limited to site identification and control, community development, financial analysis and application preparation.
- Coordination of all project participants including other key Housing Visions staff, project partners, local government, architect, general contractor, managing agent, and investing members.
- Supervises Development Team members.

2018-2022

Director of Development
Housing Visions Unlimited, Inc. – Syracuse, NY

2010-2017

Development Project Manager
Housing Visions Unlimited, Inc. – Syracuse, NY

2006-2010

Affordable Housing Consultant
Newcastle Housing Venture– Hartford, CT

- Provide a broad range of consulting services in connection with the financing of affordable housing including assistance with project feasibility analysis; formulation of project assumptions; spreadsheet preparation; financing application preparation; assistance with financial closings; and assistance with Connecticut Finance Housing Authority construction administration process.
- Extensive knowledge of funding programs and applications including Low-Income Housing Tax Credits (LIHTC), Housing Tax Credit Contribution (HTCC) Program, and Department of Economic and Community Development Office of Housing Development and Finance program applications.

CONSTRUCTION TEAM

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1201 E Fayette St
Syracuse, NY 13210
(315) 472-3820

TEAM PROFILE

- Established in 2002
- Constructed over 1,500 units
- Renovated or newly constructed 300+ buildings
- Constructed $400 Million in Affordable Housing Projects
- Has achieved USGBC's highest green standard for a building: LEED Platinum Certification

QUALIFICATIONS

Providing general contractor services since 2002, Housing Visions Construction Co. (HVCC) takes a collaborative approach to the project design and construction process to ensure effective management of challenging multi-family projects. Our team is versed in complex financing expectations and takes pride in, early engagement with the design team and fostering strong relationships with the owners, design professionals, sub-contractors and suppliers.

BILL MARSHFIELD, Vice President of Construction

Bill provides leadership of all general contracting activities. He supervises multiple projects simultaneously and coordinates budgets, schedule, and resource needs. Bill is the lead interface with owners, architects and engineers. Bill sets policies and procedures, and oversees all subcontracts, budgeting, payments, scheduling, quality control and safety procedures. He oversees field and office staff while providing overarching oversight of a broad spectrum of trades that range from abatement and demolition, MEPs, to those specialized insubstantial rehabilitation and new construction. Bill works closely with our in-house finance and development team on current and pipeline projects to institute best practices in design and planning. Bill brings more than 40 years of experience in construction and holds multiple Master Electrician licenses as well as Superintendent and Safety certifications. Bill is EPA certified and has a 30-hour OSHA certification.

SHANNON ELDRIDGE, Project Executive

Shannon brings over 20 years' worth of construction experience to the team. She works collaboratively with the VP of Construction to provide oversight and leadership to the department. She creates and implements sustainable systems related to various aspects of the construction business, including estimating, pre-construction, bidding, contracting, project management, insurance monitoring, and compliance. Shannon is responsible for all document control, putting together project manuals, bid packages, scopes of work subcontractor approvals, compliance reporting, material submittals, contract negotiations and tracking progress of active jobs. She is also instrumental on providing analyses of project costs, and updating project schedules.. Shannon brings extensive knowledge and an exceptional work ethic to the construction team. She holds a BA in Business Administration & 30-hour OSHA certification.

DAVE BRAZELL, Director of Construction

As Director of Construction, Dave oversees subcontracts, budgeting, payments, scheduling, quality control and safety procedures. He oversees field and office staff while providing oversight to projects that encompass a broad spectrum of trades and range from abatement and demolition jobs to substantial rehabilitation and new construction. Dave works closely with site superintendents, project managers, compliance and administrative staff as well as owners, architects, engineers and various funding sources to complete complex projects. He is a champion for Housing Visions' building standardization efforts, aggressive green building initiatives and works with the Housing Visions' Development team on current and pipeline projects to institute best practices in design and planning. Dave bring more than 40 years of experience in construction and holds a 30-hour OSHA certification as well as Building Envelope and Analyst designations from the Building Performance Institute.

Alex Grant, Construction Senior Accountant

Alex is responsible for all of the accounts payable, overseeing cash accounts and handling year-end audits. He forecasts and provides projection analyses to the team on a recurring basis to ensure all project deliverables are met. Alex works in close coordination with the Project Executive and Director of Construction to ensure all subcontractors have compliance, insurance and billable deliverables in timely and accurately. Alex holds an Accounting degree and is the internal subject matter expert on our Foundation software.

CONSTRUCTION TEAM

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Syracuse, NY 13210
(315) 472-3820

TEAM PROFILE

- Established in 2002
- Constructed over 1,300 units
- Renovated or newly constructed 300+ buildings
- Constructed $400 Million in Affordable Housing Projects
- Has achieved USGBC's highest green standard for a building: LEED Platinum Certification

ANTHONY PHAN, Construction Estimator/Planner

With over 20 years of experience as an architect and project manager, Anthony is highly experienced in the world and construction with a proven track record of performing design and construction activities, conducting cost estimates and implementing cost-containment measures. He brings extensive knowledge and an exceptional work ethic to the construction team. Anthony works with our in-house development team to produce accurate, reliable cost estimates; reviews construction documents; evaluates project profitability and viability; recommends value-engineering methods to ensure cost-competiveness.. He holds a BS in Architecture, and is a, NCARB Associate, LEED AP BD&C, Licensed Real Estate Agent, Freelance Language Consultant for Department of Defense, and Certified eMentor Language Instructor.

ED CLAFFEY, Construction Superintendent

Ed has been with HVCC for over 15 years and brings several decades of general construction experience to the team. As Superintendent, Ed works in the field coordinating and managing day-to-day activities of assigned construction jobs. Ed ensures the assigned projects are sequenced and completed in a cost effective, safe and timely manner while adhering to established quality standards. He is responsible for performance of subcontractors and vendors, daily inspections and workmanship follow through. Ed is a senior staff member and brings many years of lived experience to each project he undertakes. Ed has numerous industry building performance designations, serves as our HERS rating tester, and has the OSHA 30-hour certification.

JEREMY GIACOLONE, Assistant Construction Superintendent

Jeremy assists with coordinating andmanaging elements of the day-to-day activities of assigned construction projects. With guidance from the Superintendent, Jeremy ensures the assigned jobs are being completed in a cost effective, safe and timely manner while adhering to established quality standards. Jeremy's role works to resolve issues with suppliers, contractors, and inspectors with the assistance of the Superintendent and other corporate office functions. Jeremy participates with the RFI process, shop drawings, submittals, change orders, warranty binders and/or as-builts to achieve project deliverables. Jeremy has been in the construction industry for nearly 20 years, and he is a proud Marine Corps veteran

Appendix H

Quality Assurance Project Plan

C&S Engineers, Inc.
499 Colonel Eileen Collins Blvd.
Syracuse, New York 13212



Quality Assurance Project Plan

Old Erie Commons
160 Center Street, Canastota, New York
BCP Site No. C727015

Prepared for:

Old Erie Commons, LLC
1201 East Fayette Street
Syracuse, New York

November 2025

C&S Project No. W96.013.001

Quality Assurance Project Plan

Old Erie Commons
160 Center Street
Canastota, Madison County, New York
BCP Site No. C727015

Prepared for:

Old Erie Commons LLC
1201 East Fayette Street
Syracuse, New York

Prepared by:

C&S Engineers, Inc.
499 Col. Eileen Collins Boulevard
Syracuse, New York 13212

November 2025

C&S Project#: W96.013.001

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1.0 INTRODUCTION

C&S' Quality Control (QC) Program is a vital part of its approach to remedial investigations. Through our thorough QC program, our firm is able to provide accurate and dependable data. QC also provides safe working conditions for field staff.

The QC program contains procedures, which provide for collected data to be properly evaluated, and which document that quality control procedures have been followed in the collection of samples. The QC program represents the methodology and measurement procedures used in collecting quality field data. This methodology includes the proper use of equipment, documentation of sample collection, and sample handling practices.

Procedures used in the firm's QC program are consistent with federal, state, and local regulations, as well as appropriate professional and technical standards.

This QC program has been organized into the following areas:

- QC Objectives
- Field Sampling Techniques
  - Procedures
  - Preparation
  - Measurement
  - Decontamination
- Sample Management

2.0 QUALITY CONTROL OBJECTIVES

2.1 Data Quality Objectives

Data Quality Objectives (DQOs) are statements which describe the desired quality of data necessary to meet the objectives of the sampling program. The DQOs for the site sampling program were formulated during the scoping effort and developed as part of this Plan. The general steps followed in preparation of the DQOs were as follows:

- Identification of the media to be sampled – Identifies the media being investigated (e.g., ground water, surface soil).

- Identification of the data uses – Identifies the intended use of the data according to the following:
    - Site Characterization – Data are used to determine the composition, nature, and extent of contamination.
    - Risk Assessment – Data are used to evaluate the actual or potential risks posed by contaminants determined to be present on-site. Particular attention is given to sampling at locations where human exposure is possible.
    - Health and Safety Plan (HASP) – Data are used to establish the level of protection needed for on-site workers during site characterization activities.
    - Monitoring – Data are used during the monitoring of the remedial action to access the effectiveness of such action.
    - PRP Enforcement – Data are used to help establish potentially responsible parties (PRP's).
    - Evaluation of Alternatives – Data are used to evaluate various proposed remedial technologies and assist in proper design of alternatives.

- Identification of the data types – Identifies what types of analyses are to be performed.

- Sample Collected – Describes the sample types to be collected.
    - Environmental – Refers to a specific media sampled such as water, soil, air, or biological.
    - Source – Refers to sampling an actual contamination source.
    - Grab – A discrete sample representative of a specific location.
    - Composite – A sample that represents a mixture of a number of grab samples that represents the average properties over the extent of areas sampled.
    - Biased – Sampling that focuses on a specific area of expected contamination or uncontaminated area (background).

- Identification of the data quality needs – Identifies the analytical options available to support data collection activities and are identified as follows:
    - Level I: Field Screening – portable type instruments which provide real-time data.
    - Level II: Field Analysis – portable analytical instruments in an on-site lab or

transported to the site.
  - Level III: Standard Analytical Protocols – standard analytical protocols or without the NYSDEC Analytical Services Protocol (ASP) (2000) deliverables / reportables documentation.
  - Level IV: NYSDEC ASP Reportables / Deliverables – rigorous QA / QC protocols and reportables / deliverables documentation; NYSDEC ASP (2000) Category B deliverables.
  - Level V: Non-Standard – methods which have been modified to meet specific site study or remediation needs or by use of some other specialized analytical methods that cannot be obtained through standard or typical avenues of analytical support.

- Identification of Data Quality Factors – Describes factors which influence the quality or quantity of data to be collected. Primary contaminants and associated levels of concern are identified concerning ARARs or potential risks. The required detection limit are also given or referenced.

- Identification of QA / QC Samples – Specifies additional samples to be collected to support Quality Assurance / Quality Control (QA / QC) procedures. Additional samples to be collected could include:
  - Matrix Spike/Matrix Spike Duplicates – Matrix spike and matrix spike duplicate samples are collected as a duplicate sample to which the analytical laboratory will add known amounts of target analytes. These QA / QC samples are intended to assess the extraction procedure used by the laboratory.
  - Blind Duplicates – Blind duplicates are a duplicate of another sample submitted for analysis. The location of the sample is recorded in the field book and not disclosed on the chain of custody. These QA / QC samples are intended to assess the repeatability of analysis by the laboratory.
  - Field Blanks – Field (equipment) blanks are samples which are obtained by running analyte-free water through the sample collection equipment in a way that is identical to the sample collection procedures. Field blanks may be used during QA / QC procedures to evaluate if sampling equipment has contributed contaminants to the samples.
  - Trip Blanks – Trip blanks are samples which are prepared prior to the sampling event in the same type of sample container and are kept with the collected samples throughout the sampling event unit analysis. Trip blank vials are not opened in the field and are analyzed for volatile organics only.

2.2 Sampling Procedures

All sampling objectives, locations, and procedures have been included as the Remedial Investigation Work Plan (RIWP) and are further described in **Section 3.0**. Items including Field Measurement Techniques, General Field Decontamination, and Sample Management have also been included in **Section 3.0** and **Section 4.0**.

2.3 Laboratory Certification and Coordination

The Environmental Laboratory Approval Program (ELAP) certification is an accreditation issued by the New York State Department of Health (NYSDOH). Such laboratories have demonstrated that they consistently ensure the accuracy and reliability of samples analyzed. All chemical analyses for samples from the site will be completed by an ELAP laboratory capable of performing project specific analyses as indicated in this QA / QC plan. The project QA / QC Officer will also be responsible for all project related laboratory coordination.

Supporting documentation related to per- and polyfluoroalkyl substances (PFAS) analysis, such as standard operating procedures (SOPs), analyte lists, and method detection limits (MDLs) are provided in **Appendix A**.

2.4 Analytical Methodologies

Sampling and analysis will be performed for the Target Compound List (TCL) parameters including volatiles. The specific analyses will be conducted according to the following NYSDEC ASP 2000 methodologies:

Table 2-1: ASP 2000 Methodologies

Parameter Group	USEPA Analysis Method
Volatiles	8260C or TO-15 for air
Semivolatiles	8270D
PCBs	8082A
Pesticides	8081B
Herbicides	8151A
Metals / Inorganics	6010D, 7471B, 9010C/9012B, 7196A
PFOA/PFOS	1633

Samples will be analyzed by Pace Analytical Services LLC, and the data will be presented in Category B reportables / deliverables format.

2.5 Analytical Quality Control

Analytical quality control for this Project will be consistent with the methodology and quality assurance/quality control requirements in the NYSDEC ASP 2000.

The tables on the following page detail sample volumes, containers, preservation, and holding time for typical analytes.

2.6 Data Usability Summary Report

A Data Usability Summary Report (DUSR) will be prepared by Vali-Data of WNY, LLC consistent with NYSDECs Guidance for the Development of Quality Assurance Plans and Data Usability Summary Reports as given in DER-10. The main objective of the DUSR is to determine whether the data presented meets the project specific needs for data quality and data use.

Table 2-2: Water Samples

Type of Analysis	Type and Size of Container	Number of Containers and Requirements	Preservation	Holding Time Until Extraction / Analysis
VOCs	40-mL VOA vial	Three (3); fill completely; no headspace	HCl, pH<2 Cool to 4°C	14 days
SVOCs	250-mL amber glass jar, Teflon lined	Two (2); fill completely	Cool to 4°C	7 days to extraction
PCBs	125-mL amber glass jar, Teflon lined	Two (2); fill completely	Cool to 4°C	365 days to extraction
Pesticides	125-mL amber glass jar, Teflon lined	Two (2); fill completely	Cool to 4°C	7 days to extraction
Herbicides	1,000-mL amber glass jar, Teflon lined	Two (2); fill completely	Cool to 4°C	7 days to extraction
Total Metals, including Hg	250-mL plastic	One (1); fill completely	HNO_3, pH<2 Cool to 4°C	180 days (28 days for mercury)
Dissolved Metals, including Hg	250-mL plastic	One (1); fill completely; filtered	HNO_3, pH<2 Cool to 4°C	180 days (28 days for mercury)
Hexavalent Chromium	500-mL plastic	One (1); fill completely	Cool to 4°C	24 hours
Cyanide	250-mL plastic	One (1); fill completely	NaOH, pH>12 Cool to 4°C	14 days
1,4-Dioxane	250-mL amber glass jar, Teflon lined	Two (2); fill completely	Cool to 4°C	7 days to extraction
PFAS	250-mL plastic	Two (2); fill completely	Cool to 4°C	28 days to extraction

All sample bottles will be prepared in accordance with USEPA bottle washing procedures.
Consult with laboratory as glassware may vary by laboratory.
Holding time begins at the time of sample collection.

Table 2-3: Soil Samples

Type of Analysis	Type and Size of Container	Number of Containers and Requirements	Preservation	Holding Time Until Extraction / Analysis
VOCs	40-mL VOA vial and Terracore	One (1); 5-15 grams	MeOH Cool to 4°C	14 days
	40-mL VOA vial and Terracore	Two (2); 5 grams each	Water Cool to 4°C	48 hours to freeze 14 days to analysis
SVOCs	4-oz amber glass jar, Teflon lined	One (1); fill completely	Cool to 4°C	14 days to extraction
PCBs	4-oz amber glass jar, Teflon lined	One (1); fill completely	Cool to 4°C	365 days to extraction
Pesticides	4-oz amber glass jar, Teflon lined	One (1); fill completely	Cool to 4°C	14 days to extraction
Herbicides	4-oz amber glass jar, Teflon lined	One (1); fill completely	Cool to 4°C	14 days to extraction
Metals, including Hg	4-oz amber glass jar	One (1); fill completely	Cool to 4°C	180 days (28 days for mercury)
Hexavalent Chromium	4-oz amber glass jar	One (1); fill completely	Cool to 4°C	30 days
Cyanide	4-oz amber glass jar	One (1); fill completely	Cool to 4°C	14 days
1,4-Dioxane	4-oz amber glass jar, Teflon lined	One (1); fill completely	Cool to 4°C	14 days to extraction
PFAS	8-oz plastic	One (1); fill completely	Cool to 4°C	90 days to extraction

All sample bottles will be prepared in accordance with USEPA bottle washing procedures.
Consult with laboratory as glassware may vary by laboratory.
Holding time begins at the time of sample collection.

3.0 FIELD SAMPLING PLAN

3.1 Sampling Procedures

The following sections provide procedures for collecting a variety of samples, not all of which will be needed at this site.

3.1.1 Preparation for Sampling

The sample collection technique is of prime importance to assure the integrity of the collected sample. The following techniques include provisions so that:

- A representative sample is obtained;
- Contamination of the sample is minimized;
- The sample is properly preserved; and
- An acceptable Chain-of-Custody record is maintained.

The QA / QC Sampling Component of the Plan includes:

- Incorporation of accepted sampling techniques referenced in the sampling plan;
- Procedures for documenting any field actions contrary to the QA / QC Plan;
- Documentation of all preliminary activities such as equipment check-out, calibrations, and container storage and preparation;
- Documentation of field measurement quality control data (quality control procedures for such measurements shall be equivalent to corresponding QC procedures);
- Documentation of field activities;
- Documentation of post-field activities including sample shipment and receipt, field team debriefing, and equipment check-in;
- Generation of quality control samples including duplicate samples, field blanks, equipment blanks, and trip blanks;
- The use of these samples in the context of data evaluation with details of the methods employed (including statistical methods) and of the criteria upon which the information generated will be judged; and

- The number of QA / QC samples generally required are shown in the following table. When there is a disagreement with QA / QC sample numbers and types, between this document and a Work Plan, the Work Plan shall prevail.

Table 3-1: QA / QC Samples

Sample Type	Analysis	Number	Note
MS / MSD	Full Suite	Every sample batch, or minimum of 5% (1 per 20)	Two additional samples at a given location
Trip Blank	VOC	One per day or 5% (1 per 20), whichever is more frequent	Vials of clean water provided by laboratory. Packed with collected samples.
Field Blank	VOC and PFAS	One per day or 5% (1 per 20), or whichever is more frequent	Clean water passed through / over decontaminated sample collection equipment / tubing
Blind Duplicate	Same as field sample	Every sample batch, or minimum of 5% (1 per 20)	An additional sample at a given location

The personnel responsible for collection of groundwater, soil, air, miscellaneous media, and petroleum spill remediation / verification samples will be familiar with standard sampling procedures and follow the appropriate protocol. Field records will be maintained in bound notebooks with numbered pages to document daily instrument calibration, locations sampled, field observations, and weather conditions. Each page will be dated and signed by the sampler. Each notebook will be numbered and a log of notebooks will be maintained by the project manager.

Prior to sampling, all equipment must be procured and accommodations for sample container delivery, and sample shipment must be made. The following is a list of general equipment that would be on hand for sampling events. Special equipment for each sampling event is presented in the section describing that specific sampling event.

- Field Data Sheets
- Chain-of-Custody forms
- Engineers tape and folding ruler with 0.01-foot intervals
- Field Record Sheets
- Latex gloves
- Face-safety shield
- Tyvek coveralls
- Respirators
- Photoionization detector
- Bio-degradable phosphate free detergent
- Coolers and ice (no blue ice)
- Drums
- Sample bottles
- Aluminum foil
- Duct and filament tape
- Tap water
- Distilled water
- Laboratory grade methanol and hexane
- Wash buckets
- Decontamination towels / cloths
- Large disposal containers
- Large plastic sheets

3.2 Sample Collection Techniques

3.2.1 Surface Soil Sampling

Surface soil samples will be collected at the locations and depths indicated in the Work Plan. When sampling is conducted in areas where a vegetative turf has been established, a pre-cleaned trowel or shovel will be used to remove the turf so that it may be replaced at the conclusion of sampling. Samples will then be collected using a pre-cleaned, stainless steel spoon. When the sample is obtained, it will be deposited into a pre-cleaned stainless steel bowl or plastic pail for mixing prior to filling the sample containers. The soil will be mixed thoroughly until the material is homogenized. At that point, the soil will be placed into the laboratory provided containers.

Once removed from the ground the soil will immediately be observed for soil characteristics, including general soil type (sand, silt, clay), moisture, and evidence of impairment ((e.g. petroleum or chemical odors, staining, volatile organic vapors as measured by a photoionization detector (PID)). The PID will be calibrated daily (and more often as required by the manufacturer's data) prior to use in the field, using calibration test gases.

When PFAS sampling / testing is required, no sampling equipment components or sample containers should come into contact with aluminum foil, LDPE, glass, or Teflon tape. Acceptable equipment includes stainless steel spoons and bowl, HDPE containers, and steel shovels or augers that are not coated.

3.2.2 Subsurface Soil Sampling

3.2.2.1 Direct Push Drilling

Generally, soil borings will be advanced with a Geoprobe direct push sampling system. The use of direct push technology allows for rapid sampling, observation, and characterization of relatively shallow overburden soils. The Geoprobe utilizes a four to five-foot Macro-Core® sampler, with disposable polyethylene sleeves. Soil cores will be retrieved in four or five-foot sections, and can be easily cut from the polyethylene sleeves for observation and sampling. The Macro-Core® sampler will be decontaminated between boring locations using an Alconox® and water solution.

Prior to initiating drilling activities, the Macrocores, drive rods, and pertinent equipment, will be steam cleaned or washed with an Alconox® and water solution. This cleaning procedure will also be used between each boring. Throughout and after the cleaning processes, direct contact between the equipment and the ground surface will be avoided. Plastic sheeting and/or clean support structures (e.g., pallets, sawhorses) will be used.

Test borings will be advanced with 2-inch (or larger) inside diameter (ID) direct push Macro-Core® through overburden soils. Drilling fluids, other than potable water will not be allowed

without special consideration and agreement from NYSDEC. The use of lubricants is also not allowed unless approved by the NYSDEC representative.

3.2.2.2 Hollow Stem Auger

The drilling and installation of monitoring wells will be performed using a rotary drill rig which will have sufficient capacity to perform 4 1/4-inch ID hollow-stem auger drilling in the overburden, retrieve Macro-Core® or split-spoon samples. Equipment sizes and diameters may vary based on project-specific criteria. Any investigative derived waste generated during the advancement of soil borings and monitoring well installations will be containerized and characterized for proper disposal.

Prior to initiating drilling activities, the augers, rods, Macro-Core®, split spoons, and other pertinent equipment will be steam cleaned or washed with an Alconox® and water solution. This cleaning procedure will also be used between each boring. Steam cleaning activities will be performed in a designated on-site decontamination area. During and after the cleaning processes, direct contact between the equipment and the ground surface will be avoided. Plastic sheeting and/or clean support structures (e.g., pallets, sawhorses) will be used.

Test borings will be advanced with 4 1/4-inch ID hollow stem augers through overburden, driven by truck-, track-, or trailer-mounted drilling equipment. Alternative methods of drilling or equipment may be allowed or requested for project specific criteria, but must be approved by the NYSDEC. Drilling fluids, other than water from a NYSDEC-approved source, will not be allowed without special consideration and agreement from NYSDEC. The use of lubricants is also not allowed unless approved by the NYSDEC representative.

Hollow stem auger advanced groundwater-monitoring wells typically utilize minimum 2-inch threaded flush joint PVC pipe with 0.010-in. slotted screen or pre-packed well screens. PVC piping used for risers and screens will conform to the requirements of ASTM-D 1785 Schedule 40 pipe. All materials used to construct the wells will be NSF / ASTM approved. Solvent PVC glue shall not be used at any time in the construction of the wells. The bottom of the screen shall be sealed with a treated wood cap or plastic plug. No lead shot or lead wool is to be employed in sealing the bottom of the well or for sealant at any point in the well.

3.2.2.3 Subsurface Soil Sample Screening and Collection

When polyethylene sleeves or split spoons are removed from borings, the soil will immediately be observed for soil characteristics, including general soil type (sand, silt, clay), moisture, confining layers, and evidence of impairment (e.g. petroleum or chemical odors, staining, volatile organic vapors as measured by a PID – ex-situ and headspace). Generally, sample selection is based on evidence of impairment, depth, spatial distribution, or for delineation purposes. Normally, sample locations will not be known until the end of each day in the field. Therefore, samples for potential analysis will be placed in new Ziploc bags and placed on ice until they are placed into laboratory provided glassware.

When PFAS sampling / testing is required, no sampling equipment components or sample containers should come into contact with aluminum foil, LDPE, glass, or Teflon tape. Acceptable equipment includes stainless steel spoons and bowl, HDPE containers, and steel tools that are not coated.

3.2.3 Groundwater Monitoring Well Construction / Completion

3.2.3.1 Artificial Sand Pack

When utilized, granular backfill will be chemically and texturally clean, inert, siliceous, and of appropriate grain size for the screen slot size and the host environment. The sand pack will be installed using a tremie pipe, when possible (i.e., a tremie pipe may not fit into smaller, 2-inch diameter boreholes). When utilized, the well screen and casing will be installed, and the sand pack placed around the screen and casing to a depth extending at least 2 feet above the top of the screen. A pre-packed well screen may be used if pre-approved by the NYSDEC.

3.2.3.2 Bentonite Seal

A minimum 2-foot thick seal will be placed directly on top of the sand pack, and care will be taken to avoid bridging. In the event that Site geology does not allow for a 2-foot seal (e.g., only 1-foot of space remains between the top of the sand pack and ground surface), the remaining space in the annulus will be filled with bentonite.

3.2.3.3 Grout Mixture

Upon completion of the bentonite seal, the well may be grouted with a 30% solids pure bentonite grout, a non-shrinking cement grout, a cement / bentonite grout mix, or a bentonite / soil mix as indicated in the Work Plan. The grout will be placed from the top of the bentonite seal to the ground surface.

3.2.3.4 Surface Protection

At all times during the progress of the work, precautions shall be used to prevent tampering with or the entrance of foreign material into the well. Upon completion of the well, a suitable cap shall be installed to prevent material from entering the well. Where permanent wells are to be installed, the well riser shall be protected by a flush mounted road box set into a concrete pad or locking well cap for stick-up wells. A concrete pad, sloped away from the well, shall be constructed around the flush mount road box or stick-up casing at ground level.

Any well that is to be temporarily removed from service or left incomplete due to delay in construction shall be capped with a watertight cap.

3.2.3.5 Surveying

Coordinates and elevations will be established for each monitoring well and sampling location. Elevations to the closest 0.01 foot shall be used for the survey. These elevations shall be referenced to a regional, local, or project-specific datum. The location, identification, coordinates, and elevations of the wells will be plotted on maps with a scale large enough to show their location with reference to other structures at each site.

3.2.3.6 Well Development

After completion of the well, but not sooner than 48 hours after grouting is completed, development will be accomplished using pumping, bailing, and / or surge blocking. No dispersing agents, acids, disinfectants, or other additives will be used during development or introduced into the well at any other time. During development, water will be removed throughout the entire water column by periodically lowering and raising the pump intake (or bailer stopping point).

Water elevations will be taken on all wells prior to development, purging, and sampling. All measurements will be taken within a 24-hour period to obtain consistent elevations and recorded on well data sheets. The procedure for measuring water levels in the monitoring wells is:

- Unlock and remove well cap;
- Test the atmosphere of the well with the calibrated PID. If the gases from the well have caused the air in the breathing zone to read greater than 5 ppm, stop work and refer to the HASP;
- Measure water level to nearest 0.01 foot with a water level indicator (electronic);
- Water level indicators will be decontaminated before moving to next well. The tape and cable are decontaminated by washing in a bucket of distilled water-biodegradable phosphate free-detergent solution, followed by a rinse with distilled water.

Development water will either be properly contained and treated as waste until the results of chemical analysis of samples are obtained or discharged on Site as determined by the Site-specific work plans and/or consultation with the NYSDEC representatives on Site.

The development process will continue until removal of a minimum of 110% of the water lost during drilling, three well volumes; whichever is greater (or as specified in the Work Plan), and when water quality monitoring demonstrates stabilization of the effluent. The water quality meter will be calibrated prior to each sampling event (and more often as required by the manufacturer's data), using calibration fluids. Stabilization criteria is shown in the table below. In the event that limited recharge does not allow for the recovery of all drilling water lost in the

well or three well volumes, the well will be allowed to stabilize to conditions deemed representative of groundwater conditions. Stabilization periods will vary by project but will be confirmed with the NYSDEC prior to sampling.

Table 3-2: Well Development Stabilization Criteria

Parameter	Units	Stabilization Criteria
pH	Standard Units	± 0.1
Conductivity	mS/cm	± 3%
Turbidity	NTU	10% or < 10 NTU
D.O.	mg/L	10% or < 0.5 mg/L
Temperature	°F / °C	± 3%
ORP	mV	± 10

3.2.3.7 Groundwater Sample Collection

Groundwater samples will be collected using a dedicated low flow pump. When analysis is limited to VOCs, samples may be collected with disposable or stainless steel bailers. When PFAS sampling / testing is required, only the following equipment will be permitted:

- Stainless steel inertia pump with HDPE tubing
- Peristaltic pump with HDPE and silicone tubing
- Stainless steel bailer with stainless steel ball
- Bladder pump (identified as PFAS-free) with HDPE tubing

All sampling equipment will be properly decontaminated in the field (see **Section 3.3**). The following equipment will be available for sampling of monitoring wells in addition to the general sampling equipment list:

- Well Data Sheets
- Pump
- Electronic water level indicator
- Water Quality Meter
- Acid resistant gloves

The following activities will be completed before going into the field every day before the start of sampling:

- Fill out appropriate section on Well Data Sheet for the wells to be sampled;
- Obtain the sampling schedule for each well to be sampled;

- Calibrate the PID with the calibration gas;

- Determine the amount of sampling to be done for the day and prepare the necessary number of coolers;

- Each well to be sampled will have designated coolers containing the pre-labeled, certified clean, sample bottles. The groundwater samples will be placed in the cooler labeled for the well from which they were taken. The bottle shall be labeled with large distinguishable letters, so that the groundwater samples will be placed in the proper cooler; and

- Select the appropriate sample bottles for the day's sampling. The bottles shall be pre-marked with a sample parameter and preservatives. Reusable glass bottles will have been cleaned and prepared at the laboratory. The bottles for the various parameters to be analyzed from each well location will then be placed in a cooler.

The following steps describe the sample collection of groundwater:

- Unlock and remove the well cap;

- When VOCs are a contaminant of concern, test the air at the wellhead with the calibrated PID. If the gases from the well have caused the air in the breathing zone to read greater than 5 ppm, stop work and refer to the HASP. Record the reading on the Well Data Sheet;

- In order to obtain a representative sample of the formation water, the well must be purged of the static water within the well. Prior to purging, the static water level within the well must be measured and the measurement recorded on the Well Data Sheet. To determine the amount of water necessary to purge, find the liquid column height in the well to determine the total volume (three liquid column borehole volumes) of liquid to be purged;

- Purge the well; lower pump slowly into the well until it is below the water surface. In accordance with the Work Plan, purge waters will either be disposed within the vicinity of the respective well or containerized.

- Record the amount of water purged in the field logbook and on the Well Data Sheet.

- If the well goes dry during pumping, allow for full recovery (measure the water level) and then sample. If recovery takes more than twenty minutes, proceed to next well but return to sample within 24 hours.

- Fill the appropriate sample bottles according to the sampling schedule for each well. While filling the sample bottles, record the well number, type, volume of container, and

the preservatives used on the Ground Water Sampling Analyses form.

- The preservatives for the various sampling parameters were previously added to the clean sample bottles by the laboratory. Some parameters may require additional special handling.

- Volatile organics analyses sample vials must be free of air bubbles. When a bubble-free sample has been obtained, it must be immediately chilled.

- Collect the matrix spike duplicates, duplicates, field blanks, and trip blanks, as applicable. Take samples according to sampling schedule presented in the Work Plan.

- Record all pertinent information in field logbook and on the Well Data Sheet (include color, odor, sediment content of sample, etc.). Any situations at the site that have the potential to interfere with the analytical results should also be recorded here.

- Lock well, inspect well site, and note any maintenance required.

- Dispose of potentially contaminated materials in designated container.

3.2.4 Air Sample Collection

All activities will be conducted in accordance with the NYSDOH *Guidance for Evaluating Soil Vapor Intrusion in the State of New York*, October 2006, and subsequent revisions.

3.2.4.1 Soil Vapor Implant Installation

Semi-permanent soil vapor monitoring points will be installed using direct-push methods. Continuous soil sampling will be conducted at each location using Geoprobe® Systems' Macro-Core® soil samplers, to create a nominal 2.25-inch diameter borehole. The direct-push borings will be terminated at the target depth of the vapor implant placement. As consistent with NYSDOH guidance, the vapor implants will be positioned so as to allow collection of vapor samples at depths comparable to the depths of nearby foundation footings (normally +/- five feet in depth), or at least 12 inches above the water table, if groundwater is present at a depth less than six feet bgs. The groundwater depth will be determined based upon static water levels recorded in nearby wells.

Following creation of the borehole, the vapor implants will be placed at the target sampling depth. Each implant will consist of a six-inch long vapor implant with stainless steel mesh / screen. Polyethylene tubing will be affixed to the top of the stainless-steel screen and extended to the ground surface. The borehole annulus below, surrounding, and to twelve inches above the top of the screen will be filled with 00N sand or glass beads to create an inert, porous vapor sampling zone. The remainder of the borehole annulus will be filled with a bentonite slurry to minimize outdoor air from entering the sampling zone. Each vapor implant will be completed

with a flush-mount protective casing.

Following installation, samples will be collected using a Summa™ canister (6-Liter capacity) equipped with a critical orifice flow regulation device sized to allow an air sample to be collected over a 4-hour sampling period.

3.2.4.2 Sub-Slab Soil Gas Sampling

Sub-slab sampling points will be installed to collect soil gas immediately below the slab. Sub-slab samples are typically co-located with corresponding indoor air samples to allow comparison of sub-slab and nearby indoor air concentrations. Sub-slab gas samples will be collected using a Summa™ canister (6-Liter capacity) equipped with a critical orifice flow regulation device sized to allow an air sample to be collected over a 24-hour sampling period.

The sub-slab vapor points will be installed by first advancing a small diameter hole (approximately 3/8-inches in diameter) through the floor slab to determine thickness. The holes will be drilled via a hammer drill or concrete core. The hole will extend through the slab and terminate at the interface with underlying material (i.e. gravel base or soil). A length of vinyl tubing will be placed into the hole to extend to the bottom of the slab. The cored slab annulus will be sealed with clay around the tubing.

To ensure there is no connection between the sub-slab and indoor air, helium short-circuit testing will be performed at each sampling point. The helium will be introduced into a dome placed over the sealed tubing. The dome will be sealed to the concrete floor with modeling clay. A helium meter that is capable to read down to 1-2% helium will be connected to the sample tubing to measure helium concentrations in the sub-slab environment. The detection of helium in the sub-slab air indicates communication between the air inside the dome and the sub-slab, revealing a leak in the seal around the tubing. If helium is detected in the sub-slab tubing at a concentration greater than 10% of the concentration of helium in the dome, the clay seal around the tubing will be reconfigured and the tracer test will be repeated until an adequate seal is observed.

Prior to sub-slab soil gas sample collection, the sample tubing will be purged at a rate not exceeding 200 mL/min to remove three tubing volumes of air. This ensures the concentrations detected in the sample are representative of soil gas and not diluted by indoor air.

3.2.4.3 Indoor Air Sampling

Indoor air samples will be collected using a Summa™ canister (6-Liter capacity) equipped with a critical orifice flow regulation device sized to allow an air sample to be collected over a 24-hour sampling period. The sampling canister will be placed approximately three to five feet off the ground.

A NYSDOH Indoor Air Quality Questionnaire and Building Inventory Form will be completed at

the time of sampling (**Appendix B**). Testing will be conducted under the following conditions:

- Air samples will be collected during the heating season. In New York State, heating season generally extends from November 15 to March 31. However, in Upstate New York, it is common to heat buildings between October and April.

- Closed building conditions will begin at least 12 hours prior to the initiation of testing and shall be maintained throughout the test period, lasting less than four days.

- All exterior windows and doors shall be kept closed (except for momentary entry and exit by personnel). This includes areas not being tested.

- Heating and cooling systems shall be set to normal, occupied, operating temperatures; fan/blower controls shall be set to intermittent activity unless the system is designed to only run the fan continuously.

- Occupants should avoid excessive operation of clothes dryers, range hoods, bathroom fans, and other mechanical systems that draw air into and out of the building.

- Solid, liquid, or gas burning fireplaces shall not be operated unless they are the primary / normal sources of heat for the building.

- Window air-conditioning units shall only be operated in a re-circulating mode.

- Equipment that supplies fresh air to the building shall be deactivated unless it is an integral part of the HVAC system or supplies make-up air to a combustion appliance.

- Window fans shall be removed or sealed shut.

- Fans installed in attics to control only attic air and not whole-building temperature, or humidity may continue to operate.

- Normal operation of permanently installed ventilation systems such as energy recovery ventilators (also known as heat recovery ventilators or air-to-air heat exchangers) may continue during closed-building conditions so long as the system is regularly maintained and continuously operational.

Beginning 24 hours prior to test initiation and continuing throughout the duration of the test, the following activities will be avoided inside the building:

- Performing excavations or other activities that may generate particulate matter;

- Smoking;

- Painting;
- Cleaning, waxing, polishing furniture or floors with petroleum or oil-based products;
- Application of hairspray, nail polish, nail polish remover, perfume / cologne;
- Using air fresheners or odor eliminators; and
- Using any other products or performing any activities that contain VOCs, produce odors, or may otherwise influence indoor air testing results, or that are not consistent with the NYSDOH *Guidance for Evaluating Soil Vapor Intrusion in the State of New York*.

3.2.4.4 Ambient Air Sampling

Ambient air samples will be collected in the same manner as the indoor air samples. The outdoor air sample will be collected using a Summa™ canister (6-Liter capacity) equipped with a critical orifice flow regulation device sized to allow an air sample to be collected over a 24-hour sampling period. The sampling canister will be located upwind of the structure and will be placed approximately three to five feet off the ground.

3.2.4.5 Sample Canister Deployment and Retrieval

For all soil vapor, sub-slab soil vapor, and indoor and outdoor air sampling described above, sample canisters will be deployed and retrieved as described below:

- Air sample canisters will be labeled with a unique sample designation number. The sample number and location will be recorded on the field log.
- The canister vacuum will be measured using an integrated vacuum gauge immediately prior to canister deployment and recorded on the field log. The critical orifice flow controller will be installed, as supplied by the laboratory, on the canister; the canister will be opened fully at the beginning of sample collection period; and the start time will be recorded.
- The canister vacuum will be measured and recorded immediately prior to canister retrieval at the end of the sample period. Once the vacuum is measured, the canister valve will be closed fully at the end of the sample period by disconnecting the regulator from the canister and the end time will be recorded.
- The canisters will be returned to their sampling boxes for safe storage and shipping. Field data will be verified as correctly entered into field books prior to shipment and the canisters will be shipped to the laboratory under a chain-of-custody.

- Each sample will be analyzed for VOCs via USEPA Compendium Method TO-15. Five indoor air compounds (trichloroethene, cis-1,2-dichloroethene, 1,1-dichloroethene, carbon tetrachloride, and vinyl chloride) will be analyzed using USEPA Method TO-15 Select Ion Monitoring (SIM) to achieve low level laboratory reporting limits of 0.20 micrograms per cubic meter ($\mu g/m^3$) or less.

3.3 General Decontamination

The following procedures will be performed for the decontamination of exploration equipment, sampling equipment, and personnel after each drilling/sampling event:

- *Drill rig, backhoe, and excavator* – The drill rig, direct-push rig, backhoe, and/or excavator will be cleaned prior to their entrance and exit of the site. Greases and oils will not be used on any down hole equipment during drilling or exploration activities.

- *Exploration equipment* – To avoid cross contamination, use of a PID meter and cleaning between each sampling site will be employed on backhoe arms, buckets, hollow stem augers, casing drill rods, down-hole tools, and appurtenant equipment.

- *Split spoon sampler* – The split spoon sampler will be scrubbed, cleaned, and put through a series of rinses between each sampling event. A number of split spoon samplers will be used so that one can be utilized for sampling while the others are being cleaned.

- *Reusable equipment* – The following steps will be employed to decontaminate reusable equipment:
    - Rinse equipment of soil or foreign material with potable water;
    - Immerse and scrub equipment with bio-degradable phosphate-free detergent and potable water;
    - Immerse and scrub in a potable water rinse without detergent;
    - Immerse and scrub in deionized/distilled water;
    - Saturate by spraying or immersion in laboratory-grade hexane;
    - Air dry and wrap cleaned equipment in foil to carry to next monitoring site to prevent contamination of equipment during transfer; and
    - The decontamination wash and rinse water will not be considered hazardous unless visual inspection or monitoring by the PID and other equipment indicate that contaminants may be present. The rinse waters can be discharged on-site if they are not contaminated. If contaminants are expected to be present, the rinsate waters should be placed in 55 gallon drums and stored on-site.

- *Disposable equipment* – The following steps will be employed to decontaminate disposable equipment:
    - Rinse with potable water;
    - Remove all standing liquid from the piece of equipment;
    - Dispose of the equipment in a dedicated container for contaminated solids; and

  - Dispose of rinse water in 55 gallon drums if contaminants are found to be present.

- *Sample containers* – Upon filling and capping sample bottles, the outside of the bottle will be wiped off with a clean paper towel. These towels will be disposed of in a dedicated container for contaminated solids.

- *Personnel decontamination* – The following procedures will be used to decontaminate sampling personnel.
  - After each sampling event chemical resistant gloves will be disposed of in a dedicated container for contaminated solids;
  - At the end of each sampling day, Tyvek™ coveralls will be disposed of in a dedicated container for contaminated solids;
  - Boots will be rinsed off with water to remove mud, clay, or any other contaminants; and
  - Personnel will be required to follow procedures outlined in the HASP.

- *Special Considerations for PFAS* – The following procedures will be used when sampling for PFAS.
  - Clothing that contains PTFE material, including Gore-Tex or that have been water-proofed with PFAS materials should be avoided. All clothing worn by sampling personnel should first be laundered multiple times. Acceptable rain gear includes PVC, polyurethane, or rubber. If such materials are required because site conditions warrant additional protection for samplers, their use will be documented in the field notes.
  - Decontamination water shall be verified in advance to be PFAS-free through laboratory analysis or certification. Previous results of non-detect for PFAS are acceptable.

4.0 SAMPLE MANAGEMENT PLAN

4.1 Sample Management

This Sample Management Plan provides procedures to document and track samples and results obtained during this work effort. A series of pre-printed forms with the appropriate information serves as a vehicle for documentation and tracking.

In order to accomplish this task, the documentation materials will include sample labels, sample characterization and Chain-of-Custody sheets, daily field reports, and a sample log.

- *Sample Label* – A sample label will be completed for each sample obtained and will be affixed to the sample container. The label is configured in a way to address various types of mediums. Information on the label includes, at a minimum, client name, location, sample description, sample number, date, time, grab sample, composite sample, notes, and sampler's name.

- *Sample Characterization & Chain-of-Custody Sheet* – All pertinent field information will be entered onto the sample characterization and chain-of-custody sheets including client name, sample ID, sample description, location of sample, sampling method, number of containers, container type, analysis required, and preservation. The monitoring well form has space allotted for entering information regarding the well including depth to water, well volume, sample pH, temperature, color, etc. The Chain-of-Custody section of the form will document the sample's pathway of sample shipment which will include names of persons delivering/receiving, dates, and times. The reverse side of this form will be used by the laboratory to document analysis performed on the sample. Copies of the completed forms will be retained by the Engineer and the analytical laboratory. The original sample characterization and Chain-of-Custody sheets will be submitted in the Remedial Investigation report along with the laboratory results.

- *Daily Field Reports* – Daily activities will be recorded on the Inspection Report form. The purpose of this form will be to summarize the work performed on the site each day. The completed forms will be submitted to the Project Manager on a daily basis for short term site activity and on a weekly basis for site activities of a longer duration.

- *Sample Log* – The sample log will be utilized to track each individual sample obtained at the site. The upper portion, "Field Identification" will be completed the day the sample is taken. The form will accompany the sample characterization and Chain-of-Custody form to the laboratory. Personnel at the laboratory will complete the middle section of this form and return it to the Engineer, who will use the document to track incoming results. The bottom of the sheet has space allocated to enter "Recommended Actions" based on laboratory results.

4.2 Sample Handling

Each collected sample will be dispensed into the appropriate sample containers for the type of analysis to be performed. Sampling staff will wear nitrile gloves at all times when handling samples. Appropriate sample preservatives will be added to the sample containers by the contracted analytical laboratory prior to the delivery into the field, except in cases where the sample preservative must be added after sample collection. All samples that require cool storage will be immediately placed in coolers with appropriate packaging materials so as to protect the breakage of sample containers during shipment. The sample coolers will be filled with cubed ice (no "Blue Ice") prior to leaving the sample collection location. In the instance that a local analytical laboratory is contracted, the samples will be hand delivered to the laboratory each sampling day. The chain-of-custody forms will be signed by the laboratory personnel picking up the samples and placed within the coolers. In the instance that an analytical laboratory is contracted which is not based locally and a common carrier is used for sample shipment, the chain-of-custody forms will be signed by the sampler and the carrier personnel and placed inside of the coolers. Careful packaging techniques will be used to prevent sample containers from breakage during shipment. Materials such as cardboard, foam wrap, or Styrofoam may be used as packaging materials. All samples will be delivered to the contracted analytical laboratory on the day they were collected and will be received by the laboratory within 24 hours of sample collection. The samples will be collected with sufficient time allowed at the end of the day for the analytical laboratory to properly process the sample chain-of-custody.

Appendices

Appendix A

Supporting Documentation for PFAS Analysis

NEW YORK STATE OF OPPORTUNITY.

Department of Environmental Conservation

SAMPLING, ANALYSIS, AND ASSESSMENT OF PER- AND POLYFLUOROALKYL SUBSTANCES (PFAS)

Under NYSDEC's Part 375 Remedial Programs

April 2023



www.dec.ny.gov

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ERRATA SHEET for

SAMPLING, ANALYSIS, AND ASSESSMENT OF PER- AND POLYFLUOROALKYL SUBSTANCES (PFAS) Under NYSDEC's Part 375 Remedial Programs Issued January 17, 2020

Citation and Page Number	Current Text	Corrected Text	Date
Title of Appendix I, page 32	Appendix H	Appendix I	2/25/2020
Document Cover, page 1	Guidelines for Sampling and Analysis of PFAS	Sampling, Analysis, and Assessment of Per- and Polyfluoroalkyl Substances (PFAS) Under NYSDEC's Part 375 Remedial Programs	9/15/2020
Data Assessment and Application to Site Cleanup Page 3	Until such time as Ambient Water Quality Standards (AWQS) and Soil Cleanup Objectives (SCOs) for PFOA and PFOS are published	Until such time as Soil Cleanup Objectives (SCOs) for PFOA and PFOS are published	3/28/2023
Water Sample Results Page 3	PFOA and PFOS should be further assessed and considered as potential contaminants of concern in groundwater or surface water if PFOA or PFOS is detected in any water sample at or above 10 ng/L (ppt) and is determined to be attributable to the site, either by a comparison of upgradient and downgradient levels, or the presence of soil source areas, as defined below.	NYSDEC has adopted ambient water quality guidance values for PFOA and PFOS. Groundwater samples should be compared to the human health criteria of 6.7 ng/l (ppt) for PFOA and 2.7 ng/l (ppt) for PFOS. These guidance values also include criteria for surface water for PFOS applicable for aquatic life, which may be applicable at some sites. Drinking water sample results should be compared to the NYS maximum contaminant level (MCL) of 10 ng/l (ppt).Analysis to determine if PFOA and PFOS concentrations are attributable to the site should include a comparison between upgradient and downgradient levels, and the presence of soil source areas, as defined below.	3/28/2023
Soil Sample Results Page 3	Soil cleanup objectives for PFOA and PFOS have been proposed in an upcoming revision to 6 NYCRR Part 375-6. Until SCOs are in effect, the following are to be used as guidance values:	NYSDEC will delay adding soil cleanup objectives for PFOA and PFOS to 6 NYCRR Part 375-6 until the PFAS rural soil background study has been completed. Until SCOs are in effect, the following are to be used as guidance values:	3/28/2023
Protection of Groundwater Page 3	PFOA (ppb) 1.1 PFOS (ppb) 3.7	PFOA (ppb) 0.8 PFOS (ppb) 1.0	3/28/2023

Citation and Page Number	Current Text	Corrected Text	Date
Footnote 2 Page 3	The movement of PFAS in the environment is being aggressively researched at this time; that research will eventually result in more accurate models for the behaviors of these chemicals. In the meantime, DEC has calculated the guidance value for the protection of groundwater using the same procedure used for all other chemicals, as described in Section 7.7 of the Technical Support Document (http://www.dec.ny.gov/docs/remediation_hudson_pdf/techsuppdoc.pdf).	The Protection of Groundwater values are based on the above referenced ambient groundwater guidance values. Details on that calculation are available in the following document, prepared for the February 2022 proposed changes to Part 375 (https://www.dec.ny.gov/docs/remediation_hudson_pdf/part375techsupport.pdf). The movement of PFAS in the environment is being aggressively researched at this time; that research will eventually result in more accurate models for the behaviors of these chemicals. In the meantime, DEC has calculated the guidance value for the protection of groundwater using the same procedure used for all other chemicals, as described in Section 7.7 of the Technical Support Document (http://www.dec.ny.gov/docs/remediation_hudson_pdf/techsuppdoc.pdf).	3/28/2023
Testing for Imported Soil Page 4	If the concentrations of PFOA and PFOS in leachate are at or above 10 ppt (the Maximum Contaminant Levels established for drinking water by the New York State Department of Health), then the soil is not acceptable.	If the concentrations of PFOA and PFOS in leachate are at or above the ambient water quality guidance values for groundwater, then the soil is not acceptable.	3/28/2023
Routine Analysis, page 9	"However, laboratories analyzing environmental samples…PFOA and PFOS in drinking water by EPA Method 537, 537.1 or ISO 25101."	"However, laboratories analyzing environmental samples…PFOA and PFOS in drinking water by EPA Method 537, 537.1, ISO 25101, or Method 533."	9/15/2020
Additional Analysis, page 9, new paragraph regarding soil parameters	None	"In cases where site-specific cleanup objectives for PFOA and PFOS are to be assessed, soil parameters, such as Total Organic Carbon (EPA Method 9060), soil pH (EPA Method 9045), clay content (percent), and cation exchange capacity (EPA Method 9081), should be included in the analysis to help evaluate factors affecting the leachability of PFAS in site soils."	9/15/2020

Citation and Page Number	Current Text	Corrected Text	Date
Data Assessment and Application to Site Cleanup Page 10	Until such time as Ambient Water Quality Standards (AWQS) and Soil Cleanup Objectives (SCOs) for PFAS are published, the extent of contaminated media potentially subject to remediation should be determined on a case-by-case basis using the procedures discussed below and the criteria in DER-10. Target levels for cleanup of PFAS in other media, including biota and sediment, have not yet been established by the DEC.	Until such time as Ambient Water Quality Standards (AWQS) and Soil Cleanup Objectives (SCOs) for PFOA and PFOS are published, the extent of contaminated media potentially subject to remediation should be determined on a case-by-case basis using the procedures discussed below and the criteria in DER-10. Preliminary target levels for cleanup of PFOA and PFOS in other media, including biota and sediment, have not yet been established by the DEC.	9/15/2020
Water Sample Results Page 10	PFAS should be further assessed and considered as a potential contaminant of concern in groundwater or surface water (…) If PFAS are identified as a contaminant of concern for a site, they should be assessed as part of the remedy selection process in accordance with Part 375 and DER-10.	PFOA and PFOS should be further assessed and considered as potential contaminants of concern in groundwater or surface water (…) If PFOA and/or PFOS are identified as contaminants of concern for a site, they should be assessed as part of the remedy selection process in accordance with Part 375 and DER-10.	9/15/2020

Citation and Page Number	Current Text	Corrected Text	Date
Soil Sample Results, page 10	"The extent of soil contamination for purposes of delineation and remedy selection should be determined by having certain soil samples tested by Synthetic Precipitation Leaching Procedure (SPLP) and the leachate analyzed for PFAS. Soil exhibiting SPLP results above 70 ppt for either PFOA or PFOS (individually or combined) are to be evaluated during the cleanup phase."	"Soil cleanup objectives for PFOA and PFOS will be proposed in an upcoming revision to 6 NYCRR Part 375-6. Until SCOs are in effect, the following are to be used as guidance values. " [Interim SCO Table] "PFOA and PFOS results for soil are to be compared against the guidance values listed above. These guidance values are to be used in determining whether PFOA and PFOS are contaminants of concern for the site and for determining remedial action objectives and cleanup requirements. Site-specific remedial objectives for protection of groundwater can also be presented for evaluation by DEC. Development of site-specific remedial objectives for protection of groundwater will require analysis of additional soil parameters relating to leachability. These additional analyses can include any or all the parameters listed above (soil pH, cation exchange capacity, etc.) and/or use of SPLP. As the understanding of PFAS transport improves, DEC welcomes proposals for site-specific remedial objectives for protection of groundwater. DEC will expect that those may be dependent on additional factors including soil pH, aqueous pH, % organic carbon, % Sand/Silt/Clay, soil cations: K, Ca, Mg, Na, Fe, Al, cation exchange capacity, and anion exchange capacity. Site-specific remedial objectives should also consider the dilution attenuation factor (DAF). The NJDEP publication on DAF can be used as a reference: https://www.nj.gov/dep/srp/guidance/rs/daf.pdf. "	9/15/2020

Citation and Page Number	Current Text	Corrected Text	Date
Testing for Imported Soil Page 11	Soil imported to a site for use in a soil cap, soil cover, or as backfill is to be tested for PFAS in general conformance with DER-10, Section 5.4(e) for the PFAS Analyte List (Appendix F) using the analytical procedures discussed below and the criteria in DER-10 associated with SVOCs. If PFOA or PFOS is detected in any sample at or above 1 µg/kg, then soil should be tested by SPLP and the leachate analyzed for PFAS. If the SPLP results exceed 10 ppt for either PFOA or PFOS (individually) then the source of backfill should be rejected, unless a site-specific exemption is provided by DER. SPLP leachate criteria is based on the Maximum Contaminant Levels proposed for drinking water by New York State's Department of Health, this value may be updated based on future Federal or State promulgated regulatory standards. Remedial parties have the option of analyzing samples concurrently for both PFAS in soil and in the SPLP leachate to minimize project delays. Category B deliverables should be submitted for backfill samples, though a DUSR is not required.	Testing for PFAS should be included any time a full TAL/TCL analyte list is required. Results for PFOA and PFOS should be compared to the applicable guidance values. If PFOA or PFOS is detected in any sample at or above the guidance values then the source of backfill should be rejected, unless a site-specific exemption is provided by DER based on SPLP testing, for example. If the concentrations of PFOA and PFOS in leachate are at or above 10 ppt (the Maximum Contaminant Levels established for drinking water by the New York State Department of Health), then the soil is not acceptable. PFOA, PFOS and 1,4-dioxane are all considered semi-volatile compounds, so composite samples are appropriate for these compounds when sampling in accordance with DER-10, Table 5.4(e)10. Category B deliverables should be submitted for backfill samples, though a DUSR is not required.	9/15/2020

Citation and Page Number	Current Text	Corrected Text	Date
Footnotes	None	[1] TOP Assay analysis of highly contaminated samples, such as those from an AFFF (aqueous film-forming foam) site, can result in incomplete oxidation of the samples and an underestimation of the total perfluoroalkyl substances. [2] The movement of PFAS in the environment is being aggressively researched at this time; that research will eventually result in more accurate models for the behaviors of these chemicals. In the meantime, DEC has calculated the soil cleanup objective for the protection of groundwater using the same procedure used for all other chemicals, as described in Section 7.7 of the Technical Support Document (http://www.dec.ny.gov/docs/remediation_hudson_pdf/techsuppdoc.pdf).	9/15/2020
Additional Analysis, page 9	In cases… soil parameters, such as Total Organic Carbon (EPA Method 9060), soil…	In cases… soil parameters, such as Total Organic Carbon (Lloyd Kahn), soil…	1/8/2021
Appendix A, General Guidelines, fourth bullet	List the ELAP-approved lab(s) to be used for analysis of samples	List the ELAP- certified lab(s) to be used for analysis of samples	1/8/2021
Appendix E, Laboratory Analysis and Containers	Drinking water samples collected using this protocol are intended to be analyzed for PFAS by ISO Method 25101.	Drinking water samples collected using this protocol are intended to be analyzed for PFAS by EPA Method 537, 537.1, 533, or ISO Method 25101	1/8/2021
Water Sample Results Page 9	"In addition, further assessment of water may be warranted if either of the following screening levels are met: a. any other individual PFAS (not PFOA or PFOS) is detected in water at or above 100 ng/L; or b. total concentration of PFAS (including PFOA and PFOS) is detected in water at or above 500 ng/L"	Deleted	6/15/2021

Citation and Page Number	Current Text	Corrected Text	Date
Routine Analysis, Page XX	Currently, New York State Department of Health's Environmental Laboratory Approval Program (ELAP)… criteria set forth in the DER's laboratory guidelines for PFAS in non-potable water and solids (Appendix H - Laboratory Guidelines for Analysis of PFAS in Non-Potable Water and Solids).	Deleted	5/31/2022
Analysis and Reporting, Page XX	As of October 2020, the United States Environmental Protection Agency (EPA) does not have a validated method for analysis of PFAS for media commonly analyzed under DER remedial programs (non-potable waters, solids). DER has developed the following guidelines to ensure consistency in analysis and reporting of PFAS.	Deleted	5/31/2022
Routine Analysis, Page XX	LC-MS/MS analysis for PFAS using methodologies based on EPA Method 537.1 is the procedure to use for environmental samples. Isotope dilution techniques should be utilized for the analysis of PFAS in all media.	EPA Method 1633 is the procedure to use for environmental samples.	
Soil Sample Results, Page XX	Soil cleanup objectives for PFOA and PFOS will be proposed in an upcoming revision to 6 NYCRR Part 375-6	Soil cleanup objectives for PFOA and PFOS have been proposed in an upcoming revision to 6 NYCRR Part 375-6	
Appendix A	"Include in the text… LC-MS/MS for PFAS using methodologies based on EPA Method 537.1"	"Include in the text ….EPA Method 1633"	
Appendix A	"Laboratory should have ELAP certification for PFOA and PFOS in drinking water by EPA Method 537, 537.1, EPA Method 533, or ISO 25101"	Deleted	
Appendix B	"Samples collected using this protocol are intended to be analyzed for PFAS using methodologies based on EPA Method 537.1"	"Samples collected using this protocol are intended to be analyzed for PFAS using EPA Method 1633"	

Citation and Page Number	Current Text	Corrected Text	Date
Appendix C	"Samples collected using this protocol are intended to be analyzed for PFAS using methodologies based on EPA Method 537.1"	"Samples collected using this protocol are intended to be analyzed for PFAS using EPA Method 1633"	
Appendix D	"Samples collected using this protocol are intended to be analyzed for PFAS using methodologies based on EPA Method 537.1"	"Samples collected using this protocol are intended to be analyzed for PFAS using EPA Method 1633"	
Appendix G		Updated to include all forty PFAS analytes in EPA Method 533	
Appendix H		Deleted	
Appendix I	Appendix I	Appendix H	
Appendix H	"These guidelines are intended to be used for the validation of PFAS analytical results for projects within the Division of Environmental Remediation (DER) as well as aid in the preparation of a data usability summary report."	"These guidelines are intended to be used for the validation of PFAS using EPA Method 1633 for projects within the Division of Environmental Remediation (DER)."	
Appendix H	"The holding time is 14 days…"	"The holding time is 28 days…"	
Appendix H, Initial Calibration	"The initial calibration should contain a minimum of five standards for linear fit…"	"The initial calibration should contain a minimum of six standards for linear fit…"	
Appendix H, Initial Calibration	Linear fit calibration curves should have an R^2 value greater than 0.990.	Deleted	
Appendix H, Initial Calibration Verification	Initial Calibration Verification Section	Deleted	
Appendix H	secondary Ion Monitoring Section	Deleted	
Appendix H	Branched and Linear Isomers Section	Deleted	

Sampling, Analysis, and Assessment of Per- and Polyfluoroalkyl Substances (PFAS) Under NYSDEC's Part 375 Remedial Programs

Objective

New York State Department of Environmental Conservation's Division of Environmental Remediation (DER) performs or oversees sampling of environmental media and subsequent analysis of PFAS as part of remedial programs implemented under 6 NYCRR Part 375. To ensure consistency in sampling, analysis, reporting, and assessment of PFAS, DER has developed this document which summarizes currently accepted procedures and updates previous DER technical guidance pertaining to PFAS.

Applicability

All work plans submitted to DEC pursuant to one of the remedial programs under Part 375 shall include PFAS sampling and analysis procedures that conform to the guidelines provided herein.

As part of a site investigation or remedial action compliance program, whenever samples of potentially affected media are collected and analyzed for the standard Target Analyte List/Target Compound List (TAL/TCL), PFAS analysis should also be performed. Potentially affected media can include soil, groundwater, surface water, and sediment. Based upon the potential for biota to be affected, biota sampling and analysis for PFAS may also be warranted as determined pursuant to a Fish and Wildlife Impact Analysis. Soil vapor sampling for PFAS is not required.

Field Sampling Procedures

DER-10 specifies technical guidance applicable to DER's remedial programs. Given the prevalence and use of PFAS, DER has developed "best management practices" specific to sampling for PFAS. As specified in DER-10 Chapter 2, quality assurance procedures are to be submitted with investigation work plans. Typically, these procedures are incorporated into a work plan, or submitted as a stand-alone document (e.g., a Quality Assurance Project Plan). Quality assurance guidelines for PFAS are listed in Appendix A - Quality Assurance Project Plan (QAPP) Guidelines for PFAS.

Field sampling for PFAS performed under DER remedial programs should follow the appropriate procedures outlined for soils, sediments, or other solids (Appendix B), non-potable groundwater (Appendix C), surface water (Appendix D), public or private water supply wells (Appendix E), and fish tissue (Appendix F).

QA/QC samples (e.g. duplicates, MS/MSD) should be collected as specified in DER-10, Section 2.3(c). For sampling equipment coming in contact with aqueous samples only, rinsate or equipment blanks should be collected. Equipment blanks should be collected at a minimum frequency of one per day per site or one per twenty samples, whichever is more frequent.

Analysis and Reporting

The investigation work plan should describe analysis and reporting procedures, including laboratory analytical procedures for the methods discussed below. As specified in DER-10 Section 2.2, laboratories should provide a full Category B deliverable. In addition, a Data Usability Summary Report (DUSR) should be prepared by an independent, third-party data validator. Electronic data submissions should meet the requirements provided at: https://www.dec.ny.gov/chemical/62440.html.

DER has developed a *PFAS Analyte List* (Appendix G) for remedial programs to understand the nature of contamination at sites. It is expected that reported results for PFAS will include, at a minimum, all the compounds listed. If lab and/or matrix specific issues are encountered for any analytes, the DER project manager, in consultation with the DER chemist, will make case-by-case decisions as to whether certain analytes may be temporarily or permanently discontinued from analysis at each site. As with other contaminants that are analyzed for at a site, the *PFAS Analyte List* may be refined for future sampling events based on investigative findings.

Routine Analysis

EPA Method 1633 is the procedure to use for environmental samples. Reporting limits for PFOA and PFOS in aqueous samples should not exceed 2 ng/L. Reporting limits for PFOA and PFOS in solid samples should not exceed 0.5 µg/kg. Reporting limits for all other PFAS in aqueous and solid media should be as close to these limits as possible. If laboratories indicate that they are not able to achieve these reporting limits for the entire *PFAS Analyte List*, site-specific decisions regarding acceptance of elevated reporting limits for specific PFAS can be made by the DER project manager in consultation with the DER chemist. Data review guidelines were developed by DER to ensure data comparability and usability (Appendix H - Data Review Guidelines for Analysis of PFAS in Non-Potable Water and Solids).

Additional Analysis

Additional laboratory methods for analysis of PFAS may be warranted at a site, such as the Synthetic Precipitation Leaching Procedure (SPLP) and Total Oxidizable Precursor Assay (TOP Assay).

In cases where site-specific cleanup objectives for PFOA and PFOS are to be assessed, soil parameters, such as Total Organic Carbon (Lloyd Kahn), soil pH (EPA Method 9045), clay content (percent), and cation exchange capacity (EPA Method 9081), should be included in the analysis to help evaluate factors affecting the leachability of PFAS in site soils.

SPLP is a technique used to determine the mobility of chemicals in liquids, soils and wastes, and may be useful in determining the need for addressing PFAS-containing material as part of the remedy. SPLP by EPA Method 1312 should be used unless otherwise specified by the DER project manager in consultation with the DER chemist.

Impacted materials can be made up of PFAS that are not analyzable by routine analytical methodology. A TOP Assay can be utilized to conceptualize the amount and type of oxidizable PFAS which could be liberated in the environment, which approximates the maximum concentration of perfluoroalkyl substances that could be generated if all polyfluoroalkyl substances were oxidized. For example, some polyfluoroalkyl substances may degrade or transform to form perfluoroalkyl substances (such as PFOA or PFOS), resulting in an increase in perfluoroalkyl substance concentrations as contaminated groundwater moves away from a source. The TOP Assay converts, through oxidation, polyfluoroalkyl substances (precursors) into perfluoroalkyl substances that can be detected by routine analytical methodology.[1]

[1] TOP Assay analysis of highly contaminated samples, such as those from an AFFF (aqueous film-forming foam) site, can result in incomplete oxidation of the samples and an underestimation of the total perfluoroalkyl substances.

Commercial laboratories have adopted methods which allow for the quantification of targeted PFAS in air and biota. The EPA's Office of Research and Development (ORD) is currently developing methods which allow for air emissions characterization of PFAS, including both targeted and non-targeted analysis of PFAS. Consult with the DER project manager and the DER chemist for assistance on analyzing biota/tissue and air samples.

Data Assessment and Application to Site Cleanup

Until such time as Soil Cleanup Objectives (SCOs) for PFOA and PFOS are published, the extent of contaminated media potentially subject to remediation should be determined on a case-by-case basis using the procedures discussed below and the criteria in DER-10. Preliminary target levels for cleanup of PFOA and PFOS in other media, including biota and sediment, have not yet been established by the DEC.

Water Sample Results

NYSDEC has adopted ambient water quality guidance values for PFOA and PFOS. Groundwater samples should be compared to the human health criteria of 6.7 ng/l (ppt) for PFOA and 2.7 ng/l (ppt) for PFOS. These human health criteria should also be applied to surface water that is used as a water supply. This guidance also includes criteria for surface water for PFOS applicable for aquatic life, which may be applicable at some sites. Drinking water sample results should be compared to the NYS maximum contaminant level (MCL) of 10 ng/l (ppt). Analysis to determine if PFOA and PFOS concentrations are attributable to the site should include a comparison between upgradient and downgradient levels, and the presence of soil source areas, as defined below.

If PFOA and/or PFOS are identified as contaminants of concern for a site, they should be assessed as part of the remedy selection process in accordance with Part 375 and DER-10.

Soil Sample Results

NYSDEC will delay adding soil cleanup objectives for PFOA and PFOS to 6 NYCRR Part 375-6 until the PFAS rural soil background study has been completed. Until SCOs are in effect, the following are to be used as guidance values:

Guidance Values for Anticipated Site Use	PFOA (ppb)	PFOS (ppb)
Unrestricted	0.66	0.88
Residential	6.6	8.8
Restricted Residential	33	44
Commercial	500	440
Industrial	600	440
Protection of Groundwater[2]	0.8	1.0

PFOA and PFOS results for soil are to be compared against the guidance values listed above. These guidance values are to be used in determining whether PFOA and PFOS are contaminants of concern for the site and for determining remedial action objectives and cleanup requirements. Site-specific remedial objectives for protection of groundwater can also be presented for evaluation by DEC. Development of site-specific remedial objectives for protection of groundwater will require analysis of additional soil parameters relating to leachability. These

[2] The Protection of Groundwater values are based on the above referenced ambient groundwater guidance values. Details on that calculation are available in the following document, prepared for the February 2022 proposed changes to Part 375 (https://www.dec.ny.gov/docs/remediation_hudson_pdf/part375techsupport.pdf). The movement of PFAS in the environment is being aggressively researched at this time; that research will eventually result in more accurate models for the behaviors of these chemicals. In the meantime, DEC has calculated the guidance value for the protection of groundwater using the same procedure used for all other chemicals, as described in Section 7.7 of the Technical Support Document (http://www.dec.ny.gov/docs/remediation_hudson_pdf/techsuppdoc.pdf).

additional analyses can include any or all the parameters listed above (soil pH, cation exchange capacity, etc.) and/or use of SPLP.

As the understanding of PFAS transport improves, DEC welcomes proposals for site-specific remedial objectives for protection of groundwater. DEC will expect that those may be dependent on additional factors including soil pH, aqueous pH, % organic carbon, % Sand/Silt/Clay, soil cations: K, Ca, Mg, Na, Fe, Al, cation exchange capacity, and anion exchange capacity. Site-specific remedial objectives should also consider the dilution attenuation factor (DAF). The NJDEP publication on DAF can be used as a reference: https://www.nj.gov/dep/srp/guidance/rs/daf.pdf.

Testing for Imported Soil

Testing for PFAS should be included any time a full TAL/TCL analyte list is required. Results for PFOA and PFOS should be compared to the applicable guidance values. If PFOA or PFOS is detected in any sample at or above the guidance values then the source of backfill should be rejected, unless a site-specific exemption is provided by DER based on SPLP testing, for example. If the concentrations of PFOA and PFOS in leachate are at or above the ambient water quality guidance values for groundwater, then the soil is not acceptable.

PFOA, PFOS and 1,4-dioxane are all considered semi-volatile compounds, so composite samples are appropriate for these compounds when sampling in accordance with DER-10, Table 5.4(e)10. Category B deliverables should be submitted for backfill samples, though a DUSR is not required.

Appendix A - Quality Assurance Project Plan (QAPP) Guidelines for PFAS

The following guidelines (general and PFAS-specific) can be used to assist with the development of a QAPP for projects within DER involving sampling and analysis of PFAS.

General Guidelines in Accordance with DER-10

- Document/work plan section title – Quality Assurance Project Plan
- Summarize project scope, goals, and objectives
- Provide project organization including names and resumes of the project manager, Quality Assurance Officer (QAO), field staff, and Data Validator
    - The QAO should not have another position on the project, such as project or task manager, that involves project productivity or profitability as a job performance criterion
- List the ELAP certified lab(s) to be used for analysis of samples
- Include a site map showing sample locations
- Provide detailed sampling procedures for each matrix
- Include Data Quality Usability Objectives
- List equipment decontamination procedures
- Include an "Analytical Methods/Quality Assurance Summary Table" specifying:
    - Matrix type
    - Number or frequency of samples to be collected per matrix
    - Number of field and trip blanks per matrix
    - Analytical parameters to be measured per matrix
    - Analytical methods to be used per matrix with minimum reporting limits
    - Number and type of matrix spike and matrix spike duplicate samples to be collected
    - Number and type of duplicate samples to be collected
    - Sample preservation to be used per analytical method and sample matrix
    - Sample container volume and type to be used per analytical method and sample matrix
    - Sample holding time to be used per analytical method and sample matrix
- Specify Category B laboratory data deliverables and preparation of a DUSR

Specific Guidelines for PFAS

- Include in the text that sampling for PFAS will take place
- Include in the text that PFAS will be analyzed by EPA Method 1633
- Include the list of PFAS compounds to be analyzed (*PFAS Analyte List*)
- Include the laboratory SOP for PFAS analysis
- List the minimum method-achievable Reporting Limits for PFAS
    - Reporting Limits should be less than or equal to:
        - Aqueous – 2 ng/L (ppt)
        - Solids – 0.5 µg/kg (ppb)
- Include the laboratory Method Detection Limits for the PFAS compounds to be analyzed
-
- Include detailed sampling procedures
    - Precautions to be taken
    - Pump and equipment types
    - Decontamination procedures
    - Approved materials only to be used
- Specify that regular ice only will be used for sample shipment
- Specify that equipment blanks should be collected at a minimum frequency of 1 per day per site for each matrix

Appendix B - Sampling Protocols for PFAS in Soils, Sediments and Solids

General

The objective of this protocol is to give general guidelines for the collection of soil, sediment and other solid samples for PFAS analysis. The sampling procedure used should be consistent with Sampling Guidelines and Protocols – Technological Background and Quality Control/Quality Assurance for NYS DEC Spill Response Program – March 1991 (http://www.dec.ny.gov/docs/remediation_hudson_pdf/sgpsect5.pdf), with the following limitations.

Laboratory Analysis and Containers

Samples collected using this protocol are intended to be analyzed for PFAS using EPA Method 1633.

The preferred material for containers is high density polyethylene (HDPE). Pre-cleaned sample containers, coolers, sample labels, and a chain of custody form will be provided by the laboratory.

Equipment

Acceptable materials for sampling include stainless steel, HDPE, PVC, silicone, acetate, and polypropylene. Additional materials may be acceptable if pre-approved by New York State Department of Environmental Conservation's Division of Environmental Remediation.

No sampling equipment components or sample containers should come in to contact with aluminum foil, low density polyethylene, glass, or polytetrafluoroethylene (PTFE, Teflon™) materials including sample bottle cap liners with a PTFE layer.

A list of acceptable equipment is provided below, but other equipment may be considered appropriate based on sampling conditions.

- stainless steel spoon
- stainless steel bowl
- steel hand auger or shovel without any coatings

Equipment Decontamination

Standard two step decontamination using detergent (Alconox is acceptable) and clean, PFAS-free water will be performed for sampling equipment. All sources of water used for equipment decontamination should be verified in advance to be PFAS-free through laboratory analysis or certification.

Sampling Techniques

Sampling is often conducted in areas where a vegetative turf has been established. In these cases, a pre-cleaned trowel or shovel should be used to carefully remove the turf so that it may be replaced at the conclusion of sampling. Surface soil samples (e.g. 0 to 6 inches below surface) should then be collected using a pre-cleaned, stainless steel spoon. Shallow subsurface soil samples (e.g. 6 to ~36 inches below surface) may be collected by digging a hole using a pre-cleaned hand auger or shovel. When the desired subsurface depth is reached, a pre-cleaned hand auger or spoon shall be used to obtain the sample.

When the sample is obtained, it should be deposited into a stainless steel bowl for mixing prior to filling the sample containers. The soil should be placed directly into the bowl and mixed thoroughly by rolling the material into the middle until the material is homogenized. At this point the material within the bowl can be placed into the laboratory provided container.

Sample Identification and Logging

A label shall be attached to each sample container with a unique identification. Each sample shall be included on the chain of custody (COC).

Quality Assurance/Quality Control

- Immediately place samples in a cooler maintained at 4 ± 2º Celsius using ice
- Collect one field duplicate for every sample batch, minimum 1 duplicate per 20 samples. The duplicate shall consist of an additional sample at a given location
- Collect one matrix spike / matrix spike duplicate (MS/MSD) for every sample batch, minimum 1 MS/MSD per 20 samples. The MS/MSD shall consist of an additional two samples at a given location and identified on the COC
- Request appropriate data deliverable (Category B) and an electronic data deliverable

Documentation

A soil log or sample log shall document the location of the sample/borehole, depth of the sample, sampling equipment, duplicate sample, visual description of the material, and any other observations or notes determined to be appropriate. Additionally, care should be performed to limit contact with PFAS containing materials (e.g. waterproof field books, food packaging) during the sampling process.

Personal Protection Equipment (PPE)

For most sampling Level D PPE is anticipated to be appropriate. The sampler should wear nitrile gloves while conducting field work and handling sample containers.

Field staff shall consider the clothing to be worn during sampling activities. Clothing that contains PTFE material (including GORE-TEX®) or that have been waterproofed with PFAS materials should be avoided. All clothing worn by sampling personnel should have been laundered multiple times.

Appropriate rain gear (PVC, polyurethane, or rubber rain gear are acceptable), bug spray, and sunscreen should be used that does not contain PFAS. Well washed cotton coveralls may be used as an alternative to bug spray and/or sunscreen.

PPE that contains PFAS is acceptable when site conditions warrant additional protection for the samplers and no other materials can be used to be protective. Documentation of such use should be provided in the field notes.

Appendix C - Sampling Protocols for PFAS in Monitoring Wells

General

The objective of this protocol is to give general guidelines for the collection of groundwater samples for PFAS analysis. The sampling procedure used should be consistent with Sampling Guidelines and Protocols – Technological Background and Quality Control/Quality Assurance for NYS DEC Spill Response Program – March 1991 (http://www.dec.ny.gov/docs/remediation_hudson_pdf/sgpsect5.pdf), with the following limitations.

Laboratory Analysis and Container

Samples collected using this protocol are intended to be analyzed for PFAS using EPA Method 1633.

The preferred material for containers is high density polyethylene (HDPE). Pre-cleaned sample containers, coolers, sample labels, and a chain of custody form will be provided by the laboratory.

Equipment

Acceptable materials for sampling include: stainless steel, HDPE, PVC, silicone, acetate, and polypropylene. Additional materials may be acceptable if pre-approved by New York State Department of Environmental Conservation's Division of Environmental Remediation.

No sampling equipment components or sample containers should come in contact with aluminum foil, low density polyethylene, glass, or polytetrafluoroethylene (PTFE, Teflon™) materials including plumbers tape and sample bottle cap liners with a PTFE layer.

A list of acceptable equipment is provided below, but other equipment may be considered appropriate based on sampling conditions.

- stainless steel inertia pump with HDPE tubing
- peristaltic pump equipped with HDPE tubing and silicone tubing
- stainless steel bailer with stainless steel ball
- bladder pump (identified as PFAS-free) with HDPE tubing

Equipment Decontamination

Standard two step decontamination using detergent (Alconox is acceptable) and clean, PFAS-free water will be performed for sampling equipment. All sources of water used for equipment decontamination should be verified in advance to be PFAS-free through laboratory analysis or certification.

Sampling Techniques

Monitoring wells should be purged in accordance with the sampling procedure (standard/volume purge or low flow purge) identified in the site work plan, which will determine the appropriate time to collect the sample. If sampling using standard purge techniques, additional purging may be needed to reduce turbidity levels, so samples contain a limited amount of sediment within the sample containers. Sample containers that contain sediment may cause issues at the laboratory, which may result in elevated reporting limits and other issues during the sample preparation that can compromise data usability. Sampling personnel should don new nitrile gloves prior to sample collection due to the potential to contact PFAS containing items (not related to the sampling equipment) during the purging activities.

Sample Identification and Logging

A label shall be attached to each sample container with a unique identification. Each sample shall be included on the chain of custody (COC).

Quality Assurance/Quality Control

- Immediately place samples in a cooler maintained at 4 ± 2º Celsius using ice
- Collect one field duplicate for every sample batch, minimum 1 duplicate per 20 samples. The duplicate shall consist of an additional sample at a given location
- Collect one matrix spike / matrix spike duplicate (MS/MSD) for every sample batch, minimum 1 MS/MSD per 20 samples. The MS/MSD shall consist of an additional two samples at a given location and identified on the COC
- Collect one equipment blank per day per site and minimum 1 equipment blank per 20 samples. The equipment blank shall test the new and decontaminated sampling equipment utilized to obtain a sample for residual PFAS contamination. This sample is obtained by using laboratory provided PFAS-free water and passing the water over or through the sampling device and into laboratory provided sample containers
- Additional equipment blank samples may be collected to assess other equipment that is utilized at the monitoring well
- Request appropriate data deliverable (Category B) and an electronic data deliverable

Documentation

A purge log shall document the location of the sample, sampling equipment, groundwater parameters, duplicate sample, visual description of the material, and any other observations or notes determined to be appropriate. Additionally, care should be performed to limit contact with PFAS containing materials (e.g. waterproof field books, food packaging) during the sampling process.

Personal Protection Equipment (PPE)

For most sampling Level D PPE is anticipated to be appropriate. The sampler should wear nitrile gloves while conducting field work and handling sample containers.

Field staff shall consider the clothing to be worn during sampling activities. Clothing that contains PTFE material (including GORE-TEX®) or that have been waterproofed with PFAS materials should be avoided. All clothing worn by sampling personnel should have been laundered multiple times.

Appropriate rain gear (PVC, polyurethane, or rubber rain gear are acceptable), bug spray, and sunscreen should be used that does not contain PFAS. Well washed cotton coveralls may be used as an alternative to bug spray and/or sunscreen.

PPE that contains PFAS is acceptable when site conditions warrant additional protection for the samplers and no other materials can be used to be protective. Documentation of such use should be provided in the field notes.

Appendix D - Sampling Protocols for PFAS in Surface Water

General

The objective of this protocol is to give general guidelines for the collection of surface water samples for PFAS analysis. The sampling procedure used should be consistent with Sampling Guidelines and Protocols – Technological Background and Quality Control/Quality Assurance for NYS DEC Spill Response Program – March 1991 (http://www.dec.ny.gov/docs/remediation_hudson_pdf/sgpsect5.pdf), with the following limitations.

Laboratory Analysis and Container

Samples collected using this protocol are intended to be analyzed for PFAS using EPA Method 1633.

The preferred material for containers is high density polyethylene (HDPE). Pre-cleaned sample containers, coolers, sample labels, and a chain of custody form will be provided by the laboratory.

Equipment

Acceptable materials for sampling include: stainless steel, HDPE, PVC, silicone, acetate, and polypropylene. Additional materials may be acceptable if pre-approved by New York State Department of Environmental Conservation's Division of Environmental Remediation.

No sampling equipment components or sample containers should come in contact with aluminum foil, low density polyethylene, glass, or polytetrafluoroethylene (PTFE, Teflon™) materials including sample bottle cap liners with a PTFE layer.

A list of acceptable equipment is provided below, but other equipment may be considered appropriate based on sampling conditions.

- stainless steel cup

Equipment Decontamination

Standard two step decontamination using detergent (Alconox is acceptable) and clean, PFAS-free water will be performed for sampling equipment. All sources of water used for equipment decontamination should be verified in advance to be PFAS-free through laboratory analysis or certification.

Sampling Techniques

Where conditions permit, (e.g. creek or pond) sampling devices (e.g. stainless steel cup) should be rinsed with site medium to be sampled prior to collection of the sample. At this point the sample can be collected and poured into the sample container.

If site conditions permit, samples can be collected directly into the laboratory container.

Sample Identification and Logging

A label shall be attached to each sample container with a unique identification. Each sample shall be included on the chain of custody (COC).

Quality Assurance/Quality Control

- Immediately place samples in a cooler maintained at 4 ± 2º Celsius using ice
- Collect one field duplicate for every sample batch, minimum 1 duplicate per 20 samples. The duplicate shall consist of an additional sample at a given location
- Collect one matrix spike / matrix spike duplicate (MS/MSD) for every sample batch, minimum 1 MS/MSD per 20 samples. The MS/MSD shall consist of an additional two samples at a given location and identified on the COC
- Collect one equipment blank per day per site and minimum 1 equipment blank per 20 samples. The equipment blank shall test the new and decontaminated sampling equipment utilized to obtain a sample for residual PFAS contamination. This sample is obtained by using laboratory provided PFAS-free water and passing the water over or through the sampling device and into laboratory provided sample containers
- Request appropriate data deliverable (Category B) and an electronic data deliverable

Documentation

A sample log shall document the location of the sample, sampling equipment, duplicate sample, visual description of the material, and any other observations or notes determined to be appropriate. Additionally, care should be performed to limit contact with PFAS containing materials (e.g. waterproof field books, food packaging) during the sampling process.

Personal Protection Equipment (PPE)

For most sampling Level D PPE is anticipated to be appropriate. The sampler should wear nitrile gloves while conducting field work and handling sample containers.

Field staff shall consider the clothing to be worn during sampling activities. Clothing that contains PTFE material (including GORE-TEX®) or that have been waterproofed with PFAS materials should be avoided. All clothing worn by sampling personnel should have been laundered multiple times.

Appropriate rain gear (PVC, polyurethane, or rubber rain gear are acceptable), bug spray, and sunscreen should be used that does not contain PFAS. Well washed cotton coveralls may be used as an alternative to bug spray and/or sunscreen.

PPE that contains PFAS is acceptable when site conditions warrant additional protection for the samplers and no other materials can be used to be protective. Documentation of such use should be provided in the field notes.

Appendix E - Sampling Protocols for PFAS in Private Water Supply Wells

General

The objective of this protocol is to give general guidelines for the collection of water samples from private water supply wells (with a functioning pump) for PFAS analysis. The sampling procedure used should be consistent with Sampling Guidelines and Protocols – Technological Background and Quality Control/Quality Assurance for NYS DEC Spill Response Program – March 1991 (http://www.dec.ny.gov/docs/remediation_hudson_pdf/sgpsect5.pdf), with the following limitations.

Laboratory Analysis and Container

Drinking water samples collected using this protocol are intended to be analyzed for PFAS by EPA Method 537, 537.1, 533, or ISO Method 25101. The preferred material for containers is high density polyethylene (HDPE). Pre-cleaned sample containers, coolers, sample labels, and a chain of custody form will be provided by the laboratory.

Equipment

Acceptable materials for sampling include stainless steel, HDPE, PVC, silicone, acetate, and polypropylene. Additional materials may be acceptable if pre-approved by New York State Department of Environmental Conservation's Division of Environmental Remediation.

No sampling equipment components or sample containers should come in contact with aluminum foil, low density polyethylene, glass, or polytetrafluoroethylene (PTFE, Teflon™) materials (e.g. plumbers tape), including sample bottle cap liners with a PTFE layer.

Equipment Decontamination

Standard two step decontamination using detergent (Alconox is acceptable) and clean, PFAS-free water will be performed for sampling equipment. All sources of water used for equipment decontamination should be verified in advance to be PFAS-free through laboratory analysis or certification.

Sampling Techniques

Locate and assess the pressure tank and determine if any filter units are present within the building. Establish the sample location as close to the well pump as possible, which is typically the spigot at the pressure tank. Ensure sampling equipment is kept clean during sampling as access to the pressure tank spigot, which is likely located close to the ground, may be obstructed and may hinder sample collection.

Prior to sampling, a faucet downstream of the pressure tank (e.g., washroom sink) should be run until the well pump comes on and a decrease in water temperature is noted which indicates that the water is coming from the well. If the homeowner is amenable, staff should run the water longer to purge the well (15+ minutes) to provide a sample representative of the water in the formation rather than standing water in the well and piping system including the pressure tank. At this point a new pair of nitrile gloves should be donned and the sample can be collected from the sample point at the pressure tank.

Sample Identification and Logging

A label shall be attached to each sample container with a unique identification. Each sample shall be included on the chain of custody (COC).

Quality Assurance/Quality Control

- Immediately place samples in a cooler maintained at 4 ± 2º Celsius using ice
- Collect one field duplicate for every sample batch, minimum 1 duplicate per 20 samples. The duplicate shall consist of an additional sample at a given location
- Collect one matrix spike / matrix spike duplicate (MS/MSD) for every sample batch, minimum 1 MS/MSD per 20 samples. The MS/MSD shall consist of an additional two samples at a given location and identified on the COC
- If equipment was used, collect one equipment blank per day per site and a minimum 1 equipment blank per 20 samples. The equipment blank shall test the new and decontaminated sampling equipment utilized to obtain a sample for residual PFAS contamination. This sample is obtained by using laboratory provided PFAS-free water and passing the water over or through the sampling device and into laboratory provided sample containers.
- A field reagent blank (FRB) should be collected at a rate of one per 20 samples. The lab will provide a FRB bottle containing PFAS free water and one empty FRB bottle. In the field, pour the water from the one bottle into the empty FRB bottle and label appropriately.
- Request appropriate data deliverable (Category B) and an electronic data deliverable
- For sampling events where multiple private wells (homes or sites) are to be sampled per day, it is acceptable to collect QC samples at a rate of one per 20 across multiple sites or days.

Documentation

A sample log shall document the location of the private well, sample point location, owner contact information, sampling equipment, purge duration, duplicate sample, visual description of the material, and any other observations or notes determined to be appropriate and available (e.g. well construction, pump type and location, yield, installation date). Additionally, care should be performed to limit contact with PFAS containing materials (e.g. waterproof field books, food packaging) during the sampling process.

Personal Protection Equipment (PPE)

For most sampling Level D PPE is anticipated to be appropriate. The sampler should wear nitrile gloves while conducting field work and handling sample containers.

Field staff shall consider the clothing to be worn during sampling activities. Clothing that contains PTFE material (including GORE-TEX®) or that have been waterproofed with PFAS materials should be avoided. All clothing worn by sampling personnel should have been laundered multiple times.

Appendix F - Sampling Protocols for PFAS in Fish

This appendix contains a copy of the current SOP developed by the Division of Fish and Wildlife (DFW) entitled "General Fish Handling Procedures for Contaminant Analysis" (Ver. 8). This SOP should be followed when collecting fish for contaminant analysis. Note, however, that the Bureau of Ecosystem Health will not be supplying bags or tags. All supplies are the responsibility of the collector

Procedure Name: General Fish Handling Procedures for Contaminant Analysis

Number: FW-005

Purpose: This procedure describes data collection, fish processing and delivery of fish collected for contaminant monitoring. It contains the chain of custody and collection record forms that should be used for the collections.

Organization: Environmental Monitoring Section
Bureau of Ecosystem Health
Division of Fish and Wildlife (DFW)
New York State Department of Environmental Conservation (NYSDEC)
625 Broadway
Albany, New York 12233-4756

Version: 8

Previous Version Date: 21 March 2018

Summary of Changes to this Version: Updated bureau name to Bureau of Ecosystem Health. Added direction to list the names of all field crew on the collection record. Minor formatting changes on chain of custody and collection records.

Originator or Revised by: Wayne Richter, Jesse Becker

Date: 26 April 2019

Quality Assurance Officer and Approval Date: Jesse Becker, 26 April 2019

NEW YORK STATE
DEPARTMENT OF ENVIRONMENTAL CONSERVATION

GENERAL FISH HANDLING PROCEDURES FOR CONTAMINANT ANALYSES

A. Original copies of all continuity of evidence (i.e., Chain of Custody) and collection record forms must accompany delivery of fish to the lab. A copy shall be directed to the Project Leader or as appropriate, Wayne Richter. All necessary forms will be supplied by the Bureau of Ecosystem Health. Because some samples may be used in legal cases, it is critical that each section is filled out completely. Each Chain of Custody form has three main sections:

   1. The top box is to be filled out **and signed** by the person responsible for the fish collection (e.g., crew leader, field biologist, researcher). This person is responsible for delivery of the samples to DEC facilities or personnel (e.g., regional office or biologist).

   2. The second section is to be filled out **and signed** by the person responsible for the collections while being stored at DEC, before delivery to the analytical lab. This may be the same person as in (1), but it is still required that they complete the section. Also important is the **range of identification numbers** (i.e., tag numbers) included in the sample batch.

   3. Finally, the bottom box is to record any transfers between DEC personnel and facilities. Each subsequent transfer should be **identified, signed, and dated**, until laboratory personnel take possession of the fish.

B. The following data are required on each **Fish Collection Record** form:

   1. Project and Site Name.

   2. DEC Region.

   3. All personnel (and affiliation) involved in the collection.

   4. Method of collection (gill net, hook and line, etc.)

   5. Preservation Method.

C. The following data are to be taken on each fish collected and recorded on the **Fish Collection Record** form:

   1. Tag number - Each specimen is to be individually jaw tagged at time of collection with a unique number. Make sure the tag is turned out so that the number can be read without opening the bag. Use tags in sequential order. For small fish or composite samples place the tag inside the bag with the samples. The Bureau of Ecosystem Health can supply the tags.

   2. Species identification (please be explicit enough to enable assigning genus and species). Group fish by species when processing.

   3. Date collected.

   4. Sample location (waterway and nearest prominent identifiable landmark).

   5. Total length (nearest mm or smallest sub-unit on measuring instrument) and weight (nearest g or

smallest sub-unit of weight on weighing instrument). Take all measures as soon as possible with calibrated, protected instruments (e.g. from wind and upsets) and prior to freezing.

6. Sex - fish may be cut enough to allow sexing or other internal investigation, but do not eviscerate. Make any incision on the right side of the belly flap or exactly down the midline so that a left-side fillet can be removed.

D. General data collection recommendations:

1. It is helpful to use an ID or tag number that will be unique. It is best to use metal striped bass or other uniquely numbered metal tags. If uniquely numbered tags are unavailable, values based on the region, water body and year are likely to be unique: for example, R7CAY11001 for Region 7, Cayuga Lake, 2011, fish 1. If the fish are just numbered 1 through 20, we have to give them new numbers for our database, making it more difficult to trace your fish to their analytical results and creating an additional possibility for errors.

2. Process and record fish of the same species sequentially. Recording mistakes are less likely when all fish from a species are processed together. Starting with the bigger fish species helps avoid missing an individual.

3. If using Bureau of Ecosystem Health supplied tags or other numbered tags, use tags in sequence so that fish are recorded with sequential Tag Numbers. This makes data entry and login at the lab and use of the data in the future easier and reduces keypunch errors.

4. Record length and weight as soon as possible after collection and before freezing. Other data are recorded in the field upon collection. An age determination of each fish is optional, but if done, it is recorded in the appropriate “Age” column.

5. For composite samples of small fish, record the number of fish in the composite in the Remarks column. Record the length and weight of each individual in a composite. All fish in a composite sample should be of the same species and members of a composite should be visually matched for size.

6. Please submit photocopies of topographic maps or good quality navigation charts indicating sampling locations. GPS coordinates can be entered in the Location column of the collection record form in addition to or instead for providing a map. These records are of immense help to us (and hopefully you) in providing documented location records which are not dependent on memory and/or the same collection crew. In addition, they may be helpful for contaminant source trackdown and remediation/control efforts of the Department.

7. When recording data on fish measurements, it will help to ensure correct data recording for the data recorder to call back the numbers to the person making the measurements.

E. Each fish is to be placed in its own individual plastic bag. For small fish to be analyzed as a composite, put all of the fish for one composite in the same bag but use a separate bag for each composite. It is important to individually bag the fish to avoid difficulties or cross contamination when processing the fish for chemical analysis. Be sure to include the fish’s tag number inside the bag, preferably attached to the fish with the tag number turned out so it can be read. Tie or otherwise secure the bag closed. **The Bureau of Ecosystem Health will supply the bags.** If necessary, food grade bags may be procured from a suitable vendor (e.g., grocery store). It is preferable to redundantly label each bag with a manila tag tied between the knot and the body of the bag. This tag should be labeled with the project name, collection location, tag number, collection date, and fish species. If scales are collected, the scale envelope should be labeled with

the same information.

F. Groups of fish, by species, are to be placed in one large plastic bag per sampling location. **The Bureau of Ecosystem Health will supply the larger bags.** Tie or otherwise secure the bag closed. Label the site bag with a manila tag tied between the knot and the body of the bag. The tag should contain: project, collection location, collection date, species and **tag number ranges**. Having this information on the manila tag enables lab staff to know what is in the bag without opening it.

G. Do not eviscerate, fillet or otherwise dissect the fish unless specifically asked to. If evisceration or dissection is specified, the fish must be cut along the exact midline or on the right side so that the left side fillet can be removed intact at the laboratory. If filleting is specified, the procedure for taking a standard fillet (SOP PREPLAB 4) must be followed, including removing scales.

H. Special procedures for PFAS: Unlike legacy contaminants such as PCBs, which are rarely found in day to day life, PFAS are widely used and frequently encountered. Practices that avoid sample contamination are therefore necessary. While no standard practices have been established for fish, procedures for water quality sampling can provide guidance. The following practices should be used for collections when fish are to be analyzed for PFAS:

No materials containing Teflon.
No Post-it notes.
No ice packs; only water ice or dry ice.
Any gloves worn must be powder free nitrile.
No Gore-Tex or similar materials (Gore-Tex is a PFC with PFOA used in its manufacture).
No stain repellent or waterproof treated clothing; these are likely to contain PFCs.
Avoid plastic materials, other than HDPE, including clipboards and waterproof notebooks.
Wash hands after handling any food containers or packages as these may contain PFCs.
Keep pre-wrapped food containers and wrappers isolated from fish handling.
Wear clothing washed at least six times since purchase.
Wear clothing washed without fabric softener.
Staff should avoid cosmetics, moisturizers, hand creams and similar products on the day of sampling as many of these products contain PFCs (Fujii et al. 2013). Sunscreen or insect repellent should not contain ingredients with “fluor” in their name. Apply any sunscreen or insect repellent well downwind from all materials. Hands must be washed after touching any of these products.

I. All fish must be kept at a temperature <45° F (<8° C) immediately following data processing. As soon as possible, freeze at -20° C ± 5° C. Due to occasional freezer failures, daily freezer temperature logs are required. The freezer should be locked or otherwise secured to maintain chain of custody.

J. In most cases, samples should be delivered to the Analytical Services Unit at the Hale Creek field station. Coordinate delivery with field station staff and send copies of the collection records, continuity of evidence forms and freezer temperature logs to the field station. For samples to be analyzed elsewhere, non-routine collections or other questions, contact Wayne Richter, Bureau of Ecosystem Health, NYSDEC, 625 Broadway, Albany, New York 12233-4756, 518-402-8974, or the project leader about sample transfer. Samples will then be directed to the analytical facility and personnel noted on specific project descriptions.

K. A recommended equipment list is at the end of this document.

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
DIVISION OF FISH AND WILDLIFE
FISH COLLECTION RECORD

Project and Site Name _____ DEC Region _____

Collections made by (include all crew) _____

Sampling Method: □Electrofishing □Gill netting □Trap netting □Trawling □Seining □Angling □Other _____

Preservation Method: □Freezing □Other _____ Notes (SWFDB survey number): _____

FOR LAB USE ONLY- LAB ENTRY NO.	COLLECTION OR TAG NO.	SPECIES	DATE TAKEN	LOCATION	AGE	SEX &/OR REPROD. CONDIT	LENGTH ( )	WEIGHT ( )	REMARKS

richter: revised 2011, 5/7/15, 10/4/16, 3/20/17; becker: 3/23/17, 4/26/19

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
CHAIN OF CUSTODY

I, _____, of _____ collected the
(Print Name) (Print Business Address)

following on _____, 20____ from _____
(Date) (Water Body)

in the vicinity of _____
(Landmark, Village, Road, etc.)

Town of _____, in _____ County.

Item(s) _____

_____

Said sample(s) were in my possession and handled according to standard procedures provided to me prior to collection. The sample(s) were placed in the custody of a representative of the New York State Department of Environmental Conservation on _____, 20_____.

_____ _____
Signature Date

I, _____, received the above mentioned sample(s) on the date specified and assigned identification number(s) _____ to the sample(s). I have recorded pertinent data for the sample(s) on the attached collection records. The sample(s) remained in my custody until subsequently transferred, prepared or shipped at times and on dates as attested to below.

_____ _____
Signature Date

SECOND RECIPIENT (Print Name)	TIME & DATE	PURPOSE OF TRANSFER
SIGNATURE	UNIT	
THIRD RECIPIENT (Print Name)	TIME & DATE	PURPOSE OF TRANSFER
SIGNATURE	UNIT	
FOURTH RECIPIENT (Print Name)	TIME & DATE	PURPOSE OF TRANSFER
SIGNATURE	UNIT	
RECEIVED IN LABORATORY BY (Print Name)	TIME & DATE	REMARKS
SIGNATURE	UNIT	
LOGGED IN BY (Print Name)	TIME & DATE	ACCESSION NUMBERS
SIGNATURE	UNIT	

richter: revised 21 April 2014; becker: 23 March 2017, 26 April, 2019

NOTICE OF WARRANTY

By signature to the chain of custody (reverse), the signatory warrants that the information provided is truthful and accurate to the best of his/her ability. The signatory affirms that he/she is willing to testify to those facts provided and the circumstances surrounding the same. Nothing in this warranty or chain of custody negates responsibility nor liability of the signatories for the truthfulness and accuracy of the statements provided.

HANDLING INSTRUCTIONS

On day of collection, collector(s) name(s), address(es), date, geographic location of capture (attach a copy of topographic map or navigation chart), species, number kept of each species, and description of capture vicinity (proper noun, if possible) along with name of Town and County must be indicated on reverse.

Retain organisms in manila tagged plastic bags to avoid mixing capture locations. Note appropriate information on each bag tag.

Keep samples as cool as possible. Put on ice if fish cannot be frozen within 12 hours. If fish are held more than 24 hours without freezing, they will not be retained or analyzed.

Initial recipient (either DEC or designated agent) of samples from collector(s) is responsible for obtaining and recording information on the collection record forms which will accompany the chain of custody. This person will seal the container using packing tape and writing his signature, the time and the date across the tape onto the container with indelible marker. Any time a seal is broken, for whatever purpose, the incident must be recorded on the Chain of Custody (reason, time, and date) in the purpose of transfer block. Container then is resealed using new tape and rewriting signature, with time and date.

EQUIPMENT LIST

Scale or balance of appropriate capacity for the fish to be collected.

Fish measuring board.

Plastic bags of an appropriate size for the fish to be collected and for site bags.

Individually numbered metal tags for fish.

Manila tags to label bags.

Small envelops, approximately 2” x 3.5”, if fish scales are to be collected.

Knife for removing scales.

Chain of custody and fish collection forms.

Clipboard.

Pens or markers.

Paper towels.

Dish soap and brush.

Bucket.

Cooler.

Ice.

Duct tape.

Appendix G – PFAS Analyte List

Group	Chemical Name	Abbreviation	CAS Number
Perfluoroalkyl sulfonic acids	Perfluorobutanesulfonic acid	PFBS	375-73-5
	Perfluoropentanesulfonic acid	PFPeS	2706-91-4
	Perfluorohexanesulfonic acid	PFHxS	355-46-4
	Perfluoroheptanesulfonic acid	PFHpS	375-92-8
	Perfluorooctanesulfonic acid	PFOS	1763-23-1
	Perfluorononanesulfonic acid	PFNS	68259-12-1
	Perfluorodecanesulfonic acid	PFDS	335-77-3
	Perfluorododecanesulfonic acid	PFDoS	79780-39-5
Perfluoroalkyl carboxylic acids	Perfluorobutanoic acid	PFBA	375-22-4
	Perfluoropentanoic acid	PFPeA	2706-90-3
	Perfluorohexanoic acid	PFHxA	307-24-4
	Perfluoroheptanoic acid	PFHpA	375-85-9
	Perfluorooctanoic acid	PFOA	335-67-1
	Perfluorononanoic acid	PFNA	375-95-1
	Perfluorodecanoic acid	PFDA	335-76-2
	Perfluoroundecanoic acid	PFUnA	2058-94-8
	Perfluorododecanoic acid	PFDoA	307-55-1
	Perfluorotridecanoic acid	PFTrDA	72629-94-8
	Perfluorotetradecanoic acid	PFTeDA	376-06-7
Per- and Polyfluoroether carboxylic acids	Hexafluoropropylene oxide dimer acid	HFPO-DA	13252-13-6
	4,8-Dioxa-3H-perfluorononanoic acid	ADONA	919005-14-4
	Perfluoro-3-methoxypropanoic acid	PFMPA	377-73-1
	Perfluoro-4-methoxybutanoic acid	PFMBA	863090-89-5
	Nonafluoro-3,6-dioxaheptanoic acid	NFDHA	151772-58-6
Fluorotelomer sulfonic acids	4:2 Fluorotelomer sulfonic acid	4:2-FTS	757124-72-4
	6:2 Fluorotelomer sulfonic acid	6:2-FTS	27619-97-2
	8:2 Fluorotelomer sulfonic acid	8:2-FTS	39108-34-4
Fluorotelomer carboxylic acids	3:3 Fluorotelomer carboxylic acid	3:3 FTCA	356-02-5
	5:3 Fluorotelomer carboxylic acid	5:3 FTCA	914637-49-3
	7:3 Fluorotelomer carboxylic acid	7:3 FTCA	812-70-4
Perfluorooctane sulfonamides	Perfluorooctane sulfonamide	PFOSA	754-91-6
	N-methylperfluorooctane sulfonamide	NMeFOSA	31506-32-8
	N-ethylperfluorooctane sulfonamide	NEtFOSA	4151-50-2
Perfluorooctane sulfonamidoacetic acids	N-methylperfluorooctane sulfonamidoacetic acid	N-MeFOSAA	2355-31-9
	N-ethylperfluorooctane sulfonamidoacetic acid	N-EtFOSAA	2991-50-6
Perfluorooctane sulfonamide ethanols	N-methylperfluorooctane sulfonamidoethanol	MeFOSE	24448-09-7
	N-ethylperfluorooctane sulfonamidoethanol	EtFOSE	1691-99-2

Group	Chemical Name	Abbreviation	CAS Number
Ether sulfonic acids	9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (F-53B Major)	9Cl-PF3ONS	756426-58-1
	11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (F-53B Minor)	11Cl-PF3OUdS	763051-92-9
	Perfluoro(2-ethoxyethane) sulfonic acid	PFEESA	113507-82-7

Appendix H - Data Review Guidelines for Analysis of PFAS in Non-Potable Water and Solids

General

These guidelines are intended to be used for the validation of PFAS using EPA Method 1633 for projects within the Division of Environmental Remediation (DER). Data reviewers should understand the methodology and techniques utilized in the analysis. Consultation with the end user of the data may be necessary to assist in determining data usability based on the data quality objectives in the Quality Assurance Project Plan. A familiarity with the laboratory's Standard Operating Procedure may also be needed to fully evaluate the data. If you have any questions, please contact DER's Quality Assurance Officer, Dana Barbarossa, at dana.barbarossa@dec.ny.gov.

Preservation and Holding Time

Samples should be preserved with ice to a temperature of less than 6°C upon arrival at the lab. The holding time is 28 days to extraction for aqueous and solid samples. The time from extraction to analysis for aqueous samples is 28 days and 40 days for solids.

Temperature greatly exceeds 6ºC upon arrival at the lab*	Use professional judgement to qualify detects and non-detects as estimated or rejected
Holding time exceeding 28 days to extraction	Use professional judgement to qualify detects and non-detects as estimated or rejected if holding time is grossly exceeded

*Samples that are delivered to the lab immediately after sampling may not meet the thermal preservation guidelines. Samples are considered acceptable if they arrive on ice or an attempt to chill the samples is observed.

Initial Calibration

The initial calibration should contain a minimum of six standards for linear fit and six standards for a quadratic fit. The relative standard deviation (RSD) for a quadratic fit calibration should be less than 20%.

The low-level calibration standard should be within 50% - 150% of the true value, and the mid-level calibration standard within 70% - 130% of the true value.

%RSD >20%	J flag detects and UJ non detects

Continuing Calibration Verification

Continuing calibration verification (CCV) checks should be analyzed at a frequency of one per ten field samples. If CCV recovery is very low, where detection of the analyte could be in question, ensure a low level CCV was analyzed and use to determine data quality.

CCV recovery <70 or >130%	J flag results

Blanks

There should be no detections in the method blanks above the reporting limits. Equipment blanks, field blanks, rinse blanks etc. should be evaluated in the same manner as method blanks. Use the most contaminated blank to evaluate the sample results.

Blank Result	Sample Result	Qualification
Any detection	<Reporting limit	Qualify as ND at reporting limit
Any detection	>Reporting Limit and >10x the blank result	No qualification
>Reporting limit	>Reporting limit and <10x blank result	J+ biased high

Field Duplicates

A blind field duplicate should be collected at rate of one per twenty samples. The relative percent difference (RPD) should be less than 30% for analyte concentrations greater than two times the reporting limit. Use the higher result for final reporting.

RPD >30%	Apply J qualifier to parent sample

Lab Control Spike

Lab control spikes should be analyzed with each extraction batch or one for every twenty samples. In the absence of lab derived criteria, use 70% - 130% recovery criteria to evaluate the data.

Recovery <70% or >130% (lab derived criteria can also be used)	Apply J qualifier to detects and UJ qualifier to non detects

Matrix Spike/Matrix Spike Duplicate

One matrix spike and matrix spike duplicate should be collected at a rate of one per twenty samples. Use professional judgement to reject results based on out of control MS/MSD recoveries.

Recovery <70% or >130% (lab derived criteria can also be used)	Apply J qualifier to detects and UJ qualifier to non detects of parent sample only
RPD >30%	Apply J qualifier to detects and UJ qualifier to non detects of parent sample only

Extracted Internal Standards (Isotope Dilution Analytes)

Problematic analytes (e.g. PFBA, PFPeA, fluorotelomer sulfonates) can have wider recoveries without qualification. Qualify corresponding native compounds with a J flag if outside of the range.

Recovery <50% or >150%	Apply J qualifier
Recovery <25% or >150% for poor responding analytes	Apply J qualifier
Isotope Dilution Analyte (IDA) Recovery <10%	Reject results

Signal to Noise Ratio

The signal to noise ratio for the quantifier ion should be at least 3:1. If the ratio is less than 3:1, the peak is discernable from the baseline noise and symmetrical, the result can be reported. If the peak appears to be baseline noise and/or the shape is irregular, qualify the result as tentatively identified.

Reporting Limits

If project-specific reporting limits were not met, please indicate that in the report along with the reason (e.g. over dilution, dilution for non-target analytes, high sediment in aqueous samples).

Peak Integrations

Target analyte peaks should be integrated properly and consistently when compared to standards. Ensure branched isomer peaks are included for PFAS where standards are available. Inconsistencies should be brought to the attention of the laboratory or identified in the data review summary report.

Appendix B

NYSDOH Indoor Air Quality Questionnaire and Building Inventory Form

NEW YORK STATE DEPARTMENT OF HEALTH
INDOOR AIR QUALITY QUESTIONNAIRE AND BUILDING INVENTORY
CENTER FOR ENVIRONMENTAL HEALTH

This form must be completed for each residence involved in indoor air testing.

Preparer's Name _____ Date/Time Prepared _____

Preparer's Affiliation _____ Phone No._____

Purpose of Investigation_____

1. OCCUPANT:

Interviewed: Y / N

Last Name: _____ First Name: _____

Address: _____

County: _____

Home Phone: _____ Office Phone: _____

Number of Occupants/persons at this location _____ Age of Occupants _____

2. OWNER OR LANDLORD: (Check if same as occupant ___)

Interviewed: Y / N

Last Name: _____ First Name: _____

Address: _____

County: _____

Home Phone: _____ Office Phone: _____

3. BUILDING CHARACTERISTICS

Type of Building: (Circle appropriate response)

Residential	School	Commercial/Multi-use
Industrial	Church	Other: _____

If the property is residential, type? (Circle appropriate response)

Ranch	2-Family	3-Family
Raised Ranch	Split Level	Colonial
Cape Cod	Contemporary	Mobile Home
Duplex	Apartment House	Townhouses/Condos
Modular	Log Home	Other:_____

If multiple units, how many? _____

If the property is commercial, type?

Business Type(s) _____

Does it include residences (i.e., multi-use)? Y / N If yes, how many? _____

Other characteristics:

Number of floors_____ Building age_____

Is the building insulated? Y / N How air tight? Tight / Average / Not Tight

4. AIRFLOW

Use air current tubes or tracer smoke to evaluate airflow patterns and qualitatively describe:

Airflow between floors

_____

_____

_____

Airflow near source

_____

_____

_____

Outdoor air infiltration

_____

_____

_____

Infiltration into air ducts

_____

_____

_____

5. BASEMENT AND CONSTRUCTION CHARACTERISTICS (Circle all that apply)

a. Above grade construction:	wood frame	concrete	stone	brick
b. Basement type:	full	crawlspace	slab	other _____
c. Basement floor:	concrete	dirt	stone	other _____
d. Basement floor:	uncovered	covered	covered with _____	
e. Concrete floor:	unsealed	sealed	sealed with _____	
f. Foundation walls:	poured	block	stone	other _____
g. Foundation walls:	unsealed	sealed	sealed with _____	
h. The basement is:	wet	damp	dry	moldy
i. The basement is:	finished	unfinished	partially finished	
j. Sump present?	Y / N			
k. Water in sump?	Y / N / not applicable			

Basement/Lowest level depth below grade: _____(feet)

Identify potential soil vapor entry points and approximate size (e.g., cracks, utility ports, drains)

_____

_____

6. HEATING, VENTING and AIR CONDITIONING (Circle all that apply)

Type of heating system(s) used in this building: (circle all that apply – note primary)

Hot air circulation	Heat pump	Hot water baseboard	
Space Heaters	Stream radiation	Radiant floor	
Electric baseboard	Wood stove	Outdoor wood boiler	Other _____

The primary type of fuel used is:

Natural Gas	Fuel Oil	Kerosene
Electric	Propane	Solar
Wood	Coal	

Domestic hot water tank fueled by: _____

Boiler/furnace located in:	Basement	Outdoors	Main Floor	Other_____
Air conditioning:	Central Air	Window units	Open Windows	None

Are there air distribution ducts present? Y / N

Describe the supply and cold air return ductwork, and its condition where visible, including whether there is a cold air return and the tightness of duct joints. Indicate the locations on the floor plan diagram.

_____

_____

_____

_____

7. OCCUPANCY

Is basement/lowest level occupied? Full-time Occasionally Seldom Almost Never

Level	**General Use of Each Floor (e.g., familyroom, bedroom, laundry, workshop, storage)**
Basement	_____
1st Floor	_____
2nd Floor	_____
3rd Floor	_____
4th Floor	_____

8. FACTORS THAT MAY INFLUENCE INDOOR AIR QUALITY

a. Is there an attached garage? Y / N

b. Does the garage have a separate heating unit? Y / N / NA

c. Are petroleum-powered machines or vehicles stored in the garage (e.g., lawnmower, atv, car) Y / N / NA
Please specify_____

d. Has the building ever had a fire? Y / N When?_____

e. Is a kerosene or unvented gas space heater present? Y / N Where? _____

f. Is there a workshop or hobby/craft area? Y / N Where & Type? _____

g. Is there smoking in the building? Y / N How frequently? _____

h. Have cleaning products been used recently? Y / N When & Type? _____

i. Have cosmetic products been used recently? Y / N When & Type? _____

j. Has painting/staining been done in the last 6 months? Y / N Where & When? _____

k. Is there new carpet, drapes or other textiles? Y / N Where & When? _____

l. Have air fresheners been used recently? Y / N When & Type? _____

m. Is there a kitchen exhaust fan? Y / N If yes, where vented?_____

n. Is there a bathroom exhaust fan? Y / N If yes, where vented?_____

o. Is there a clothes dryer? Y / N If yes, is it vented outside? Y / N

p. Has there been a pesticide application? Y / N When & Type?_____

Are there odors in the building? Y / N
If yes, please describe: _____

Do any of the building occupants use solvents at work? Y / N
(e.g., chemical manufacturing or laboratory, auto mechanic or auto body shop, painting, fuel oil delivery, boiler mechanic, pesticide application, cosmetologist

If yes, what types of solvents are used? _____

If yes, are their clothes washed at work? Y / N

Do any of the building occupants regularly use or work at a dry-cleaning service? (Circle appropriate response)

Yes, use dry-cleaning regularly (weekly) No
Yes, use dry-cleaning infrequently (monthly or less) Unknown
Yes, work at a dry-cleaning service

Is there a radon mitigation system for the building/structure? Y / N Date of Installation: _____
Is the system active or passive? Active/Passive

9. WATER AND SEWAGE

Water Supply:	Public Water	Drilled Well	Driven Well	Dug Well	Other: _____
Sewage Disposal:	Public Sewer	Septic Tank	Leach Field	Dry Well	Other: _____

10. RELOCATION INFORMATION (for oil spill residential emergency)

a. Provide reasons why relocation is recommended: _____

b. Residents choose to: remain in home relocate to friends/family relocate to hotel/motel

c. Responsibility for costs associated with reimbursement explained? Y / N

d. Relocation package provided and explained to residents? Y / N

11. FLOOR PLANS

Draw a plan view sketch of the basement and first floor of the building. Indicate air sampling locations, possible indoor air pollution sources and PID meter readings. If the building does not have a basement, please note.

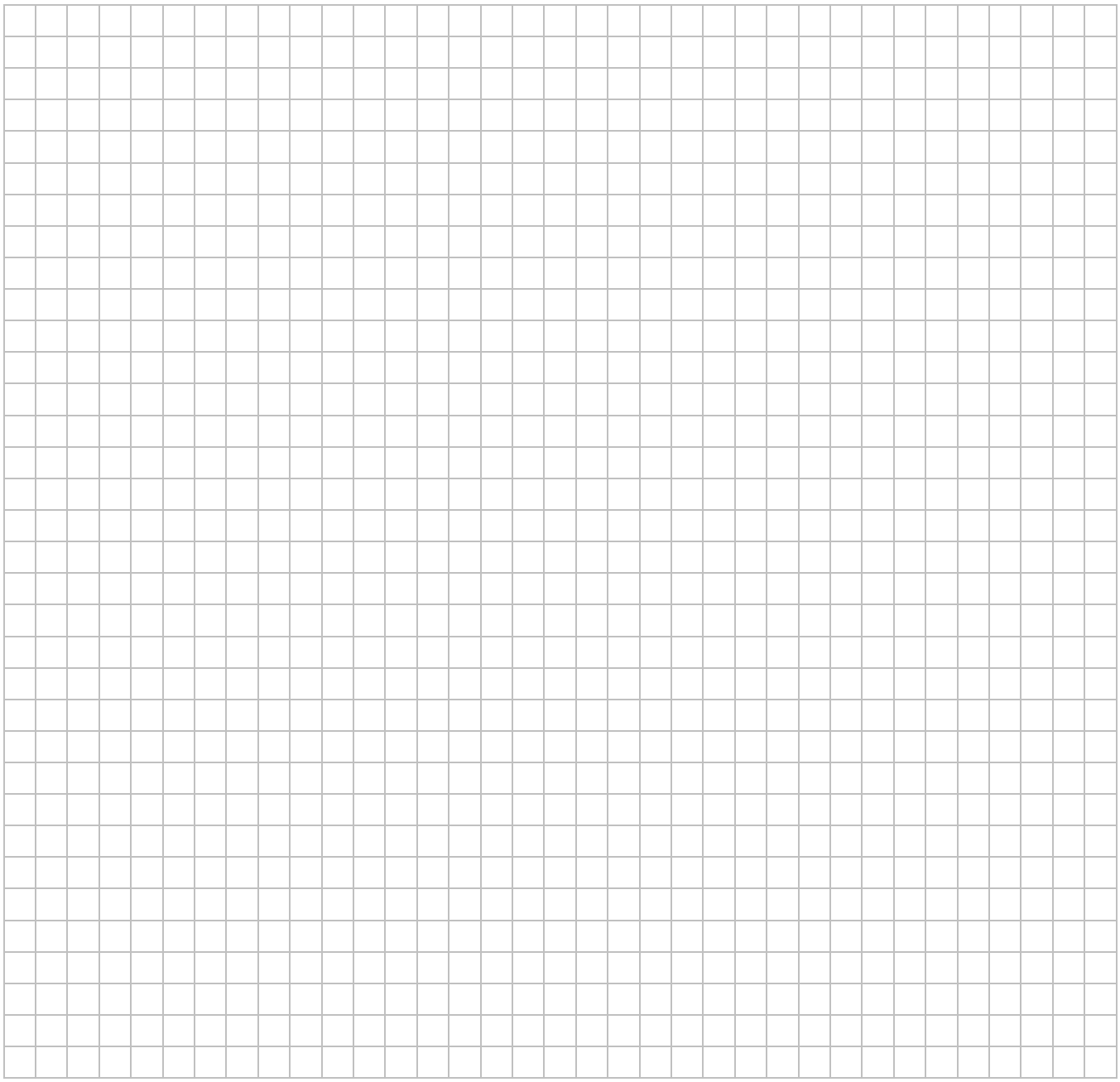
Basement:

First Floor:

12. OUTDOOR PLOT

Draw a sketch of the area surrounding the building being sampled. If applicable, provide information on spill locations, potential air contamination sources (industries, gas stations, repair shops, landfills, etc.), outdoor air sampling location(s) and PID meter readings.

Also indicate compass direction, wind direction and speed during sampling, the locations of the well and septic system, if applicable, and a qualifying statement to help locate the site on a topographic map.



13. PRODUCT INVENTORY FORM

Make & Model of field instrument used: _____

List specific products found in the residence that have the potential to affect indoor air quality.

Location	Product Description	Size (units)	Condition*	Chemical Ingredients	Field Instrument Reading (units)	Photo ** Y / N

* Describe the condition of the product containers as **Unopened (UO), Used (U),** or **Deteriorated (D)**
** Photographs of the **front and back** of product containers can replace the handwritten list of chemical ingredients. However, the photographs must be of good quality and ingredient labels must be legible.

Appendix I

Stormwater Pollution Prevention Plan

SWPPP REPORT

April 1, 2025

20202975.0001

CANAL SIDE POCKET NEIGHBORHOOD

CANASTOTA, NY

PREPARED FOR:
Housing Visions Consultants
1201 East Fayette Street, Suite 26
Syracuse, NY 13210

242 West Main Street, Suite 100 | Rochester, NY 14614 | 585.325.1000 | www.passero.com

PASSERO
engineering architecture

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1.0 EXECUTIVE SUMMARY

The proposed project is located along the northern side of East Center Street right of way. The project consists of a rezoning a parcel situated on approximately 2.56 acres into a Planned Development District (PDD) to facilitate the redevelopment of the site into a pocket neighborhood. The lot will consist of three (3) single family homes, two (2) six-unit apartment buildings, one (1) four-unit apartment building, one (1) four-unit townhouse, one (1) 24 unit apartment building with ± 2,000 S.F. of commercial space, one (1) community room & fitness, as well as associated parking, and potential amenities for residents.

Stormwater generally drains either to South offsite to existing stormwater infrastructure located East Center Street or to the North towards the Erie Canal or to low points located through the site.

Under developed conditions runoff generally flows to the proposed underground chamber system area located under the northwestern portion of the site. The stormwater management area will discharge to the north to the existing stormwater infrastructure which discharges to the Erie Canal. With stormwater storage and controlled outflow, there is a decrease in peak discharge on average. Additionally, the site uses green infrastructure practices to meet NYSDEC stormwater quality minimum requirements, which include water quality volume, runoff reduction volume, and channel protection volume (Section 5 of this report provides more detail on this subject). The summary table below shows the site water quantity and quality comparisons between existing and proposed conditions:

Table 1: *Summary Table*

Summary Table

Water Quantity

	Existing	Proposed	Reduction (%)
1-Year Runoff (cfs)	2.60	1.430	45.00%
10-Year Runoff (cfs)	7.32	5.22	28.69%
100-Year Runoff (cfs)	16.520	15.58	5.69%

Water Quality

	Required	Provided
Water Quality Volume (WQv) (acre-ft)	0.140	0.181
Minimum Allowable Runoff Reduction Volume (RRv) (acre-ft)	0.061	0.114
Channel Protection Volume (CPv) (acre-ft)	0.153	0.000
Qp (cfs)	7.32	5.220
Qf (cfs)	16.520	15.580

As shown above, the proposed stormwater pollution prevention plan meets minimum stormwater quality and quantity requirements set forth by the NYSDEC.

2.0 INTRODUCTION

The proposed project is located along the northern side of East Center Street right of way. The project consists of a rezoning a parcel situated on approximately 2.56 acres into a Planned Development District (PDD) to facilitate the redevelopment of the site into a pocket neighborhood. The lot will consist of three (3) single family homes, two (2) six-unit apartment buildings, one (1) four-unit apartment building, one (1) four-unit townhouse, one (1) 24 unit apartment building with ± 2,000 S.F. of commercial space, one (1) community room & fitness, as well as associated parking, and potential amenities for residents including but not limited to community patios, bocce court, playground, and a pavilion. The project consists of approximately 2.56 acres of disturbance. This project will include new parking areas, green infrastructure, and utilities that will serve the proposed buildings.

Public sewer, water, gas, electric and telecommunications/cable will be newly connected along East Center Road.

The provided Stormwater Pollution Prevention Plan (SWPPP) materials adhere to the State Pollutant Discharge Elimination System (SPDES) General Permit (GP-0-25-01) for Stormwater Discharges from Construction Activity. The guidelines specified by the *New York State Stormwater Management Design Manual, July 2024* (SWDM) were used to analyze the proposed stormwater management facilities for this project. Erosion and Sediment controls were designed in conformance with New York Standards and Specifications for Erosion and Sediment Controls. A copy of the SWPPP preparer certification form is included in Appendix N.

A copy of this SWPPP and associated inspection logs will be kept on site in the proposed office space and job trailer/SWPPP mailbox.

Owner/Operator
Housing Visions Consultants
1201 East Fayette Street, Suite 26
Syracuse, NY 13210
Contact: Christopher Trevisani

SWPPP Preparer
Passero Associates
242 West Main Street. Suite 100
Rochester, NY 14614
(585) 325-1000
Contact: David Cox, P.E.

3.0 EXISTING SITE CONDITIONS

3.1 Topography/ Drainage

The parcel primarily consists of cut and fill land. The land also varies in slope throughout the site, with slopes between 0.5% to 33%.

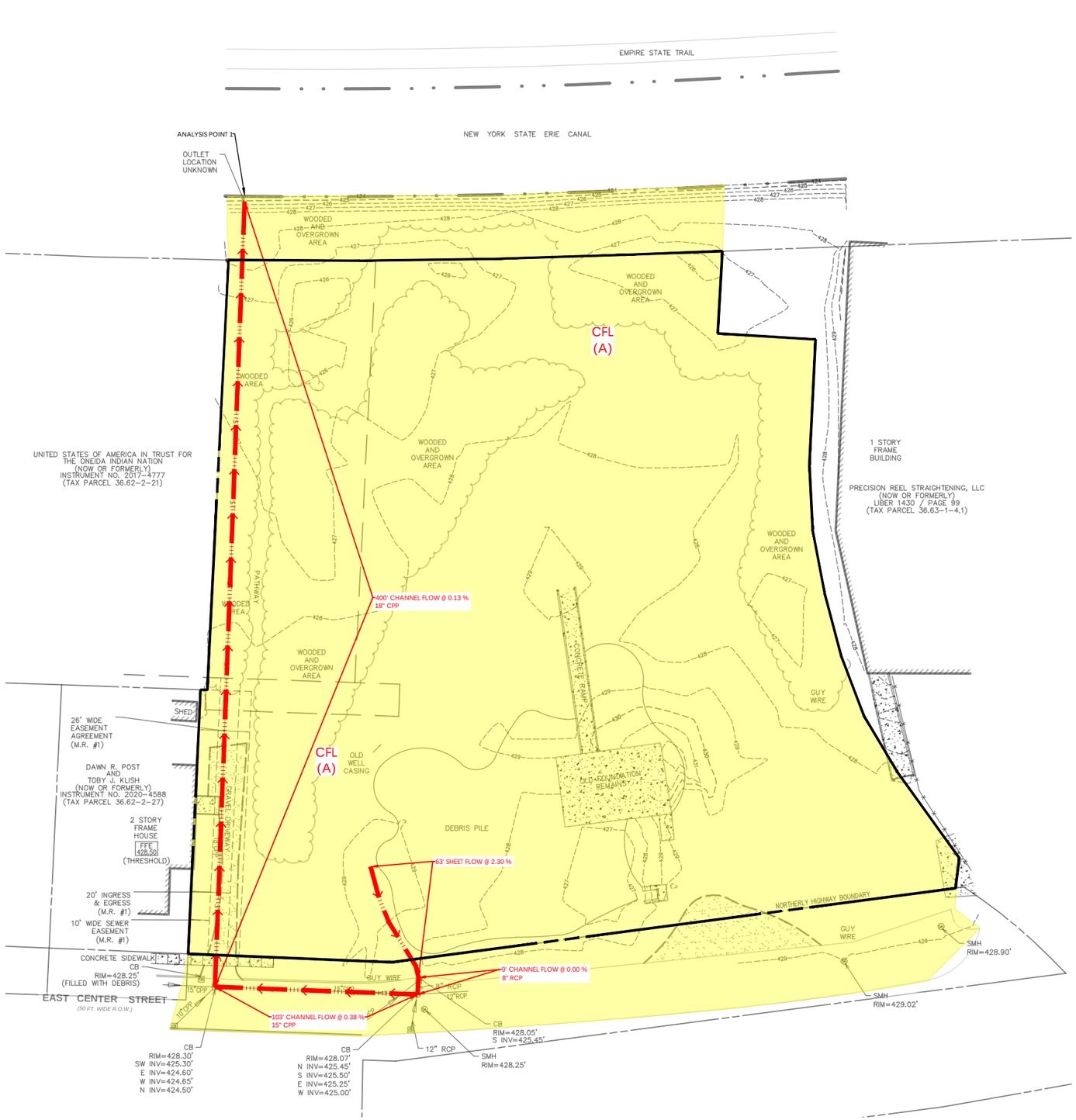
Stormwater generally drains via sheet flow and shallow concentrated flows which is conveyed off-site to the existing canal north of the proposed site.

There is one (1) drainage area on site that drains to analysis point 1. See below for descriptions of the existing drainage area:

Existing Drainage Area 1:

This area encompasses the entire site as well as a portion of East Center Road. In total the area is 3.14 acres. Stormwater generally sheet drains from the center of the site towards either towards the canal or towards the road where it enters into existing stormwater infrastructure and discharges into the canal, terminating at analysis point 1.

The provided existing drainage map graphically shows this drainage area, as well as the other hydraulic characteristics:



PASSERO architecture engineering

CANAL-SIDE POCKET NEIGHBORHOOD

EXISTING DRAINAGE MAP

20202975.0000

APRIL, 2025

CANASTOTA, NY

3.2 Wetlands/Tributary

The site was reviewed for the existence of federal and state regulated wetlands within the property boundaries. Federal wetlands were researched using the National Wetlands Inventory (NWI) using an online U.S. Fish and Wildlife website search. State regulated wetlands were researched using the NYSDEC's online Environmental Resource Mapper website. Refer to Appendix D and E for the federal and state regulated wetlands mapping. In addition to online mapping, a wetland delineation report was conducted.

Online wetland mapping is shown in appendix D and E.

3.3 Floodplain

Floodplains were researched using the online Firmette tools found at FEMA Map Service Center. Review of the floodplain mapping indicates there are not floodplains located on the site according to FEMA map 3603930001E dated 04/15/1988. Appendix G provides the FEMA Firmette maps showing the location of the floodplains.

3.4 NYSDEC Environmental Resources

The NYSDEC has an Environmental Resource Mapper on its website. The Environmental Resource Mapper is an interactive mapping application that can be used to identify some of New York State's natural resources and environmental features that are state protected, or of conservation concern. It displays the following:

- Animals and plants that are rare in New York, including those listed as Endangered or Threatened (generalized locations). [Updated May 2008]
- Significant natural communities, such as rare or high-quality forests, wetlands, and other habitat types.
- New York's streams, rivers, lakes, and ponds; water quality classifications are also displayed

According to this database, there are no potential for rare and endangered animals in the vicinity of the project. The environmental mapper is shown in Appendix D.

3.5 State Historic Preservation Office Review

The site was reviewed for the presence of an archeological sensitive area within the property boundary. The archeo-sensitive areas were located using online GIS tools found at the NYS Historic Preservation Office (SHPO).

It was determined that site is not within archeological-sensitive area.

4.0 DEVELOPED SITE CONDITIONS

The site will be segmented into two (2) proposed drainage areas. See below for a description of these drainage areas:

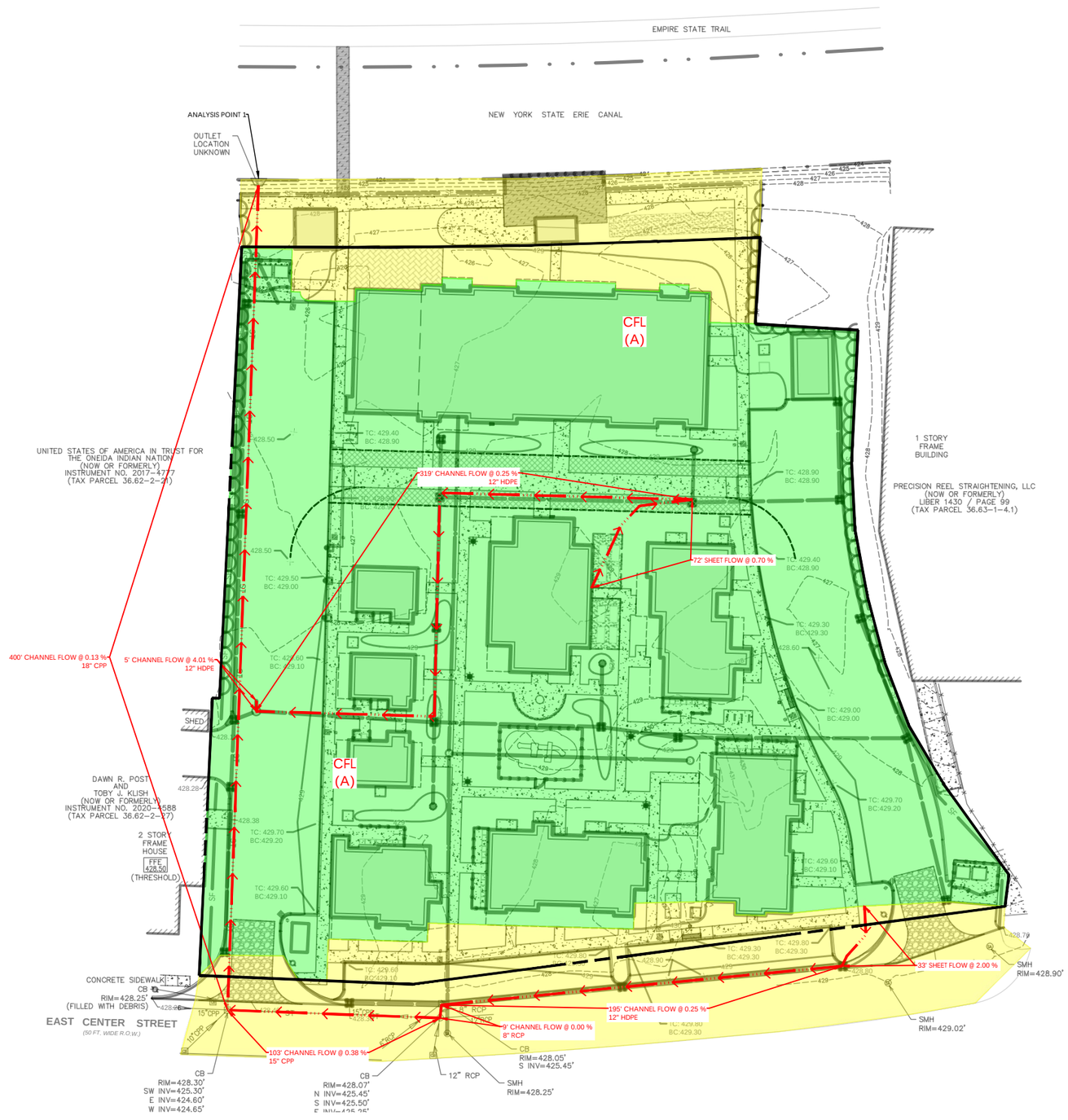
4.1 Proposed Drainage Area 1:

This area encompasses all the buildings, a majority of the sidewalks and a majority of the parking lot areas. In total the area is 2.32 acres. Stormwater sheet flows to proposed stormwater infrastructure from the center of the site, which ultimately discharges to the proposed underground infiltration chamber. Here stormwater first enters into the isolator row where sediment is allowed to settle prior to entering the rest of the chambers. In the other rows of chambers, stormwater filters through stone removing sediment prior to infiltrating into the underlying soils. During larger storm events, water will overflow through an 18" HDPE pipe which discharges to existing stormwater infrastructure, ultimately terminating at analysis point 1.

4.2 Proposed Drainage Area 2:

This area encompasses all the space along the canal, parking along East Center Street, and a portion of East Center Street. In total the area is 0.82 acres. Stormwater sheet flows to from the North to proposed stormwater infrastructure which connects to existing stormwater infrastructure, ultimately terminating at Analysis Point 1.

The provided proposed drainage map graphically shows this drainage area, as well as the other hydraulic characteristics:



HORIZONTAL SCALE

30 0 15 30 60

SCALE: 1"=30'

N

PRDA #1

PRDA #2

SOIL BOUNDARY

PROPERTY LINE

AIA — SOIL ABBREVIATION

(A) — SOIL RATING

PASSERO architecture engineering

CANAL-SIDE POCKET NEIGHBORHOOD

PROPOSED DRAINAGE MAP

20202975.0000

APRIL, 2025

CANASTOTA, NY

5.0 STORMWATER QUALITY

Stormwater quality requirements will be achieved using green infrastructure practices as well as standard stormwater practices. The proposed project contains both redevelopment and development so Chapter 5 and Chapter 9 of the NYSDEC Stormwater Management Design Manual were used to design the green infrastructure for this project. The design manual outlines which practices are best suited for specific scenarios, and how to properly size these practices. Water Quality Volume (WQv) and Runoff Reduction Volume (RRv) requirements are met using green infrastructure practices as well as other standard stormwater management practices.

This project will use underground infiltration chamber to meet all NYSDEC requirements for stormwater quality.

5.1 Infrastructure Practice Type Example: Underground Infiltration Chamber:

The underground infiltration chamber system shown on the plans will treat runoff from the proposed parking areas, buildings and sidewalks. Stormwater will enter the chamber system where it first enters the isolator row. In the isolator row, the "first flush" of stormwater is given time to allow sediment to settle out prior to entering the other rows of the chamber system. In the other rows of the chamber system, water will infiltrate the underlying soils. During larger storm events, stormwater will be discharged at a controlled rate from the outlet control structure.

Table 2: *Stormwater Quality Comparison*

Water Quality		
Description:	**Required**	**Provided**
WQv Total (acre-ft)	0.140	0.181
Min RRv Total (acre-ft)	0.061	0.114
CPv Total (acre-ft)	0.153	0.153
Qp Total (cfs)	7.32	5.22
Qf Total (cfs)	16.52	15.58

See the Appendix J for all green infrastructure calculations.

6.0 STORMWATER QUANTITY & CLIMATE CHANGE

The proposed development will increase impervious area on site, which increases the rate of stormwater runoff from the site. This runoff must be reduced to a rate that is less than the offsite flow rate during existing conditions. Reduction for this project is achieved through a new stormwater management area that will be used to release stormwater runoff at a controlled rate via an outlet control structure.

See the comparison table below for the sites analysis points under existing and proposed conditions:

Table 3: *Stormwater Quantity Comparison*

Runoff Comparison Table				
Analysis Point:	**Condition:**	**Runoff (cfs)**		
		1 year	**10 year**	**100 year**
Analysis Point 1 (Erie Canal)	EXISTING	2.60	7.32	16.52
	PROPOSED	1.43	5.22	15.58
	PERCENT REDUCTION	**45.00%**	**28.69%**	**5.69%**
Total Site	EXISTING	2.60	7.32	16.52
	PROPOSED	1.43	5.22	15.58
	PERCENT REDUCTION	**45.00%**	**28.69%**	**5.69%**

As shown above, the proposed design meets the requirements of stormwater management by releasing the water at a reduced rate that does not lead to erosion or high levels or pollution.

Refer to Appendix I for the Hydraflow analysis and the breakdown of each hydrograph.

6.1 Considerations for Climate Change

In accordance with Part III.A.2 of the General Permit, considerations must be made in SWPPP design to account for ongoing climate change across NYS. This SWPPP considered the following physical risks pursuant to the Community Risk and Resiliency Act (CRRA), 6 NYCRR Part 490.

- Increasing temperatures and increasing precipitation
- Increasing variability in precipitation, including chance of drought
- Increasing frequency and severity of flooding and rising sea levels
- Increasing storm surge and shifting ecologies.

The following methods to consider and implement resiliency to combat climate change in NYS are below:

- *Accurate Rainfall Data* – This SWPPP utilizes the most up-to-date rainfall data provided by the "Extreme Precipitation in New York & New England" tool managed by Cornell University. This data is important for proper stormwater design of infrastructure to meet modern climate conditions.

- *Assumptions of Frozen Soils* – This SWPPP takes into consideration the potential for frozen soils contributing to higher runoff rates, due to the inability for infiltration during the winter months. The higher runoff rates cause increased loading on the stormwater infrastructure, which can find pipes to be undersized or unintended erosion / overloading of channels, swales or retention ponds. Considerations to use lower values for Hydrologic Soil Groups (A-C) and using C soils in the model creates larger runoff rates to represent frozen soils. To mitigate impact to the proposed system, pipes sizing calculations are based on faster concentration times and increased curve numbers. Storm pipe outfalls all include rip rap outfalls to slow runoff rates and protect from erosion. Pretreatment basins are utilized to slow stormwater runoff before entering retention areas.

7.0 CONSTRUCTION EROSION CONTROL PRACTICES & INSPECTIONS

The Owner is responsible for having monthly inspections of the storm water management facility completed. The inspections shall review and document the following at a minimum: visual inspection of the outlet structure, check of the outlets for excessive sediment accumulation, burrowing, vegetation degradation, or any other issues of concern. A certified copy of the annual summary of inspections report will be provided to the Village of Canastota by the first of December. The owner is also responsible for having SWPPP inspections once per week once disturbance of the site starts. Copies of the SWPPP inspection reports will be sent to the village, owner, and contractor and deficiencies should be addressed immediately.

Several erosion control practices will be utilized during construction by the contractor under direct supervision by the owner and a qualified SWPPP inspector (S.W.T.). These practices are explained below and shown in detail in the appendix of this report and the construction plans:

- Silt Fence → Silt fencing shall be installed at the toe of all slopes along the perimeter of the disturbed areas and at the toe of slope for any soil stock pile areas. Also, a row of silt fence will be installed around the perimeter of all wetlands in an effort to delineate its boundary. The fencing will be installed in accordance with the NYSDEC construction standards and at the instruction of this plan. The silt fencing shall be buried in the ground at least 6 inches. The contractor shall provide continued monitoring to ensure the silt fencing remains intact, and shall repair as needed. When the silt accumulates to greater than 1/3 the height of the fence the contractor shall remove and dispose of the silt.

- Stabilized Construction Entrance → The existing project entrance shall serve as the construction entrance to the project. The contractor shall ensure that mud is not tracked onto the adjacent roadways and that the stone entrance properly removes mud and debris from construction vehicles.

- Drop Inlet Protection → All field inlets and catch basins shall have inlet protection in accordance with the detail the Appendix. Drop Inlet protection can be removed from catch basins in the roadway when the sub base is installed, and from the field inlets when the adjacent area is brought to final grade and stabilized.

- Seeding and Stabilization → The contractor shall seed and stabilize all disturbed areas not to be worked for 7 days. Stabilization measures may include but are not limited to straw mulching, wood chip mulching, jute mesh and hydroseeding. The SMA and adjacent areas shall be stabilized immediately following their shaping and installation. All embankments greater than 3:1 shall be stabilized with jute mesh. The timeline requirements for stabilization are below:

    - If not in a listed impaired watershed AND site is NOT under a 5-acre wavier, 14 days.
    - If inside an impaired watershed OR utilizing a 5-acre wavier, 7 days.
    - During the winter months, including sites under winter shutdown, 3 days.

- Check Dam → 24 inch high stone check dams will be installed in all temporary and permanent diversion swales. The check dams will be installed every 2 vertical feet. Once the site is stabilized, these check dams will be removed.

- Truck Washdown area → a truck washdown area will be provided adjacent to the construction entrance. This area will be constructed such that it drains to a sediment basin immediately adjacent prior to discharging offsite.

- Winter Shutdown → The contractor may request to enter winter shutdown provided the contractor has fulfilled the requirements set forth in the NYSDEC Blue Book Standard and Specifications for Winter Stabilization contained in Appendix Q of this report. The certified SWPPP inspector will then perform an inspection and upon agreement with the contractor's practice, shall complete the "Notice to reduce Frequency of SPDES Site Inspections" Form contained in Appendix Q of this report. The form will then be submitted to the regulatory MS4 (or NYSDEC regional office should there be no MS4 for the project area) for review. After the regulatory MS4 or NYSDEC regional office has approved the request, the site will enter winter shutdown and SPDES site inspections may drop to monthly. Should the certified SWPPP inspector find any problems during winter shutdown, the contractor is liable to correct the issues on site in the same timely manner as an active project

Additional measures may be required during construction at the guidance of the owner or certified SWPPP Inspector. The contractor shall begin to make all adjustments to the erosion control within 24 hours of receipt of any deficiencies. The owner will be responsible for providing weekly reports when the site disturbance totals less than 5 acres. Inspections are to be completed by a qualified inspector in accordance with the GP-0-25-001, during construction to the Village of Canastota.

If the developer of site plans to increase the disturbance greater than 5 acres at any given time, a 5 acre waiver must be submitted to the NYSDEC and approval granted prior to reaching this limit. The developer must adhere to the conditions set forth in the SPDES General Permit GP-0-25-001 Part II.D.3, located as Appendix K of this report. The conditions of Part II.D.3 are outlined below:

1. The owner or operator shall have a qualified inspector conduct at least two (2) site inspections in accordance with Part IV.C. of this permit every seven (7) calendar days, for as long as greater than five (5) acres of soil remain disturbed. The two (2) inspections shall be separated by a minimum of two (2) full calendar days.

2. In areas where soil disturbance activity has temporarily or permanently ceased, the application of soil stabilization measures must be initiated by the end of the next business day and completed within three (3) days from the date the current soil disturbance activity ceased. The soil stabilization measures selected shall be in conformance with the technical standard, New York State Standards and Specifications for Erosion and Sediment Control, dated July 2024.

3. In areas where soil disturbance and compaction due to construction activities has taken place and the final product is to be pervious soils, lawns, or soils underlying a pervious man-made surface (i.e. pervious pavement, etc) the contractor is required to restore the soil per table 5.2 of the NYSDEC Stormwater Design Manual (see below).

Table 5.2 Soil Restoration Requirements

Type of Soil Disturbance	Soil Restoration Requirement		Comments/Examples
No soil disturbance	Restoration not permitted		Preservation of Natural Features
Minimal soil disturbance	Restoration not required		Clearing and grubbing
Areas where topsoil is stripped only - no change in grade	HSG A &B	HSG C&D	Protect area from any ongoing construction activities.
	apply 6 inches of topsoil	Aerate* and apply 6 inches of topsoil	
Areas of cut or fill	HSG A &B	HSG C & D	
	Aerate and apply 6 inches of topsoil	Apply full Soil Restoration **	
Heavy traffic areas on site (especially in a zone 5-25 ft around buildings but not within a 5 ft perimeter around foundation walls)	Apply full Soil Restoration** de-compaction and compost enhancement)		
Areas where Runoff Reduction and/or Infiltration practices are applied	Restoration not required but may be applied to enhance the reduction specified for appropriate practices.		Keep construction equipment from crossing these areas. To protect newly installed practice from any ongoing construction activities construct a single-phase operation fence area
Redevelopment projects	Soil Restoration is required on redevelopment projects in areas where existing impervious area will be converted to pervious area as well as existing pervious areas.		

*Aeration includes the use of machines such as tractor-drawn implements with coulters making a narrow slit in the soil, a roller with many spikes making indentations in the soil, or prongs which function like a mini-subsoiler.

** Refer to latest version of NYSDEC Deep-Ripping and Decompaction.

4. The owner or operator shall prepare a phasing plan that defines maximum disturbed area per phase and shows required cuts and fills.

5. The owner or operator shall install any additional site-specific practices needed to protect water quality.

Any modifications to the SWPPP will be reported and approved by the Village in writing prior to implementation. See Appendix A for additional SWPPP information. The owner is responsible for having a qualified operator on site at all times who has at least 4 hours of erosion control training in accordance with the GP-0-25-001. Once the site has achieved 80% stabilization and ground cover, the Village may sign off on the Notice of Termination prior to submission to the NYSDEC. Removal of all temporary erosion and sediment control practices is required prior to demobilization.

8.0 POST CONSTRUCTION

The owner of the subject project will be responsible for all post construction practices. The contact information for the owner is illustrated on the cover of this plan as well as the design plans for the project. The post construction practices include performing annual inspections of the SMAs to ensure proper working conditions and ensure continual stabilized cover of all project areas to 80% cover, minimum. All applicable inspection and maintenance activities shall continue until the 80% cover is met. Any silt removal will be disposed either off site or on site and immediately stabilized in accordance with the practices of this plan.

Additionally, annual monitoring of the storm sewer structures will be provided by the owner to ensure that they are functioning properly. All documentation related to this SWPPP and post construction monitoring reports, shall be kept by the owner for five years after project completion. These inspections will be certified by a Professional Engineer and a copy of the inspection report will be furnished to the Village.

9.0 SUMMARY

The proposed project requires stormwater management practices which conform to NYSDEC regulations. The proposed standard stormwater management practices will also result in a net decrease in peak runoff from the site while meeting the NYSDEC requirements for Runoff Reduction, Water Quality and Channel Protection. Continued monitoring of the practices included in this plan will be provided by the owner and a designated SWPPP Inspector.

The following appendices of this report illustrate the additional requirements and specifications for stormwater pollution prevention. All practices included in this report and incorporated in the proposed project have been designed in compliance with the NYS Storm Water Design Manual and NYS Standards and Specifications for Erosion and Sediment Control.

APPENDICES

APPENDIX A: SWPPP PRACTICES PROCEDURES AND CERTIFICATIONS

STORMWATER POLLUTION PREVENTION PLAN

SITE DESCRIPTION			
Project Name and Location: (Latitude, Longitude, or Address)	Canal Side Pocket Neighborhood 160 East Center Street Canastota, NY 13032	Owner Name and Address:	Housing Visions Consultants 1201 E. Fayette Street Syracuse, NY 13210
Description: (Purpose and Types of Soil Disturbing Activities)	Redevelopment of a 2.56 acre site into a pocket neighborhood with 47 units, associated parking and site amenities.		
Runoff Coefficient/Soils Conditions:	The runoff coefficient impervious area is 0.9 and 0.2 for the grass areas. The soils on-site consist of silty loams with hydrologic soil class "C".		
Site Area:	2.56 acres		

Sequence of Major Activities

The order of activities will be as follows:

1. **Install silt fences, stabilized construction entrance and other erosion control measures.**
2. **Protect vegetation to remain.**
3. **Construct temporary sediment basins including grading, and stabilization.**
4. **Strip and stockpile topsoil as necessary.**
5. **Conduct mass earth moving activities.**
6. **Install utilities including storm sewers.**
7. **Box parking lot or road ways.**
8. **Install parking or road Subbase and continue monitoring of erosion control.**
9. **Stabilize disturbed areas and stockpiles within 7 days of last construction activity in all areas.**
10. **Final grading, seeding, and mulching of all disturbed areas.**
11. **When all work areas are complete and the entire areas are stabilized, remove the erosion control measures.**

Name of Receiving Waters:	

CONTROLS

Erosion and Sediment Controls

Stabilization Practices

Temporary Stabilization - Topsoil will be replaced onsite or removed from the site. Disturbed portions of the site where construction activity temporarily ceases for at least 7 days will be stabilized with temporary seed and mulch no later than 7 days from the last construction activity in that area. The temporary seed shall be Rye (grain) applied at the rate of 120 pounds per acre. Prior to seeding, 2,000 pounds per acre of ground agricultural limestone and 1,000 pounds per acre of 10-10-10 fertilizer shall be applied. If applicable, areas of the site which are to be paved will be temporarily stabilized by applying geotextile and stone sub-base until bituminous pavement can be applied.

Permanent Stabilization - Disturbed portions of the site where construction activities permanently cease shall be stabilized with permanent seed no later than 7 days after the last construction activity. The permanent seed mix shall be as indicated on the plans and specifications.

Stormwater Management

The proposed Underground Infiltration Chamber will provide stormwater quality and siltation control post construction. The areas which are not graded as part of this project will remain untouched. When construction has been completed all surfaces will be restored and erosion control measures removed after all turf areas are established. After construction has been completed the siltation basins will be cleaned of all construction debris, then filled and stabilized.

Post Construction Stormwater Management/Maintenance Procedures

Once the stormwater management areas are permanently stabilized and operating properly, an annual inspection is required. This shall consist of:

- A visual inspection of the outlet structure and removal of any debris that may affect its performance.
- A visual inspection of the earthen berm. Signs of erosion or areas lacking vegetation should be identified and corrected.
- Provide a report summarizing the above to the Town in a format acceptable to their office.
- See attached GP-01-25-001 for additional inspection requirements
- Stormwater management areas shall be maintained a minimum of 3 times per growing season.

OTHER CONTROLS

Waste Disposal:

Waste Material - All waste material will be collected and stored in a metal dumpster rented from a NYSDEC approved hauler, which is a licensed solid waste management company. The dumpster will meet all local and state solid waste management regulations. All trash and construction debris from the site will be deposited in the dumpster. The dumpster will be emptied a minimum of once per week or more often if necessary, and the trash will be hauled to a NYSDEC approved dump. No construction waste material will be buried on site. All personnel will be instructed regarding the correct procedures for waste disposal. Notices stating these practices will be posted in the office trailer and the individual who manages the day-to-day operations will be responsible for seeing that these procedures are followed.

Hazardous Waste – All hazardous waste materials will be disposed of in a manner specified by local and state regulations or by the manufacturer. Site personnel will be instructed in these practices and the individual who manages the day-to-day operations will be responsible for seeing that these practices are followed.

Sanitary Waste – If portable units are used, all sanitary waste will be collected from the portable units a minimum of three times per week by a licensed sanitary waste management contractor, as required by local regulation.

Offsite Vehicle Tracking:

The paved streets adjacent to the site will be swept daily to remove any excess mud, dirt, or rock tracked from the site. Dump trucks hauling material from the construction site will be covered with a tarpaulin.

TIMING OF CONTROLS/MEASURES

As indicated in the Sequence of Major Activities, the erosion and sedimentation control measures, including silt fence, will be constructed prior to clearing or grading of any other portions of the site. Areas where construction activity temporarily ceases for more than 7 days will be stabilized with a temporary seed and mulch within 7 days of the last disturbance. Once construction activity ceases permanently in an area, that area will be stabilized with permanent seed and mulch.

CERTIFICATION OF COMPLIANCE WITH FEDERAL, STATE, AND LOCAL REGULATIONS

The stormwater collection and discharge complies with the NYSDEC requirements of the New York State Stormwater Management Design Manual.

MAINTENANCE/INSPECTION PROCEDURES

Erosion and Sediment Control Inspection and Maintenance Practices

These are the inspection and maintenance practices that will be used to maintain erosion and sediment controls:

- All control measures will be inspected at least once each week if there is 5 acres or less of disturbance. Twice a week if more than 5 acres is disturbed.
- All measures will be maintained in good working order; if a repair is necessary; it will be initiated within 24 hours or report.
- Built-up sediment will be removed from silt fence when it has reached one-third the height of the fence.
- Temporary and permanent seeding and planting will be inspected for bare spots, washouts, and health of growth.
- A maintenance inspection report will be made after each inspection. A copy of the report form to be completed by the inspector is attached.
- The site superintendent will select individuals who will be responsible for inspections, maintenance and repair activities, and filling out the inspection and maintenance report.
- Personnel selected for inspection and maintenance responsibilities will receive training from the site superintendent. They will be trained in all the inspection and maintenance practices necessary for keeping the erosion and sediment controls used on-site in good working order.

Non-Stormwater Discharges

No non-stormwater discharges will occur from the site during the period, except the following:
It is expected that the following non-storm water discharges will occur from the site during the construction period:

- Pavement wash waters (where no spills or leaks of toxic or hazardous materials have occurred).
- Uncontaminated groundwater (from dewatering excavation).

INVENTORY FOR POLLUTION PREVENTION PLAN

The materials or substances listed below are expected to be present on-site during construction:

Select Granular Fill	Topsoil	HDPE Pipe
Precast Concrete	Mulch	Construction Signs
Concrete	Joint Sealant	Sign Panels & Sign Supports
Seed	Electric Cable	Metal Frames & Grates
Steel Conduit	Asphalt Tack Coat	SDR-35 PVC Pipe
Subbase Course	Asphalt Concrete	

SPILL PREVENTION

Material Management Practices

The following are the material management practices that will be used to reduce the risk of spills or other accidental exposure of materials and substances to stormwater runoff.

Good Housekeeping:

The following good housekeeping practices will be followed on-site during the construction project:

- An effort will be made to store only enough product required to do the job.
- All materials stored on-site will be stored in a neat, orderly manner in their appropriate containers and, if possible, under a roof or other enclosure.
- Products will be kept in their original containers with the original manufacturer's label.
- Substances will not be mixed with one another unless recommended by the manufacturer.
- Whenever possible, all of a product will be used up before disposing of the container.
- Manufacturers' recommendations for proper use and disposal will be followed.
- The site superintendent will inspect daily to ensure proper use and disposal of materials on-site.

Hazardous Products:

These practices are used to reduce the risks associated with hazardous materials:

- Products will be kept in original containers unless they are not re-sealable.
- Original labels and material safety data will be retained; they contain important product information.
- If surplus product must be disposed of, manufacturers' or local and state recommended methods of proper disposal will be followed.

SPILL PREVENTION (Continued)

Product Specific Practices

The following product specific practices will be followed on-site:

Petroleum Products:

All on-site vehicles will be monitored for leaks and receive regular preventive maintenance to reduce the chance of leakage. Fuel oil for construction machinery will be stored in an above-ground tank with a suitable containment system. Material safety data sheets will be filed in the site superintendent's trailer. Any asphalt substances used on-site will be applied according to the manufacturer's recommendations.

Fertilizers:

Fertilizers used will be applied only in the minimum amounts recommended by the manufacturer. Once applied, fertilizer will be worked into the soil to limit exposure to stormwater. The contents of any partially used bags of fertilizer will be transferred to resealable plastic bags to avoid spills.

Paints:

All containers will be tightly sealed and stored when not required for use. Excess paint will not be discharged to the storm sewer system, but will be properly disposed of according to manufacturers' instructions or state and local regulations.

Concrete Trucks:

Concrete trucks will not be allowed to wash out or discharge surplus concrete or drum wash water on site.

Spill Control Practices

In addition to the good housekeeping and material management practices discussed in the previous sections of this plan, the following practices will be followed for spill prevention and cleanup:

- Manufacturers' recommended methods for spill cleanup will be clearly posted and site personnel will be made aware of the procedures and the location of the information and cleanup supplies.
- Materials and equipment necessary for spill cleanup will be kept in the material storage area on-site. Equipment and materials will include but not be limited to brooms, dust pans, mops, rags, gloves, kitty litter, sand, sawdust, and plastic and metal trash containers specifically for this purpose.
- All spills will be cleaned up immediately after discovery.
- The spill area will be kept well ventilated and personnel will wear appropriate protective clothing to prevent injury from contact with hazardous substance.
- Reportable spills of any petroleum-based material will be reported to the appropriate state or local government agency.
- The spill prevention plan will be adjusted to include measures to prevent this type of spill from reoccurring and how to clean up the spill if there is another one. A description of the spill, what caused it, and the cleanup measures will also be included.
- The site superintendent responsible for the day-to-day operations will be the spill prevention and cleanup coordinator. He will designate at least three other site personnel who will receive spill prevention and cleanup training. These individuals will each become responsible for a particular phase of prevention and cleanup. The names of responsible spill personnel will be posted in the material storage area and in the office trailer on-site.

POLLUTION PREVENTION PLAN CERTIFICATION

I certify under penalty of law that I understand and agree to comply with the terms and conditions of the SWPPP for the construction site identified in such SWPPP as a condition of authorization to discharge stormwater. I also understand that the operator must comply with the terms and conditions of the New York State Pollutant Discharge Elimination System ("SPDES") general permit for stormwater discharges from construction activities and that it is unlawful for any person to cause or contribute to a violation of water quality standards.

Signed:_____
Owner

Date:_____

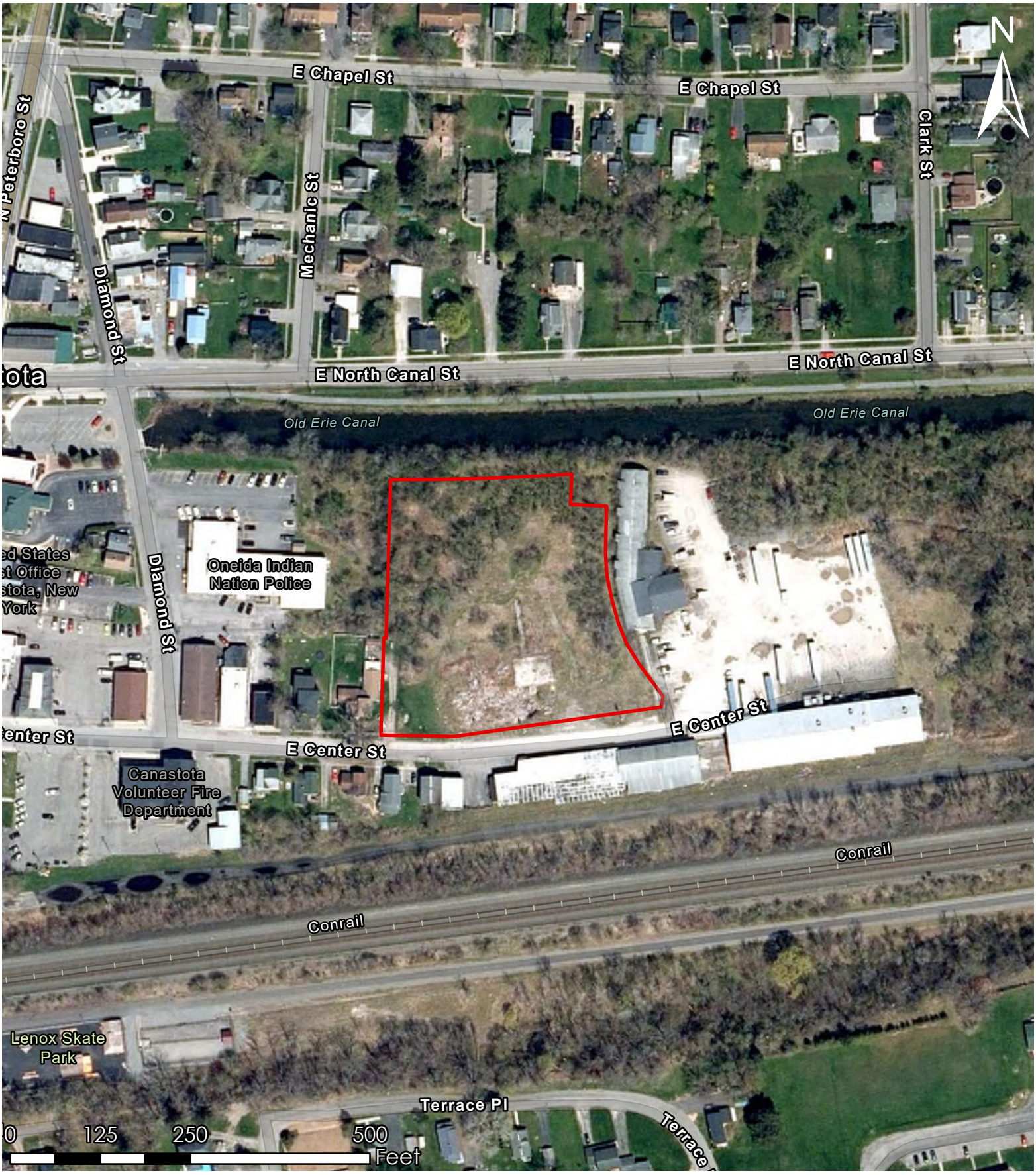
CONTRACTOR'S CERTIFICATION

"I hereby certify under penalty of law that I understand and agree to comply with the terms and conditions of the SWPPP and agree to implement any corrective actions identified by the qualified inspector during a site inspection. I also understand that the owner or operator must comply with the terms and conditions of the most current version of the New York State Pollutant Discharge Elimination System ("SPDES") general permit for stormwater discharges from construction activities and that it is unlawful for any person to cause or contribute to a violation of water quality standards. Furthermore, I am aware that there are significant penalties for submitting false information, that I do not believe to be true, including the possibility of fine and imprisonment for knowing violations"

Signature	For	Responsible for
Trained Contractor _____ Date:_____		
_____ Date:_____		
_____ Date:_____		
_____ Date:_____		
_____ Date:_____		

Signature	For	Responsible for
_____ Date:_____		
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APPENDIX B: AERIAL PHOTOGRAPH



Legend

Project Area

Canastota Pocket Neighborhood Location Map

Maps created by: Passero Associates GIS, AV
CRS: NAD83 State Plane New York Central
Municipality: Town of Canastota
Source: Madison County GIS

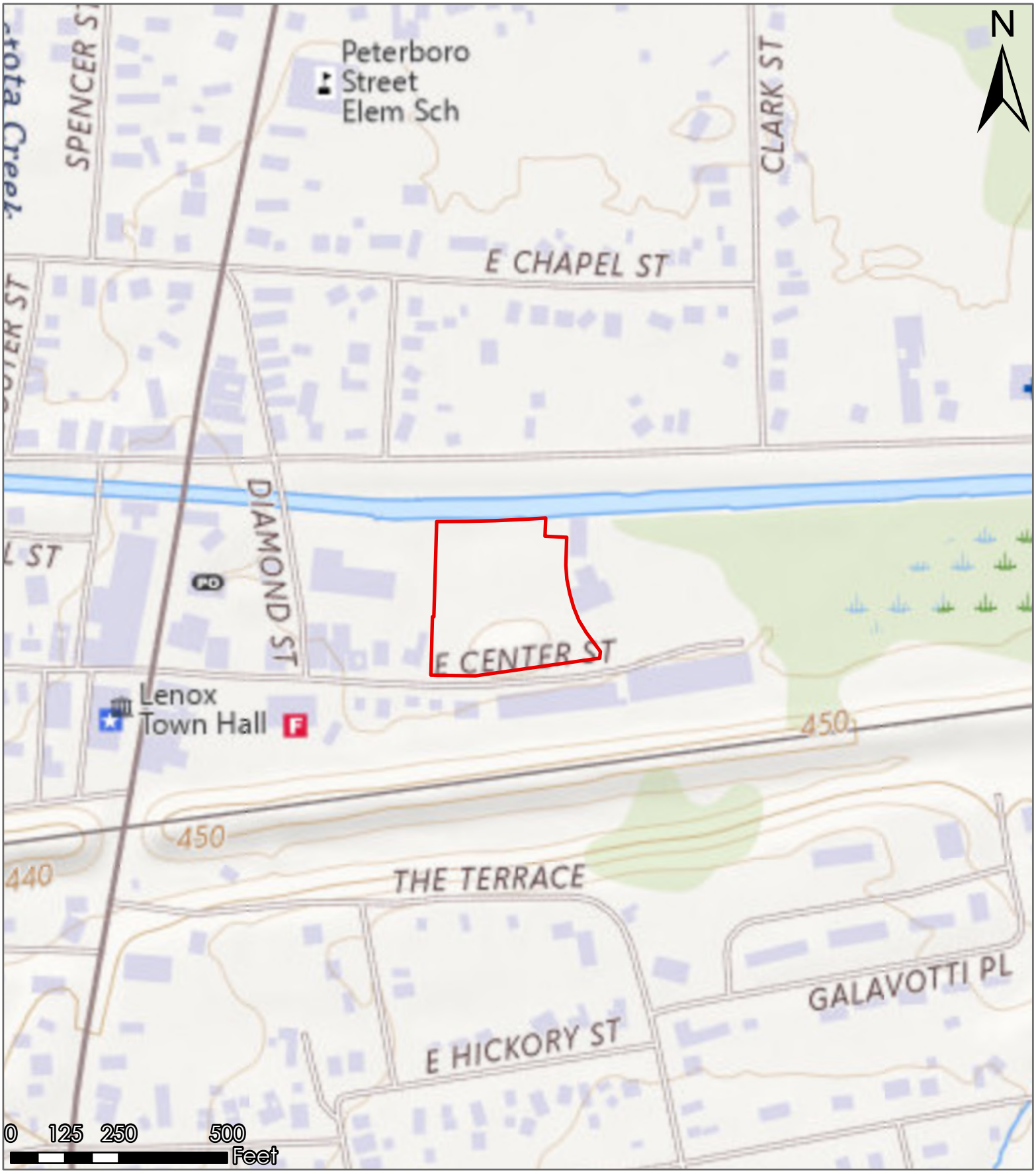
PASSERO architecture engineering

Service Credits:

Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User Community, New York State, Maxar

Date: 1/15/2025

APPENDIX C: USGS QUADRANGLE MAP



Legend

Project Area

USGS Map

Maps created by: Passero Associates GIS, AV
CRS: NAD83 State Plane New York Central
Municipality: Town of Canastota
Source: United States Geological Survey

PASSERO
architecture engineering

Service Credits:

USGS The National Map: National Boundaries Dataset, 3DEP Elevation Program, Geographic Names Information System, National Hydrography Dataset, National Land Cover Database, National Structures Dataset, and National Transportation Dataset; USGS Global Ecosystems; U.S. Census Bureau TIGER/Line data; USFS Road data; Natural Earth Data; U.S. Department of State HIU; NOAA National Centers for Environmental Information. Data refreshed April, 2024.

Date: 1/15/2025

APPENDIX D: ENVIRONMENTAL RESOURCE MAPPER



Legend

- Rivers & Streams
- Rare Plants & Animals
- Significant Natural Communities
- NYSDEC Wetlands
- 100ft Buffer

Environmental Resource Map

Maps created by: Passero Associates GIS, AV
CRS: NAD83 State Plane New York Central
Municipality: Town of Canastota
Source: Environmental Resource Mapper

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Service Credits:

Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User Community, New York State, Maxar, Microsoft

Date: 1/15/2025

APPENDIX E: WETLAND MAPPING



Legend

Wetlands

- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Other
- Riverine

USFWS National Wetlands Inventory

Maps created by: Passero Associates GIS, AV
CRS: NAD83 State Plane New York Central
Municipality: Town of Canastota
Source: U.S. Fish and Wildlife Service

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Service Credits:

Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User Community, New York State, Maxar

Date: 1/15/2025

APPENDIX F: SOILS MAP



Legend

Soils

Hydrologic Rating

A

Soil Map

Maps created by: Passero Associates GIS, AV
CRS: NAD83 State Plane New York Central
Municipality: Town of Canastota
Source: NRCS Web Soil Survey

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Service Credits:

Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User Community, New York State, Maxar

Date: 1/15/2025

APPENDIX G: FEMA MAPPING



Legend

- 0.2% Annual Chance Flood Hazard
- 1% Annual Chance Flood Hazard
- Regulatory Floodway

FEMA Flood Areas Map

Maps created by: Passero Associates GIS, AV
CRS: NAD83 State Plane New York Central
Municipality: Town of Canastota
Source: FEMA

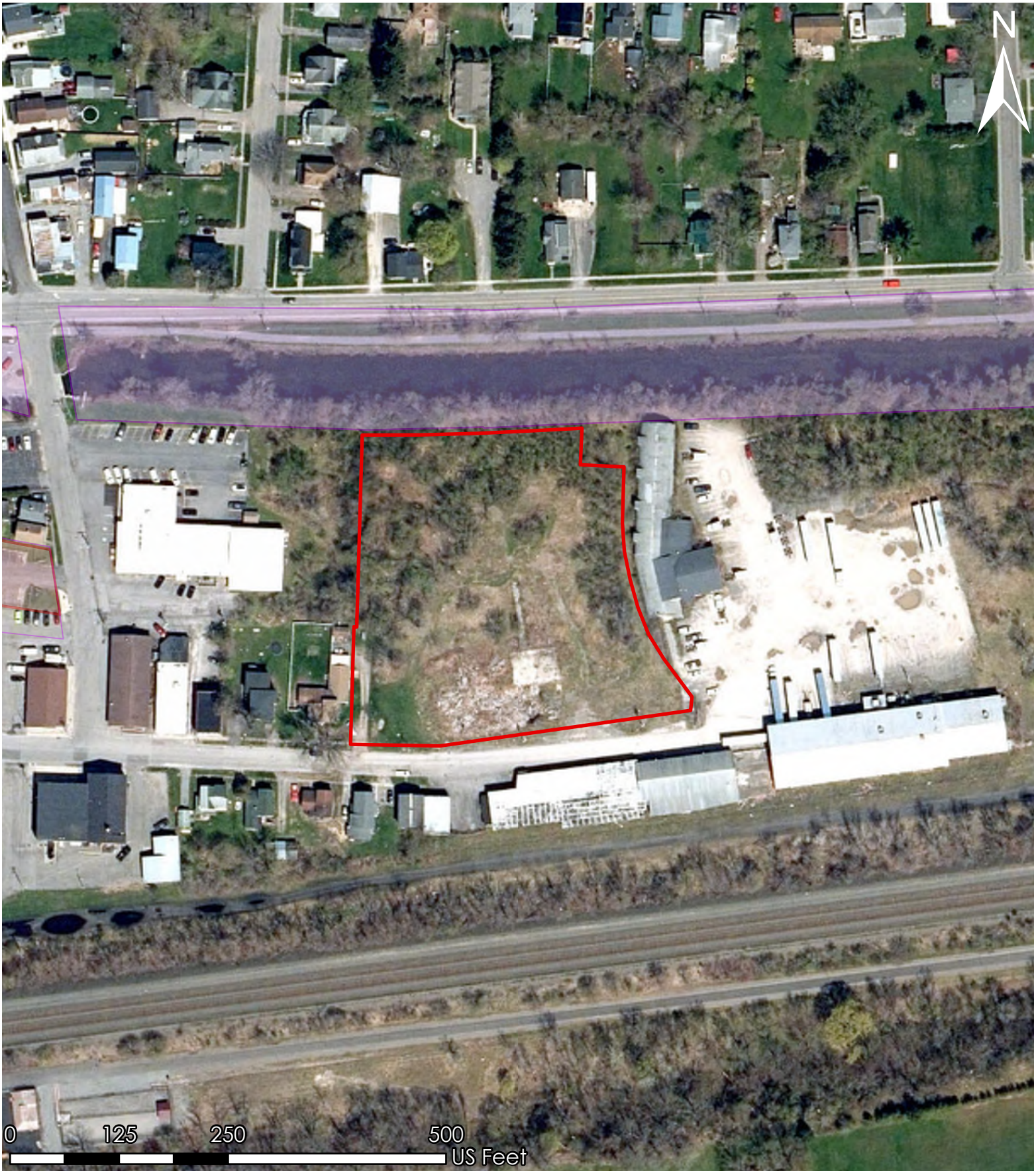
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Service Credits:

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Date: 1/15/2025

APPENDIX H: ARCHEOLOGICAL SENSITIVE AREAS MAP



Legend

- National Register Building Listings

Historic Building Sites

- Eligible
- Listed

Historical Building Districts

- Eligible
- Listed

Archeological Sensitive Areas

Maps created by: Passero Associates GIS, AV
CRS: NAD83 State Plane New York Central
Municipality: Town of Canastota
Source: Cultural Resource Information System

PASSERO
architecture engineering

Service Credits:
New York State, Maxar

Date: 1/15/2025

APPENDIX I: WATER QUANTITY CALCULATIONS

Extreme Precipitation Tables

Northeast Regional Climate Center

Data represents point estimates calculated from partial duration series. All precipitation amounts are displayed in inches.

Metadata for Point	
Smoothing	Yes
State	New York
Location	New York, United States
Latitude	43.079 degrees North
Longitude	75.749 degrees West
Elevation	130 feet
Date/Time	Thu Feb 06 2025 11:23:49 GMT-0500 (Eastern Standard Time)

Extreme Precipitation Estimates

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
1yr	0.27	0.42	0.52	0.69	0.86	1.06	**1yr**	0.74	0.96	1.21	1.46	1.76	2.11	2.41	**1yr**	1.87	2.32	2.74	3.34	3.89	**1yr**
2yr	0.32	0.50	0.62	0.82	1.03	1.27	**2yr**	0.89	1.14	1.44	1.73	2.07	2.44	2.75	**2yr**	2.16	2.64	3.11	3.76	4.35	**2yr**
5yr	0.38	0.60	0.75	1.01	1.29	1.60	**5yr**	1.11	1.42	1.82	2.17	2.57	3.00	3.37	**5yr**	2.66	3.24	3.82	4.51	5.16	**5yr**
10yr	0.43	0.68	0.86	1.18	1.53	1.91	**10yr**	1.32	1.68	2.17	2.59	3.03	3.51	3.93	**10yr**	3.10	3.78	4.47	5.18	5.87	**10yr**
25yr	0.52	0.83	1.05	1.45	1.93	2.41	**25yr**	1.66	2.10	2.74	3.25	3.77	4.31	4.83	**25yr**	3.81	4.64	5.49	6.21	6.97	**25yr**
50yr	0.59	0.94	1.21	1.70	2.30	2.89	**50yr**	1.98	2.48	3.28	3.87	4.46	5.04	5.64	**50yr**	4.46	5.42	6.42	7.13	7.94	**50yr**
100yr	0.68	1.10	1.42	2.01	2.74	3.45	**100yr**	2.36	2.94	3.91	4.59	5.25	5.89	6.59	**100yr**	5.21	6.34	7.50	8.20	9.04	**100yr**
200yr	0.78	1.27	1.65	2.37	3.27	4.13	**200yr**	2.82	3.49	4.68	5.46	6.19	6.89	7.70	**200yr**	6.10	7.41	8.78	9.41	10.31	**200yr**
500yr	0.95	1.56	2.03	2.96	4.14	5.23	**500yr**	3.57	4.39	5.91	6.85	7.70	8.48	9.48	**500yr**	7.51	9.11	10.80	11.31	12.25	**500yr**

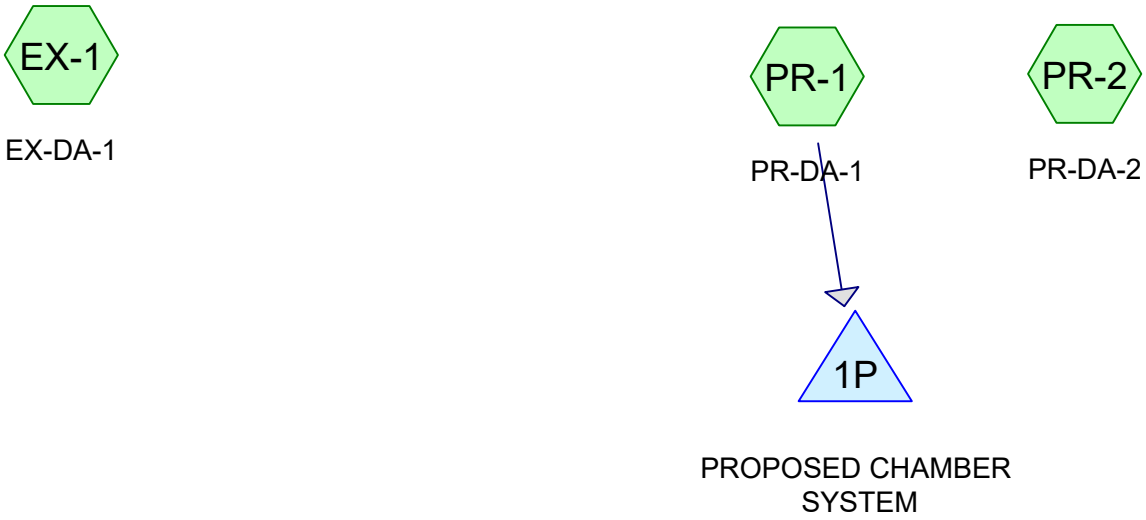
Lower Confidence Limits

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
1yr	0.23	0.36	0.44	0.59	0.73	0.86	**1yr**	0.63	0.84	0.91	1.10	1.44	1.73	2.07	**1yr**	1.53	1.99	2.27	2.99	3.52	**1yr**
2yr	0.31	0.49	0.60	0.81	1.00	1.13	**2yr**	0.86	1.10	1.26	1.56	1.91	2.37	2.65	**2yr**	2.10	2.55	3.03	3.66	4.25	**2yr**
5yr	0.35	0.54	0.67	0.92	1.17	1.32	**5yr**	1.01	1.29	1.46	1.84	2.25	2.79	3.19	**5yr**	2.47	3.07	3.62	4.19	4.88	**5yr**
10yr	0.38	0.58	0.72	1.00	1.30	1.46	**10yr**	1.12	1.43	1.65	2.04	2.50	3.22	3.65	**10yr**	2.85	3.51	4.11	4.65	5.40	**10yr**
25yr	0.42	0.64	0.79	1.13	1.49	1.65	**25yr**	1.29	1.61	1.92	2.33	2.86	3.80	4.30	**25yr**	3.36	4.13	4.88	5.30	6.18	**25yr**
50yr	0.44	0.67	0.84	1.20	1.62	1.79	**50yr**	1.40	1.75	2.14	2.55	3.16	4.31	4.86	**50yr**	3.81	4.67	5.56	5.84	6.83	**50yr**
100yr	0.47	0.72	0.90	1.30	1.78	2.20	**100yr**	1.54	2.15	2.38	2.79	3.48	4.89	5.52	**100yr**	4.32	5.31	6.34	6.42	7.57	**100yr**
200yr	0.50	0.76	0.96	1.39	1.94	2.48	**200yr**	1.67	2.43	2.64	3.03	3.83	5.54	6.27	**200yr**	4.90	6.03	7.23	7.07	8.38	**200yr**
500yr	0.88	1.30	1.68	2.44	3.46	2.92	**500yr**	2.99	2.86	2.99	3.38	4.33	6.57	7.47	**500yr**	5.81	7.19	8.61	7.99	9.61	**500yr**

Upper Confidence Limits

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
1yr	0.30	0.46	0.56	0.75	0.93	1.08	**1yr**	0.80	1.05	1.22	1.55	1.86	2.28	2.61	**1yr**	2.02	2.51	2.94	3.56	4.20	**1yr**
2yr	0.34	0.53	0.65	0.89	1.09	1.23	**2yr**	0.94	1.20	1.36	1.72	2.07	2.57	2.87	**2yr**	2.27	2.76	3.20	3.90	4.47	**2yr**
5yr	0.42	0.65	0.80	1.10	1.40	1.59	**5yr**	1.21	1.56	1.76	2.16	2.63	3.18	3.55	**5yr**	2.82	3.41	4.06	4.80	5.47	**5yr**
10yr	0.50	0.76	0.94	1.32	1.70	1.96	**10yr**	1.47	1.92	2.17	2.63	3.20	3.79	4.25	**10yr**	3.35	4.08	4.87	5.67	6.38	**10yr**
25yr	0.63	0.95	1.19	1.70	2.23	2.61	**25yr**	1.92	2.55	2.86	3.44	4.17	4.77	5.41	**25yr**	4.23	5.20	6.19	7.06	7.82	**25yr**
50yr	0.75	1.14	1.42	2.04	2.75	3.26	**50yr**	2.37	3.18	3.54	4.19	5.08	5.71	6.50	**50yr**	5.06	6.25	7.44	8.35	9.14	**50yr**
100yr	0.90	1.37	1.71	2.47	3.39	4.01	**100yr**	2.93	3.92	4.38	5.14	6.22	6.83	7.79	**100yr**	6.04	7.49	8.94	9.88	10.67	**100yr**
200yr	1.09	1.64	2.08	3.00	4.19	4.99	**200yr**	3.62	4.88	5.44	6.31	7.61	8.16	9.37	**200yr**	7.22	9.01	10.74	11.72	12.45	**200yr**
500yr	1.26	1.87	2.40	3.49	4.97	6.65	**500yr**	4.28	6.50	7.25	8.29	9.96	10.34	11.94	**500yr**	9.15	11.48	13.69	14.71	15.30	**500yr**

Powered by ACIS Northeast Regional Climate Center



Subcat Reach Pond Link

Routing Diagram for Canastota HydroCAD
Prepared by Passero Associates, Printed 4/1/2025
HydroCAD® 10.20-4c s/n 13263 © 2024 HydroCAD Software Solutions LLC

Rainfall Events Listing (selected events)

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	1-yr Event	Type II 24-hr		Default	24.00	1	2.11	2
2	10-yr Event	Type II 24-hr		Default	24.00	1	3.51	2
3	100-yr Event	Type II 24-hr		Default	24.00	1	5.89	2

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
3.459	74	>75% Grass cover, Good, HSG C (EX-1, PR-1, PR-2)
2.821	98	Paved parking, HSG A (EX-1, PR-1, PR-2)

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
2.821	HSG A	EX-1, PR-1, PR-2
0.000	HSG B	
3.459	HSG C	EX-1, PR-1, PR-2
0.000	HSG D	
0.000	Other	

Ground Covers (all nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.000	0.000	3.459	0.000	0.000	3.459	>75% Grass cover, Good	EX-1, PR-1, PR-2
2.821	0.000	0.000	0.000	0.000	2.821	Paved parking	EX-1, PR-1, PR-2

Summary for Subcatchment EX-1: EX-DA-1

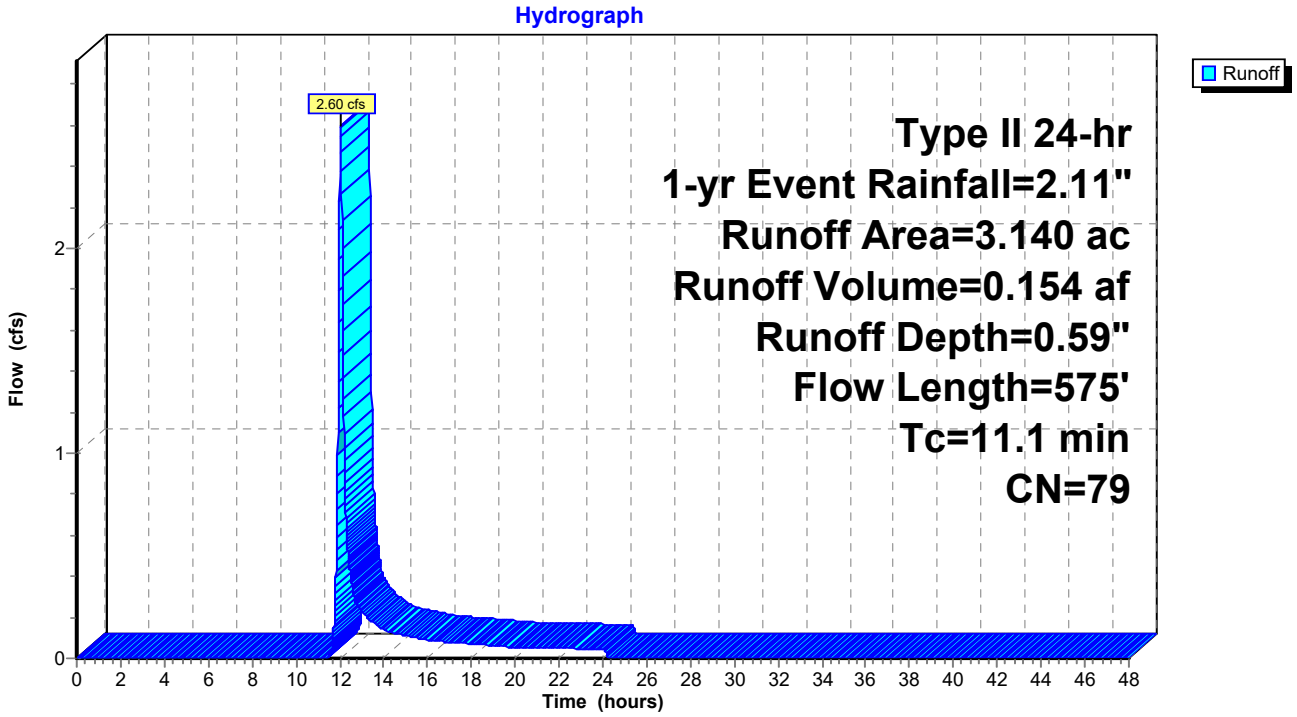
Runoff = 2.60 cfs @ 12.04 hrs, Volume= 0.154 af, Depth= 0.59"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type II 24-hr 1-yr Event Rainfall=2.11"

Area (ac)	CN	Description
0.688	98	Paved parking, HSG A
2.452	74	>75% Grass cover, Good, HSG C
3.140	79	Weighted Average
2.452		78.09% Pervious Area
0.688		21.91% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.3	63	0.0230	0.14		**Sheet Flow, SHEET FLOW** Grass: Short n= 0.150 P2= 2.44"
0.4	9	0.0001	0.41	0.14	**Pipe Channel, 8" RCP** 8.0" Round Area= 0.3 sf Perim= 2.1' r= 0.17' n= 0.011 Concrete pipe, straight & clean
0.5	103	0.0038	3.52	4.31	**Pipe Channel, 15" CPP** 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.012 Corrugated PP, smooth interior
2.9	400	0.0013	2.32	4.10	**Pipe Channel, 18" CPP** 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.012 Corrugated PP, smooth interior
11.1	575	Total			

Subcatchment EX-1: EX-DA-1



Summary for Subcatchment PR-1: PR-DA-1

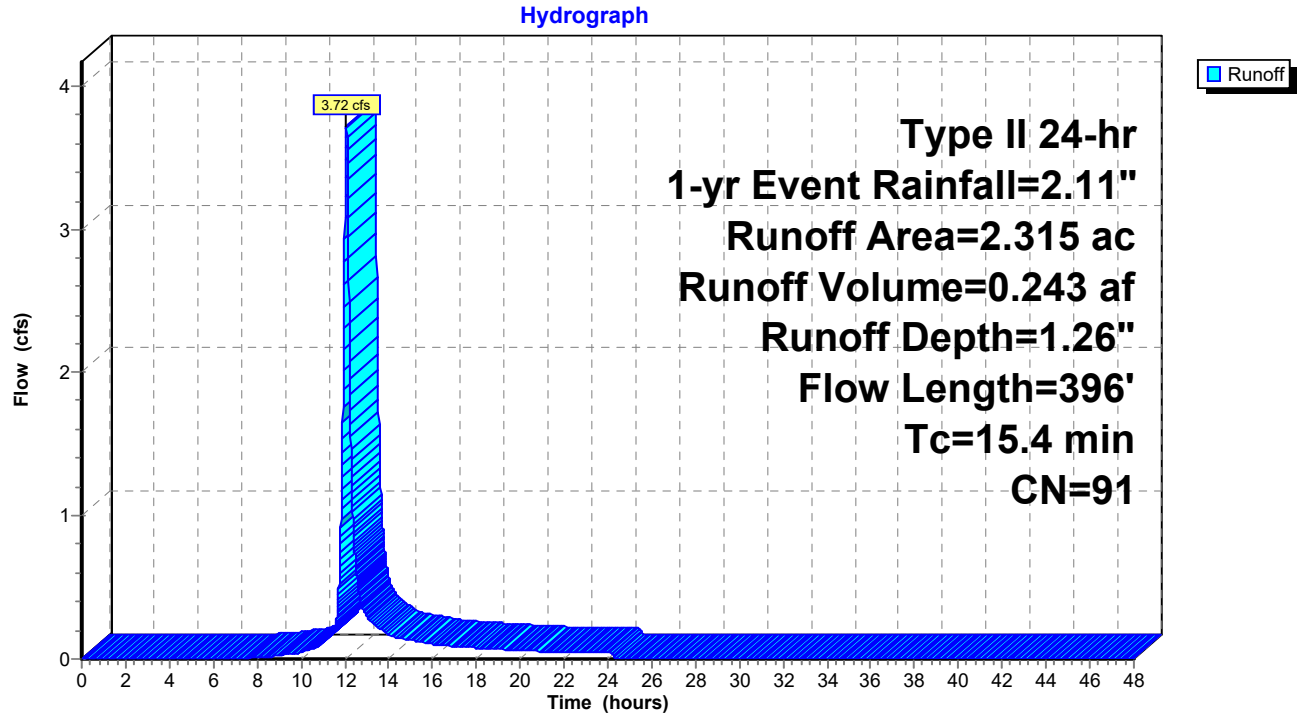
Runoff = 3.72 cfs @ 12.07 hrs, Volume= 0.243 af, Depth= 1.26"
Routed to Pond 1P : PROPOSED CHAMBER SYSTEM

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type II 24-hr 1-yr Event Rainfall=2.11"

Area (ac)	CN	Description
1.627	98	Paved parking, HSG A
0.688	74	>75% Grass cover, Good, HSG C
2.315	91	Weighted Average
0.688		29.72% Pervious Area
1.627		70.28% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.1	72	0.0070	0.09		**Sheet Flow, SHEET FLOW** Grass: Short n= 0.150 P2= 2.44"
2.3	319	0.0025	2.27	1.78	**Pipe Channel, 12" HDPE** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Corrugated PE, smooth interior
0.0	5	0.0401	9.08	7.13	**Pipe Channel, 12" HDPE** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Corrugated PE, smooth interior
15.4	396	Total			

Subcatchment PR-1: PR-DA-1



Summary for Subcatchment PR-2: PR-DA-2

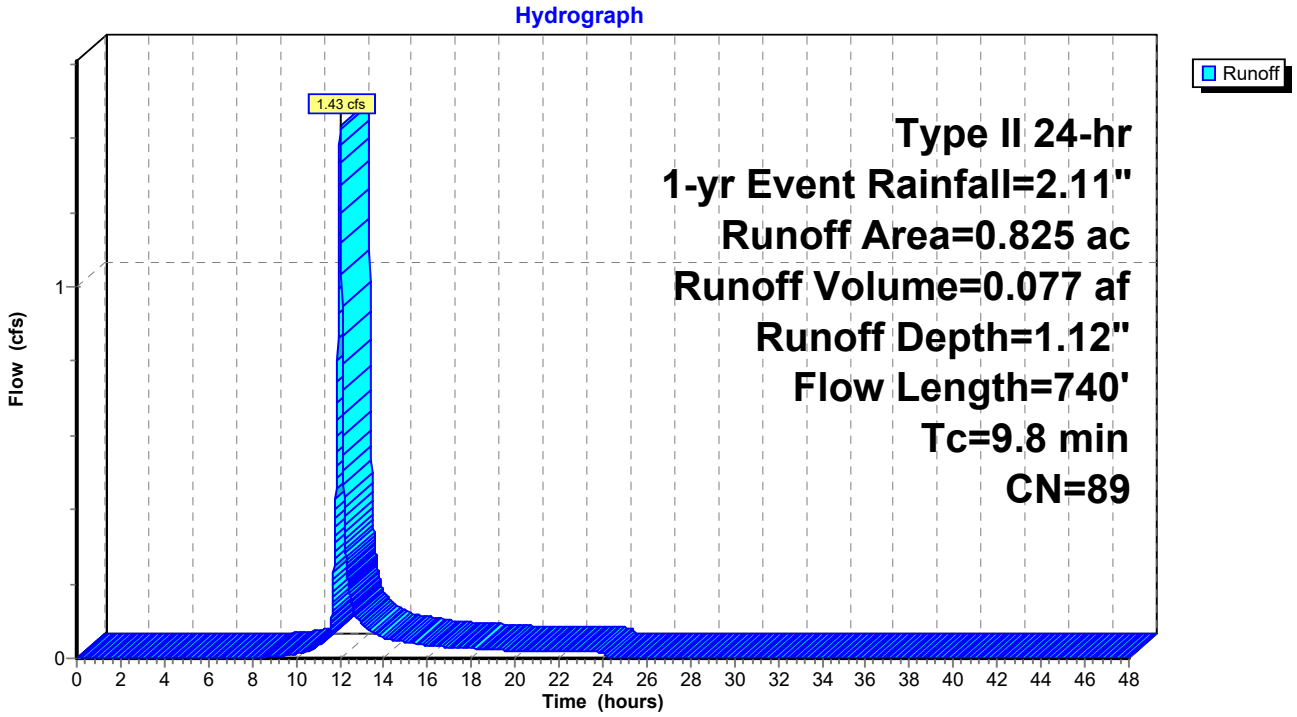
Runoff = 1.43 cfs @ 12.01 hrs, Volume= 0.077 af, Depth= 1.12"
Routed to nonexistent node 2R

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type II 24-hr 1-yr Event Rainfall=2.11"

Area (ac)	CN	Description
0.506	98	Paved parking, HSG A
0.319	74	>75% Grass cover, Good, HSG C
0.825	89	Weighted Average
0.319		38.67% Pervious Area
0.506		61.33% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.6	33	0.0200	0.12		**Sheet Flow, SHEET FLOW** Grass: Short n= 0.150 P2= 2.44"
1.4	195	0.0025	2.27	1.78	**Pipe Channel, 12" HDPE** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Corrugated PE, smooth interior
0.4	9	0.0001	0.41	0.14	**Pipe Channel, 8" RCP** 8.0" Round Area= 0.3 sf Perim= 2.1' r= 0.17' n= 0.011 Concrete pipe, straight & clean
0.5	103	0.0038	3.52	4.31	**Pipe Channel, 15" CPP** 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.012 Corrugated PP, smooth interior
2.9	400	0.0013	2.32	4.10	**Pipe Channel, 18" CPP** 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.012 Corrugated PP, smooth interior
9.8	740	Total			

Subcatchment PR-2: PR-DA-2



Summary for Pond 1P: PROPOSED CHAMBER SYSTEM

Inflow Area = 2.315 ac, 70.28% Impervious, Inflow Depth = 1.26" for 1-yr Event event
Inflow = 3.72 cfs @ 12.07 hrs, Volume= 0.243 af
Outflow = 0.18 cfs @ 6.75 hrs, Volume= 0.265 af, Atten= 95%, Lag= 0.0 min
Discarded = 0.18 cfs @ 6.75 hrs, Volume= 0.265 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to nonexistent node 2R

Routing by Sim-Route method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 424.21' @ 13.94 hrs Surf.Area= 0.089 ac Storage= 0.122 af

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 237.6 min (1,062.3 - 824.7)

Volume	Invert	Avail.Storage	Storage Description
#1A	421.00'	0.174 af	**20.50'W x 188.80'L x 6.25'H Field A** 0.555 af Overall - 0.121 af Embedded = 0.434 af x 40.0% Voids
#2A	424.00'	0.121 af	**ADS_StormTech SC-800 +Cap** x 104 Inside #1 Effective Size= 45.0"W x 33.0"H => 7.11 sf x 7.12'L = 50.6 cf Overall Size= 51.0"W x 33.0"H x 7.55'L with 0.43' Overlap 104 Chambers in 4 Rows Cap Storage= 3.4 cf x 2 x 4 rows = 27.4 cf
		0.295 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	424.65'	**18.0" Round Culvert** L= 25.0' Ke= 0.500 Inlet / Outlet Invert= 424.65' / 424.05' S= 0.0240 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf
#2	Discarded	421.00'	**2.000 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=0.18 cfs @ 6.75 hrs HW=421.00' (Free Discharge)
↑**2=Exfiltration** (Exfiltration Controls 0.18 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=421.00' (Free Discharge)
↑**1=Culvert** (Controls 0.00 cfs)

Pond 1P: PROPOSED CHAMBER SYSTEM - Chamber Wizard Field A

Chamber Model = ADS_StormTechSC-800 +Cap (ADS StormTech®SC-800 with cap volume)
Effective Size= 45.0"W x 33.0"H => 7.11 sf x 7.12'L = 50.6 cf
Overall Size= 51.0"W x 33.0"H x 7.55'L with 0.43' Overlap
Cap Storage= 3.4 cf x 2 x 4 rows = 27.4 cf

51.0" Wide + 6.0" Spacing = 57.0" C-C Row Spacing

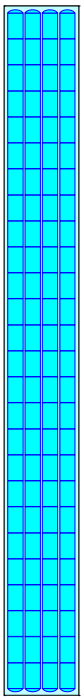
26 Chambers/Row x 7.12' Long +0.88' Cap Length x 2 = 186.80' Row Length +12.0" End Stone x 2 = 188.80' Base Length
4 Rows x 51.0" Wide + 6.0" Spacing x 3 + 12.0" Side Stone x 2 = 20.50' Base Width
36.0" Stone Base + 33.0" Chamber Height + 6.0" Stone Cover = 6.25' Field Height

104 Chambers x 50.6 cf + 3.4 cf Cap Volume x 2 x 4 Rows = 5,289.0 cf Chamber Storage

24,190.0 cf Field - 5,289.0 cf Chambers = 18,901.0 cf Stone x 40.0% Voids = 7,560.4 cf Stone Storage

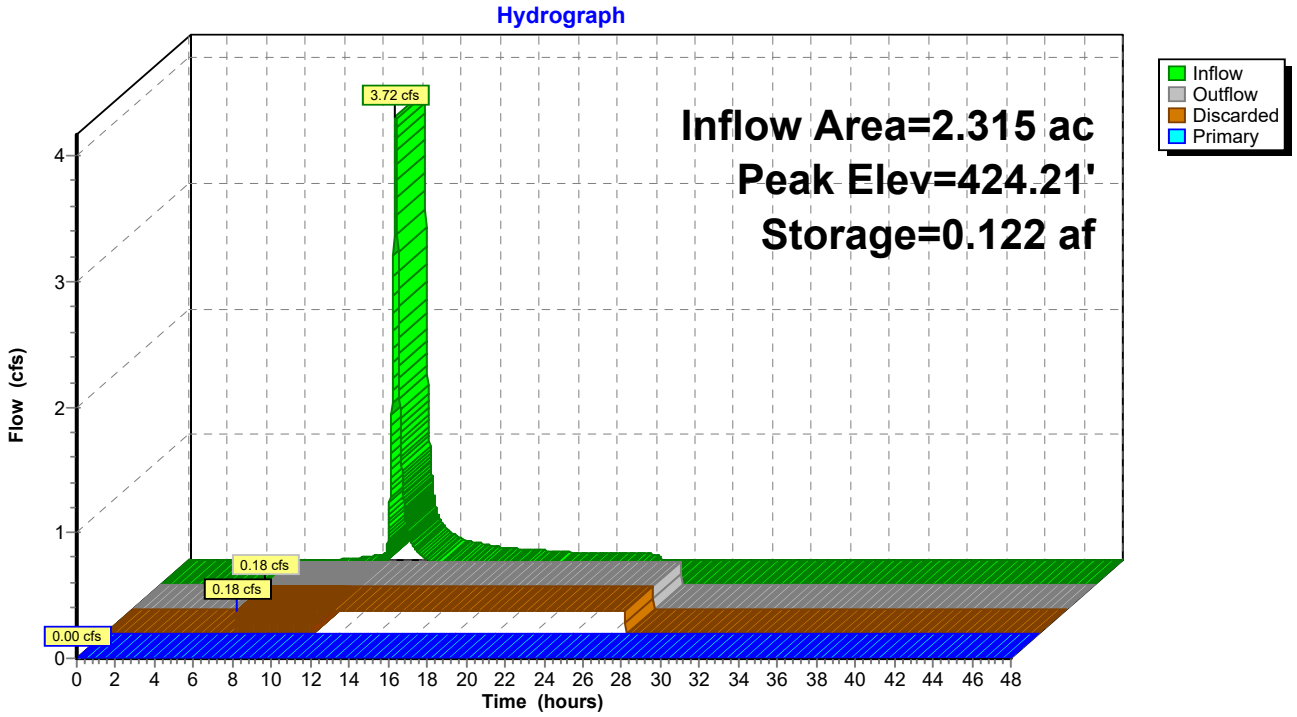
Chamber Storage + Stone Storage = 12,849.4 cf = 0.295 af
Overall Storage Efficiency = 53.1%
Overall System Size = 188.80' x 20.50' x 6.25'

104 Chambers
895.9 cy Field
700.0 cy Stone





Pond 1P: PROPOSED CHAMBER SYSTEM



Stage-Discharge for Pond 1P: PROPOSED CHAMBER SYSTEM

Elevation (feet)	Discharge (cfs)	Discarded (cfs)	Primary (cfs)
421.00	0.00	**0.00**	0.00
421.10	0.18	**0.18**	0.00
421.20	0.18	0.18	0.00
421.30	0.18	0.18	0.00
421.40	0.18	0.18	0.00
421.50	0.18	0.18	0.00
421.60	0.18	0.18	0.00
421.70	0.18	0.18	0.00
421.80	0.18	0.18	0.00
421.90	0.18	0.18	0.00
422.00	0.18	0.18	0.00
422.10	0.18	0.18	0.00
422.20	0.18	0.18	0.00
422.30	0.18	0.18	0.00
422.40	0.18	0.18	0.00
422.50	0.18	0.18	0.00
422.60	0.18	0.18	0.00
422.70	0.18	0.18	0.00
422.80	0.18	0.18	0.00
422.90	0.18	0.18	0.00
423.00	0.18	0.18	0.00
423.10	0.18	0.18	0.00
423.20	0.18	0.18	0.00
423.30	0.18	0.18	0.00
423.40	0.18	0.18	0.00
423.50	0.18	0.18	0.00
423.60	0.18	0.18	0.00
423.70	0.18	0.18	0.00
423.80	0.18	0.18	0.00
423.90	0.18	0.18	0.00
424.00	0.18	0.18	0.00
424.10	0.18	0.18	0.00
424.20	0.18	0.18	0.00
424.30	0.18	0.18	0.00
424.40	0.18	0.18	0.00
424.50	0.18	0.18	0.00
424.60	0.18	0.18	0.00
424.70	0.19	0.18	0.01
424.80	0.30	0.18	0.12
424.90	0.51	0.18	0.33
425.00	0.81	0.18	0.63
425.10	1.20	0.18	1.02
425.20	1.66	0.18	1.48
425.30	2.19	0.18	2.01
425.40	2.78	0.18	2.61
425.50	3.42	0.18	3.24
425.60	4.09	0.18	3.92
425.70	4.79	0.18	4.61
425.80	5.49	0.18	5.31
425.90	6.17	0.18	5.99
426.00	6.81	0.18	6.63
426.10	7.35	0.18	7.17
426.20	7.79	0.18	7.61
426.30	8.25	0.18	8.07
426.40	8.69	0.18	8.51
426.50	9.10	0.18	8.92
426.60	9.50	0.18	9.32
426.70	9.88	0.18	9.70
426.80	10.25	0.18	10.07
426.90	10.60	0.18	10.42
427.00	10.94	0.18	10.76
427.10	11.27	0.18	11.09
427.20	**11.59**	0.18	**11.42**

Stage-Area-Storage for Pond 1P: PROPOSED CHAMBER SYSTEM

Elevation (feet)	Surface (acres)	Storage (acre-feet)
421.00	**0.089**	0.000
421.10	0.089	0.004
421.20	0.089	0.007
421.30	0.089	0.011
421.40	0.089	0.014
421.50	0.089	0.018
421.60	0.089	0.021
421.70	0.089	0.025
421.80	0.089	0.028
421.90	0.089	0.032
422.00	0.089	0.036
422.10	0.089	0.039
422.20	0.089	0.043
422.30	0.089	0.046
422.40	0.089	0.050
422.50	0.089	0.053
422.60	0.089	0.057
422.70	0.089	0.060
422.80	0.089	0.064
422.90	0.089	0.068
423.00	0.089	0.071
423.10	0.089	0.075
423.20	0.089	0.078
423.30	0.089	0.082
423.40	0.089	0.085
423.50	0.089	0.089
423.60	0.089	0.092
423.70	0.089	0.096
423.80	0.089	0.100
423.90	0.089	0.103
424.00	0.089	0.107
424.10	0.089	0.114
424.20	0.089	0.121
424.30	0.089	0.129
424.40	0.089	0.136
424.50	0.089	0.143
424.60	0.089	0.150
424.70	0.089	0.157
424.80	0.089	0.164
424.90	0.089	0.171
425.00	0.089	0.178
425.10	0.089	0.185
425.20	0.089	0.192
425.30	0.089	0.198
425.40	0.089	0.205
425.50	0.089	0.211
425.60	0.089	0.218
425.70	0.089	0.224
425.80	0.089	0.230
425.90	0.089	0.236
426.00	0.089	0.242
426.10	0.089	0.247
426.20	0.089	0.253
426.30	0.089	0.258
426.40	0.089	0.263
426.50	0.089	0.267
426.60	0.089	0.272
426.70	0.089	0.275
426.80	0.089	0.279
426.90	0.089	0.283
427.00	0.089	0.286
427.10	0.089	0.290
427.20	0.089	**0.293**

Summary for Subcatchment EX-1: EX-DA-1

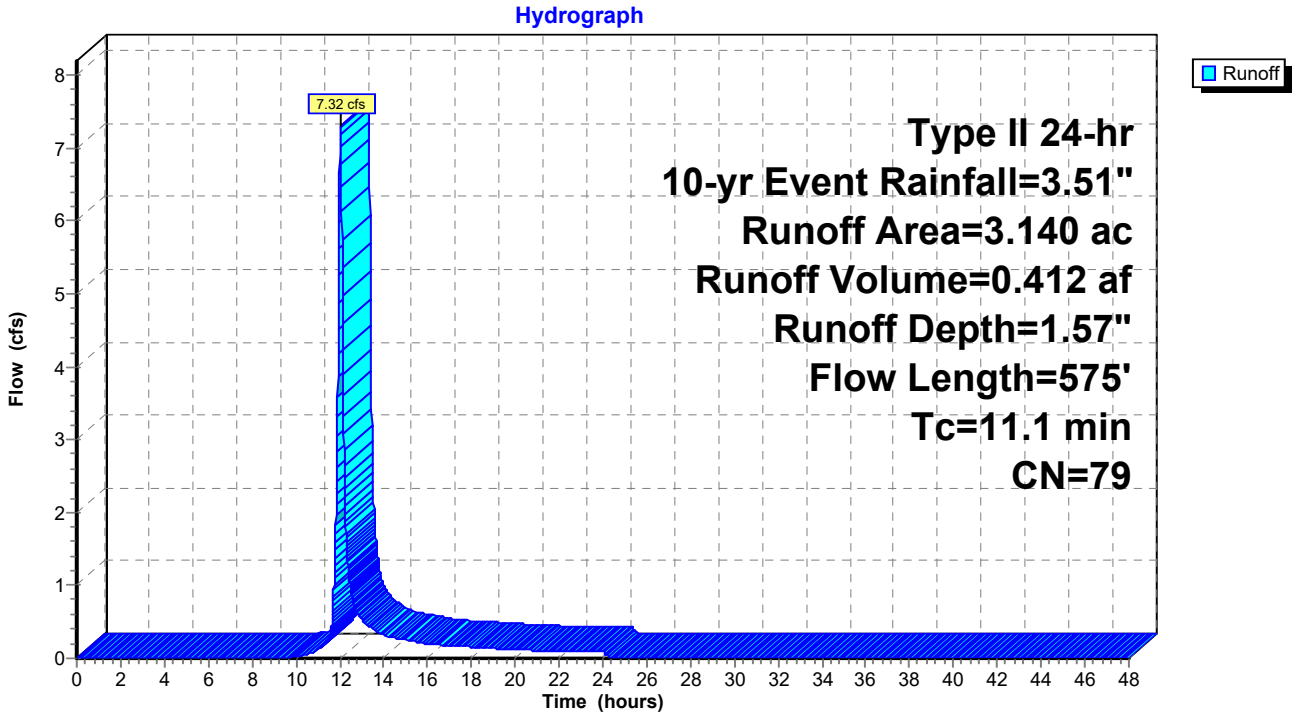
Runoff = 7.32 cfs @ 12.03 hrs, Volume= 0.412 af, Depth= 1.57"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type II 24-hr 10-yr Event Rainfall=3.51"

Area (ac)	CN	Description
0.688	98	Paved parking, HSG A
2.452	74	>75% Grass cover, Good, HSG C
3.140	79	Weighted Average
2.452		78.09% Pervious Area
0.688		21.91% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.3	63	0.0230	0.14		**Sheet Flow, SHEET FLOW** Grass: Short n= 0.150 P2= 2.44"
0.4	9	0.0001	0.41	0.14	**Pipe Channel, 8" RCP** 8.0" Round Area= 0.3 sf Perim= 2.1' r= 0.17' n= 0.011 Concrete pipe, straight & clean
0.5	103	0.0038	3.52	4.31	**Pipe Channel, 15" CPP** 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.012 Corrugated PP, smooth interior
2.9	400	0.0013	2.32	4.10	**Pipe Channel, 18" CPP** 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.012 Corrugated PP, smooth interior
11.1	575	Total			

Subcatchment EX-1: EX-DA-1



Summary for Subcatchment PR-1: PR-DA-1

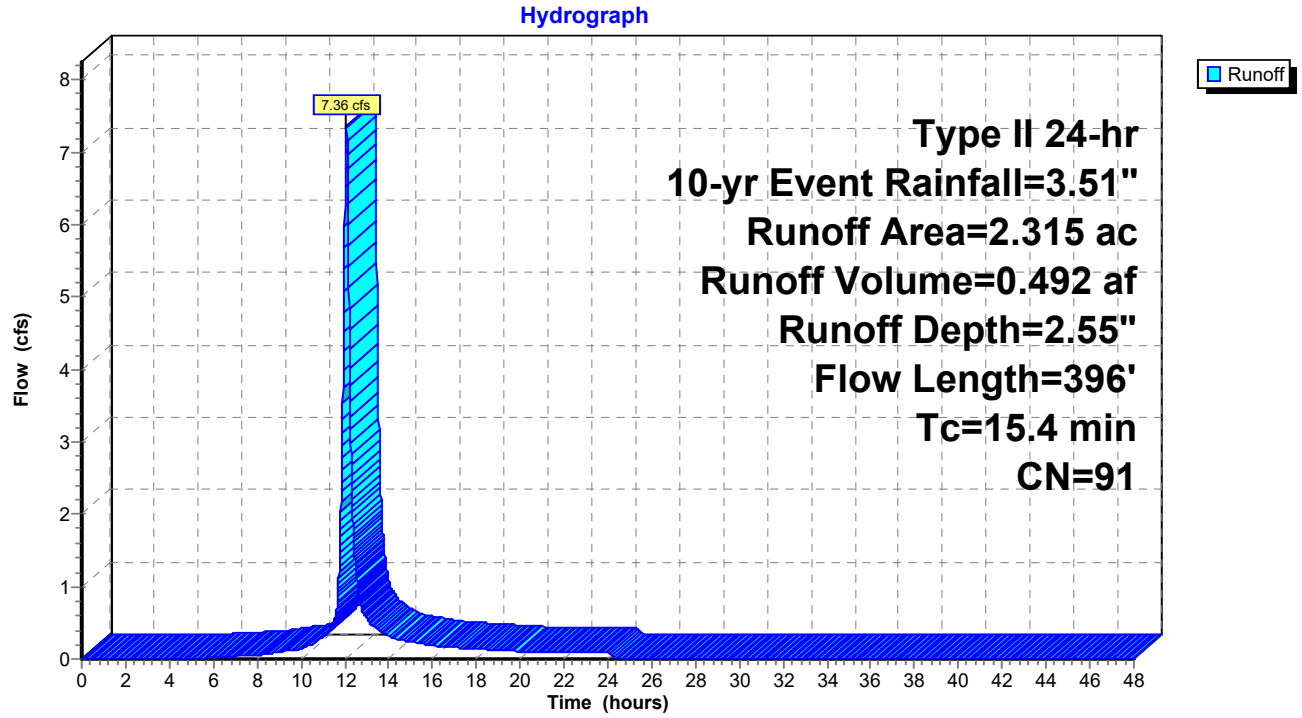
Runoff = 7.36 cfs @ 12.07 hrs, Volume= 0.492 af, Depth= 2.55"
Routed to Pond 1P : PROPOSED CHAMBER SYSTEM

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type II 24-hr 10-yr Event Rainfall=3.51"

Area (ac)	CN	Description
1.627	98	Paved parking, HSG A
0.688	74	>75% Grass cover, Good, HSG C
2.315	91	Weighted Average
0.688		29.72% Pervious Area
1.627		70.28% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.1	72	0.0070	0.09		**Sheet Flow, SHEET FLOW** Grass: Short n= 0.150 P2= 2.44"
2.3	319	0.0025	2.27	1.78	**Pipe Channel, 12" HDPE** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Corrugated PE, smooth interior
0.0	5	0.0401	9.08	7.13	**Pipe Channel, 12" HDPE** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Corrugated PE, smooth interior
15.4	396	Total			

Subcatchment PR-1: PR-DA-1



Summary for Subcatchment PR-2: PR-DA-2

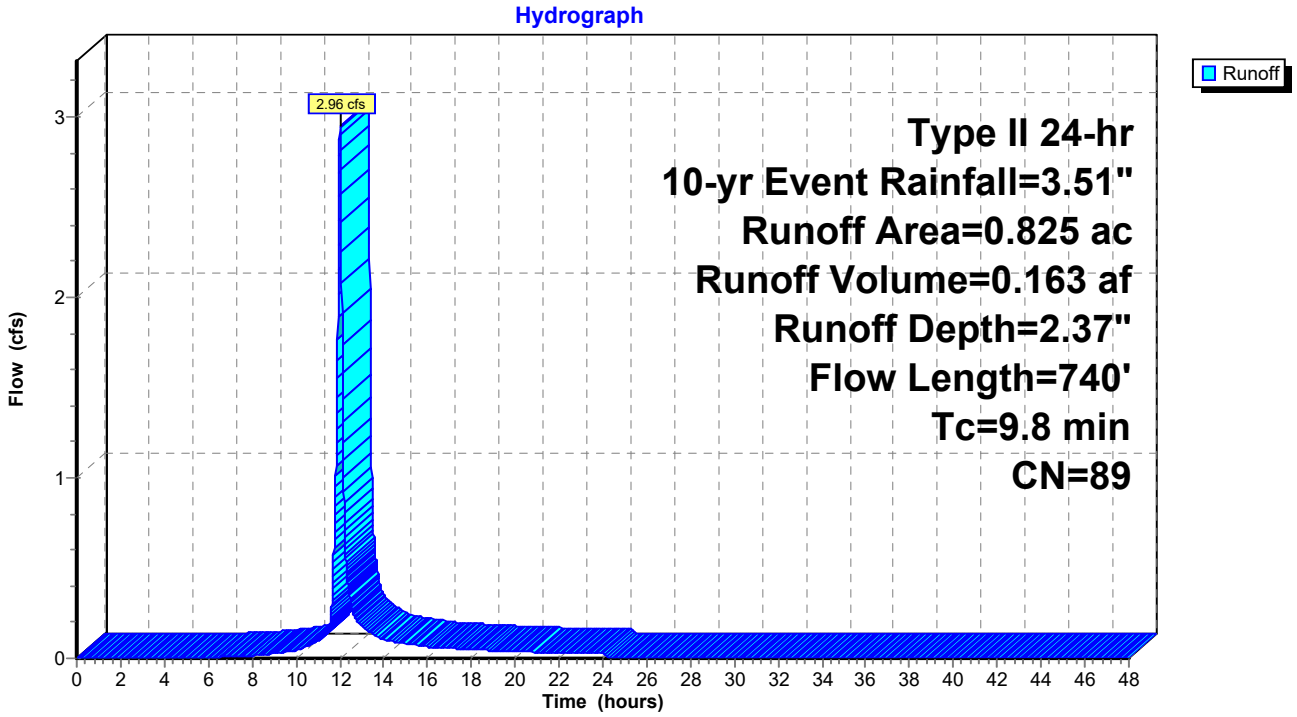
Runoff = 2.96 cfs @ 12.01 hrs, Volume= 0.163 af, Depth= 2.37"
Routed to nonexistent node 2R

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type II 24-hr 10-yr Event Rainfall=3.51"

Area (ac)	CN	Description
0.506	98	Paved parking, HSG A
0.319	74	>75% Grass cover, Good, HSG C
0.825	89	Weighted Average
0.319		38.67% Pervious Area
0.506		61.33% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.6	33	0.0200	0.12		**Sheet Flow, SHEET FLOW** Grass: Short n= 0.150 P2= 2.44"
1.4	195	0.0025	2.27	1.78	**Pipe Channel, 12" HDPE** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Corrugated PE, smooth interior
0.4	9	0.0001	0.41	0.14	**Pipe Channel, 8" RCP** 8.0" Round Area= 0.3 sf Perim= 2.1' r= 0.17' n= 0.011 Concrete pipe, straight & clean
0.5	103	0.0038	3.52	4.31	**Pipe Channel, 15" CPP** 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.012 Corrugated PP, smooth interior
2.9	400	0.0013	2.32	4.10	**Pipe Channel, 18" CPP** 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.012 Corrugated PP, smooth interior
9.8	740	Total			

Subcatchment PR-2: PR-DA-2



Summary for Pond 1P: PROPOSED CHAMBER SYSTEM

Inflow Area = 2.315 ac, 70.28% Impervious, Inflow Depth = 2.55" for 10-yr Event event
Inflow = 7.36 cfs @ 12.07 hrs, Volume= 0.492 af
Outflow = 2.44 cfs @ 12.31 hrs, Volume= 0.513 af, Atten= 67%, Lag= 14.7 min
Discarded = 0.18 cfs @ 4.60 hrs, Volume= 0.370 af
Primary = 2.26 cfs @ 12.31 hrs, Volume= 0.143 af
Routed to nonexistent node 2R

Routing by Sim-Route method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 425.34' @ 12.31 hrs Surf.Area= 0.089 ac Storage= 0.201 af

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 254.5 min (1,059.2 - 804.6)

Volume	Invert	Avail.Storage	Storage Description
#1A	421.00'	0.174 af	**20.50'W x 188.80'L x 6.25'H Field A** 0.555 af Overall - 0.121 af Embedded = 0.434 af x 40.0% Voids
#2A	424.00'	0.121 af	**ADS_StormTech SC-800 +Cap** x 104 Inside #1 Effective Size= 45.0"W x 33.0"H => 7.11 sf x 7.12'L = 50.6 cf Overall Size= 51.0"W x 33.0"H x 7.55'L with 0.43' Overlap 104 Chambers in 4 Rows Cap Storage= 3.4 cf x 2 x 4 rows = 27.4 cf
		0.295 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	424.65'	**18.0" Round Culvert** L= 25.0' Ke= 0.500 Inlet / Outlet Invert= 424.65' / 424.05' S= 0.0240 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf
#2	Discarded	421.00'	**2.000 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=0.18 cfs @ 4.60 hrs HW=421.00' (Free Discharge)
└**2=Exfiltration** (Exfiltration Controls 0.18 cfs)

Primary OutFlow Max=2.26 cfs @ 12.31 hrs HW=425.34' (Free Discharge)
└**1=Culvert** (Inlet Controls 2.26 cfs @ 2.83 fps)

Pond 1P: PROPOSED CHAMBER SYSTEM - Chamber Wizard Field A

Chamber Model = ADS_StormTechSC-800 +Cap (ADS StormTech®SC-800 with cap volume)
Effective Size= 45.0"W x 33.0"H => 7.11 sf x 7.12'L = 50.6 cf
Overall Size= 51.0"W x 33.0"H x 7.55'L with 0.43' Overlap
Cap Storage= 3.4 cf x 2 x 4 rows = 27.4 cf

51.0" Wide + 6.0" Spacing = 57.0" C-C Row Spacing

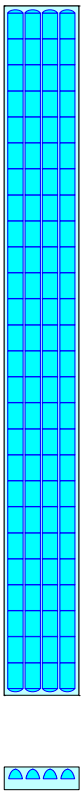
26 Chambers/Row x 7.12' Long +0.88' Cap Length x 2 = 186.80' Row Length +12.0" End Stone x 2 = 188.80' Base Length
4 Rows x 51.0" Wide + 6.0" Spacing x 3 + 12.0" Side Stone x 2 = 20.50' Base Width
36.0" Stone Base + 33.0" Chamber Height + 6.0" Stone Cover = 6.25' Field Height

104 Chambers x 50.6 cf + 3.4 cf Cap Volume x 2 x 4 Rows = 5,289.0 cf Chamber Storage

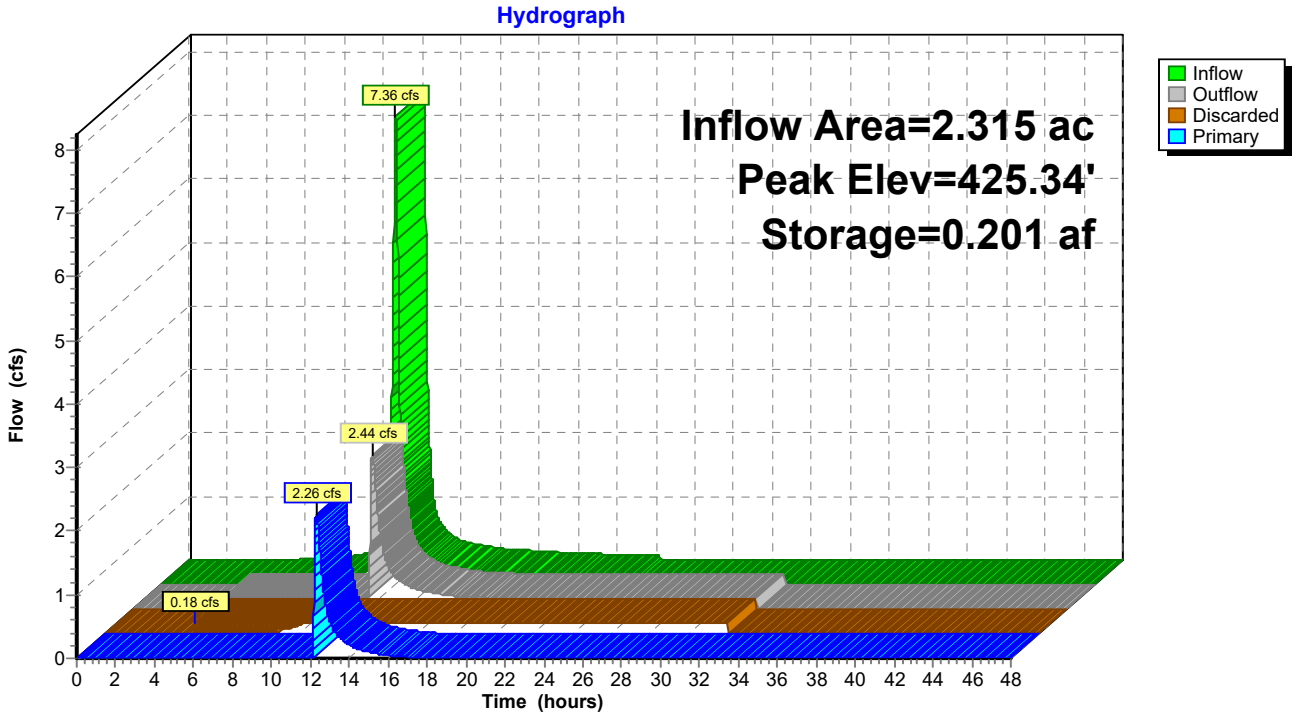
24,190.0 cf Field - 5,289.0 cf Chambers = 18,901.0 cf Stone x 40.0% Voids = 7,560.4 cf Stone Storage

Chamber Storage + Stone Storage = 12,849.4 cf = 0.295 af
Overall Storage Efficiency = 53.1%
Overall System Size = 188.80' x 20.50' x 6.25'

104 Chambers
895.9 cy Field
700.0 cy Stone



Pond 1P: PROPOSED CHAMBER SYSTEM



Stage-Discharge for Pond 1P: PROPOSED CHAMBER SYSTEM

Elevation (feet)	Discharge (cfs)	Discarded (cfs)	Primary (cfs)
421.00	0.00	**0.00**	0.00
421.10	0.18	**0.18**	0.00
421.20	0.18	0.18	0.00
421.30	0.18	0.18	0.00
421.40	0.18	0.18	0.00
421.50	0.18	0.18	0.00
421.60	0.18	0.18	0.00
421.70	0.18	0.18	0.00
421.80	0.18	0.18	0.00
421.90	0.18	0.18	0.00
422.00	0.18	0.18	0.00
422.10	0.18	0.18	0.00
422.20	0.18	0.18	0.00
422.30	0.18	0.18	0.00
422.40	0.18	0.18	0.00
422.50	0.18	0.18	0.00
422.60	0.18	0.18	0.00
422.70	0.18	0.18	0.00
422.80	0.18	0.18	0.00
422.90	0.18	0.18	0.00
423.00	0.18	0.18	0.00
423.10	0.18	0.18	0.00
423.20	0.18	0.18	0.00
423.30	0.18	0.18	0.00
423.40	0.18	0.18	0.00
423.50	0.18	0.18	0.00
423.60	0.18	0.18	0.00
423.70	0.18	0.18	0.00
423.80	0.18	0.18	0.00
423.90	0.18	0.18	0.00
424.00	0.18	0.18	0.00
424.10	0.18	0.18	0.00
424.20	0.18	0.18	0.00
424.30	0.18	0.18	0.00
424.40	0.18	0.18	0.00
424.50	0.18	0.18	0.00
424.60	0.18	0.18	0.00
424.70	0.19	0.18	0.01
424.80	0.30	0.18	0.12
424.90	0.51	0.18	0.33
425.00	0.81	0.18	0.63
425.10	1.20	0.18	1.02
425.20	1.66	0.18	1.48
425.30	2.19	0.18	2.01
425.40	2.78	0.18	2.61
425.50	3.42	0.18	3.24
425.60	4.09	0.18	3.92
425.70	4.79	0.18	4.61
425.80	5.49	0.18	5.31
425.90	6.17	0.18	5.99
426.00	6.81	0.18	6.63
426.10	7.35	0.18	7.17
426.20	7.79	0.18	7.61
426.30	8.25	0.18	8.07
426.40	8.69	0.18	8.51
426.50	9.10	0.18	8.92
426.60	9.50	0.18	9.32
426.70	9.88	0.18	9.70
426.80	10.25	0.18	10.07
426.90	10.60	0.18	10.42
427.00	10.94	0.18	10.76
427.10	11.27	0.18	11.09
427.20	**11.59**	0.18	**11.42**

Stage-Area-Storage for Pond 1P: PROPOSED CHAMBER SYSTEM

Elevation (feet)	Surface (acres)	Storage (acre-feet)
421.00	**0.089**	0.000
421.10	0.089	0.004
421.20	0.089	0.007
421.30	0.089	0.011
421.40	0.089	0.014
421.50	0.089	0.018
421.60	0.089	0.021
421.70	0.089	0.025
421.80	0.089	0.028
421.90	0.089	0.032
422.00	0.089	0.036
422.10	0.089	0.039
422.20	0.089	0.043
422.30	0.089	0.046
422.40	0.089	0.050
422.50	0.089	0.053
422.60	0.089	0.057
422.70	0.089	0.060
422.80	0.089	0.064
422.90	0.089	0.068
423.00	0.089	0.071
423.10	0.089	0.075
423.20	0.089	0.078
423.30	0.089	0.082
423.40	0.089	0.085
423.50	0.089	0.089
423.60	0.089	0.092
423.70	0.089	0.096
423.80	0.089	0.100
423.90	0.089	0.103
424.00	0.089	0.107
424.10	0.089	0.114
424.20	0.089	0.121
424.30	0.089	0.129
424.40	0.089	0.136
424.50	0.089	0.143
424.60	0.089	0.150
424.70	0.089	0.157
424.80	0.089	0.164
424.90	0.089	0.171
425.00	0.089	0.178
425.10	0.089	0.185
425.20	0.089	0.192
425.30	0.089	0.198
425.40	0.089	0.205
425.50	0.089	0.211
425.60	0.089	0.218
425.70	0.089	0.224
425.80	0.089	0.230
425.90	0.089	0.236
426.00	0.089	0.242
426.10	0.089	0.247
426.20	0.089	0.253
426.30	0.089	0.258
426.40	0.089	0.263
426.50	0.089	0.267
426.60	0.089	0.272
426.70	0.089	0.275
426.80	0.089	0.279
426.90	0.089	0.283
427.00	0.089	0.286
427.10	0.089	0.290
427.20	0.089	**0.293**

Summary for Subcatchment EX-1: EX-DA-1

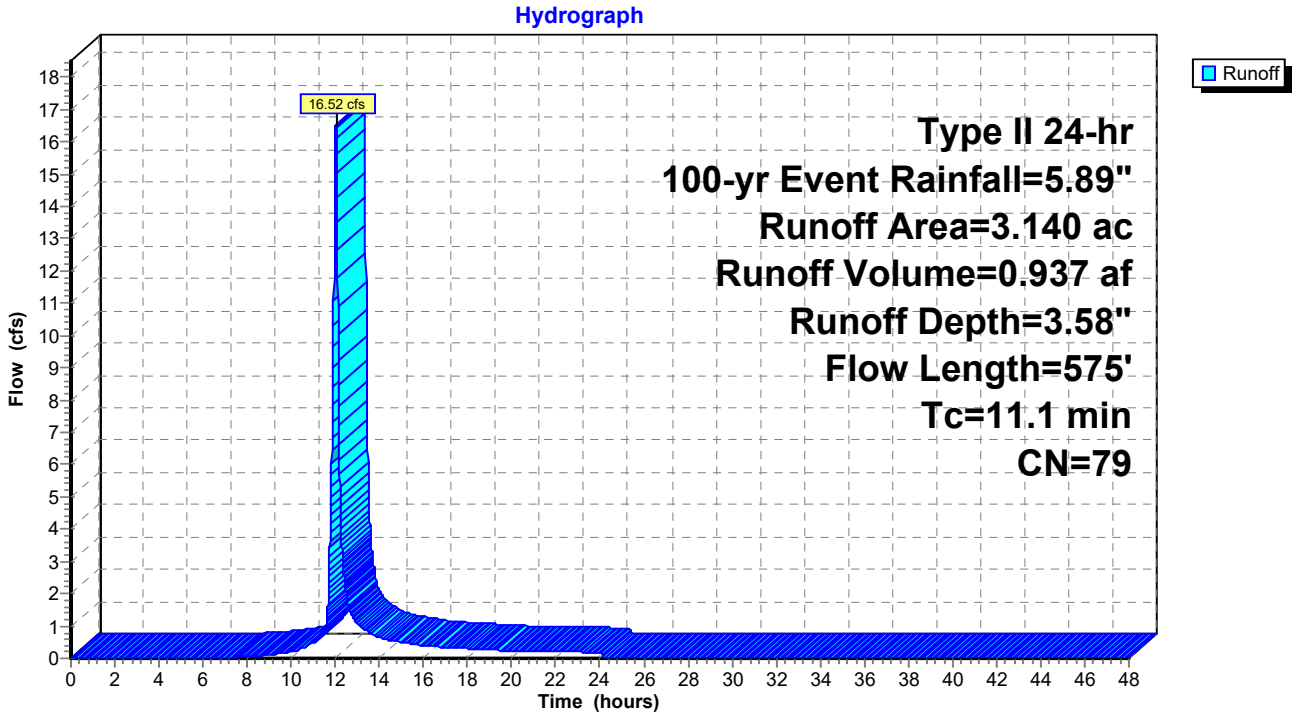
Runoff = 16.52 cfs @ 12.03 hrs, Volume= 0.937 af, Depth= 3.58"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type II 24-hr 100-yr Event Rainfall=5.89"

Area (ac)	CN	Description
0.688	98	Paved parking, HSG A
2.452	74	>75% Grass cover, Good, HSG C
3.140	79	Weighted Average
2.452		78.09% Pervious Area
0.688		21.91% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.3	63	0.0230	0.14		**Sheet Flow, SHEET FLOW** Grass: Short n= 0.150 P2= 2.44"
0.4	9	0.0001	0.41	0.14	**Pipe Channel, 8" RCP** 8.0" Round Area= 0.3 sf Perim= 2.1' r= 0.17' n= 0.011 Concrete pipe, straight & clean
0.5	103	0.0038	3.52	4.31	**Pipe Channel, 15" CPP** 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.012 Corrugated PP, smooth interior
2.9	400	0.0013	2.32	4.10	**Pipe Channel, 18" CPP** 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.012 Corrugated PP, smooth interior
11.1	575	Total			

Subcatchment EX-1: EX-DA-1



Summary for Subcatchment PR-1: PR-DA-1

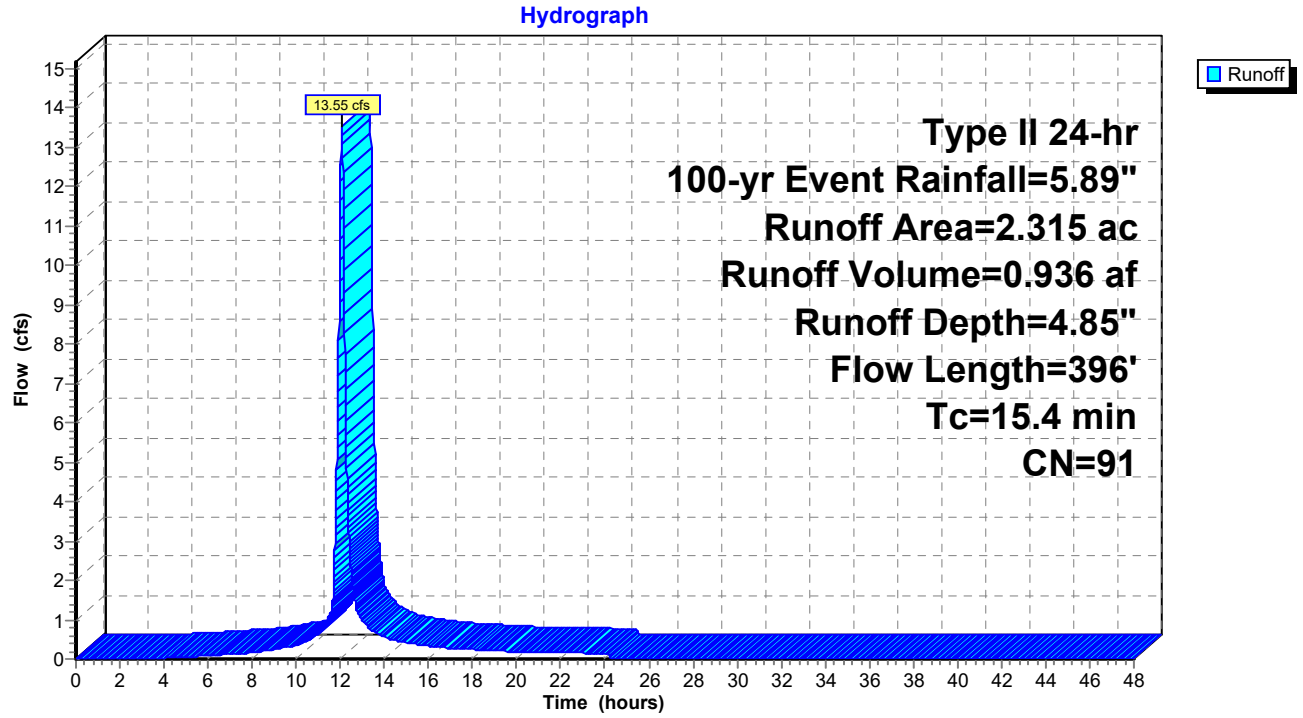
Runoff = 13.55 cfs @ 12.07 hrs, Volume= 0.936 af, Depth= 4.85"
Routed to Pond 1P : PROPOSED CHAMBER SYSTEM

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type II 24-hr 100-yr Event Rainfall=5.89"

Area (ac)	CN	Description
1.627	98	Paved parking, HSG A
0.688	74	>75% Grass cover, Good, HSG C
2.315	91	Weighted Average
0.688		29.72% Pervious Area
1.627		70.28% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.1	72	0.0070	0.09		**Sheet Flow, SHEET FLOW** Grass: Short n= 0.150 P2= 2.44"
2.3	319	0.0025	2.27	1.78	**Pipe Channel, 12" HDPE** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Corrugated PE, smooth interior
0.0	5	0.0401	9.08	7.13	**Pipe Channel, 12" HDPE** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Corrugated PE, smooth interior
15.4	396	Total			

Subcatchment PR-1: PR-DA-1



Summary for Subcatchment PR-2: PR-DA-2

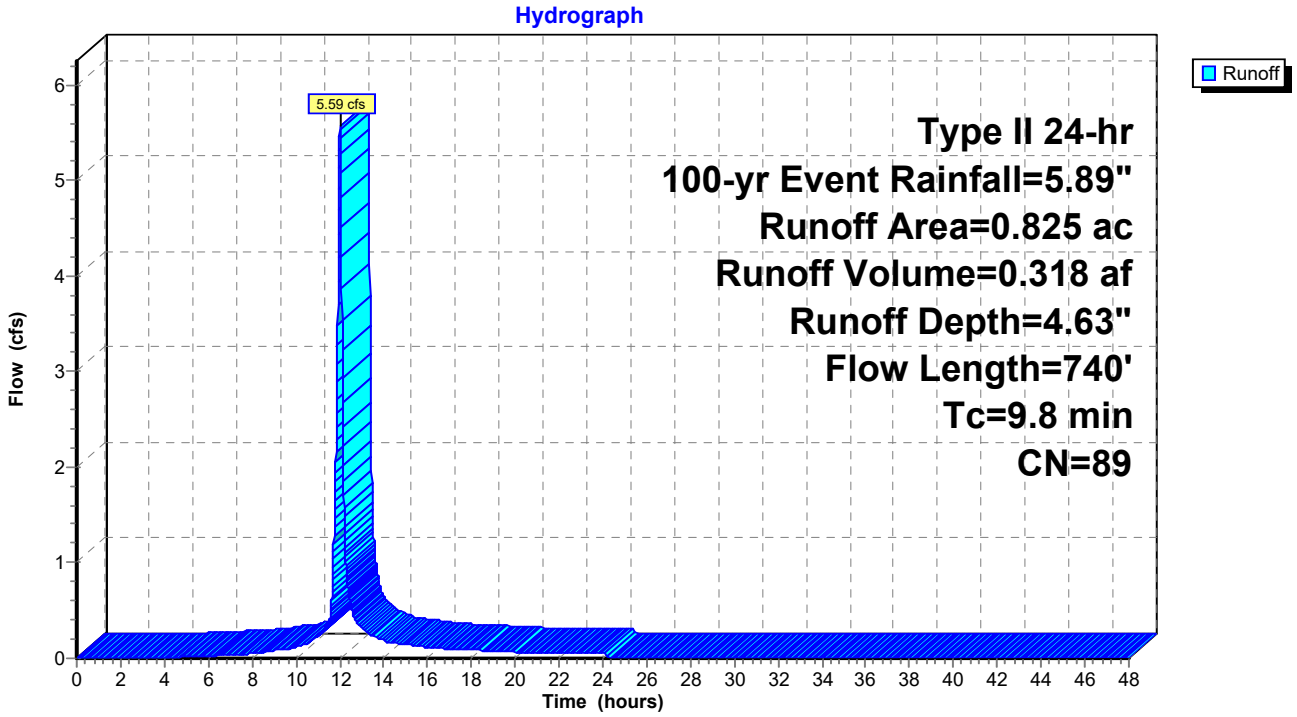
Runoff = 5.59 cfs @ 12.01 hrs, Volume= 0.318 af, Depth= 4.63"
Routed to nonexistent node 2R

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type II 24-hr 100-yr Event Rainfall=5.89"

Area (ac)	CN	Description
0.506	98	Paved parking, HSG A
0.319	74	>75% Grass cover, Good, HSG C
0.825	89	Weighted Average
0.319		38.67% Pervious Area
0.506		61.33% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.6	33	0.0200	0.12		**Sheet Flow, SHEET FLOW** Grass: Short n= 0.150 P2= 2.44"
1.4	195	0.0025	2.27	1.78	**Pipe Channel, 12" HDPE** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Corrugated PE, smooth interior
0.4	9	0.0001	0.41	0.14	**Pipe Channel, 8" RCP** 8.0" Round Area= 0.3 sf Perim= 2.1' r= 0.17' n= 0.011 Concrete pipe, straight & clean
0.5	103	0.0038	3.52	4.31	**Pipe Channel, 15" CPP** 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.012 Corrugated PP, smooth interior
2.9	400	0.0013	2.32	4.10	**Pipe Channel, 18" CPP** 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.012 Corrugated PP, smooth interior
9.8	740	Total			

Subcatchment PR-2: PR-DA-2



Summary for Pond 1P: PROPOSED CHAMBER SYSTEM

Inflow Area = 2.315 ac, 70.28% Impervious, Inflow Depth = 4.85" for 100-yr Event event
Inflow = 13.55 cfs @ 12.07 hrs, Volume= 0.936 af
Outflow = 10.17 cfs @ 12.17 hrs, Volume= 0.950 af, Atten= 25%, Lag= 6.2 min
Discarded = 0.18 cfs @ 2.95 hrs, Volume= 0.436 af
Primary = 9.99 cfs @ 12.17 hrs, Volume= 0.514 af
Routed to nonexistent node 2R

Routing by Sim-Route method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 426.78' @ 12.17 hrs Surf.Area= 0.089 ac Storage= 0.278 af

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 176.9 min (963.8 - 787.0)

Volume	Invert	Avail.Storage	Storage Description
#1A	421.00'	0.174 af	**20.50'W x 188.80'L x 6.25'H Field A** 0.555 af Overall - 0.121 af Embedded = 0.434 af x 40.0% Voids
#2A	424.00'	0.121 af	**ADS_StormTech SC-800 +Cap** x 104 Inside #1 Effective Size= 45.0"W x 33.0"H => 7.11 sf x 7.12'L = 50.6 cf Overall Size= 51.0"W x 33.0"H x 7.55'L with 0.43' Overlap 104 Chambers in 4 Rows Cap Storage= 3.4 cf x 2 x 4 rows = 27.4 cf
		0.295 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	424.65'	**18.0" Round Culvert** L= 25.0' Ke= 0.500 Inlet / Outlet Invert= 424.65' / 424.05' S= 0.0240 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf
#2	Discarded	421.00'	**2.000 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=0.18 cfs @ 2.95 hrs HW=421.00' (Free Discharge)
└**2=Exfiltration** (Exfiltration Controls 0.18 cfs)

Primary OutFlow Max=9.99 cfs @ 12.17 hrs HW=426.78' (Free Discharge)
└**1=Culvert** (Inlet Controls 9.99 cfs @ 5.65 fps)

Pond 1P: PROPOSED CHAMBER SYSTEM - Chamber Wizard Field A

Chamber Model = ADS_StormTechSC-800 +Cap (ADS StormTech®SC-800 with cap volume)
Effective Size= 45.0"W x 33.0"H => 7.11 sf x 7.12'L = 50.6 cf
Overall Size= 51.0"W x 33.0"H x 7.55'L with 0.43' Overlap
Cap Storage= 3.4 cf x 2 x 4 rows = 27.4 cf

51.0" Wide + 6.0" Spacing = 57.0" C-C Row Spacing

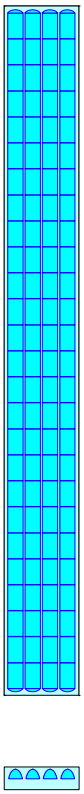
26 Chambers/Row x 7.12' Long +0.88' Cap Length x 2 = 186.80' Row Length +12.0" End Stone x 2 = 188.80' Base Length
4 Rows x 51.0" Wide + 6.0" Spacing x 3 + 12.0" Side Stone x 2 = 20.50' Base Width
36.0" Stone Base + 33.0" Chamber Height + 6.0" Stone Cover = 6.25' Field Height

104 Chambers x 50.6 cf + 3.4 cf Cap Volume x 2 x 4 Rows = 5,289.0 cf Chamber Storage

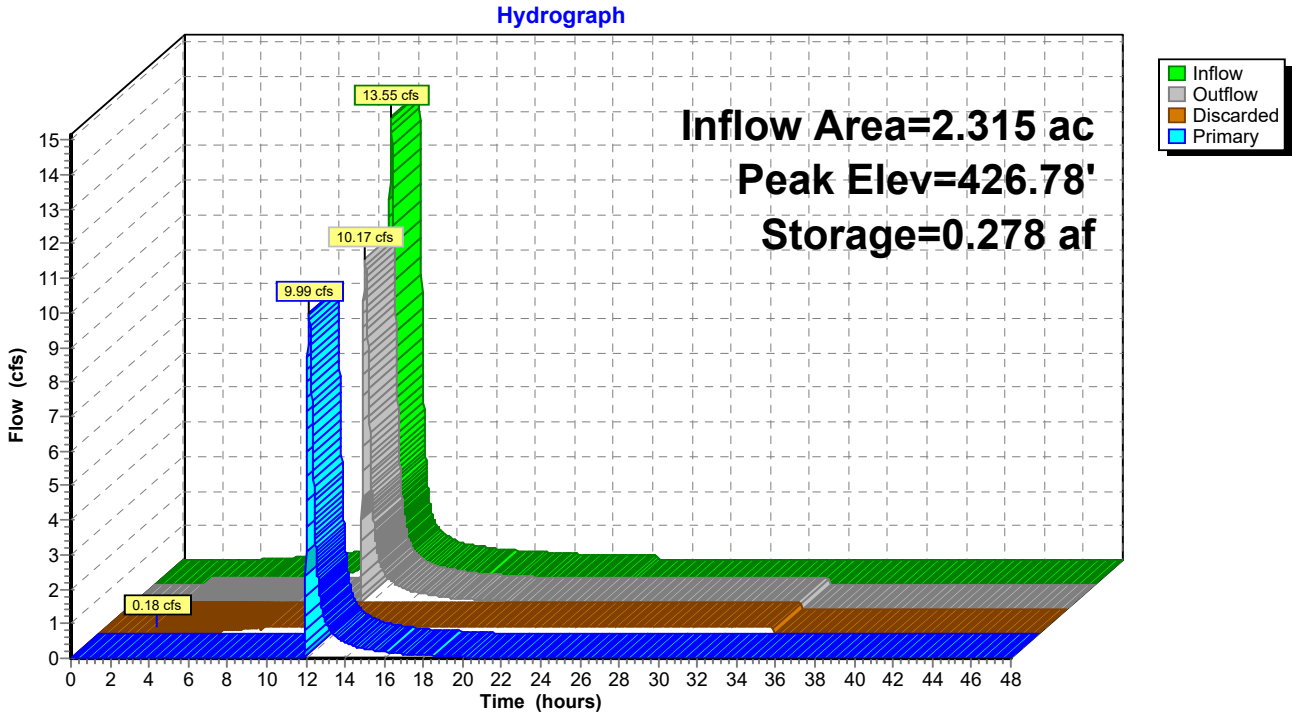
24,190.0 cf Field - 5,289.0 cf Chambers = 18,901.0 cf Stone x 40.0% Voids = 7,560.4 cf Stone Storage

Chamber Storage + Stone Storage = 12,849.4 cf = 0.295 af
Overall Storage Efficiency = 53.1%
Overall System Size = 188.80' x 20.50' x 6.25'

104 Chambers
895.9 cy Field
700.0 cy Stone



Pond 1P: PROPOSED CHAMBER SYSTEM



Stage-Discharge for Pond 1P: PROPOSED CHAMBER SYSTEM

Elevation (feet)	Discharge (cfs)	Discarded (cfs)	Primary (cfs)
421.00	0.00	**0.00**	0.00
421.10	0.18	**0.18**	0.00
421.20	0.18	0.18	0.00
421.30	0.18	0.18	0.00
421.40	0.18	0.18	0.00
421.50	0.18	0.18	0.00
421.60	0.18	0.18	0.00
421.70	0.18	0.18	0.00
421.80	0.18	0.18	0.00
421.90	0.18	0.18	0.00
422.00	0.18	0.18	0.00
422.10	0.18	0.18	0.00
422.20	0.18	0.18	0.00
422.30	0.18	0.18	0.00
422.40	0.18	0.18	0.00
422.50	0.18	0.18	0.00
422.60	0.18	0.18	0.00
422.70	0.18	0.18	0.00
422.80	0.18	0.18	0.00
422.90	0.18	0.18	0.00
423.00	0.18	0.18	0.00
423.10	0.18	0.18	0.00
423.20	0.18	0.18	0.00
423.30	0.18	0.18	0.00
423.40	0.18	0.18	0.00
423.50	0.18	0.18	0.00
423.60	0.18	0.18	0.00
423.70	0.18	0.18	0.00
423.80	0.18	0.18	0.00
423.90	0.18	0.18	0.00
424.00	0.18	0.18	0.00
424.10	0.18	0.18	0.00
424.20	0.18	0.18	0.00
424.30	0.18	0.18	0.00
424.40	0.18	0.18	0.00
424.50	0.18	0.18	0.00
424.60	0.18	0.18	0.00
424.70	0.19	0.18	0.01
424.80	0.30	0.18	0.12
424.90	0.51	0.18	0.33
425.00	0.81	0.18	0.63
425.10	1.20	0.18	1.02
425.20	1.66	0.18	1.48
425.30	2.19	0.18	2.01
425.40	2.78	0.18	2.61
425.50	3.42	0.18	3.24
425.60	4.09	0.18	3.92
425.70	4.79	0.18	4.61
425.80	5.49	0.18	5.31
425.90	6.17	0.18	5.99
426.00	6.81	0.18	6.63
426.10	7.35	0.18	7.17
426.20	7.79	0.18	7.61
426.30	8.25	0.18	8.07
426.40	8.69	0.18	8.51
426.50	9.10	0.18	8.92
426.60	9.50	0.18	9.32
426.70	9.88	0.18	9.70
426.80	10.25	0.18	10.07
426.90	10.60	0.18	10.42
427.00	10.94	0.18	10.76
427.10	11.27	0.18	11.09
427.20	**11.59**	0.18	**11.42**

Stage-Area-Storage for Pond 1P: PROPOSED CHAMBER SYSTEM

Elevation (feet)	Surface (acres)	Storage (acre-feet)
421.00	**0.089**	0.000
421.10	0.089	0.004
421.20	0.089	0.007
421.30	0.089	0.011
421.40	0.089	0.014
421.50	0.089	0.018
421.60	0.089	0.021
421.70	0.089	0.025
421.80	0.089	0.028
421.90	0.089	0.032
422.00	0.089	0.036
422.10	0.089	0.039
422.20	0.089	0.043
422.30	0.089	0.046
422.40	0.089	0.050
422.50	0.089	0.053
422.60	0.089	0.057
422.70	0.089	0.060
422.80	0.089	0.064
422.90	0.089	0.068
423.00	0.089	0.071
423.10	0.089	0.075
423.20	0.089	0.078
423.30	0.089	0.082
423.40	0.089	0.085
423.50	0.089	0.089
423.60	0.089	0.092
423.70	0.089	0.096
423.80	0.089	0.100
423.90	0.089	0.103
424.00	0.089	0.107
424.10	0.089	0.114
424.20	0.089	0.121
424.30	0.089	0.129
424.40	0.089	0.136
424.50	0.089	0.143
424.60	0.089	0.150
424.70	0.089	0.157
424.80	0.089	0.164
424.90	0.089	0.171
425.00	0.089	0.178
425.10	0.089	0.185
425.20	0.089	0.192
425.30	0.089	0.198
425.40	0.089	0.205
425.50	0.089	0.211
425.60	0.089	0.218
425.70	0.089	0.224
425.80	0.089	0.230
425.90	0.089	0.236
426.00	0.089	0.242
426.10	0.089	0.247
426.20	0.089	0.253
426.30	0.089	0.258
426.40	0.089	0.263
426.50	0.089	0.267
426.60	0.089	0.272
426.70	0.089	0.275
426.80	0.089	0.279
426.90	0.089	0.283
427.00	0.089	0.286
427.10	0.089	0.290
427.20	0.089	**0.293**

APPENDIX J: WATER QUALITY CALCULATIONS

WQv Calculation for Redevelopment

CANAL SIDE POCKET NEIGHBORHOOD

Per Section 9.2B.II, the project contains both redevelopment and development. Therefore:

TOTAL WQv = (75% WQv of Existing, Disturbed Impervious Area) or (25% WQv of Existing, Disturbed Impervious Area with Green Infrastructure) + (WQv of the new development area) Or a weighted average per 9.2.1.B.IV

Total Site Area	**2.56**	acres	Reduction in impervious area	**-1.4**	acres
Total Pre Development Impervious Area	**0.44**	acres			X<0%, use calculations below
			Percent Reduction from existing	**-318.18%**	0%<X<25% use weighted average equation
Total Post Development Impervious Area	**1.84**	acres			X>25% WQv met, skip below calculations
New Impervious Area	**1.4**	acres	(if negative, see above IC Reduction)		
Redevelopment Impervious Area	**0.44**	acres	(Value of pre and post impervious area overlap)		
90% Rainfall Event	**1**	inch			

WQv Calculation for Redevelopment

Redevelopment Section				New Development Section			
WQv = P x Rv x A / 12				WQv = P x Rv x A / 12			
where:				where:			
P =	90% Rainfall Event Number	1.0	inch	P =	90% Rainfall Event Number	1.0	inch
Rv =	0.05 + (0.009 x I)	0.95		Rv =	0.05 + (0.009 x I)	0.644	
I =	Impervious Cover	100	%	I =	Impervious Cover	66.04	%
A =	Existing Disturbed Impervious Area	19,166	sf or	A =	Area of Development	92,347	sf or
		0.44	acres			2.12	acres
75% WQv of Existing, Disturbed Impervious Area		**0.026**	ac-ft or	WQv of the Development Area		**0.114**	ac-ft or
		1,138.0	cf			**4,958.6**	cf

Total WQv	**0.140 ac-ft or 6,096.6 cf**

RRv Calculation for Redevelopment

Redevelopment Section	New Development Section				
	RRv min = P x Rv x Aic x S / 12				
	where:				
	P =	90% Rainfall Event Number	1.0	inch	
	Rv =	0.05 + (0.009 x I)	0.950		
	I =	Impervious Cover	66.04	%	
	A =	Total Area of New Impervious Cover	92,347	sf or	
			1.40	acres	
Per Section 9.2B.II, RRv sizing criteria is not required for redevelopment	S =	HSG Specific Reduction Factor =			
		Soil Group / Acres / S			
		A: 2.88	55%		
		B:	40%		
		C:	30%		
		D:	20%		
		Weighted Avg	**0.55**		
	RRv min =		0.061	ac-ft or	
			2,655.3	cf	

#	NOI Question			
28	Total Water Quality (WQv) Required		0.140 ac-ft or	6,097 cf
30	Total RRv	**Underground Infiltration**	0.114 ac-ft or	4,959 cf
31	Is RRv Provided ≥ WQv Required?		No	
32	Minimum RRv		0.061 ac-ft or	2,655 cf
32a	Is RRv Provided ≥ Minimum RRv Required?		Yes	
33a	Total WQv Treated		0.181 ac-ft or	7,890 cf
			ac-ft or	cf
		TOTAL	0.181 ac-ft or	7,890 cf
34	Sum of Volume Reduced & Treated		0.295 ac-ft or	12,849 cf
35	Is Sum RRv Provided and WQv Provided ≥ WQv Required?		Yes	

Underground Infiltration (I-4)

Design Point:	

Enter Site Data For Drainage Area to be Treated by Practice							
Drainage Area Number	**Contributing Area** (Acres)	**Impervious Area** (Acres)	**Percent Impervious** %	**Rv**	**WQv** (cf)	**Precipitation** (in)	**Description**
1	2.12	1.40	66	0.64	4,959	1.00	Underground Infiltration System

Design Criteria		
Enter underlying soil infiltration rate (based on geotechnical testing, refer to Appendix D)	2	
Is the contributing area to the practice an "Infiltration Restricted" stormwater hotspot?	No	
Is the contributing area to the practice an "Infiltration Prohibited" stormwater hotspot?	No	
Is the contributing area greater than 10 acres?	No	
Enter depth to seasonal high water table (ft)	2	
Enter depth to bedrock (ft)	2	
Enter pretreatment volume provided (cf)	3680	

Sizing Criteria				
		Value	Units	Notes
Water Quality Volume	WQv	4959	cf	
Depth of Bottom Stone	db	3.0	ft	
Required Surface Area	Ab	1,653	sf	
Enter Surface Area Provided	Ab	4009	sf	
Enter Volume of Stone	Vs	7560	cf	Volume of stone shall account for 40% voids
Enter Volume of System	Vsys	5289	cf	Volume of system shall exclude stone
Water Quality Volume Provided	WQv	12849	cf	

Determine Runoff Reduction		
RRv Provided	**4,959**	***cf***

APPENDIX K: NYSDEC SPEDES GENERAL PERMIT FOR STORMWATER DISCHARGES FROM CONSTRUCTION ACTIVITY (PERMIT NO. GP-0-25-001)

NEW YORK STATE
DEPARTMENT OF ENVIRONMENTAL
CONSERVATION (NYSDEC)

SPDES GENERAL PERMIT
FOR STORMWATER DISCHARGES

From

CONSTRUCTION ACTIVITY

Permit No. GP-0-25-001

Construction General Permit (CGP)

Issued Pursuant to Article 17, Titles 7, 8 and Article 70

of the Environmental Conservation Law

Effective Date: January 29, 2025 Expiration Date: January 28, 2030

Scott E. Sheeley

Chief Permit Administrator

Scott E. Sheeley JAN. 29, 2025

Authorized Signature Date

Address: NYSDEC
Division of Environmental Permits
625 Broadway, 4th Floor
Albany, N.Y. 12233-1750

PREFACE

Pursuant to Section 402 of the Clean Water Act (CWA), and 40 CFR 122.26(b)(14)(x), (15)(i), and (15)(ii), *stormwater discharges* from certain *construction activities* are unlawful unless they are authorized by a National Pollutant Discharge Elimination System (NPDES) permit or by a state permit program. New York State administers the approved State Pollutant Discharge Elimination System (SPDES) program with permits issued in accordance with the New York State Environmental Conservation Law (ECL) Article 17, Titles 7 and 8, and Article 70, as well as 6 NYCRR Parts 621 and 750.

C*onstruction activities* constitute construction of a *point source* and, therefore, pursuant to ECL sections 17-0505, 17-0701, and 17-0803, the *owner or operator* must have coverage under a SPDES permit prior to *commencement of construction activities*. The *owner or operator* cannot wait until there is an actual *discharge* from the *construction site* to obtain permit coverage.

***Note: The italicized words/phrases within this permit are defined in Appendix A.**

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
SPDES CONSTRUCTION GENERAL PERMIT (CGP) GP-0-25-001
FOR STORMWATER DISCHARGES FROM CONSTRUCTION ACTIVITIES

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Part I. How to Obtain Coverage and General Requirements

To be covered under this permit, the *owner or operator* must meet all eligibility requirements in Part I.A. and follow the requirements for obtaining permit coverage in Part I.D., F., or G.

A. Eligibility Requirements

For a *common plan of development or sale*, the *phase(s)* that meet the eligibility requirements in Part I.A. may obtain coverage under this permit even if other *phase(s)* of the same *common plan of development or sale* do not meet the eligibility requirements and require an individual SPDES permit.

1. The *owner's or operator's construction activities* involve soil disturbances of:

    a. one or more acres; or

    b. less than one acre which are part of a *common plan of development or sale* that will ultimately disturb one or more acres; or

    c. less than one acre where NYSDEC has determined that a SPDES permit is required for *stormwater discharges* based on the potential for contribution to a violation of a *water quality standard* or for significant contribution of pollutants to *surface waters of the State*.

        i. 5,000 square feet or more, but less than one acre, and are in the New York City Watershed located east of the Hudson River, Appendix C Figure 1; or

        ii. 20,000 square feet or more, but less than one acre, within the municipal boundaries of the City of New York (NYC); or

        iii. less than 20,000 square feet which are part of a *common plan of development or sale* that will ultimately disturb 20,000 square feet or more, but less than one acre, within the municipal boundaries of NYC; or

        iv. that creates 5,000 square feet or more of *impervious area* within the municipal boundaries of NYC.

2. *Discharges* from the *owner's or operator's construction activities* are/were not:

    a. already covered by a different SPDES permit; or

    b. covered under a different SPDES permit that was denied, terminated, or revoked; or

    c. identified in an expired individual SPDES permit that was not renewed; or

    d. required to obtain an individual SPDES permit or another general SPDES permit in accordance with Part VII.K.

3. If *construction activities* may adversely affect a species that is endangered or threatened, the *owner or operator* must obtain a:

    a. permit issued pursuant to 6 NYCRR Part 182 for the project; or

    b. letter issued by NYSDEC of non-jurisdiction pursuant to 6 NYCRR Part 182 for the project.

4. If *construction activities* have the potential to affect an *historic property*, the *owner or operator* must obtain one of the following:

    a. documentation that the *construction activity* is not within an archeological buffer area indicated on the sensitivity map, and that the *construction activity* is not located on or immediately adjacent to a property listed or determined to be eligible for listing on the National or State Registers of Historic Places, and that there is no new permanent building on the *construction site* within the following distances from a building, structure, or object that is more than 50 years old, or if there is such a new permanent building on the *construction site* within those parameters that NYS Office of Parks, Recreation and Historic Preservation (OPRHP), a Historic Preservation Commission of a Certified Local Government, or a qualified preservation professional has determined that the building, structure, or object more than 50 years old is not historically/archeologically significant:

        i. 1-5 acres of disturbance - 20 feet; or

        ii. 5-20 acres of disturbance - 50 feet; or

iii. 20+ acres of disturbance - 100 feet.

b. NYSDEC consultation form sent to OPRHP,[1] and copied to NYSDEC's Agency Historic Preservation Officer (APO), and

i. the State Environmental Quality Review Act (SEQR) Environmental Assessment Form (EAF) with a negative declaration or the Findings Statement, with documentation of OPRHP's agreement with the resolution; or

ii. documentation from OPRHP that the *construction activity* will result in No Impact; or

iii. documentation from OPRHP providing a determination of No Adverse Impact; or

iv. a Letter of Resolution signed by the *owner or operator*, OPRHP and the DEC APO which allows for this *construction activity* to be eligible for coverage under the general permit in terms of the State Historic Preservation Act (SHPA).

c. documentation of satisfactory compliance with Section 106 of the National Historic Preservation Act for a coterminous project area:

i. No Affect; or

ii. No Adverse Affect; or

iii. Executed Memorandum of Agreement.

d. documentation that SHPA Section 14.09 has been completed by NYSDEC or another state agency.

5. If *construction activities* are subject to SEQR, the *owner or operator* must obtain documentation that SEQR has been satisfied.

6. If *construction activities* are not subject to SEQR, but subject to the equivalent environmental review from another New York State or federal agency, the

[1] The consultation form can be submitted, along with other project information, through OPRHP's Cultural Resource Information System (CRIS) portal. If submitted through CRIS, paper copies of the consultation form need not be mailed.

owner or operator must obtain documentation that project review, pursuant to a process equivalent to SEQR from another New York State or federal agency, has been satisfied.

7. If *construction activities* require Uniform Procedures Act (UPA) Permits (see 6 NYCRR Part 621) from NYSDEC, or the equivalent from another New York State or federal agency, the *owner or operator* must:

    a. obtain all such necessary permits; or

    b. receive notification from NYSDEC pursuant to 6 NYCRR 621.3(a)(4) excepting Part I.A.7.a.

8. *Construction activities* are not eligible if they meet the following criteria in Part I.A.8.a. or b.:

    a. For linear transportation and linear utility project types, the *construction activities*:

        i. are within the watershed of *surface waters of the State* classified as AA or AA-S identified utilizing the Stormwater Interactive Map on NYSDEC's website; and

        ii. are undertaken on land with no existing *impervious cover*; and

        iii. disturb two or more acres of *steep slope*.

    b. For all other project types, the *construction activities*:

        i. are within the watershed of *surface waters of the State* classified as AA or AA-S identified utilizing the Stormwater Interactive Map on NYSDEC's website; and

        ii. are undertaken on land with no existing *impervious cover*; and

        iii. disturb one or more acres of *steep slope*.

B. Types of *Discharges* Authorized

1. The following *stormwater discharges* are authorized under this permit:

   a. *Stormwater discharges*, including *stormwater* runoff, snowmelt runoff, and surface runoff and drainage, associated with *construction activity*, are authorized under this permit provided that appropriate *stormwater* controls are designed, installed, and maintained in accordance with Part II. and Part III.

   b. *Stormwater discharges* from construction support activities at the *construction site* (including concrete or asphalt batch plants, equipment staging yards, material storage areas, excavated material disposal areas, and borrow areas) if the following requirements are met:

      i. The support activity is directly related to the *construction site* required to have permit coverage for *stormwater discharges*; and

      ii. The support activity is not a commercial operation, nor does it serve multiple unrelated *construction sites*; and

      iii. The support activity does not continue to operate beyond the completion of the *construction activity* at the site it supports; and

      iv. *Stormwater* controls are implemented in accordance with Part II. and Part III. for *discharges* from the support activity areas.

2. The following non-*stormwater discharges* associated with *construction activity* are authorized under this permit:

   a. Non-*stormwater discharges* listed in 6 NYCRR 750-1.2(a)(29)(vi), with the following exception: "*Discharges* from firefighting activities are authorized only when the firefighting activities are emergencies/unplanned"; and

   b. Non-*stormwater discharges* of waters to which other components have not been added that are used in accordance with the *SWPPP* to control dust or irrigate vegetation in stabilized areas; and

   c. Uncontaminated *discharges* from *dewatering* operations

3. Authorized *discharges* of *stormwater* or authorized *discharges* of non-*stormwater*, commingled with a *discharge* authorized by a different SPDES permit and/or a *discharge* that does not require SPDES permit authorization, are also authorized under this permit.

C. Prohibited *Discharges*

1. Non-*stormwater discharges* prohibited under this permit include but are not limited to:

    a. Wastewater from washout of concrete; and

    b. Wastewater from washout and cleanout of stucco, paint, form release oils, curing compounds, and other construction materials; and

    c. Fuels, oils, or other *pollutants* used in vehicle and equipment operation and maintenance; and

    d. Soaps, solvents, or detergents used in vehicle and equipment washing or external building washdown; and

    e. Toxic or hazardous substances from a spill or other release.

D. Electronic Notice of Intent (eNOI) Submittal

To receive authorization in accordance with Part I.D.3.b., the *owner or operator* must submit a complete eNOI in accordance with the requirements in Part I.D. The eNOI contains questions to: ensure eligibility requirements in Part I.A. have been met; obtain *owner or operator* contact information; obtain the total area to be disturbed and the existing/future *impervious areas* (rounded to the nearest tenth of an acre); confirm *Traditional Land Use Control MS4 Operator* jurisdiction over construction projects; satisfy the EPA eRule requirements; confirm that the Water Quality-Based Effluent Limitations in Part II. have been met; demonstrate consideration of the future risks due to climate change in accordance with Part III.A.2.; and confirm that the other *Stormwater Pollution Prevention Plan (SWPPP)* requirements in Part III. have been met.

1. An eNOI may be submitted for:

    a. *construction activities* that are not part of a *common plan of development or sale*; or

b. an entire *common plan of development or sale*; or

c. separate *phase(s)* of a *common plan of development or sale* if the following requirements are met:

    i. the *common plan of development or sale* meets the eligibility requirements of Part I.A.5. or 6.; and

    ii. the *phase(s)* meet(s) all other eligibility requirements of Part I.A.; and

    iii. Part III.C. Required *SWPPP* Components by Project Type is based on the *common plan of development or sale*, not the *phase(s)*; or

d. *tree clearing* that is associated with, or will support, a *renewable energy* generation, transmission, or storage project that meets Part I.A.5. and 6., if the *tree clearing*:

    i. meets all other eligibility requirements of Part I.A.; and

    ii. will occur in NYSDEC's Regions 3-9; and

    iii. is not within ¼ mile of a bat hibernaculum protected pursuant to 6 NYCRR Part 182; and

    iv. will occur between November 1st and March 31st.

2. As prerequisites for submitting an eNOI, the *owner or operator* must:

    a. prepare a *SWPPP* for Part I.D.1.a., b., c., or d. in accordance with Part III.; and

    b. based on the following criteria, upload the following signature forms signed in accordance with Part VII.J. to the eNOI prior to submission:

        i. for all eNOIs:

            1. the SWPPP Preparer Certification Form, Appendix F, signed by the *SWPPP* preparer; and

2. the Owner/Operator Certification Form, Appendix J, signed by the *owner or operator*; and

ii. if an eNOI includes *construction activities* within the municipal boundary(ies) of *Traditional Land Use Control MS4 Operator(s)* that will *discharge* to the *MS4(s)*:

1. determine if the *Traditional Land Use Control MS4 Operator(s)* have review authority. A *Traditional Land Use Control MS4 Operator* does not have review authority where:

a. the *owner or operator* of the *construction activities* in Part I.D.2.b.ii. is the same entity as the *Traditional Land Use Control MS4 Operator* identified in Part I.D.2.b.ii.; or

b. there is a statute exempting the *owner or operator* from zoning review by the *Traditional Land Use Control MS4 Operator*; or

c. there is no such statute per Part I.D.2.b.ii.1.b., the *Traditional Land Use Control MS4 Operator* concludes, after public hearing, that it does not have zoning review authority in accordance with Legal Memorandum LU14 Updated January 2020 “Governmental Immunity from Zoning and Other Legislation”; and

2. if the *Traditional Land Use Control MS4 Operator(s)* have review authority, submit the *SWPPP* to the *Traditional Land Use Control MS4 Operator(s)* for review and have:

a. if outside the municipal boundaries of NYC: the MS4 SWPPP Acceptance Form, Appendix G, signed by the principal executive officer or ranking elected official from the *Traditional Land Use Control MS4 Operator,* or by a duly authorized representative of that person in accordance with Part VII.J.2.; or

b. if within the municipal boundaries of NYC: The City of New York Department of Environmental Protection (NYCDEP) SWPPP Acceptance/Approval Form, Appendix H, signed by the principal executive officer or ranking elected official from the Traditional Land Use Control MS4 Operator, or by a duly authorized representative of that person in accordance with Part VII.J.2.; and

3. if the *Traditional Land Use Control MS4 Operator* does not have review authority, have the MS4 No Jurisdiction Form, Appendix I, signed by the principal executive officer or ranking elected official from the *Traditional Land Use Control MS4 Operator,* or by a duly authorized representative of that person in accordance with Part VII.J.2.

3. Submitting an eNOI:

a. The *owner or operator* must submit a complete Notice of Intent electronically using a NYSDEC approved form.[2]

b. The *owner or operator* is authorized to *commence construction activity* as of the authorization date indicated in the Letter of Authorization (LOA), which is sent by NYSDEC after a complete eNOI is submitted.

i. If an eNOI is received for a *SWPPP* that deviates from one of the technical standards but demonstrates *equivalence* in accordance with Part III.B.1.a.ii. or Part III.B.2.b.ii., if the *SWPPP* includes *construction activities* that are not within the municipal boundary(ies) of *Traditional Land Use Control MS4 Operator(s)*, and/or if the *SWPPP* includes *construction activities* within the municipal boundary(ies) of *Traditional Land Use Control MS4 Operator(s)* that do not have review authority in accordance with Part I.D.2.b.ii.1., the authorization date indicated in the LOA will be 60 business days after the eNOI submission date.

[2] Unless NYSDEC grants a waiver in accordance with 40 CFR 127.15(c) or (d). All waiver requests must be submitted to Stormwater_info@dec.ny.gov or NYSDEC, Bureau of Water Permits, 625 Broadway, 4th Floor, Albany, New York 12233-3505.

c. If *Traditional Land Use Control MS4 Operator(s)* have review authority in accordance with Part I.D.2.b.ii.2., the *owner or operator* must, within five business days of receipt of the LOA, send an electronic copy of the LOA to the *Traditional Land Use Control MS4 Operator(s)* with review authority.

E. General Requirements for *Owners or Operators* with Permit Coverage

1. As of the date the LOA is received, the *owner or operator* must make the eNOI, *SWPPP*, and LOA available for review and copying in accordance with the requirements in Part VII.H. When applicable, as of the date an updated LOA is received, the *owner or operator* must make the updated LOA available for review and copying in accordance with the requirements in Part VII.H.

2. The *owner or operator* must ensure compliance with all requirements of this permit and that the provisions of the *SWPPP*, including any changes made to the *SWPPP* in accordance with Part III.A.5., are properly implemented and maintained from the *commencement of construction activity* until:

   a. all areas of disturbance have achieved *final stabilization;* and

   b. the owner's or operator's coverage under this permit is terminated in accordance with Part V.A.5.a.

3. As of the date of the *commencement of construction activities* until Part I.E.2.a. and b. have been met, the *owner or operator* must maintain at the *construction site*, a copy of:

   a. all documentation necessary to demonstrate eligibility with this permit; and

   b. this permit; and

   c. the *SWPPP*; and

   d. the signed SWPPP Preparer Certification Form; and

   e. the signed MS4 SWPPP Acceptance Form or signed NYCDEP SWPPP Acceptance/Approval Form or signed MS4 No Jurisdiction Form (when applicable); and

   f. the signed Owner/Operator Certification Form; and

g. the eNOI; and

h. the LOA; and

i. the LOA transmittal to the Traditional Land Use Control MS4 Operator in accordance with Part I.D.3.c. (when applicable).

4. The *owner or operator* must maintain at the *construction site*, until Part I.E.2.a. and b. have been met, as of the date the documents become final or are received, a copy of the:

   a. responsible contractor's or subcontractor's certification statement(s) in accordance with Part III.A.7.; and

   b. inspection reports in accordance with Part IV.C.4. and 6.; and

   c. Request to Disturb Greater Than Five Acres and the Authorization Letter to Disturb Greater Than Five Acres in accordance with Part I.E.6. (when applicable); and

   d. Request to Continue Coverage and the Letter of Continued Coverage (LOCC) in accordance with Part I.F.2. and 4. (when applicable); and

   e. The updated LOA(s) in accordance with Part I.E.9. (when applicable).

5. The *owner or operator* must maintain the documents in Part I.E.3. and 4. in a secure location, such as a job trailer, on-site construction office, or mailbox with lock. The secure location must be accessible during normal business hours to an individual performing a compliance inspection. The documents must be paper documents unless electronic documents are accessible to the inspector during an inspection to the same extent as a paper copy stored at the site would be. If electronic documents are kept on site, the *owner or operator* must maintain functional equipment on site available to an inspector during normal hours of operation such that an inspector may view the electronic documents in a format that can be read in a similar manner as a paper record and in a legally dependable format with no less evidentiary value than their paper equivalent.

6. The *owner or operator* must meet the following requirements prior to disturbing greater than five acres of soil at any one time:

   a. The *owner or operator* must submit a written Request to Disturb Greater Than Five Acres to:

i. NYSDEC's Regional Office Division of Water staff based on the project location, Appendix E, if a *Traditional Land Use Control MS4 Operator* does not have review authority in accordance with Part I.D.2.b.ii.1.; or

ii. the *Traditional Land Use Control MS4 Operator*, if a *Traditional Land Use Control MS4 Operator* has review authority in accordance with Part I.D.2.b.ii.1.; or

iii. NYSDEC's Regional Office Division of Water staff based on the project location, Appendix E, and each involved *Traditional Land Use Control MS4 Operator*, if the project spans multiple municipalities with more than one *Traditional Land Use Control MS4 Operator* involved with review authority in accordance with Part I.D.2.b.ii.1.

b. The written Request to Disturb Greater Than Five Acres must include:

i. The SPDES permit identification number (Permit ID); and

ii. Full technical justification demonstrating why alternative methods of construction that would result in five acres of soil disturbance or less at any one time are not feasible; and

iii. The phasing plan for the project and sequencing plans for all *phases* from the *SWPPP* in accordance with Part III.B.1.d.; and

iv. Plans with locations and details of erosion and sediment control practices such that the heightened concern for erosion when disturbing greater than five acres at one time has been addressed; and

v. Acknowledgment that "the *owner or operator* will comply with the requirements in Part IV.C.2.b."; and

vi. Acknowledgment that "the *owner or operator* will comply with the requirements in Part II.B.1.b."

c. The *owner or operator* must be in receipt of an Authorization Letter to Disturb Greater Than Five Acres, which will include when the

authorization begins and ends and indicate a maximum area (acres) of soil disturbance allowed at any one time, from:

i. NYSDEC, if Part I.E.6.a.i. or iii. apply; or

ii. the *Traditional Land Use Control MS4 Operator*, if Part I.E.6.a.ii. applies.

7. Upon a finding of significant non-compliance with the practices described in the *SWPPP* or violation of this permit, NYSDEC may order an immediate stop to all *construction activity* at the site until the non-compliance is remedied. The stop work order must be in writing, describe the non-compliance in detail, and be sent to the *owner or operator*.

8. If any human remains or archaeological remains are encountered during excavation, the *owner or operator* must immediately cease, or cause to cease, all *construction activity* in the area of the remains and notify the appropriate Regional Water Engineer (RWE).[3] *Construction activity* shall not resume until written permission to do so has been received from the RWE.

9. To be authorized to implement modifications to the information previously submitted in the eNOI, the *owner or operator* must:

   a. notify NYSDEC via email at Stormwater_info@dec.ny.gov requesting access to update the eNOI; and

   b. update the eNOI to reflect the modifications and resubmit the eNOI in accordance with Part I.D.; and

   c. receive an updated LOA.

10. The eNOI, *SWPPP*, LOA, updated LOAs (when applicable), and inspection reports required by this permit are public documents that the *owner or operator* must make available for review and copying by any person within five business days of the *owner or operator* receiving a written request by any such person to review these documents. Copying of documents will be done at the requester's expense.

[3] The Regional Water Manager where a DEC Region does not have a RWE.

F. Permit Coverage for *Discharges* Authorized Under GP-0-20-001

When applicable:

1. Upon the effective date of this permit, an *owner or operator* of *a construction activity*, with coverage under GP-0-20-001, will have interim coverage under GP-0-25-001 for 45 calendar days starting on the effective date of GP-0-25-001 so long as the *owner or operator* maintains compliance with all applicable requirements of this permit.

2. Within 30 calendar days of the effective date of this permit, the *owner or operator*, with coverage under GP-0-20-001, must submit a complete Request to Continue Coverage electronically using a NYSDEC approved form,[4] which contains the information identified in Part I.F.3. below, if:

   a. the *owner or operator* continues to implement the SMP component in conformance with the technical standards in place at the time of initial project authorization; and

   b. the *owner or operator* will comply with all non-design requirements of GP-0-25-001.

3. The Request to Continue Coverage form contains questions to: ensure eligibility requirements in Part I.A. have been met; verify *owner or operator* contact information; verify the permit identification number; verify the original eNOI submission ID, if applicable; verify Part I.F.2.a. and b.; verify the version of the Design Manual that the technical/design components conform to; and receive an updated Owner/Operator Certification Form, Appendix I.

4. The *owner or operator* has obtained continued coverage under GP-0-25-001 as of the date indicated in the LOCC, which is sent by NYSDEC after a complete Request to Continue Coverage form is submitted.

5. If the owner or operator does not submit the Request to Continue Coverage form in accordance with Part I.F.2. and 3., coverage under this permit is automatically terminated after interim coverage expires.

[4] Unless NYSDEC grants a waiver in accordance with 40 CFR 127.15(c) or (d). All waiver requests must be submitted to Stormwater_info@dec.ny.gov or NYSDEC, Bureau of Water Permits, 625 Broadway, 4th Floor, Albany, New York 12233-3505.

G. Change of *Owner or Operator*

When applicable:

1. When property ownership changes, or when there is a change in operational control over the construction plans and specifications, the following process applies:

    a. The new *owner or operator* must meet the applicable prerequisites for submitting an eNOI in accordance with Part I.D.2.; and

    b. The new *owner or operator* must submit an eNOI in accordance with Part I.D.3.; and

    c. Permit coverage for the new *owner or operator* will be effective upon receipt of the LOA in accordance with Part I.D.3.b.; and

    d. The new *owner or operator*, upon receipt of their LOA, must provide their Permit ID to the original *owner or operator*; and

    e. If the original *owner or operator* will no longer be the *owner or operator* of the *construction activity* identified in the original *owner's or operator's* eNOI, the original *owner or operator*, upon receipt of the new *owner's or operator's* Permit ID in accordance with Part I.G.1.d., must submit to NYSDEC a completed eNOT in accordance with Part V. that includes the name and Permit ID of the new *owner or operator*; or

    f. If the original *owner or operator* maintains ownership of a portion of the *construction activity*, the original *owner or operator* must maintain their coverage under the permit by modifying their eNOI; modifications to the eNOI must include:

        i. the revised area of disturbance and/or *impervious area(s)*; and

        ii. the revised SMP information, if applicable; and

        iii. a narrative description of what has changed; and

        iv. the new *owner's or operator's* Permit ID for the portion of the project removed from the eNOI.

    Owners or operators must follow Part I.E.9. to modify the eNOI.

Part II. Water Quality-Based Effluent Limitations

A. Maintaining Water Quality

NYSDEC expects that compliance with the requirements of this permit will control *discharge*s necessary to meet applicable *water quality standards*. It shall be a violation of the *ECL* for any *discharge* to either cause or contribute to a violation of the following *water quality standards* as contained in Parts 700 through 705 of Title 6 of the Official Compilation of Codes, Rules and Regulations of the State of New York:

1. There must be no increase in turbidity that will cause a substantial visible contrast to natural conditions; and

2. There must be no increase in suspended, colloidal or settleable solids that will cause deposition or impair the waters for their best usages; and

3. There must be no residue from oil and floating substances, nor visible oil film, nor globules of grease.

If there is evidence indicating that the *stormwater discharge*s authorized by this permit are causing, have the reasonable potential to cause, or are contributing to a violation of the *water quality standard,* the *owner or operator* must take appropriate corrective action in accordance with Part IV.C.5. of this permit and document in accordance with Part IV.C.4. of this permit. To address the *water quality standard* violation the *owner or operator* must include and implement appropriate controls in the *SWPPP* to correct the problem or obtain an individual SPDES permit.

If, despite compliance with the requirements of this permit, it is demonstrated that the *stormwater discharge*s authorized by this permit are causing or contributing to a violation of *water quality standards*, or if NYSDEC determines that a modification of this permit is necessary to prevent a violation of *water quality standards*, the authorized *discharge*s will no longer be eligible for coverage under this permit, and the *owner or operator* must obtain an individual SPDES permit prior to further *discharges* from the *construction site*.

B. Effluent Limitations Applicable to *Discharges* from *Construction Activities*

*Discharge*s authorized by this permit must achieve, at a minimum, the effluent limitations in Part II.B.1.a., b., c., d., and e. These limitations represent the

degree of effluent reduction attainable by the application of best practicable technology currently available.

1. Erosion and Sediment Control Requirements - The *owner or operator* must select, design, install, implement, and maintain control measures to *minimize* the *discharge* of *pollutants* and prevent a violation of the *water quality standards*. The selection, design, installation, implementation, and maintenance of these control measures must meet the non-numeric effluent limitations in Part II.B.1.a., b., c., d., and e. and be in accordance with the New York State Standards and Specifications for Erosion and Sediment Control (BB), dated November 2016, using sound engineering judgment. Where control measures are not designed in conformance with the design criteria included in the technical standard, the *owner or operator* must include in *SWPPP* the reason(s) for the deviation, or alternative design, and provide information in the *SWPPP* demonstrating that the deviation or alternative design is *equivalent* to the technical standard.

    a. **Erosion and Sediment Controls.** At a minimum, erosion and sediment controls must be selected, designed, installed, implemented, and maintained to:

        i. *Minimize* soil erosion through application of runoff control and soil stabilization control measure to *minimize pollutant discharge*s; and

        ii. Control *stormwater discharge*s, including both peak flow rates and total *stormwater* volume, to *minimize* channel and *streambank* erosion and scour in the immediate vicinity of the *discharge* points; and

        iii. *Minimize* the amount of soil exposed during *construction activity*; and

        iv. *Minimize* the disturbance of *steep slope*; and

        v. *Minimize* sediment *discharge*s from the site; and

        vi. Provide and maintain *natural buffers* around surface waters, direct *stormwater* to vegetated areas and maximize *stormwater* infiltration to reduce *pollutant discharge*s, unless *infeasible*; and

        vii. *Minimize* soil compaction. *Minimizing* soil compaction is not required

where the intended function of a specific area of the site dictates that it be compacted; and

viii. Unless *infeasible*, preserve a sufficient amount of topsoil to complete soil restoration and establish a uniform, dense vegetative cover; and

ix. *Minimize* dust. On areas of exposed soil, *minimize* dust through the appropriate application of water or other dust suppression techniques to control the generation of *pollutants* that could be discharged from the site.

b. **Soil Stabilization**. In areas where soil disturbance activity has ceased, whether permanently or *temporarily ceased*, the application of soil stabilization measures must be initiated by the end of the next business day and completed within 14 calendar days from the date the current soil disturbance activity ceased. For *construction sites* that *directly discharge* to one of the 303(d) segments listed in Appendix D, or are located in one of the watersheds listed in Appendix C, or are authorized to disturb greater than five acres in accordance with Part I.E.5.a.viii., the application of soil stabilization measures must be initiated by the end of the next business day and completed within seven calendar days from the date the soil disturbance activity ceased.

c. **Dewatering**. *Discharge*s from *dewatering* activities, including *discharge*s from *dewatering* of trenches and excavations, must be managed by appropriate control measures.

d. **Pollution Prevention Measures**. Select, design, install, implement, and maintain effective pollution prevention measures to *minimize* the *discharge* of *pollutants* and prevent a violation of the *water quality standards*. At a minimum, such measures must be selected, designed, installed, implemented, and maintained to:

i. *Minimize* the *discharge* of *pollutants* from equipment and vehicle washing, wheel wash water, and other wash waters. Soaps, detergents and solvents cannot be used; and

ii. *Minimize* the exposure of building materials, building products, construction wastes, trash, landscape materials, fertilizers, pesticides, herbicides, detergents, sanitary waste, hazardous and toxic waste, and other materials present on the site to precipitation

and to *stormwater*. *Minimization* of exposure is not required in cases where the exposure to precipitation and to *stormwater* will not result in a *discharge* of *pollutants*, or where exposure of a specific material or product poses little risk of *stormwater* contamination (such as final products and materials intended for outdoor use); and

iii. Prevent the *discharge* of *pollutants* from spills and leaks and implement chemical spill and leak prevention and response procedures.

e. **Surface Outlets.** When discharging from basins and impoundments, the surface outlets must be designed, constructed, and maintained in such a manner that sediment does not leave the basin or impoundment and that erosion at or below the outlet does not occur.

C. Post-Construction Stormwater Management Practice (SMP) Requirements

1. The *owner or operator* of a *construction activity* that requires post-construction SMPs, in accordance with Part III.C., must select, design, install, implement, and maintain the SMPs to meet the *performance criteria* in the New York State Stormwater Management Design Manual, dated July 31, 2024 (DM), using sound engineering judgment. Where SMPs are not designed in conformance with the *performance criteria* in the DM, the *owner or operator* must include in the *SWPPP* the reason(s) for the deviation or alternative design and provide information which demonstrates that the deviation or alternative design is *equivalent* to the technical standard.

2. The *owner or operator* of a *construction activity*, that requires SMPs in accordance with Part III.C., must design the practices to meet the applicable *sizing criteria* in Part II.C.2.a., b., c., or d.

a. Sizing Criteria for *New Development*

i. Runoff Reduction Volume (RRv) and Water Quality Volume (WQv):

1. Reduce the total WQv by application of RR techniques and standard SMPs with RRv capacity. The total WQv must be calculated in accordance with the criteria in Section 4.2 of the DM; or

2. Minimum RRv and Treatment of Remaining Total WQv: *Construction activities* that cannot meet the requirements in Part II.C.2.a.i.1. due to *site limitations* must direct runoff from all newly constructed *impervious areas* to a RR technique or standard SMP with RRv capacity unless *infeasible*. The specific *site limitations* that prevent the reduction of 100% of the WQv must be documented in the *SWPPP*. For each *impervious area* that is not directed to a RR technique or standard SMP with RRv capacity, the *SWPPP* must include documentation which demonstrates that all options were considered and for each option explains why it is considered *infeasible*.

   In no case shall the runoff reduction achieved from the newly constructed *impervious areas* be less than the Minimum RRv as calculated using the criteria in Section 4.4 of the DM. The remaining portion of the total WQv that cannot be reduced must be treated by application of standard SMPs.

ii. Channel Protection Volume (CPv): Provide 24 hour extended detention of the post-developed 1-year, 24-hour storm event, remaining after runoff reduction. Where a CPv control orifice is provided, the minimum orifice size must be 3 inches, with acceptable external trash rack or orifice protection. The CPv requirement does not apply when:

   1. Reduction of the entire CPv is achieved by application of runoff reduction techniques or infiltration systems; or

   2. The 1-year post-development peak *discharge* is less than or equal to 2.0 cfs without detention or velocity controls; or

   3. The site *directly discharges* into a fifth order or larger water body (stream, river, or lake), or tidal waters, where the increase in smaller flows will not impact the stream bank or channel integrity. However, the point of *discharge* must be adequately protected against scour and erosion by the increased peak *discharge*.

iii. *Overbank* Flood Control Criteria (Qp): Requires storage to attenuate the post-development 10-year, 24-hour peak *discharge* rate (Qp) to predevelopment rates. The Qp requirement does not apply when:

1. the site *directly discharges* to tidal waters or fifth order or larger streams, or

2. A downstream analysis reveals that *overbank* control is not required.

iv. Extreme Flood Control Criteria (Qf): Requires storage to attenuate the post-development 100-year, 24-hour peak *discharge* rate (Qf) to predevelopment rates. The Qf requirement does not apply when:

1. the site *directly discharges* to tidal waters or fifth order or larger streams, or

2. A downstream analysis reveals that *overbank* control is not required.

b. *Sizing Criteria* for *New Development* in Enhanced Phosphorus Removal Watersheds

i. Runoff Reduction Volume (RRv) and Water Quality Volume (WQv):

1. Reduce the WQv by application of RR techniques and standard SMPs with RRv capacity. The total WQv is the runoff volume from the 1-year, 24-hour design storm over the post-developed watershed and must be calculated in accordance with the criteria in Section 4.3 of the DM; or

2. Minimum RRv and Treatment of Remaining Total WQv: *Construction activities* that cannot meet the criteria in Part II.C.2.b.i.1. due to *site limitations* must direct runoff from all newly constructed *impervious areas* to a RR technique or standard SMP with RRv capacity unless *infeasible*. The specific *site limitations* that prevent the reduction of 100% of the WQv must be documented in the *SWPPP*. For each *impervious area* that is not directed to a RR technique or standard SMP with RRv capacity, the *SWPPP* must include

documentation which demonstrates that all options were considered and for each option explains why it is considered *infeasible.*

In no case shall the runoff reduction achieved from the newly constructed *impervious areas* be less than the Minimum RRv as calculated using the criteria in Section 4.5 of the DM. The remaining portion of the total WQv that cannot be reduced must be treated by application of standard SMPs.

ii. Channel Protection Volume (CPv): Provide 24 hour extended detention of the post-developed 1-year, 24-hour storm event, remaining after runoff reduction. Where a CPv control orifice is provided, the minimum orifice size must be 3 inches, with acceptable external trash rack or orifice protection. The CPv requirement does not apply when:

1. Reduction of the entire CPv is achieved by application of runoff reduction techniques or infiltration systems; or

2. The 1-year post-development peak *discharge* is less than or equal to 2.0 cfs; or

3. The site *directly discharges* to tidal waters, or a fifth order or larger water body (stream, river, or lake) where the increase in smaller flows will not impact the stream bank or channel integrity. However, the point of *discharge* must be adequately protected against scour and erosion by the increased peak *discharge*.

iii. *Overbank* Flood Control Criteria (Qp): Requires storage to attenuate the post-development 10-year, 24-hour peak *discharge* rate (Qp) to predevelopment rates. The Qp requirement does not apply when:

1. the site *directly discharges* to tidal waters or fifth order or larger streams; or

2. A downstream analysis reveals that *overbank* control is not required.

iv. Extreme Flood Control Criteria (Qf): Requires storage to attenuate the post-development 100-year, 24-hour peak *discharge* rate (Qf) to predevelopment rates. The Qf requirement does not apply when:

1. the site *directly discharges* to tidal waters or fifth order or larger streams; or

2. A downstream analysis reveals that *overbank* control is not required.

c. *Sizing Criteria* for *Redevelopment Activity*

i. Water Quality Volume (WQv): The WQv treatment objective for *redevelopment activity* must be addressed by one of the following options, as outlined in Section 9.2.1. *Redevelopment activities* located in an Enhanced Phosphorus Removal Watershed (see Part III.B.3. and Appendix C) must calculate the WQv in accordance with Section 4.3 of the DM. All other *redevelopment activities* must calculate the WQv in accordance with Section 4.2 of the DM.

1. Reduce the existing *impervious cover* by a minimum of 25% of the total disturbed, *impervious area*. The Soil Restoration criteria in Section 5.1.6 of the DM must be applied to all newly created pervious areas; or

2. Capture and treat 100% of the required WQv, for a minimum of 25% of the disturbed redevelopment *impervious area*, by implementation of standard SMPs or reduced by application of runoff reduction techniques; or

3. Capture and treat 100% of the required WQv, for a minimum of 75% of the disturbed redevelopment *impervious area*, by implementation of a volume-based alternative SMP, as defined in Section 9.4 of the DM; or

4. Capture and treat 100% of the required WQv, for a minimum of 75% of the disturbed redevelopment *impervious area*, by implementation of a flow-through alternative SMP sized to treat the peak rate of runoff from the WQv design storm; or

5. Application of a combination of 1 through 4 above that provide a weighted average of at least two of the above methods. Application of this method must be in accordance with the criteria in Section 9.2.1(A)(V) of the DM; or

6. If there is an existing SMP located on the site that captures and treats runoff from the *impervious area* that is being disturbed, the WQv treatment option selected must, at a minimum, provide treatment equal to the treatment that was being provided by the existing practice(s) if that treatment is greater than the treatment required by options 1 through 5 above.

ii. Channel Protection Volume (CPv) is not required if there is 0% change to hydrology that increases the *discharge* rate and volume from the project site.

iii. *Overbank* Flood Control (Qp) is not required if there is 0% change to hydrology that increases the *discharge* rate from the project site.

iv. Extreme Flood Control (Qf) is not required if there is 0% change to hydrology that increases the *discharge* rate from the project site.

d. *Sizing Criteria* for Combination of *Redevelopment Activity* and *New Development*

Construction projects, that include both *new development* and *redevelopment activity*, must use SMPs that meet the *sizing criteria* calculated as an aggregate of the *sizing criteria* in Part II.C.2.a. or b. for the *new development* portion of the project and Part II.C.2.c. for the *redevelopment activity* portion of the project.

Part III. Stormwater Pollution Prevention Plan (SWPPP)

A. General *SWPPP* Requirements

1. A *SWPPP* must be prepared and implemented by the *owner or operator* of all *construction activity* covered by this permit. All authorized *discharges* must be identified in the *SWPPP*. The *SWPPP* must document the selection, design, installation, implementation and maintenance of the control measures and

practices that will be used to meet the effluent limitations in Part II.B. and, where applicable, the SMP requirements in Part II.C.

2. The *SWPPP* must demonstrate consideration in narrative format of the future physical risks due to climate change pursuant to the Community Risk and Resiliency Act (CRRA), 6 NYCRR Part 490, and associated guidance.

    a. The owner or operator must consider:

        i. the following physical risks due to climate change:

            (i) increasing temperature; and

            (ii) increasing precipitation; and

            (iii) increasing variability in precipitation, including chance of drought; and

            (iv) increasing frequency and severity of flooding; and

            (v) rising sea level; and

            (vi) increasing storm surge; and

            (vii) shifting ecology.

        ii. for each of the following:

            (i) overall site planning; and

            (ii) location, elevation, and sizing of:

                a. control measures and practices; and

                b. conveyance system(s); and

                c. detention system(s).

3. The *SWPPP* must describe the erosion and sediment control practices and where required, SMPs that will be used and/or constructed to reduce the *pollutants* in *stormwater discharges* and to assure compliance with the

requirements of this permit. In addition, the *SWPPP* must identify potential sources of pollution which may reasonably be expected to affect the quality of *stormwater discharges*.

4. All *SWPPPs*, that require the SMP component in accordance with Part III.B.2., must be prepared by a *qualified professional*.

5. The *owner or operator* must keep the *SWPPP* current so that, at all times, it accurately documents the erosion and sediment control practices that are being used or will be used during construction, and all SMPs that will be constructed on the site. At a minimum, the *owner or operator* must modify the *SWPPP*, including construction drawings:

   a. whenever the current provisions prove to be ineffective in *minimizing pollutants* in *stormwater discharges* from the site; and

   b. whenever there is a change in design, construction, or operation at the *construction site* that has or could have an effect on the *discharge* of *pollutants*; and

   c. to address issues or deficiencies identified during an inspection by the *qualified inspector,* NYSDEC, or other regulatory authority; and

   d. to document the final construction conditions in an as-built drawing.

6. NYSDEC may notify the *owner or operator* at any time that the *SWPPP* does not meet one or more of the minimum requirements of this permit. The notification must be in writing and identify the provisions of the *SWPPP* that require modification. Within fourteen (14) calendar days of such notification, or as otherwise indicated by NYSDEC, the *owner or operator* must make the required changes to the *SWPPP* and submit written notification to NYSDEC that the changes have been made. If the *owner or operator* does not respond to NYSDEC's comments in the specified time frame, NYSDEC may suspend the *owner's or operator's* coverage under this permit or require the *owner or operator* to obtain coverage under an individual SPDES permit in accordance with Part II.D.4.

7. Prior to the *commencement of construction activity*, the *owner or operator* must identify the contractor(s) and subcontractor(s) that will be responsible for installing, constructing, repairing, replacing, inspecting, and maintaining the erosion and sediment control practices included in the *SWPPP* and the

contractor(s) and subcontractor(s) that will be responsible for constructing the SMPs included in the *SWPPP*. The *owner or operator* must have each of the contractors and subcontractors identify at least one person from their company to be *trained contractor* that will be responsible for implementation of the *SWPPP*. The *owner or operator* must ensure that at least one *trained contractor* is on site daily when soil disturbance activities are being performed.

The *owner or operator* must have each of the contractors and subcontractors identified above sign a copy of the following certification statement below before the *commencement of construction activities*:

> "I hereby certify under penalty of law that I understand and agree to comply with the requirements of the *SWPPP* and agree to implement any corrective actions identified by the *qualified inspector* during a site inspection. I also understand that the *owner or operator* must comply with the requirements of the most current version of the New York State Pollutant Discharge Elimination System (SPDES) Construction General Permit (CGP) for Stormwater Discharges from Construction Activities and that it is unlawful for any person to cause or contribute to a violation of *water quality standards*. Furthermore, I am aware that there are significant penalties for submitting false information, that I do not believe to be true, including the possibility of fine and imprisonment for knowing violations"

In addition to providing the certification statement above, the certification page must also identify the specific elements of the *SWPPP* that each contractor and subcontractor will be responsible for and include the name and title of the person providing the signature; the name and title of the *trained contractor* responsible for *SWPPP* implementation; the name, address and telephone number of the contracting firm; the address (or other identifying description) of the site; and the date the certification statement is signed. The *owner or operator* must attach the certification statement(s) to the copy of the *SWPPP* that is maintained at the *construction site*. If new or additional contractors are hired to implement measures identified in the *SWPPP* after the *commencement of construction activities*, they must also sign the certification statement and provide the information listed above prior to performing *construction activities*.

B. Required *SWPPP* Contents

1. Erosion and sediment control component - The *owner or operator* must prepare a *SWPPP* that includes erosion and sediment control practices.

    a. Erosion and sediment control practices must be designed:

        i. in conformance with the BB; or

        ii. *equivalent* to the BB if deviating from Part III.B.1.a.i.

    b. If the erosion and sediment control practices are designed in conformance with Part III.B.1.a.ii., the *SWPPP* must include a demonstration of *equivalence* to the BB.

    c. At a minimum, the erosion and sediment control component of the *SWPPP* must include the following:

        i. Background information about the scope of the project, including the location, type and size of project; and

        ii. A site map/construction drawing(s) with north arrows for the project, including a general location map. At a minimum, the site map must show the total site area; all improvements; areas of disturbance; areas that will not be disturbed; existing vegetation; on-site and adjacent off-site surface water(s); floodplain/floodway boundaries; wetlands and drainage patterns that could be affected by the *construction activity*; existing and final contours; locations of different soil types with boundaries; material, waste, borrow or equipment storage areas located on adjacent properties; and location(s) of the *stormwater discharge*(s) and receiving surface water(s); and

        iii. A description of the soil(s) present at the site, including an identification of the Hydrologic Soil Group (HSG); and

        iv. A phasing plan for the project and sequencing plans for all *phases*, both of which must address clearing and grubbing, excavation and grading, utility and infrastructure installation, *final stabilization*,

and any other *construction activity* at the site that will result in soil disturbance.

1. The phasing plan must include:

    a. a map delineating and labeling the limits of soil disturbance for all *phases* of a project; and

    b. a table identifying the order and intended schedule of when each *phase* will begin and end its sequencing plan. The table must identify the total disturbed area for each *phase* at any one time and the total disturbed area for the overall project at any one time all on one timeline showing all overlapping quantities of disturbed area at any one time; and

2. A sequencing plan for a specific *phase* must include:

    a. a table indicating the order and intended schedule of *construction activities* within a *phase*, and corresponding construction drawings with a description of the work to be performed; and

    b. all permanent and *temporary stabilization* measures; and

v. A description of the minimum erosion and sediment control practices to be installed or implemented for each *construction activity* that will result in soil disturbance. Include a schedule that identifies the timing of initial placement or implementation of each erosion and sediment control practice and the minimum time frames that each practice should remain in place or be implemented; and

vi. A site map/construction drawing(s) showing the specific location(s), size(s), and length(s) of each erosion and sediment control practice; and

vii. The dimensions, material specifications, installation details, and operation and maintenance requirements for all erosion and sediment control practices. Include the location and sizing of any

temporary sediment basins and structural practices that will be used to divert flows from exposed soils; and

viii. A maintenance inspection schedule for the contractor(s) and subcontractor(s) identified in Part III.A.7. to ensure continuous and effective operation of the erosion and sediment control practices. The maintenance inspection schedule must be in accordance with the requirements in the BB technical standard; and

ix. A description of the pollution prevention measures that will be used to control litter, construction chemicals and construction debris from becoming a *pollutant* source in the *stormwater discharges*; and

x. A description and location of any *stormwater discharges* associated with industrial activity other than construction at the site, including, but not limited to, *stormwater discharges* from asphalt plants and concrete plants located on the *construction site*; and

xi. Identification of any elements of the design that are not in conformance with the design criteria in the BB technical standard. Include the reason for the deviation or alternative design and provide information which demonstrates that the deviation or alternative design is *equivalent* to the technical standard.

2. SMP component – The *owner or operator* of *construction activity* identified in Table 2 of Appendix B must prepare a *SWPPP* that includes SMPs.

   a. SMPs must be designed in conformance with the applicable *sizing criteria* in Part II.C.2.a., c., or d.; and

   b. SMPs must be designed in conformance with the *performance criteria*:

      i. in the DM; or

      ii. *equivalent* to the DM if deviating from Part III.B.2.b.i.; or

      iii. in the New York State Stormwater Management Design Manual, dated January 2015 (2015 Design Manual), or *equivalent* to it, if the following criteria are met:

1. The eNOI is submitted in accordance with Part I.D. before January 29, 2027 for *construction activities* that are either:

    a. subject to governmental review and approval:

        i. where the *owner or operator* made any application to that governmental entity prior to the effective date of this permit; and

        ii. such application included a *SWPPP* developed using the 2015 Design Manual or *equivalent* to it; or

    b. not subject to governmental review and approval:

        i. where a fiscal allocation for the *construction activities* has been developed and approved by a governmental entity; and

        ii. the *SWPPP* was developed using the 2015 Design Manual or *equivalent* to it; and

c. If SMPs are designed in conformance with Part III.B.2.b.ii., the *SWPPP* must include the reason(s) for the deviation or alternative design and a demonstration of *equivalence* to the DM; and

d. If SMPs are designed in conformance with Part III.B.2.b.iii., the *SWPPP* must include supporting information or documentation demonstrating that Part III.B.2.b.iii.1.a. or b. apply; and

e. The SMP component of the *SWPPP* must include the following:

    i. Identification of all SMPs to be constructed as part of the project, including which option the SMP designs conform to, either Part III.B.2.b.i., ii., or iii. Include the dimensions, material specifications and installation details for each SMP; and

    ii. A site map/construction drawing(s) showing the specific location and size of each SMP; and

iii. A Stormwater Modeling and Analysis Report that includes:

(i) Map(s) showing pre-development conditions, including watershed/subcatchments boundaries, flow paths/routing, and design points; and

(ii) Map(s) showing post-development conditions, including watershed/subcatchments boundaries, flow paths/routing, design points and SMPs; and

(iii) Results of *stormwater* modeling (i.e. hydrology and hydraulic analysis) for the required storm events. Include supporting calculations (model runs), methodology, and a summary table that compares pre- and post-development runoff rates and volumes for the different storm events; and

(iv) Summary table, with supporting calculations, which demonstrates that each SMP has been designed in conformance with the *sizing criteria* included in the DM; and

(v) Identification of any *sizing criteria* that is not required based on the requirements included in Part II.C.; and

(vi) Identification of any elements of the design that are not in conformance with the *performance criteria* in the DM. Include the reason(s) for the deviation or alternative design and provide information which demonstrates that the deviation or alternative design is *equivalent* to the DM.

iv. Soil testing results and locations (test pits, borings); and

v. Infiltration test results, when required in accordance with Part III.B.2.a.; and

vi. An operations and maintenance plan that includes inspection and maintenance schedules and actions to ensure continuous and effective operation of each SMP. The plan must identify the entity

that will be responsible for the long-term operation and maintenance of each practice; and

3. Enhanced Phosphorus Removal Standards - The *owner or operator* of *construction activity* identified in Table 2 of Appendix B that is located in a watershed identified in Appendix C must prepare a *SWPPP* that includes SMPs designed in conformance with the applicable *sizing criteria* in Part II.C.2.b., c., or d. and the *performance criteria* Enhanced Phosphorus Removal Standards included in the DM. At a minimum, the SMP component of the *SWPPP* must meet the requirements of Part III.B.2.

C. Required *SWPPP* Components by Project Type

Owners or operators of *construction activities*, identified in Table 1 of Appendix B, are required to prepare a *SWPPP* that only includes erosion and sediment control practices designed in accordance with Part III.B.1. *Owners or operators* of the *construction activities*, identified in Table 2 of Appendix B, must prepare a *SWPPP* that also includes SMPs designed in accordance with Part III.B.2 or 3.

For the entire area of disturbance, including the entire *common plan of development or sale* if applicable, the owner or operator must evaluate every bullet from Appendix B Table 1 and Table 2 separately. If bullets from both Table 1 and Table 2 apply, the *SWPPP* must include erosion and sediment control practices for all *construction activities* but SMPs for only those portions of the *construction activities* that fall under Table 2 bullet(s).

Part IV. Inspection and Maintenance Requirements

A. General Construction Site Inspection and Maintenance Requirements

1. The *owner or operator* must ensure that all erosion and sediment control practices (including pollution prevention measures), and all SMPs identified in the *SWPPP*, are inspected and maintained in accordance with Part IV.B. and C.

B. Contractor Maintenance Inspection Requirements

1. The *owner or operator* of each *construction activity*, identified in Tables 1 and 2 of Appendix B, must have a *trained contractor* inspect the erosion and sediment control practices and pollution prevention measures being

implemented within the active work area daily to ensure that they are being maintained in effective operating condition at all times. If deficiencies are identified, the contractor must:

a. if the corrective action does not require engineering design:

    i. begin implementing corrective actions within one business day; and

    ii. complete the corrective actions within five business days; or

b. if the corrective action requires engineering design:

    i. begin the engineering design process within five business days; and

    ii. complete the corrective action in a reasonable time frame but no later than within 60 calendar days.

2. For *construction sites* where soil disturbance activities have been temporarily suspended (e.g. winter shutdown) and *temporary stabilization* measures have been applied to all disturbed areas, the *trained contractor* can stop conducting the maintenance inspections in accordance with Part IV.B.1. The *trained contractor* must begin conducting the maintenance inspections in accordance with Part IV.B.1. as soon as soil disturbance activities resume.

3. For *construction sites* where soil disturbance activities have been shut down with partial project completion, the *trained contractor* can stop conducting the maintenance inspections in accordance with Part IV.B.1. if all areas disturbed as of the project shutdown date have achieved *final stabilization* and all SMPs required for the completed portion of the project have been constructed in conformance with the *SWPPP* and are operational.

C. *Qualified Inspector* Inspection Requirements

1. With the exception of the following *construction activities* identified in Tables 1 and 2 of Appendix B, a *qualified inspector* must conduct site inspections for all other *construction activities* identified in Tables 1 and 2 of Appendix B:

    a. the construction of a single-family residential subdivision with 25% or less *impervious cover* at total site build-out that involves a soil disturbance of one (1) or more acres of land but less than or equal to five (5) acres and is

not located in one of the watersheds listed in Appendix C and not *directly discharging* to one of the 303(d) segments listed in Appendix D; and

b. the construction of a single-family home that involves soil disturbances of one (1) or more acres but less than or equal to five (5) acres and is not located in one of the watersheds listed in Appendix C and not *directly discharging* to one of the 303(d) segments listed in Appendix D; and

c. construction on *agricultural property* that involves soil disturbances of one (1) or more acres but less than five (5) acres; and

d. *construction activities* located in the New York City Watershed located east of the Hudson River, see Appendix C Figure 1, that involve soil disturbances of 5,000 square feet or more, but less than one acre.

2. The *qualified inspector* must conduct site inspections in accordance with the following timetable:

a. For *construction sites* where soil disturbance activities are on-going, the *qualified inspector* must conduct a site inspection at least once every seven (7) calendar days; or

b. For *construction sites* where soil disturbance activities are on-going and the *owner or operator* has received authorization in accordance with Part I.E.6. to disturb greater than five (5) acres of soil at any one time, the *qualified inspector* must conduct at least two (2) site inspections every seven (7) calendar days. The two (2) inspections must be separated by a minimum of two (2) full calendar days; or

c. For *construction sites* where soil disturbance activities have been temporarily suspended (e.g. winter shutdown) and *temporary stabilization* measures have been applied to all disturbed areas, the *qualified inspector* must conduct a site inspection at least once every thirty (30) calendar days. The *owner or operator* must notify the DOW Water (SPDES) Program contact at the Regional Office (see contact information in Appendix E) or, in areas under the jurisdiction of a *Traditional Land Use Control MS4 Operator,* the *Traditional Land Use Control MS4 Operator* (provided the *Traditional Land Use Control MS4 Operator* is not the *owner or operator* of the *construction activity*) by hard copy or email prior to reducing the inspections to this frequency and again by hard copy or email prior to re-commencing construction; or

d. For *construction sites* where soil disturbance activities have been shut down with partial project completion, the requirement to have the *qualified inspector* conduct inspections ceases if all areas disturbed as of the project shutdown date have achieved *final stabilization* and all SMPs required for the completed portion of the project have been constructed in conformance with the *SWPPP* and are operational. The *owner or operator* must notify the DOW Water (SPDES) Program contact at the Regional Office (see contact information in Appendix E) or, in areas subject to the review authority of *Traditional Land Use Control MS4 Operator(s)* in accordance with Part I.D.2.b.ii.1., the *Traditional Land Use Control MS4 Operator(s)* (provided the *Traditional Land Use Control MS4 Operator(s)* are not the *owners or operators* of the *construction activity*) in writing prior to the shutdown and again in writing prior to resuming *construction activity*. If soil disturbance activities are not resumed within 2 years from the date of shutdown, the *owner or operator* must terminate coverage by meeting the requirements of Part V; or

e. For *construction sites* involving soil disturbance of one (1) or more acres that *directly discharge* to one of the 303(d) segments listed in Appendix D or is located in one of the watersheds listed in Appendix C, the *qualified inspector* must conduct at least two (2) site inspections every seven (7) calendar days. The two (2) inspections must be separated by a minimum of two (2) full calendar days.

3. At a minimum, the *qualified inspector* must inspect:

   a. all erosion and sediment control practices and pollution prevention measures to ensure integrity and effectiveness; and

   b. all SMPs under construction to ensure that they are constructed in conformance with the *SWPPP*; and

   c. all areas of disturbance that have not achieved *final stabilization*; and

   d. all points of *discharge* to *surface waters of the State* located within, or immediately adjacent to, the property boundaries of the *construction site*; and

   e. all points of *discharge* from the *construction site*.

4. The *qualified inspector* must prepare an inspection report subsequent to each and every inspection. At a minimum, the inspection report must include and/or address all of the following, for all *construction activities* except those listed in Part IV.C.1.:

   a. Permit identification number; and

   b. Date and time of inspection; and

   c. Name and title of person(s) performing inspection; and

   d. A description of the weather and soil conditions (e.g. dry, wet, saturated) at the time of the inspection, including the temperature at the time of the inspection; and

   e. A description of the condition of the runoff at all points of *discharge* from the *construction site*. This must include identification of any *discharges* of sediment from the *construction site*. Include *discharges* from conveyance systems (i.e. pipes, culverts, ditches, etc.) and overland flow; and

   f. A description of the condition of all *surface waters of the State* located within, or immediately adjacent to, the property boundaries of the *construction site* which receive runoff from disturbed areas. This must include identification of any *discharges* of sediment to the *surface waters of the State*; and

   g. Identification of all erosion and sediment control practices and pollution prevention measures that need repair or maintenance; and

   h. Identification of all erosion and sediment control practices and pollution prevention measures that were not installed properly or are not functioning as designed and need to be reinstalled or replaced; and

   i. Description and sketch (map) of areas with active soil disturbance activity, areas that have been disturbed but are inactive at the time of the inspection, and areas that have been stabilized (temporary and/or final) since the last inspection; and

   j. Estimates, in square feet or acres, of the following areas:

i. Total area with active soil disturbance (not requiring either *temporary stabilization* or *final stabilization*); and

ii. Total area with inactive soil disturbance (requiring either *temporary stabilization* or *final stabilization*); and

iii. Total area that has achieved *temporary stabilization*; and

iv. Total area that has achieved *final stabilization*; and

k. Current stage of construction of all SMPs and identification of all *construction activity* on site that is not in conformance with the *SWPPP* and technical standards; and

l. Corrective action(s) that must be taken to install, repair, replace or maintain erosion and sediment control practices and pollution prevention measures; and to correct deficiencies identified with the construction of the SMP(s); and

m. Identification and status of all corrective actions that were required by previous inspection; and

n. Digital photographs, with date stamp, that clearly show the condition of all practices that have been identified as needing corrective actions. The *qualified inspector* must attach color copies of the digital photographs to the inspection report being maintained onsite within seven (7) calendar days of the date of the inspection. The *qualified inspector* must also take digital photographs, with date stamp, that clearly show the condition of the practice(s) after the corrective action has been completed. The *qualified inspector* must attach paper color copies of the digital photographs to the inspection report that documents the completion of the corrective action work within seven (7) calendar days of that inspection.

5. Within one business day of the completion of an inspection, the *qualified inspector* must notify the *owner or operator*, and appropriate contractor or subcontractor identified in Part III.A.7., of any corrective actions that need to be taken. The contractor or subcontractor must:

a. if the corrective action does not require engineering design:

i. begin implementing corrective actions within one business day; and

ii. complete the corrective actions within five business days; or

b. if the corrective action requires engineering design:

i. begin the engineering design process within five business days; and

ii. complete the corrective action in a reasonable time frame but no later than within 60 calendar days.

6. All inspection reports must be signed by the *qualified inspector.* In accordance with Part I.E.3., the inspection reports must be maintained on site with the *SWPPP*.

Part V. How to Terminate CGP Coverage

A. Electronic Notice of Termination (eNOT) Submittal

The eNOT contains questions to ensure requirements in Part V.A. have been met.

1. An *owner or operator* must terminate coverage when one or more of the following requirements have been met:

a. Total project completion:

i. all *construction activity* identified in the *SWPPP* has been completed; and

ii. all areas of disturbance have achieved *final stabilization*; and

iii. all temporary, structural erosion and sediment control measures have been removed; and

iv. all SMPs have been constructed in conformance with the *SWPPP* and are operational; and

v. an as-built drawing has been prepared; or

b. Planned shutdown with partial project completion:

   i. all soil disturbance activities have ceased; and

   ii. all areas disturbed as of the project shutdown date have achieved *final stabilization*; and

   iii. all temporary, structural erosion and sediment control measures have been removed; and

   iv. all SMPs required for the completed portion of the project have been constructed in conformance with the *SWPPP* and are operational; and

   v. an as-built drawing has been prepared; or

c. In accordance with Part I.G. Change of Owner or Operator; or

d. The *owner or operator* has obtained coverage under an alternative general SPDES permit or an individual SPDES permit.

2. For *construction activities* that require *qualified inspector* inspections in accordance with Part IV.C.1. and have met Part V.A.1.a. or b., the *owner or operator* must have the *qualified inspector* perform a final site inspection prior to submitting the eNOT. The *qualified inspector* must, by signing the "Final Stabilization" and "Post-Construction Stormwater Management Practice(s)" certification statements on the eNOT, certify that all the requirements in Part V.A.1.a. or b. have been achieved.

3. For *construction activities* that are subject to the review authority of *Traditional Land Use Control MS4 Operator(s)* in accordance with Part I.D.2.b.ii.1. and meet Part V.A.1.a. or b., the *owner or operator* must have the *Traditional Land Use Control MS4 Operator(s)* sign the "MS4 Acceptance" statement on the eNOT in accordance with the requirements in Part VII.J. A *Traditional Land Use Control MS4 Operator* official, by signing this statement, determined that it is acceptable for the *owner or operator* to submit the eNOT in accordance with the requirements of this Part. A *Traditional Land Use Control MS4 Operator* can make this determination by performing a final site inspection themselves or by accepting the *qualified inspector*'s final site inspection certification(s) when required in Part V.A.2.

4. For *construction activities* that require SMPs and meet Part V.A.1.a. or b., the *owner or operator* must, prior to submitting the eNOT, ensure one of the following:

    a. for SMP(s) that were constructed by a private entity, but will be owned, operated, and maintained by a public entity, the SMP(s) and any right-of-way(s) needed to operate and maintain such practice(s) have been deeded to the municipality in which the practice(s) is located; or

    b. for SMP(s) that are privately owned, but will be operated and maintained by a public entity, an executed operation and maintenance agreement is in place with the municipality that will operate and maintain the SMP(s); or

    c. for SMP(s) that are privately owned, the *owner or operator* has a mechanism in place that requires operation and maintenance of the practice(s) in accordance with the operation and maintenance plan, such as a deed covenant in the *owner or operator's* deed of record; or

    d. for SMP(s) that are owned by a public or private institution (e.g. school, university, hospital), government agency or authority, or public utility, the *owner or operator* has policies and procedures in place that ensure operation and maintenance of the practices in accordance with the operation and maintenance plan.

5. An *owner or operator* that has met the requirements of Part V.A.1., 2., 3., and 4. must request termination of coverage under this permit by submitting a complete Notice of Termination form electronically using a NYSDEC approved form.[5]

    a. The owner's or operator's coverage is terminated as of the termination date indicated in the Letter of Termination (LOT), which is sent by NYSDEC after a complete eNOT is submitted.

[5] Unless NYSDEC grants a waiver in accordance with 40 CFR 127.15(c) or (d). All waiver requests must be submitted to Stormwater_info@dec.ny.gov or NYSDEC, Bureau of Water Permits, 625 Broadway, 4th Floor, Albany, New York 12233-3505.

Part VI. Record Retention and Reporting

A. Record Retention

The *owner or operator* must retain a copy of the documents listed in Part I.E.3. and a copy of the LOT for a period of at least five years from the date that NYSDEC accepts a complete NOT submitted in accordance with Part V.

B. Reporting

Except for the eNOI, the signature forms associated with the eNOI, and the eNOT, all other written correspondence requested by NYSDEC, including individual permit applications, must be sent to the address of the appropriate DOW (SPDES) Program contact at the Regional Office listed in Appendix E.

Part VII. Standard Permit Requirements

For the purposes of this permit, examples of contractors and subcontractors include: third-party maintenance and construction contractors.

A. Duty to Comply

The *owner or operator*, and all contractors or subcontractors, must comply with all requirements of this permit. Any non-compliance with the requirements of this permit constitutes a violation of the New York State Environmental Conservation Law (ECL), and its implementing regulations, and is grounds for enforcement action. Filing of a request for termination of coverage under this permit, or a notification of planned changes or anticipated non-compliance, does not limit, diminish or stay compliance with any requirements of this permit.

B. Need to Halt or Reduce Activity Not a Defense

The necessity to halt or reduce the *construction activity* regulated by this permit, in order to maintain compliance with the requirements of this permit, must not be a defense in an enforcement action.

C. Penalties

There are substantial criminal, civil, and administrative penalties associated with violating the requirements of this permit. Fines of up to $37,500 per day for each

violation and imprisonment for up to 15 years may be assessed depending upon the nature and degree of the offense.

D. False Statements

Any person who knowingly makes any false material statement, representation, or certification in any application, record, report, or other document filed or required to be maintained under this permit, including monitoring reports or reports of compliance or noncompliance must, upon conviction, be punished in accordance with ECL §71-1933 and or New York State Penal Law Articles 175 and 210.

E. Re-Opener Clause

Upon issuance of this permit, a determination has been made on the basis of a submitted Notice of Intent, plans, or other available information, that compliance with the specified permit requirements will reasonably protect classified water use and assure compliance with applicable *water quality standards*. Satisfaction of the requirements of this permit notwithstanding, if operation pursuant to this permit causes or contributes to a condition in contravention of State *water quality standards* or guidance values, or if NYSDEC determines that a modification is necessary to prevent impairment of the best use of the waters or to assure maintenance of *water quality standards* or compliance with other provisions of ECL Article 17 or the Clean Water Act (CWA), or any regulations adopted pursuant thereto, NYSDEC may require such modification and the Commissioner may require abatement action to be taken by the *owner or operator* and may also prohibit such operation until the modification has been implemented.

F. Duty to Mitigate

The *owner or operator*, and its contractors and subcontractors, must take all reasonable steps to *minimize* or prevent any *discharge* in violation of this permit which has a reasonable likelihood of adversely affecting human health or the environment.

G. Requiring Another General Permit or Individual SPDES Permit

NYSDEC may require any *owner or operator* authorized to *discharge* in accordance with this permit to apply for and obtain an individual SPDES permit or apply for authorization to *discharge* in accordance with another general SPDES permit.

1. Cases where an individual SPDES permit or authorization to discharge in accordance with another general SPDES permit may be required include, but is not limited to the following:

a. the *owner or operator* is not in compliance with the conditions of this permit or does not meet the requirements for coverage under this permit; and

b. a change has occurred in the availability of demonstrated technology or practices for the control or abatement of *pollutants* applicable to the *point source*; and

c. new effluent limitation guidelines or new source performance standards are promulgated that are applicable to *point sources* authorized to *discharge* in accordance with this permit; and

d. existing effluent limitation guidelines or new source performance standards that are applicable to *point sources* authorized to *discharge* in accordance with this permit are modified; and

e. a water quality management plan containing requirements applicable to such *point sources* is approved by NYSDEC; and

f. circumstances have changed since the time of the request to be covered so that the *owner or operator* is no longer appropriately controlled under this permit, or either a temporary or permanent reduction or elimination of the authorized *discharge* is necessary; and

g. the *discharge* is in violation of section 17-0501 of the ECL; and

h. the *discharge(s)* is a significant contributor of *pollutants*. In making this determination, NYSDEC may consider the following factors:

   i. the location of the *discharge(s)* with respect to *surface waters of the State*; and

   ii. the size of the *discharge(s)*; and

   iii. the quantity and nature of the *pollutants discharged* to *surface waters of the State*; and

   iv. other relevant factors including compliance with other provisions of ECL Article 17, or the CWA.

2. When NYSDEC requires any *owner or operator* authorized by this permit to apply for an individual SPDES permit as provided for in this subdivision, it must notify the *owner or operator* in writing that a permit application is required. This notice must include a brief statement of the reasons for this decision, an application

form, a statement setting a time for the *owner or operator* to file the application for an individual SPDES permit, and a deadline, not sooner than 180 days from the *owner's or operator's* receipt of the notification letter, whereby the authorization to *discharge* under this permit must be terminated. NYSDEC may grant additional time upon demonstration, to the satisfaction of the RWE,[6] that additional time to apply for an alternative authorization is necessary or where NYSDEC has not provided a permit determination in accordance with 6 NYCRR Part 621.

3. When an individual SPDES permit is issued to an *owner or operator* authorized to *discharge* under this permit for the same *discharge(s)*, this permit authorization for *construction activities* authorized under the individual SPDES permit is automatically terminated on the effective date of the individual SPDES permit unless termination is earlier in accordance with 6 NYCRR Part 750.

H. Duty to Provide Information

The *owner or operator* must furnish to NYSDEC, within five business days, unless otherwise set forth by NYSDEC, any information that NYSDEC may request to determine whether cause exists to determine compliance with this permit or to determine whether cause exists for requiring an individual SPDES permit in accordance with 6 NYCRR 750-1.21(e) (see Part VII.G. Requiring Another General Permit or Individual Permit).

The *owner or operator* must make available to NYSDEC, for inspection and copying, or furnish to NYSDEC within 25 business days of receipt of a NYSDEC request for such information, any information retained in accordance with this permit.

Except for Part I.D.4. and 5. and Part I.G., the following applies: where the *owner or operator* becomes aware that it failed to submit any relevant facts on the Notice of Intent, or submitted incorrect information in a Notice of Intent or in any report to NYSDEC, the *owner or operator* must submit such facts or corrected information to NYSDEC within five business days.

I. Extension

In the event a new permit is not issued and effective prior to the expiration of this permit, and this permit is extended pursuant to the State Administrative Procedure Act and 6 NYCRR Part 621, then the *owner or operator* with coverage under this permit may continue to operate and *discharge* in accordance with the requirements of this permit until a new permit is issued and effective.

[6] The Regional Water Manager where a DEC Region does not have a RWE.

J. Signatories and Certification

The Notice of Intent, Notice of Termination, and reports required by this permit must be signed as provided in 40 CFR §122.22.

1. All Notices of Intent and Notices of Termination must be signed as follows:

    a. For a corporation. By a responsible corporate officer. For the purpose of this section, a responsible corporate officer means:

        (i) a president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy- or decision-making functions for the corporation; or

        (ii) the manager of one or more manufacturing, production or operating facilities, provided, the manager is authorized to make management decisions which govern the operation of the regulated facility including having the explicit or implicit duty of making major capital investment recommendations, and initiating and directing other comprehensive measures to assure long term environmental compliance with environmental laws and regulations; the manager can ensure that the necessary systems are established or actions taken to gather complete and accurate information for Notice of Intent or Notice of Termination requirements; and where authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures.

        Note: NYSDEC does not require specific assignments or delegations of authority to responsible corporate officers identified in 40 CFR §122.22(a)(1)(i). NYSDEC will presume that these responsible corporate officers have the requisite authority to sign the Notice of Intent or Notice of Termination unless the corporation has notified NYSDEC to the contrary. Corporate procedures governing authority to sign a Notice of Intent or Notice of Termination may provide for assignment or delegation to applicable corporate positions under 40 CFR §122.22(a)(1)(ii) rather than to specific individuals.

    b. For a partnership or sole proprietorship. By a general partner or the proprietor, respectively.

c. For a municipality, State, Federal, or other public agency. By either a principal executive officer or ranking elected official. For purposes of this section, a principal executive officer of a Federal agency includes:

    1. the chief executive officer of the agency; or

    2. a senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency (e.g., Regional Administrators of EPA).

2. All reports required by this permit, and other information requested by NYSDEC, must be signed by a person described in Part VII.J.1., or by a duly authorized representative of that person. A person is a duly authorized representative only if:

    a. The authorization is made in writing by a person described in Part VII.J.1. or using the Duly Authorized Form, found on the DEC website; and

    b. The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity, position of equivalent responsibility, or an individual or position having overall responsibility for environmental matters for the company. (A duly authorized representative may thus be either a named individual or any individual occupying a named position); and

    c. The written authorization is submitted to NYSDEC.

3. Changes to authorization. If an authorization under Part VII.J.2. is no longer accurate because a different individual or position has responsibility for the overall operation of the *construction activity*, a new authorization satisfying the requirements of Part VII.J.2. must be submitted to NYSDEC prior to or together with any reports, information, or applications to be signed by an authorized representative.

4. Certification. Any person signing a document under Part VII.J.1. or 2. must make the following certification:

    I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who

manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

5. Electronic reporting. If documents described in Part VII.J.1. or 2. are submitted electronically by or on behalf of the *construction activity* with coverage under this permit, any person providing the electronic signature for such documents must meet all relevant requirements of this section, and must ensure that all of the relevant requirements of 40 CFR Part 3 (including, in all cases, subpart D to Part 3) (Cross-Media Electronic Reporting) and 40 CFR Part 127 (NPDES Electronic Reporting Requirements) are met for that submission.

K. Inspection and Entry

The *owner or operator* must allow NYSDEC, the USEPA Regional Administrator, the applicable county health department, or any authorized representatives of those entities, or, in the case of a *construction site* which *discharges* through an *MS4*, an authorized representative of the *MS4* receiving the *discharge*, upon the presentation of credentials and other documents as may be required by law, to:

1. enter upon the *owner's or operator's* premises where a regulated facility or activity is located or conducted or where records must be kept under the requirements of this permit; and

2. have access to and copy at reasonable times, any records that must be kept under the requirements of this permit, including records required to be maintained for purposes of operation and maintenance; and

3. inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices or operations regulated or required under this permit; and

4. sample or monitor at reasonable times, for the purposes of assuring general SPDES permit compliance or as otherwise authorized by the CWA or ECL, any substances or parameters at any location; and

5. enter upon the property of any contributor to the regulated facility or activity under authority of the *owner or operator*.

L. Confidentiality of Information

The following must not be held confidential: this permit, the fact sheet for this permit, the name and address of any *owner or operator*, effluent data, the Notice of Intent, and information regarding the need to obtain an individual permit or an alternative general SPDES permit. This includes information submitted on forms themselves and any attachments used to supply information required by the forms (except information submitted on usage of substances). Upon the request of the *owner or operator*, NYSDEC must make determinations of confidentiality in accordance with 6 NYCRR Part 616, except as set forth in the previous sentence. Any information accorded confidential status must be disclosed to the Regional Administrator upon his or her written request. Prior to disclosing such information to the Regional Administrator, NYSDEC will notify the Regional Administrator of the confidential status of such information.

M. Other Permits May Be Required

Nothing in this permit relieves the *owner or operator* from a requirement to obtain any other permits required by law.

N. NYSDEC Orders or Civil Decrees/Judgments

The issuance of this permit by the NYSDEC, and the coverage under this permit by the *owner or operator*, does not supersede, revoke, or rescind any existing order on consent or civil Decree/Judgment, or modification to any such documents or to any order issued by the Commissioner, or any of the terms, conditions, or requirements contained in such order or modification therefore, unless expressly noted.

O. Property Rights

Coverage under this permit does not convey any property rights in either real or personal property, or any exclusive privileges, nor does it authorize any injury to private property or any invasion of personal rights, nor any infringement of Federal, State, or local laws or regulations, nor does it obviate the necessity of obtaining the assent of any other jurisdiction as required by law for the *discharge* authorized.

P. Compliance with Interstate Standards

If the *construction activity* covered by this permit originates within the jurisdiction of an interstate water pollution control agency, then the *construction activity* must also comply with any applicable effluent standards or *water quality standards* promulgated by that interstate agency and as set forth in this permit for such *construction activities*.

Q. Oil and Hazardous Substance Liability

Coverage under this permit does not affect the imposition of responsibilities upon, or the institution of any legal action against, the *owner or operator* under section 311 of the CWA, which must be in conformance with regulations promulgated pursuant to section 311 governing the applicability of section 311 of the CWA to *discharges* from facilities with *NPDES* permits, nor must such issuance preclude the institution of any legal action or relieve the *owner or operator* from any responsibilities, liabilities, or penalties to which the *owner or operator* is or may be subject pursuant to the Comprehensive Environmental Response, Compensation and Liability Act of 1980, 42 U.S.C. section 9601 et seq. (CERCLA).

R. Severability

The provisions of this permit are severable, and if any provision of this permit, or the application of any provision of this permit to any circumstance, is held invalid, the application of such provision to other circumstances, and the remainder of this permit, must not be affected thereby.

S. NYSDEC Approved Forms

The *owner or operator* must provide all relevant information that is requested by NYSDEC, and required by this permit, on all NYSDEC approved forms.

APPENDIX A – Abbreviations and Definitions

Abbreviations

APO – Agency Preservation Officer
BB – New York State Standards and Specifications for Erosion and Sediment Control (Blue Book), dated November 2016
BMP – Best Management Practice
CPESC – Certified Professional in Erosion and Sediment Control
CPv – Channel Protection Volume
CWA – Clean Water Act (or the Federal Water Pollution Control Act, 33 U.S.C. §1251 et seq)
DM – New York State Stormwater Management Design Manual (Design Manual), dated July 31, 2024
DOW – Division of Water
EAF – Environmental Assessment Form
ECL – chapter 43-B of the Consolidated Laws of the State of New York, entitled the Environmental Conservation Law
EPA – U.S. Environmental Protection Agency
HSG – Hydrologic Soil Group
MS4 – Municipal Separate Storm Sewer System
NOI – Notice of Intent
NOT – Notice of Termination
NPDES – National Pollutant Discharge Elimination System
NYC – The City of New York
NYCDEP – The City of New York Department of Environmental Protection
NYSDEC – The New York State Department of Environmental Conservation
OPRHP – Office of Parks, Recreation and Historic Places
Qf – Extreme Flood
Qp – Overbank Flood
RR – Runoff Reduction
RRv – Runoff Reduction Volume
RWE – Regional Water Engineer
SEQR – State Environmental Quality Review Act
SHPA – State Historic Preservation Act
SMP – Post-Construction Stormwater Management Practice
SPDES – State Pollutant Discharge Elimination System
SWPPP – Stormwater Pollution Prevention Plan
TMDL – Total Maximum Daily Load
UPA – Uniform Procedures Act
USDA – United States Department of Agriculture
WQv – Water Quality Volume

Definitions

All definitions in this section are solely for the purposes of this permit. If a word is not italicized in the permit, use its common definition.

Agricultural Building – a structure designed and constructed to house farm implements, hay, grain, poultry, livestock or other horticultural products; excluding any structure designed, constructed or used, in whole or in part, for human habitation, as a place of employment where agricultural products are processed, treated or packaged, or as a place used by the public.

Agricultural Property – the land for construction of a barn, *agricultural building*, silo, stockyard, pen or other structural practices identified in Table II in the "Agricultural Best Management Practice Systems Catalogue" (dated June 2023).

Alter Hydrology from Pre- to Post-Development Conditions – the post-development peak flow rate(s) has increased by more than 5% of the pre-developed condition for the design storm of interest (e.g. 10 yr and 100 yr).

Combined Sewer System – a sewer system which conveys sewage and *stormwater* through a single pipe system to a publicly owned treatment works.

Commence (Commencement of) Construction Activities – the initial disturbance of soils associated with clearing, grading or excavation activities; or other construction related activities that disturb or expose soils such as demolition, stockpiling of fill material, and the initial installation of erosion and sediment control practices required in the *SWPPP*. See definition for "*Construction Activity(ies)*" also.

Common Plan of Development or Sale – a contiguous area where multiple separate and distinct *construction activities* are occurring, or may occur, under one plan. The "common plan" of development or sale is broadly defined as any announcement or piece of documentation (including a sign, public notice or hearing, marketing plan, advertisement, drawing, permit application, State Environmental Quality Review Act (SEQR) environmental assessment form or other documents, zoning request, computer design, etc.) or physical demarcation (including boundary signs, lot stakes, surveyor markings, etc.) indicating *construction activities* may occur on a specific plot. A *common plan of development or sale* is comprised of two or more *phases*.

Common plan of development or sale does not include separate and distinct *construction activities* that are occurring, or may occur, under one plan that are at least 1/4 mile apart provided any interconnecting road, pipeline or utility project that is part of the same "common plan" is not concurrently being disturbed.

Construction Activity(ies) – identified within 40 CFR 122.26(b)(14)(x), 122.26(b)(15)(i), and 122.26(b)(15)(ii), any clearing, grading, excavation, filling, demolition or stockpiling activities that result in soil disturbance. Clearing activities can include, but are not limited to, mechanized logging equipment operation, the cutting and skidding of trees, stump removal and/or brush root removal.

Construction activity does not include routine maintenance that is performed to maintain the original line and grade, hydraulic capacity, or original purpose of a facility, which is excluded from the calculation of the soil disturbance for a project. Routine maintenance includes, but is not limited to:

- Re-grading of gravel roads or parking lots; and
- Cleaning and shaping of existing roadside ditches and culverts that maintains the approximate original line and grade, and maintains or improves the hydraulic capacity of the ditch; and
- Replacement of existing culverts that maintains the approximate original line and grade, and maintains or improves the hydraulic capacity of a ditch; and
- Replacement of existing bridges that maintains the approximate original line and grade, and maintains or improves the hydraulic capacity beneath the bridges; and
- Cleaning and shaping of existing roadside ditches that does not maintain the approximate original grade, hydraulic capacity and purpose of the ditch if the changes to the line and grade, hydraulic capacity or purpose of the ditch are installed to improve water quality and quantity controls (e.g. installing grass lined ditch); and
- Placement of aggregate shoulder backing that stabilizes the transition between the road shoulder and the ditch or *embankment*; and
- Full depth milling and filling of existing asphalt pavements, replacement of concrete pavement slabs, and similar work that does not expose soil or disturb the bottom six (6) inches of subbase material; and
- Long-term use of equipment storage areas at or near highway maintenance facilities; and
- Removal of sediment from the edge of the highway to restore a previously existing sheet-flow drainage connection from the highway surface to the highway ditch or *embankment*; and
- Existing use of Canal Corp owned upland disposal sites for the canal, and
- Replacement of curbs, gutters, sidewalks and guide rail posts; and
- Maintenance of ski trails including brush hog use and mowing; and
- Above ground snowmaking pipe replacement; and
- Replacement of existing utility poles; etc.

Construction Site – the land area where *construction activity(ies)* will occur. See also the definitions for "*Commence (Commencement of) Construction Activities"* and "*Common Plan of Development or Sale."*

Dewatering – the act of draining rainwater and/or groundwater from building foundations, vaults or excavations/trenches.

Directly Discharge(s)(ing) (to a specific surface waterbody) – runoff flows from a *construction site* by overland flow and the first point of *discharge* is the specific surface waterbody, or runoff flows from a *construction site* to a separate storm sewer system and the first point of *discharge* from the separate storm sewer system is the specific surface waterbody.

Discharge(s)(d) – any addition of any *pollutant* to waters of the State through an outlet or *point source*.

Embankment – an earthen or rock slope that supports a road/highway.

Equivalent (Equivalence) – the practice or measure meets all the performance, longevity, maintenance, and safety objectives of the technical standard and will provide an equal or greater degree of water quality protection.

Final Stabilization – all soil disturbance activities have ceased and a uniform, perennial vegetative cover with a density of eighty (80) percent over the entire pervious surface has been established; or other *equivalent* stabilization measures, such as permanent landscape mulches, rock rip-rap or washed/crushed stone have been applied on all disturbed areas that are not covered by permanent structures, concrete or pavement.

Historic Property – any building, structure, site, object or district that is listed on the State or National Registers of Historic Places or is determined to be eligible for listing on the State or National Registers of Historic Places.

Impervious Area (Cover) – all impermeable surfaces that cannot effectively infiltrate rainfall. This includes paved, concrete and compacted gravel surfaces (i.e. parking lots, driveways, roads, runways and sidewalks); building rooftops and miscellaneous impermeable structures such as patios, pools, and sheds.

Infeasible – not technologically possible, or not economically practicable and achievable considering best industry practices.

Minimize(ing)(ation) – reduce and/or eliminate to the extent achievable using control measures (including best management practices) that are technologically available and economically practicable and achievable in light of best industry practices.

Municipal Separate Storm Sewer System (MS4) - a conveyance or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, man-made channels, or storm drains):

1. owned or operated by a State, city, town, village, borough, county, parish, district, association, or other public body (created by or pursuant to State law) having jurisdiction over disposal of sewage, industrial wastes, *stormwater*, or other wastes, including special districts under State law such as a sewer district, flood control district or drainage district, or similar entity, or an Indian tribe or an authorized Indian tribal organization, or a designated and approved management agency under section 208 of the CWA, that *discharges* to *surface waters of the State*; and

2. designed or used for collecting or conveying *stormwater*; and

3. which is not a *combined sewer system*; and

4. which is not part of a Publicly Owned Treatment Works (POTW) as defined at 40 CFR 122.2.

Natural Buffer(s) – an undisturbed area with natural cover running along a surface water (e.g. wetland, stream, river, lake, etc.).

New Development – any land disturbance that does not meet the definition of *Redevelopment Activity* included in this appendix.

New York State Erosion and Sediment Control Certificate Program – a certificate program that establishes and maintains a process to identify and recognize individuals who are capable of developing, designing, inspecting and maintaining erosion and sediment control plans on projects that disturb soils in New York State. The certificate program is administered by the New York State Conservation District Employees Association.

Nonpoint Source(s) – any source of water pollution or *pollutants* which is not a discrete conveyance or *point source* permitted pursuant to Title 7 or 8 of Article 17 of the Environmental Conservation Law (see ECL Section 17-1403).

Overbank – flow events that exceed the capacity of the stream channel and spill out into the adjacent floodplain.

Owner or Operator – the person, persons, or legal entity which owns or leases the property on which the *construction activity* is occurring; an entity that has operational control over the construction plans and specifications, including the ability to make modifications to the plans and specifications; and/or an entity that has day-to-day operational control of those activities at a project that are necessary to ensure compliance with the permit requirements.

Performance Criteria – the six performance criteria for each group of SMPs in Chapters 5 and 6 of the technical standard, New York State Stormwater Management Design Manual (DM), dated July 31, 2024. These include feasibility, conveyance, pretreatment, treatment, landscaping, and maintenance. It does not include the *Sizing Criteria* (i.e. WQv, RRv, CPv, Qp and Qf) in Part I.C.2. of the permit.

Phase – a defined area in which *construction activities* are occurring or will occur separate from other defined area(s).

Point Source – any discernible, confined, and discrete conveyance, including but not limited to any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, vessel or other floating craft, or landfill leachate collection system from which *pollutants* are or may be *discharged*.

Pollutant(s) – dredged spoil, filter backwash, solid waste, incinerator residue, sewage, garbage, sewage sludge, munitions, chemical wastes, biological materials, radioactive materials, heat, wrecked or discarded equipment, rock, sand and industrial, municipal, agricultural waste and ballast *discharged* into water; which may cause or might reasonably be expected to cause pollution of the waters of the state in contravention of the standards or guidance values adopted as provided in 6 NYCRR Parts 700 et seq.

Qualified Inspector – a person that is knowledgeable in the principles and practices of erosion and sediment control, such as a licensed Professional Engineer, Certified Professional in Erosion and Sediment Control (CPESC), Registered Landscape Architect, *New York State Erosion and Sediment Control Certificate Program* holder or other NYSDEC endorsed individual(s).

It can also mean someone working under the direct supervision of, and at the same company as, the licensed Professional Engineer or Registered Landscape Architect, provided that person has training in the principles and practices of erosion and sediment control. Training in the principles and practices of erosion and sediment control means that the individual working under the direct supervision of the licensed Professional Engineer or Registered Landscape Architect has received four (4) hours of NYSDEC endorsed training in proper erosion and sediment control principles from a Soil and Water Conservation District, or other NYSDEC endorsed entity. After receiving the initial training, the individual working under the direct supervision of the licensed Professional Engineer or Registered Landscape Architect shall receive four (4) hours of training every three (3) years.

It can also mean a person that meets the *Qualified Professional* qualifications in addition to the *Qualified Inspector* qualifications.

Note: Inspections of any SMPs that include structural components, such as a dam for an impoundment, shall be performed by a licensed Professional Engineer.

Qualified Professional – a person that is knowledgeable in the principles and practices of *stormwater* management and treatment, such as a licensed Professional Engineer, Registered Landscape Architect or other NYSDEC endorsed individual(s). Individuals preparing *SWPPPs* that require the SMP component must have an understanding of the principles of hydrology, water quality management practice design, water quantity control design, and, in many cases, the principles of hydraulics. All components of the *SWPPP* that involve the practice of engineering, as defined by the NYS Education Law (see Article 145), shall be prepared by, or under the direct supervision of, a professional engineer licensed to practice in the State of New York.

Redevelopment Activity(ies) – the disturbance and reconstruction of existing *impervious area*, including *impervious areas* that were removed from a project site within five (5) years of preliminary project plan submission to the local government (i.e. site plan, subdivision, etc.).

Renewable Energy – electricity or thermal energy generated by renewable energy systems through use of the following technologies: solar thermal, photovoltaics, on land and offshore wind, hydroelectric, geothermal electric, geothermal ground source heat, tidal energy, wave energy, ocean thermal, and fuel cells which do not utilize a fossil fuel resource in the process of generating electricity.

Site Limitations – site conditions that prevent the use of an infiltration technique and or infiltration of the total WQv. Typical *site limitations* include: seasonal high groundwater, shallow depth to bedrock, and soils with an infiltration rate less than 0.5 inches/hour. The existence of *site limitations* shall be confirmed and documented using actual field testing (i.e. test pits, soil borings, and infiltration test) or using information from the most current United States Department of Agriculture (USDA) Soil Survey for the County where the project is located.

Sizing Criteria – the criteria included in Part I.C.2 of the permit that are used to size SMPs. The criteria include; Water Quality Volume (WQv), Runoff Reduction Volume (RRv), Channel Protection Volume (Cpv), *Overbank* Flood (Qp), and Extreme Flood (Qf).

Steep Slope – land area designated on the current United States Department of Agriculture (USDA) Soil Survey as Soil Slope Phase D, (provided the map unit name or description is inclusive of slopes greater than 25%), or Soil Slope Phase E or F, (regardless of the map unit name), or a combination of the three designations.

Stormwater – that portion of precipitation that, once having fallen to the ground, is in excess of the evaporative or infiltrative capacity of soils, or the retentive capacity of surface features, which flows or will flow off the land by surface runoff to waters of the State.

Streambank – the terrain alongside the bed of a creek or stream. The bank consists of the sides of the channel, between which the flow is confined.

Stormwater Pollution Prevention Plan (SWPPP) – a project specific report, including construction drawings, that among other things: describes the *construction activity(ies)*, identifies the potential sources of pollution at the *construction site*; describes and shows the *stormwater* controls that will be used to control the *pollutants* (i.e. erosion and sediment controls; for many projects, includes SMPs); and identifies procedures the *owner or operator* will implement to comply with the requirements of the permit. See Part III of the permit for a complete description of the information that must be included in the *SWPPP*.

Surface Waters of the State – shall be construed to include lakes, bays, sounds, ponds, impounding reservoirs, springs, rivers, streams, creeks, estuaries, marshes, inlets, canals, the Atlantic ocean within the territorial seas of the state of New York and all other bodies of surface water, natural or artificial, inland or coastal, fresh or salt, public or private (except those private waters that do not combine or effect a junction with natural surface waters), which are wholly or partially within or bordering the state or within its jurisdiction. Waters of the state are further defined in 6 NYCRR Parts 800 to 941.

Temporarily Ceased – an existing disturbed area will not be disturbed again within 14 calendar days of the previous soil disturbance.

Temporary Stabilization – exposed soil has been covered with material(s) as set forth in the technical standard, New York Standards and Specifications for Erosion and Sediment Control, to prevent the exposed soil from eroding. The materials can include, but are not limited to, mulch, seed and mulch, and erosion control mats (e.g. jute twisted yarn, excelsior wood fiber mats).

Total Maximum Daily Load (TMDL) – the sum of the allowable loads of a single *pollutant* from all contributing point and *nonpoint source*s. It is a calculation of the maximum amount of a *pollutant* that a waterbody can receive and still meet *water quality standards*, and an allocation of that amount to the *pollutant's* sources. A TMDL stipulates Waste Load Allocations (WLA) for *point source discharges*, Load Allocations (LA) for *nonpoint source*s, and a margin of safety (MOS).

Traditional Land Use Control MS4 Operator – a city, town, or village with land use control authority that is authorized to *discharge* under New York State DEC's SPDES General Permit For Stormwater Discharges from Municipal Separate Stormwater Sewer Systems (MS4s) or the City of New York's Individual SPDES Permit for their Municipal Separate Storm Sewer Systems (NY-0287890).

Trained Contractor – an employee from the contracting (construction) company, identified in Part III.A.7., that has received four (4) hours of NYSDEC endorsed training

in proper erosion and sediment control principles from a Soil and Water Conservation District, or other NYSDEC endorsed entity. After receiving the initial training, the *trained contractor* shall receive four (4) hours of training every three (3) years.

It can also mean an employee from the contracting (construction) company, identified in Part III.A.7., that meets the *qualified inspector* qualifications (e.g. licensed Professional Engineer, Certified Professional in Erosion and Sediment Control (CPESC), Registered Landscape Architect, *New York State Erosion and Sediment Control Certificate Program* holder, or someone working under the direct supervision of, and at the same company as, the licensed Professional Engineer or Registered Landscape Architect, provided they have received four (4) hours of NYSDEC endorsed training in proper erosion and sediment control principles from a Soil and Water Conservation District, or other NYSDEC endorsed entity).

The *trained contractor* is responsible for the day-to-day implementation of the *SWPPP*.

Tree Clearing – *construction activities* limited to felling and removal of trees.

Tree clearing does not include hand felling and leaving the trees in place with no support from mechanized equipment, which is not considered *construction activity* requiring coverage under this permit.

Water Quality Standard – such measures of purity or quality for any waters in relation to their reasonable and necessary use as promulgated in 6 NYCRR Part 700 et seq.

APPENDIX B – Required SWPPP Components by Project Type

Table 1
CONSTRUCTION ACTIVITIES THAT REQUIRE THE PREPARATION OF A *SWPPP* THAT ONLY INCLUDES EROSION AND SEDIMENT CONTROLS

The following *construction activities* that involve soil disturbances of one (1) or more acres of land, but less than five (5) acres:

- Single-family home not located in one of the watersheds listed in Appendix C and not *directly discharging* to one of the 303(d) segments listed in Appendix D
- Single-family residential subdivisions with 25% or less *impervious cover* at total site build-out and not located in one of the watersheds listed in Appendix C and not *directly discharging* to one of the 303(d) segments listed in Appendix D
- Construction of a barn or other *agricultural building*, silo, stock yard or pen.
- Structural agricultural conservation practices as identified in Table II in the "Agricultural Best Management Practice Systems Catalogue" (dated June 2023) that include construction or reconstruction of *impervious area* or *alter hydrology from pre- to post-development* conditions.

The following *construction activities* that involve soil disturbances between five thousand (5000) square feet and one (1) acre of land:

- All construction activities located in the New York City Watershed located east of the Hudson River, see Appendix C Figure 1, that involve soil disturbances between five thousand (5,000) square feet and one (1) acre of land.

Within the municipal boundaries of NYC:

- Stand-alone road reconstruction, where the total soil disturbance from only that road construction, is less than one (1) acre of land.

The following *construction activities*:

- Installation of underground linear utilities; such as gas lines, fiber-optic cable, cable TV, electric, telephone, sewer mains, and water mains
- Environmental enhancement projects, such as wetland mitigation, *stormwater* retrofits, stream restoration, and resiliency projects that reconstruct shoreline areas to address sea level rise
- Pond construction
- Linear bike paths running through areas with vegetative cover, including bike paths surfaced with an *impervious cover*
- Cross-country ski trails, walking/hiking trails, and mountain biking trails, including a de minimis parking lot (maximum 10 spaces total, sized for passenger cars) with 35 feet minimum preservation of undisturbed area downgradient from the parking lot
- Dam rehabilitation (the structure of the dam itself)
- Sidewalks, bike paths, or walking paths, surfaced with an *impervious cover*, that are not part of residential, commercial, or institutional development;
- Sidewalks, bike paths, or walking paths, surfaced with an *impervious cover*, that include incidental shoulder or curb work along an existing highway to support construction of the sidewalk, bike path, or walking path.

Table 1 (Continued)
CONSTRUCTION ACTIVITIES THAT REQUIRE THE PREPARATION OF A *SWPPP* THAT ONLY INCLUDES EROSION AND SEDIMENT CONTROLS

The following *construction activities*:

- Slope stabilization
- Slope flattening that changes the grade of the site, but does not significantly change the runoff characteristics
- Spoil areas that will be covered with vegetation
- Vegetated open space (i.e. recreational parks, lawns, meadows, fields, downhill ski trails) that do not *alter hydrology from pre- to post-development* conditions
- Athletic fields (natural grass) that do not include the construction or reconstruction of *impervious area* and do not *alter hydrology from pre- to post-development* conditions
- Demolition where vegetation will be established, and no *redevelopment activity* is planned[1]
- Installation or replacement of either an overhead electric transmission line or a ski lift tower that does not include the construction of permanent access roads or parking areas surfaced with *impervious cover*.
- Solar array field areas that have tables elevated off the ground, spaced one table width apart, do not *alter hydrology from pre- to post-development conditions*, and address water quality volume and runoff reduction volume by maintaining sheet flow on slopes less than 8%.
- Structural agricultural conservation practices as identified in Table II in the "Agricultural Best Management Practice Systems Catalogue" (dated June 2023) that do not include construction or reconstruction of *impervious area* and do not *alter hydrology from pre- to post-development* conditions.
- Temporary access roads, median crossovers, detour roads, lanes, or other temporary *impervious areas* that will be restored to pre-construction conditions once the *construction activity* is complete (in this context, "temporary" means the *impervious area* will be in place for two years or less)
- Other *construction activities* that do not include the construction or reconstruction of *impervious area*, and do not *alter hydrology from pre- to post-development* conditions, and are not listed in Table 2.

1. If the site is redeveloped in the future, a new eNOI must be submitted.

Table 2
CONSTRUCTION ACTIVITIES THAT REQUIRE THE PREPARATION OF A *SWPPP* THAT INCLUDES POST-CONSTRUCTION STORMWATER MANAGEMENT PRACTICES (SMPS)

The following *construction activities*:

- Single-family home located in one of the watersheds listed in Appendix C or *directly discharging* to one of the 303(d) segments listed in Appendix D
- Single-family home that disturbs five (5) or more acres of land
- Single-family residential subdivisions located in one of the watersheds listed in Appendix C or *directly discharging* to one of the 303(d) segments listed in Appendix D
- Single-family residential subdivisions that involve soil disturbances of between one (1) and five (5) acres of land with greater than 25% *impervious cover* at total site build-out
- Single-family residential subdivisions that involve soil disturbances of between 20,000 square feet and one (1) acre of land within the municipal boundaries of NYC with greater than 25% *impervious cover* at total site build-out
- Single-family residential subdivisions that involve soil disturbances of five (5) or more acres of land, and single-family residential subdivisions that involve soil disturbances of less than five (5) acres that are part of a *common plan of development or sale* that will ultimately disturb five (5) or more acres of land
- Multi-family residential developments; includes duplexes, townhomes, condominiums, senior housing complexes, apartment complexes, and mobile home parks
- Creation of 5,000 square feet or more of *impervious area* in the municipal boundaries of NYC
- Airports
- Amusement parks
- Breweries, cideries, and wineries, including establishments constructed on agricultural land
- Campgrounds
- Cemeteries that include the construction or reconstruction of *impervious area* (>5% of disturbed area) or *alter the hydrology from pre- to post-development* conditions
- Commercial developments
- Churches and other places of worship
- Construction of a barn or other *agricultural building* (e.g. silo) that involves soil disturbance greater than five acres.
- Structural agricultural conservation practices as identified in Table II in the “Agricultural Best Management Practice Systems Catalogue” (dated June 2023) that involves soil disturbance greater than five acres and include the construction or reconstruction of *impervious area* or *alter hydrology from pre- to post-development* conditions.
- Facility buildings, including ski lodges, restroom buildings, pumphouses, ski lift terminals, and maintenance and groomer garages
- Institutional development; includes hospitals, prisons, schools and colleges
- Industrial facilities; includes industrial parks
- Landfills; including creation of landfills or capping landfills.
- Municipal facilities; includes highway garages, transfer stations, office buildings, POTWs, water treatment plants, and water storage tanks
- Golf courses
- Office complexes

Table 2 (Continued)

CONSTRUCTION ACTIVITIES THAT REQUIRE THE PREPARATION OF A *SWPPP* THAT INCLUDES POST-CONSTRUCTION STORMWATER MANAGEMENT PRACTICES (SMPS)

The following *construction activities*:

- Permanent laydown yards and equipment storage lots
- Playgrounds that include the construction or reconstruction of *impervious area*
- Sports complexes
- Racetracks; includes racetracks with earthen (dirt) surfaces
- Road construction or reconstruction, outside the municipal boundaries of NYC
- Road construction within the municipal boundaries of NYC
- Stand-alone road reconstruction, within the municipal boundaries of NYC where the total soil disturbance from that road reconstruction involves soil disturbance of one (1) acre or more of land
- Parking lot construction or reconstruction (as with all Table 2 bullets, this includes parking lots constructed as part of the *construction activities* listed in Table 1, unless a Table 1 bullet specifies otherwise)
- Athletic fields (natural grass) that include the construction or reconstruction of *impervious area* (>5% of disturbed area) or *alter the hydrology from pre- to post-development* conditions
- Athletic fields with artificial turf
- Permanent access roads, parking areas, substations, compressor stations, and well drilling pads, surfaced with *impervious cover,* and constructed as part of an overhead electric transmission line, wind-power, cell tower, oil or gas well drilling, sewer or water main, ski lift, or other linear utility project
- Sidewalks, bike paths, or walking paths, surfaced with an *impervious cover*, that are part of a residential, commercial or institutional development
- Sidewalks, bike paths, or walking paths, surfaced with an *impervious cover*, that are part of highway construction or reconstruction
- Solar array field areas on slopes greater than 8% that cannot maintain sheet flow using management practices identified in the BB or the DM
- Solar array field areas on slopes less than 8% that will *alter the hydrology from pre- to post-development* conditions
- Solar array field areas with tables that are not elevated high enough to achieve *final stabilization* beneath the tables
- Traditional *impervious areas* associated with solar development (e.g. roads, buildings, transformers)
- Utility pads surfaced with *impervious cover*, including electric vehicle charging stations
- All other *construction activities* that include the construction or reconstruction of *impervious area* or *alter the hydrology from pre- to post-development* conditions, and are not listed in Table 1

APPENDIX C – Watersheds Requiring Enhanced Phosphorus Removal

Watersheds where *owners or operators* of *construction activities* identified in Table 2 of Appendix B must prepare a *SWPPP* that includes SMPs designed in conformance with the Enhanced Phosphorus Removal Standards included in the DM technical standard.

- Entire New York City Watershed located east of the Hudson River – Figure 1
- Onondaga Lake Watershed – Figure 2
- Greenwood Lake Watershed – Figure 3
- Oscawana Lake Watershed – Figure 4
- Kinderhook Lake Watershed – Figure 5

Figure 1 - New York City Watershed East of the Hudson

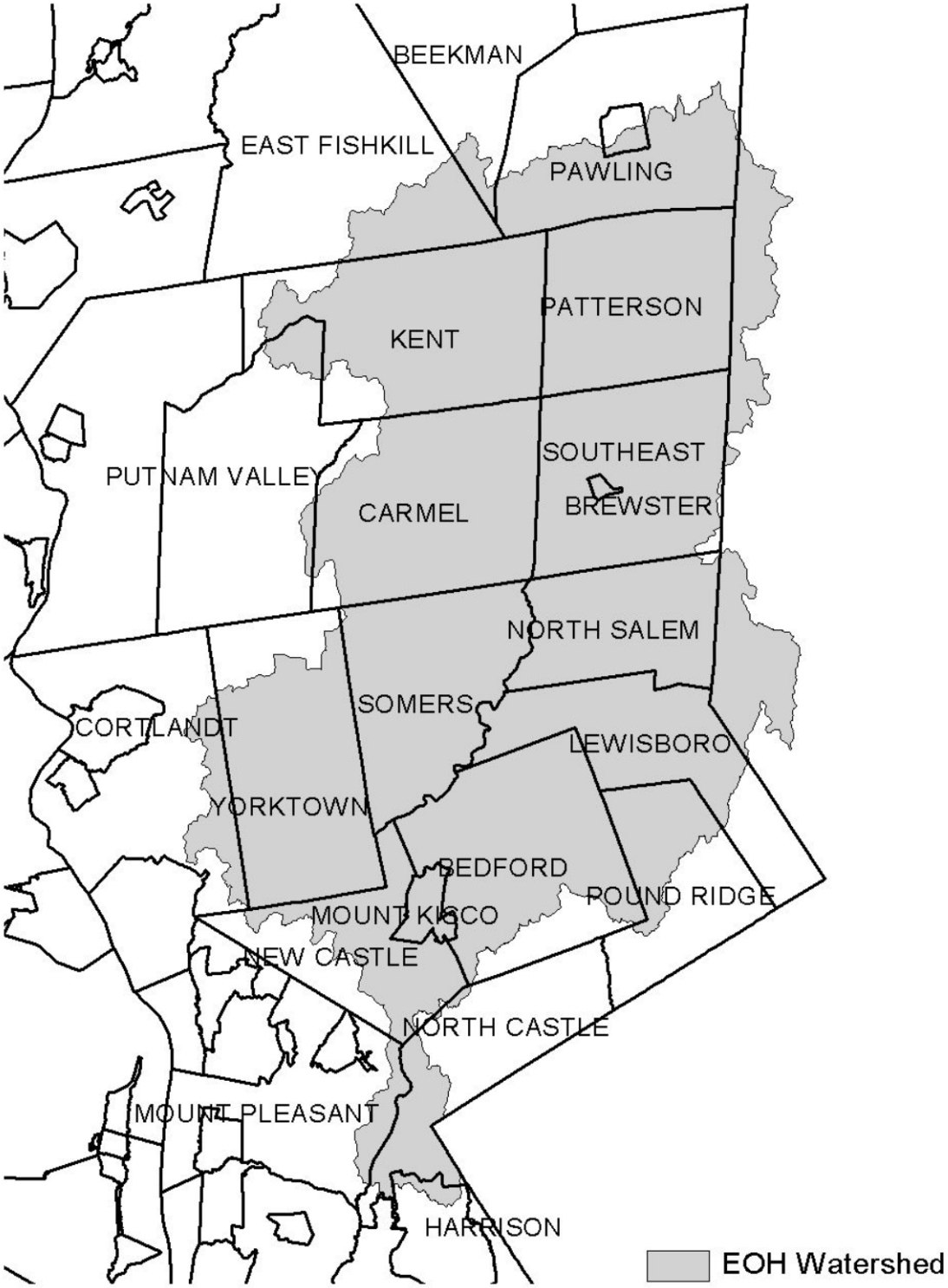


Figure 2 - Onondaga Lake Watershed



Figure 3 - Greenwood Lake Watershed

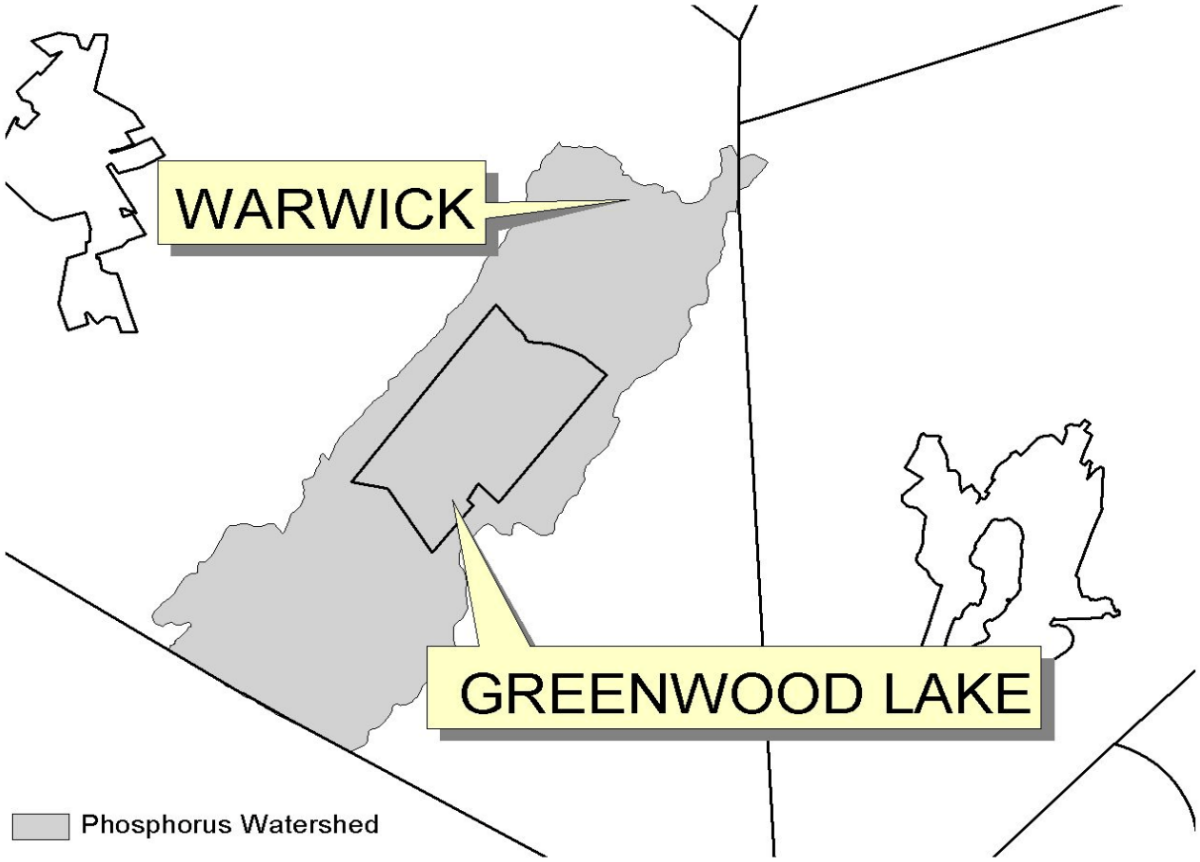


Figure 4 - Oscawana Lake Watershed

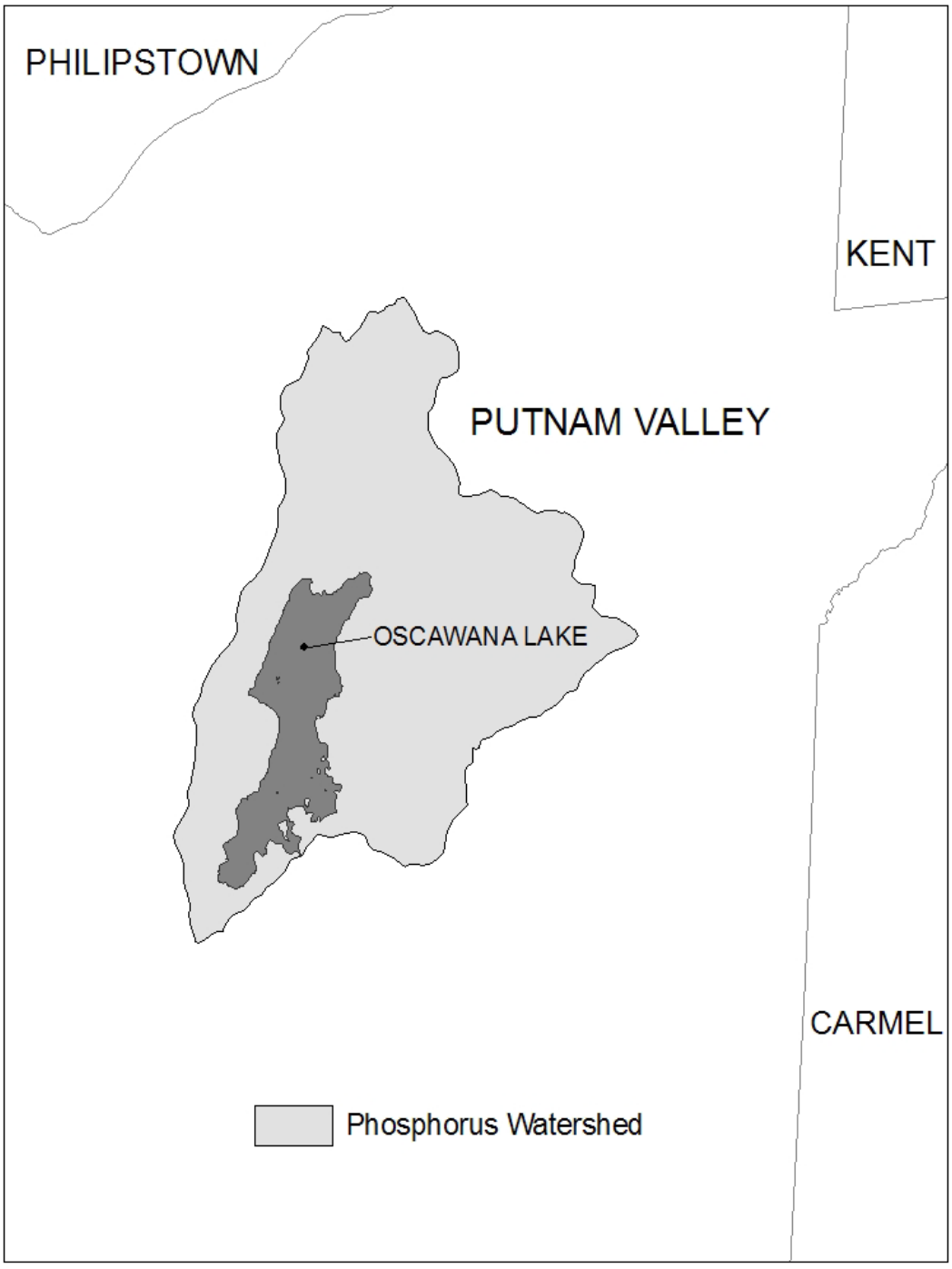
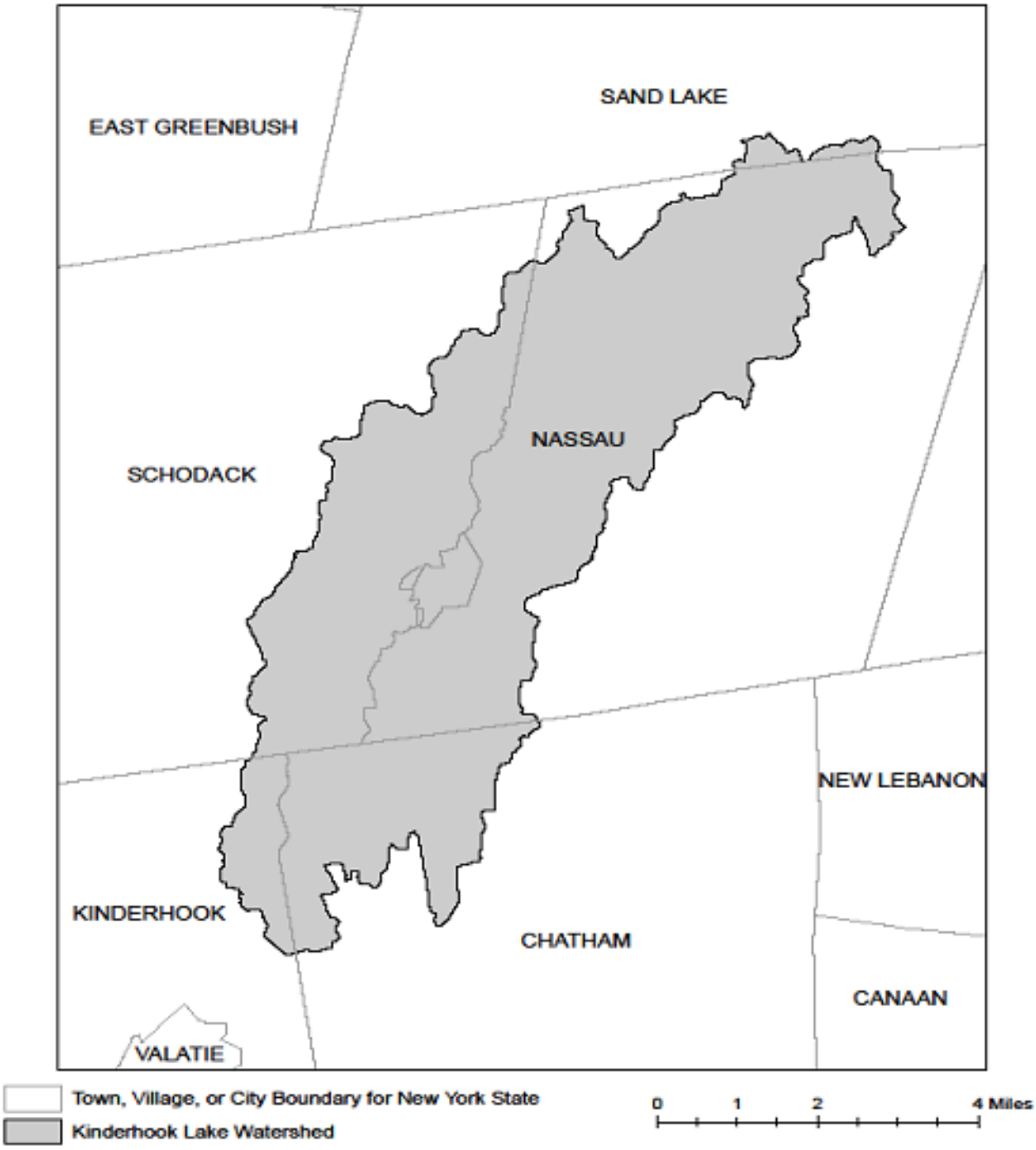


Figure 5 - Kinderhook Lake Watershed



APPENDIX D – Impaired Waterbodies (by Construction Related Pollutants)

List of waterbodies impaired by *pollutants* related to *construction activity*, including turbidity, silt/sediment, and nutrients (e.g. nitrogen, phosphorus). This list is a subset of "The Final New York State 2018 Section 303(d) List of Impaired Waters Requiring a TMDL" dated June 2020.

County	Waterbody	Pollutant
Albany	Ann Lee (Shakers) Pond, Stump Pond (1201-0096)	Phosphorus
Albany	Lawsons Lake (1301-0235)	Phosphorus
Allegany	Amity Lake, Saunders Pond (0403-0054)	Phosphorus
Allegany	Andover Pond (0403-0056)	Phosphorus
Bronx	Reservoir No.1/Lake Isle (1702-0075)	Phosphorus
Bronx	Van Cortlandt Lake (1702-0008)	Phosphorus
Broome	Blueberry, Laurel Lakes (1404-0033)	Phosphorus
Broome	Fly Pond, Deer Lake (1404-0038)	Phosphorus
Broome	Minor Tribs to Lower Susquehanna (0603-0044)	Phosphorus
Broome	Whitney Point Lake/Reservoir (0602-0004)	Phosphorus
Cattaraugus	Allegheny River/Reservoir (0201-0023)	Phosphorus
Cattaraugus	Beaver Lake/Alma Pond (0201-0073)	Phosphorus
Cattaraugus	Case Lake (0201-0020)	Phosphorus
Cattaraugus	Linlyco/Club Pond (0201-0035)	Phosphorus
Cayuga	Duck Lake (0704-0025)	Phosphorus
Cayuga	Owasco Inlet, Upper, and tribs (0706-0014)	Nutrients
Chautauqua	Chadakoin River and tribs (0202-0018)	Phosphorus
Chautauqua	Hulburt/Clymer Pond (0202-0079)	Phosphorus
Chautauqua	Middle Cassadaga Lake (0202-0002)	Phosphorus
Clinton	Great Chazy River, Lower, Main Stem (1002-0001)	Silt/Sediment
Columbia	Robinson Pond (1308-0003)	Phosphorus
Cortland	Dean Pond (0602-0077)	Phosphorus
Dutchess	Fallkill Creek (1301-0087)	Phosphorus
Dutchess	Hillside Lake (1304-0001)	Phosphorus
Dutchess	Wappingers Lake (1305-0001)	Phosphorus
Dutchess	Wappingers Lake (1305-0001)	Silt/Sediment
Erie	Beeman Creek and tribs (0102-0030)	Phosphorus
Erie	Delaware Park Pond (0101-0026)	Phosphorus
Erie	Ellicott Creek, Lower, and tribs (0102-0018)	Phosphorus
Erie	Ellicott Creek, Lower, and tribs (0102-0018)	Silt/Sediment
Erie	Green Lake (0101-0038)	Phosphorus
Erie	Little Sister Creek, Lower, and tribs (0104-0045)	Phosphorus
Erie	Murder Creek, Lower, and tribs (0102-0031)	Phosphorus

Erie	Rush Creek and tribs (0104-0018)	Phosphorus
Erie	Scajaquada Creek, Lower, and tribs (0101-0023)	Phosphorus
Erie	Scajaquada Creek, Middle, and tribs (0101-0033)	Phosphorus
Erie	Scajaquada Creek, Upper, and tribs (0101-0034)	Phosphorus
Erie	South Branch Smoke Cr, Lower, and tribs (0101-0036)	Phosphorus
Erie	South Branch Smoke Cr, Lower, and tribs (0101-0036)	Silt/Sediment
Genesee	Bigelow Creek and tribs (0402-0016)	Phosphorus
Genesee	Black Creek, Middle, and minor tribs (0402 0028)	Phosphorus
Genesee	Black Creek, Upper, and minor tribs (0402-0048)	Phosphorus
Genesee	Bowen Brook and tribs (0102-0036)	Phosphorus
Genesee	LeRoy Reservoir (0402-0003)	Phosphorus
Genesee	Mill Pond (0402-0050)	Phosphorus
Genesee	Oak Orchard Cr, Upper, and tribs (0301-0014)	Phosphorus
Genesee	Oatka Creek, Middle, and minor tribs (0402-0031)	Phosphorus
Genessee	Tonawanda Cr, Middle, Main Stem (0102-0002)	Phosphorus
Greene	Schoharie Reservoir (1202-0012)	Silt/Sediment
Greene	Sleepy Hollow Lake (1301-0059)	Silt/Sediment
Herkimer	Steele Creek tribs (1201-0197)	Phosphorus
Herkimer	Steele Creek tribs (1201-0197)	Silt/Sediment
Kings	Hendrix Creek (1701-0006) 18	Nitrogen
Kings	Prospect Park Lake (1701-0196)	Phosphorus
Lewis	Mill Creek/South Branch, and tribs (0801-0200)	Nutrients
Livingston	Christie Creek and tribs (0402-0060)	Phosphorus
Livingston	Conesus Lake (0402-0004)	Phosphorus
Livingston	Mill Creek and minor tribs (0404-0011)	Silt/Sediment
Monroe	Black Creek, Lower, and minor tribs (0402-0033)	Phosphorus
Monroe	Buck Pond (0301-0017)	Phosphorus
Monroe	Cranberry Pond (0301-0016)	Phosphorus
Monroe	Durand, Eastman Lakes (0302-0037)	Phosphorus
Monroe	Lake Ontario Shoreline, Western (0301-0069) 9	Phosphorus
Monroe	Long Pond (0301-0015)	Phosphorus
Monroe	Mill Creek and tribs (0302-0025)	Phosphorus 2
Monroe	Mill Creek/Blue Pond Outlet and tribs (0402-0049)	Phosphorus
Monroe	Minor Tribs to Irondequoit Bay (0302-0038)	Phosphorus
Monroe	Rochester Embayment - East (0302-0002) [9]	Phosphorus
Monroe	Rochester Embayment - West (0301-0068) 9	Phosphorus
Monroe	Shipbuilders Creek and tribs (0302-0026)	Phosphorus 2
Monroe	Thomas Creek/White Brook and tribs (0302-0023)	Phosphorus

Nassau	Bannister Creek/Bay (1701-0380)	Nitrogen
Nassau	Beaver Lake (1702-0152)	Phosphorus
Nassau	Browswere Bay (1701-0383)	Nitrogen
Nassau	Camaans Pond (1701-0052)	Phosphorus
Nassau	East Meadow Brook, Upper, and tribs (1701-0211)	Silt/Sediment
Nassau	East Rockaway Channel (1701-0381)	Nitrogen
Nassau	Glen Cove Creek, Lower, and tribs (1702-0146)	Silt/Sediment
Nassau	Grant Park Pond (1701-0054)	Phosphorus
Nassau	Hempstead Bay, Broad Channel (1701-0032)	Nitrogen
Nassau	Hempstead Lake (1701-0015)	Phosphorus
Nassau	Hewlett Bay (1701-0382)	Nitrogen
Nassau	Hog Island Channel (1701-0220)	Nitrogen
Nassau	Massapequa Creek, Upper, and tribs (1701-0174)	Phosphorus
Nassau	Milburn/Parsonage Creeks, Upp, and tribs (1701-0212)	Phosphorus
Nassau	Reynolds Channel, East (1701-0215) [12]	Nitrogen
Nassau	Reynolds Channel, West (1701-0216) 12	Nitrogen
Nassau	Tidal Tribs to Hempstead Bay (1701-0218)	Nitrogen
Nassau	Tribs (fresh) to East Bay (1701-0204)	Silt/Sediment
Nassau	Tribs (fresh) to East Bay (1701-0204)	Phosphorus
Nassau	Tribs to Smith Pond/Halls Pond (1701-0221)	Phosphorus
Nassau	Woodmere Channel (1701-0219)	Nitrogen
New York	Harlem Meer (1702-0103)	Phosphorus
New York	The Lake in Central Park (1702-0105)	Phosphorus
Niagara	Bergholtz Creek and tribs (0101-0004)	Phosphorus
Niagara	Hyde Park Lake (0101-0030)	Phosphorus
Niagara	Lake Ontario Shoreline, Western (0301-0053) 9	Phosphorus
Niagara	Lake Ontario Shoreline, Western (0301-0072) 9	Phosphorus
Oneida	Ballou, Nail Creeks (1201-0203)	Phosphorus
Onondaga	Ley Creek and tribs (0702-0001) 10	Nutrients (phosphorus)
Onondaga	Minor Tribs to Onondaga Lake (0702-0022) 10	Nutrients (phosphorus)
Onondaga	Minor Tribs to Onondaga Lake (0702-0022) 10	Nitrogen (NH3, NO2)
Onondaga	Onondaga Creek, Lower (0702-0023) 10	Nutrients (phosphorus)
Onondaga	Onondaga Creek, Lower, and tribs (0702-0023)	Turbidity
Onondaga	Onondaga Creek, Middle, and tribs (0702-0004)	Turbidity
Onondaga	Onondaga Creek, Upper, and tribs (0702-0024)	Turbidity
Ontario	Great Brook and minor tribs (0704-0034)	Phosphorus 2
Ontario	Great Brook and minor tribs (0704-0034)	Silt/Sediment

Ontario	Hemlock Lake Outlet and minor tribs (0402-0013)	Phosphorus
Ontario	Honeoye Lake (0402-0032)	Phosphorus
Orange	Brown Pond Reservoir (1303-0013)	Phosphorus
Orange	Lake Washington (1303-0012)	Phosphorus
Orange	Minor Tribs to Middle Wallkill (1306-0061)	Phosphorus
Orange	Monhagen Brook and tribs (1306-0074)	Phosphorus
Orange	Orange Lake (1301-0008) [16]	Phosphorus
Orange	Quaker Creek and tribs (1306-0025)	Phosphorus
Orange	Wallkill River, Middle, Main Stem (1306-0038)	Phosphorus
Orange	Wallkill River, Upper, and Minor tribs (1306-0017)	Phosphorus
Orleans	Glenvwood Lake (0301-0041)	Phosphorus
Orleans	Lake Ontario Shoreline, Western (0301-0070) 9	Phosphorus
Orleans	Lake Ontario Shoreline, Western (0301-0071) 9	Phosphorus
Oswego	Lake Neatahwanta (0701-0018)	Nutrients (phosphorus)
Oswego	Pleasant Lake (0703-0047)	Phosphorus
Putnam	Lost Lake, Putnam Lake (1302-0053)	Phosphorus
Putnam	Minor Tribs to Croton Falls Reservoir (1302-0001)	Phosphorus
Queens	Bergen Basin (1701-0009) 18	Nitrogen
Queens	Jamaica Bay, Eastern, and tribs, Queens (1701-0005) 18	Nitrogen
Queens	Kissena Lake (1702-0258)	Phosphorus
Queens	Meadow Lake (1702-0030)	Phosphorus
Queens	Shellbank Basin (1701-0001) 18	Nitrogen
Queens	Willow Lake (1702-0031)	Phosphorus
Rensselaer	Nassau Lake (1310-0001)	Phosphorus
Rensselaer	Snyders Lake (1301-0043)	Phosphorus
Richmond	Grassmere Lake/Bradys Pond (1701-0357)	Phosphorus
Rockland	Congers Lake, Swartout Lake (1501-0019)	Phosphorus
Rockland	Rockland Lake (1501-0021)	Phosphorus
Saratoga	Ballston Lake (1101-0036)	Phosphorus
Saratoga	Dwaas Kill and tribs (1101-0007)	Phosphorus
Saratoga	Dwaas Kill and tribs (1101-0007)	Silt/Sediment
Saratoga	Lake Lonely (1101-0034)	Phosphorus
Saratoga	Round Lake (1101-0060)	Phosphorus
Saratoga	Tribs to Lake Lonely (1101-0001)	Phosphorus
Schenectady	Collins Lake (1201-0077)	Phosphorus
Schenectady	Duane Lake (1311-0006)	Phosphorus
Schenectady Lake	Mariaville Lake (1201-0113)	Phosphorus
Schuyler	Cayuta Lake (0603-0005)	Phosphorus

Seneca	Reeder Creek and tribs (0705-0074)	Phosphorus
St.Lawrence	Black Lake Outlet, Black Lake (0906-0001)	Phosphorus
St.Lawrence	Fish Creek and minor tribs (0906-0026)	Phosphorus
Steuben	Smith Pond (0502-0012)	Phosphorus
Suffolk	Agawam Lake (1701-0117)	Phosphorus
Suffolk	Big/Little Fresh Ponds (1701-0125)	Phosphorus
Suffolk	Canaan Lake (1701-0018)	Phosphorus
Suffolk	Canaan Lake (1701-0018)	Silt/Sediment
Suffolk	Fresh Pond (1701-0241)	Phosphorus
Suffolk	Great South Bay, East (1701-0039)	Nitrogen
Suffolk	Great South Bay, Middle (1701-0040)	Nitrogen
Suffolk	Great South Bay, West (1701-0173)	Nitrogen
Suffolk	Lake Ronkonkoma (1701-0020)	Phosphorus
Suffolk	Mattituck/Marratooka Pond (1701-0129)	Phosphorus
Suffolk	Mill and Seven Ponds (1701-0113)	Phosphorus
Suffolk	Millers Pond (1702-0013)	Phosphorus
Suffolk	Moriches Bay, East (1701-0305)	Nitrogen
Suffolk	Moriches Bay, West (1701-0038)	Nitrogen
Suffolk	Quantuck Bay (1701-0042)	Nitrogen
Suffolk	Shinnecock Bay and Inlet (1701-0033)	Nitrogen
Suffolk	Tidal Tribs to West Moriches Bay (1701-0312)	Nitrogen
Sullivan	Bodine, Mongomery Lakes (1401-0091)	Phosphorus
Sullivan	Davies Lake (1402-0047)	Phosphorus
Sullivan	Evens Lake (1402-0004)	Phosphorus
Sullivan	Pleasure Lake (1402-0055)	Phosphorus
Sullivan	Swan Lake (1401-0063)	Phosphorus
Tompkins	Cayuga Lake, Southern End (0705-0040)	Phosphorus
Tompkins	Cayuga Lake, Southern End (0705-0040)	Silt/Sediment
Ulster	Ashokan Reservoir (1307-0004)	Silt/Sediment
Ulster	Esopus Creek, Lower, Main Stem (1307-0010) [17]	Turbidity
Ulster	Esopus Creek, Middle, Main Stem (1307-0003) 17	Turbidity
Ulster	Esopus Creek, Upper, and minor tribs (1307-0007)[3]	Silt/Sediment
Ulster	Wallkill River, Lower, Main Stem (1306-0027)	Phosphorus
Warren	Hague Brook and tribs (1006-0006)	Silt/Sediment
Warren	Huddle/Finkle Brooks and tribs (1006-0003)	Silt/Sediment
Warren	Indian Brook and tribs (1006-0002)	Silt/Sediment
Warren	Lake George (1006-0016) and tribs	Silt/Sediment
Warren	Tribs to Lake George, East Shore (1006-0020)	Silt/Sediment
Warren	Tribs to Lake George, Lk.George Village (1006-0008)	Silt/Sediment

Washington	Wood Cr/Champlain Canal and tribs (1005-0036)	Phosphorus
Westchester	Lake Katonah (1302-0136)	Phosphorus
Westchester	Lake Lincolndale (1302-0089)	Phosphorus
Westchester	Lake Meahagh (1301-0053)	Phosphorus
Westchester	Lake Mohegan (1301-0149)	Phosphorus
Westchester	Lake Shenorock (1302-0083)	Phosphorus
Westchester	Mamaroneck River, Lower (1702-0071)	Silt/Sediment
Westchester	Mamaroneck River, Upp, & minor tribs (1702-0123)	Silt/Sediment
Westchester	Saw Mill River (1301-0007)	Phosphorus
Westchester	Saw Mill River, Middle, and tribs (1301-0100)	Phosphorus
Westchester	Sheldrake River (1702-0069)	Phosphorus
Westchester	Sheldrake River (1702-0069)	Silt/Sedimnt
Westchester	Silver Lake (1702-0040)	Phosphorus
Westchester	Teatown Lake (1302-0150)	Phosphorus
Westchester	Truesdale Lake (1302-0054)	Phosphorus
Westchester	Wallace Pond (1301-0140)	Phosphorus

APPENDIX E – List of NYSDEC Regional Offices

Region	Covering the following counties:	DIVISION OF ENVIRONMENTAL PERMITS (DEP) Permit Administrators	DIVISION OF WATER (DOW) Water (SPDES) Program
1	Nassau and Suffolk	50 Circle Road Stony Brook, NY 11790 Tel. (631) 444-0365	50 Circle Road Stony Brook, NY 11790-3409 Tel. (631) 444-0405
2	Bronx, Kings, New York, Queens and Richmond	1 Hunters Point Plaza, 47-40 21st St. Long Island City, NY 11101-5407 Tel. (718) 482-4997	1 Hunters Point Plaza, 47-40 21st St. Long Island City, NY 11101-5407 Tel. (718) 482-4933
3	Dutchess, Orange, Putnam, Rockland, Sullivan, Ulster and Westchester	21 South Putt Corners Road New Paltz, NY 12561-1696 Tel. (845) 256-3059	220 White Plains Road, Suite 110 Tel. (914) 428 - 2505
4	Albany, Columbia, Delaware, Greene, Montgomery, Otsego, Rensselaer, Schenectady and Schoharie	1130 North Westcott Road Schenectady, NY 12306-2014 Tel. (518) 357-2069	1130 North Westcott Road Schenectady, NY 12306-2014 Tel. (518) 357-2045
5	Clinton, Essex, Franklin, Fulton, Hamilton, Saratoga, Warren and Washington	1115 State Route 86, Po Box 296 Ray Brook, NY 12977-0296 Tel. (518) 897-1234	232 Golf Course Road Warrensburg, NY 12885-1172 Tel. (518) 623-1200
6	HERKIMER, JEFFERSON, LEWIS, ONEIDA AND ST. LAWRENCE	STATE OFFICE BUILDING 317 WASHINGTON STREET WATERTOWN, NY 13601-3787 TEL. (315) 785-2245	STATE OFFICE BUILDING 207 GENESEE STREET UTICA, NY 13501-2885 TEL. (315) 793-2554
7	BROOME, CAYUGA, CHENANGO, CORTLAND, MADISON, ONONDAGA, OSWEGO, TIOGA AND TOMPKINS	5786 WIDEWATERS PARKWAY SYRACUSE, NY 13214-1867 TEL. (315) 426-7438	5786 WIDEWATERS PARKWAY SYRACUSE, NY 13214-1867 TEL. (315) 426-7500
8	CHEMUNG, GENESEE, LIVINGSTON, MONROE, ONTARIO, ORLEANS, SCHUYLER, SENECA, STEUBEN, WAYNE AND YATES	6274 EAST AVON-LIMA ROADAVON, NY 14414-9519 TEL. (585) 226-2466	6274 EAST AVON-LIMA RD. AVON, NY 14414-9519 TEL. (585) 226-2466
9	ALLEGANY, CATTARAUGUS, CHAUTAUQUA, ERIE, NIAGARA AND WYOMING	700 DELAWARE AVENUE BUFFALO, NY 14209-2999 TEL. (716) 851-7165	700 DELAWARE AVENUE BUFFALO, NY 14209-2999 TEL. (716) 851-7070

APPENDIX L: CONSTRUCTION SITE INSPECTION, WINTER SHUTDOWN AND SWPPP REVISION FORM

STATE POLLUTANT DISCHARGE ELIMINATION SYSTEM FOR CONSTRUCTION ACTIVITIES

Standardized Qualified Inspector Form

Project Name and Location of Project: _____ _____ _____ Municipality:_____ County: _____ Qualified Inspector: _____ Qualified Inspector Title:_____	Date:	Weather:
	Permit #: **NYR10**	
	Entry Time:	Exit Time:
5 Acre Waiver: □ Yes □ No Name of SPDES Permittee:_____ Phone: _____Fax:_____ Name of Representative on Site: _____		

Qualified Inspector's Credentials & Certification

Qualified Inspector (QI) means a person that is knowledgeable in the principles and practices of erosion and sediment control (ESC). A person is considered qualified under the following conditions:

1. A licensed Professional Engineer; licensed Landscape Architect with documented training and education in the principles and practices of ESC;
2. An individual certified in ESC by CPESC, Incorporated or any other agency endorsed by the NYS Department of Environmental Conservation Office of Water Resources;
3. An individual working under the direct supervision of a qualified licensed Professional Engineer or qualified licensed Landscape Architect with documented training and education in the principles and practices of ESC **and has** completed the four (4) hour training program in the principles and practices of erosion and sediment control from either a Soil and Water Conservation District, CPESC or any other agency endorsed by the NYS Department of Environmental Conservation Office of Water Resources. This initial training must be completed no later than May 1, 2010. After receiving the initial training, an individual working under the direct supervision of a qualified licensed Professional Engineer or qualified licensed Landscape Architect must complete four (4) hours of training every three (3) years.
4. Any other individual endorsed by the NYS Department of Environmental Conservation by written documentation.
5. Inspections of any post-construction stormwater management practices that include structural components, such as a dam for an impoundment, shall be performed by a licensed Professional Engineer.1

Part I. CONSTRUCTION DURATION INSPECTIONS **Page 2 of _____**

a. Important Site Notes for Contractor. Failure to maintain these requirements may be subject to fines at discretion of NYS Dept. of Environmental Conservation.

#1: Is the most recent SWPPP book & SWPPP Mailbox on site?
- Or located inside job trailer & easily accessible?

#2: Is the most recent SWPPP inspection(s) located in the mailbox or on site?

#3: If the site has a 5 acre waiver, is the phasing plan located on site?
-Is the contractor following the approved phasing plan?

LIST OF DEFICIENCES NOTED BY INSPECTOR:
-
-
-
-
-
-
-

CONTRACTOR TO REFER TO ATTACHED SKETCH DRAWING FOR LOCATIONS, AS WELL AS FOLLOWING SHEETS.

b. Other Permit Required Reporting

Maintaining Water Quality - *Attach Color Photographs of the site documenting discharge points and site conditions.*
Describe the condition of runoff at all points of discharge.
Is there an increase in turbidity causing a substantial visible contrast to natural conditions? _____
Is there residue from oil and floating substances, visible oil film, or globules or grease? _____
Is there evidence of silt deposition from project in a stream, wetland, or other water body? _____
If yes, where? _____remedial measure needed? _____
Provide a description of the conditions of all natural water bodies within or immediately adjacent to the project. _____

Area of Disturbance
Total area of disturbance (as shown on sketch plan and not including areas that have temporary or permanent stabilization measures applied) _____
Are all disturbances within the limits of the SWPPP? _____

Weather Conditions
A description of the weather and soil conditions (e.g. dry, wet, saturated) at the time of the inspection;
_____
_____

General Housekeeping
Are facilities and equipment necessary for implementation of erosion and sediment control in working order and/or properly maintained?_____
Is construction impacting the adjacent property? _____
Is dust adequately controlled?_____
Describe corrective action(s): _____
Date correction needed: _____

c. Runoff Controls *Direct runoff away from exposed soil surfaces and control water that falls onto the site*

Runoff conveyance systems ☐ N A
Are all runoff conveyance systems called for in the SWPPP installed, stabilized and working? _____
If not, what specific areas need detailing?_____
With minimum side slopes 2H:1V or flatter? _____ Stabilized by geotextile fabric, seed, or mulch with no erosion occurring? _____Sediment-laden runoff directed to sediment trapping structure? _____
Describe corrective action(s): _____
Date correction needed: _____

Runoff Control Structures ☐ N A
Have all required runoff control structures (rock outlets and aprons) been installed and constructed per plan and according to the Blue Book?_____ Installed concurrently with pipe installation? _____
Describe corrective action(s): _____
Date correction needed: _____

Temporary Stream or Channel Crossing □ N A
Have construction crossings at concentrated flow areas been culverted?_____
Describe corrective action(s): _____
Date correction needed: _____

Stone Check Dam □ N A
Installed per standards? _____ channel stable (flow is not eroding soil underneath or around the structure). _____does sediment need to be removed? _____
Describe corrective action(s): _____
Date correction needed: _____

Excavation Dewatering □ N A
1. Flowing water □ N A – Upstream berm (sandbags, inflatable dams, etc. with one-foot minimum freeboard) and downstream berms are installed per plan? _____and functioning? (clean water from upstream pool is being pumped to the downstream pool)?
_____
2. Sediment laden water from work area □ N A - Is being discharged to a silt-trapping device? _____
3. Groundwater from excavations □ N A - is being managed properly (sumps and sediment control)? _____
Describe corrective action(s): _____
Date correction needed: _____

d. Soil Stabilization *Basic erosion control is achieved by covering all bare ground areas.*

Topsoil and Spoil Stockpiles □ N A
Stabilized - sediment controls at downhill slope? _____
Describe corrective action(s): _____
Date correction needed: _____

Revegetation/Stabilization □ N A
Has temporary or permanent seeding *and* mulch (as shown on site sketch plan) been applied to areas that have been inactive for 14 days or less (or, inactive for 7 days if over 5 acres disturbed)?_____
Has soil preparation been applied as specified in the SWPPP and in accordance with the Blue Book (Assure that all the necessary soil testing/fertilizer/lime, topsoil, decompaction has been applied)?
_____
Have rolled erosion control products specified for steep slopes or channels been installed? _____
Describe corrective action(s): _____
Date correction needed: _____

e. Sediment Controls

Stabilized Construction Entrance □ N A
Stone is clean and all access areas covered (entrances, construction routes, materials storage areas, equipment parking)?_____ Tracking onto public streets is minimized and cleaned daily? _____
Describe:_____
Date correction needed: _____

Silt Fence □ N A

Installed on contour? not across conveyance channels?_____ At least 10 feet from toe of slope?_____At appropriate spacing intervals based on slope?_____Wrapped ends for continuous support?_____Fabric is tight, without rips or frayed areas?_____Posts are stable?_____ buried 6 inches minimum?_____Any "bulges"?_____
Describe:_____
_____
Date correction needed: _____

Temporary Sediment Trap □ N A

Is outlet structure constructed properly?_____geotextile fabric has been placed beneath rock fill?_____Maintenance – depth of sediment in basin? _____ 50% capacity?
_____
Describe:_____
_____
Date correction needed: _____

Temporary Sediment Basin □ N A

Is basin and outlet structure constructed per the approved plan? _____
Are basin side slopes stabilized with seed/mulch?
_____
Maintenance – depth of sediment in basin? _____ 50% capacity?
_____
Describe:_____
_____
Date correction needed: _____

Drop Inlet Protection □ N A

Type(s) of inlet control? _____
Installed per Blue Book specifications: drainage area (typically 1 acre)? _____
Appropriate for location? _____
Describe:_____
_____
Date correction needed: _____

f. Digital Color Photographs of Deficient BMPs

The *qualified inspector* shall attach paper color copies of the digital photographs to this inspection report of deficient BMPs with date stamp, that clearly show the condition of all practices that have been identified as needing corrective actions.

g. Digital Color Photographs of BMPs that have been Corrected

The *qualified inspector* shall attach paper color copies of the digital photographs to this inspection report of corrected BMPs with date stamp, that clearly show the condition of the practice(s) after the corrective actions has been completed.

h. Post-Construction Stormwater Management

Report of any corrective action(s) that must be taken to install, correct, repair, replace or maintain any deficiencies identified with the construction of the post-construction stormwater management practice(s).
Report the current phase of construction of all post-construction stormwater management practice(s) and whether the installation appears to be geometrically consistent with the approved hydraulic design (e.g. the pond, the outlet structure, orifice, pipe sizing and slope is geometrically consistent with the SWPPP):_____

_____
_____
_____

i. Revisions to SWPPP

When the owner or operator becomes aware that they failed to submit any relevant facts, or submitted incorrect information in the NOI or in any other report, or have made substantive revisions to the SWPPP (e.g. the scope of the project changes significantly, the type of post-construction stormwater management practice(s) changes, there is a reduction in the sizing of the post-construction stormwater management practice, or there is an increase in the disturbance area or impervious area) which were not reflected in the original NOI submitted to the Department and/or the MS4, they shall promptly submit such facts or information. Failure of the owner or operator to correct or supplement any relevant facts within five (5) business days of becoming aware of the deficiency shall constitute a permit violation (GP-0-10-001 PartVII.G)

_____
_____
_____
_____

j. Inspection Notes and Signature

Inspection Notes:

_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____

Standardized Qualified Inspector Form

PART I. j. Signature

GP-0-10-001 Part VII.Q

Articles 175 and 210 of the New York State Penal Law provide for Criminal penalty of a fine and/or imprisonment for falsifying forms and reports required by this permit.

_____ _____

Qualified Inspector (print name) **Date of Inspection**

_____

Signature

The above signed acknowledges that, to the best of his/her knowledge, all information provided on the forms is accurate and complete.

Title: _____ Address: _____

Phone: _____ Email: _____

CPESC#: _____

Stormwater Training Number for *Trained Individuals*: _____
P.E. or L.A. Supervisor Name for *Trained Individuals*:_____

Compliance certification:

Received and reviewed by_____Title:_____

The above signed acknowledges receipt of this inspection report

HC 210
(1/21)

NOTICE TO REDUCE FREQUENCY OF SPDES SITE INSPECTIONS

SPDES General Permit for Stormwater Discharges from Construction Activity

In accordance with Part IV.C.2.c of the SPDES General Permit for Stormwater Discharges from Construction Activity, the SPDES Permit Holder and their representatives hereby notifies the New York State Department of Environmental Conservation that work on this Contract will be temporarily suspended and temporary stabilization measures have been applied to all disturbed areas.

A Qualified Inspector will conduct a site inspection at least once every 30 calendar days during this period. The standard site inspection frequency will resume when construction activities re-commence.

SPDES Permit ID #: _____

Contract No.: _____ PIN: _____

Description: _____

Town, Village,City: _____

County: _____

Reason for temporary suspension of work:

- ☐ Winter Shutdown
- ☐ Other _____

Approximate date work will be suspended: _____

Approximate date work will resume: _____

Signature: _____

Name: _____

Title: _____

Phone: _____

E-Mail: _____

Date Submitted to NYSDEC: _____

STANDARD AND SPECIFICATIONS FOR WINTER STABILIZATION



Definition & Scope

A temporary site specific, enhanced erosion and sediment control plan to manage runoff and sediment at the site during construction activities in the winter months to protect off-site water resources.

Conditions Where Practice Applies

This standard applies to all construction activities involved with ongoing land disturbance and exposure between November 15th to the following April 1st.

Design Criteria

1. Prepare a snow management plan with adequate storage for snow and control of melt water, requiring cleared snow to be stored in a manner not affecting ongoing construction activities.

2. Enlarge and stabilize access points to provide for snow management and stockpiling. Snow management activities must not destroy or degrade installed erosion and sediment control practices.

3. A minimum 25 foot buffer shall be maintained from all perimeter controls such as silt fence. Mark silt fence with tall stakes that are visible above the snow pack.

4. Edges of disturbed areas that drain to a waterbody within 100 feet will have 2 rows of silt fence, 5 feet apart, installed on the contour.

5. Drainage structures must be kept open and free of snow and ice dams. All debris, ice dams, or debris from plowing operations, that restrict the flow of runoff and meltwater, shall be removed.

6. Sediment barriers must be installed at all appropriate perimeter and sensitive locations. Silt fence and other practices requiring earth disturbance must be installed before the ground freezes.

7. Soil stockpiles must be protected by the use of established vegetation, anchored straw mulch, rolled stabilization matting, or other durable covering. A barrier must be installed at least 15 feet from the toe of the stockpile to prevent soil migration and to capture loose soil.

8. In areas where soil disturbance activity has temporarily or permanently ceased, the application of soil stabilization measures should be initiated by the end of the next business day and completed within three (3) days. Rolled erosion control blankets must be used on all slopes 3 horizontal to 1 vertical or steeper.

9. If straw mulch alone is used for temporary stabilization, it shall be applied at double the standard rate of 2 tons per acre, making the application rate 4 tons per acre. Other manufactured mulches should be applied at double the manufacturer's recommended rate.

10. To ensure adequate stabilization of disturbed soil in advance of a melt event, areas of disturbed soil should be stabilized at the end of each work day unless:

    a. work will resume within 24 hours in the same area and no precipitation is forecast or;

    b. the work is in disturbed areas that collect and retain runoff, such as open utility trenches, foundation excavations, or water management areas.

11. Use stone paths to stabilize access perimeters of buildings under construction and areas where construction vehicle traffic is anticipated. Stone paths should be a minimum 10 feet in width but wider as necessary to accommodate equipment.

Maintenance

The site shall be inspected frequently to ensure that the erosion and sediment control plan is performing its winter stabilization function. If the site will not have earth disturbing activities ongoing during the "winter season", **all** bare exposed soil must be stabilized by established vegetation, straw or other acceptable mulch, matting, rock, or other approved material such as rolled erosion control products. Seeding of areas with mulch cover is preferred but seeding alone is not acceptable for proper stabilization.

Compliance inspections must be performed and reports filed properly in accordance with the SWPPP for all sites under a winter shutdown.

References

1. Northeastern Illinois Soil and Sedimentation Control Steering Committee. October 1981. Procedures and Standards for Urban Soil Erosion and Sediment Control in Illinois.
2. J.F. Rushing, V.M. Moore, J.S. Tingle, Q. Mason, and T. McCaffery, 2005. Dust Abatement Methods for Lines of Communication and Base Camps in Temperate Climates. ERDC/GSL TR-05-23, October 2005.

CONR 8
(1/21)

SPDES STORMWATER POLLUTION PREVENTION PLAN (SWPPP) REVISION

JOB STAMP

Date: _____

Day of Week: S M T W T F S

Sheet No. ____ of ____

This form is to be used when revisions to the current Stormwater Pollution Prevention Plan (SWPPP) are required by SPDES General Permit for Stormwater Discharges from Construction Activity. The completed form must be filed in the Engineer's Field Office.

Reason for the Revision(s): Revision(s) were requested by NYSDEC: ☐ Yes ☐ No

Describe the Revision(s) to the SWPPP:

Engineer-in-Charge Signature: _____

EICs Name & Title: _____

Date Completed: _____

Print Form

Copy to Contractor: _____

APPENDIX M: MS4 NO JURISDICTION FORM

MS4 No Jurisdiction Form

for construction activities seeking authorization under the

SPDES General Permit for Stormwater Discharges from Construction Activity, GP-0-25-001 (CGP)

(In accordance with CGP Part I.D.2.b., the completed form must be attached to the eNOI and submitted to NYSDEC electronically.)

I. Project Owner/Operator Information

a. Owner/Operator Name: Housing Visions Consultants

b. Contact Person: Christopher Trevisani

c. Street Address: 1201 East Fayette Street Suite 26

d. City/State/Zip: Syracuse, NY 13210

II. Project Site Information

a. Project/Site Name: Canal Side Pocket Neighborhood

b. Street Address: 160 East Center Street

c. City/State/Zip: Canastota, NY 13032

d. eNOI Submission ID:

III. Traditional Land Use Control MS4 Operator Information

a. Name of MS4 Operator:

b. MS4 SPDES Permit ID Number: NYR20A

c. Street Address:

d. City/State/Zip:

e. Telephone Number:

IV. Certification Statement

In accordance with CGP Part I.D.2.b.ii.3., I hereby certify that the Traditional Land Use Control MS4 Operator identified in section III. of this form does not have review authority over the construction project identified in section II. of this form, which is owned/operated by the entity identified in section I. of this form. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

a. Printed name of the principal executive officer or ranking elected official for the MS4 Operator or their duly authorized representative in accordance with CGP Part VII.J.2.:

b. Title/Position:

c. Signature:

d. Date:

APPENDIX N: NOTICE OF INTENT, SWPPP PREPARER CERTIFICATION, OWNER CERTIFICATION FORMS.

Construction General Permit (CGP) Electronic Notice of Intent (eNOI) GP-0-25-001

Submission **Revision** 1 **Form Version** 1.5

Eligibility

CLEAR SECTION

Disturbance Threshold

1. Will the construction activity involve soil disturbances listed in Part I.A.1 of GP-0-25-001?

- (•) Yes
- ( ) No

Other SPDES Permits

2. Will the discharge from the construction activity meet all conditions listed in Part I.A.2 of GP-0-25-001?

- (•) Yes
- ( ) No

Threatened and Endangered Species

3. Will the construction activity potentially adversely affect a species that is endangered or threatened per Part I.A.3.?

- ○ Yes
- ◉ No

State Historic Preservation Act (SHPA)

4. Is the construction activity designated by the Commissioner of the Office of Parks, Recreation and Historic Preservation (OPRHP), pursuant to 9 NYCRR §§428.12 or 428.13 as exempt from the SHPA review (see Attachment 2 of the Letter of Resolution between NYSDEC and OPRHP, dated January 9, 2015)?

- ○ Yes
- ◉ No

State Environmental Quality Review (SEQR)

5. Is the construction activity subject to SEQR (Part I.A.5.), or the equivalent environmental review from another NYS or federal agency (Part I.A.6.)?

- ◉ Yes
- ○ No

Uniform Procedures Act (UPA) Permits

6. Has the owner/operator obtained all necessary UPA permits from NYSDEC, or the equivalent from another NYS or federal agency per Part I.A.7.a. of GP-0-25-001?

- ◉ Yes
- ○ No

7. Is the construction activity within the watershed of surface waters of the State classified as AA or AA-S identified utilizing the Stormwater Interactive Map on NYSDEC's website?

- ○ Yes
- ◉ No

Construction General Permit (CGP) Electronic Notice of Intent (eNOI) GP-0-25-001

Submission **Revision** 1 **Form Version** 1.5

Owner/Operator Information

CLEAR SECTION

8. Owner/Operator Name

*Housing Visions Consultants

If the owner/operator is a business entity, enter the name of the legally responsible party as it appears in the Department of State (DOS) link provided below. Otherwise, please enter an accurate name for the owner/operator.

9. Owner/Operator Contact Person Information

FIRST AND LAST NAME	PHONE	E-MAIL
*Christopher	*Trevisani	*

ADD ROW

10. Owner/Operator Mailing Address

1201 East Fayette Street Suite 26

Address line 1 can't be blank

Syracuse | *NY | *13210

City can't be blank

State Code can't be blank

Postal Code can't be blank

Country

Onondaga

VALIDATE ADDRESS

* 11. Is the billing contact different from the Owner/Operator Contact?

- ○ Yes
- ◉ No

⚠ If the annual SPDES invoices should be sent to a contact different from the Owner/Operator Contact, please answer "Yes" and enter the billing contact information below.

12. What type of organization is the owner/operator?

* Private

⚠ Select the organization type for the owner/operator.

Construction General Permit (CGP) Electronic Notice of Intent (eNOI) GP-0-25-001

Submission **Revision** 1 **Form Version** 1.5

Site Information

CLEAR SECTION

13. Project/Site Name

*Canal Side Pocket Neighborhood

⚠ Enter the name of the project.

14. Site Address

160 East Center Street

⚠ Address line 1 can't be blank

⚠ City can't be blank

*Canastota *NY *13032

⚠ State Code can't be blank

⚠ Postal Code can't be blank

Madison

⚠ County can't be blank

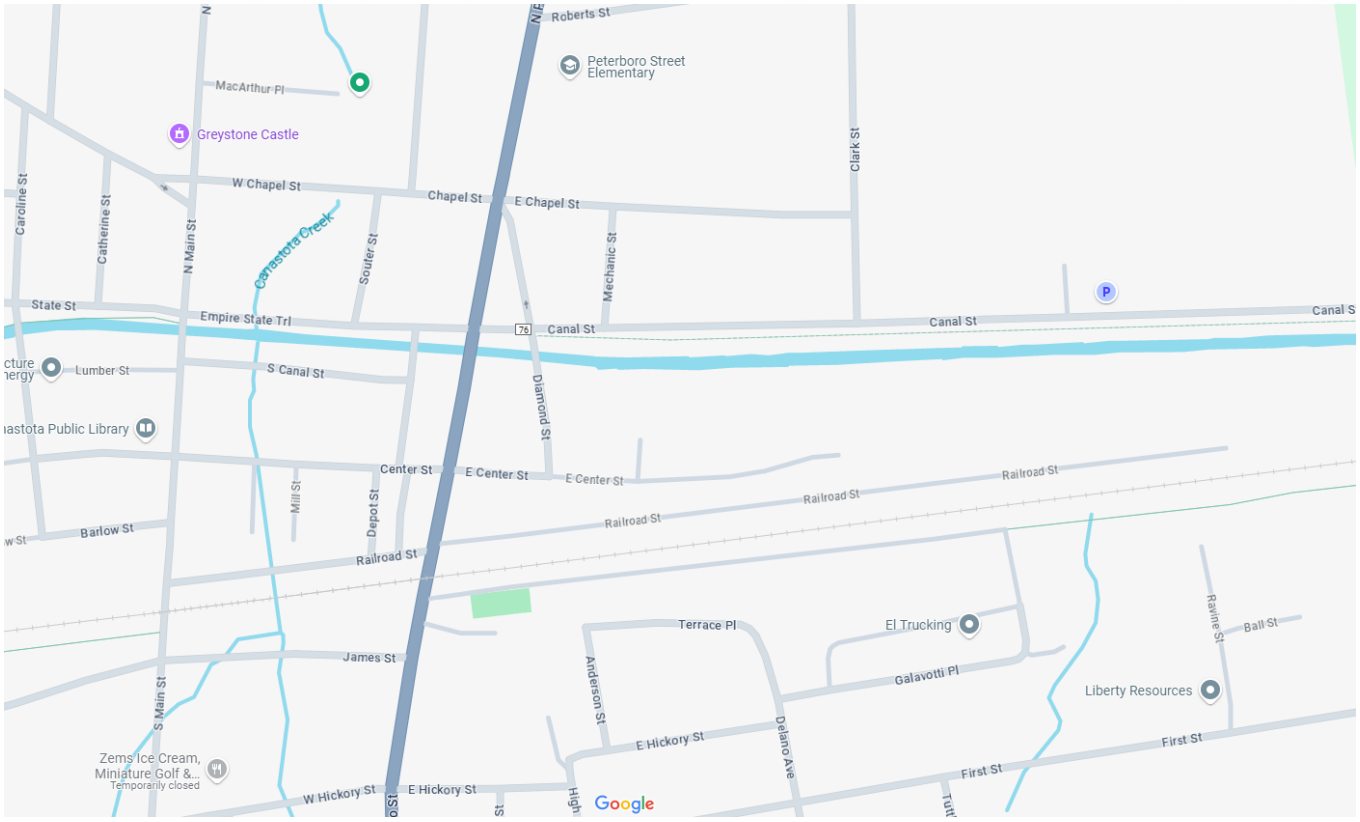
VALIDATE ADDRESS

⚠ The project location must be within the state of New York. Please use the two-character state code, "NY".

DEC Region

None Specified

15. Site Latitude & Longitude



LOCATION COORDINATES

* 43.078	- 75.749	⚠ Latitude can't be blank ⚠ Longitude can't be blank

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Project Details

CLEAR SECTION

* 16. This eNOI submission is for:

- (●) A construction activity not part of a common plan of development or sale in accordance with Part I.D.1.a.
- ( ) An entire common plan of development or sale in accordance with Part I.D.1.b.
- ( ) One or more phases of a common plan of development or sale in accordance with Part I.D.1.c.
- ( ) Tree clearing that is associated with, or will support, a renewable energy generation, transmission, or storage project in accordance with Part I.D.1.d.

⚠ **Select the scenario that best fits the construction activity to be covered under GP-0-25-001.**

* 17. Does the project type fall under Table 1 or Table 2 of Appendix B of GP-0-25-001? If any portion of the construction activity falls under Table 2, regardless of the size of the disturbance, select "Table 2".

- ( ) Table 1
- (●) Table 2

⚠ **Select Table 1 or Table 2. If any portion of the construction activity falls under Table 2, regardless of the size of the disturbance, please select "Table 2".**

18. Consistent with Part III.B.1.c.i. of GP-0-25-001, provide a concise overview of the project. Describe existing and proposed conditions, and include any other relevant information.

* Rezoning a parcel to a Planned Development District to facilitate the redevelopment of a lot into a pocket neighborhood

⚠ **Please enter a short summary of the project scope. There is a 5000 character limit.**

Enter the total project site acreage, the acreage to be disturbed, and the future impervious area (acreage) within the disturbed area, rounded to the nearest tenth of an acre.

19. Total Site Area (acres)

*2.56 acres

⚠ Please enter the total site area, rounded to the nearest tenth of an acre.

20. Total Area to be Disturbed (acres)

*2.56

⚠ Please enter the total area to be disturbed by the construction activity, rounded to the nearest tenth of an acre.

21. Existing Impervious Area to be Disturbed (acres)

*0.44

⚠ Please enter the existing impervious area to be disturbed by the construction activity, rounded to the nearest tenth of an acre.

22. Future Impervious Area Within Disturbed Area (acres)

*1.84

⚠ Please enter the future impervious area to be (re)constructed, rounded to the nearest tenth of an acre.

Nature of the project:

None Specified

* 23. Do you plan to disturb more than 5 acres of soil at any one time?

- ○ Yes
- ◉ No

⚠ Please select Yes or No

24. Indicate the percentage (%) of each Hydrologic Soil Group(HSG) at the site.

A (%)

*100%

Please enter a valid Please enter a valid percentNumber

B (%)

*

Please enter a valid Percent

C (%)

*

Please enter a valid Percent

D (%)

*

Please enter a valid Percent

25. Enter the planned start and end dates of the disturbance activities.

Start Date

* 6/1/2025

Enter the planned start date of disturbance activities

End Date

* 12/1/2027

Enter the end date of disturbance activities

26. Identify the nearest surface waterbody(ies) to which construction site runoff will discharge.

*Erie Canal

Identify the nearest surface waterbody(ies) to which construction site runoff will discharge. If the specific waterbody segment is known, please select it from the suggested options.

27. Type of waterbody identified in question 26?

*Canal

Select the waterbody types identified

* 28. Has the surface waterbody in question 26 been identified as a 303(d) segment in Appendix D of GP-0-25-001?

- ○ Yes
- ◉ No

⚠ Select Yes or No

* 29. Is this project located in one of the Watersheds identified in Appendix C of GP-0-25-001?

- ○ Yes
- ◉ No

⚠ Select Yes or No

* 30. Will the project disturb soils within a State regulated wetland or the protected 100 foot adjacent area?

- ○ Yes
- ◉ No

⚠ Select Yes or No

* 31. Does the site runoff enter a separate storm sewer system (including roadside drains, swales, ditches, culverts, etc)?

- ◉ Yes
- ○ No

⚠ Select Yes or No.

* 32. Will future use of this site be an agricultural property as defined by the NYS Agriculture and Markets Law?

- ○ Yes
- ◉ No

⚠ Select Yes or No

* 33. Is this property owned by a state authority, state agency, federal government or local government?

- ○ Yes
- ◉ No

⚠ Select Yes or No

Construction General Permit (CGP) Electronic Notice of Intent (eNOI) GP-0-25-001

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Required SWPPP Components

CLEAR SECTION

General SWPPP Requirements

34. Has a SWPPP been developed in conformance with the requirements in Part III. of GP-0-25-001?

- (●) Yes
- ( ) No

35. Does the SWPPP demonstrate consideration of the future physical risks due to climate change pursuant to the CRRA, 6 NYCRR Part 490, and associated guidance per Part III.A.2. of GP-0-25-001?

- (●) Yes
- ( ) No

36. Has the required Erosion and Sediment Control component of the SWPPP been developed in conformance with the current NYS Standards and Specifications for Erosion and Sediment Control (aka Blue Book)?

- (●) Yes
- ( ) No

SWPPP Preparer

39. The Stormwater Pollution Prevention Plan (SWPPP) was prepared by:

- (●) Professional Engineer (P.E.)
- ( ) Soil and Water Conservation District (SWCD)
- ( ) Registered Landscape Architect (R.L.A)
- ( ) Certified Professional in Erosion and Sediment Control (CPESC)
- ( ) Owner/Operator
- ( ) Other

40. Name of the person who prepared the SWPPP

*David Cox, PE

41. SWPPP Preparer Organization Name

*Passero Associates

42. SWPPP Preparer Contact Information

FIRST AND LAST NAME	PHONE	E-MAIL	
*David Cox	*585-325-1000	*dcox@passero.com	✖

ADD ROW

43. SWPPP Preparer Address

242 W. Main Street Apt 100

Rochester | *NY | *14614

VALIDATE ADDRESS

Download SWPPP Preparer Certification Form

Please take the following steps to prepare and upload your preparer certification form:

1) Click on the link below to download a blank certification form
2) The certified SWPPP preparer should sign this form
3) Upload the completed form

Download SWPPP Preparer Certification Form

44. Please upload the SWPPP Preparer Certification

Please be aware that files exceeding 100 MB in size are not allowed

Drop files here to upload

OR

CHOOSE FILE

Comment

44.a. Has the SWPPP Preparer Certification Form been signed by the SWPPP preparer in accordance with Part VII.J of GP-0-25-001?

- (●) Yes
- ( ) No

Construction General Permit (CGP) Electronic Notice of Intent (eNOI) GP-0-25-001

Submission **Revision** 1 **Form Version** 1.5

Erosion & Sediment Control Criteria

CLEAR SECTION

45. Has a construction sequence schedule for the planned management practices been prepared?

- (●) Yes
- ( ) No

Construction General Permit (CGP) Electronic Notice of Intent (eNOI) GP-0-25-001

Submission | **Revision** 1 **Form Version** 1.5

Other Permits

CLEAR SECTION

56. Identify other permits, existing and new, that are required for this project/facility.

NYS Canal Corp

57. Is this NOI for a change in owner/operator per Part I.G.?

- ○ Yes
- ◉ No

Construction General Permit (CGP) Electronic Notice of Intent (eNOI) GP-0-25-001

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MS4 SWPPP Acceptance

CLEAR SECTION

59. Will the construction activities be within the municipal boundary(ies) of Traditional Land Use Control MS4 Operator(s) and discharge to the MS4(s)?

- ○ Yes
- ◉ No

Construction General Permit (CGP) Electronic Notice of Intent (eNOI) GP-0-25-001

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Owner/Operator Certification

CLEAR SECTION

The owner/operator must download, sign, and upload the certification form in order to complete this application.

Owner/Operator Certification Form Download

Download the Owner/Operator Certification Form by clicking the link below.

Owner/Operator Certification Form

61. Upload Owner/Operator Certification Form

Upload the completed Owner Operator Certification Form, signed in accordance with Part VII.J of GP-0-25-001.

Please be aware that files exceeding 100 MB in size are not allowed

Drop files here to upload

OR

CHOOSE FILE

Comment

61.a. Has the Owner/Operator Certification Form from Appendix J been signed by the owner/operator, or a representative of the owner/operator in accordance with Part VII.J of GP-0-25-001 and uploaded to the eNOI?

- (●) Yes
- ( ) No

Construction General Permit (CGP) Electronic Notice of Intent (eNOI) GP-0-25-001

Submission **Revision** 1 **Form Version** 1.5

Additional Project Information

CLEAR SECTION

62. Enter any additional pertinent project information in the text box below.

SWPPP Preparer Certification Form

SPDES General Permit for Stormwater Discharges from Construction Activity, GP-0-25-001 (CGP)

(In accordance with CGP Part I.D.2.b., the completed form must be attached to the eNOI and submitted to NYSDEC electronically.)

Project/Site Name:	Canal Side Pocket Neighborhood
eNOI Submission ID:	
Owner/Operator Name:	Housing Visions Consultants

Certification Statement – SWPPP Preparer

I hereby certify that the Stormwater Pollution Prevention Plan (SWPPP) has been prepared in accordance with the requirements of GP-0-25-001. I certify under penalty of law that the SWPPP and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

David		Cox
SWPPP Preparer First Name	MI	SWPPP Preparer Last Name



Signature

04/01/25

Date

Revised: January 2025

Owner/Operator Certification Form

SPDES General Permit for Stormwater Discharges from Construction Activity, GP-0-25-001 (CGP)

(In accordance with CGP Part I.D.2.b. or Part I.F.2. and 3., the completed form must be attached to the eNOI or the Request to Continue Coverage, and submitted to NYSDEC electronically.

Project/Site Name: Canal Side Pocket Neighborhood

eNOI Submission ID: _____

eNOI Submitted by: ☐ **Owner/Operator** ☑ **SWPPP Preparer** ☐ **Other**

Certification Statement - Owner/Operator

I hereby certify that I read, and will comply with, the GP-0-25-001 permit requirements. I understand that authorization to discharge under the permit for the project/site named above is dependent on receipt of a Letter of Authorization (LOA) or a Letter of Continued Coverage (LOCC) from the New York State Department of Environmental Conservation (NYSDEC) in accordance with CGP Part I.D.3.b. or Part I.F.4. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Christopher		Trevisani
Owner/Operator First Name	MI	Owner/Operator Last Name

_____

Signature

_____

Date

Revised: January 2025

APPENDIX O: NOTICE OF TERMINATION

New York State Department of Environmental Conservation
Division of Water
625 Broadway, 4th Floor
Albany, New York 12233-3505
(NOTE: Submit completed form to address above)

NOTICE OF TERMINATION for Storm Water Discharges Authorized under the SPDES General Permit for Construction Activity

Please indicate your permit identification number: NYR ___ ___ ___ ___ ___ ___

I. Owner or Operator Information

1. Owner/Operator Name:

2. Street Address:

3. City/State/Zip:

4. Contact Person: | 4a.Telephone:

4b. Contact Person E-Mail:

II. Project Site Information

5. Project/Site Name:

6. Street Address:

7. City/Zip:

8. County:

III. Reason for Termination

9a. □ All disturbed areas have achieved final stabilization in accordance with the general permit and SWPPP. ***Date final stabilization completed** (month/year): _____

9b. □ Permit coverage has been transferred to new owner/operator. Indicate new owner/operator's permit identification number: NYR ___ ___ ___ ___ ___ ___
(Note: Permit coverage can not be terminated by owner identified in I.1. above until new owner/operator obtains coverage under the general permit)

9c. □ Other (Explain on Page 2)

IV. Final Site Information:

10a. Did this construction activity require the development of a SWPPP that includes post-construction stormwater management practices? □ yes □ no (If no, go to question 10f.)

10b. Have all post-construction stormwater management practices included in the final SWPPP been constructed? □ yes □ no (If no, explain on Page 2)

10c. Identify the entity responsible for long-term operation and maintenance of practice(s)?

_____

NOTICE OF TERMINATION for Storm Water Discharges Authorized under the SPDES General Permit for Construction Activity - continued

10d. Has the entity responsible for long-term operation and maintenance been given a copy of the operation and maintenance plan required by the general permit? □ yes □ no

10e. Indicate the method used to ensure long-term operation and maintenance of the post-construction stormwater management practice(s):

□ Post-construction stormwater management practice(s) and any right-of-way(s) needed to maintain practice(s) have been deeded to the municipality.

□ Executed maintenance agreement is in place with the municipality that will maintain the post-construction stormwater management practice(s).

□ For post-construction stormwater management practices that are privately owned, a mechanism is in place that requires operation and maintenance of the practice(s) in accordance with the operation and maintenance plan, such as a deed covenant in the owner or operator's deed of record.

□ For post-construction stormwater management practices that are owned by a public or private institution (e.g. school, university or hospital), government agency or authority, or public utility; policy and procedures are in place that ensures operation and maintenance of the practice(s) in accordance with the operation and maintenance plan.

10f. Provide the total area of impervious surface (i.e. roof, pavement, concrete, gravel, etc.) constructed within the disturbance area? _____ (acres)

11. Is this project subject to the requirements of a regulated, traditional land use control MS4? □ yes □ no

(If Yes, complete section VI - "MS4 Acceptance" statement

V. Additional Information/Explanation:

(Use this section to answer questions 9c. and 10b., if applicable)

VI. MS4 Acceptance - MS4 Official (principal executive officer or ranking elected official) or Duly Authorized Representative (Note: Not required when 9b. is checked -transfer of coverage)

I have determined that it is acceptable for the owner or operator of the construction project identified in question 5 to submit the Notice of Termination at this time.

Printed Name:	
Title/Position:	
Signature:	Date:

NOTICE OF TERMINATION for Storm Water Discharges Authorized under the SPDES General Permit for Construction Activity - continued

VII. Qualified Inspector Certification - Final Stabilization:

I hereby certify that all disturbed areas have achieved final stabilization as defined in the current version of the general permit, and that all temporary, structural erosion and sediment control measures have been removed. Furthermore, I understand that certifying false, incorrect or inaccurate information is a violation of the referenced permit and the laws of the State of New York and could subject me to criminal, civil and/or administrative proceedings.

Printed Name:	
Title/Position:	
Signature:	Date:

VIII. Qualified Inspector Certification - Post-construction Stormwater Management Practice(s):

I hereby certify that all post-construction stormwater management practices have been constructed in conformance with the SWPPP. Furthermore, I understand that certifying false, incorrect or inaccurate information is a violation of the referenced permit and the laws of the State of New York and could subject me to criminal, civil and/or administrative proceedings.

Printed Name:	
Title/Position:	
Signature:	Date:

IX. Owner or Operator Certification

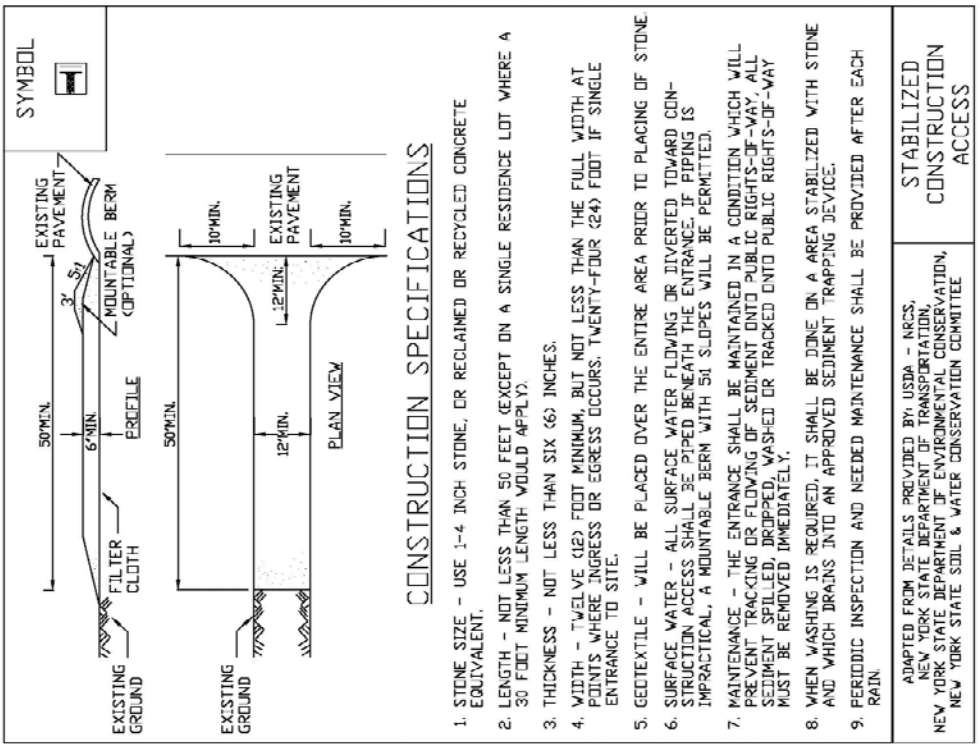
I hereby certify that this document was prepared by me or under my direction or supervision. My determination, based upon my inquiry of the person(s) who managed the construction activity, or those persons directly responsible for gathering the information, is that the information provided in this document is true, accurate and complete. Furthermore, I understand that certifying false, incorrect or inaccurate information is a violation of the referenced permit and the laws of the State of New York and could subject me to criminal, civil and/or administrative proceedings.

Printed Name:	
Title/Position:	
Signature:	Date:

(NYS DEC Notice of Termination - January 2015)

APPENDIX P: EROSION CONTROL DETAILS

Figure D.5
Construction Details for Stabilized Construction Entrance and Silt



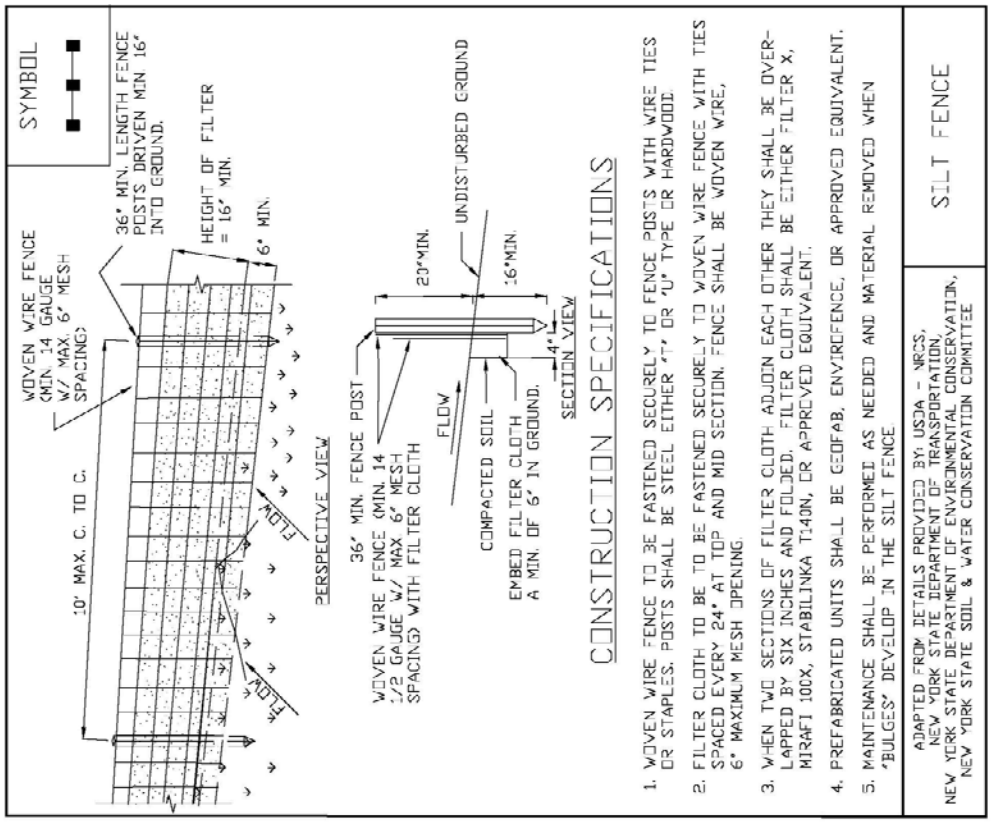


Figure 5.32
Fabric Drop Inlet Protection

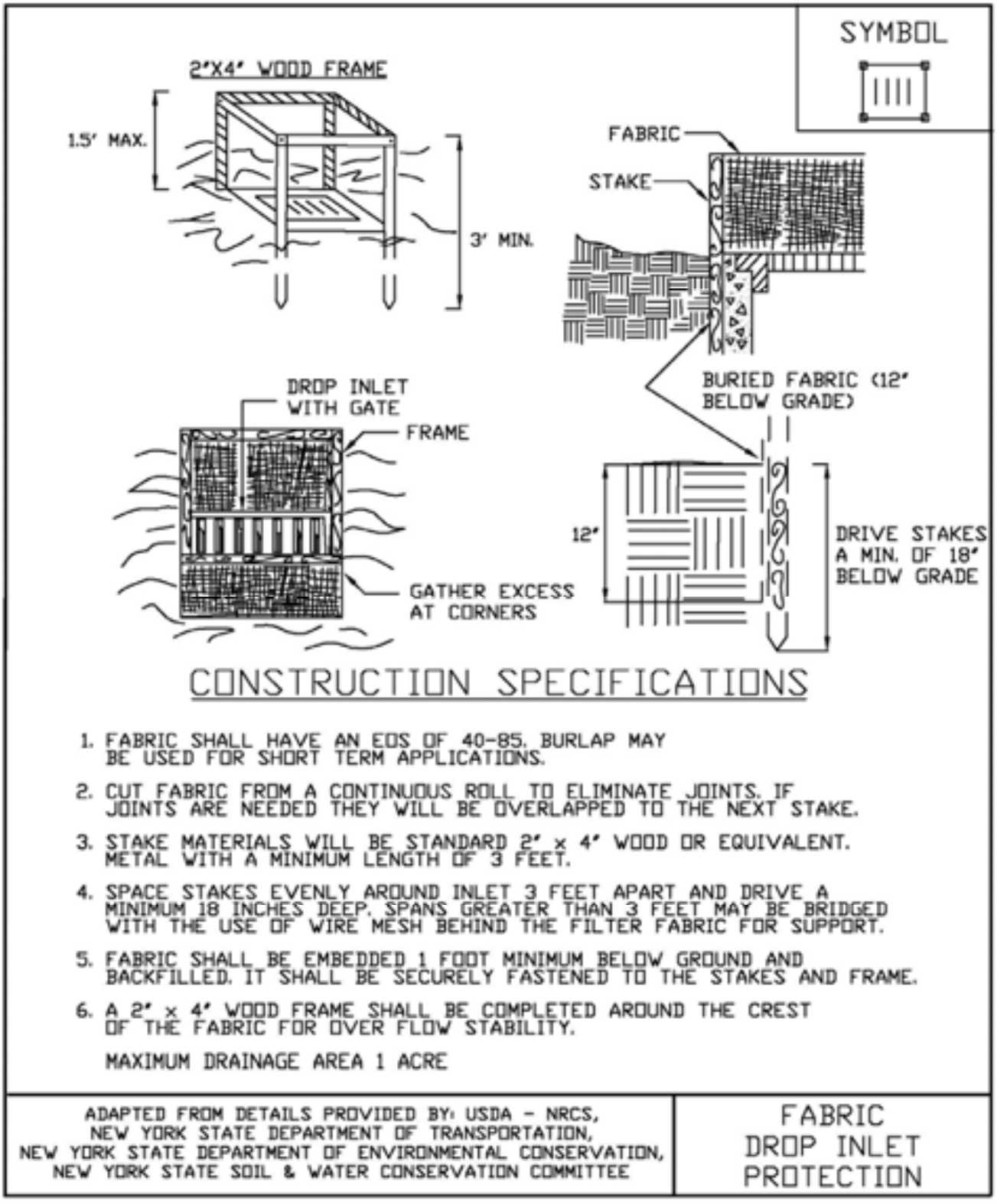
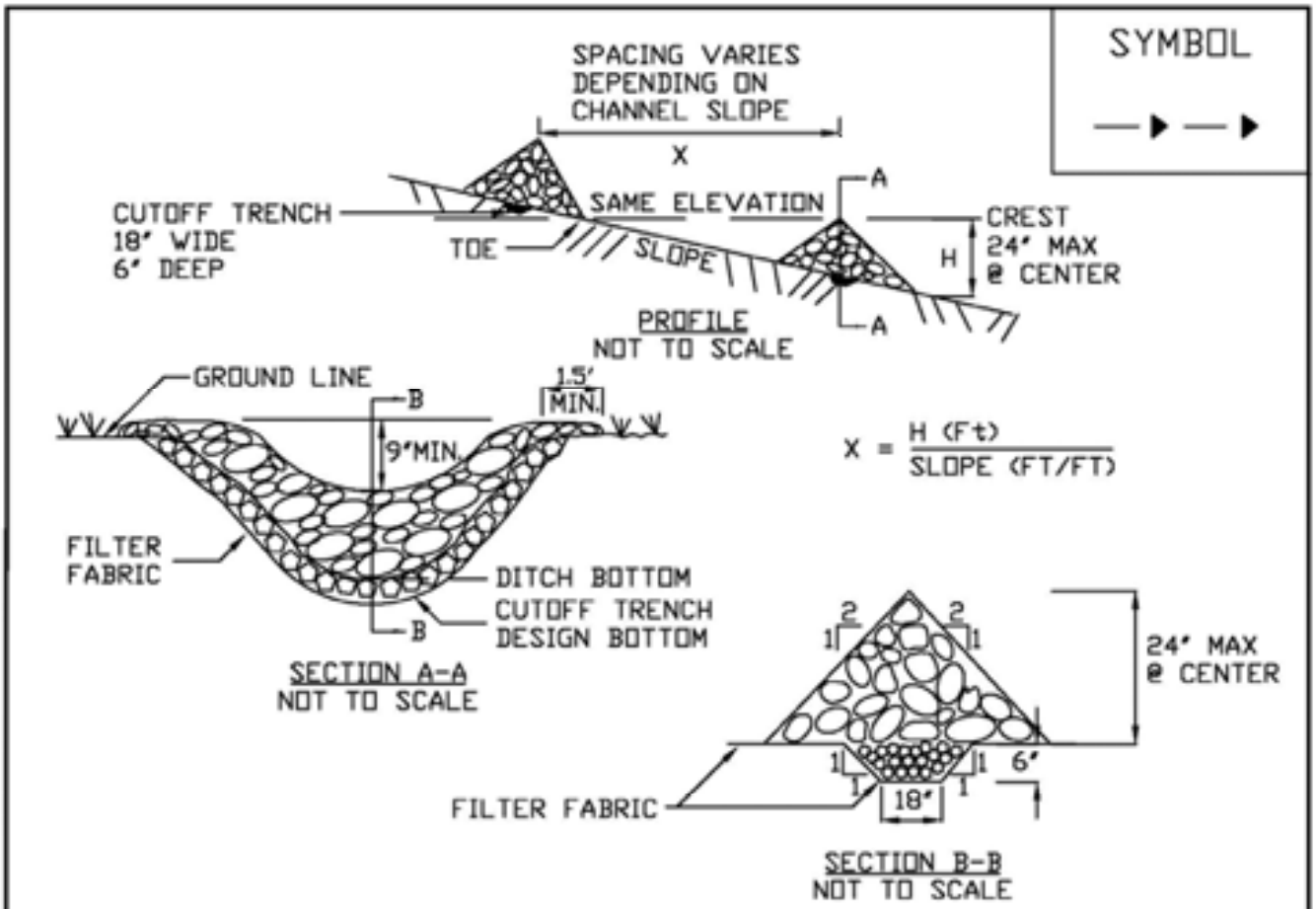


Figure 3.1
Stone Check Dam Detail



CONSTRUCTION SPECIFICATIONS

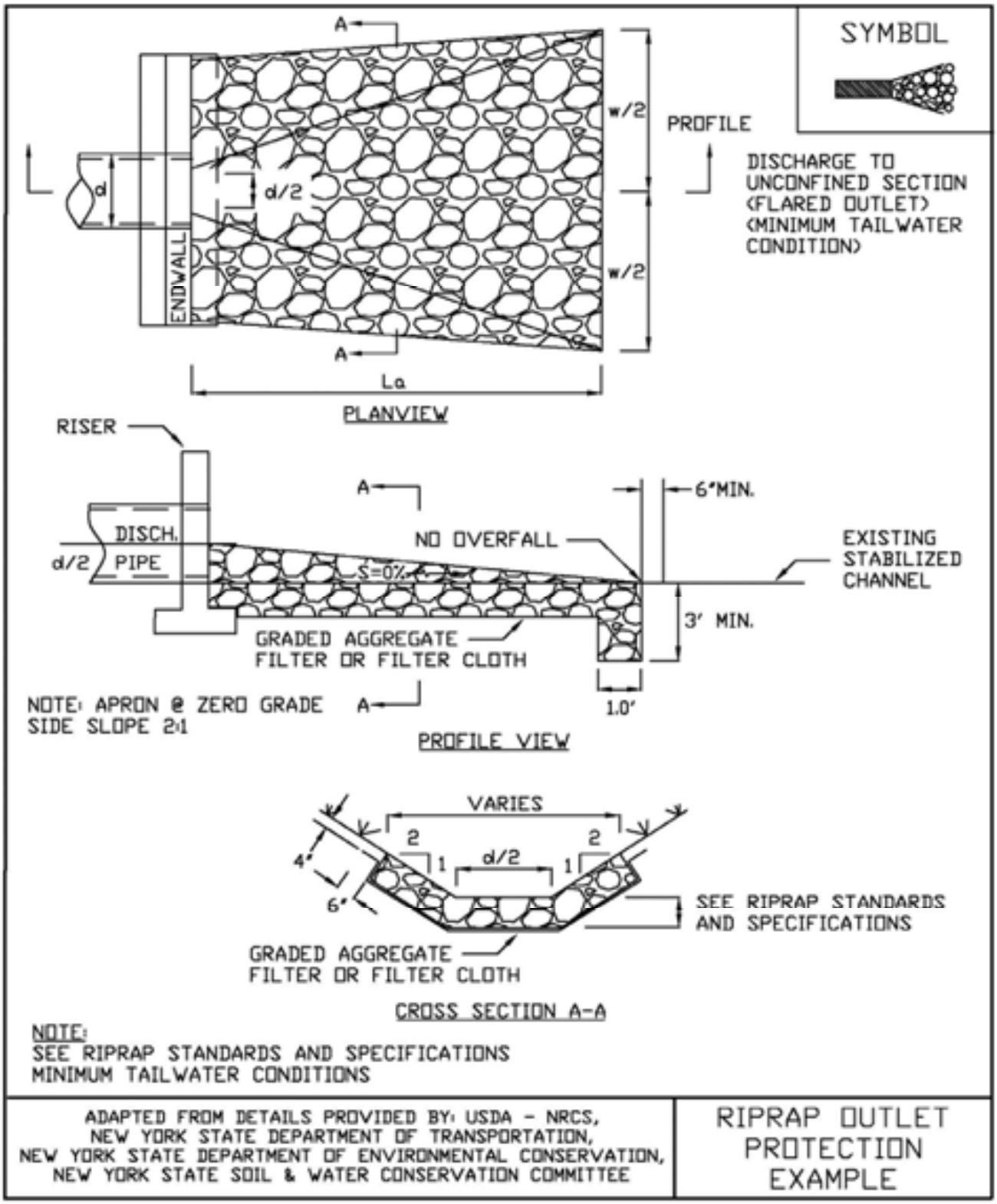
1. STONE WILL BE PLACED ON A FILTER FABRIC FOUNDATION TO THE LINES, GRADES AND LOCATIONS SHOWN IN THE PLAN.
2. SET SPACING OF CHECK DAMS TO ASSUME THAT THE ELEVATIONS OF THE CREST OF THE DOWNSTREAM DAM IS AT THE SAME ELEVATION OF THE TOE OF THE UPSTREAM DAM.
3. EXTEND THE STONE A MINIMUM OF 1.5 FEET BEYOND THE DITCH BANKS TO PREVENT CUTTING AROUND THE DAM.
4. PROTECT THE CHANNEL DOWNSTREAM OF THE LOWEST CHECK DAM FROM SCOUR AND EROSION WITH STONE OR LINER AS APPROPRIATE.
5. ENSURE THAT CHANNEL APPURTENANCES SUCH AS CULVERT ENTRANCES BELOW CHECK DAMS ARE NOT SUBJECT TO DAMAGE OR BLOCKAGE FROM DISPLACED STONE.

MAXIMUM DRAINAGE AREA 2 ACRES.

ADAPTED FROM DETAILS PROVIDED BY: USDA – NRCS,
NEW YORK STATE DEPARTMENT OF TRANSPORTATION,
NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION,
NEW YORK STATE SOIL & WATER CONSERVATION COMMITTEE

STONE CHECK DAM

Figure 3.18
Riprap Outlet Protection Detail (1)



APPENDIX Q: MAINTENANCE/CONSTRUCTION INSPECTION REPORTS

Chapter 12: Maintenance Guidance

SMPs will not function to protect water resources without proper attention to operation and maintenance (O&M). In order to ensure long-term performance, it's critical that O&M tasks and responsibilities are identified, clearly outlined in an inspection and maintenance plan, and assigned to various stakeholders. This Chapter was developed to address the need for maintenance guidance, and is structured in the following sections:

- **Section 12.1** introduces the 10 SMP groups used in this Chapter, establishes the 3 level hierarchy for inspection and maintenance responsibilities and procedures, and provides an overview of planning and budgeting for maintenance.
- **Section 12.2** outlines the key components to be inspected, the Level 1 inspection and maintenance procedures, and common triggers for Level 2 and Level 3 inspections, for each of the 10 SMP groups.
- **Section 12.3** includes diagnostic measures for specific problems, as well as guidance for performing repair activities.

Section 12.1 Introduction

12.1.1 Stormwater Management Practice (SMP) Groups

For the purpose of this Chapter, the standard SMPs and Runoff Reduction Techniques have been clustered into ten SMP groups (**Table 12.1**), containing practices that share common inspection components and maintenance concerns. This grouping has been applied to the detailed inspection guidance provided in **Section 12.2,** as well as the fillable **Level 1 and Level 2 Inspection Checklists** that are available for download on the NYSDEC Construction Stormwater Toolbox website (www.dec.ny.gov). The checklists identify common problems with key components of the SMPs, recommend follow-up actions to correct them, and outline triggers for Level 2 and Level 3 inspections. These checklists have been developed as a guideline to assist responsible parties with efficient and thorough O&M.

Table 12.1 Practices Discussed in this Chapter, by Group

SMP Group	Practices Included	
1. Sheet Flow and Disconnection	• Sheet Flow to Filter Strip • Rooftop Disconnection	• Sheet Flow to Riparian Buffers
2. Tree Planting	• Tree Planting	
3. Swales	• Vegetated Swale	• Wet Swale
4. Bioretention	• Tree Pit • Tree Trench • Rain Garden • Stormwater Planter	• Infiltration Bioretention • Filtration Bioretention • Bioslope • Dry Swale
5. Rainwater Harvesting	• Rain Barrel	• Cistern
6. Porous Pavements	• Porous Asphalt • Porous Paver	• Porous Concrete • Stabilized Grid/Cell
7. Green Roofs	• Extensive Green Roof	• Intensive Green Roof
8. Ponds and Wetlands	• Stormwater Ponds	• Stormwater Wetlands
9. Infiltration	• Infiltration Trench • Infiltration Basin	• Dry Well • Underground Infiltration
10. Sand Filters	• Surface Sand Filters • Perimeter Sand Filters	• Underground Sand Filters

12.1.2 Maintenance Hierarchy

This Chapter is structured around a hierarchy concept, where the severity of the problem directly correlates to the level of experience needed to perform the inspection and identify corrective maintenance measures.

Many SMP maintenance problems start out as minor and can be easily identified by individuals with limited experience (**Level 1**). As long as these issues are detected early, through regular inspections, they can typically be addressed in an expedient and cost-effective manner.

However, in some cases, issues may arise that require additional technical knowledge or capabilities to diagnose the problem and identify the appropriate remedy (**Level 2**). At this point, assistance from an individual with training in SMP inspection, operation and maintenance, may be necessary.

Similarly, some problems escalate to the point where a Qualified Professional or specialized expert is needed to return the SMP to proper functioning condition (**Level 3**).

The step-wise approach of the Maintenance Hierarchy (**Figure 12.1**) was developed to ensure long-term performance of SMPS, through cost-effective implementation of inspection and maintenance.



Figure 12.1 The SMP Maintenance Hierarchy

Level 1: Individuals with Limited or No Training

Level 1 includes routine inspection and maintenance activities conducted by:

- Property owners, property managers, or HOA representatives, for privately owned SMPs.
- Municipal maintenance staff/interns or volunteers, for municipally owned SMPS.

These individuals typically have very limited training in stormwater operation, inspection, and maintenance, but can use available guidance to quickly identify and rectify common or minor issues with SMP performance. For most SMPs, the majority of inspection and maintenance activities can be conducted at this skill level, thus Level 1 forms the base of the Maintenance Hierarchy pyramid. Many well-functioning SMPs can be adequately maintained for long periods of time using Level 1 capabilities.

Some issues may arise that require a higher level of resources and expertise. Such issues are referred to in this Chapter and the Inspection Checklists as “kick-outs to Level 2.”

Level 2: Trained Individuals

Level 2 includes inspection and maintenance activities conducted by municipal employees or landscape contractors who have completed training on SMP operation, inspection, and maintenance. Level 2 inspections can occur in response to two circumstances:

1. As part of an ongoing, municipal inspection program whereby SMPs are visited on a rotating basis at a frequency of once every five years, or a frequency established by the local program; or
2. In response to a “kick-out” from a Level 1 Inspector.

Circumstance #2 requires coordination and communication between the Level 1 and Level 2 Inspectors, with documentation and background provided by the Level 1 Inspector. This is essential to make the hierarchy approach successful.

As with kick-outs from Level 1 to Level 2, the same can exist from Level 2 to Level 3. If the Level 2 Inspector encounters a problem where a Qualified Professional is needed to re-design certain components of the SMP, and/or a Qualified Contractor is needed to undertake a more serious repair, then Level 3 is activated.

Level 3: Qualified Professionals

Level 3 includes inspection and maintenance conducted by Qualified professionals, including professional engineers and landscape architects, that can revisit design issues associated with chronic or serious problems. For repair and maintenance of the SMPs at this level, individuals with specific skills and certifications, such as a certified plumber with experience working with rainwater harvesting systems or a horticulturalist with knowledge on proper plantings, may need to be called in by the Qualified Professional.

Table 12.2 describes how SMP inspection and maintenance activities differ at each level of the Maintenance Hierarchy.

Table 12.2 SMP Inspection and Maintenance Hierarchy Levels

	Level 1: Individuals with Limited or No Training	**Level 2: Trained Individuals**	**Level 3: Qualified Professionals**
Qualifications/ Training of Inspectors	No special training, but person is provided educational materials	On-the-job training and/or workshops	Professional License, such as a PE or RLA
Frequency of Inspection	At least annually	Routine as determined by the local program OR as kick-out from Level 1 inspection	Only as needed from Level 2 inspection
Inspection Guidance	Inspection guidance is included in **Section 12.2.** Refer to the NYSDEC Construction Stormwater Toolbox website (www.dec.ny.gov) for **Level 1 Inspection Checklists**.	Refer to the NYSDEC Construction Stormwater Toolbox website (www.dec.ny.gov) for **Level 2 Inspection Checklists**.	Guidance on diagnosing common problems is included in **Section 12.3.** Refer to the NYSDEC Construction Stormwater Toolbox website (www.dec.ny.gov) for a **Level 3 Inspection Form**.
Typical Maintenance Activities	Routine mowing. Trash removal. Plant care and upkeep. Mulching as needed. Removal of small amounts of sediment from pretreatment areas of the practice.	Removal of larger amounts of sediment. Structural damage repair. Minor regrading and scarification of soil surface to restore permeability.	Redesign an improperly functioning practice, to include: regrading the contributing drainage area, replacing filter media or plantings, modifying conveyance structures, etc.
Triggers for Inspection or Maintenance by this Level	Regular inspection (no trigger)	Common triggers for Level 2 inspection are included in **Section 12.2.**	Common triggers for Level 3 inspection are included in **Section 12.2.**

12.1.3 Level 1, 2 and 3 Inspections

12.1.3.1 General Guidance for Level 1 Inspections

Read through this guidance before performing an inspection and use the specific guidance in **Section 12.2** for the SMP Group that includes the practice being inspected. Refer to **Chapter 11** for guidance on plant maintenance, as well as control of invasive species.

When to Conduct a Level 1 Inspection

Level 1 Inspections are the most common and are intended to identify minor maintenance issues early and keep up with routine maintenance tasks. They should be conducted *at least annually* for all practices and supplemented with additional visits after large storms, winter salting and sanding, or other seasonal changes. In addition, it is recommended that inspections take place more frequently during the first few years after installation of an SMP. Many issues can be identified and corrected during this early period, so that they do not lead to larger problems in subsequent years. Once the SMP is stable and seems to be functioning properly, the inspections can become less frequent.

What to Take into the Field

The Level 1 Inspection is simple, and it is assumed that very little measurement is needed. However, the Inspector should take pictures to document findings and keep a record of all inspections. The following items may be needed during a Level 1 Inspection:

1. Letter of permission to access property if the Inspector is from an outside agency
2. Clipboard and pencils (if using paper forms), or Tablet or smartphone (if using digital forms)
3. Level 1 Inspection Checklists (paper or digital copies)
4. Notes or records from past inspections
5. Approved Site Plan, Planting Plan (includes planting/seed mixes), and/or details for SMP's
6. Digital camera or smartphone
7. Engineer's scale
8. Flagging/stakes and waterproof marker (to mark problem areas that need to be revisited)
9. 25-ft Measuring Tape (optional, to measure pipe sizes and SMP dimensions)
10. Safety equipment: safety vest, steel-toe shoes, traffic cones, etc. (if SMP is located near traffic)
11. Bug spray (if needed)
12. Sun block (if needed)

Level 1 Checklists

The **Level 1 Inspection Checklists** are available for download on the NYSDEC Construction Stormwater Toolbox website (www.dec.ny.gov). These checklists outline common problems with key components of the SMPs and describe follow-up actions for each observed condition. Refer to **Figure 12.2**, for an example checklist.

The Checklists are intended to be used as follows:

- Check the box in the LEFT column if the problem is present at the site.
- Check the appropriate follow-up action(s) in the RIGHT column, or add an action as needed to fix the problem.
- Record all your actions. Keep copies of the Level 1 Inspection Checklists, plus notes, photos, or other documentation of corrective measures to fix problems. Record dates of actions and any follow-up inspections. This will be important for communicating with Level 2 Inspectors and/or the local maintenance program.
- Activate a Level 2 Inspection using the blue cells to identify conditions when a more detailed inspection is necessary to further diagnose a problem. Refer to **Section 12.2** for common triggers of Level 2 Inspection for each of the SMP Groups. Consult the local stormwater program authority for the most appropriate Level 2 inspection option.

Porous Pavement 1. Drainage Area	
Problem (Check if Present)	**Follow-Up Actions**
 ☐ Bare soil, erosion of the ground (rills washing out the dirt)	☐ Seed and mulch areas of bare soil to get vegetation established. ☐ Fill in erosion areas with soil, compact, and seed straw to get vegetation established. ☐ If a rill or small channel is forming, try to redirect water flowing to this area by creating a small bern or adding topsoil to area by creating a small berm or adding topsoil to areas that are heavily compacted. ☐ Kick-Out to Level 2 Inspection: Large areas of soil have been eroded, or larger channels are forming. May require rerouting of flow paths.

Figure 12.2 Example Level 1 Inspection Checklist, with Follow-Up Actions. *Note "Kick-Out to Level 2" highlighted in light blue.*

12.1.3.2 General Guidance for Level 2 and 3 Inspections

Read through this guidance before performing an inspection, and use the specific guidance in **Section 12.2** for the SMP Group that includes the practice being inspected, or **Section 12.3** for the specific problem encountered.

When to Conduct a Level 2 Inspection

Level 2 Inspections occur as routine inspections for compliance with local stormwater regulations or when triggered by a Level 1 Inspector to address or diagnose specific problems. In this situation, the Level 2 Inspector should confer with the Level 1 Inspector about problems they have identified and then conduct a follow-up inspection that focuses on diagnosing the causes of the problems and possible solutions.

The frequency of Level 2 Inspections is typically defined by the municipality, but shall occur at least once every five years. As with Level 1 inspections, the frequency may change with the age of the SMP, with higher inspection frequency the first couple of years after installation.

Notifying the Owner/Operator

Consult the project files and maintenance agreement to ascertain the Owner/Operator. Confirm that there is right of access through the local code, signed maintenance agreement, or other means. Contact the Owner/Operator at least three business days in advance of the proposed inspection. If the Owner/Operator cannot be found or contacted, make a reasonable effort through file research to contact a property representative, and document those efforts in writing. If the inspection is in response to a Level 1 inspection and referral to your agency, speak with the person who conducted the Level 1 inspection and get any documentation they may have. For publicly owned and managed SMPs, the municipality or other regulated MS4 is responsible for long-term operation and maintenance.

What to Take in the Field

Level 2 inspections may require authorized access to private property. Therefore, additional identification shall be provided for these inspections. It is recommended that the following items be taken into the field during a Level 2 Inspection:

1. Letter on municipal letterhead granting access to property and/or agency photo badge
2. Clipboard and pencils (if using paper forms), or Tablet or smartphone (if using digital forms)
3. Level 2 Inspection Checklists (paper or digital copies)
4. Dry erase board and marker (optional) to include in photos to keep track of SMP tracking # in municipal database (see **Figure 12.3** as example)
5. Notes or records from past inspections
6. Approved Site Plan, Planting Plan (includes planting/seed mixes), and/or details for SMP's
7. SMP As-Built Plan (if available)
8. Digital camera or smartphone
9. Engineer's scale
10. Flagging/stakes and waterproof marker (to mark problem areas that need to be revisited)
11. 100-ft Measuring Tape
12. Hand level and pocket rod (if needed to measure relative elevations)
13. Pipe wrench (to open underdrain clean-out caps)
14. Flashlight (to look into underdrain cleanouts and/or manholes)
15. Manhole cover puller
16. Soil probe, auger, and/or shovel
17. Safety equipment: safety vest, steel-toe shoes, traffic cones, etc. (if SMP is located near traffic)
18. Bug spray (if needed)
19. Sun block (if needed)

Level 2 Checklists

The **Level 2 Inspection Checklists** are available for download on the NYSDEC Construction Stormwater Toolbox website (www.dec.ny.gov). These checklists outline recommended repairs for common problems with key SMP components, and common triggers for Level 3 Inspection.

Conducting the Inspection

In general, the inspection should follow a consistent, logical approach, such as outlined below.

- Conduct a quick tour of the practice to identify any obvious issues and important components: inlets (number, location), surface area, outlet structures, berms or impoundments, outfalls, downstream conveyance channels or receiving waters. Check these components against the approved design plan or as-built drawing (if available).



Figure 12.3 Use a white board and digital camera to note SMP tracking #, date of inspection, and other forms of documentation. Alternatively, tag photographs using a smartphone

- Starting at the upland area, use the Level 2 Checklist to evaluate the practice. The inspection will proceed from the upland drainage area to inlets, side slopes, berms, treatment area, and outlets/outfalls. Make sure to fill in key information on the inspection form, such as SMP identifier number, site name, Inspector name, date, and weather conditions.
- Take photos of key practice components or maintenance concerns. Mark photo locations and orientation on a sketch Site Plan.
- Review the Inspection Checklists before leaving the site to make sure that all necessary information has been collected.

Follow-Up Actions

Upon completion of an inspection, complete these follow-up actions as soon as possible:

- Enter the inspection information in the appropriate database or hard copy file
- Download and label photos
- Communicate problems and corrective measures to the Owner/Operator (private or public). This may involve the Level 2 Inspector making a judgement call as to whether observed problems warrant a Level 3 investigation, providing a timeframe for correcting simpler issues, and coordinating with the Owner/Operator to pursue such an investigation, if required. Many local programs have existing protocols for sending letters, activating a compliance procedure, or verifying that repairs and corrections are completed by the Owner/Operator.

The **Level 2 Inspection Checklists** summarize follow-up actions and recommended repairs associated with various observations of SMP condition (blue cells) and highlight specific conditions that would trigger Level 3 Inspection (grey cells).

Level 3 Inspection Guidance

Level 3 Inspections are conducted in response to more complex issues identified during a Level 2 inspection, with the goal of developing specific repairs to resolve the issues. Therefore, the inspection primarily focuses on the problematic components of the SMP, but it is good practice to perform a cursory review of all system components. **Section 12.3** identifies twelve problems that are typically addressed in Level 3 inspections and discusses how to diagnose the cause of each problem, as well as repairs needed to address them. It should be noted that the problems addressed in each subsection can occur in a variety of SMPs. As a result, each subsection identifies the SMPs where the problem most commonly occurs and, in some cases, an SMP-specific diagnosis procedure.

12.1.4 Planning for Stormwater Maintenance

This section outlines key elements of stormwater maintenance planning, including:

1. Program models for stormwater maintenance
2. Inspection and maintenance checklists
3. Planning for the costs of stormwater maintenance
4. Identifying the need for infrequent maintenance items

12.1.4.1 Program Models for Stormwater Maintenance

The Maintenance Hierarchy concept (See **Section 12.1.2**) is discussed throughout this Chapter, but the individuals who will conduct the Level 1, Level 2 and Level 3 inspections and maintenance will vary depending on how the local program is administered. While this Chapter does not focus on program elements, it is important to note that the local program requirements will influence who performs ongoing maintenance. A legally binding and enforceable maintenance agreement shall be established between the property owner and local reviewing authorities to assign maintenance responsibilities to the responsible parties. This will play an important role in how to develop a comprehensive maintenance plan. All required maintenance elements shall be included in the maintenance plan.

Stormwater maintenance plans can generally be designated in three categories: 1) Private; 2) Local Government; and 3) Hybrid Approach. Understanding the program and regulations in the local community will influence the best techniques for developing the maintenance plan (**Table 12.3**).

Option 1: Private Maintenance

In this option, maintenance is the responsibility of the private landowner. In regulated MS4s, however, the landowner will periodically report to the local government. In this model, it is important to ensure that the maintenance plan is very easy to understand.

Option 2: Local Government Maintenance

In this option, the local government takes over maintenance responsibility for all stormwater practices. While it is still important to develop a clear and simple plan, the designer can assume some level of training or supervision for the individuals conducting inspections and maintenance. Maintenance access should be made available to local government staff through official easements.

Option 3: Hybrid Approach

In the hybrid approach to stormwater maintenance, larger practices or practices on public land are maintained by the local government, and smaller practices on private property are maintained by the landowner. Alternatively, the local government may take responsibility for inspections, but leave the landowner responsible for maintenance items identified during the inspection.

Table 12.3 Maintenance Considerations for Three Program Options

Program Option	Inspection/Maintenance Performed By:	Key Considerations for the Designer
Option 1: Private	Level 1: Property owner or HOA Level 2: Trained Individual Level 3: Qualified Professional/Contractor	Make the plan very simple and graphic intensive. Make a landscape/seed plan very simple and graphic intensive Include a list of contractors if applicable. Provide links to educational materials.
Option 2: Local Government Program	Level 1: Interns or Untrained Staff Level 2: Trained Local Staff Level 3: City/Town/Village Engineer or other individual hired by the municipality	Learn about the resources the local program has at its disposal. If government staff are being trained, develop a maintenance plan that is consistent with their knowledge and understanding. Be aware of equipment and materials on hand in this community.
Option 3: Hybrid Approach	Inspection and maintenance responsibilities are divided between the local government and private landowner.	Understand how the responsibilities are divided and develop a plan that is consistent with this arrangement.

12.1.4.2 Inspection and Maintenance Checklists and Documentation

The NYSDEC Construction Stormwater Toolbox website (www.dec.ny.gov) includes inspection checklists specific to each level of the maintenance hierarchy. The maintenance plan should include the inspection checklists for each level for the SMP Group(s) being constructed. The checklists include blank sections under each of the practice key components, to input project specific information. All materials developed as a part of the maintenance plan should be provided to the practice owner and local government. (See **Table 12.4**)

Table 12.4 Customizing Checklists and Guidance

Level 1	**Section 12.2** includes guidance.	Attach photographs of the practice (once installed), and a simple aerial photograph of the site to locate the practice. Include key local government contacts and contractors along with the checklist. Modify to add other problems, as they are identified during inspections. Attach site specific photographs of each problem identified.
Level 2	**Section 12.2** includes triggers for Level 2 and Level 3 Inspection.	Modify to add other observed conditions and recommended repairs, as they are identified during inspections. Attach site specific photographs of each observed condition identified.
Level 3	**Section 12.2** and **Section 12.3** include guidance.	Attach site specific photographs of each observed condition identified. Develop plans, details, and/or written narrative of recommended.

12.1.4.3 Budgeting for Maintenance

A maintenance plan should include a budget for annual maintenance. In the Local Government Maintenance model, a single entity (the local government) will be responsible for maintenance of many practices, so the cost of maintenance for an individual practice may not be as important as estimating the average cost of maintenance across all practices. For privately maintained practices, on the other hand, it is very helpful to develop a cost estimate that is as accurate as possible for the specific location. As a result, two options for estimating costs are presented here, including:

- **Option 1**: Average or Unit Costs
  Generalized cost data are used to estimate an annual cost. This option may be used for a municipality or other institution that manages a large number of practices.
- **Option 2:** Detailed Individual Practice Budget
  Annual costs are estimated using more detailed practice information, as well as more detailed estimates of labor and material costs.

Option 1: Average or Unit Costs

In this option, annual maintenance costs are estimated on a per-acre basis or as a percentage of the total construction costs. These prices typically range from about 1% to 4% of the construction costs (King and Hagan, 2011; **Table 12.5** Typical Maintenance Costs**)**.

Table 12.5 Typical Maintenance Costs
(Source: King and Hagan, 2011; Adjusted to 2015 Costs)

Practice	Annual Maintenance Cost (% of Construction)	Annual Maintenance Cost ($/cf of water quality volume treated)
Buffers	4%	$0.25 - $0.35
Tree Planting	4%	$0.35
Ponds and Wetlands	4%	$0.22 - $0.35
Infiltration Trench/ Basin	2%	$0.25
Filtering Practices	4%	$0.41 - $0.47
Bioretention	4%	$0.44
Swales	3%	$0.18 - $0.26
Porous Pavement	1%	$0.64 - $0.89

While the costs in **Table 12.5** may be a reasonable starting point, it is important to note that the actual data will vary greatly, depending on labor rates and material costs. For example, the hourly "Open Shop" labor rate for rough grading is approximately $27/hour in Elmira and $38/hour in New York City (Means, 2015). In addition, costs for labor, materials and equipment will vary depending on the maintenance arrangement (**Table 12.6**).

Table 12.6 Variability in Maintenance Costs Based on Maintenance Arrangement

Maintenance Arrangement	Labor	Materials	Equipment
Public Maintenance (Municipality)	Level 1: Intern Wage Level 2: Staff Salary Level 3: Professional Staff or Contractor	Low: Materials bought in bulk.	Low: Typically owned by Public Works or similar department.
Private Maintenance (Homeowner)	Level 1: Homeowner (Free) or Contractor Level 2: Private Landscaper or Contractor Level 3: Professional Contractor	High: Materials purchased in small quantities.	High: Specialized equipment needs to be rented if needed.
Private Maintenance (Commercial or HOA)	Level 1: Free (with HOA volunteers) or Contracted Labor Rate Level 2: Private Landscaper or Contractor Level 3: Professional Contractor	Varies: Materials may be bought in bulk or on a small scale, depending on the size of the private entity.	High: Specialized equipment needs to be rented if needed.

Option 2: Site-Based Costs

Because the unit costs of labor and materials, and the average annual costs of maintenance can be highly variable, more detailed data will be needed to estimate costs at a particular site. One approach for estimating costs is to generate a list of routine maintenance items, along with associated unit costs for labor, materials, and equipment. This approach requires the user to enter basic design data for the practice, as well as information regarding local labor rates and other general costs. In the bioretention example below, unit costs are used to estimate routine maintenance costs, including regular inspections and maintenance.

Example Annual Cost Estimation: Bioretention

An example cost estimation for a bioretention filter follows below, which demonstrates how the unit cost and typical frequency data can be used to estimate average annual maintenance costs. **Table 12.7** summarizes the characteristics of the example bioretention practice, as well as the unit cost assumptions for typical inspection and maintenance activities. **Table 12.8** then summarizes routine inspection and maintenance activities, their frequency and extent, and associated labor costs.

Using the assumptions for this example, the annual costs for routine inspection and maintenance would be $1,828 ($1.15/cfof Water Quality Volume) in the first year, and $1,468 ($0.90/cf WQ_v) in subsequent years. These values are much higher than the $0.44/cf estimated using general cost data (**Table 12.5**). However, significant cost savings could be realized by using volunteer or intern-level labor for Level 1 inspections and routine maintenance.

Table 12.7 Bioretention Example: Assumed Practice Characteristics and Unit Costs			
Practice Design		**Unit Costs**	
Water Quality Volume (cf)	1,600	Level 1 Labor ($/hr)	$15
Forebay Volume (cf)	400	Level 2 Labor ($/hr)	$35
Total Practice Area (sf)	2,000	Mulch ($/cy)	$10
Filter Area (sf)	1,000	Plants ($/plant)	$1
Ponding Area (sf)	1,500	Trash Tipping Fee	$25
Slope Area (sf)	500	Seed/Mulch for a small area	$10
Turf Area (sf)	No Turf	Average Cost for a PVC Replacement Part (Planning Level)	$100
Inlets (#)	1		

Table 12.8 Bioretention Example: Routine Inspection and Maintenance Costs										
Task	**Frequency (x/year, Decimal)**	**Typical Extent**	**Extent**	**Hours (Unit)**	**Hours/yr**	**Level**	**Materials and Equipment**	**Annual Costs**		
								Labor	**Materials and Equipment**	**Total**
Level 1 Inspection - 1 to 5-acre drainage	1	Practice	1	1 per inspection	1	1		$15		$15
Level 2 Inspection - 1 to 5-acre drainage	0.2	Practice	1	2 per inspection	0.4	2		$14		$14
Watering - grass and plants: Year 1	16	Weekly for first growing season, over filter surface area	1,000	0.5 per 400 sf area	24	1	Assume minimal cost for water	$360		$360
Trash and Debris Removal	4	Ponding area	1,500	1 per 400 sf practice surface area	15	1	Assume $25 Tipping Fee for Each Trip	$225	$100	$325
Weeding	2	Assume 50% of practice area	1,000	4 per 400 sf practice surface area	20	1		$300		$300
Mulching	1	Ponding area	1,500	4 per 400 sf area	15	1	Bark mulch; assume 15 cy/application	$225	$150	$375
Sediment Removal (minor, less than 2”)	1	Assume one small area per inlet	1	1 per small area	1	1		$15		$15
Erosion Repair (minor)	1	Inlets; assume 25 sf/practice	25	1 per 25 sf	1	1	Seed, mulch, and topsoil	$15	$10	$25
Erosion Repair (minor)	1	10% of slope area	50	1 per 25 sf	2	1	Seed, mulch, and topsoil	$30	$20	$40
Minor Regrading	0.5	1 spot per 400 sf of practice area	5	1 per repair	2.5	2	Assume done by hand	$88		$88
Planting (plants)	0.2	Assume 50% of practice area	1,000	8 per200 sf	8	1	Assume 500 plants/planting	$120	$100	$220
Minor PVC or Metal Repairs (observation well cap, PVC outlet control, grates)	0.2	1 per practice	1	1 per repair	0.2	2	Assume about a $100 piece of equipment	$7	$20	$27
Sediment Removal (small forebay)	0.2	per forebay	1	2 per forebay	0.4	2	Assume removal by hand	$14		$14
							Total Costs - Year 1	**$1,428**	**$400**	**$1,828**
							Total Costs - Subsequent Years	**$1,068**	**$400**	**$1,468**

12.1.4.4 Planning for “Non-Routine” Maintenance

If the guidance provided in this Chapter is followed and practices are designed properly, the routine maintenance (and budget guidance in **Section 12.1.4.3**) should be sufficient to keep a practice functioning indefinitely. However, planning is needed for infrequent maintenance items. In the initial maintenance plan, identify a few of the most likely infrequent items. If initial routine inspections start to identify a more serious problem, develop a plan and budget for performing the repairs. To be more conservative, another option is to provide a contingency budget to plan for non-routine repairs over the life of the practice.

Note: Maintenance and repairs that rise to a Level 3 inspection may require permits from the NYSDEC and/or US Army Corps of Engineers, if they are undertaken within or adjacent to regulated wetlands or other waters of the U.S.

12.2.9 Infiltration

Includes: Infiltration Trench (I-1), Infiltration Basin (I-2), Dry Well (I-3), Underground Infiltration System (I-4)

Components

Key components to inspect for Infiltration include the following:

- **IN-1 Drainage Area:** The drainage area conveys runoff to and is uphill from the infiltration cell. When it rains, water runs off and flows to the infiltration cell and soaks into its underlying layers.
- **IN-2 Inlets:** The inlets are where water flows into the practice. Depending on the design, inlets can include curb cuts, openings in a parking lot or roadway, downspouts, pipes, or ditches. Water can also enter the practice directly as sheet flow.

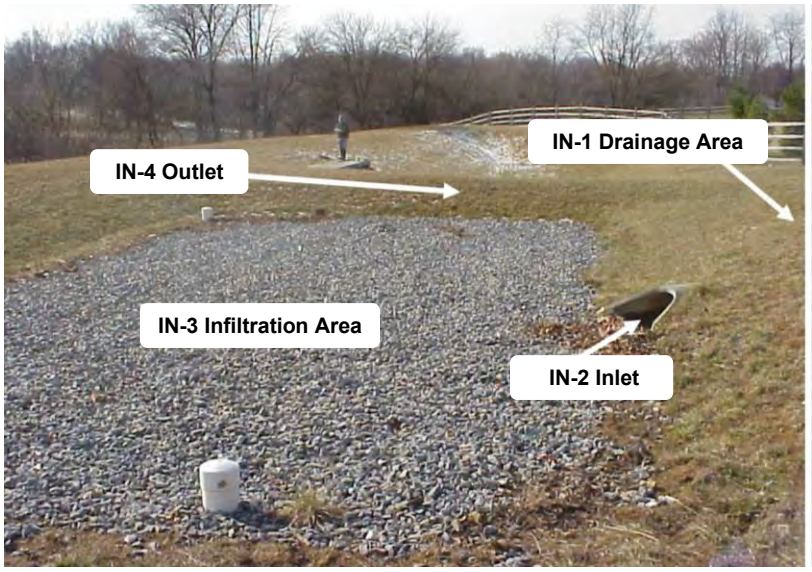


Figure 12.17 Key Areas for Level 1 Inspection of Infiltration Practices

- **IN-3 Infiltration Area:** The area that collects water and allows it to seep into the underlying soil.
- **IN-4 Outlets:** Outlets are where water exits the surface of the infiltration area during larger storms when the underground infiltration reservoir fills up and the excess water needs somewhere to go. Note that not all infiltration practices will have an identifiable outlet if the design is for all the water to infiltrate into the ground. Outlets may be a berm, stone weir, or pipe.

Level 1 Inspections

Frequency: *At least 2 times a year, especially in early spring, to ensure that the practice has survived the winter. Debris cleanout and dewatering inspection should occur monthly. Inspection of sediment traps, forebays, inlets and outlets should occur at least 1 time per year along with sediment cleanout and aggregate repairs.*

Triggers for Level 2 Inspection

The most likely triggers for Level 2 Inspection of IN practices are:

- Water stands on the surface for more than 72 hours after a storm event
- Erosion of inlets, infiltration area or outlets
- Excessive sediment buildup

Triggers for Level 3 Inspection

The most likely triggers for Level 3 Inspection of IN practices are:

- Standing water caused by clogged media
- Severe erosion of infiltration area, inlets, or around outlets
- Reoccurring significant sediment accumulation that is getting worse with time
- Solving the problem would require practice redesign or modification

Section 12.3 Diagnostics and Maintenance Measures

This Section summarizes the most common problems found in SMPs, as well as typical maintenance or repair solutions. The guidance provided in this section has some similarities to **Section 12.2**, but differs in the following ways:

1. The primary audience of this Section is the Level 3 Inspector, who is tasked with diagnosing and repairing SMPs that are not working properly. However, this information may also be useful for a Level 2 Inspector seeking to diagnose a particular problem.
2. The maintenance measures described in this Section are more detailed and focus on repairs to specific problems rather than on routine maintenance, such as weeding or minor sediment removal.
3. Because the problems described in this section can be applied to several different practices, this section is organized by the problem type rather than the practice type.

Common problems addressed during Level 3 inspection/maintenance are summarized in **Table 12.9**. This list is not exhaustive but does address SMP issues that require some advanced knowledge and skill to inspect and diagnose solutions. Each problem category is discussed in a separate subsection.

Table 12.9 Common Level 3 Inspection/Maintenance Issues

Subsection/Category	Description
12.3.1 Contributing Drainage Area – Pollutant Sources	Sediment or pollution sources in the Drainage Area
12.3.2 Physical Obstructions	Physical obstructions to maintenance access, overflow, or emergency spillway
12.3.3 Erosion	Erosion on side slopes, practice bottom, at inlet or outlets. Rills and gullies forming where there should be sheet flow
12.3.4 Departure from Design Dimensions	Practice dimensions have been altered, either due to filling with sediment, redesign or filling in, or improper implementation.
12.3.5 Improper Flow Paths	Flow is short-circuiting the practice, or drainage flow paths have been otherwise modified.
12.3.6 Sediment Buildup	Sediment has accumulated in a pool, practice bottom, pretreatment area, or vault.
12.3.7 Clogging	The filter media or other components are clogged, and there may be standing water for longer than intended.
12.3.8 Vegetation	Excessive, inadequate, and/or unhealthy vegetation to support a practice
12.3.9 Embankment and Overflow Condition	Issues with an embankment or overflow weir or channel
12.3.10 Structural Damage	SMP infrastructure, such as concrete or metal elements, have been damaged.
12.3.11 Pool Stability	Permanent pool of water is at the improper elevation.
12.3.12 Pool Quality	Permanent pool of water suffers from poor quality due to algal growth or other issues.

12.3.1 Contributing Drainage Area – Pollutant Sources

Applies Most Commonly To: Sheet Flow/Disconnection, Swales, Bioretention, Porous Pavement, Ponds/Wetlands, Infiltration, and Sand Filters.

Problem #1: Bare soil washing into SMP from drainage area

General Approach for All Practices:

- Identify the specific source(s) of sediment in the drainage area by tracking sediment flow during a rainfall or looking for a track of sediment staining during dry weather.
- For an active sedimentation event, attempt to filter incoming runoff if conditions allow (e.g., enough space upstream of the practice for temporary ponding). Consider installing a silt fence, silt socks (at curb inlets), staked straw bales, or other filtering material at the inlets of the SMP. This will keep at least some of the sediment from getting into the practice.
- Runoff from active construction should not enter the SMP; divert to a temporary and approved sediment control practice.
- For areas of bare soil *not* due to active construction **(bottom photo)**, prep the soil and re-seed/plant with grass species or other thick ground cover appropriate for the region. May also need starter fertilizer, topsoil, and/or compost.
- For steep slopes with bare soil, consider also installing erosion-control matting to hold soil, seed, and straw in place until the vegetation becomes well established.
- For fill and topsoil stockpiles in the drainage area, provide temporary or permanent cover as soon as possible. Alternatively, surround the base of the stockpile with silt fence, or equivalent, to prevent the transport of sediment-laden runoff.





Helpful Skills:

- Erosion and sediment control knowledge and skills
- Landscaping knowledge to understand appropriate ground cover species for re-vegetating bare areas

Equipment Typically Used for Fixing Sediment Sources:

- Silt fencing and other sediment barriers
- Erosion-control matting and/or straw
- Rakes and shovels
- Light excavation or grading equipment for larger jobs
- Equipment to deliver topsoil or compost as needed
- Plants and/or seed mix, plus a way to move and store plant stock without damaging it or drying it out
- Starter fertilizer, topsoil, and/or compost

Problem #2: Other pollution sources in the drainage area

General Approach for All Practices:

- Pollutants may include: road salt, oils, fuels, food grease, wash water, paints and solvents, trash, and many others.
- Identify the source(s) of pollution.
- For pollutants spilled on the ground, remove by hand or use absorbents to soak up wet material. Absorbents and other waste materials shall be disposed of properly.
- For materials stored outside, move them to a covered area or build/add cover over the materials. Provide secondary containment, if possible.
- Make sure all waste containers have lids and fix any leaks (**see improper practice in photo at right**).
- For sites prone to frequent oil leaks and staining (e.g., vehicle maintenance yards), consider installing an oil/water separator to pre-treat runoff that enters the SMP.
- For routine dumping of wash water, grease, paints, or other pollutants, enforce behavior change and explain good housekeeping practices.
- Develop a pollution prevention plan for the site to ensure that hazardous materials and other potential pollutants are not stored where they are exposed to rainfall.
- For areas that receive a heavy salt and/or sand load during the winter, consider diverting upslope runoff, especially for practices such as porous pavement. Some monitoring of winter road or parking lot clearing activities may also be warranted.



Helpful Skills:

- Knowledge of good housekeeping and pollution prevention practices
- Good communication with employees and managers at site (e.g., for correcting bad site operations)

Equipment Typically Used for Correcting Other Pollutant Sources:

- Tarps to cover stockpiles
- Absorbents to soak up spills
- Secondary containment barriers that will hold back any liquids or solids that may leak out of their primary container
- Storage barns, sheds, pole barns and other permanent cover for potential pollutants

12.3.2 Physical Obstructions

Applies Most Commonly To: Sheet Flow/Disconnection, Swales, Bioretention, Rainwater Harvesting, Green Roofs, Ponds/Wetlands, Infiltration, and Sand Filters

Problem #1: Maintenance access is obstructed

Ground-Level SMPs:

- Where a path for vehicles and construction equipment to access the practice was established during construction but is now overgrown, remove woody vegetation and any other tall vegetation. This path should be bush hogged once or twice a year.
- If the SMP needs a large quantity of trash and/or sediment removed in areas where access is limited due to steep grades, overgrown vegetation, etc., it will be necessary to establish safe vehicular access by clearing and possibly re-grading the area. It is advisable to have a maintained, all-weather surface to critical parts of the SMP.
- It is most important to provide access nearest to parts of the practice where sediment and trash tend to accumulate the most: forebay and outlet control structure.
- For an SMP blocked by fences **(photo at right)**, install a gate that is wide enough for vehicles to enter for any current or future maintenance.
- Sometimes access is blocked by unauthorized structures, such as sheds, property fences, retaining walls, etc. Confer with the local stormwater authority on the presence of any maintenance easements and means to gain access to the practice.
- The solutions above should also provide for safe foot access for routine inspection and maintenance.



Rainwater Harvesting:

- Ensure that no structures are covering the filter or the tank's access/inspection port.

Green Roofs

- Ensure that individuals can safely reach the roof with tools in hand (e.g., buckets, pruners, hoses). If the roof cannot be accessed via a walk-through door, this may require installing a wide ladder or fire escape-style stairs on the inside or outside of the building.
- If there is a concern of getting too close to the roof's edge while doing maintenance, install a railing around the edge for safety. Alternatively, for sloped roofs, workers may need to use harnesses during maintenance activities.

Helpful Skills:

- Use of motorized landscaping equipment
- Chainsaw skills
- Use of grading equipment for larger jobs
- *Note*: OSHA safety requirements and certifications may apply to green roof maintenance.

Equipment Typically Used to Regain Proper Access:

- Mower, trimmer
- For very overgrown areas, chainsaw and/or bush hog
- For areas that need to be regraded, excavator, skid steer, or other grading equipment

Problem #2: Flow is obstructed in or out of the practice

General Approach for All Practices:

- Flow can bypass an SMP when there is too much sediment/debris buildup near the inlets or due to grading changes in the drainage area (e.g., repaving of parking lot). If the cause of blockage or bypass is not obvious, inspect the practice during rainfall to watch the flow paths. (See **Section 12.3.5** for additional guidance.)
- Obstruction of overflow or emergency spillway structures is most often due to buildup of debris, such as trees, sticks, trash. It is *very* important to keep these structures clear of such blockages in order to avoid flooding or a dam breach (**avoid conditions caused by beaver activity - top photo**).
- Where debris cannot easily be cleared by hand, special equipment and skills may be needed. An obstructed outlet control structure in a wet pond may need to be accessed by boat **(bottom photo)**. In cases where large sticks, tree branches, trash, or other debris obstruct the overflow or spillway, they may need to be cut up by chainsaw. Large debris will usually need to be hauled away with a truck.





Helpful Skills:

- Chainsaw skills
- Muscle strength to haul large debris
- Boating capabilities

Equipment Typically Used to Clear Obstructions:

- Gloves, shovels, pruners, rakes, and other hand tools
- Waders for wetlands
- Chainsaw for large sticks and branches
- Cable puller (come-along) to remove large branches that cannot be pulled out by hand
- Boat and personal floatation device for outlet control structures in wet ponds
- Truck to haul away debris

12.3.3 Erosion

Applies Most Commonly To: Sheet Flow/Disconnection, Swales, Bioretention, and Ponds/Wetlands

Problem: Erosion on practice surface, inlets, and/or outlets

General Approach for All Practices:

- See **Section 12.3.9** for how to repair erosion on side-slope embankments.
- Rill and gully erosion occur when runoff flow is concentrated. Deep rills and gully erosion on the practice surface **(top photo)** will require the surface to be regraded to make uniform again. Use the lightest equipment possible in order to minimize soil compaction during excavation.
- After excavation, reseed/plant the area with ground cover that is appropriate for the moisture conditions of the practice. Amend or enhance soil as needed according to a soil test; soil may need more organic material to support plants.
- To prevent further erosion on the surface of the practice, ensure that flow from the inlets can spread out adequately and has enhanced energy dissipation features. This may require installing or enhancing a stone apron outlet protection that flares out and down to the level of the practice to slow and spread out the flow. Other options include check dams, energy dissipation devices, or an armored low-flow channel. A stilling basin **(bottom photo)** can also dissipate flow as it comes out of an inlet or outlet pipe. Apply similar treatments to any outlets that are experiencing erosion.
- Any sloped soils that are disturbed during excavation will likely need erosion-control matting to hold it in place while vegetation becomes established.





Helpful Skills:

- Landscaping/Gardening
- Consult with Cooperative Extension Office or independent laboratory for soil testing
- Skills with excavation equipment
- Knowledge of sediment and erosion control practices and resources appropriate for the area

Equipment Typically Used for Fixing Erosion:

- Rakes, shovels, wheelbarrows, and other “landscaping” equipment
- Light excavation or grading equipment for larger jobs
- Equipment to deliver, unload, and move stone and other materials around
- Plants and/or seed mix, plus a way to move and store plant stock without damaging it or drying it out

12.3.4 Departure from Design Dimensions

Applies Most Commonly To: Swales, Bioretention, Ponds/Wetlands, Infiltration, and Sand Filters

Problem: Practice dimensions have been altered

General Approach for All Practices:

- Once constructed, the dimensions of an SMP may become altered from the original design for a variety of reasons. These reasons can include:
- The SMP was not constructed to the proper dimensions at initial installation.
- Sediment accumulation in the SMP reduces the intended storage volume of the practice **(top photo).**
- Redevelopment or regrading of the site encroaches into the footprint of the SMP.
- Dumping of leaves, trash, or other debris into the SMP reduces the intended storage volume of the practice.
- If it appears that the dimensions of an SMP have been altered, proceed as follows:
- Consult the original design or as-built plans and sizing computations for the SMP to identify the intended dimensions and storage volume of the practice. Measure the length, width, and depth of the practice to estimate the current storage volume. Calculate the difference in volume to determine whether it is significant enough to warrant restoring the practice to its original dimensions. If the loss in volume is greater than about 10%, this likely warrants action.
- If the SMP's original storage volume cannot practically be restored because of current site conditions, an additional SMP may need to be built elsewhere on the site in order to regain adequate storage and treatment volume for the site.
- For problems of dumping by individuals on or near the site, install "No Dumping" or similar signage to inform people that this is not an appropriate place to dispose of debris. Any debris that has already been dumped should be removed from the practice either by hand or with equipment.





Helpful Skills:

- Basic surveying
- Understanding stormwater design plans and sizing computations
- Stormwater management design
- Skills with excavation equipment and erosion and sediment control

Equipment Typically Used to Investigate and Fix Dimensions:

- Simple level or survey equipment, tape measure, and other tools to measure SMP dimensions
- Light excavation or grading equipment for larger jobs
- Rakes, shovels, wheelbarrows, and other "landscaping" equipment for small jobs
- Soil stabilization materials

12.3.5 Improper Flow Paths

Applies Most Commonly To: Sheet Flow/Disconnection, Swales, Bioretention, Rainwater Harvesting, Infiltration, and Sand Filters

Problem #1: Flow intended to go into a practice is diverted by debris or grit buildup or capacity issues at inlets

Bioretention, Swales, Infiltration, Sand Filters:





- Grit, sediment, leaves, and other debris builds up at curb inlets or other inlets, sometimes to the point where flow is diverted completely around the practice (photos above). This is a common issue for practices that rely on curb cuts or other small inlet structures to get water into the practice for treatment. A minor amount of debris may be OK and not affect the ability of water to enter the practice. However, be aware of conditions where flow *that is supposed to be treated* is diverted to a downgradient storm drain or other structures in such a way that the stormwater treatment is entirely or partially bypassed.

- In many cases, correcting the problem may simply involve removing debris or unclogging the inlet.
- However, this problem can be chronic if the inlet design is susceptible to clogging. This can occur if the slope from the inlet into the practice is flat and/or there are controllable sources of sediment and debris in the drainage area.
- For chronic problems, consider redesigning inlets to be more clog proof. One solution is to build in a 2 to 3" drop from the curb inlet onto a gravel or stone diaphragm along the edge of the practice (see example in **photo at right**).
- Inlets that are undersized for the flow coming to them should be enlarged and armored with an appropriate erosion-resistant lining.



Rainwater Harvesting:

- Water intended to be collected in rainwater harvesting systems is sometimes not delivered to the tank or cistern if the system of gutters, downspouts, pipes, etc. is not sized properly or if the first-flush diverter or vortex filter is not functioning correctly and diverting too much water away from the tank.
- As with inlets, this may simply be a matter of routine cleaning of gutters, downspouts, vortex filters, etc.
- It may also be a design or capacity issue, in which case, installing larger gutters or a more robust piping system may be in order.



Source: Rainwater Management Solutions 1

Example of enhancing the gutter and piping system leading to a rainwater harvesting system

Helpful Skills:

- Basic surveying
- Typical landscaping skills using materials such as soil, rock/stone, edging material, mulch, etc.
- Light construction of gutters, downspouts, piping
- Some knowledge of first-flush diverter and vortex filter products

Problem #2: Flow is not uniformly accessing the entire treatment area

Bioretention, Swales, Infiltration, Sheet Flow and Disconnection, Sand Filters:

Improper flow path issues in this category include:

- Water forming channels or rills through the treatment bed of bioretention, swales, infiltration, or surface sand filters, and thus not spreading out across the treatment area surface
- Water ponding only at one end of the treatment area because the surface is not level
- Water piping through weak spots to an outlet or underdrain, such as where filter media meets a concrete structure
- See **Section 12.3.3** for issues of channeling or erosion on the treatment surface.
- For uneven treatment area and preferential ponding, assess the severity of the problem. Compare the relative elevations of the "high" part of the treatment area (the area where water does not seem to pond) and any overflow structure or weir where high water flows will leave the practice. If there is still some freeboard (such that the overflow structure is higher than all of the treatment bed surface), then there will still be some ponding for larger rainfall events. Try some minor raking or moving filter media and mulch around to even out the filter bed.
- However, the problem is more serious if parts of the treatment area are higher than the overflow structure. These areas will never be valuable for treatment purposes. The treatment area is supposed to fill up like a bathtub, so some regrading is needed to level out the treatment area.
- If water is piping or short-circuiting through the soil or filter media, forming sinkholes, or otherwise bypassing the intended treatment mechanism, it will be necessary to repair these spots. Around concrete or metal overflow structures, use soil material right around the structure that can be compacted (bioretention filter media tends to be light, sandy, and fluffy and won't compact very well). Another option is to "ramp up" the soil layer to the lip of the structure so that there won't be a hydraulic jump at this potentially weak point. See the figure below.

These three issues are illustrated below:



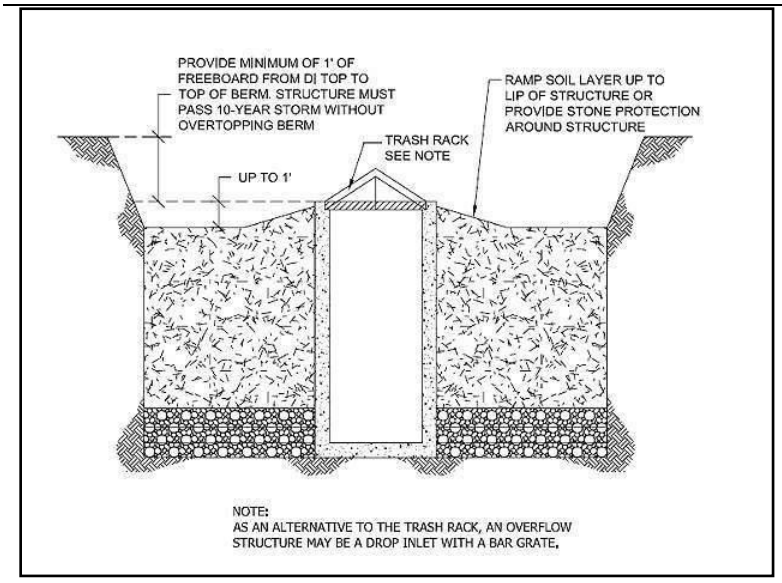
Water from the inlet at top of photo is channeling through the bioretention area.



Water is preferentially ponding only at one end of the bioretention because the surface is not flat.



Water is "piping" down to the underdrain at the weak spot where the filter media meets the concrete overflow structure.



Ramp up soil layer to the lip of the structure to address this being a weak interface where water can work down and create bypassing. (Source: Virginia 2013 Stormwater BMP Specifications, Specification #9, Bioretention, Figure 9.13.)

Impervious Disconnection:

The most likely flow path issues with Impervious Disconnection are: (1) owners intentionally diverting downspouts away from pervious area and onto impervious area **(left photo below),** and (2) slight grading issues diverting the water away from the intended pervious receiving area **(right photo below).**





Both issues are fairly straightforward to address but involve communicating and working with property owners to explain the purpose of disconnection and how to properly maintain it. The second issue may involve some minor regrading or building low-profile berms to get water to flow to the intended disconnection area.

Helpful Skills:

- Rudimentary surveying
- Typical landscaping skills—using materials such as soil, rock/stone, edging material, mulch, etc.

Equipment Typically Used for Inspecting and Fixing Flow Paths

- Surveying equipment (i.e. Site level or total station) to get relative elevations among different parts of treatment area, inlets, overflow structures, etc.
- Small, simple tools—flat shovels, wheelbarrows, rakes, other common landscape/gardening tools
- Large, more complicated equipment—small excavators to move material around or do regrading. Always work from the side of the practice and NOT within the practice itself.

12.3.6 Sediment Buildup

Applies Most Commonly To: Swales, Bioretention, Porous Pavement, Ponds/Wetlands, Infiltration, and Sand Filters

Problem: Sediment accumulation more than 2" thick covering 25% or more of the practice surface area

Bioretention, Swales:

- Determine the source(s) of sediment. The most likely sources are: (1) premature installation of the practice during the construction process and discharge of construction site sediment loads; (2) erosion in the contributing drainage area *after* construction is complete; and (3) erosion along the practice side slope or within the practice itself. If it is an ongoing source, it must be abated (see **Section 12.3.1**, and **Section 12.3.3).**
- Use a soil auger to auger holes in various places across the Bioretention or Swale surface area, especially in areas where sediment is accumulating. Determine how deep the sediment is penetrating into the filter media layer. Usually, it will be the top 2 to 3" that are most affected. Note that for swales *without* an engineered filter media, the sediment layer will likely be confined to the surface.
- Remove the "fouled" filter media to the affected depth (using flat shovels or small excavators and working from the side) and replace with clean material from an approved vendor (bioretention filter media or equivalent). If no vendors are available in your area, use the filter media specifications from the Design Manual to replicate the right mix of sand, topsoil, and composted organic material.
- Check to ensure that the practice is filtering at the proper rate after the next several storm events.

Infiltration:

- For infiltration practices excavated to a suitable infiltrating soil layer (e.g., not stone reservoir layer), use the same procedures as for Bioretention/Swales above.
- For infiltration trenches and basins that have a stone reservoir layer, use similar procedures, but use a shovel to dig into the stone layer to ascertain how deep the sediment incursion is into the stone. Remove down to this layer and replace with clean material.
- If the infiltration practice is clogged, see **Section 12.3.7.**
- As with Bioretention, check for controllable sources of sediment in the Drainage Area (**Section 12.3.1**).

Porous Pavement:

- NOTE: Routine sweeping with a regenerative air vacuum (max. power 2,500 rpm) is important to avoid more costly repairs that result from deferred maintenance. It is best to sweep the pavement surface in early spring after winter sanding/salting materials or snow piles have led to sediment or winter slag accumulation. If the area is surrounded by tree canopy, fall cleanup is essential, as vegetative debris is broken up by vehicle traffic and ground into the pavement surface.
- Observe the pavement surface during a storm event to see whether the sediment is clogging the pavement (i.e., standing water on the surface after the storm stops). If so, see **Section 12.3.7.**
- Remove several of the paver blocks in different parts of the structure to ascertain how deep the sediment is penetrating into the bedding and reservoir layers. Most of the time, sediment incursion will be limited to the top 1 or 2" of the pavement bedding layer (for porous interlocking concrete pavers and concrete grid pavers).
- Based on the above observations, it may be worthwhile to quantify the infiltration rate using ASTM C-1701 and ASTM C1781. This is most useful in conducting the test in the *same place within the pavement surface through the course of several years* to document reduction in infiltration rates. Repair or restorative sweeping is warranted when infiltration rates drop below around 10" per hour. NOTE: As stated above, this can likely be avoided if routine annual sweeping is conducted.
- If sediment covers more than 25% of the surface, is deeper than 2", or vegetation is starting to grow where sediment has accumulated, consult a street-sweeping vendor about *restorative* sweeping. In this case, it will be necessary to use a higher RPM sweeper or vacuum sweeper to suck out more of the bedding pea gravel that has been fouled, then replace with clean material.
- Vegetation growing in pavement joints should be removed either manually or with a water-safe herbicide (e.g., glysophate without surfactants). It is important to not let weeds proliferate in the pavement surface because pulling them out by the roots may damage the pavement structure. (Note: The application of herbicides within wetlands or other waters of the U.S. may require an Aquatic Pesticide Permit from the NYSDEC)



Infiltration test using ASTM C-1781



Pulling grass and weeds from the joints can damage parking surface if roots are firmly established in the bedding layer.

- Check the pavement surface after a storm event to ensure that it is draining properly.

The North Carolina State University (NCSU) Stormwater Engineering Group has an informative Urban Waterways publication, *Maintaining Permeable Pavements (2011).*



Routine, air-vacuum sweeping in the early spring and fall is the best approach for porous pavement maintenance (Photo source: Toronto and Region Conservation)

Ponds and Wetlands:

- Sedimentation is an inevitable process in ponds and wetlands. NOTE that upstream erosion, especially along stream channels or ditches leading to the practice will accelerate the sedimentation process and lead to more frequent and costly sediment removal operations. Whenever possible, it is important to mitigate any upstream erosion issues.
- Forebays and/or pre-treatment areas should be cleaned out when they reach 50% of their design capacity. Once cleanout is complete, it will be worthwhile to install a graduated rod into the forebay with a clear marking of future sediment clean-out levels.
- The main body of a pond or wetland may need to be dredged on an infrequent basis or when sediment has replaced 50% of the design capacity. There are many dredging methods available. Excavators with long arms can handle most small or moderate-sized ponds. Other methods may be necessary for larger facilities. Dredging can be a complicated operation involving dewatering, storage of wet sediment, and possibly hauling to on-site or off-site disposal or refuse areas. Consult a qualified contractor to explore available methods and costs for the particular application. Once again, installation of a graduated rod can help mark future clean-out levels. Note: The dredging of accumulated sediment within regulated wetlands, ponds or at outlet structure may require permits from NYS DEC and/or USACE. In addition, removed sediment should be properly disposed of in a regulated solid waste management facility or in an upland area that is at least 100 ft from regulated wetlands or streams. Sediment managed in upland disposal areas shall be graded, seeded, and mulched.

Sand Filters:

- See the section above on Bioretention/Swales as some of the procedures will be similar, especially for above-ground filters. It is important to determine whether the drainage area is generating a controllable source of sediment that can be abated.
- Underground trench or vault filters will require routine maintenance to: (1) remove accumulated sediment, trash, and floatables from the sedimentation chamber, usually with a vac truck; and (2) remove sediment, grit, and sludge from the top layer of the filter media and replace with clean material. NOTE: Depending on the configuration of the underground filter, confined-space procedures may apply. For a normally operating practice, these maintenance tasks should be conducted every two to three years. If the filter is treating a stormwater hotspot or a particularly dirty drainage area (e.g., vehicle maintenance, washing, repair), the frequency may increase to annually or more often, as dictated by Level 2 inspections. Also, in these cases, it may be warranted to test the material to ensure proper disposal.
- Some proprietary filters require replacement of special cartridges or filter material. Consult the vendor or manufacturer for special maintenance procedures.



Routine cleaning of a perimeter or "Delaware" sand filter. This can be done from the surface, but deeper, vault-type filters will require confined-space entry procedures.

Helpful Skills:

- Most common contracting skills
- Excavation, dewatering, and sediment disposal in some cases
- Knowledge of maintenance equipment, such as vac trucks, street sweepers, etc.
- Knowledge of preferred conditions for bioretention filter media
- Soil testing in some cases where sediment is being removed from stormwater hotspots

Equipment Typically Used for Sediment Removal Activities:

- Small, simple tools—flat shovels, wheelbarrows, rakes, other common tools
- Larger jobs—small or large excavators, loaders, dewatering equipment (pumps, dirt bags, etc.), trucks to haul material to on-site or off-site disposal or reuse areas, erosion and sediment-control supplies.

12.3.7 Clogging

Applies Most Commonly To: Bioretention, Porous Pavement, Infiltration, and Sand Filters

Problem: Filter media clogged; water standing on practice surface for 48 to 72 hours or longer after a storm

Bioretention:

Standing water on the bioretention surface 48 to 72 hours after a storm event is a sure indication of clogging (top photo). Clogging of bioretention practices can be tricky to diagnose as there are several probable causes:

a. Clogged underdrain
b. Filter fabric between filter media and underdrain stone
c. Sediment/grit buildup at surface
d. Erosion of contributing drainage area
e. Improper filter media





The following procedure can be used to work through diagnosing the most common causes, beginning with the simplest and easiest to fix and progressing through more complex remedies:

1. Look for a thin, crusty layer of sediment that covers some or all of the filter media. It is often grayish in color. This thin layer can sometimes be enough to cause slow drainage. Scrape this crust off and ascertain sources of sediment in the drainage area (see **Section 12.3.1**). Often, this problem can be caused by the bioretention filter media being installed too early in the construction process, but other chronic sediment sources should also be checked.
2. Open the underdrain cleanout and pour water in to verify that the underdrains are functioning and not clogged or otherwise in need of repair. The purpose of this check is to see whether there is standing water all the way down through the soil. If there is standing water on the surface, *but not in the underdrain*, then there is clogging somewhere in the soil layer. If the underdrain and cleanout have standing water and there is not water coming out the other end (outlet) of the underdrain pipe, then the underdrain is clogged and will need to be rooted out.
3. Use a soil auger to auger several holes down through the filter media to the underdrain layer (if present) or underlying soil. Check to see whether there is a layer of filter fabric at the bottom of the soil layer. The auger will pierce through any filter fabric that is present, and pieces of fabric in the auger bucket should be removed. Notice if the fabric is “blinded” or clogged with sediment. This is a common issue with older bioretention practices. If the practice has a clogged the filter fabric layer, go to step #6, install wick drain.
4. While checking for filter fabric in auger holes, also note whether there is a layer of saturated filter media or bad filter media (e.g., too much clay content) that may be on top of a good media layer. This will be fairly obvious as the top 3 or 4” will be mucky and saturated, with dry and sandy media below. If this is the case, it will be necessary to remove the bad material and replace with good, clean bioretention filter media in accordance with the design specifications. Till or incorporate the good material into the underlying existing filter media to establish a good contact.
5. If the entire profile of filter media is bad, has too much clay content, or does not appear to meet the specifications for filter media, it will be worthwhile to test the soil and compare against the recommended specifications (e.g., clay content, particle sizes, etc.). If the soil does not meet specifications, see steps #6 and #9 below.

6. If the problem appears to be filter fabric or bad filter media (steps #3 or #5 above), there is a critical decision to be made. It is an expensive proposition to dig up the entire facility to either remove the filter fabric or replace the entire soil layer. If the clogging problem is not severe in nature, an intermediate (and much cheaper) option may be to install wick drains. Using a 6" auger bucket, auger numerous vertical holes around the practice surface area, making sure to auger all the way down to the underdrain stone or underlying soil (if there is no underdrain). Hammer 6" perforated PVC or other type of pipe into these holes. Perforations should be about 3/8" diameter. Fill the pipes with clean underdrain gravel (#57 stone) mixed in with coarse construction sand. These drains will serve to wick fines from the surrounding filter media and will provide alternative drainage. Check after the next several storm events to see whether the wick drains improve drainage.
7. Sometimes the cause of saturated filter media is springs or some type of baseflow coming into the practice. This is a more difficult problem as bioretention is not supposed to receive this type of constant flow. It will be necessary to identify and reroute springs or baseflow or perhaps replace the bioretention practice with a different type of practice.
8. Another possible source of poor drainage or clogging is that there can be too much water on top of the filter media when the bioretention practice fills up. Most specifications call for a maximum ponding depth of 12", but sometimes the ponding depth can be 18 or even 24". While this increases the amount of head pushing water down through the filter media, it can also lead to compaction or too much sediment building up. If the bioretention practice has a ponding depth greater than 12", consider configuring the outlet or large storm overflow to reduce the ponding depth to 12" or less. Check with the local stormwater authority to ensure that doing this will not compromise the required treatment volume of the practice.



Adding sand to a wick drain. The vertical perforated PVC pipe has already been placed in the auger hole.

9. If clogging is too severe to be fixed with wick drains or other remedies listed above, it may be necessary to rebuild the bioretention practice by digging up the existing soil, taking out any filter fabric that is between the filter media and underdrain stone, and rebuilding and replanting according to the design specifications.
10. Whatever the chosen remedy, check to ensure that the practice is filtering at the proper rate after the next several storm events.

The Chesapeake Stormwater Network (CSN) has produced an excellent reference guide for inspecting and diagnosing Bioretention issues, *Technical Bulletin #10, Bioretention Illustrated.* This tool can be used as an additional reference and can be downloaded using this link: http://chesapeakestormwater.net/category/publications/

Infiltration:

- Clogging of infiltration practices can be simple to resolve or fatal:
- On the *simple* side, clogging (or poor drainage) may arise from sediment, vegetative debris, parking lot grit, or other debris clogging the top few inches of soil or stone.
- With luck, the practice will have an observation well (vertical perforated PVC pipe with cap that extends through the stone reservoir in an infiltration trench or basin). Check the observation well three days after a storm event of ½" or more. If water is standing in the observation well to the surface, then the whole profile may be clogged (see below under *fatal*). If the observation well has only a few inches or no water and there is still water standing on the surface, then surface clogging is a likely culprit.
- For infiltration practices in soil (no stone reservoir), auger several holes around the infiltration surface area. If saturated soil seems to be on top of good, clean, dry soil, then surface clogging seems likely.
- For infiltration trenches and basins with a gravel reservoir, dig several holes around the surface to determine, again, whether there seems to be a layer of gravel clogged with sediment, leaves, vegetative debris, parking lot grit, etc. If possible, dig down to where the gravel meets the underlying soil to see whether a layer of filter fabric is present (which may be common with older practices). If this is the case, blinding of the filter fabric may be a cause of the clogging.
- For surface clogging, remove the affected material down to the level where the soil or gravel seems clean, and replace with clean material. If filter fabric seems to be a problem, it will be necessary to dig up the gravel, remove the filter fabric, and rebuild the reservoir layer in accordance with the current design specifications. In either case, check after a storm event to ensure that this has resolved the issue.
- On the *fatal* side, the underlying soil may not be suitable for infiltration, either due to soil characteristics, compaction during construction, or other causes. Check the original design package to see whether any soil testing was done at the time. It may be worthwhile to auger down to the infiltration interface layer (e.g., where stone reservoir meets the underlying soil and then another several inches below this interface), and take several soil samples for lab analysis to compare to current soil specifications (see information below about infiltration soil analysis).
- It may be that a geotechnical analysis would reveal that there is a good infiltration soil layer, but it is lower than the existing

interface. This would still require a complete rebuild and excavation down to the suitable soil layer. Restoring porosity at the designed elevation would require replacing soil above this suitable layer and avoiding compaction.

- Another option would be to convert the practice to a bioretention practice with an underdrain. Check with the local stormwater authority to see whether this would require any site plan or stormwater plan amendments or other permits.
- Many updated state stormwater manuals and specifications include protocols for infiltration soil testing and analysis that reference various ASTM standards. For example, see: *Virginia 2013 BMP Standards & Specifications, Specification #8: Infiltration, Appendix 8-A, Infiltration and Soil Testing*.

Porous Pavement:

- As noted in **Section 12.3.6,** routine sweeping with a regenerative air vacuum (maximum power 2,500 rpm) is important to avoid more costly repairs that result from deferred maintenance. Preventative maintenance is the best and most cost-effective way to prevent clogging in the first place.
- If there is standing water on the pavement surface 48 to 72 hours after a storm event of ½" or more, then the pavement surface is clogged.
- Check the design plan or as-built plan to see whether the porous pavement design includes an underdrain. There may also be underdrain cleanouts at the edge of the porous pavement.
- If there is an underdrain, the first thing to check is whether the underdrain is clogged, crushed, or broken. Check to see whether there is standing water in the underdrain cleanout 48 to 72 hours after a storm event. If the underdrain is dry, pour water into the underdrain with a hose and see whether it comes out the other end. If the underdrain is clogged, snake it out, as this is the first and easiest thing to try.
- If the underdrain is working, then clogging may be due to: (1) clogged surface or bedding layer; or (2) underlying soil is not suitable for infiltration for designs with no underdrain. First, refer to the guidance in **Section 12.3.6,** and then proceed as follows:
- If there is no underdrain and the design is based on soil infiltration under the pavement, it will be worthwhile to check the soil because unclogging the surface layer will likely not fix the problem. Check the original design package for any soil infiltration testing. It is likely worthwhile to remove the entire pavement section in several places down to the soil layer and to do a geotechnical investigation of the soil profile. See: ASTM C-1701/1701M and/or *Virginia 2013 BMP Standards & Specifications, Specification #8: Infiltration, Appendix 8-A, Infiltration and Soil Testing* for examples of soil infiltration protocols (URL above).
- If the soil is not suitable for an infiltration design, it will probably be necessary to rebuild the pavement using an underdrain design or possibly adding subsurface drainage along the perimeter of the parking area.
- If there is an underdrain or the soil is suitable for infiltration, the best approach to try to unclog the pavement is restorative sweeping with a vacuum sweeper. Regenerative air sweepers may not have enough suction to relieve the clogging.
- If vacuum sweeping is not successful, it may be necessary to rebuild any layers fouled with sediment and fines. It is likely that this will be confined to the bedding layer and gravel used in the paver stone joints, but some clogging can possibly move down into the underlying stone reservoir layer.
- The North Carolina State University (NCSU) Stormwater Engineering Group has an informative Urban Waterways publication, *Maintaining Permeable Pavements (2011).*



Water standing on the parking surface 48 to 72 hours after a storm is an indication of clogging. Snow piles at the edge of the photo point to possible clogging from winter sanding or plowing.

Sand Filters:

- See the section above on Bioretention/Swales as some of the procedures will be similar, especially for above-ground filters.
- Also see **Section 12.3.6** for guidance on routine maintenance of the sedimentation and filter chambers.
- As with Bioretention, there can be various causes for clogged filters:
- Filter fabric layer under the filter media that has blinded or clogged
- Clogging of the surface of the filter layer or filter cartridges
- Bad filter media (e.g., sand media)
- "Plumbing" issues with configuration of overflow and underdrain pipes
- Fortunately, filters are usually confined within concrete vaults or manholes, so diagnosing and rectifying clogging problems should be more straightforward. Check the original design or as-built plans. Some of the following guidance may also be helpful:
- For proprietary cartridge or special filter media structures, consult the vendor or manufacturer for recommended solutions.
- See **Section 12.3.6** for guidance on removing the top layer of filter media and replacing with clean material, as well as vacuuming out any sedimentation chambers.
- If it is suspected that overflow or outlet pipes are not configured correctly, check against the design plans and also standard drawings from the manufacturer.
- Chronic clogging problems are likely due to excessively dirty drainage areas, including uncontrolled sources of sediment, oil and grease wash off, vegetative debris from surrounding trees or shrubs, or other sources. It will be important to check and resolve any controllable sources of clogging in the drainage area (see **Section 12.3.1**).



Standing water on the parking lot is evidence that this perimeter sand filter (under the sidewalk) is clogged.

Helpful Skills:

- Soil infiltration analysis techniques as per ASTM and/or current BMP design specifications
- Excavation, dewatering, and sediment disposal in some cases
- Knowledge of maintenance equipment, such as vac trucks, street sweepers, etc.
- Knowledge of preferred conditions for bioretention, sand filter media, or standard porous pavement types and bedding layers
- General practice of trying easier or less expensive strategies before jumping right to wholesale reconstruction of a practice

Equipment Typically Used for Unclogging Activities:

- Soil infiltration testing or geotechnical equipment
- Small or large excavators, loaders, dewatering equipment (pumps, dirt bags, etc.), trucks to haul material to on-site or off-site disposal or reuse areas, erosion and sediment control supplies
- Pavement demolition and repair equipment
- Mulch, plants, filter media, and other materials needed to rebuild practices

12.3.8 Vegetation

Applies Most Commonly To: Tree Planting, Swales, Bioretention, Green Roofs, and Ponds/Wetlands

Problem #1: Not enough vegetation; vegetation *is unhealthy*

Tree Planting, Swales, Bioretention:

- Test soil/media to ensure proper conditions exist for plant survival.
- Check water drawdown after a storm to make sure that wet/saturated conditions are not the cause of plant failure. If this IS an issue, see **Section 12.3.7.**
- Amend or enhance soil as needed; soil may need more organic material to support plants, but do not use uncomposted organic material or animal waste, as it will likely export undesirable nutrients to the stormwater system.
- If plants have continued to die, consider a different species or entire planting palette or revised planting plan **(photo to right shows the need for a whole new planting plan)**. Also consider using an appropriate bioretention or swale native seed mix to supplement use of plugs or other nursery stock.
- Consult a horticulturalist or plant nursery if there is evidence of disease or pests.
- Replant and add mulch or ground cover as needed.



Ponds and Wetlands:

- See **Section 12.3.12** for general guidance on pond and wetland vegetation maintenance, as well as the following.
- For emergent vegetation, determine whether water depths are too deep or shallow for survival (i.e., depths are different from design depths, or original design included improper vegetation).
- If a small amount of supplemental vegetation is needed, plant wetland plugs per nursery guidance.
- For large-scale plantings, drain the permanent pool and plant during the early spring.

Green Roof:

- Consult with a green roof plant vendor about possible causes of plant failure. Lack of watering during initial establishment could be the main culprit.
- Work with a qualified vendor to develop and install a new planting plan.
- Speak with building facilities maintenance personnel to ensure they understand need for watering and caring for new plants after they are installed.

Helpful Skills:

- Landscaping/gardening
- Consult with Cooperative Extension Office or independent laboratory for soil testing
- If original planting plan is deemed inadequate, consult a landscape architect or horticulturalist to determine whether a revised planting plan is needed.
- Knowledge of native plant and/or wetland plant nurseries in general region

Problem #2: Too much vegetation, overgrown (with invasive species), not maintained

General Approach for All Practices:

- Determine which invasive plants are present. For a list of regulated and prohibited invasive plants in New York State, see *New York State Prohibited and Regulated Plants* (NYS DEC, NYS Agriculture and Markets, 2014) at: http://www.dec.ny.gov/docs/lands_forests_pdf/isprohibitedplants2.pdf . Invasive plants shall be properly disposed of in a manner that renders them non-living and non-viable to prevent the establishment, introduction or spread of disposed species.
- Review whether the original planting plan relied on these plants; for example, some wetland plans may rely on "aggressive colonizers" such as cat tails.
- For more detailed information regarding appropriate control measures for each species, consult the Cornell Cooperative Extension Invasive Species Program at the following link: http://ccetompkins.org/environment/invasive-nuisance-species/invasive-plants. If invasive species have taken over the facility, wholesale removal and replanting with desirable species may be necessary.
- If (non-invasive) plants are overgrown, (**example in photo to right**), remove, thin, or trim back excessive vegetation.
- If an entire new planting plan is deemed necessary, use SMP-Specific Guidance in the remainder of this manual, along with landscaping goals for the site location, to devise a plan that allows for adequate growth over a long period of time. A simple, clear planting design (**example in photo below**) with a long-term plan has the best chance of being maintained through time. Maintenance crews need to know which plants are part of the design versus weeds and how the practice should look from year to year.
- Develop a plan to ensure proper weeding, pruning, trimming, and replanting to maintain the plan over time.
- See **Section 12.3.12** for general guidance on pond and wetland vegetation maintenance, as well as the following.





Helpful Skills:

- Knowledge of exotic and invasive species is needed. Consult a local Cooperative Extension Office.
- Specific measures may include mechanical hand pulling, regrading (requires construction equipment), or herbicide/pesticide application by a certified pesticide applicator. See DEC webpage for "Pesticide Applicator/Technician Guidance".
- Landscape architect
- Knowledge of wetland plants (for ponds/wetlands)
- Knowledge of SMP design (to understand hydrologic regime for plant selection)

Equipment Typically Used for Vegetation Maintenance Activities

- Soil auger to diagnose issues of soil drainage that may affect vegetation health
- Rakes, shovels, wheelbarrows, and other "landscaping" equipment
- Light excavation or grading equipment for larger jobs
- Equipment to deliver, unload, and move filter media, mulch, and other materials
- Plants and/or seed mix, plus a way to move and store plant stock without damaging it or drying it out
- Planting bars, soil drills, etc.
- For planting in standing water (e.g., ponds, wetlands), pumps or pump-around systems and dirt bags or other ways to temporarily dewater planting area

12.3.9 Embankment and Overflow Condition

Applies Most Commonly To: Swales, Bioretention, and especially Ponds/Wetlands

Problem #1: Rill and channel erosion and bare dirt areas of embankments

Swales, Bioretention:



- Erosion and areas of bare dirt indicate two basic issues: 1) soils and moisture levels are not suitable for the plants or turf used; and 2) vegetation cannot take hold because of concentrated flow, physical wear, or poor soil conditions. Address these issues first with a soil/media test to ensure proper conditions exist for plant survival.
- High salt content from winter deicing of pavement is a common culprit of poor soil conditions for roadside plants. If this is the case, restore area with plant species that can tolerate salt levels, or replace edge plants with a stone diaphragm to intercept runoff from road.
- Amend or enhance soil as needed; soil may need more organic material to support dense ground cover.
- For concentrated flow and physical wear, redirect concentrated flow so that it disperses in mulched and vegetated areas. Anchor mulch and replant with vigorous plants recommended through the soils test.
- If plants have continued to die, consider a different species or entire planting palette or a revised planting plan (see **Section 12.3.8** and **photo to right)**. Also consider using an appropriate bioretention or swale native seed mix to supplement use of plugs or other nursery stock.
- Consult a horticulturalist or plant nursery if there is evidence of disease or pests.
- Replant and add mulch or ground cover as needed.

Ponds and Wetlands:



- Where erosion has deposited soil within the pond or wetland water line, remove this material and reshape the slope.
- If a small amount of supplemental vegetation is needed, plant wetland plugs per nursery guidance.
- To address rill and channel erosion, first obtain a soil sample test to get soil amendment recommendations. Undercut the eroded sections and replace with clean amended soil, based on the soil test, and reseed as appropriate for the season.
- It may be necessary to stake in seed blankets or erosion-resistant lining (e.g., erosion-control matting or even rock in extreme situations) to stabilize eroded areas. Again, choose seed types appropriate for the season.
- Based on soil test guidance, reseed bare areas to prevent further erosion.
- For persistent problems, reroute the flow to more stable receiving areas using berms, diversions, etc.

Helpful Skills:

- Landscaping/gardening
- Consult with Cooperative Extension Office or independent laboratory for soil testing.
- If original planting plan is deemed inadequate, consult a landscape architect or horticulturalist to determine whether a revised planting plan is needed.
- Knowledge of sediment and erosion control practices and resources appropriate for the area

Problem #2: Settlement, loss of armoring material, erosion of emergency overflow

General Approach for All Practices:

- Settlement, loss of armoring material, erosion and accumulated debris can affect the dimension, water velocity or capacity of the emergency overflow such that embankment failure could occur in flood events (**photos below**).
- Inspect for exposure of soil or geotextile base material in the overflow and re-armor areas of exposure.
- In cases of settlement, a qualified engineer should be sought to assess its capacity and impact on pond capacity.
- Erosion of spillways should be repaired and revegetated as described for embankments.





Helpful Skills:

- Knowledge of sediment and erosion control practices for the area
- Completion of self-guided training on dam safety through Association of State Dam Safety Officials: http://www.damsafety.org

Problem #3: Impounding structure (embankment or dam) integrity issues due to tunneling or digging animals, woody vegetation, or seepage

Ponds/Wetlands:

- Impounding structure stability is a serious concern, especially where trees have become established on the slopes, or there's evidence of animal burrows or seepage.
- The best approach for trees on the crest, slopes, and adjacent to an impounding structure or embankment is to cut them down before they reach significant size. If large trees have been cut down but their root systems not removed, carefully monitor the area around the remaining stumps for signs of seepage.
- Exercise judgement for trees on the surrounding side slopes that are NOT impounding structures (not designed to hold back water in the pool). Sometimes a forested edge can enhance the appeal of a pond, but access for maintenance must also be available, and some trees can drop debris into ponds, leading to quality issues.
- Animal burrows can be dangerous to the structural integrity of the embankment because they weaken it and can create pathways for seepage. Professional exterminators may be needed to trap and remove animal pests.
- Seepage as water flow or boiling sand on the lower portion of the exterior slope or toe area of an impounding structure should be brought to the attention of a qualified engineer.
- Leakage around conveyance structures such as barrel pipes or spillways should be monitored for increase since the last inspection. A qualified engineer is needed to resolve issues of piping or seepage along the barrel pipe through a dam.
- Turbidity or cloudiness in seepage should also be brought to the attention of a qualified engineer.

Helpful Skills:

- Completion of self-guided training on dam safety through the Association of State Dam Safety Officials: http://www.damsafety.org

Equipment Typically Used for Embankment and Overflow Maintenance Activities

- Excavation or grading equipment for larger jobs
- Equipment to deliver, unload, and move filter media, mulch, and other materials
- Plants and/or seed mix, seed blanket and erosion control materials
- Rod and level for settlement measurements
- Clear glass bottle for seepage visual test

12.3.10 Structural Damage

Applies Most Commonly To: Any Practice

Problem: Structural damage to pipes, headwalls, standpipes, inlet/outlet structures, grates, curbs, and other structural components

- Structural components are necessary for water to flow into and out of stormwater practices as intended. This is a broad category that involves components composed of concrete, metal, plastic, and other materials. Some common examples include:
- Deteriorated or broken curbs that allow water to bypass a practice
- Slumping or sinkholes where soil meets a concrete drop inlet or outlet structure
- Broken or collapsed inlets
- Connections in an inlet or manhole structure that are not parged and are leaky
- Collapsed or crushed pipes (especially corrugated metal)
- Missing or broken steps or other safety features in a manhole or outlet control structure
- Root penetration and clogging of underdrain or other pipes
- Broken check dams
- There are too many particular instances to mention here, but the general idea is to inspect and repair any structural components that are affecting the performance of a practice or leading to a potential health or safety issue.

Helpful Skills:

- General contracting skills—concrete work, metal, proper joint sealing
- Routing out clogged pipes
- Perhaps CCTV experience to look for broken or clogged pipes

Equipment Typically Used for Fixing Erosion:

- General contracting
- CCTV

12.3.11 Pool Stability

Applies Most Commonly To: Ponds/Wetlands

Problem: Flooded or dry pond outlet issues

General Approach for Ponds and Wetlands:

- Note high-water marks on structures or pond banks and compare with outlet structure weir.
- If the outlet weir is submerged, investigate downstream for plugs such as beaver dams, woody debris or sediment bars. Refer to **Section 12.3.2** for removal of obstructions.
- If the pond is retaining more water than it is supposed to and there is no flow from the outlet with no visible blockages in the outlet pipe, look for obstructions above the weir or outlet pipe. Woody debris, vegetation and silt can plug outfall weirs or blind rock outfall protection. Removal of such blockages tends to be a hand exercise. A jet/vacuum truck or other heavy equipment may be needed to clear excessive or precarious blockages (**photo on right**).
- If the pond is too low and not holding water in the designated pool, the outlet structure should be closely inspected to see whether it has settled from the original construction or there is leakage through joints or cracks. Finding no deficiencies with the structure, investigate the pond embankment as described in **Section 12.3.9** for evidence of seepage.
- If there is no evidence of seepage and the outlet structure has no apparent structural defects, an engineer should be consulted to review the pond design and determine the proper outlet elevation.





Helpful Skills:

- The ability to navigate uneven surfaces, to follow ditch banks and to sight drainage obstructions is implicit with this task.
- Ability to use a level to sight adequate elevation fall is helpful.

Equipment Typically Used for Pool Stability Evaluations

- Bright flashlight for pipe inspection
- Manhole hook for manhole cover access
- Brush hook to clear debris and walking surfaces
- Rod and level to check elevation differentials

12.3.12 Pool Quality

Applies Most Commonly To: Ponds/Wetlands

Problem #1: Littoral shelves and pond edge: not enough vegetation; vegetation *is unhealthy;* invasive plants have taken over

Ponds and Wetlands:



- If there is not enough vegetation or no vegetation, determine whether maintenance practices have killed the plants. If so, work with the owner to educate those responsible for pond maintenance on correct methods. Consult plans for original planting and replant.
- For emergent vegetation, determine whether water depths are too deep or shallow for survival (i.e., depths are different from design depths, or original design included improper vegetation).
- If a small amount of supplemental vegetation is needed, plant wetland plugs per nursery guidance.
- For large-scale plantings, drain the permanent pool and plant during the early spring. If ponds are overgrown so that less than 25% of the surface area is visible, the pond water level should be lowered to enable selective plant removal.
- Invasive plants, such as phragmites or common reed, should be removed with their roots. Be sure to restore areas that have been disturbed with replacement vegetation because root removal exposes soil to erosion. Invasive plants shall be properly disposed of in a manner that renders them non-living and non-viable to prevent the establishment, introduction or spread of disposed species.
- Native plants selected based on environmental conditions have the greatest chance for survival.
- Consult a horticulturalist or plant nursery if there is evidence of disease or pests.

Helpful Skills:

- Landscaping/gardening
- If original planting plan is deemed inadequate, consult a landscape architect or horticulturalist to determine whether a revised planting plan is needed.
- Knowledge of native plants and/or wetland plant nurseries in general region
- Familiarity with New York invasive terrestrial and wetland plants and their control: http://nyis.info/

Problem #2: Pond color, scum, odor, algae, and plant overgrowth



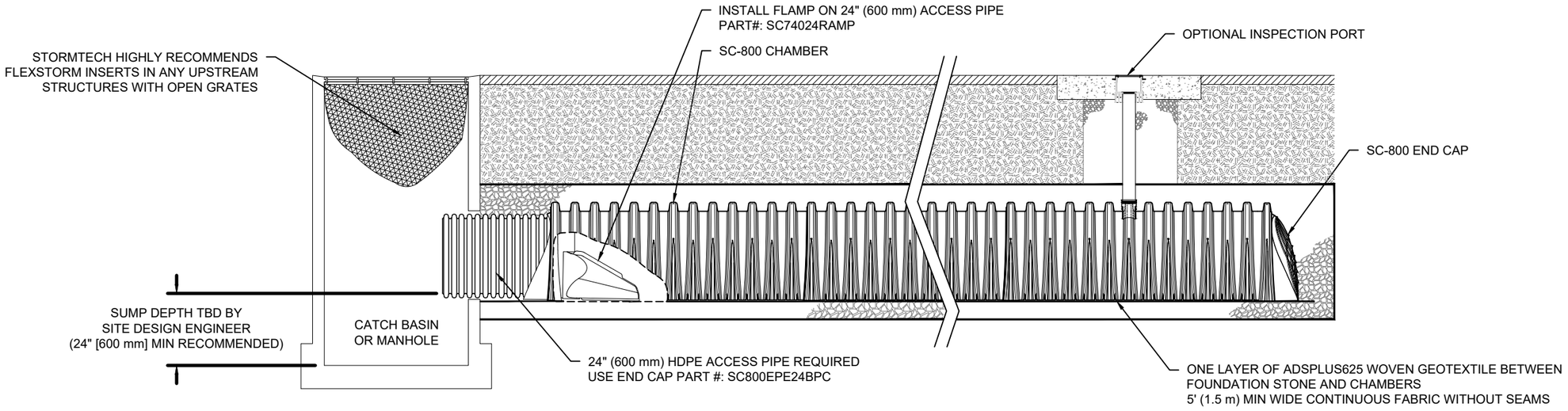
- Ponds that have algae covering more than 20% of the surface should have maintenance to remove it. Raking or mechanical harvesting of filamentous algae offers short-term control, but feasible long-term strategies should be considered.
- Pond maintenance companies should be relied on to identify the algae and appropriately control them. Pond specialists can control the algae growth in ponds, but its growth and reproduction are dependent on nutrients. When nutrients are in abundance, so will be the algae or vegetation.
- Plants can be used in shallow shelfs at inlets to take up nutrients. However, they must be maintained, and cuttings shall be removed to take nutrients out of the pond system.
- If (non-invasive) plants are overgrown, remove or trim back excessive vegetation. Remove cuttings and trimmings. Do not allow vegetative debris to remain in the pond.
- Pond clarity and color can be impacted by excessive sediment discharge or flow shortcircuiting. For issues of clarity and color, follow the recommendations in **Section 12.3.6**.
- If invasive aquatic plants are identified, follow DEC guidelines for reporting and controlling invasives (see **Section 12.3.8**).
- Some color, odor, and pond quality issues can be caused by leaks, spills, and other releases in the drainage area. Any petroleum odor or oily sheen (aside from natural rainbow sheen associated with decomposition of organic matter) should be reported to the appropriate state or local response agency. Other peculiar colors or odors can be investigated in collaboration with relevant agencies. Common issues are grease, paint, or other substances poured into storm drains, dumpster management, and stockpiles of various materials exposed to rainfall.

Helpful Skills:

- Ability to recognize invasive aquatic plants
- Specific measures may include mechanical hand pulling, regrading (requires construction equipment), or herbicide/pesticide application by a certified pesticide applicator. See DEC webpage for “Pesticide Applicator/Technician Guidance”.
- Knowledge of wetland plants and common types of algae and aquatic weeds
- Knowledge of types of pond maintenance practices

Equipment Typically Used for Pool Quality Investigations

- High-top rubber boots
- Canoes or small boats
- Brush hook to clear vegetation and access pond bank
- Secchi disk to check and compare pond color and clarity
- Large-mouth bottle to collect algae and water quality samples
- Various materials to control aquatic weeds and algae



SC-800 ISOLATOR ROW PLUS DETAIL
NTS

INSPECTION & MAINTENANCE

STEP 1) INSPECT ISOLATOR ROW PLUS FOR SEDIMENT
- A. INSPECTION PORTS (IF PRESENT)
  - A.1. REMOVE/OPEN LID ON NYLOPLAST INLINE DRAIN
  - A.2. REMOVE AND CLEAN FLEXSTORM FILTER IF INSTALLED
  - A.3. USING A FLASHLIGHT AND STADIA ROD, MEASURE DEPTH OF SEDIMENT AND RECORD ON MAINTENANCE LOG
  - A.4. LOWER A CAMERA INTO ISOLATOR ROW PLUS FOR VISUAL INSPECTION OF SEDIMENT LEVELS (OPTIONAL)
  - A.5. IF SEDIMENT IS AT, OR ABOVE, 3" (80 mm) PROCEED TO STEP 2. IF NOT, PROCEED TO STEP 3.
- B. ALL ISOLATOR PLUS ROWS
  - B.1. REMOVE COVER FROM STRUCTURE AT UPSTREAM END OF ISOLATOR ROW PLUS
  - B.2. USING A FLASHLIGHT, INSPECT DOWN THE ISOLATOR ROW PLUS THROUGH OUTLET PIPE
    - i) MIRRORS ON POLES OR CAMERAS MAY BE USED TO AVOID A CONFINED SPACE ENTRY
    - ii) FOLLOW OSHA REGULATIONS FOR CONFINED SPACE ENTRY IF ENTERING MANHOLE
  - B.3. IF SEDIMENT IS AT, OR ABOVE, 3" (80 mm) PROCEED TO STEP 2. IF NOT, PROCEED TO STEP 3.

STEP 2) CLEAN OUT ISOLATOR ROW PLUS USING THE JETVAC PROCESS
- A. A FIXED CULVERT CLEANING NOZZLE WITH REAR FACING SPREAD OF 45" (1.1 m) OR MORE IS PREFERRED
- B. APPLY MULTIPLE PASSES OF JETVAC UNTIL BACKFLUSH WATER IS CLEAN
- C. VACUUM STRUCTURE SUMP AS REQUIRED

STEP 3) REPLACE ALL COVERS, GRATES, FILTERS, AND LIDS; RECORD OBSERVATIONS AND ACTIONS.

STEP 4) INSPECT AND CLEAN BASINS AND MANHOLES UPSTREAM OF THE STORMTECH SYSTEM.

NOTES

1. INSPECT EVERY 6 MONTHS DURING THE FIRST YEAR OF OPERATION. ADJUST THE INSPECTION INTERVAL BASED ON PREVIOUS OBSERVATIONS OF SEDIMENT ACCUMULATION AND HIGH WATER ELEVATIONS.

2. CONDUCT JETTING AND VACTORING ANNUALLY OR WHEN INSPECTION SHOWS THAT MAINTENANCE IS NECESSARY.

CANASTOTA POCKET NEIGHBORHOOD
CANASTOTA, NY, USA

DATE: 03/26/2025 | DRAWN: JL | CHECKED: N/A
PROJECT #:

DATE	DRW	CHK	DESCRIPTION

StormTech®
Chamber System
1-800-821-6710 | WWW.STORMTECH.COM

ADS
4640 TRUEMAN BLVD
HILLIARD, OH 43026
1-800-733-7473

THIS DRAWING HAS BEEN PREPARED BASED ON INFORMATION PROVIDED TO ADS/STORMTECH UNDER THE DIRECTION OF THE PROJECT'S ENGINEER OF RECORD ("EOR") OR OTHER PROJECT REPRESENTATIVE. THIS DRAWING IS NOT INTENDED FOR USE IN BIDDING OR CONSTRUCTION WITHOUT THE EOR'S PRIOR APPROVAL. EOR SHALL REVIEW THIS DRAWING PRIOR TO BIDDING AND/OR CONSTRUCTION. IT IS THE ULTIMATE RESPONSIBILITY OF THE EOR TO ENSURE THAT THE PRODUCT(S) DEPICTED AND ALL ASSOCIATED DETAILS MEET ALL APPLICABLE LAWS, REGULATIONS, AND PROJECT REQUIREMENTS.

APPENDIX R: DRAFT STORMWATER MAINTENANCE AGREEMENT

STORM WATER CONTROL FACILITY MAINTENANCE AGREEMENT

Whereas, Housing Visions Consultants with offices at 1201 E. Fayette St. Syracuse, NY 13210 ("Owner") is the owner of the real property known as 160 East Center Street Canastota, NY 13032 and,

Whereas, the Owner obligates itself to provide long term maintenance and continuation of Storm Water Control Measures, on the Premises, which maintenance and measures are approved by the Village of Canastota (the "Village") for the construction of the Canal Side Pocket Neighborhood; and

Whereas , these Storm Water Control Measures include but are not limited to (i) permanent site gradients, site drains, open drainage swales, and underground infiltration chamber depicted in the Village-approved final site plan for the Project (as that plan may be modified from time to time with the approval of the Village, acting through the Planning Board or its Engineering Department or as otherwise appropriate (the "Storm Water Control Facilities"), and (ii) the post-construction operational provisions of the Storm Water Pollution Prevention Plan for the Project dated July 2025 and prepared by Passero Associates, which are identified in Schedule B attached as they currently exist, as modified from time to time with any necessary governmental approvals (the "Storm Water Control Operational Requirements"), and

Whereas, the Owner understands and agrees that these Storm Water Control Facilities must be built in accordance with the Village-approved plans for the Project and thereafter be maintained, cleaned, repaired, replaced and continued in perpetuity in compliance in order to ensure to the Village, optimum performance in accordance with the Storm Water Control Operational Requirements.

Now, therefore, the Owner makes this declaration for the benefit of the Village and agrees to be bound by the following:

1 Owner is defined herein as the owner or association of owners, the developer, their heirs, successors and assigns. This declaration requires the Owner, its heirs, successors and assigns, to comply with such Storm Water Control Measures.

2 The Owner shall maintain, clean, repair, and replace (if necessary) the Storm Water Control Facilities as are necessary to ensure optimum performance of these Storm Water Control Facilities as the project site and such Storm Water Control Measures are designed, as provided in the Storm Water Control Operational Requirements. Moreover, the owner shall at all times retain access to the Storm Water Control Facilities in order to carry out these obligations.

3 The Owner shall be responsible for all expenses related to the Storm Water Control Operational Requirements, including but not limited to compliance with this declaration

4 The Owner shall provide periodic inspection of Storm Water Control Facilities by a Professional Engineer licensed by the State of New York, not less than once every five-year period, to determine the condition and integrity of the Storm Water Control Facilities. The owner shall cause the inspecting engineer to prepare and submit a report of the findings, including recommended actions, to the Village within 30 days of the inspection.

5 The Owner shall not authorize, undertake or permit alteration, abandon, modification or discontinuation of the Storm Water Control Measures without written approval of the Village or the Commissioner of Public Works, or his designee.

6 The Owner shall undertake all necessary repairs and replacement of the Storm Water Control Measures at the direction of the Village as may be in accordance with the recommended action of the inspecting Professional Engineer referred to in Section 4 above.

7 If ever the Village reasonably determines that the Owner has failed to construct or maintain the Storm Water Control Measures as required by this Declaration or has otherwise failed to carry out its obligations under this Declaration, the owner authorizes the Village to undertake steps reasonably necessary to remedy the failure if such failure is not cured within thirty (30) days after written notice of such failure has been given to the Owner. The above notwithstanding, the Village has the right of access to this Storm Water Control Facility for inspection of compliance with this declaration, or for emergency access to this facility in the event that public safety is compromised and/or there exists a threat to property and to undertake the obligation set forth herein as the obligations of the owner or to prevent alteration of the easement area. This includes the right to travel the property wherever is needed to access the underground infiltration chambers. The Village, by its servants, agents, and employees, shall have the right to enter upon said Storm Water Control Facilities whenever necessary for the purposes stated herein, and/or in the sole discretion of the Village, to construct, maintain, replace, repair or clean the Storm Water Control Facilities and make whatever repairs necessary which are required by the Lot Owners in this Declaration.

8 Should the Village, in its sole discretion, after reasonably determining that an emergency exists and action needs to be taken to the Storm Water Control Facility immediately (such determination is made in the sole discretion of the Village), or the Owner has failed to construct, maintain, replace, repair or clean the Storm Water Control Measures required by this Declaration, or has otherwise failed to carry out its obligations under this Declaration, or has failed to undertake steps reasonably necessary to remedy the failure and/or such failure(s) are not cured within thirty (30) days after the written notice of such failure has been given to the Owner, the Village is authorized to expend such sums as it reasonably determines to carry out the obligations of the owners as set forth herein.

9 Should an expenditure of funds be required by the Village, the Village will be reimbursed any and all sums expended, plus interest at the rate of (Nine per cent) 9% per annum.

10 This Declaration is made for the sole benefit of the Village and creates no rights in any other party, including without limitation other landowners and other governmental agencies. There are no third party beneficiaries of this Declaration. The rights of the Village under this Declaration may be exercised only by the Village and may not be assigned to any other party.

IN WITNESS WHEREOF, the undersigned has subscribed this Declaration as of the day and year set forth above.

Housing Visions Consultants

By: _____

Christopher Trevisani , Owner's Representative……

STATE OF NEW YORK)

: SS.

COUNTY OF MADISON)

On the ____ day of _____, in the year 2025 before me, the undersigned, a notary public in and for said state, personally appeared, Chirstopher Trevisani, personally known to me or proved to me on the basis of satisfactory evidence to be the individual whose name is subscribed to the within instrument and acknowledged to me that he executed the same in his capacity, and that by his signature on the instrument, the individual or the person upon behalf of which the individual acted, executed the instrument.

_____

Appendix J

Community Air Monitoring Plan

C&S Engineers, Inc.
499 Colonel Eileen Collins Blvd.
Syracuse, New York 13212



Community Air Monitoring Plan

Old Erie Commons
160 Center Street, Canastota, New York
BCP Site No. C727015

Prepared for:

Old Erie Commons, LLC
1201 East Fayette Street
Syracuse, New York

November 2025

C&S Project No. W96.013.001

Community Air Monitoring Plan

Old Erie Commons
160 Center Street
Canastota, Madison County, New York
BCP Site No. C727015

Prepared for:

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November 2025

C&S Project#: W96.013.001

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1.0 OVERVIEW

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

Planned sampling and remediation activities to be conducted at the Site will require real-time air monitoring for VOCs and airborne particulate levels at the perimeter of all work areas during all site activities. The nature of such monitoring and the number of monitoring points will be dependent upon and determined by the nature and extent of activities being conducted at any given time. It is the intent of this CAMP to ensure that real-time monitoring is representative of site conditions and risks and is extensive enough to ensure that the surrounding community is sufficiently protected from potential airborne contaminants.

The air monitoring to be conducted at the Site will employ the following provisions:

- **Mobile Air Monitoring Stations**: The following monitoring stations will be established each day, based on current wind direction and the location and nature of site activities. The station locations will be adjusted throughout the day, as needed, to account for changes in wind direction.
    - *Upwind Monitoring Station*: One monitoring station equipped to monitor and log VOC and particulate concentrations near the upwind side of the site. This upwind monitoring location will provide data on local ambient (i.e., background) conditions and serve as a comparison for VOC and particulate concentrations recorded at the downwind monitoring locations.
    - *Downwind Monitoring Stations*: Monitoring stations will be placed downwind of intrusive site work activities (i.e., excavation, soil handling, loading, soil mixing) and routes of truck and equipment traffic across the site. The number of stations will depend on the size of the area of subsurface disturbance or the number of active work areas. Concentrations of VOC and particulates will be continuously monitored at these locations, and compared to upwind (background) concentrations, to determine if site activities are resulting in higher downwind concentrations.

- **Dust Suppression Measures**: Dust suppression techniques will be employed by the contractor as necessary to limit fugitive dust generated in disturbed areas during investigation and remediation activities. Such techniques may be employed, as

appropriate, even if the community air monitoring results indicate that particulate levels are below action levels. Techniques may include but are not limited to:

- Applying water on haul roads
- Wetting equipment and excavation surfaces
- Wetting soil during on-site handling, stabilization, and loading activities
- Pre-wetting the surface of soil in trucks prior to transportation from the site
- Hauling materials in properly tarped or watertight containers
- Limiting vehicle speed on the site
- Limiting the size of excavations
- Covering excavated areas and materials following excavation
- Applying alternate dust suppression agents if use of water does not adequately mitigate dust generation

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

- **Periodic Monitoring** for VOCs will be required during non-intrusive activities such as the collection of soil and sediment samples or the collection of groundwater samples from existing monitoring wells. "Periodic" monitoring during sample collection might reasonably consist of taking a reading upon arrival at a sample location, monitoring while opening a well cap or overturning soil, monitoring during well baling/purging, and taking a reading prior to leaving a sample location. In some instances, depending upon the proximity of potentially exposed individuals, continuous monitoring may be required during sampling activities. Examples of such situations include groundwater sampling at wells on the curb of a busy urban street, in the midst of a public park, or adjacent to a school or residence.

2.0 VOC MONITORING, RESPONSE LEVELS AND ACTIONS

Monitoring of real-time VOC concentrations will be performed at each monitoring station (upwind, downwind, and fixed) using portable photo-ionization detectors (PIDs) equipped with 10.6 eV lamps. These instruments are capable of detecting the VOCs that may be present in the soil or groundwater at the site.

2.1 Monitoring Equipment

The instrument specifications are as follows:

Instrument Manufacturer	RAE Systems, Inc.
Model Number	MiniRAE 3000
Type of Sensor	Photoionization with 10.6 eV lamp
Compounds Measured	Volatile organic compounds with ionization potentials at or below 10.6 eV
Measurement Range	0.0 to 15,000 ppm by volume
Resolution	0.1 ppm at concentration range 0.0 to 999.9 ppm and 1.0 ppm at concentration range 1,000 to 15,000 ppm
Calibration	100 ppm Isobutylene
Sampling Pump	Internal, integral flow rate at 500 cc/min
Datalogging	6 months at 1 minute increments
Direct Readout	Instantaneous reading of VOCs as ppm by volume; high values; STEL and TWA; battery and shutdown voltage; date, time, and temperature
Alarms	95 dB at 12" (30 cm) buzzer and flashing red LED to indicate exceeded preset high, low, STEL, and TWA limits; additional diagnostic alarm and display message for low battery and pump stall
Operating Time	16 hours
Operating Temperature	-20 to 50 °C (-4 to 122 °F)

VOCs will be monitored at the downwind perimeter of the immediate work area (i.e., the exclusion zone) on a continuous basis while ground-intrusive or dust generating (i.e., truck and equipment traffic; soil handling, mixing, and loading) activities are being performed. Upwind concentrations will be also measured at the upwind perimeter of the site during such activities, to monitoring ambient / background levels that are present in the area. The monitoring work will be performed using equipment appropriate to measure the types of contaminants known or suspected to be present. The equipment will be calibrated at least daily for the contaminant(s) of concern or for an appropriate surrogate, such as isobutylene. The equipment will be capable of calculating 15-minute running average concentrations, which will be compared to the levels specified below.

Upwind and downwind monitoring locations must be adjusted throughout the course of each workday in the event of changes in wind direction, as indicated by the on-site weather station.

2.2 VOC Action Levels and Responses

The following action levels will be observed during the duration of work at the site:

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

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

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

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

3.0 PARTICULATE MONITORING, RESPONSE LEVELS, AND ACTIONS

Particulate concentrations will be monitored continuously at the upwind and downwind perimeters of the site while ground-intrusive or dust generating (i.e., truck and equipment traffic; soil handling, mixing, and loading) activities are being performed. Upwind concentrations should be also measured at the upwind perimeter of the site during such activities, to monitoring ambient / background levels that are present in the area. 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 levels. The equipment will be equipped with an alarm and telemetry to alert site personnel of an exceedance of the action level.

In addition to the particulate monitoring, fugitive dust migration will be visually assessed during all work activities.

3.1 Monitoring Equipment

Particulate monitoring will be performed using real-time particulate monitors and shall monitor particulate matter less than ten microns (PM10) with the following minimum performance standards:

Instrument Manufacturer	TSI Incorporated
Model Number	DustTrak II Model 8530
Compounds Measured	Dust, mists or aerosols
Flow Rate	3.0 L/min (pre-set), 1.4 to 3.0 L/Min user adjustable
Measurement Range	0.001 to 400 mg/m^3 (1 to 400,000 ug/m^3)
Accuracy	+/- 5% of reading +/- precision (referenced to gravimetric calibration with SAE fine test dust (mmd= 2 to 3 m, g= 2.5, as aerosolized)
Resolution	0.1% of reading or 1 g/m^3, whichever is larger
Particle Size Range of Maximum Response	0.1-10 µm
Memory	5 MB (>60,000 Data Points), 45 Days at 1 minute interval
Operating Temperatures	0 to 50 °C (32 to 120 °F)
Log Interval	1 second to 1 hour
Logged Data	Each data point with average concentration, time/date and data point number
Run Summary	Overall average, maximum concentrations, time/date of maximum, total number of logged points, start time/date, total elapsed time (run duration), STEL concentration and time/date occurrence, averaging (logging) period, calibration factor, and tag number
Alarm Averaging Time (user selectable)	Real-time (1-60 seconds) or STEL (15 minutes), alarms required
Operating Time	48 hours (fully charged NiCd battery); continuously with charger

3.2 Particulate Action Levels and Responses

The following action levels will be observed during the duration of work at the site:

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

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

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

4.0 REPORTING

Daily CAMP reports will be provided to the NYSDEC and NYSDOH project managers. The reports will consist of figures showing work zones and monitoring stations and downloaded CAMP data. The daily reports will summarize any CAMP exceedances and the corrective actions taken. Any CAMP exceedances will be reported to NYSDEC and NYSDOH project managers within one business day.

5.0 SPECIAL REQUIREMENTS

In addition or in combination with the above, the following special requirements apply for work within 20 feet of potentially exposed individuals or structures:

- When work areas are within 20 feet of potentially exposed populations or occupied structures, the continuous monitoring locations for VOCs and particulates will reflect the nearest potentially exposed individuals and the location of ventilation system intakes for nearby structures. The use of engineering controls such as vapor / dust barriers, temporary negative-pressure enclosures, or special ventilation devices will be considered to prevent exposures related to the work activities and to control dust and odors. Consideration will be given to implementing the planned activities when potentially exposed populations are at a minimum, such as during weekends or evening hours in non-residential settings.

- If total VOC concentrations opposite the walls of occupied structures or next to intake vents exceed 1 ppm, monitoring will occur within the occupied structure(s). Depending upon the nature of contamination, chemical-specific colorimetric tubes of sufficient sensitivity may be necessary for comparing the exposure point concentrations with appropriate pre-determined response levels (response actions should also be pre-determined). Background readings in the occupied spaces must be taken prior to commencement of the planned work. Any unusual background readings should be discussed with NYSDOH prior to commencement of the work.

- If total particulate concentrations opposite the walls of occupied structures or next to intake vents exceed 150 µg/m^3, work activities will be suspended until controls are implemented and are successful in reducing the total particulate concentration to 150 µg/m^3 or less at the monitoring point.

- Depending upon the nature of contamination and remedial activities, other parameters (e.g., explosivity, oxygen, hydrogen sulfide, carbon monoxide) may also need to be monitored. Response levels and actions should be pre-determined, as necessary, for each site.

Unless a self-contained, negative-pressure enclosure with proper emission controls will encompass the work area, all individuals not directly involved with the planned work must be absent from the room in which the work will occur. Monitoring requirements are as stated above under "Special Requirements for Work within 20 Feet of Potentially Exposed Individuals or Structures" except that in this instance "nearby / occupied structures" would be adjacent occupied rooms. Additionally, the location of all exhaust vents in the room and their discharge points, as well as potential vapor pathways (openings, conduits, etc.) relative to adjoining rooms, shall be understood and the monitoring locations established accordingly. In these situations, exhaust fans or other engineering controls will be used to create negative air pressure within the work area during remedial activities. Additionally, the planned work will be implemented during hours (e.g. weekends or evenings) when building occupancy is at a minimum.

Appendix K

Citizen Participation Plan

NEW YORK STATE OF OPPORTUNITY. Department of Environmental Conservation

Brownfield Cleanup Program

Citizen Participation Plan
for
Old Erie Commons Site

June 2025

BCP Site No. C727015
160 Center Street
Village of Canastota
Madison County, New York

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Note: The information presented in this Citizen Participation Plan was current as of the date of its approval by the New York State Department of Environmental Conservation. Portions of this Citizen Participation Plan may be revised during the site's investigation and cleanup process.

Applicant: **Old Erie Commons, LLC ("Applicant")**
Site Name: **Old Erie Commons Site ("Site")**
Site Address: **160 Center Street, Village of Canastota, NY 13032**
Site County: **Madison County**
Site Number: **C727015**

1. What is New York's Brownfield Cleanup Program?

New York's Brownfield Cleanup Program (BCP) works with private developers to encourage the voluntary cleanup of contaminated properties known as "brownfields" so that they can be reused and developed. These uses include recreation, housing, and business.

A *brownfield* is any real property that is difficult to reuse or redevelop because of the presence or potential presence of contamination. A brownfield typically is a former industrial or commercial property where operations may have resulted in environmental contamination. A brownfield can pose environmental, legal, and financial burdens on a community. If a brownfield is not addressed, it can reduce property values in the area and affect economic development of nearby properties.

The BCP is administered by the New York State Department of Environmental Conservation (NYSDEC) which oversees Applicants who conduct brownfield site investigation and cleanup activities. An Applicant is a person who has requested to participate in the BCP and has been accepted by NYSDEC. The BCP contains investigation and cleanup requirements, ensuring that cleanups protect public health and the environment. When NYSDEC certifies that these requirements have been met, the property can be reused or redeveloped for the intended use.

For more information about the BCP, go online at:
http://www.dec.ny.gov/chemical/8450.html .

2. Citizen Participation Activities

Why NYSDEC Involves the Public and Why It Is Important

NYSDEC involves the public to improve the process of investigating and cleaning up contaminated sites, and to enable citizens to participate more fully in decisions that affect their health, environment, and social well-being. NYSDEC provides opportunities for citizen involvement and encourages early two-way communication with citizens before decision makers form or adopt final positions.

Involving citizens affected and interested in site investigation and cleanup programs is important for many reasons. These include:

- Promoting the development of timely, effective site investigation and cleanup programs that protect public health and the environment

- Improving public access to, and understanding of, issues and information related to a particular site and that site's investigation and cleanup process

- Providing citizens with early and continuing opportunities to participate in NYSDEC's site investigation and cleanup process

- Ensuring that NYSDEC makes site investigation and cleanup decisions that benefit from input that reflects the interests and perspectives found within the affected community

- Encouraging dialogue to promote the exchange of information among the affected/interested public, State agencies, and other interested parties that strengthens trust among the parties, increases understanding of site and community issues and concerns, and improves decision making.

This Citizen Participation (CP) Plan provides information about how NYSDEC will inform and involve the public during the investigation and cleanup of the site identified above. The public information and involvement program will be carried out with assistance, as appropriate, from the Applicant.

Project Contacts

Appendix A identifies NYSDEC project contact(s) to whom the public should address questions or request information about the site's investigation and cleanup program. The public's suggestions about this CP Plan and the CP program for the site are always welcome. Interested people are encouraged to share their ideas and suggestions with the project contacts at any time.

Locations of Reports and Information

The locations of the reports and information related to the site's investigation and cleanup program also are identified in Appendix A. These locations provide convenient access to important project documents for public review and comment. Some documents may be placed on the NYSDEC web site. If this occurs, NYSDEC will inform the public in fact sheets distributed about the site and by other means, as appropriate.

Site Contact List

Appendix B contains the site contact list. This list has been developed to keep the community informed about, and involved in, the site's investigation and cleanup process. The site contact list will be used periodically to distribute fact sheets that provide updates about the status of the project. These will include notifications of upcoming activities at the site (such as fieldwork), as well as availability of project documents and announcements about public comment periods.
The site contact list includes, at a minimum:

- chief executive officer and planning board chairperson of each county, city, town and village in which the site is located;
- residents, owners, and occupants of the site and properties adjacent to the site;
- the public water supplier which services the area in which the site is located;
- any person who has requested to be placed on the site contact list;
- the administrator of any school or day care facility located on or near the site for purposes of posting and/or dissemination of information at the facility;
- location(s) of reports and information.

The site contact list will be reviewed periodically and updated as appropriate. Individuals and organizations will be added to the site contact list upon request. Such requests should be submitted to the NYSDEC project contact(s) identified in Appendix A. Other additions to the site contact list may be made at the discretion of the NYSDEC project manager, in consultation with other NYSDEC staff as appropriate.

Note: The first site fact sheet (usually related to the draft Remedial Investigation Work Plan) is distributed both by paper mailing through the postal service and through DEC Delivers, its email listserv service. The fact sheet includes instructions for signing up with the appropriate county listserv to receive future notifications about the site. See http://www.dec.ny.gov/chemical/61092.html .

Subsequent fact sheets about the site will be distributed exclusively through the listserv, except for households without internet access that have indicated the need to continue to receive site information in paper form. Please advise the NYSDEC site project manager identified in Appendix A if that is the case. Paper mailings may continue during the investigation and cleanup process for some sites, based on public interest and need.

CP Activities

The table at the end of this section identifies the CP activities, at a minimum, that have been and will be conducted during the site's investigation and cleanup program. The

flowchart in Appendix D shows how these CP activities integrate with the site investigation and cleanup process. The public is informed about these CP activities through fact sheets and notices distributed at significant points during the program. Elements of the investigation and cleanup process that match up with the CP activities are explained briefly in Section 5.

- **Notices and fact sheets** help the interested and affected public to understand contamination issues related to a site, and the nature and progress of efforts to investigate and clean up a site.

- **Public forums, comment periods and contact with project managers** provide opportunities for the public to contribute information, opinions and perspectives that have potential to influence decisions about a site's investigation and cleanup.

The public is encouraged to contact project staff at any time during the site's investigation and cleanup process with questions, comments, or requests for information.

This CP Plan may be revised due to changes in major issues of public concern identified in Section 3 or in the nature and scope of investigation and cleanup activities. Modifications may include additions to the site contact list and changes in planned citizen participation activities.

Technical Assistance Grant

NYSDEC must determine if the site poses a significant threat to public health or the environment. This determination generally is made using information developed during the investigation of the site, as described in Section 5.

If the site is determined to be a significant threat, a qualifying community group may apply for a Technical Assistance Grant (TAG). The purpose of a TAG is to provide funds to the qualifying group to obtain independent technical assistance. This assistance helps the TAG recipient to interpret and understand existing environmental information about the nature and extent of contamination related to the site and the development/implementation of a remedy.

An eligible community group must certify that its membership represents the interests of the community affected by the site, and that its members' health, economic well-being or enjoyment of the environment may be affected by a release or threatened release of contamination at the site.

As of the date the declaration (page 2) was signed by the NYSDEC project manager, the significant threat determination for the site had not yet been made.

To verify the significant threat status of the site, the interested public may contact the NYSDEC project manager identified in Appendix A.

For more information about TAGs, go online at
http://www.dec.ny.gov/regulations/2590.html

Note: The table identifying the citizen participation activities related to the site's investigation and cleanup program follows on the next page:

Citizen Participation Activities	Timing of CP Activity(ies)
Application Process:	
• Prepare site contact list • Establish document repository(ies)	At time of preparation of application to participate in the BCP.
• Publish notice in Environmental Notice Bulletin (ENB) announcing receipt of application and 30-day public comment period • Publish above ENB content in local newspaper • Mail above ENB content to site contact list • Conduct 30-day public comment period	When NYSDEC determines that BCP application is complete. The 30-day public comment period begins on date of publication of notice in ENB. End date of public comment period is as stated in ENB notice. Therefore, ENB notice, newspaper notice, and notice to the site contact list should be provided to the public at the same time.
After Execution of Brownfield Site Cleanup Agreement (BCA):	
• Prepare Citizen Participation (CP) Plan	Before start of Remedial Investigation **Note:** Applicant must submit CP Plan to NYSDEC for review and approval within 20 days of the effective date of the BCA.
Before NYSDEC Approves Remedial Investigation (RI) Work Plan:	
• Distribute fact sheet to site contact list about proposed RI activities and announcing 30-day public comment period about draft RI Work Plan • Conduct 30-day public comment period	Before NYSDEC approves RI Work Plan. If RI Work Plan is submitted with application, public comment periods will be combined and public notice will include fact sheet. Thirty-day public comment period begins/ends as per dates identified in fact sheet.
After Applicant Completes Remedial Investigation:	
• Distribute fact sheet to site contact list that describes RI results	Before NYSDEC approves RI Report
Before NYSDEC Approves Remedial Work Plan (RWP):	
• Distribute fact sheet to site contact list about draft RWP and announcing 45-day public comment period • Public meeting by NYSDEC about proposed RWP (if requested by affected community or at discretion of NYSDEC project manager) • Conduct 45-day public comment period	Before NYSDEC approves RWP. Forty-five day public comment period begins/ends as per dates identified in fact sheet. Public meeting would be held within the 45-day public comment period.
Before Applicant Starts Cleanup Action:	
• Distribute fact sheet to site contact list that describes upcoming cleanup action	Before the start of cleanup action.
After Applicant Completes Cleanup Action:	
• Distribute fact sheet to site contact list that announces that cleanup action has been completed and that NYSDEC is reviewing the Final Engineering Report • Distribute fact sheet to site contact list announcing NYSDEC approval of Final Engineering Report and issuance of Certificate of Completion (COC)	At the time the cleanup action has been completed. **Note:** The two fact sheets are combined when possible if there is not a delay in issuing the COC.

3. Major Issues of Public Concern

This section of the CP Plan identifies major issues of public concern that relate to the site. Additional major issues of public concern may be identified during the course of the site's investigation and cleanup process.

No major issues of public concern have been identified to date, though may be identified during the course of the site's investigation and cleanup process. Old Erie Commons, LLC intends to perform the required BCP Site investigation and remediation to create a property suitable for redevelopment and reuse. The project will result in the redevelopment and reuse of an environmentally impaired property in a mixed residential and commercial capacity. The Remedial Investigation Work Plan was designed to delineate known areas of impact, evaluate Site groundwater quality, and evaluate other potential environmental conditions at the Site. Ultimately Old Erie Commons, LLC intends to remediate the Site to achieve a restricted-residential use soil cleanup objectives.

4. Site Information

Appendix C contains a map identifying the location of the site.

Site Description

The Old Erie Commons Site (Site) is located at 160 Center Street in a developed residential, commercial, and industrial use area in the Village of Canastota, Madison County, New York. The 2.56-acre site is currently vacant and mainly covered with vegetation (grass and wooded areas) except in the southern central portion of the Site in the vicinity of the former building, where a concrete slab and an associated pile of debris is present from the demolition of the former 5-story building completed in August 2011.

It is bordered by the old Erie Canal (Pools Brook) to the north, Center Street to the south, residential, commercial, and vacant properties to the west, and a commercial property to the east.

History of Site Use, Investigation, and Cleanup

The Site has been utilized for various operations that involved varnishing, painting, and machining, including casket manufacturing, furniture manufacturing, and boat building, for over 120 years. The former site building was constructed prior to 1890 by the former Canastota Casket Company and was later used by several furniture companies and an agricultural supply company before becoming vacant. The building partially collapsed in July 2011, leading to its full emergency demolition in August 2011.

Three (3) railroad spurs were located on-site entering the site from its southeastern corner from prior to 1890 until after 1963. An unknown capacity underground storage tank (UST) was installed at the Site between 1906 and 1911 and was reportedly used to store benzine. No additional information is known regarding its specific location, closure, and removal. A surface feature with the potential to connect to subsurface structures was identified in the approximate reported location of the historical UST, however previous investigations have not identified whether the UST is still present in the subsurface.

Impacted fill materials are present across the Site and may be associated with historic fill material import. An ash fill layer has been identified at a majority of the investigation locations completed across the Site. Samples from the ash layer indicate the presence of PAHs and metals. The site is impacted by semi-volatile organic compounds (SVOCs) and metals exceeding Unrestricted Use, Restricted Residential, Commercial, and/or Industrial soil cleanup objectives.

5. Investigation and Cleanup Process

Application

The Applicant has applied for and been accepted into New York's Brownfield Cleanup Program as a Volunteer. This means that the Applicant was not responsible for the disposal or discharge of the contaminants or whose ownership or operation of the site took place after the discharge or disposal of contaminants. The Volunteer must fully characterize the nature and extent of contamination onsite, and must conduct a "qualitative exposure assessment," a process that characterizes the actual or potential exposures of people, fish and wildlife to contaminants on the site and to contamination that has migrated from the site.

The Applicant in its Application proposes that the site will be used for restricted purposes.

To achieve this goal, the Applicant will conduct investigation and cleanup activities at the site with oversight provided by NYSDEC. The Brownfield Cleanup Agreement executed by NYSDEC and the Applicant sets forth the responsibilities of each party in conducting these activities at the site.

Investigation

The Applicant will conduct an investigation of the site officially called a "remedial investigation" (RI). This investigation will be performed with NYSDEC oversight. The Applicant must develop a remedial investigation workplan, which is subject to public comment.

The site investigation has several goals:

1) define the nature and extent of contamination in soil, surface water, groundwater and any other parts of the environment that may be affected;
2) identify the source(s) of the contamination;
3) assess the impact of the contamination on public health and the environment; and
4) provide information to support the development of a proposed remedy to address the contamination or the determination that cleanup is not necessary.

The Applicant submits a draft “Remedial Investigation Work Plan” to NYSDEC for review and approval. NYSDEC makes the draft plan available to the public review during a 30-day public comment period.

When the investigation is complete, the Applicant will prepare and submit a report that summarizes the results. This report also will recommend whether cleanup action is needed to address site-related contamination. The investigation report is subject to review and approval by NYSDEC.

NYSDEC will use the information in the investigation report to determine if the site poses a significant threat to public health or the environment. If the site is a “significant threat,” it must be cleaned up using a remedy selected by NYSDEC from an analysis of alternatives prepared by the Applicant and approved by NYSDEC. If the site does not pose a significant threat, the Applicant may select the remedy from the approved analysis of alternatives.

Interim Remedial Measures

An Interim Remedial Measure (IRM) is an action that can be undertaken at a site when a source of contamination or exposure pathway can be effectively addressed before the site investigation and analysis of alternatives are completed. If an IRM is likely to represent all or a significant part of the final remedy, NYSDEC will require a 30-day public comment period.

Remedy Selection

When the investigation of the site has been determined to be complete, the project likely would proceed in one of two directions:

1. The Applicant may recommend in its investigation report that no action is necessary at the site. In this case, NYSDEC would make the investigation report available for public comment for 45 days. NYSDEC then would complete its review, make any necessary revisions, and, if appropriate, approve the investigation report. NYSDEC

would then issue a “Certificate of Completion” (described below) to the Applicant.

or

2. The Applicant may recommend in its investigation report that action needs to be taken to address site contamination. After NYSDEC approves the investigation report, the Applicant may then develop a cleanup plan, officially called a “Remedial Work Plan”. The Remedial Work Plan describes the Applicant’s proposed remedy for addressing contamination related to the site.

When the Applicant submits a draft Remedial Work Plan for approval, NYSDEC would announce the availability of the draft plan for public review during a 45-day public comment period.

Cleanup Action

NYSDEC will consider public comments, and revise the draft cleanup plan if necessary, before approving the proposed remedy. The New York State Department of Health (NYSDOH) must concur with the proposed remedy. After approval, the proposed remedy becomes the selected remedy. The selected remedy is formalized in the site Decision Document.

The Applicant may then design and perform the cleanup action to address the site contamination. NYSDEC and NYSDOH oversee the activities. When the Applicant completes cleanup activities, it will prepare a final engineering report that certifies that cleanup requirements have been achieved or will be achieved within a specific time frame. NYSDEC will review the report to be certain that the cleanup is protective of public health and the environment for the intended use of the site.

Certificate of Completion

When NYSDEC is satisfied that cleanup requirements have been achieved or will be achieved for the site, it will approve the final engineering report. NYSDEC then will issue a Certificate of Completion (COC) to the Applicant. The COC states that cleanup goals have been achieved and relieves the Applicant from future liability for site-related contamination, subject to certain conditions. The Applicant would be eligible to redevelop the site after it receives a COC.

Site Management

The purpose of site management is to ensure the safe reuse of the property if contamination will remain in place. Site management is the last phase of the site cleanup program. This phase begins when the COC is issued. Site management

incorporates any institutional and engineering controls required to ensure that the remedy implemented for the site remains protective of public health and the environment. All significant activities are detailed in a Site Management Plan.

An *institutional control* is a non-physical restriction on use of the site, such as a deed restriction that would prevent or restrict certain uses of the property. An institutional control may be used when the cleanup action leaves some contamination that makes the site suitable for some, but not all uses.

An *engineering control* is a physical barrier or method to manage contamination. Examples include: caps, covers, barriers, fences, and treatment of water supplies.

Site management also may include the operation and maintenance of a component of the remedy, such as a system that pumps and treats groundwater. Site management continues until NYSDEC determines that it is no longer needed.

Appendix A -
Project Contacts and Locations of Reports and Information

Project Contacts

For information about the site's investigation and cleanup program, the public may contact any of the following project staff:

New York State Department of Environmental Conservation (NYSDEC):

Brittany O'Brien-Drake
Project Manager
NYSDEC
Division of Environmental Remediation
625 Broadway
Albany, NY 12333
(518)-402-9672
Brittany.obrien-drake@dec.ny.gov

Stephanie Webb or Kerry McElroy
Public Participation Specialist
NYSDEC
615 Erie Blvd. West,
Syracuse, NY 13204
(315) 426-7400
Info.r7@dec.ny.gov

New York State Department of Health (NYSDOH):

Aaron Keegan
Public Health Specialist I
NYSDOH
Empire State Plaza
Corning Tower, Room 1787
Albany, New York 12237
(518)-402-1943
Aaron.keegan@health.ny.gov

Locations of Reports and Information

The locations identified below are being used to provide the public with convenient access to important project documents:

Liz Metzger, Director
Canastota Public Library
102 West Center Street
Canastota, NY 13032
Hours: Mon-Thurs, 9:00 AM – 8:00 PM
Friday, 9:00 AM – 5:00 PM
Sat. 9:00 AM – 1:00 PM
Sun., Closed

DECInfo Locator:
https://www.dec.ny.gov/pubs/109457.html
Online Database:
https://www.dec.ny.gov/cfmx/extapps/derexternal/haz/details.cfm?ProgNo=C727015
Document Folder:
https://www.dec.ny.gov/data/DecDocs/C727015/

Appendix B - Site Contact List

Madison County Contacts:

Mark Scimone
Madison County Administrator
P.O. Box 635
Wampsville, NY 13163

John Becker, Chairman
Board of Supervisors
P.O. Box 635
Wampsville, NY 13163

Scott Ingmire, Director
Madison County Planning Department
P.O. Box 606
Wampsville, NY 13163

Michael Keville
Madison County Clerk
P.O. Box 635
Wampsville, NY 13163

Eric Faisst, Public Health Director
Madison County Health Department
P.O. Box 605
Wampville, NY 13163

Dan Degear, Director
Department of Emergency Management
P.O. Box 577
Wampsville, NY 13163

Jamime Kowalczk
Madison County Planning Department
P.O. Box 606
Wampville, NY 13163

Town of Lenox Contacts:

Joseph Pinard, Supervisor
Town of Lenox
205 South Peterboro Street
Canastota, NY 13032

Tom Bush
Town of Lenox Council
205 South Peterboro Street
Canastota, NY 13032

Steve Tornabene
Town of Lenox Planning Board
205 South Peterboro Street
Canastota, NY 13032

Village of Canastota Contact:

Rosanne Warner, Mayor
Village of Canastota
205 South Peterboro Street
Canastota, NY 13032

Jeff Watkins, Trustee
Village of Canastota
205 South Peterboro Street
Canastota, NY 13032

Jenn Farwell, Administrator
Village of Canastota
205 South Peterboro Street
Canastota, NY 13032

Catherine E. Williams, Clerk/Treasurer
Village of Canastota
205 South Peterboro Street
Canastota, NY 13032

Supplier of Potable Water:

Onondaga County Water Authority
200 Northern Concourse
P.O. Box 4949
Syracuse, NY 13221

Local News Media:

Madison County Courier
ATTN: Martha E. Conway
P.O. Box 3
Wampsville, NY 13163

The Oneida Daily Dispatch
ATTN: Kevin Corrado
79 Hurley Avenue
Kingston, NY 12401

WSTM - Ch. 3
ATTN: Matt Mulcahy
1030 James Street
Syracuse, NY 13203

WTVH - Ch. 5
ATTN: Matt Mulcahy
1030 James Street
Syracuse, NY 13203

WSYR - Ch. 9
ATTN: Tim Fox
5904 Bridge Street
East Syracuse, NY 13057

WCNY
ATTN: Debbie Stack
P.O. Box 2400
Syracuse, NY 13204

Spectrum News
ATTN: Newsroom
815 Erie Blvd
East Syracuse, NY 13210

The Standard Post
ATTN: Steve Featherstone
220 South Warren Street
Syracuse, NY 13202

Nearby Schools:

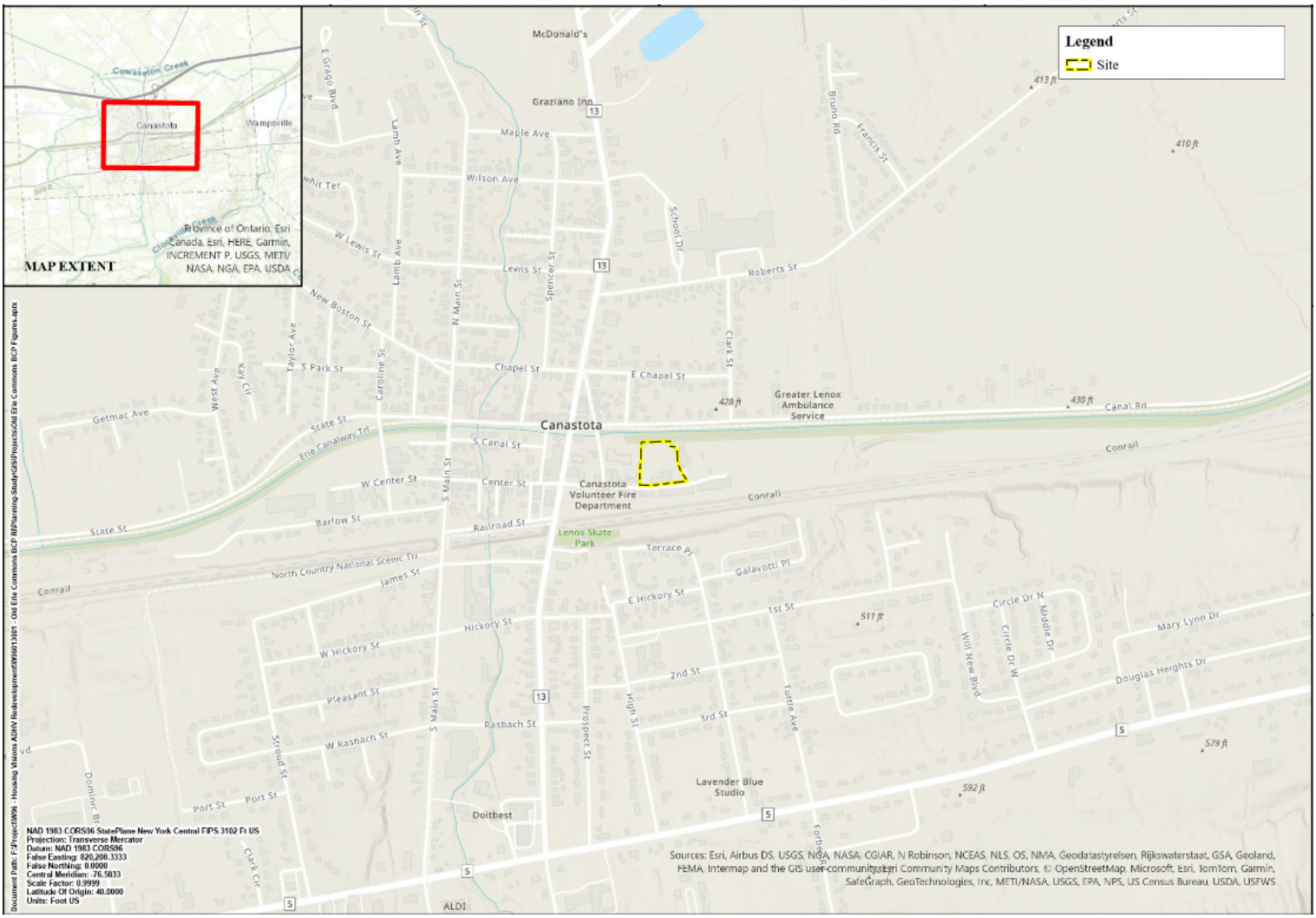
Vanessa T. McClowry, Principal
South Side Elementary School
200 High Street
Canastota, NY 13032

Jennifer L. Carnahan, Principal
Peterboro Street Elementary School
220 North Peterboro Street
Canastota, NY 13032

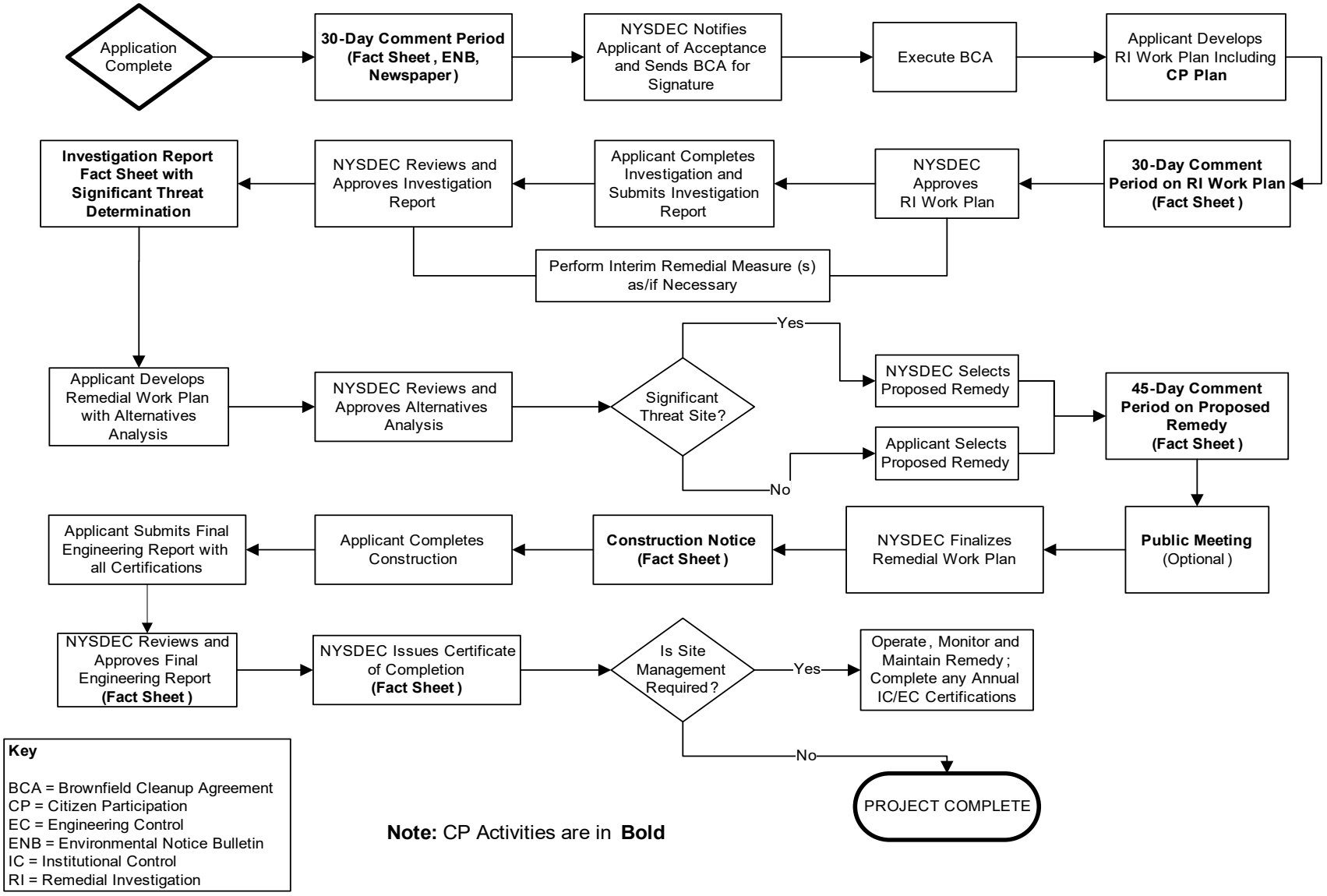
Michael K. Faustino, Principal
Roberts Street Elementary School
120 Roberts Street
Canastota, NY 13032

Jay P. Altobello, Principal
Canastota Junior/Senior High School
101 Roberts Street
Canastota, NY 13032

Appendix C - Site Location Map



Appendix D– Brownfield Cleanup Program Process



Key

BCA = Brownfield Cleanup Agreement
CP = Citizen Participation
EC = Engineering Control
ENB = Environmental Notice Bulletin
IC = Institutional Control
RI = Remedial Investigation

Note: CP Activities are in **Bold**

Appendix L

Remedial Action Costs

Old Erie Commons
Alternatives Analysis Report and Remedial Action Work Plan
Remedial Action Cost Estimate - Track 4 Alternative

Item	Quantity	Unit	Unit Cost	Total	Notes
Equipment Mobilization / Demobilization	1	LS	$10,000	$10,000	
Erosion, Sediment, Dust Control	1	LS	$10,000	$10,000	Water truck, silt fence, sediment socks, etc.
Site Clearing	1	LS	$20,000	$20,000	Grubbing and clearing of vegetation across the Site
Site Control & Security	1	LS	$20,000	$20,000	Installation of a perimeter fence
Debris Pile Removal	1	LS	$831,000	$831,000	Removal of on-site debris pile on south side of site
Contaminated Soil - Excavation, Transporation, Disposal	12,200	ton	$100	$1,220,000	Assumes complete fill removal beneath buildings and in stormwater storage; two feet of fill removal for soil, gravel, and playground cover; 16 inches of fill removal beneath asphalt; and one foot of fill removal beneath concrete sidewalks, curbs, and patio. Based on average HFM depth generated from the RI data.
Contaminated Soil Disposal Sampling	25	sample	$900	$22,500	One sample per every 500 tons
Geotextile Fabric	108,567	SF	$1	$108,567	Geotextile fabric across the Site
Backfill Procurement and Placement	6,900	CY	$60	$414,000	Assumes replacement of removed fill with clean stone, excluding the top 4 to 6 inches for finished surfaces (i.e., topsoil, asphalt, concrete, etc.). Assumes imported stone will be from a permitted mine (waive DER-10 import testing).
Topsoil Procurement and Placement	150	CY	$90	$13,500	Assumes topsoil will be placed for the top 6 inches of soil cover and that native soil removed from the stormwater basin can be reused as part of the soil cover.
Topsoil Import Composite Sampling	1	samples	$1,500	$1,500	Testing per DER-10 - 1 composite samples for 100 to 200 cubic yards
Topsoil Import Discrete Sampling	3	samples	$125	$375	Testing per DER-10 - 3 discrete samples for 100 to 200 cubic yards
Native Soil Reuse and Placement	600	CY	$0	$0	Assumes approximately 600 cubic yards of native soil removed from the stormwater basin can be reused as part of the soil cover.
Native Soil Reuse Composite Sampling	2	samples	$1,500	$3,000	Testing per DER-10 - 2 composite samples for 500 to 800 cubic yards
Native Soil Reuse Discrete Sampling	6	samples	$125	$750	Testing per DER-10 - 6 discrete samples for 500 to 800 cubic yards
Topsoil Seeding	37,804	SF	$0.20	$7,561	Seeding of soil cover
Concrete Building Foundations	24,637	SF	$18	$443,466	Pouring of concrete building foundations
Concrete Sidewalks, Curbs, and Patio	18,034	SF	$26	$468,884	Pouring of concrete sidewalks and curbs
Asphalt Pavement	26,859	SF	$5.25	$141,010	Paving of parking areas
Playground Poured in Place Rubber	567	SF	$15	$8,505	Poured in place rubber installation for playground
Playground Mulching	567	SF	$3	$1,701	Mulching of playground
Survey	1	LS	$10,000	$10,000	Survey of cover system excavations and final grades
C&S Construction Oversight & Consulting	6	months	$50,000	$300,000	C&S labor, equipment, and coordination throughout remediation
C&S Reporting	1	LS	$50,000	$50,000	C&S preparation of remedial reports (i.e., FER, SMP, DWRs)
C&S Inspections	1	LS	$50,000	$50,000	C&S ongoing inspections of remedy following construction completion
			SUBTOTAL	**$4,156,319**	
			Contingency (20%)	$831,264	
			Construction Subtotal	**$4,987,582**	
			Annual Certification ($30,000 / year for 30 years)	$90,000	
			TOTAL	**$5,077,582**	

Appendix M

Request to Import / Reuse Fill or Soil Form

NEW YORK STATE
DEPARTMENT OF ENVIRONMENTAL CONSERVATION

Request to Import/Reuse Fill or Soil

This form is based on the information required by DER-10, Section 5.4(e) and 6NYCRR Part 360.13. Use of this form is not a substitute for reading the applicable regulations and Technical Guidance document.

SECTION 1 – SITE BACKGROUND

The allowable site use is: Choose an item

Have Ecological Resources been identified? Choose an item

Is this soil originating from the site? Choose an item

How many cubic yards of soil will be imported/reused? Choose an item

If greater than 1000 cubic yards will be imported, enter volume to be imported:

SECTION 2 – MATERIAL OTHER THAN SOIL

Is the material to be imported gravel, rock or stone? Choose an item

Does it contain less than 10%, by weight, material that passes a size 100 sieve? Choose an item

Is this virgin material from a permitted mine or quarry? Choose an item

Is this material recycled concrete or brick from a DEC registered processing facility? Choose an item

SECTION 3 - SAMPLING

Provide a brief description of the number and type of samples collected in the space below:

Example Text: 5 discrete samples were collected and analyzed for VOCs. 2 composite samples were collected and analyzed for SVOCs, Inorganics & PCBs/Pesticides.

If the material meets requirements of DER-10 section 5.4(e)5 (other material), no chemical testing needed.

SECTION 3 CONT'D - SAMPLING

Provide a brief written summary of the sampling results or attach evaluation tables (compare to DER-10, Appendix 5):

Example Text: Arsenic was detected up to 17 ppm in 1 (of 5) samples; the allowable level is 16 ppm.

If Ecological Resources have been identified use the "If Ecological Resources are Present" column in Appendix 5.

SECTION 4 – SOURCE OF FILL

Name of person providing fill and relationship to the source:

Location where fill was obtained:

Identification of any state or local approvals as a fill source:

If no approvals are available, provide a brief history of the use of the property that is the fill source:

Provide a list of supporting documentation included with this request:

The information provided on this form is accurate and complete.

_____ _____

Signature Date

_____

Print Name

_____

Firm

Revised April 2023