PIERCE ARROW SITE

ERIE COUNTY

BUFFALO, NEW YORK

SITE MANAGEMENT PLAN

NYSDEC Site Number: C915308

Prepared for:

Pierce Arrow Kanaka LLC

2150 Wehrle Drive, Suite 400

Williamsville, New York 14221

Prepared by:

C&S Engineers, Inc.

141 Elm Street, Suite 100

Buffalo, New York 14203

Revisions to Final Approved Site Management Plan:

Revision No.	Date Submitted	Summary of Revision	NYSDEC Approval Date

DECEMBER 2019

CERTIFICATION STATEMENT

I Jerel J. Bogdan certify that I am currently a NYS registered professional engineer and that this Site Management Plan was prepared in accordance with all applicable statutes and regulations and in substantial conformance with the DER Technical Guidance for Site Investigation and Remediation (DER-10).

_____ P.E.

11/25/19 DATE

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List of Acronyms

AS	Air Sparging
ASP	Analytical Services Protocol
BCA	Brownfield Cleanup Agreement
BCP	Brownfield Cleanup Program
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
CAMP	Community Air Monitoring Plan
C/D	Construction and Demolition
CFR	Code of Federal Regulation
CLP	Contract Laboratory Program
COC	Certificate of Completion
CO2	Carbon Dioxide
CP	Commissioner Policy
DER	Division of Environmental Remediation
EC	Engineering Control
ECL	Environmental Conservation Law
ELAP	Environmental Laboratory Approval Program
ERP	Environmental Restoration Program
EWP	Excavation Work Plan
GHG	Green House Gas
GWE&T	Groundwater Extraction and Treatment
HASP	Health and Safety Plan
IC	Institutional Control
NYSDEC	New York State Department of Environmental Conservation
NYSDOH	New York State Department of Health
NYCRR	New York Codes, Rules and Regulations
O&M	Operation and Maintenance
OM&M	Operation, Maintenance and Monitoring
OSHA	Occupational Safety and Health Administration
OU	Operable Unit
PID	Photoionization Detector
PRP	Potentially Responsible Party
PRR	Periodic Review Report
QA/QC	Quality Assurance/Quality Control
QAPP	Quality Assurance Project Plan
RAO	Remedial Action Objective
RAWP	Remedial Action Work Plan
RCRA	Resource Conservation and Recovery Act
RI/FS	Remedial Investigation/Feasibility Study
ROD	Record of Decision
RP	Remedial Party
RSO	Remedial System Optimization
SAC	State Assistance Contract
SCG	Standards, Criteria and Guidelines
SCO	Soil Cleanup Objective
SMP	Site Management Plan

SOP	Standard Operating Procedures
SOW	Statement of Work
SPDES	State Pollutant Discharge Elimination System
SSD	Sub-slab Depressurization
SVE	Soil Vapor Extraction
SVI	Soil Vapor Intrusion
TAL	Target Analyte List
TCL	Target Compound List
TCLP	Toxicity Characteristic Leachate Procedure
USEPA	United States Environmental Protection Agency
UST	Underground Storage Tank
VCA	Voluntary Cleanup Agreement
VCP	Voluntary Cleanup Program

ES EXECUTIVE SUMMARY

The following provides a brief summary of the controls implemented for the Site, as well as the inspections, monitoring, maintenance and reporting activities required by this Site Management Plan:

Site Identification:	Pierce Arrow Site: 1695, 1721 and 1723 Elmwood Avenue BCP Site No. C915308
Institutional Controls:	1. The property may be used for restricted residential use.
	2. All ECs must be inspected at a frequency and in a manner defined in the SMP.
	3. The use of groundwater underlying the Site is prohibited without necessary water quality treatment as determined by the NYSDOH or the Erie County Department of Health to render it safe for use as drinking water or for industrial purposes, and the user must first notify and obtain written approval to do so from the Department.
	4. Compliance with the Department approved Site Management Plan and Periodic Review Reporting is required.
	5. The remedial party or site owner is required to complete and submit a periodic certification of institutional and engineering controls to the Department in accordance with 6NYCRR Part 375-1.8(h)(3).
Engineering Controls:	1. Soil Cover System: A site cover has been installed and/or maintained over the Site in all areas exceeding applicable SCOs. The cover consists of hardscape (asphalt pavement and concrete floor slab).

Inspections:	Frequency
1. Soil Cover inspection	Annually
Monitoring:	
1. None	

Site Identification:	Pierce Arrow Site: 1695, 1721 and 1723 Elmwood Avenue BCP Site No. C915308

Maintenance: 1. Asphalt pavement and concrete floor repair	As needed
Reporting: 1. Periodic Review Report	Annually

Further descriptions of the above requirements are provided in detail in the latter sections of this Site Management Plan.

1 INTRODUCTION

1.1 General

This Site Management Plan (SMP) is a required element of the remedial program for Pierce Arrow located in Buffalo, New York (hereinafter referred to as the "Site"). See **Figure 1**. The Site is currently in the New York State (NYS) Brownfield Cleanup Program (BCP) Site No. C915308 which is administered by New York State Department of Environmental Conservation (NYSDEC).

Pierce Arrow Kanaka, LLC. entered into a Brownfield Cleanup Agreement (BCA) on February 7, 2017 with the NYSDEC to remediate the site. A figure showing the site location and boundaries of this site is provided in **Figure 2**. The boundaries of the site are more fully described in the metes and bounds site description that is part of the Environmental Easement provided in **Appendix A**.

After completion of the remedial work, some contamination was left at this site, which is hereafter referred to as "remaining contamination". Institutional and Engineering Controls (ICs and ECs) have been incorporated into the site remedy to control exposure to remaining contamination to ensure protection of public health and the environment. An Environmental Easement granted to the NYSDEC, and recorded with the Erie County Clerk, requires compliance with this SMP and all ECs and ICs placed on the site.

This SMP was prepared to manage remaining contamination at the site until the Environmental Easement is extinguished in accordance with ECL Article 71, Title 36. This plan has been approved by the NYSDEC, and compliance with this plan is required by the grantor of the Environmental Easement and the grantor's successors and assigns. This SMP may only be revised with the approval of the NYSDEC.

It is important to note that:

- This SMP details the site-specific implementation procedures that are required by the Environmental Easement. Failure to properly implement the SMP is a violation of the Environmental Easement, which is grounds for revocation of the Certificate of Completion (COC);

- Failure to comply with this SMP is also a violation of Environmental Conservation Law, 6NYCRR Part 375 and the BCA (Index #C915308-12-16) for the site, and thereby subject to applicable penalties.

All reports associated with the site can be viewed by contacting the NYSDEC or its successor agency managing environmental issues in New York State. A list of contacts for persons involved with the site is provided in **Appendix B** of this SMP.

This SMP was prepared by C&S Engineers, Inc. (C&S) on behalf of Pierce Arrow Kanaka, LLC., in accordance with the requirements of the NYSDEC's DER-10 ("Technical Guidance for Site Investigation and Remediation"), dated May 2010, and the guidelines provided by the NYSDEC. This SMP addresses the means for implementing the ICs and/or ECs that are required by the Environmental Easement for the site.

1.2 Revisions

Revisions to this plan will be proposed in writing to the NYSDEC's project manager. Revisions will be necessary upon, but not limited to, the following occurring: a change in media monitoring requirements, upgrades to or shut-down of a remedial system, post-remedial removal of contaminated sediment or soil, or other significant change to the site conditions. In accordance with the Environmental Easement for the site, the NYSDEC will provide a notice of any approved changes to the SMP, and append these notices to the SMP that is retained in its files.

1.3 Notifications

Notifications will be submitted by the property owner to the NYSDEC, as needed, in accordance with NYSDEC's DER – 10 for the following reasons:

- 60-day advance notice of any proposed changes in site use that are required under the terms of the Brownfield Cleanup Agreement (BCA), 6NYCRR Part 375 and/or Environmental Conservation Law.

- 7-day advance notice of any field activity associated with the remedial program.

- 15-day advance notice of any proposed ground-intrusive activity pursuant to the Excavation Work Plan.

- Notice within 48-hours of any damage or defect to the foundation, structures or EC that reduces or has the potential to reduce the effectiveness of an EC, and likewise, any action to be taken to mitigate the damage or defect.

- Verbal notice by noon of the following day of any emergency, such as a fire; flood; or earthquake that reduces or has the potential to reduce the effectiveness of ECs in place at the site, with written confirmation within 7 days that includes a summary of actions taken, or to be taken, and the potential impact to the environment and the public.

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

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

- At least 60 days prior to the change, the NYSDEC will be notified in writing of the proposed change. This will include a certification that the prospective purchaser/Remedial Party has been provided with a copy of the Brownfield Cleanup Agreement (BCA), and all approved work plans and reports, including this SMP.

- Within 15 days after the transfer of all or part of the site, the new owner's name, contact representative, and contact information will be confirmed in writing to the NYSDEC.

Table 1-1 on the following page includes contact information for the above notification. The information on this table will be updated as necessary to provide accurate contact information. A full listing of site-related contact information is provided in **Appendix B.**

Table 1-1: Notifications*

Name	Contact Information
NYSDEC Project Manager Anthony Lopes	(716) 851-7220 Anthony.lopes@dec.ny.gov
NYSDEC Regional HW Engineer Chad Staniszewski	(716) 851-7220 Chad.staniszewski@dec.ny.gov
NYSDEC Site Control Bernadette Anderson	(518) 402-9543 bernadette.anderson@dec.ny.gov
NYSDOH Public Health Specialist Kristin Kulow	(518) 402-7860 Kristin.kulow@health.ny.gov

* Note: Notifications are subject to change and will be updated as necessary.

2 SUMMARY OF PREVIOUS INVESTIGATIONS AND REMEDIAL ACTIONS

2.1 Site Location and Description

The site is located in Buffalo, Erie County, New York and is identified as the SBL#'s in the following table (also see **Figure 2**).

Table 2-1: Site Description

SBL	*Address*	*Description*
78.77-2-6	1695 Elmwood Avenue	Administrative Building
78.72-2-2	1721 Elmwood Avenue	Garage Building
78.77-2-3	1723 Elmwood Avenue	Garage Building

The Site is an approximately a 2.86-acre area and is bounded by the Conrail Railroad to the north, Great Arrow Avenue joined with retail buildings to the south, Industrial buildings at 255 Great Arrow Avenue to the east, and Elmwood Avenue associated with residential buildings and restaurant to the west (see **Figure 2** – Site Layout Map). The boundaries of the site are more fully described in **Appendix A** –Environmental Easement.

The owner of the site parcels at the time of issuance of this SMP is/are:

Pierce Arrow Kanaka, LLC.
2150 Wehrle Drive, Suite 400
Williamsville, NY 14221

2.2 Physical Setting

2.2.1 Land Use

The Site consists of the following: an Administration Building, and two conjoined single story buildings that make up the Garage Building. The Site is zoned commercial and is currently vacant and under construction. Site occupants included tool and

die manufacturing, cleaning compound manufacturing, garage, brazing and heat treatment, machine shop operations, dry cleaning, and office space.

The properties adjoining the Site and in the neighborhood surrounding the Site primarily include commercial and residential properties. The properties immediately south of the Site include retail and residential properties; the properties immediately north of the Site is primarily the Conrail railway system; the properties immediately east of the Site include commercial and industrial properties; and the properties to the west of the Site include retail and residential properties.

2.2.2 Geology

The Site is generally flat, although certain minor variations in elevation are present. The Site contains a mix of buildings, asphalt parking/driveway areas and landscaped areas containing trees.

The Site contains urban fill with thicknesses ranging from approximately one to five-and-a-half-feet below grade, with an additional area of deep fill up to 8 feet below grade. The area of deep fill is located to the immediate northeast of the Administration Building, occupies an estimated area ten feet by ten feet, and is likely related to some type of structure formerly located in this part of the Site.

Urban fill is defined as material coming from anthropogenic sources of the material re-worked to build a site to a defined grade. The urban fill material at the Site contains:

- Crushed Rock
- Sand
- Silt
- Clay
- Plastics
- Construction Debris

- Lumber
- Ash/Cinders
- Ceramics
- Bricks
- Metal

Native soil encountered beneath the fill consisted of soft to moderately stiff orange brown clay with some very stiff to extremely stiff reddish clay at deeper levels.

Site specific boring logs are provided in **Appendix C.**

2.2.3 Hydrogeology

Groundwater was not directly observed when soil borings were completed due to the fine-grained nature of the soil. However, some borings exhibited moist to wet material at varying depths within the borings. The principal groundwater bearing zone beneath the Site is located between seven to nine feet and 16 to 18 feet below grade. Groundwater beneath the Site generally flows to the southwest. More specifically, groundwater in the northeastern portion of the Site appears to flow south-southwest while groundwater in the southwestern portion of the Site appears to flow southwest. The recorded groundwater levels were deeper in the northeastern portion (MW-3 and MW-4) than the southwestern portion (MW-1 and MW-2). Groundwater flow influences include local drainage features, building foundations, subsurface geology, and/or other local site features.

Table 2-2: Groundwater Elevation Measurements

WELL ID	*SURFACE ELEVATION (FEET)*	*WATER LEVEL (FEET)*	*GROUNDWATER ELEVATION (FEET)*
MW-1	601.973	9.00	592.973
MW-2	602.695	6.85	595.845
MW-3	603.506	18.30	585.206
MW-4	602.985	16.64	586.345

After review of NYSDEC data, it was determined that the Site is not underlain by any mapped principal or primary aquifers. Groundwater at and in the vicinity of the Site is not used for public drinking water supply as the City of Buffalo has imposed a City-wide ban on the use of groundwater for drinking water supply.

A groundwater contour map is shown in **Figure 3**. Groundwater elevation data is provided in **Table 2-2** above. Groundwater monitoring well construction logs are provided in **Appendix C.**

2.3 Investigation and Remedial History

The following narrative provides a remedial history timeline and a brief summary of the available project records to document key investigative and remedial milestones for the Site. Full titles for each of the reports referenced below are provided in Section 8.0 - References.

KTR Newmark Phase I ESA Report (2006)

The Phase I ESA for the Site identified the following Recognized Environmental Conditions (RECs):

- According to available records from the Buffalo Fire Department, there are four 550-gallon heating oil underground storage tanks (USTs) at the Subject Property that have been unaccounted for since 1952. There are no records of these USTs ever having been removed or closed in place.

- One 200-gallon single-walled steel AST with unknown contents was noted during the site reconnaissance in the rooftop elevator mechanical room. The AST vent and fill pipes were not observed at the Subject Property. The AST has reportedly not been utilized in many years, and may have been a steam expansion tank for the former oil-fired heating system.

- The review of fire insurance maps indicated that several manufacturing buildings were present on the adjacent north and east properties relative to the Subject Property. Such buildings included a chemical laboratory located at 1711 Elmwood Avenue on the adjacent north and upgradient parcel and a garage, brazing facility, and heat-treating facility along a set of railroad tracks located to the north relative to the subject property. Buildings to the east included the main manufacturing plant for the former Pierce Arrow.

- The review of historical street directories indicated past activities of environmental concern. Several current and former tenants of the subject property include photodevelopers, a graphics printing company, a chemical laboratory, and a metal fabricating business.

- Several railroad tracks were historically observed to the north and down gradient relative to the Subject Property since circa 1916. Historically, railroad tracks were treated with defoliants that potentially contained polychlorinated biphenyls (PCBs).

AEI Consultants Phase I ESA Report (2011)

The Phase I ESA for the Site identified the following RECs:

- Areas of the Subject Property have been occupied by a series of tenants that likely utilized the spaces for industrial purposes since at least 1938. These tenants include a tool and die manufacturer, cleaning compound manufacturers, chemical laboratories, a machine shop, dry cleaning facilities, and numerous other light industrial tenants. No other information was available regarding the historical operations of these facilities. These tenants likely stored and/or utilized petroleum products and other hazardous materials including hydraulic fluids and cleaning solvents. Due to the duration of industrial use, the unknown operations performed onsite, and the likely use of petroleum products and hazardous substances, all under circumstances outside of regulatory agency oversight (prior to modern oversight standards), it is likely that the historical use has resulted in a release of hazardous substances or petroleum products to the subsurface of the Subject Property and represents a REC.

- One pad mounted transformer is located in the sub-grade basement of the Subject Property building. The transformer was reportedly the original transformer for the building and is still used in combination with a newer transformer for the building. Based on the presumed date of installation, the transformer is expected to contain polychlorinated biphenyls (PCBs). The presence of the historic transformer that is likely to contain hazardous materials represents a REC.

- Significant staining and pooling of unidentified liquids was observed in the vicinity of the drain located within the elevator pit adjacent to the former furniture woodworking shop. Due to the age of the building and the unknown integrity of the drain lines, the floor drain has the potential to act as a conduit to the subsurface of the Subject Property for any materials that are spilled around or discharged into the drain lines. Based on the quantity of staining and pooling liquids observed in combination with the presence of a floor drain, the potential that a release to the subsurface of the Subject Property has occurred could not be ruled out.

AEI Consultants Phase II ESA Report (2011)

A Phase II was completed in 2011 to provide additional information on the RECs discovered during the Phase I ESA. The Phase II consisted of the advancement of nine soil borings to approximately 12 feet below grade on 1695 Elmwood Avenue. Nine soil samples were collected and analyzed for US Environmental Protection Agency (EPA) Target Compound List (TCL) volatile organic compounds (VOCs), TCL semi-volatile organic compounds (SVOCs), and Target Analyte List (TAL) metals including mercury. Soil samples were also analyzed for PCBs.

The results indicated the presence of chromium, lead, mercury and various SVOCs at concentrations above the NYSDEC's Soil Cleanup Objectives Unrestricted Use (SCOs). A portion of the analyte concentrations also exceeded the Residential, Restricted Residential, Commercial, and/or Industrial Use SCOs.

C&S Surface Soil Sampling (2016)

Ten surface soil samples were collected from the Site. Eight surface soil samples were collected around the 1721 and 1723 Elmwood Avenue properties and two surface soil samples were collected on the 1695 Elmwood Avenue property. Surface soil samples were collected from the top two inches of soil, although in some cases the surface was covered by asphalt or bricks. In these instances, samples were collected directly underneath the asphalt or brick. All ten samples were collected and analyzed for SVOCs and TAL metals.

The results indicated the presence of arsenic, cadmium, chromium, copper, lead, mercury, nickel, and zinc and SVOCs at concentrations above the Unrestricted Use SCOs. A portion of the analyte concentrations also exceeded the Residential, Restricted Residential, Commercial, and/or Industrial Use SCOs.

C&S Geophysical Survey

New York Leak Detection (NYLD) conducted a geophysical survey of the proposed BCP Site. NYLD used ground penetrating radar technology to scan the Site for underground storage tanks (UST). One possible UST was identified in the private driveway along the Administrative Building. Two concrete vaults were also identified along Elmwood Avenue.

AMD Environmental Consultants Asbestos Inspection

AMD Environmental Consultants, Inc. conducted a pre-renovation asbestos inspection of the BCP Site from September 26 to 29, 2016 for the Administrative Building and the north Garage Building. Asbestos containing materials (ACM) were identified above 1% in materials that were sampled. Asbestos containing materials included:

- Wall panel mastic
- 9" x 9" and 12" x 12" Floor tiles and floor tile mastic
- Floor leveler
- Thermal system insulations
- Hot water tank
- Boiler insulation and breeching
- Fire door
- Sink insulation
- Transite pipe and exhaust stack
- Repair tar
- Door and window caulk
- Roofing

Since asbestos containing materials were identified and will be disturbed by proposed renovation work, proper asbestos abatement procedures should be implemented prior to the commencement of said work.

Remedial Investigation / Alternatives Analysis Report

The Remedial Investigation (RI) supplemented the existing, limited site characterization information through the advancement of soil borings, installation of monitoring wells, and collection and analysis of soil and groundwater samples. RI activities started late January 2018 through February 2018.

- Four surface soil samples were collected across the northern portion of the Site in areas not "capped" by asphalt or buildings.
    - No volatile organic compounds (VOCs) or polychlorinated biphenyls (PCBs) were detected at concentrations exceeding the Unrestricted Use SCOs in surface soils on the Site.
    - Semi-volatile organic compounds (SVOCs), primarily polycyclic aromatic hydrocarbons (PAHs), at concentrations exceeding the Industrial Use SCOs,

Commercial Use SCOs, Restricted Residential Use SCOs, Residential Use SCOs, and Unrestricted Use SCOs were detected in surface soils on the Site.

- Pesticides were detected at concentrations exceeding the Unrestricted Use SCOs and the Residential Use SCOs in surface soils on the Site.
- Herbicides were not detected in surface soils on the Site.
- Metals at concentrations exceeding the Restricted Residential Use SCOs, Residential Use SCOs, and Unrestricted Use SCOs were detected in surface soils on the Site.

- An additional sample was collected in the Administrative Building per NYSDEC request. This sample was collected from a floor opening where a pipe was encased in a concrete trench.
  - No VOCs were detected in the sediment sample. SVOCs were detected in the sediment sample, but at concentrations below the Unrestricted Use SCOs.
  - One PCB was detected in the sediment sample at a concentration exceeding the Commercial Use SCO.
  - Pesticides were detected at concentration exceeding the Residential Use SCO and the Unrestricted Use SCO.
  - Metals exceeding the Industrial Use SCOs, Commercial Use SCOs, Restricted Residential Use SCOs, Residential Use SCOs, and Unrestricted Use SCOs were detected in the sediment sample.

- Fifteen fill samples were collected from exterior locations.
  - VOCs were detected exceeding the Unrestricted Use SCOs.
  - SVOCs, primarily PAHs, exceeding the Industrial Use SCOs, Commercial Use SCOs, Restricted Residential Use SCOs, Residential Use, and Unrestricted Use SCOs, were detected in the urban fill on the Site.
  - One PCB was detected at a concentration exceeding the Unrestricted Use and Commercial Use SCO in two samples in the northeast corner of the Administrative Building. Pesticides were detected exceeding the Unrestricted Use SCOs.
  - Metals exceeding the Industrial Use SCOs, Commercial Use SCOs, Restricted Residential Use SCOs, Residential SCOs, and Unrestricted Use SCOs were detected.

- Eight fill samples were collected within the buildings. Four sub-slab samples were taken within the former Administrative Building (A-1, A-2, A-3, and A-4). Four additional samples were taken in the former Garage Building. They were comprised of two sub-slab samples (G-2 and G-5) and two additional samples taken based on olfactory indications (G-4 and G-10). Construction fill underneath the floor slab of the Garage Building was further evaluated on May 3 – 4, 2018. Nine construction fill samples were collected from the borings within the Garage Building (G-14 through G-23) directly underneath the slab to characterize the material below the building.

  Administrative Building

  - All parameters were detected below SCOs except for the lead concentration at the A-1 location. The lead concentration slightly exceeds Unrestricted Use SCOs.

  - In order to evaluate the extent of the lead contamination, sub-base samples were collected in concentric rings outward from the original A-1 sample. Each ring was spaced two feet apart and four samples were collected from each ring. A total of 12 sub-base samples were collected. All sub-base samples were analyzed only for lead. The first four samples were immediately analyzed by the laboratory with the remaining samples placed on hold pending the results of the previous set of samples. This process was repeated until concentrations of lead were below Unrestricted Use SCOs.

  Garage Building

  - VOCs (trichloroethylene, vinyl chloride and mixed xylenes) were detected at concentrations above the Unrestricted Use SCOs in two samples.

  - Benzo(k)fluoranthene and chrysene were detected at concentrations above the Residential Use SCOs. Benzo(a)anthracene, benzo(b)fluoranthene, and indeno(1,2,3-c,d)pyrene were detected at concentrations above the Restricted Residential Use SCOs. Benzo(a)pyrene was detected at a concentration above the Industrial Use SCO.

  - Lead was detected at a concentration exceeding the Unrestricted Use SCO in G-5 and G-22, and Commercial Use SCO in G-19. Lead was detected in G-21 over Industrial Use; is location was resampled and the resampled result was detected below Unrestricted Use. Copper was detected at a concentration exceeding the Unrestricted Use SCO in G-5 and at a concentration exceeding Commercial Use (G-19). Mercury was detected at a concentration exceeding the Commercial Use SCO in one sample (G-5). Selenium was detected at a concentration exceeding the Unrestricted Use SCO in G-16. Zinc was detected at a concentration exceeding the Unrestricted Use SCO in G-19 and G-22.

- Four groundwater wells were installed and sampled onsite.

- During the first sampling event, acetone was detected above Ambient Water Quality Guidance and Standards (AWQGS) and effluent groundwater standards in three wells (MW-1, MW-2, and MW-3). During the second groundwater sampling event, acetone was detected above the AWQGS in only two wells (MW-1 and MW-3). 1,1-Dichloroethane, benzene, and toluene were also detected above the AWQGS in MW-3.

- Aluminum was detected at concentrations above AWQGS in three of the four wells (MW-1, MW-2, and MW-4). Iron, magnesium, and sodium were detected at concentrations above AWQGS in each of the four wells. Manganese was detected at concentrations above AWQGS in three of the four wells (MW-1, MW-3, and MW-4). Antimony was detected at a concentration above AWQGS in one well (MW-3). Nickel was detected at a concentration above AWQGS in one well (MW-4).

- The recommended remedial action for the fill and contaminated soils at the Site is the Track 1/Track 4 Restricted Residential Cleanup – Fill Removal and Soil Cover, which includes:

  - Excavation of urban fill material around the exterior of the Administrative Building to achieve a Track 1 Level Cleanup (except for the northeast corner of the building);

  - Excavation of urban fill material on the north side of the Garage Building to achieve a Track 1 Level Cleanup;

  - The demolition and disposal of three transformers from inside the Administrative Building;

  - Resampling and/or soil removal underneath the sub-slab around sample location A-1 inside the Administrative Building;

  - Removal of piping and sediment within the concrete trench inside the Administrative Building;

  - Removal of one AST – excavations underneath the tanks will target a Track 1 Level Cleanup;

  - Water jetting of pipes inside the Garage Building that contain oily sediment;

  - Installation of an asphalt cover on the south side of the Garage Building and northeast corner of the Administrative Building (Track 4 Level Restricted Residential Cleanup); and

  - Maintaining and/or improving the concrete floor slab of the Garage Building (Track 4 Level Restricted Residential Cleanup).

- Engineering Controls:
  - Soil Cover System – comprised of hardscape (asphalt pavement and concrete floor slab).
- Institutional Controls:
  - Implementing deed restrictions, Environmental Easement and Site Management Plan.

2.4 Remedial Action Objectives

The Remedial Action Objectives (RAOs) for the Site as listed in the Decision Document dated September 24, 2019 are as follows:

Groundwater

RAOs for Public Health Protection

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

RAOs for Environmental Protection

- Remove the source of ground or surface water contamination.

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.

2.5 Remaining Contamination

The remedy for the Site consists of excavation of contaminated fill material around exterior portions of the Administrative and Garage Buildings to achieve Track 1 Level Cleanup standards. Remaining contamination will be limited to contaminated fill underneath the following areas:

- A portion on the northeast exterior corner of the Administrative Building property;
- The southern exterior portion of the Garage Building properties; and
- The footprint of the Garage Building.

Areas with remaining contamination will be monitored and maintained with a soil cover system as described in **Section 3.3.1.**

2.5.1 Soil

Northeast Corner of the Administrative Building Property

Urban fill and contaminated soil are present in this area from underneath the asphalt layer to a depth of 9 feet below grade. Contaminated urban fill extends horizontally from the footprint of the Administrative Building to the BCP/property boundary. The approximate area of contaminated material is 3,252 square feet.

Analytical results from the one urban fill sample collected in this area are summarized in the table below.

Table 2-3: Northeast Corner - Summary of Exceedances in Remaining Fill Material

Analyte	Concentration above SCOs (ppm)				
	UR	RS	RR	CM	IN
VOCs					
Acetone	0.11				
SVOCs / PAHs					
Benzo(a)anthracene					65
Benzo(a)pyrene					50
Benzo(b)fluoranthene					61
Benzo(k)fluoranthene			21		
Chrysene				56	
Dibenz(a,h)anthracene					8.7
Fluoranthene			120		
Indeno(1,2,3-cd)pyrene					32
Pyrene			100		
PCBs					
Aroclor 1254	0.416			1.41	
Aroclor 1260	0.212				
Pesticides					
P,P'-DDT	0.0451				
Metals					
Chromium	35				
Copper	64.6				
Lead			433		
Mercury				4.84	

Nickel	42.5				
Zinc	479				

Notes: UR = Unrestricted Use SCOs
RS = Residential Use SCOs
RR = Restricted Residential Use SCOs
CM = Commercial Use SCOs
IN = Industrial Use SCOs

Southern Portion of the Garage Building Properties

Urban fill and contaminated soil are present in this area from underneath the asphalt/brick layer to depths ranging from approximately two to five-and-a-half-feet below grade. Contaminated urban fill extends horizontally from the footprint of the Garage Building to the BCP/property boundary. The approximate area of contaminated material is 9,083 square feet.

Analytical results from the four urban fill samples collected in this area are summarized in the table below.

Table 2-4: Garage Building - Summary of Exceedances in Remaining Fill Material

Analyte	Samples with Detections above SCOs					Low Concentration (ppm)	High Concentration (ppm)
	UR	RS	RR	CM	IN		
VOCs							
Acetone	2					1.5	8.8
Benzene	1					0.66	0.66
Toluene	1					2.7	2.7
Xylenes	2					3.8	6.8
SVOCs / PAHs							
Dibenz(a,h)anthracene			1			0.35	0.35
Metals							
Cadmium		1				3.91	3.91
Chromium	1					31.9	31.9
Copper	1					241	241
Lead	1					112	112
Mercury	1					0.24	0.24
Nickel	1					32.3	32.3
Zinc	2					126	850

Notes: UR = Unrestricted Use SCOs
RS = Residential Use SCOs
RR = Restricted Residential Use SCOs
CM = Commercial Use SCOs
IN = Industrial Use SCOs

Garage Building

Underneath the concrete slab of the building is approximately 3 inches to 1.5 feet of sub-base (silty sand) material followed by native clay. Eleven samples were collected from the sub-base material. Sub-base material extents horizontally throughout the footprint of the building. The approximate area of the sub-base material is 37,586 square feet.

Table 2-5: Summary of Exceedances in Remaining Sub-slab Soil

Analyte	Samples with Detections above SCOs					Low Concentration (ppm)	High Concentration (ppm)
	UR	RS	RR	CM	IN		
VOCs							
Trichloroethylene	1					0.67	0.67
Vinyl Chloride	1					0.063	0.063
Xylenes	1					0.43	0.43
SVOCs / PAHs							
Benzo(a)anthracene			1			2.5	2.5
Benzo(a)pyrene					1	2	2
Benzo(b)fluoranthene			1			2.2	2.2
Benzo(k)fluoranthene		1				1.1	1.1
Chrysene		1				2	2
Indeno(1,2,3-cd)pyrene			1			1.1	1.1
PCBs							
No PCBs were detected at concentrations above SCOs							
Pesticides							
P,P'-DDE	1					0.0109	0.0109
P,P'-DDT	1					0.00334	0.00334
Metals							
Copper	1			1		72.3	352
Lead	3			1		68.6	1,090
Mercury				1		4.8	4.8
Selenium	1					4.6	4.6

Zinc	2					126	287

Notes: UR = Unrestricted Use SCOs
RS = Residential Use SCOs
RR = Restricted Residential Use SCOs
CM = Commercial Use SCOs
IN = Industrial Use SCOs

Figure 4 summarize the results of all soil samples collected that exceed the Unrestricted Use SCOs and the restricted residential Use SCOs at the site after completion of remedial action.

2.5.2 Groundwater

No post remedial action groundwater sampling was conducted on-site. RI results identified concentrations of VOCs (acetone, 1-1-dichloroethane, benzene, and toluene) and metals (aluminum, iron, magnesium, manganese and sodium) that exceed NYSDEC standards. All monitoring wells with marginal concentrations of VOCs were located within and/or directly adjacent to the remedial excavation; therefore, the source of groundwater contamination has largely been removed and any residual contamination is expected to degrade over time. Post-excavation soil results clearly demonstrate that contaminated source material around the exterior of the buildings has been removed. Remaining concentrations of metals above NYSDEC standards are primarily limited to naturally occurring metals commonly found in regional groundwater.

Figure 5 summarize the results of all samples of groundwater that exceed the SCGs after completion of the remedial action.

3 INSTITUTIONAL AND ENGINEERING CONTROL PLAN

3.1 General

Since remaining contamination exists at the site, Institutional Controls (ICs) and Engineering Controls (ECs) are required to protect human health and the environment. This IC/EC Plan describes the procedures for the implementation and management of all IC/ECs

at the site. The IC/EC Plan is one component of the SMP and is subject to revision by the NYSDEC.

This plan provides:

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

3.2 Institutional Controls

A series of ICs is required by the Decision Document to: (1) implement, maintain and monitor Engineering Control systems; (2) prevent future exposure to remaining contamination; and, (3) limit the use and development of the site to restricted residential uses only. Adherence to these ICs on the site is required by the Environmental Easement and will be implemented under this SMP. ICs identified in the Environmental Easement may not be discontinued without an amendment to or extinguishment of the Environmental Easement. The IC boundaries are shown on **Figure 6**. These ICs are:

- The property may be used for : restricted residential use;
- All ECs must be operated and maintained as specified in this SMP;
- All ECs must be inspected at a frequency and in a manner defined in the SMP.

- The use of groundwater underlying the property is prohibited without necessary water quality treatment as determined by the NYSDOH or the Erie County Department of Health to render it safe for use as drinking water or for industrial purposes, and the user must first notify and obtain written approval to do so from the Department.

- Groundwater and other environmental or public health monitoring must be performed as defined in this SMP;

- Data and information pertinent to site management must be reported at the frequency and in a manner as defined in this SMP;

- All future activities that will disturb remaining contaminated material must be conducted in accordance with this SMP;

- Monitoring to assess the performance and effectiveness of the remedy must be performed as defined in this SMP;

- Operation, maintenance, monitoring, inspection, and reporting of any mechanical or physical component of the remedy shall be performed as defined in this SMP;

- Access to the site must be provided to agents, employees or other representatives of the State of New York with reasonable prior notice to the property owner to assure compliance with the restrictions identified by the Environmental Easement.

- The potential for vapor intrusion must be evaluated for any buildings developed in the area within the IC boundaries noted on **Figure 6**, and any potential impacts that are identified must be monitored or mitigated; and

- Vegetable gardens and farming on the site are prohibited;

3.3 Engineering Controls

3.3.1 Soil Cover

Exposure to remaining contamination at the site is prevented by a cover system placed over the site. This cover system is comprised of hardscape (asphalt pavement and concrete floor slab). **Figure 7** presents the location of the cover system and applicable demarcation layers. The Excavation Work Plan (EWP) provided in **Appendix D** outlines the procedures required to be implemented in the event the cover system is breached, penetrated or temporarily removed, and any underlying remaining contamination is disturbed. Procedures for the inspection of this cover are provided in the Monitoring and

Sampling Plan included in Section 4.0 of this SMP. Any work conducted pursuant to the EWP must also be conducted in accordance with the procedures defined in a Health and Safety Plan (HASP) and associated Community Air Monitoring Plan (CAMP) prepared for the site and provided in **Appendix E**.

3.3.2 Criteria for Completion of Remediation/Termination of Remedial Systems

Generally, remedial processes are considered completed when monitoring indicates that the remedy has achieved the remedial action objectives identified by the decision document. The framework for determining when remedial processes are complete is provided in Section 6.4 of NYSDEC DER-10.

Soil Cover

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

4 MONITORING PLAN

4.1 General

This Monitoring Plan describes the measures for evaluating the overall performance and effectiveness of the remedy. This Monitoring Plan may only be revised with the approval of the NYSDEC.

This Monitoring Plan describes the methods to be used for:

- Monitoring the performance and effectiveness of the soil cover system;
- A schedule of monitoring and frequency of submittals to the Department;
- Assessing compliance with applicable NYSDEC standards, criteria and guidance (SCGs); and
- Evaluating site information periodically to confirm the remedy continues to effectively protect public health and the environment.

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

- Annual inspection and periodic certification.

Reporting requirements are provided in Section 7.0 of this SMP.

4.2 Site – wide Inspection

Site-wide inspections will be performed once per year. Modification to the frequency or duration of the inspections will require approval from the NYSDEC. Site-wide inspections will also be performed after all severe weather conditions that may affect ECs or monitoring devices. During these inspections, an inspection form will be completed as provided in **Appendix F** – Site Management Forms. The form will compile sufficient information to assess the following:

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

Inspections of all remedial components installed at the site will be conducted. A comprehensive site-wide inspection will be conducted and documented according to the SMP schedule, regardless of the frequency of the Periodic Review Report. The inspections will determine and document the following:

- Whether ECs continue to perform as designed;
- If these controls continue to be protective of human health and the environment;
- Compliance with requirements of this SMP and the Environmental Easement;
- Achievement of remedial performance criteria; and

- If site records are complete and up to date; and

Reporting requirements are outlined in **Section 7.0** of this plan.

Inspections will also be performed in the event of an emergency. If an emergency, such as a natural disaster or an unforeseen failure of any of the ECs occurs that reduces or has the potential to reduce the effectiveness of ECs in place at the site, verbal notice to the NYSDEC must be given by noon of the following day. In addition, an inspection of the site will be conducted within 5 days of the event to verify the effectiveness of the IC/ECs implemented at the site by a qualified environmental professional, as determined by the NYSDEC. Written confirmation must be provided to the NYSDEC within 7 days of the event that includes a summary of actions taken, or to be taken, and the potential impact to the environment and the public.

5 OPERATION & MAINTENANCE PLAN

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

6 PERIODIC ASSESSMENTS / EVALUATIONS

6.1 Climate Change Vulnerability Assessment

Increases in both the severity and frequency of storms/weather events, an increase in sea level elevations along with accompanying flooding impacts, shifting precipitation patterns and wide temperature fluctuation, resulting from global climactic change and instability, have the potential to significantly impact the performance, effectiveness and protectiveness of a given site and associated remedial systems. Vulnerability assessments provide information so that the site and associated remedial systems are prepared for the impacts of the increasing frequency and intensity of severe storms/weather events and associated flooding.

The Site is considered to have low vulnerability related to climatic conditions. There are no State or Federal wetlands or floodplains located on-site. The Site will not employ any remedial systems reliant upon electrical power; the Site is serviced by municipal storm and sewer system. As such, acute soil cover erosion and the resultant potential exposure to remaining contamination is highly unlikely.

6.2 Green Remediation Evaluation

NYSDEC's DER-31 Green Remediation requires that green remediation concepts and techniques be considered during all stages of the remedial program including site management, with the goal of improving the sustainability of the cleanup and summarizing the net environmental benefit of any implemented green technology. This section of the SMP provides a summary of any green remediation evaluations to be completed for the site during site management, and as reported in the Periodic Review Report (PRR).

No mechanical engineering systems are included in the SMP. The only engineering control established for the Site is a soil cover system. The maintenance of the soil cover system is not anticipated to generate additional waste, use energy, produce emissions, require substantial water to promote vegetative growth, and/or affect any ecosystems.

6.3 Remedial System Optimization

A Remedial Site Optimization (RSO) study will not be required as there are no active remedial systems. The only engineering control at the Site is a soil cover system.

7 REPORTING REQUIREMENTS

7.1 Site Management Reports

All site management inspection, maintenance and monitoring events will be recorded on the appropriate site management forms provided in **Appendix F**. These forms are subject to NYSDEC revision.

All applicable inspection forms and other records, including media sampling data and system maintenance reports, generated for the site during the reporting period will be provided in electronic format to the NYSDEC in accordance with the requirements of **Table 7-1** and summarized in the Periodic Review Report.

Table 7-1: Schedule of Interim Monitoring/Inspection Reports

Task/Report	Reporting Frequency*
Soil Cover System Inspection	Annually
Periodic Review Report	Annually, or as otherwise determined by the Department

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

All interim monitoring/inspections reports will include, at a minimum:

- Date of event or reporting period;
- Name, company, and position of person(s) conducting monitoring/inspection activities;
- Description of the activities performed;
- Where appropriate, color photographs or sketches showing the approximate location of any problems or incidents noted (included either on the checklist/form or on an attached sheet);
- Type of samples collected (e.g., sub-slab vapor, indoor air, outdoor air, etc);

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

Routine maintenance event reporting forms will include, at a minimum:

- Date of event;
- Name, company, and position of person(s) conducting maintenance activities;
- Description of maintenance activities performed;
- Any modifications to the system;
- Where appropriate, color photographs or sketches showing the approximate location of any problems or incidents noted (included either on the checklist/form or on an attached sheet); and,
- Other documentation such as copies of invoices for maintenance work, receipts for replacement equipment, etc., (attached to the checklist/form).

Non-routine maintenance event reporting forms will include, at a minimum:

- Date of event;
- Name, company, and position of person(s) conducting non-routine maintenance/repair activities;
- Description of non-routine activities performed;
- Where appropriate, color photographs or sketches showing the approximate location of any problems or incidents (included either on the form or on an attached sheet); and

- Other documentation such as copies of invoices for repair work, receipts for replacement equipment, etc. (attached to the checklist/form).

Data will be reported in digital format as determined by the NYSDEC. Currently, data is to be supplied electronically and submitted to the NYSDEC EQuIS™ database in accordance with the requirements found at this link http://www.dec.ny.gov/chemical/62440.html.

7.2 Periodic Review Report

A Periodic Review Report (PRR) will be submitted to the Department beginning sixteen (16) months after the Certificate of Completion is issued. After submittal of the initial Periodic Review Report, the next PRR shall be submitted annually to the Department or at another frequency as may be required by the Department. In the event that the site is subdivided into separate parcels with different ownership, a single Periodic Review Report will be prepared that addresses the site described in **Appendix A** -Environmental Easement. The report will be prepared in accordance with NYSDEC's DER-10 and submitted within 30 days of the end of each certification period. Media sampling results will also be incorporated into the Periodic Review Report. The report will include:

- Identification, assessment and certification of all ECs/ICs required by the remedy for the site.
- Results of the required annual site inspections and severe condition inspections, if applicable.
- All applicable site management forms and other records generated for the site during the reporting period in the NYSDEC-approved electronic format, if not previously submitted.
- A summary of any discharge monitoring data and/or information generated during the reporting period, with comments and conclusions.
- Data summary tables and graphical representations of contaminants of concern by media (groundwater, soil vapor, etc.), which include a listing of all compounds analyzed, along with the applicable standards, with all exceedances highlighted. These will include a presentation of past data as part of an evaluation of contaminant concentration trends.

- Results of all analyses, copies of all laboratory data sheets, and the required laboratory data deliverables for all samples collected during the reporting period will be submitted in digital format as determined by the NYSDEC. Currently, data is supplied electronically and submitted to the NYSDEC EQuIS™ database in accordance with the requirements found at this link: http://www.dec.ny.gov/chemical/62440.html.

- A site evaluation, which includes the following:

  - The compliance of the remedy with the requirements of the site-specific RAWP, ROD or Decision Document;

  - The operation and the effectiveness of all treatment units, etc., including identification of any needed repairs or modifications;

  - Any new conclusions or observations regarding site contamination based on inspections or data generated by the Monitoring and Sampling Plan for the media being monitored;

  - Recommendations regarding any necessary changes to the remedy and/or Monitoring and Sampling Plan; and

  - Trends in contaminant levels in the affected media will be evaluated to determine if the remedy continues to be effective in achieving remedial goals as specified by the Decision Document.

  - The overall performance and effectiveness of the remedy.

7.2.1 Certification of Institutional and Engineering Controls

Following the last inspection of the reporting period, a qualified environmental professional will prepare, and include in the Periodic Review Report, the following certification as per the requirements of NYSDEC DER-10:

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

- *The inspection of the site to confirm the effectiveness of the institutional and engineering controls required by the remedial program was performed under my direction;*

- *The institutional control and/or engineering control employed at this site is unchanged from the date the control was put in place, or last approved by the Department;*
- *Nothing has occurred that would impair the ability of the control to protect the public health and environment;*
- *Nothing has occurred that would constitute a violation or failure to comply with any site management plan for this control;*
- *Access to the site will continue to be provided to the Department to evaluate the remedy, including access to evaluate the continued maintenance of this control;*
- *If a financial assurance mechanism is required under the oversight document for the site, the mechanism remains valid and sufficient for the intended purpose under the document;*
- *Use of the site is compliant with the environmental easement;*
- *The engineering control systems are performing as designed and are effective;*
- *To the best of my knowledge and belief, the work and conclusions described in this certification are in accordance with the requirements of the site remedial program; and*
- *The information presented in this report is accurate and complete.*

I certify that all information and statements in this certification form are true. I understand that a false statement made herein is punishable as a Class "A" misdemeanor, pursuant to Section 210.45 of the Penal Law. I, [name], of [business address], am certifying as [Owner/Remedial Party or Owner's/Remedial Party's Designated Site Representative] [I have been authorized and designated by all site owners/remedial parties to sign this certification] for the site."

In addition, every five years the following certification will be added:

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

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

The Periodic Review Report will be submitted, in electronic format, to the NYSDEC Central Office, Regional Office in which the site is located and the NYSDOH Bureau of Environmental Exposure Investigation. The Periodic Review Report may need to be submitted in hard-copy format, as requested by the NYSDEC project manager.

7.3 Corrective Measures Work Plan

If any component of the remedy is found to have failed, or if the periodic certification cannot be provided due to the failure of an institutional or engineering control, a Corrective Measures Work Plan will be submitted to the NYSDEC for approval. This plan will explain the failure and provide the details and schedule for performing work necessary to correct the failure. Unless an emergency condition exists, no work will be performed pursuant to the Corrective Measures Work Plan until it has been approved by the NYSDEC.

8 REFERENCES

1. 6NYCRR Part 375, Environmental Remediation Programs. December 14, 2006.

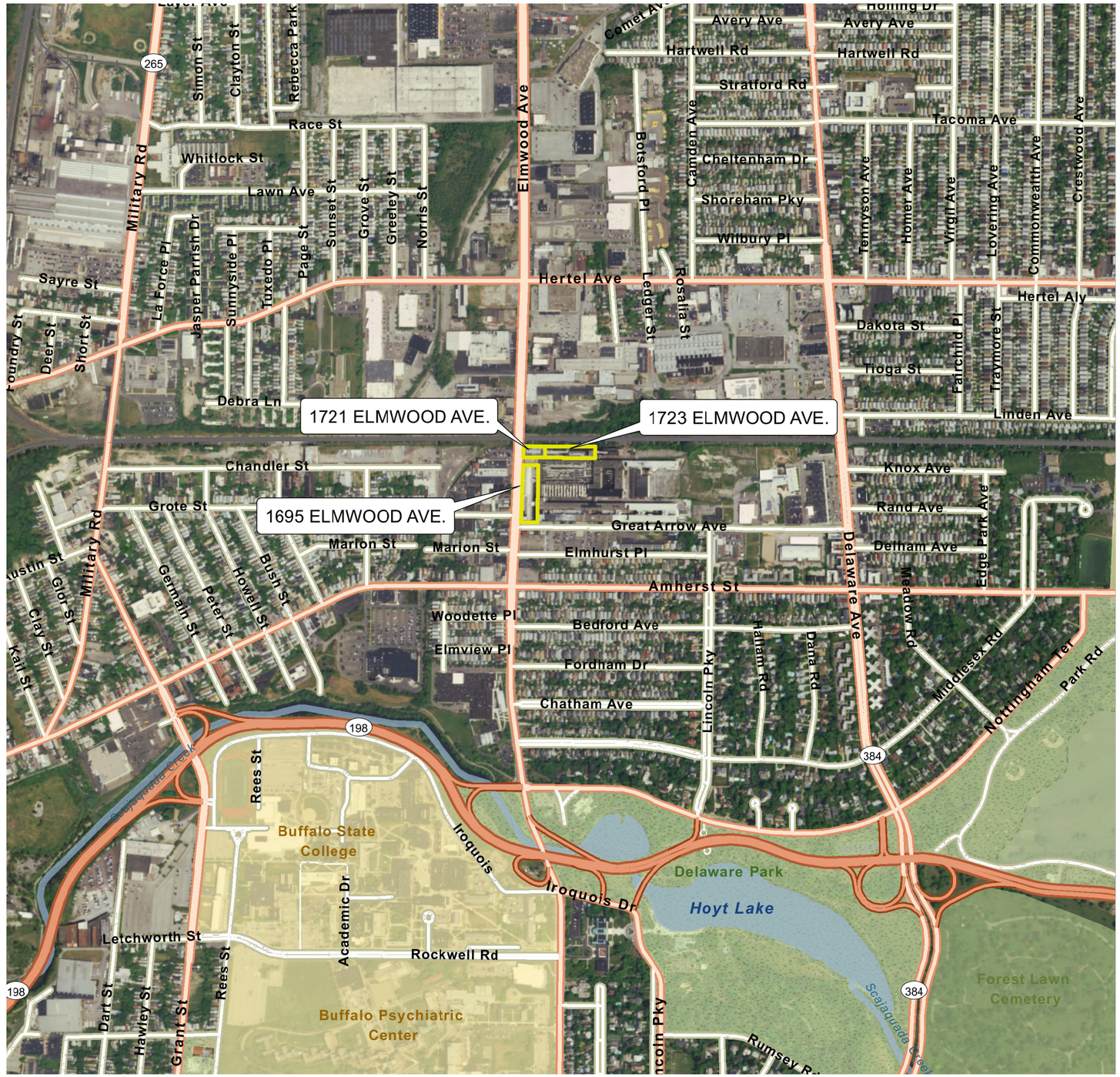
2. NYSDEC DER-10 – *Technical Guidance for Site Investigation and Remediation*. Date May 2010.

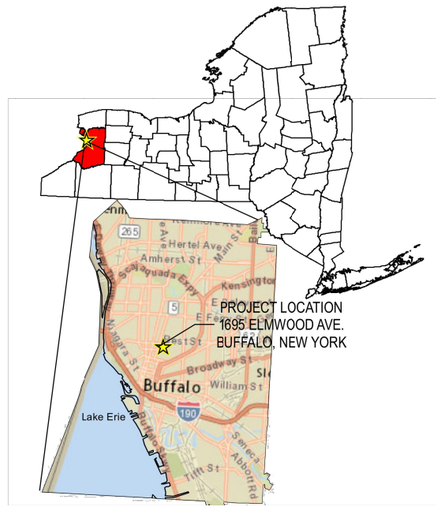
3. NYSDEC, 1998. *Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations Division of Water Technical and Operational Guidance Series* (TOGS) 1.1.1. June 1998 (April 2000 addendum).

4. C&S Engineers, Inc. Remedial Investigation / Interim Remedial Measure Work Plan, The Pierce Arrow Site (C915308), Buffalo, New York. Revised March 2017.

5. C&S Engineers, Inc. Remedial Investigation / Alternative Analysis Report. Pierce Arrow Site (C915308), Buffalo, New York. August 2018.

FIGURES





BROWNFIELD CLEANUP PROGRAM (BCP) BOUNDARY

0 500 1,000 2,000 Feet

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N

PIERCE ARROW SITE
BROWNFIELD CLEANUP PROGRAM
SITE NO. C915308
CITY OF BUFFALO, NEW YORK

MARK	DATE	DESCRIPTION

REVISIONS

PROJECT NO:	C69.001.002
DATE:	JULY 30, 2019
DRAWN BY:	C. MARTIN
DESIGNED BY:	C. MARTIN
CHECKED BY:	D. RIKER

SITE LOCATION

FIGURE 1

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Legend

BROWNFIELD CLEANUP PROGRAM (BCP) BOUNDARY

0 50 100 200 Feet

Document Path: F:\Project\Q69 - Pierce Arrow, LLC - Joseph Hecht\Q69001001 - Pierce Arrow BCP\Planning-Study\GIS\RI\RI_AREA_SITE_BOUNDARIES.mxd

f:\Project\q69 - pierce arrow, llc - joseph hecht\q69001001 - pierce arrow bcp\planning-study\CADD\SITE LAYOUT.dwg

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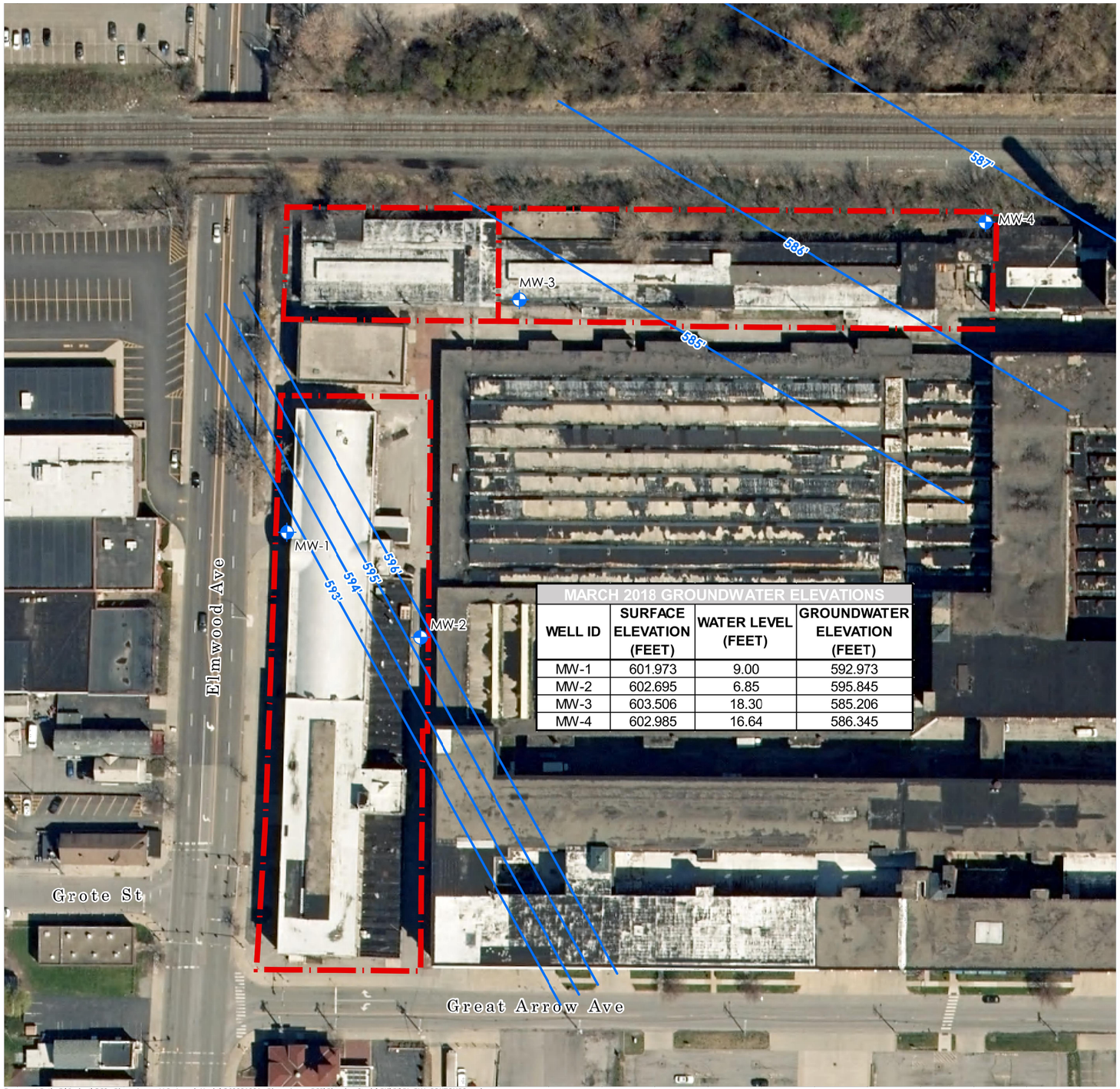
SITE LAYOUT

FIGURE 2



MARCH 2018 GROUNDWATER ELEVATIONS			
WELL ID	SURFACE ELEVATION (FEET)	WATER LEVEL (FEET)	GROUNDWATER ELEVATION (FEET)
MW-1	601.973	9.00	592.973
MW-2	602.695	6.85	595.845
MW-3	603.506	18.30	585.206
MW-4	602.985	16.64	586.345

Legend

- BROWNFIELD CLEANUP PROGRAM (BCP) BOUNDARY
- GROUNDWATER MONITORING WELL
- GROUNDWATER ELEVATION (MARCH 2018)

0 50 100 200 Feet

Document Path: F:\Project\Q69 - Pierce Arrow, LLC - Joseph Hecht\Q69001001 - Pierce Arrow BCP\Planning-Study\GIS\RI\RI_GW_CONTOURS.mxd

f:\Project\q69 - pierce arrow, llc - joseph hecht\q69001001 - pierce arrow bcp\planning-study\CADD\GW CONTOUR MAP.dwg

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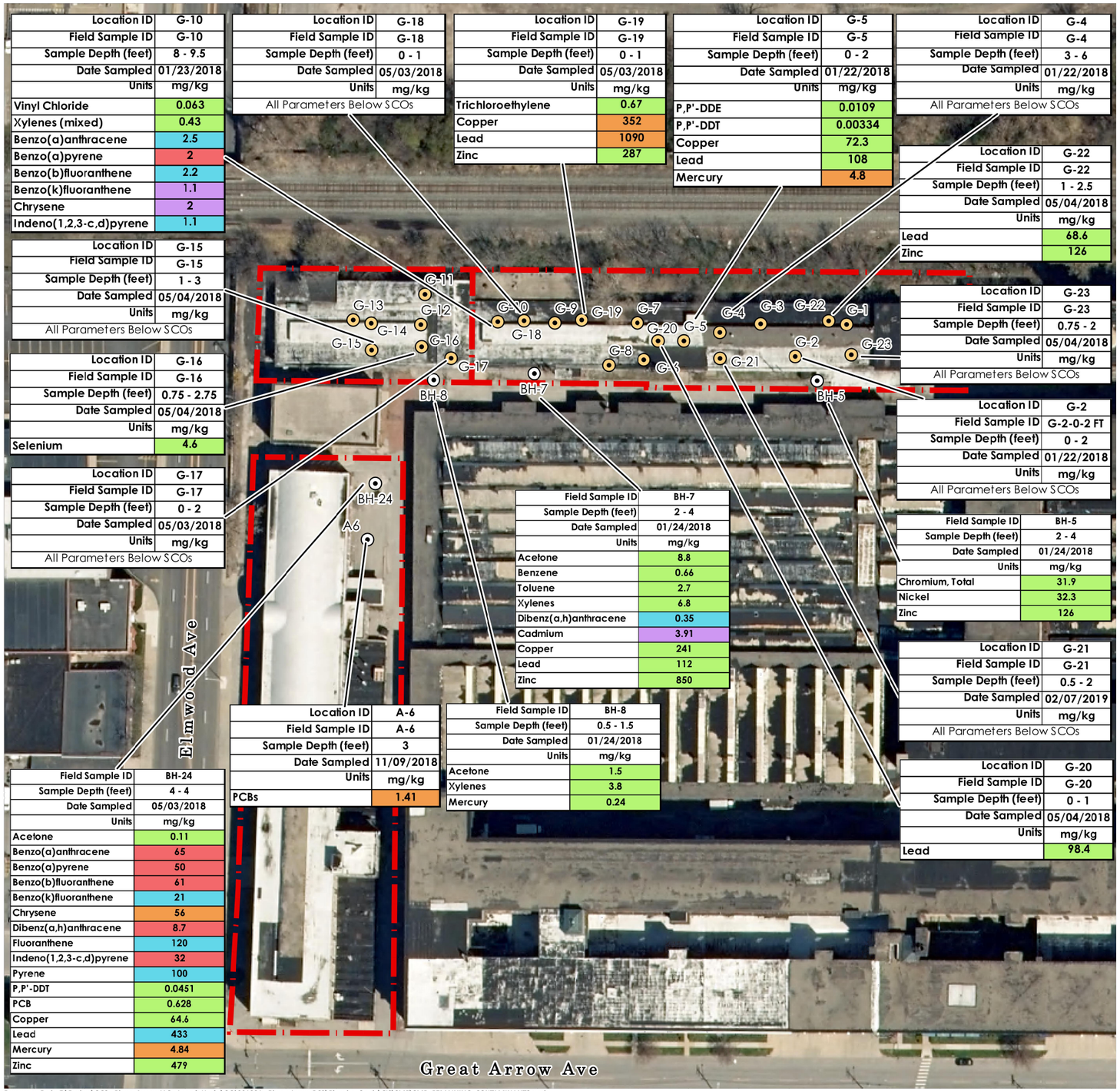
DESIGNED BY:	C. MARTIN
CHECKED BY:	D. RIKER

GROUNDWATER MONITORING WELL LOCATIONS AND CONTOURS

FIGURE 3



Location ID	G-10
Field Sample ID	G-10
Sample Depth (feet)	8 - 9.5
Date Sampled	01/23/2018
Units	mg/kg
Vinyl Chloride	0.063
Xylenes (mixed)	0.43
Benzo(a)anthracene	2.5
Benzo(a)pyrene	2
Benzo(b)fluoranthene	2.2
Benzo(k)fluoranthene	1.1
Chrysene	2
Indeno(1,2,3-c,d)pyrene	1.1

Location ID	G-18
Field Sample ID	G-18
Sample Depth (feet)	0 - 1
Date Sampled	05/03/2018
Units	mg/kg
All Parameters Below SCOs	

Location ID	G-19
Field Sample ID	G-19
Sample Depth (feet)	0 - 1
Date Sampled	05/03/2018
Units	mg/kg
Trichloroethylene	0.67
Copper	352
Lead	1090
Zinc	287

Location ID	G-5
Field Sample ID	G-5
Sample Depth (feet)	0 - 2
Date Sampled	01/22/2018
Units	mg/kg
P,P'-DDE	0.0109
P,P'-DDT	0.00334
Copper	72.3
Lead	108
Mercury	4.8

Location ID	G-4
Field Sample ID	G-4
Sample Depth (feet)	3 - 6
Date Sampled	01/22/2018
Units	mg/kg
All Parameters Below SCOs	

Location ID	G-22
Field Sample ID	G-22
Sample Depth (feet)	1 - 2.5
Date Sampled	05/04/2018
Units	mg/kg
Lead	68.6
Zinc	126

Location ID	G-15
Field Sample ID	G-15
Sample Depth (feet)	1 - 3
Date Sampled	05/04/2018
Units	mg/kg
All Parameters Below SCOs	

Location ID	G-23
Field Sample ID	G-23
Sample Depth (feet)	0.75 - 2
Date Sampled	05/04/2018
Units	mg/kg
All Parameters Below SCOs	

Location ID	G-16
Field Sample ID	G-16
Sample Depth (feet)	0.75 - 2.75
Date Sampled	05/04/2018
Units	mg/kg
Selenium	4.6

Location ID	G-2
Field Sample ID	G-2-0-2 FT
Sample Depth (feet)	0 - 2
Date Sampled	01/22/2018
Units	mg/kg
All Parameters Below SCOs	

Location ID	G-17
Field Sample ID	G-17
Sample Depth (feet)	0 - 2
Date Sampled	05/03/2018
Units	mg/kg
All Parameters Below SCOs	

Field Sample ID	BH-7
Sample Depth (feet)	2 - 4
Date Sampled	01/24/2018
Units	mg/kg
Acetone	8.8
Benzene	0.66
Toluene	2.7
Xylenes	6.8
Dibenz(a,h)anthracene	0.35
Cadmium	3.91
Copper	241
Lead	112
Zinc	850

Field Sample ID	BH-5
Sample Depth (feet)	2 - 4
Date Sampled	01/24/2018
Units	mg/kg
Chromium, Total	31.9
Nickel	32.3
Zinc	126

Location ID	G-21
Field Sample ID	G-21
Sample Depth (feet)	0.5 - 2
Date Sampled	02/07/2019
Units	mg/kg
All Parameters Below SCOs	

Location ID	A-6
Field Sample ID	A-6
Sample Depth (feet)	3
Date Sampled	11/09/2018
Units	mg/kg
PCBs	1.41

Field Sample ID	BH-8
Sample Depth (feet)	0.5 - 1.5
Date Sampled	01/24/2018
Units	mg/kg
Acetone	1.5
Xylenes	3.8
Mercury	0.24

Location ID	G-20
Field Sample ID	G-20
Sample Depth (feet)	0 - 1
Date Sampled	05/04/2018
Units	mg/kg
Lead	98.4

Field Sample ID	BH-24
Sample Depth (feet)	4 - 4
Date Sampled	05/03/2018
Units	mg/kg
Acetone	0.11
Benzo(a)anthracene	65
Benzo(a)pyrene	50
Benzo(b)fluoranthene	61
Benzo(k)fluoranthene	21
Chrysene	56
Dibenz(a,h)anthracene	8.7
Fluoranthene	120
Indeno(1,2,3-c,d)pyrene	32
Pyrene	100
P,P'-DDT	0.0451
PCB	0.628
Copper	64.6
Lead	433
Mercury	4.84
Zinc	479

Legend

- BROWNFIELD CLEANUP PROGRAM (BCP) BOUNDARY
- EXTERIOR SOIL SAMPLE LOCATION
- INTERIOR SUB-SLAB SOIL BORING LOCATION

Label Notes

Field Sample ID	
Sample Depth (feet)	
Date Sampled	
Units	
Analyte	Not Detected (ND) / Below Unrestricted Use SCOs
	Above Unrestricted Use SCOs
	Above Residential Use SCOs
	Above Restricted Residential Use SCOs
	Above Commercial Use SCOs
	Above Industrial Use SCOs

0 50 100 200 Feet

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PIERCE ARROW SITE
BROWNFIELD CLEANUP PROGRAM
SITE NO. C915308
CITY OF BUFFALO, NEW YORK

MARK	DATE	DESCRIPTION
REVISIONS		

PROJECT NO:	Q69.001.002
DATE:	JULY 30, 2019
DRAWN BY:	C. MARTIN
DESIGNED BY:	C. MARTIN
CHECKED BY:	D. RIKER

REMAINING SOIL EXCEEDANCES

FIGURE 4

Location ID		MW-3	
Date Sampled		02/09/2018	03/13/2018
Units		ug/l	ug/l
1,1-Dichloroethane	5.0 ug/l	ND	6.5
Acetone	50.0 ug/l	6000	220
Benzene	1.0 ug/l	ND	4.6
Toluene	5.0 ug/l	ND	6.1
Aluminum	100.0 ug/l	4310	88.3
Antimony	3.0 ug/l	1.5	5.52
Iron	300.0 ug/l	3060	8020
Magnesium	35000.0 ug/l	105000	143000
Manganese	300.0 ug/l	1013	573.2
Sodium	20000.0 ug/l	95000	88500

Location ID		MW-4
Date Sampled		03/13/2018
Units		ug/l
Aluminum	100.0 ug/l	12700
Iron	300.0 ug/l	25600
Magnesium	35000.0 ug/l	117000
Manganese	300.0 ug/l	1934
Nickel	100.0 ug/l	204.3
Sodium	20000.0 ug/l	69700

Location ID		MW-1	
Date Sampled		02/09/2018	03/13/2018
Units		ug/l	ug/l
Acetone	50.0 ug/l	160	65
Aluminum	100.0 ug/l	687	344
Iron	300.0 ug/l	1040	8590
Magnesium	35000.0 ug/l	108000	140000
Manganese	300.0 ug/l	497.6	338.8
Sodium	20000.0 ug/l	84300	83300

Location ID		MW-2	
Date Sampled		02/09/2018	03/13/2018
Units		ug/l	ug/l
Acetone	50.0 ug/l	1000	28
Aluminum	100.0 ug/l	2480	181
Chromium, Total	50.0 ug/l	1031	39.84
Iron	300.0 ug/l	9200	1060
Magnesium	35000.0 ug/l	128000	134000
Manganese	300.0 ug/l	511.8	121.2
Nickel	100.0 ug/l	506.2	21.87
Sodium	20000.0 ug/l	102000	92300

MW-1
MW-2
MW-3
MW-4

Elmwood Ave
Grote St
Great Arrow Ave

Legend

- BROWNFIELD CLEANUP PROGRAM (BCP) BOUNDARY
- GROUNDWATER MONITORING WELL

0 50 100 200 Feet

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SITE NO. C915308
CITY OF BUFFALO, NEW YORK

MARK	DATE	DESCRIPTION
REVISIONS		

PROJECT NO:	Q69.001.002
DATE:	JULY 30, 2019
DRAWN BY:	C. MARTIN
DESIGNED BY:	C. MARTIN
CHECKED BY:	D. RIKER

GROUNDWATER SAMPLE EXCEEDANCES

FIGURE 5

Document Path: F:\Project\Q69 - Pierce Arrow, LLC - Joseph Hecht\Q69001001 - Pierce Arrow BCP\Planning-Study\GIS\SMP\SMP_IC_BOUNDARIES.mxd

Legend

- BROWNFIELD CLEANUP PROGRAM (BCP) BOUNDARY
- TRACK 4 LEVEL CLEANUP

TRACK 4 LEVEL CLEANUP

INSTITUTIONAL CONTROLS (IC) CONSIST OF THE FOLLOWING:

- THE PROPERTY MAY BE USED FOR RESTRICTED RESIDENTIAL USE;
- ALL ENGINEERING CONTROLS (EC) MUST BE OPERATED AND MAINTAINED AS SPECIFIED IN THIS SITE MANAGEMENT PLAN (SMP);
- ALL ECS MUST BE INSPECTED AT A FREQUENCY AND IN A MANNER DEFINED IN THE SMP.
- THE USE OF GROUNDWATER UNDERLYING THE PROPERTY IS PROHIBITED WITHOUT NECESSARY WATER QUALITY TREATMENT AS DETERMINED BY THE NYSDOH OR THE ERIE COUNTY DEPARTMENT OF HEALTH TO RENDER IT SAFE FOR USE AS DRINKING WATER OR FOR INDUSTRIAL PURPOSES, AND THE USER MUST FIRST NOTIFY AND OBTAIN WRITTEN APPROVAL TO DO SO FROM THE DEPARTMENT.
- GROUNDWATER AND OTHER ENVIRONMENTAL OR PUBLIC HEALTH MONITORING MUST BE PERFORMED AS DEFINED IN THIS SMP;
- DATA AND INFORMATION PERTINENT TO SITE MANAGEMENT MUST BE REPORTED AT THE FREQUENCY AND IN A MANNER AS DEFINED IN THIS SMP;
- ALL FUTURE ACTIVITIES THAT WILL DISTURB REMAINING CONTAMINATED MATERIAL MUST BE CONDUCTED IN ACCORDANCE WITH THIS SMP;
- MONITORING TO ASSESS THE PERFORMANCE AND EFFECTIVENESS OF THE REMEDY MUST BE PERFORMED AS DEFINED IN THIS SMP;
- OPERATION, MAINTENANCE, MONITORING, INSPECTION, AND REPORTING OF ANY MECHANICAL OR PHYSICAL COMPONENT OF THE REMEDY SHALL BE PERFORMED AS DEFINED IN THIS SMP;
- ACCESS TO THE SITE MUST BE PROVIDED TO AGENTS, EMPLOYEES OR OTHER REPRESENTATIVES OF THE STATE OF NEW YORK WITH REASONABLE PRIOR NOTICE TO THE PROPERTY OWNER TO ASSURE COMPLIANCE WITH THE RESTRICTIONS IDENTIFIED BY THE ENVIRONMENTAL EASEMENT.
- THE POTENTIAL FOR VAPOR INTRUSION MUST BE EVALUATED FOR ANY BUILDINGS DEVELOPED IN THE AREA WITHIN THE IC BOUNDARIES, AND ANY POTENTIAL IMPACTS THAT ARE IDENTIFIED MUST BE MONITORED OR MITIGATED; AND
- VEGETABLE GARDENS AND FARMING ON THE SITE ARE PROHIBITED.

0 50 100 200 Feet

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SITE NO. C915308
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MARK	DATE	DESCRIPTION
REVISIONS		

PROJECT NO:	Q69.001.002
DATE:	JULY 30, 2019
DRAWN BY:	C. MARTIN
DESIGNED BY:	C. MARTIN
CHECKED BY:	D. RIKER

INSTITUTIONAL CONTROL BOUNDARIES

FIGURE 6

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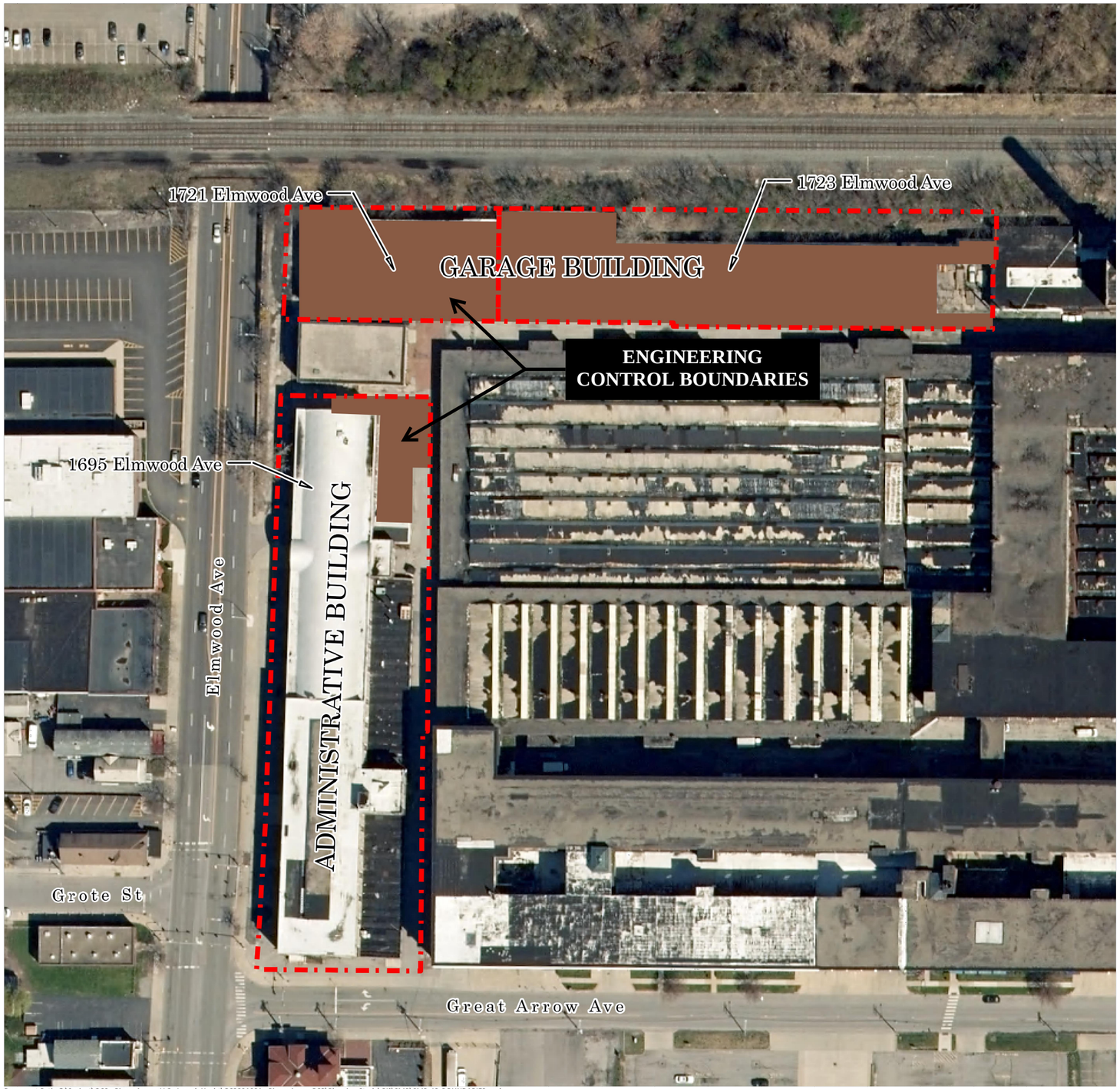

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Legend

- BROWNFIELD CLEANUP PROGRAM (BCP) BOUNDARY
- TRACK 4 LEVEL CLEANUP

TRACK 4 LEVEL CLEANUP

- ENGINEERING CONTROLS (EC) CONSIST OF A SOIL COVER SYSTEM PLACED ON TOP OF REMAINING CONTAMINATION.
- THE SOIL COVER SYSTEM IS COMPRISED OF THE FOLLOWING:

1. INSTALLATION AND/OR MAINTENANCE OF HARD SURFACES (CONCRETE BUILDING SLABS, ASPHALT PAVEMENT, SIDEWALKS, ETC.)
2. PLACEMENT OF A DEMARCATION LAYER AT THE BOTTOM OF NEW HARD SURFACE INSTALLATION. THE DEMARCATION LAYER WILL CONSIST OF GEOTEXTILE FABRIC.

0 50 100 200 Feet

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ENGINEERING CONTROLS

FIGURE 7

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APPENDICES

APPENDIX A

ENVIRONMENTAL EASEMENT

MICHAEL P. KEARNS, ERIE COUNTY CLERK
REF:

DATE:11/27/2019
TIME:9:06:30 AM
RECEIPT: 19200919 - DUPLICATE -

PARALEGAL SERVICES OF BUFFALO
ACCOUNT #: 9273

DUPLICATE RECEIPT

ITEM - 01 785
RECD: 11/27/2019 9:11:39 AM
FILE: 2019262690 BK/PG D 11353/3972
Deed Sequence: TT2019009207
PIERCE ARROW KANAKA LLC 95.50
Recording Fees 10.00
TP584
Subtotal 105.50

TOTAL DUE	$105.50
PAID TOTAL	$105.50
PAID ESCROW	$105.50

REC BY: Mary Grace
COUNTY RECORDER

D11353 3972

County: Erie Site No: C915308 Brownfield Cleanup Agreement Index : C915308-12-16

FILED

NOV 27 2019

ERIE COUNTY
CLERK'S OFFICE

ENVIRONMENTAL EASEMENT GRANTED PURSUANT TO ARTICLE 71, TITLE 36 OF THE NEW YORK STATE ENVIRONMENTAL CONSERVATION LAW

THIS INDENTURE made this 20th day of November, 2019, between Owner(s) Pierce Arrow Kanaka LLC, having an office at c/o Nidus Development, 2150 Wehrle Drive, Suite 400, Williamsville, New York 14221 (the "Grantor"), and The People of the State of New York (the "Grantee"), acting through their Commissioner of the Department of Environmental Conservation (the "Commissioner", or "NYSDEC" or "Department" as the context requires) with its headquarters located at 625 Broadway, Albany, New York 12233,

WHEREAS, the Legislature of the State of New York has declared that it is in the public interest to encourage the remediation of abandoned and likely contaminated properties ("sites") that threaten the health and vitality of the communities they burden while at the same time ensuring the protection of public health and the environment; and

WHEREAS, the Legislature of the State of New York has declared that it is in the public interest to establish within the Department a statutory environmental remediation program that includes the use of Environmental Easements as an enforceable means of ensuring the performance of operation, maintenance, and/or monitoring requirements and the restriction of future uses of the land, when an environmental remediation project leaves residual contamination at levels that have been determined to be safe for a specific use, but not all uses, or which includes engineered structures that must be maintained or protected against damage to perform properly and be effective, or which requires groundwater use or soil management restrictions; and

WHEREAS, the Legislature of the State of New York has declared that Environmental Easement shall mean an interest in real property, created under and subject to the provisions of Article 71, Title 36 of the New York State Environmental Conservation Law ("ECL") which contains a use restriction and/or a prohibition on the use of land in a manner inconsistent with engineering controls which are intended to ensure the long term effectiveness of a site remedial program or eliminate potential exposure pathways to hazardous waste or petroleum; and

WHEREAS, Grantor, is the owner of real property located at the address of 1695 Elmwood Avenue in the City of Buffalo, County of Erie and State of New York, known and designated on the tax map of the County Clerk of Erie as tax map parcel numbers: Section 78.77 Block 2 Lot 6, being the same as that property conveyed to Grantor by deed dated December 28, 2017 and recorded in the Erie County Clerk's Office in Liber and Page 11323/6520.

WHEREAS, Grantor, is the owner of real property located at the address of 1721 Elmwood Avenue in the City of Buffalo, County of Erie and State of New York, known and designated on the tax map of the County Clerk of Erie as tax map parcel numbers: Section 78.77 Block 2 Lot 2, being the same as that property conveyed to Grantor by deed dated December 28, 2017 and recorded in the Erie County Clerk's Office in Liber and Page 11323/6520.

WHEREAS, Grantor, is the owner of real property located at the address of 1723 Elmwood Avenue in the City of Buffalo, County of Erie and State of New York, known and

designated on the tax map of the County Clerk of Erie as tax map parcel numbers: Section 78.77 Block 2 Lot 3, being the same as that property conveyed to Grantor by deed dated December 28, 2017 and recorded in the Erie County Clerk's Office in Liber and Page 11323/6520.

WHEREAS, the property subject to this Environmental Easement (the "Controlled Property") comprises approximately 1.136 +/- acres, and is hereinafter more fully described in the Land Title Survey dated February 2, 2017 and last revised October 15, 2018 prepared by Rosanne Frandina, L.L.S. of Frandina Engineering and Land Surveying, PC, which will be attached to the Site Management Plan. The Controlled Property description is set forth in and attached hereto as Schedule A; and

WHEREAS, the Department accepts this Environmental Easement in order to ensure the protection of public health and the environment and to achieve the requirements for remediation established for the Controlled Property until such time as this Environmental Easement is extinguished pursuant to ECL Article 71, Title 36; and

NOW THEREFORE, in consideration of the mutual covenants contained herein and the terms and conditions of Brownfield Cleanup Agreement Index Number: C915308-12-16, Grantor conveys to Grantee a permanent Environmental Easement pursuant to ECL Article 71, Title 36 in, on, over, under, and upon the Controlled Property as more fully described herein ("Environmental Easement").

1. Purposes. Grantor and Grantee acknowledge that the Purposes of this Environmental Easement are: to convey to Grantee real property rights and interests that will run with the land in perpetuity in order to provide an effective and enforceable means of encouraging the reuse and redevelopment of this Controlled Property at a level that has been determined to be safe for a specific use while ensuring the performance of operation, maintenance, and/or monitoring requirements; and to ensure the restriction of future uses of the land that are inconsistent with the above-stated purpose.

2. Institutional and Engineering Controls. The controls and requirements listed in the Department approved Site Management Plan ("SMP") including any and all Department approved amendments to the SMP are incorporated into and made part of this Environmental Easement. These controls and requirements apply to the use of the Controlled Property, run with the land, are binding on the Grantor and the Grantor's successors and assigns, and are enforceable in law or equity against any owner of the Controlled Property, any lessees and any person using the Controlled Property.

A. (1) The Controlled Property may be used for:

Restricted Residential as described in 6 NYCRR Part 375-1.8(g)(2)(ii), Commercial as described in 6 NYCRR Part 375-1.8(g)(2)(iii) and Industrial as described in 6 NYCRR Part 375-1.8(g)(2)(iv)

(2) All Engineering Controls must be operated and maintained as specified in the Site Management Plan (SMP);

(3) All Engineering Controls must be inspected at a frequency and in a

manner defined in the SMP;

(4) The use of groundwater underlying the property is prohibited without necessary water quality treatment as determined by the NYSDOH or the Erie County Department of Health to render it safe for use as drinking water or for industrial purposes, and the user must first notify and obtain written approval to do so from the Department;

(5) Groundwater and other environmental or public health monitoring must be performed as defined in the SMP;

(6) Data and information pertinent to Site Management of the Controlled Property must be reported at the frequency and in a manner defined in the SMP;

(7) All future activities on the property that will disturb remaining contaminated material must be conducted in accordance with the SMP;

(8) Monitoring to assess the performance and effectiveness of the remedy must be performed as defined in the SMP;

(9) Operation, maintenance, monitoring, inspection, and reporting of any mechanical or physical components of the remedy shall be performed as defined in the SMP;

(10) Access to the site must be provided to agents, employees or other representatives of the State of New York with reasonable prior notice to the property owner to assure compliance with the restrictions identified by this Environmental Easement.

B. The Controlled Property shall not be used for Residential purposes as defined in 6NYCRR 375-1.8(g)(2)(i), and the above-stated engineering controls may not be discontinued without an amendment or extinguishment of this Environmental Easement.

C. The SMP describes obligations that the Grantor assumes on behalf of Grantor, its successors and assigns. The Grantor's assumption of the obligations contained in the SMP which may include sampling, monitoring, and/or operating a treatment system, and providing certified reports to the NYSDEC, is and remains a fundamental element of the Department's determination that the Controlled Property is safe for a specific use, but not all uses. The SMP may be modified in accordance with the Department's statutory and regulatory authority. The Grantor and all successors and assigns, assume the burden of complying with the SMP and obtaining an up-to-date version of the SMP from:

Site Control Section
Division of Environmental Remediation
NYSDEC
625 Broadway
Albany, New York 12233
Phone: (518) 402-9553

D. Grantor must provide all persons who acquire any interest in the Controlled Property a true and complete copy of the SMP that the Department approves for the Controlled

Property and all Department-approved amendments to that SMP.

E. Grantor covenants and agrees that until such time as the Environmental Easement is extinguished in accordance with the requirements of ECL Article 71, Title 36 of the ECL, the property deed and all subsequent instruments of conveyance relating to the Controlled Property shall state in at least fifteen-point bold-faced type:

This property is subject to an Environmental Easement held by the New York State Department of Environmental Conservation pursuant to Title 36 of Article 71 of the Environmental Conservation Law.

F. Grantor covenants and agrees that this Environmental Easement shall be incorporated in full or by reference in any leases, licenses, or other instruments granting a right to use the Controlled Property.

G. Grantor covenants and agrees that it shall, at such time as NYSDEC may require, submit to NYSDEC a written statement by an expert the NYSDEC may find acceptable certifying under penalty of perjury, in such form and manner as the Department may require, that:

(1) the inspection of the site to confirm the effectiveness of the institutional and engineering controls required by the remedial program was performed under the direction of the individual set forth at 6 NYCRR Part 375-1.8(h)(3).

(2) the institutional controls and/or engineering controls employed at such site:

(i) are in-place;

(ii) are unchanged from the previous certification, or that any identified changes to the controls employed were approved by the NYSDEC and that all controls are in the Department-approved format; and

(iii) that nothing has occurred that would impair the ability of such control to protect the public health and environment;

(3) the owner will continue to allow access to such real property to evaluate the continued maintenance of such controls;

(4) nothing has occurred that would constitute a violation or failure to comply with any site management plan for such controls;

(5) the report and all attachments were prepared under the direction of, and reviewed by, the party making the certification;

(6) to the best of his/her knowledge and belief, the work and conclusions described in this certification are in accordance with the requirements of the site remedial program, and generally accepted engineering practices; and

(7) the information presented is accurate and complete.

3. Right to Enter and Inspect. Grantee, its agents, employees, or other representatives of the State may enter and inspect the Controlled Property in a reasonable manner and at reasonable times to assure compliance with the above-stated restrictions.

4. Reserved Grantor's Rights. Grantor reserves for itself, its assigns, representatives, and successors in interest with respect to the Property, all rights as fee owner of the Property, including:

A. Use of the Controlled Property for all purposes not inconsistent with, or limited by the terms of this Environmental Easement;

B. The right to give, sell, assign, or otherwise transfer part or all of the underlying fee interest to the Controlled Property, subject and subordinate to this Environmental Easement;

5. Enforcement

A. This Environmental Easement is enforceable in law or equity in perpetuity by Grantor, Grantee, or any affected local government, as defined in ECL Section 71-3603, against the owner of the Property, any lessees, and any person using the land. Enforcement shall not be defeated because of any subsequent adverse possession, laches, estoppel, or waiver. It is not a defense in any action to enforce this Environmental Easement that: it is not appurtenant to an interest in real property; it is not of a character that has been recognized traditionally at common law; it imposes a negative burden; it imposes affirmative obligations upon the owner of any interest in the burdened property; the benefit does not touch or concern real property; there is no privity of estate or of contract; or it imposes an unreasonable restraint on alienation.

B. If any person violates this Environmental Easement, the Grantee may revoke the Certificate of Completion with respect to the Controlled Property.

C. Grantee shall notify Grantor of a breach or suspected breach of any of the terms of this Environmental Easement. Such notice shall set forth how Grantor can cure such breach or suspected breach and give Grantor a reasonable amount of time from the date of receipt of notice in which to cure. At the expiration of such period of time to cure, or any extensions granted by Grantee, the Grantee shall notify Grantor of any failure to adequately cure the breach or suspected breach, and Grantee may take any other appropriate action reasonably necessary to remedy any breach of this Environmental Easement, including the commencement of any proceedings in accordance with applicable law.

D. The failure of Grantee to enforce any of the terms contained herein shall not be deemed a waiver of any such term nor bar any enforcement rights.

6. Notice. Whenever notice to the Grantee (other than the annual certification) or approval from the Grantee is required, the Party providing such notice or seeking such approval shall identify the Controlled Property by referencing the following information:

County, NYSDEC Site Number, NYSDEC Brownfield Cleanup Agreement, State Assistance Contract or Order Number, and the County tax map number or the Liber and Page or computerized system identification number.

Parties shall address correspondence to: Site Number: C915308
Office of General Counsel
NYSDEC
625 Broadway

Albany New York 12233-5500

With a copy to:

Site Control Section
Division of Environmental Remediation
NYSDEC
625 Broadway
Albany, NY 12233

All notices and correspondence shall be delivered by hand, by registered mail or by Certified mail and return receipt requested. The Parties may provide for other means of receiving and communicating notices and responses to requests for approval.

7. Recordation. Grantor shall record this instrument, within thirty (30) days of execution of this instrument by the Commissioner or her/his authorized representative in the office of the recording officer for the county or counties where the Property is situated in the manner prescribed by Article 9 of the Real Property Law.

8. Amendment. Any amendment to this Environmental Easement may only be executed by the Commissioner of the New York State Department of Environmental Conservation or the Commissioner's Designee, and filed with the office of the recording officer for the county or counties where the Property is situated in the manner prescribed by Article 9 of the Real Property Law.

9. Extinguishment. This Environmental Easement may be extinguished only by a release by the Commissioner of the New York State Department of Environmental Conservation, or the Commissioner's Designee, and filed with the office of the recording officer for the county or counties where the Property is situated in the manner prescribed by Article 9 of the Real Property Law.

10. Joint Obligation. If there are two or more parties identified as Grantor herein, the obligations imposed by this instrument upon them shall be joint and several.

11. Consistency with the SMP. To the extent there is any conflict or inconsistency between the terms of this Environmental Easement and the SMP, regarding matters specifically addressed by the SMP, the terms of the SMP will control.

Remainder of Page Intentionally Left Blank

IN WITNESS WHEREOF, Grantor has caused this instrument to be signed in its name.

Pierce Arrow Kanaka LLC:

By: _____

Print Name: GREG DANIEL

Title: MGR. MEMBER Date: 11/8/19.

Grantor's Acknowledgment

STATE OF NEW YORK)
) ss:
COUNTY OF Erie)

On the 8th day of November in the year 20 19, before me, the undersigned, personally appeared Greg Daniel, personally known to me or proved to me on the basis of satisfactory evidence to be the individual(s) whose name is (are) subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their capacity(ies), and that by his/her/their signature(s) on the instrument, the individual(s), or the person upon behalf of which the individual(s) acted, executed the instrument.

_____
Notary Public - State of New York

CRAIG A. SLATER
Notary Public, State of New York
Qualified in Erie County
Commission Expires October 31, 2022

THIS ENVIRONMENTAL EASEMENT IS HEREBY ACCEPTED BY THE PEOPLE OF THE STATE OF NEW YORK, Acting by and Through the Department of Environmental Conservation as Designee of the Commissioner,

By: _____
Michael J. Ryan, Director
Division of Environmental Remediation

Grantee's Acknowledgment

STATE OF NEW YORK)
) ss:
COUNTY OF ALBANY)

On the 20th day of November, in the year 2019 before me, the undersigned, personally appeared Michael J. Ryan, personally known to me or proved to me on the basis of satisfactory evidence to be the individual(s) whose name is (are) subscribed to the within instrument and acknowledged to me that he/she/ executed the same in his/her/ capacity as Designee of the Commissioner of the State of New York Department of Environmental Conservation, and that by his/her/ signature on the instrument, the individual, or the person upon behalf of which the individual acted, executed the instrument.

_____
Notary Public - State of New York

David J. Chiusano
Notary Public, State of New York
No. 01CH5032146
Qualified in Schenectady County
Commission Expires August 22, 2022

SCHEDULE "A" PROPERTY DESCRIPTION

EASEMENT DESCRIPTION

PORTION OF 1695 ELMWOOD AVENUE - SBL 78.77-2-6

BROWNFIELD CLEANUP PROGRAM SITE - NO. C915308 - TRACK 4

ALL THAT TRACT OR PARCEL OF LAND, situate in the City of Buffalo, County of Erie and State of New York, being part of Lot No. 83, Township 11, Range 8 of the Holland Land Company's Survey, described as follows:

COMMENCING at the intersection of the northerly line of Great Arrow Avenue with the easterly line of Elmwood Avenue (99' wide); thence northerly along the easterly line of Elmwood Avenue a record distance of 123.92 feet, 123.90 feet measured, to an angle point therein; thence continuing northerly along the easterly line of Elmwood Avenue making an interior angle with the last mentioned course of 181°26'00", a distance of 369.50 feet to a point; thence easterly parallel with the northerly line of Great Arrow Avenue at an interior angle of 91°32' a distance of 44.00 feet to the point of beginning; thence southerly at right angles a distance of 14.65 feet more or less to the northerly face of an existing building; thence easterly along said northerly building face a distance of 42.13 feet more or less to the northeast corner of said building; thence southerly along the easterly face of said building a distance of 44.21 feet to a point; thence easterly and parallel with the northerly line of Great Arrow Avenue, a distance of 43.94 feet to a point on the westerly line of lands conveyed by 1695 Elmwood Avenue Corporation to the United States by deed recorded in the Erie County Clerk's Office in Liber 3264 of Deeds at page 359; thence northerly at right angles a distance of 60.00 feet to the westerly at right angles a distance of 84.87 feet to the point or place of beginning containing 0.074 acres more or less.

EASEMENT DESCRIPTION

PORTIONS OF 1721 ELMWOOD AVENUE - SBL 78.77-2-2

AND 1723 ELMWOOD AVENUE - SBL 78.77-2-3

BROWNFIELD CLEANUP PROGRAM SITE - NO. C915308 - TRACK 4

ALL THAT TRACT OR PARCEL OF LAND, situate in the City of Buffalo, County of Erie and State of New York, being part of Lot No. 83, Township 11, Range 8 of the Holland Land Company's Survey, described as follows:

COMMENCING at the point of intersection of the easterly line of Elmwood Avenue (99' wide) with the southerly line of lands owned by the New York Central Belt Line Railroad Company, (now or formerly Conrail); thence easterly along the easterly line of Elmwood Avenue a distance of 95.50 feet to a point; thence easterly parallel with the northerly line of Great Arrow Avenue a distance of 335.68 feet to a point; thence southerly at right angles a distance of 3.0 feet to a point; thence easterly parallel with the northerly line of Great Arrow Avenue a distance of 101.95 feet to the point of beginning; thence northerly at right angles a distance of 3.4 feet to a point; thence easterly parallel with the northerly line of Great Arrow Avenue a distance of 27.0 feet to a point; thence northerly at right angles a distance of 12.1± feet to the south face of an existing building; thence easterly along a south building face a distance of 5.8 feet to a building corner; thence southerly along a west building face a distance of 5.88 feet to a southwest building corner; thence continuing southerly at right angles to the fourth course herein described a distance of 1.7± feet to the south line of lands described in Liber 3787 of deeds at page 451; thence easterly along said south line of lands a distance of 112.61 feet to a point, thence northerly at right angles a distance of 12.4 feet to a point; thence westerly at right angles a distance of 48.3 feet more or less to the east face of a building; thence northerly along said east building face a distance of 43.6 feet to a building corner; thence easterly along a south building face a distance of 50.12 feet to the centerline of a wall separating the building on Parcel "D" of Liber 11133, page 9260 from the building immediately to the east, thence northerly along said wall centerline a distance of 32.33 feet to the north face of a building, thence westerly along a north building face a distance of 1.1± feet to a northwest building corner; thence southerly along the westerly building face a distance of 11.0 feet to a building corner; thence westerly along the north face of said building a distance of 30.72 feet to a building corner; thence southerly along a west building face a distance of 4.54 feet to a building corner; thence westerly along a north building face a distance of 295.07 feet to a building corner; thence northerly along an east building face a distance of 26.47 feet to a northeast building corner; thence westerly along a north building face a distance of 100.63 feet to a northwest building corner; thence southerly along a west building face a distance of 8.62 feet to a building corner; thence westerly along a north building face a distance of 113.99 feet to a building corner; thence northerly along an east building face a distance of 10.64 feet to a northeast building corner; thence westerly along a north building face a distance of 51.53 feet to the northwest corner of said building; thence northerly a distance of 1.1± feet to the point on the southerly line of aforesaid railroad lands; thence westerly along the southerly line of said railroad lands a distance of 16.69 feet to the point of beginning containing 1.062 acres more or less.

APPENDIX B

LIST OF SITE CONTACTS

APPENDIX B – LIST OF SITE CONTACTS

Name	Phone/Email Address
Site Owner / Remedial Party Pierce Arrow Kanaka LLC	(716) 390-9653 Irv.Levy@luthuligroup.com
Qualified Environmental Professional Cody Martin	(716) 955-3021 CMartin@cscos.com
NYSDEC DER Project Manager Anthony Lopes	(716) 851-7220 Anthony.lopes@dec.ny.gov
NYSDEC Regional HW Engineer Chad Staniszewski	(716) 851-7220 Chad.staniszewski@dec.ny.gov
NYSDEC Site Control Bernadette Anderson	(518) 402-9543 bernadette.anderson@dec.ny.gov
Remedial Party Attorney Craig Slater	(716) 845-6760 CSlater@CSlaterLaw.com

APPENDIX C

SOIL BORING / GROUNDWATER MONITORING WELL CONSTRUCTION LOGS

C&S Engineers, Inc.
141 Elm Street
Buffalo, New York 14203
Phone: 716-847-1630
Fax: 716-847-1454
www.cscos.com

ADDITIONAL SOIL SAMPLE LOG

Sheet 1 of:	1
Project No.:	Q69.001.001
Contactor:	C&S
Date:	1/24/2018

Project Name:	Pierce Arrow BCP (RI)
Location:	1695, 1721, and 1723 Elmwood Avenue
Client:	Pierce Arrow, LLC

Sample No.	Sample ID	Date	Time	Weather Conditions	Sample Collected By	Datum	Depth	Material Decription	PID (ppm)	Analysis	COC #
	SS-1	1/24/2018	7:27 AM		AS	GROUND SURFACE	0 - 2 IN		0.2 ppm	PLUS HEX/CYN	
	SS-2	1/24/2018	7:32 AM		AS	GROUND SURFACE	0 - 2 IN	More gravel-like	0.1 ppm	CYN/PLUS MS/MSD	
	SS-3	1/24/2018	7:40 AM		AS	GROUND SURFACE	0 - 2 IN		0.1 ppm	CYN	
	SS-4	1/24/2018	7:45 AM		AS	GROUND SURFACE	0 - 2 IN		0.2 ppm	PLUS HEX/CYN	
	A-5	1/29/2018	2:00 PM		AS	Concrete floor of vault (Under floorboards of basement)		Inside building; under floorboards in location directed by Tony (DEC) by boiler room; rust/piping/sediment	0.1 ppm		

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BORING LOG

Boring No.	**A-1**
Sheet 1 of:	1
Project No.:	Q69.001.001
Surface Elev.:	
Datum:	GROUND SURFACE
Start Date:	1/22/2018
Finish Date:	1/22/2018
Inspector:	AS

Project Name:	Pierce Arrow BCP (RI)							
Location:	1695, 1721, and 1723 Elmwood Avenue							
Client:	Pierce Arrow, LLC							
Drilling Firm:	Trec Environmental, Inc.							
Groundwater	**Depth**	**Date & Time**	**Drill Rig:**	Geoprobe 420M				
While Drilling:			**Casing:**		**Rock Core:**		**Undist:**	
Before Casing Removal:			**Sampler:**		**Other:**			
After Casing Removal:			**Hammer:**					

(N -- No. of blows to drive sampler 12" w/140 lb. hammer falling 30" ASTM D-1586, Standard Penetration Test)

c - coarse
m - medium
f - fine

MATERIAL DESCRIPTION

S - Sand, $ - Silt, G - Gravel, C - Clay, cly - clayey

a - and - 35-50%
s - some - 20-35%
l - little - 10-20%
t - trace - 0-10%

Depth (ft)	Sample No.	Symbol	Blows on Sampler per 6"		MATERIAL DESCRIPTION		COMMENTS (e.g., N-value, recovery, relative moisture, core run, RQD, % recovered)	
				0”-5”	***Concrete***	ppm:	9:40 AM	
1				5”-8”	***(FILL) Blue-green, Silty SAND, light brown, Silty CLAY, wood, dark s***	0.5 ppm	23” recovered	
					Dark visual coloration, but no petro-like odors	0.5 ppm	Weather:	41F
2				8”-23”	***Red-brown, Silty CLAY, dense***	0.5 ppm		Cloudy, rainy
				0”-1”	***Slug (FILL)***			Cold inside building
3				1”-21”	***Red-brown, Silty CLAY, dense***	0.4 ppm	21” recovered	
						0.5 ppm		
4						0.6 ppm		
5					***END OF BORING AT 4 FT***			
					CONCRETE 5 INCHES THICK (SLAB)			
6					***0.6 ppm PID Reading Sub-Slab***			
7								
8								
9								
10								
11								
12								
13								
14								
15								
16								
17							*Sample:*	
							A-1-0-2 FT	
18							*10:00 AM*	
							1.1 ppm headspace PID	
19								
20								
21								
22								
23								

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BORING LOG

Boring No.	**A-2**
Sheet 1 of:	1
Project No.:	Q69.001.001
Surface Elev.:	
Datum:	GROUND SURFACE
Start Date:	1/22/2018
Finish Date:	1/22/2018
Inspector:	AS

Project Name:	Pierce Arrow BCP (RI)							
Location:	1695, 1721, and 1723 Elmwood Avenue							
Client:	Pierce Arrow, LLC							
Drilling Firm:	Trec Environmental, Inc.							
Groundwater	**Depth**	**Date & Time**	**Drill Rig:**	Geoprobe 420M				
While Drilling:			**Casing:**		**Rock Core:**		**Undist:**	
Before Casing Removal:			**Sampler:**		**Other:**			
After Casing Removal:			**Hammer:**					

(N -- No. of blows to drive sampler 12" w/140 lb. hammer falling 30" ASTM D-1586, Standard Penetration Test)

Depth (ft)	Sample No.	Symbol	Blows on Sampler per 6"	c - coarse m - medium f - fine	**MATERIAL DESCRIPTION** S - Sand, $ - Silt, G - Gravel, C - Clay, cly - clayey	a - and - 35-50% s - some - 20-35% l - little - 10-20% t - trace - 0-10%	**COMMENTS** (e.g., N-value, recovery, relative moisture, core run, RQD, % recovered)
				0”-5”	***Concrete***	ppm:	10:12 AM
1				5”-20”	***(FILL) Blue-green, coarse, Sand, dense, red-brown, Silty SAND, tan***	1.9 ppm	20” recovered
						0.3 ppm	
2						0.3 ppm	
				0”-1”	***Slug (FILL)***		
3				1”-26”	***Red-brown, Silty CLAY, dry, dense***	0.2 ppm	26” recovered
						0.2 ppm	
4						0.2 ppm	
5					***END OF BORING AT 4 FT***		
					CONCRETE 5 INCHES THICK (SLAB)		
6					***6.7 ppm PID Reading Sub-Slab***		
7							
8							
9							
10							
11							
12							
13							
14							
15							
16							
17							*Sample:*
							A-2-0-2 FT
18							*10:30 AM*
							0.1 ppm headspace PID
19							
20							
21							
22							
23							

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BORING LOG

Boring No.	**A-3**
Sheet 1 of:	1
Project No.:	Q69.001.001
Surface Elev.:	
Datum:	GROUND SURFACE
Start Date:	1/22/2018
Finish Date:	1/22/2018
Inspector:	AS

Project Name:	Pierce Arrow BCP (RI)							
Location:	1695, 1721, and 1723 Elmwood Avenue							
Client:	Pierce Arrow, LLC							
Drilling Firm:	Trec Environmental, Inc.							
Groundwater	**Depth**	**Date & Time**	**Drill Rig:**	Geoprobe 420M				
While Drilling:			**Casing:**		**Rock Core:**		**Undist:**	
Before Casing Removal:			**Sampler:**		**Other:**	Boiler room		
After Casing Removal:			**Hammer:**					

(N -- No. of blows to drive sampler 12" w/140 lb. hammer falling 30" ASTM D-1586, Standard Penetration Test)

c - coarse
m - medium
f - fine

a - and - 35-50%
s - some - 20-35%
l - little - 10-20%
t - trace - 0-10%

S - Sand, $ - Silt, G - Gravel, C - Clay, cly - clayey

Depth (ft)	Sample No.	Symbol	Blows on Sampler per 6"	MATERIAL DESCRIPTION			COMMENTS (e.g., N-value, recovery, relative moisture, core run, RQD, % recovered)
				0”-4.5”	***Concrete, grey and dusty***	ppm:	11:15 AM
1				4.5”-7”	***(FILL) Blue-green, coarse, Sand, black stone***	0.1 ppm	17” recovered
				7”-17”	***Brown, dense, Silty CLAY, grey***	0.1 ppm	
2						0.1 ppm	
				0”-22”	***Brown, dense, Silty CLAY***		
3						0.1 ppm	22” recovered
						0.1 ppm	
4						0.1 ppm	
5					***END OF BORING AT 4 FT***		
					CONCRETE 4.5 INCHES THICK (SLAB)		
6					***0.1 ppm PID Reading Sub-Slab***		
7							
8							
9							
10							
11							
12							
13							
14							
15							
16							
17							*Sample:*
							A-3-0-2 FT
18							*11:30 AM*
							0.2 ppm headspace PID
19							
20							
21							
22							
23							

BORING LOG

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Boring No.	**A-4**		
Sheet 1 of:	1		
Project No.:	Q69.001.001		
Project Name:	Pierce Arrow BCP (RI)	**Surface Elev.:**	
Location:	1695, 1721, and 1723 Elmwood Avenue	**Datum:**	GROUND SURFACE
Client:	Pierce Arrow, LLC	**Start Date:**	1/22/2018
Drilling Firm:	Trec Environmental, Inc.	**Finish Date:**	1/22/2018

Groundwater	**Depth**	**Date & Time**	**Drill Rig:**	Geoprobe 420M			**Inspector:**	AS
While Drilling:			**Casing:**		**Rock Core:**		**Undist:**	
Before Casing Removal:			**Sampler:**		**Other:**	Water meter room		
After Casing Removal:			**Hammer:**					

(N -- No. of blows to drive sampler 12" w/140 lb. hammer falling 30" ASTM D-1586, Standard Penetration Test)

Depth (ft)	Sample No.	Symbol	Blows on Sampler per 6"	MATERIAL DESCRIPTION c - coarse, m - medium, f - fine a - and - 35-50%, s - some - 20-35%, l - little - 10-20%, t - trace - 0-10% S - Sand, $ - Silt, G - Gravel, C - Clay, cly - clayey		ppm:	COMMENTS (e.g., N-value, recovery, relative moisture, core run, RQD, % recovered)
				0"-3"	***Concrete, grey***	ppm:	11:49 AM
1				3"-6"	***(FILL) Dark, dry, coarse, Sand, grey***	0.2 ppm	19" recovered
				6"-19"	***Brown, dense, Silty CLAY***	0.2 ppm	
2						0.2 ppm	
				0"-1"	***Slug (Concrete)***		
3				1"-22"	***Brown, dense, Silty CLAY***	0.2 ppm	22" recovered
						0.2 ppm	
4							
5					***END OF BORING AT 4 FT***		
					CONCRETE 3 INCHES THICK (SLAB)		
6					***0.2 ppm PID Reading Sub-Slab***		
7							
8							
9							
10							
11							
12							
13							
14							
15							
16							
17							*Sample:*
							A-4-0-2 FT
18							*12:15 AM*
							0.2 ppm headspace PID
19							
20							
21							
22							
5							
23							

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BORING LOG

Boring No.	**G-1**
Sheet 1 of:	1
Project No.:	Q69.001.001
Surface Elev.:	
Datum:	GROUND SURFACE
Start Date:	1/22/2018
Finish Date:	1/22/2018
Inspector:	AS

Project Name:	Pierce Arrow BCP (RI)							
Location:	1695, 1721, and 1723 Elmwood Avenue							
Client:	Pierce Arrow, LLC							
Drilling Firm:	Trec Environmental, Inc.							
Groundwater	**Depth**	**Date & Time**	**Drill Rig:**	Geoprobe 6620D1				
While Drilling:			**Casing:**		**Rock Core:**		**Undist:**	
Before Casing Removal:			**Sampler:**		**Other:**			
After Casing Removal:			**Hammer:**					

(N -- No. of blows to drive sampler 12" w/140 lb. hammer falling 30" ASTM D-1586, Standard Penetration Test)

c - coarse
m - medium
f - fine

a - and - 35-50%
s - some - 20-35%
l - little - 10-20%
t - trace - 0-10%

S - Sand, $ - Silt, G - Gravel, C - Clay, cly - clayey

Depth (ft)	Sample No.	Symbol	Blows on Sampler per 6"	MATERIAL DESCRIPTION			COMMENTS (e.g., N-value, recovery, relative moisture, core run, RQD, % recovered)
				0”-8”	***Concrete, stone, grey, 1” diameter and smaller, dust***	ppm:	1:50 PM
1				8”-38”	***Dark brown, Silty CLAY, dry, dense***	0.0 ppm	38” recovered
						0.0 ppm	
2						0.0 ppm	No visual and no petro-like odors
						0.0 ppm	
3							
4							
5					***END OF BORING AT 4 FT***		
6							
7							
8							
9							
10							
11							
12							
13							
14							
15							
16							
17							*Sample:*
							No Sample
18							
19							
20							
21							
22							
23							

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BORING LOG

Boring No.	**G-2**
Sheet 1 of:	1
Project No.:	Q69.001.001
Surface Elev.:	
Datum:	GROUND SURFACE
Start Date:	1/22/2018
Finish Date:	1/22/2018
Inspector:	AS

Project Name:	Pierce Arrow BCP (RI)						
Location:	1695, 1721, and 1723 Elmwood Avenue						
Client:	Pierce Arrow, LLC						
Drilling Firm:	Trec Environmental, Inc.						
Groundwater	**Depth**	**Date & Time**	**Drill Rig:**	Geoprobe 6620D1			
While Drilling:			**Casing:**		**Rock Core:**		**Undist:**
Before Casing Removal:			**Sampler:**		**Other:**		
After Casing Removal:			**Hammer:**				

(N -- No. of blows to drive sampler 12" w/140 lb. hammer falling 30" ASTM D-1586, Standard Penetration Test)

Depth (ft)	Sample No.	Symbol	Blows on Sampler per 6"	MATERIAL DESCRIPTION (c - coarse, m - medium, f - fine; S - Sand, $ - Silt, G - Gravel, C - Clay, cly - clayey; a - and - 35-50%, s - some - 20-35%, l - little - 10-20%, t - trace - 0-10%)		COMMENTS (e.g., N-value, recovery, relative moisture, core run, RQD, % recovered)
				0”-3”	***Concrete***	ppm: 2:00 PM
1				3”-8.5”	***Red-brown, dry, Silty SAND***	0.0 ppm 36” recovered
				8.5”-36”	***Red-brown, dense, Silty CLAY, rare embedded rock (less***	0.0 ppm
2					***than 1/4” diameter)***	0.0 ppm No visual and no petro-like odors
						0.0 ppm
3						
4						
5					***END OF BORING AT 4 FT***	
6						
7						
8						
9						
10						
11						
12						
13						
14						
15						
16						
17						*Sample:*
						G-2-0-2 FT
18						*2:10 PM*
						0.0 ppm headspace PID
19						
20						
21						
22						
23						

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BORING LOG

Boring No.	G-3
Sheet 1 of:	1
Project No.:	Q69.001.001
Project Name:	Pierce Arrow BCP (RI)
Location:	1695, 1721, and 1723 Elmwood Avenue
Client:	Pierce Arrow, LLC
Drilling Firm:	Trec Environmental, Inc.
Surface Elev.:	
Datum:	GROUND SURFACE
Start Date:	1/22/2018
Finish Date:	1/22/2018
Drill Rig:	Geoprobe 6620D1
Inspector:	AS
Casing:	
Sampler:	
Hammer:	
Rock Core:	
Undist:	
Other:	

Groundwater	Depth	Date & Time
While Drilling:		
Before Casing Removal:		
After Casing Removal:		

(N -- No. of blows to drive sampler 12" w/140 lb. hammer falling 30" ASTM D-1586, Standard Penetration Test)

c - coarse, m - medium, f - fine
a - and - 35-50%, s - some - 20-35%, l - little - 10-20%, t - trace - 0-10%
S - Sand, $ - Silt, G - Gravel, C - Clay, cly - clayey

Depth (ft)	Sample No.	Symbol	Blows on Sampler per 6"	MATERIAL DESCRIPTION		ppm	COMMENTS (e.g., N-value, recovery, relative moisture, core run, RQD, % recovered)
				0"-10"	***Concrete, gravel, 1/2" diameter and smaller, grey, fine dust***	ppm:	2:15 PM
1				10"-14"	***Brown, dry, Silty SAND, fine to coarse***	0.0 ppm	18" recovered
				14"-18"	***Brown, soft, dry, Silty CLAY***	0.0 ppm	
2						0.0 ppm	No visual and no petro-like odors
						0.0 ppm	
3							
4							
5					***END OF BORING AT 4 FT***		
6							
7							
8							
9							
10							
11							
12							
13							
14							
15							
16							
17							*Sample:*
							No Sample
18							
19							
20							
21							
22							
23							

8

C&S Engineers, Inc.	BORING LOG	Boring No.	G-4
141 Elm Street Buffalo, New York 14203 Phone: 716-847-1630 Fax: 716-847-1454 www.cscos.com		Sheet 1 of:	1
		Project No.:	Q69.001.001

Project Name:	Pierce Arrow BCP (RI)	**Surface Elev.:**	
Location:	1695, 1721, and 1723 Elmwood Avenue	**Datum:**	GROUND SURFACE
Client:	Pierce Arrow, LLC	**Start Date:**	1/22/2018
Drilling Firm:	Trec Environmental, Inc.	**Finish Date:**	1/22/2018

Groundwater	Depth	Date & Time	Drill Rig:	Geoprobe 6620D1		Inspector:	AS
While Drilling:			Casing:		Rock Core:	Undist:	
Before Casing Removal:			Sampler:		Other:		
After Casing Removal:			Hammer:				

(N -- No. of blows to drive sampler 12" w/140 lb. hammer falling 30" ASTM D-1586, Standard Penetration Test)

Depth (ft)	Sample No.	Symbol	Blows on Sampler per 6"	MATERIAL DESCRIPTION c - coarse, m - medium, f - fine S - Sand, $ - Silt, G - Gravel, C - Clay, cly - clayey a - and - 35-50%, s - some - 20-35%, l - little - 10-20%, t - trace - 0-10%		COMMENTS (e.g., N-value, recovery, relative moisture, core run, RQD, % recovered)
				0"-11"	***Concrete, grey, dry***	ppm: 2:34 PM
1				11"-19"	***(FILL) Brown, Silty SAND, red brick, Silty Clay, odor***	0.0 ppm 19" recovered
						0.0 ppm
2						0.0 ppm
						0.0 ppm
3						
4						
				0"-6"	***Slug***	0.0 ppm
5				6"-44"	***Red-brown, Silty CLAY, dense, grey staining, slight odor***	0.0 ppm 44" recovered
						0.0 ppm
6						
						*PID seems to be working
7						improperly eventhough
						it was recalibrated
8						
9					***END OF BORING AT 8 FT***	
10						
11						
12						
13						
14						
15						
16						
17						*Sample:*
						G-4
18						*3:01 PM*
19						
20						
21						
22						
23						

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BORING LOG

Boring No.	**G-5**
Sheet 1 of:	1
Project No.:	Q69.001.001
Project Name:	Pierce Arrow BCP (RI)
Surface Elev.:	
Location:	1695, 1721, and 1723 Elmwood Avenue
Datum:	GROUND SURFACE
Client:	Pierce Arrow, LLC
Start Date:	1/22/2018
Drilling Firm:	Trec Environmental, Inc.
Finish Date:	1/22/2018
Groundwater / **Depth** / **Date & Time**	**Drill Rig:** Geoprobe 6620D1
Inspector:	AS
While Drilling:	**Casing:** **Rock Core:** **Undist:**
Before Casing Removal:	**Sampler:** **Other:**
After Casing Removal:	**Hammer:**

(N -- No. of blows to drive sampler 12" w/140 lb. hammer falling 30" ASTM D-1586, Standard Penetration Test)

c - coarse
m - medium
f - fine

MATERIAL DESCRIPTION

S - Sand, $ - Silt, G - Gravel, C - Clay, cly - clayey

a - and - 35-50%
s - some - 20-35%
l - little - 10-20%
t - trace - 0-10%

Depth (ft)	Sample No.	Symbol	Blows on Sampler per 6"	MATERIAL DESCRIPTION								COMMENTS (e.g., N-value, recovery, relative moisture, core run, RQD, % recovered)		
				0”-6”	***Concrete, gravel***							ppm:	3:01 PM	
1				6”-8”	***Brown, Silty CLAY, soft***							0.0 ppm	26” recovered	
				8”-13”	***(FILL) Brown, coarse Sand, brick, Silty Sand, dark material***							0.0 ppm		
2				13”-26”	***Brown, soft, Silty CLAY***							0.0 ppm	No visual and no petro-like odors	
												0.0 ppm		
3														
4														
5					***END OF BORING AT 4 FT***									
6														
7														
8														
9														
10														
11														
12														
13														
14														
15														
16														
17													*Sample:*	
													G-5	
18													*3:14 PM*	
													0.0 ppm headspace PID	
19														
20														
21														
22														
23														

C&S Engineers, Inc.	BORING LOG	Boring No.	G-6
141 Elm Street Buffalo, New York 14203 Phone: 716-847-1630 Fax: 716-847-1454 www.cscos.com		Sheet 1 of:	1
		Project No.:	Q69.001.001

Project Name:	Pierce Arrow BCP (RI)	**Surface Elev.:**	
Location:	1695, 1721, and 1723 Elmwood Avenue	**Datum:**	GROUND SURFACE
Client:	Pierce Arrow, LLC	**Start Date:**	1/22/2018
Drilling Firm:	Trec Environmental, Inc.	**Finish Date:**	1/22/2018

Groundwater	Depth	Date & Time	Drill Rig:	Geoprobe 6620D1		Inspector:	AS
While Drilling:			Casing:		Rock Core:	Undist:	
Before Casing Removal:			Sampler:		Other:		
After Casing Removal:			Hammer:				

(N -- No. of blows to drive sampler 12" w/140 lb. hammer falling 30" ASTM D-1586, Standard Penetration Test)

Depth (ft)	Sample No.	Symbol	Blows on Sampler per 6"	MATERIAL DESCRIPTION (c - coarse, m - medium, f - fine; S - Sand, $ - Silt, G - Gravel, C - Clay, cly - clayey; a - and - 35-50%, s - some - 20-35%, l - little - 10-20%, t - trace - 0-10%)		COMMENTS (e.g., N-value, recovery, relative moisture, core run, RQD, % recovered)
				0”-6”	***Concrete, gravel***	ppm: 3:10 PM
1				6”-12”	***Brown, Silty CLAY, dense, dry***	0.0 ppm 25” recovered
				12”-16”	***(FILL) Red brick, stone, dark brown, Silty Sand***	0.0 ppm
2				16”-21”	***(FILL) Light red-brown, fine to medium sized, Sand***	0.0 ppm No visual and no petro-like odors
				21”-25”	***Red-brown, Silty CLAY, dense, dry***	0.0 ppm
3						
4						
				0”-3”	***Slug***	
5				3”-46”	***Red-brown, Silty CLAY, dense***	46” recovered
6						No visual and no petro-like odors
7						
8						
9					***END OF BORING AT 8 FT***	
10						
11						
12						
13						
14						
15						
16						
17						*Sample:*
						No Sample
18						
19						
20						
21						
22						
23						

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BORING LOG

Boring No.	**G-7**
Sheet 1 of:	1
Project No.:	Q69.001.001
Surface Elev.:	
Datum:	GROUND SURFACE
Start Date:	1/22/2018
Finish Date:	1/22/2018
Inspector:	AS

Project Name:	Pierce Arrow BCP (RI)							
Location:	1695, 1721, and 1723 Elmwood Avenue							
Client:	Pierce Arrow, LLC							
Drilling Firm:	Trec Environmental, Inc.							
Groundwater	**Depth**	**Date & Time**	**Drill Rig:**	Geoprobe 6620D1				
While Drilling:			**Casing:**		**Rock Core:**		**Undist:**	
Before Casing Removal:			**Sampler:**		**Other:**			
After Casing Removal:			**Hammer:**					

(N -- No. of blows to drive sampler 12" w/140 lb. hammer falling 30" ASTM D-1586, Standard Penetration Test)

c - coarse
m - medium
f - fine

a - and - 35-50%
s - some - 20-35%
l - little - 10-20%
t - trace - 0-10%

S - Sand, $ - Silt, G - Gravel, C - Clay, cly - clayey

Depth (ft)	Sample No.	Symbol	Blows on Sampler per 6"	MATERIAL DESCRIPTION			COMMENTS (e.g., N-value, recovery, relative moisture, core run, RQD, % recovered)
				0”-4”	***Concrete, gravel***	ppm:	3:46 PM
1				4”-12”	***(FILL) Silty Sand, coarse, dry, brown, Silty Clay***	0.0 ppm	23” recovered
				12”-23”	***Red-brown, dense, dry, Silty CLAY***	0.0 ppm	
2						0.0 ppm	No visual and no petro-like odors
						0.0 ppm	
3							
4							
5				***END OF BORING AT 4 FT***			
6							
7							
8							
9							
10							
11							
12							
13							
14							
15							
16							
17							*Sample:*
							No Sample
18							
19							
20							
21							
22							
23							

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BORING LOG

Boring No.	**G-8**
Sheet 1 of:	1
Project No.:	Q69.001.001
Surface Elev.:	
Datum:	GROUND SURFACE
Start Date:	1/23/2018
Finish Date:	1/23/2018
Inspector:	AS

Project Name:	Pierce Arrow BCP (RI)						
Location:	1695, 1721, and 1723 Elmwood Avenue						
Client:	Pierce Arrow, LLC						
Drilling Firm:	Trec Environmental, Inc.						
Groundwater	**Depth**	**Date & Time**	**Drill Rig:**	Geoprobe 6620D1			
While Drilling:			**Casing:**		**Rock Core:**		**Undist:**
Before Casing Removal:			**Sampler:**		**Other:**		
After Casing Removal:			**Hammer:**				

(N -- No. of blows to drive sampler 12" w/140 lb. hammer falling 30" ASTM D-1586, Standard Penetration Test)

Depth (ft)	Sample No.	Symbol	Blows on Sampler per 6"	MATERIAL DESCRIPTION (c - coarse, m - medium, f - fine; S - Sand, $ - Silt, G - Gravel, C - Clay, cly - clayey; a - and - 35-50%, s - some - 20-35%, l - little - 10-20%, t - trace - 0-10%)		COMMENTS (e.g., N-value, recovery, relative moisture, core run, RQD, % recovered)
				0”-6”	***Concrete, gravel***	ppm: 8:52 AM
1				6”-10”	***(FILL) Brown, dry, coarse, Silty SAND***	0.1 ppm 30” recovered
				10”-17”	***Brown, soft, Silty CLAY***	0.1 ppm Weather: Cloudy
2				17”-19”	***Sand, gravel***	0.1 ppm No visual and no petro-like odors
				19”-30”	***Dark brown to red-brown, Silty CLAY, soft to dense***	
3						
4						
5					***END OF BORING AT 4 FT***	
6						
7						
8						
9						
10						
11						
12						
13						
14						
15						
16						
17						*Sample:*
						No Sample
18						
19						
20						
21						
22						
23						

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BORING LOG

Boring No.	**G-9**
Sheet 1 of:	1
Project No.:	Q69.001.001
Surface Elev.:	
Datum:	GROUND SURFACE
Start Date:	1/23/2018
Finish Date:	1/23/2018
Inspector:	AS

Project Name:	Pierce Arrow BCP (RI)						
Location:	1695, 1721, and 1723 Elmwood Avenue						
Client:	Pierce Arrow, LLC						
Drilling Firm:	Trec Environmental, Inc.						
Groundwater	**Depth**	**Date & Time**	**Drill Rig:**	Geoprobe 6620D1			
While Drilling:			**Casing:**		**Rock Core:**		**Undist:**
Before Casing Removal:			**Sampler:**		**Other:**		
After Casing Removal:			**Hammer:**				

(N -- No. of blows to drive sampler 12" w/140 lb. hammer falling 30" ASTM D-1586, Standard Penetration Test)

Depth (ft)	Sample No.	Symbol	Blows on Sampler per 6"	MATERIAL DESCRIPTION (c - coarse, m - medium, f - fine; a - and - 35-50%, s - some - 20-35%, l - little - 10-20%, t - trace - 0-10%; S - Sand, $ - Silt, G - Gravel, C - Clay, cly - clayey)		COMMENTS (e.g., N-value, recovery, relative moisture, core run, RQD, % recovered)
				0”-5”	***Concrete, gravel***	ppm: 9:03 AM
1				5”-12”	***Red-brown, dry, dense, Silty CLAY***	0.1 ppm 33” recovered
				12”-14”	***Coarse SAND around Silty CLAY***	0.1 ppm
2				14”-33”	***Red-brown, Silty CLAY, dense (sand coating from 28” to 33”***	0.1 ppm No visual and no petro-like odors
					on outside)	
3						
4						
				0”-46”	***Red-brown, Silty CLAY, dense***	0.1 ppm
5						0.1 ppm 46” recovered
						0.1 ppm
6						No visual and no petro-like odors
7						
8						
9					***END OF BORING AT 8 FT***	
10						
11						
12						
13						
14						
15						
16						
17						*Sample:*
						No Sample
18						
19						
20						
21						
22						
23						

C&S Engineers, Inc. 141 Elm Street Buffalo, New York 14203 Phone: 716-847-1630 Fax: 716-847-1454 www.cscos.com	**BORING LOG**	**Boring No.**	**G-10**
		Sheet 1 of:	1
		Project No.:	Q69.001.001

Project Name:	Pierce Arrow BCP (RI)							**Surface Elev.:**	
Location:	1695, 1721, and 1723 Elmwood Avenue							**Datum:**	GROUND SURFACE
Client:	Pierce Arrow, LLC							**Start Date:**	1/23/2018
Drilling Firm:	Trec Environmental, Inc.							**Finish Date:**	1/23/2018
Groundwater	**Depth**	**Date & Time**	**Drill Rig:**	Geoprobe 6620D1				**Inspector:**	AS
While Drilling:			**Casing:**		**Rock Core:**		**Undist:**		
Before Casing Removal:			**Sampler:**		**Other:**				
After Casing Removal:			**Hammer:**						

(N -- No. of blows to drive sampler 12" w/140 lb. hammer falling 30" ASTM D-1586, Standard Penetration Test)

Depth (ft)	Sample No.	Symbol	Blows on Sampler per 6"	c - coarse m - medium f - fine **MATERIAL DESCRIPTION** S - Sand, $ - Silt, G - Gravel, C - Clay, cly - clayey a - and - 35-50% s - some - 20-35% l - little - 10-20% t - trace - 0-10%		**COMMENTS** (e.g., N-value, recovery, relative moisture, core run, RQD, % recovered)
				0”-5”	***Concrete, gravel***	ppm: 9:17 AM
1				5”-9”	***White, fuzzy material, dry, embedded rock***	0.1 ppm 26” recovered
				9”-15”	***Brown, Silty CLAY, dense***	0.1 ppm
2				15”-21”	***Brown, Silty CLAY, dense, with fuzzy white material***	0.1 ppm No visual and no petro-like odors
				21”-22”	***Brown, dense, brittle rock, wood-like, airy***	
3				22”-26”	***Brown, Silty CLAY, dense, with SAND***	
4						
				0”-3”	***Brown, soft, Silty CLAY, with Sand***	0.1 ppm
5				3”-4”	***Dark brown, Silty CLAY***	0.1 ppm 43” recovered
				4”-22”	***Brown, soft, Silty CLAY, with embedded rock less than***	0.1 ppm
6					***1/4” diameter, staining at 21” to 22”***	0.1 ppm Visual staining and sweet odor
				22”-43”	***Red-brown, dense, Silty CLAY***	
7						
8						
				0”-39”	***Red-brown, Silty CLAY, greyish material with sweet odor,***	0.1 ppm
9					***very soft at 0” to 4”***	0.1 ppm 39” recovered
						0.1 ppm
10						Visual staining and sweet odor
						Solvent-like odor?
11						
12						
13					***END OF BORING AT 12 FT***	
14						
15						
16						
17						*Sample:*
						G-10
18						*9:30 AM*
						VOCs, SVOCs, PCBs
19						
20						
21						
22						
23						

C&S Engineers, Inc.	BORING LOG	Boring No.	G-11
141 Elm Street Buffalo, New York 14203 Phone: 716-847-1630 Fax: 716-847-1454 www.cscos.com		Sheet 1 of:	1
		Project No.:	Q69.001.001

Project Name:	Pierce Arrow BCP (RI)	**Surface Elev.:**	
Location:	1695, 1721, and 1723 Elmwood Avenue	**Datum:**	GROUND SURFACE
Client:	Pierce Arrow, LLC	**Start Date:**	1/23/2018
Drilling Firm:	Trec Environmental, Inc.	**Finish Date:**	1/23/2018

Groundwater	Depth	Date & Time	Drill Rig:	Geoprobe 6620D1		Inspector:	AS
While Drilling:			Casing:		Rock Core:	Undist:	
Before Casing Removal:			Sampler:		Other:		
After Casing Removal:			Hammer:				

(N -- No. of blows to drive sampler 12" w/140 lb. hammer falling 30" ASTM D-1586, Standard Penetration Test)

Depth (ft)	Sample No.	Symbol	Blows on Sampler per 6"	c - coarse m - medium f - fine **MATERIAL DESCRIPTION** S - Sand, $ - Silt, G - Gravel, C - Clay, cly - clayey a - and - 35-50% s - some - 20-35% l - little - 10-20% t - trace - 0-10%		**COMMENTS** (e.g., N-value, recovery, relative moisture, core run, RQD, % recovered)
				0”-4”	***Concrete, gravel***	ppm: 10:14 AM
1				4”-7”	***Gravel, small stone, brown, Silty SAND***	0.0 ppm 19” recovered
				7”-19”	***Red-brown, dense, Silty CLAY***	0.0 ppm
2						0.0 ppm No visual and no petro-like odors
3						
4						
				0”-33”	***Red-brown, Silty CLAY, dense, moist***	0.0 ppm
5						0.0 ppm 33” recovered
						0.0 ppm
6						0.0 ppm No visual and no petro-like odors
7						
8						
9					***END OF BORING AT 8 FT***	
10						
11						
12						
13						
14						
15						
16						
17						*Sample:*
						No Sample
18						
19						
20						
21						
22						
16						
23						

C&S Engineers, Inc.	BORING LOG	Boring No.	G-12
141 Elm Street Buffalo, New York 14203 Phone: 716-847-1630 Fax: 716-847-1454 www.cscos.com		Sheet 1 of:	1
		Project No.:	Q69.001.001

Project Name:	Pierce Arrow BCP (RI)	**Surface Elev.:**	
Location:	1695, 1721, and 1723 Elmwood Avenue	**Datum:**	GROUND SURFACE
Client:	Pierce Arrow, LLC	**Start Date:**	1/23/2018
Drilling Firm:	Trec Environmental, Inc.	**Finish Date:**	1/23/2018

Groundwater	Depth	Date & Time	Drill Rig:	Geoprobe 6620D1		Inspector:	AS
While Drilling:			Casing:		Rock Core:	Undist:	
Before Casing Removal:			Sampler:		Other:	Refusal; moved 1 foot southeast	
After Casing Removal:			Hammer:				

(N -- No. of blows to drive sampler 12" w/140 lb. hammer falling 30" ASTM D-1586, Standard Penetration Test)

Depth (ft)	Sample No.	Symbol	Blows on Sampler per 6"	c - coarse m - medium f - fine **MATERIAL DESCRIPTION** S - Sand, $ - Silt, G - Gravel, C - Clay, cly - clayey a - and - 35-50% s - some - 20-35% l - little - 10-20% t - trace - 0-10%		**COMMENTS** (e.g., N-value, recovery, relative moisture, core run, RQD, % recovered)
				0”-8”	***Concrete***	ppm: 10:14 AM
1				8”-19”	***(FILL) Light brown, Silty SAND, medium to coarse grained***	0.0 ppm 19” recovered
					Red-brown, dense, Silty CLAY at end	0.0 ppm
2						0.0 ppm No visual and no petro-like odors
3						
4						
				0”-5”	***Slug***	0.0 ppm
5				5”-39”	***Red-brown, dense, Silty CLAY***	0.0 ppm 39” recovered
						0.0 ppm
6						0.0 ppm No visual and no petro-like odors
7						
8						
9					***END OF BORING AT 8 FT***	
10						
11						
12						
13						
14						
15						
16						
17						*Sample:*
						No Sample
18						
19						
20						
21						
22						
23						

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BORING LOG

Boring No.	**G-13**
Sheet 1 of:	1
Project No.:	Q69.001.001
Surface Elev.:	
Datum:	GROUND SURFACE
Start Date:	1/23/2018
Finish Date:	1/23/2018
Inspector:	AS

Project Name:	Pierce Arrow BCP (RI)							
Location:	1695, 1721, and 1723 Elmwood Avenue							
Client:	Pierce Arrow, LLC							
Drilling Firm:	Trec Environmental, Inc.							
Groundwater	**Depth**	**Date & Time**	**Drill Rig:**	Geoprobe 6620D1				
While Drilling:			**Casing:**		**Rock Core:**		**Undist:**	
Before Casing Removal:			**Sampler:**		**Other:**	Behind geoprobe exhaust		
After Casing Removal:			**Hammer:**					

(N -- No. of blows to drive sampler 12" w/140 lb. hammer falling 30" ASTM D-1586, Standard Penetration Test)

c - coarse
m - medium
f - fine

a - and - 35-50%
s - some - 20-35%
l - little - 10-20%
t - trace - 0-10%

S - Sand, $ - Silt, G - Gravel, C - Clay, cly - clayey

Depth (ft)	Sample No.	Symbol	Blows on Sampler per 6"	MATERIAL DESCRIPTION			COMMENTS (e.g., N-value, recovery, relative moisture, core run, RQD, % recovered)
				0”-4”	***Concrete***	ppm:	11:30 AM
1				4”-24”	***(FILL) Light brown, SAND, embedded stone***	0.1 ppm	29” recovered
				24”-29”	***Brown, Silty CLAY, dense***	0.1 ppm	
2							No visual and no petro-like odors
3							
4							
				0”-5”	***Slug***	0.2 ppm	
5				5”-39”	***Brown, dense, Silty CLAY***	0.1 ppm	38” recovered
6							No visual and no petro-like odors
7							
8							
9					***END OF BORING AT 8 FT***		
10							
11							
12							
13							
14							
15							
16							
17							*Sample:*
							No Sample
18							
19							
20							
21							
22							
23							

C&S Engineers, Inc.	BORING LOG	Boring No.	BH-1
141 Elm Street Buffalo, New York 14203 Phone: 716-847-1630 Fax: 716-847-1454 www.cscos.com		Sheet 1 of:	1
		Project No.:	Q69.001.001

Project Name:	Pierce Arrow BCP (RI)	**Surface Elev.:**	
Location:	1695, 1721, and 1723 Elmwood Avenue	**Datum:**	GROUND SURFACE
Client:	Pierce Arrow, LLC	**Start Date:**	1/23/2018
Drilling Firm:	Trec Environmental, Inc.	**Finish Date:**	1/23/2018

Groundwater	Depth	Date & Time	Drill Rig:	Geoprobe 6620D1		Inspector:	AS
While Drilling:			Casing:		Rock Core:	Undist:	
Before Casing Removal:			Sampler:		Other:		
After Casing Removal:			Hammer:				

(N -- No. of blows to drive sampler 12" w/140 lb. hammer falling 30" ASTM D-1586, Standard Penetration Test)

Depth (ft)	Sample No.	Symbol	Blows on Sampler per 6"	c - coarse m - medium f - fine **MATERIAL DESCRIPTION** S - Sand, $ - Silt, G - Gravel, C - Clay, cly - clayey a - and - 35-50% s - some - 20-35% l - little - 10-20% t - trace - 0-10%		**COMMENTS** (e.g., N-value, recovery, relative moisture, core run, RQD, % recovered)
				0”-2”	***Snow, topsoil***	ppm: 1:20 PM
1				2”-9”	***(FILL) Dark brown, Silty SAND, brick, yellow mottles***	0.2 ppm 37” recovered
				9”-37”	***Red-brown, Silty CLAY, dense***	0.4 ppm
2						0.3 ppm No visual and no petro-like odors
3						
4						
				0”-2”	***Slug***	1.1 ppm
5				2”-44”	***Red-brown, dense, Silty CLAY, grey in cracks***	0.8 ppm 44” recovered
6						No visual and no petro-like odors
7						
8						
				0-46”	***Red-brown, very dense, Silty CLAY***	0.6 ppm
9						0.5 ppm 46” recovered
10						No visual and no petro-like odors
11						
12						
				0-46”	***Red-brown, very dense, Silty CLAY***	0.6 ppm
13						0.6 ppm 46” recovered
14						No visual and no petro-like odors
15						
16						
17					***END OF BORING AT 16 FT***	*Sample:*
						1:50 PM
18						*0-1.5 FT BH-1 PLUS CYN/HEX*
						1.5-2.5 FT BH-1 N
19						*2.5-3 FT BH-1 N+0.5*
						3-3.5 FT BH-1 N+1
20						*3.5-4 FT BH-1 N+1.5*
						4-4.5 FT BH-1 N+2
21						
22						
23						

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BORING LOG

Boring No.	**BH-2**
Sheet 1 of:	1
Project No.:	Q69.001.001
Surface Elev.:	
Datum:	GROUND SURFACE
Start Date:	1/23/2018
Finish Date:	1/23/2018
Inspector:	AS

Project Name:	Pierce Arrow BCP (RI)							
Location:	1695, 1721, and 1723 Elmwood Avenue							
Client:	Pierce Arrow, LLC							
Drilling Firm:	Trec Environmental, Inc.							
Groundwater	**Depth**	**Date & Time**	**Drill Rig:**	Geoprobe 6620D1				
While Drilling:			**Casing:**		**Rock Core:**		**Undist:**	
Before Casing Removal:			**Sampler:**		**Other:**			
After Casing Removal:			**Hammer:**					

(N -- No. of blows to drive sampler 12" w/140 lb. hammer falling 30" ASTM D-1586, Standard Penetration Test)

Depth (ft)	Sample No.	Symbol	Blows on Sampler per 6"	MATERIAL DESCRIPTION (c - coarse, m - medium, f - fine; a - and - 35-50%, s - some - 20-35%, l - little - 10-20%, t - trace - 0-10%; S - Sand, $ - Silt, G - Gravel, C - Clay, cly - clayey)		COMMENTS (e.g., N-value, recovery, relative moisture, core run, RQD, % recovered)
				0”-15”	ppm:	2:05 PM
1				***(FILL) Plastic, wood, brick, brown, loam (Silty Sand and Clay)***	0.7 ppm	15” recovered
					0.7 ppm	
2						No visual and no petro-like odors
3						
4						
				0”-10”	0.7 ppm	
5				***Slug (FILL)***	0.7 ppm	
				10”-45”	0.7 ppm	45” recovered
				Red-brown, dense, Silty CLAY		
6						No visual and no petro-like odors
7						
8						
				0”-8.5”	0.7 ppm	
9				***Slug (FILL)***	0.6 ppm	46” recovered
				8.5”-46”		
10				***Red-brown, dense, Silty CLAY***		No visual and no petro-like odors
11						
12						
				0”-12”	0.7 ppm	
13				***Slug (FILL)***	0.7 ppm	41” recovered
				12”-41”		
14				***Red-brown, dense, Silty CLAY***		No visual and no petro-like odors
15						
16						
17				***END OF BORING AT 16 FT***		*Sample:*
						2:40 PM
18					*0-1 FT*	*BH-2*
					5-6 FT	*BH-2 N*
19					*6-6.5 FT*	*BH-2 N+0.5*
					6.5-7 FT	*BH-2 N+1*
20					*7-7.5 FT*	*BH-2 N+1.5*
					7.5-8 FT	*BH-2 N+2*
21						
22						
23						

C&S Engineers, Inc.	BORING LOG	Boring No.	BH-3
141 Elm Street Buffalo, New York 14203 Phone: 716-847-1630 Fax: 716-847-1454 www.cscos.com		Sheet 1 of:	1
		Project No.:	Q69.001.001

Project Name:	Pierce Arrow BCP (RI)	**Surface Elev.:**	
Location:	1695, 1721, and 1723 Elmwood Avenue	**Datum:**	GROUND SURFACE
Client:	Pierce Arrow, LLC	**Start Date:**	1/24/2018
Drilling Firm:	Trec Environmental, Inc.	**Finish Date:**	1/24/2018

Groundwater	Depth	Date & Time	Drill Rig:	Geoprobe 6620D1		Inspector:	AS
While Drilling:			Casing:		Rock Core:	Undist:	
Before Casing Removal:			Sampler:		Other:		
After Casing Removal:			Hammer:				

(N -- No. of blows to drive sampler 12" w/140 lb. hammer falling 30" ASTM D-1586, Standard Penetration Test)

c - coarse, m - medium, f - fine

a - and - 35-50%, s - some - 20-35%, l - little - 10-20%, t - trace - 0-10%

S - Sand, $ - Silt, G - Gravel, C - Clay, cly - clayey

Depth (ft)	Sample No.	Symbol	Blows on Sampler per 6"	MATERIAL DESCRIPTION		COMMENTS (e.g., N-value, recovery, relative moisture, core run, RQD, % recovered)
				0”-2”	***Asphalt, gravel***	ppm: 9:03 AM
1				2”-11”	***Gravel, less than 1/4” stone, grey, coarse, Sand***	0.1 ppm 26” recovered
				11”-18”	***Pebbles, brown, Silty CLAY***	0.1 ppm Weather: Cold
2				18”-26”	***Red-brown, Silty CLAY, soft, greyish staining***	0.1 ppm No visual and no petro-like odors
3						
4						
				0”-5”	***Slug***	0.2 ppm
5				5”-34”	***Red-brown, moist, Silty CLAY, soft from 0” to 17” and then***	4.6 ppm 34” recovered
					dense after	
6						No visual and no petro-like odors
7						
8						
				0”-7”	***Slug***	2.4 ppm
9				7”-14”	***Red-brown, soft, wet, Silty CLAY***	0.9 ppm 48” recovered
				14”-48”	***Red-brown, dense, Silty CLAY***	
10						No visual and no petro-like odors
11						
12						
				0”-46”	***Red-brown, wet, dense, Silty CLAY***	2.6 ppm
13					***Soft from 8” to 12”***	1.2 ppm 46” recovered
						0.8 ppm
14						Slight odor (in wet material)
15						
16						
17					***END OF BORING AT 16 FT***	*Sample:*
						9:32 AM
18						*3-4 FT BH-3 N PLUS CYN/HEX*
						4-4.5 FT BH-3 N+0.5
19						*4.5-5 FT BH-3 N+1*
						5-5.5 FT BH-3 N+1.5
20						*5.5-6 FT BH-3 N+2*
21						
22						
23						

C&S COMPANIES	**C&S Engineers, Inc.** 141 Elm Street Buffalo, New York 14203 Phone: 716-847-1630 Fax: 716-847-1454 www.cscos.com	**BORING LOG**		***Boring No.***	**BH-4**
				Sheet 1 of:	1
				Project No.:	Q69.001.001
Project Name:	Pierce Arrow BCP (RI)			***Surface Elev.:***	
Location:	1695, 1721, and 1723 Elmwood Avenue			***Datum:***	GROUND SURFACE
Client:	Pierce Arrow, LLC			***Start Date:***	1/24/2018
Drilling Firm:	Trec Environmental, Inc.			***Finish Date:***	1/24/2018
Groundwater	***Depth***	***Date & Time***	***Drill Rig:*** Geoprobe 6620D1	***Inspector:***	AS
While Drilling:			***Casing:***	***Rock Core:***	***Undist:***
Before Casing Removal:			***Sampler:***	***Other:***	
After Casing Removal:			***Hammer:***		

(N -- No. of blows to drive sampler 12" w/140 lb. hammer falling 30" ASTM D-1586, Standard Penetration Test)

Depth (ft)	Sample No.	Symbol	Blows on Sampler per 6"	MATERIAL DESCRIPTION c - coarse, m - medium, f - fine a - and - 35-50%, s - some - 20-35%, l - little - 10-20%, t - trace - 0-10% S - Sand, $ - Silt, G - Gravel, C - Clay, cly - clayey									COMMENTS (e.g., N-value, recovery, relative moisture, core run, RQD, % recovered)
				0”-2”	***Topsoil***							ppm:	10:05 AM
1				2”-9”	***(FILL) Dark material, brick, blue-green***							0.2 ppm	25” recovered
				9”-13”	***(FILL) Yellow, white, Sandy material, rock, yellow***							0.2 ppm	
2				13”-25”	***(FILL) Brown-green, Silty CLAY, orange mottled***								No visual and no petro-like odors
3													
4													
				0”-6”	***Slug (FILL)***							0.2 ppm	
5				6”-38”	***Red-brown, dense, Silty CLAY***							0.2 ppm	38” recovered
6													No visual and no petro-like odors
7													
8													
				0”-4”	***Slug (FILL)***							0.1 ppm	
9				4”-37”	***Red-brown, dense, Silty CLAY***							0.2 ppm	37” recovered
												0.2 ppm	
10													No visual and no petro-like odors
11													
12													
				0”-44”	***Red-brown, dense, Silty CLAY***							0.0 ppm	
13					***0” to 4” and 13” to 15” Slug***							0.0 ppm	44” recovered
14													No visual and no petro-like odors
15													
16													
17					***END OF BORING AT 16 FT***								*Sample:*
													10:30 AM
18												*4-4.5 FT*	*BH-4 N*
												4.5-5 FT	*BH-4 N+0.5*
19												*5-5.5 FT*	*BH-4 N+1*
												5.5-6 FT	*BH-4 N+1.5*
20												*6-6.5 FT*	*BH-4 N+2*
21													
22													
23													

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BORING LOG

Boring No.	**BH-5**
Sheet 1 of:	1
Project No.:	Q69.001.001
Surface Elev.:	
Datum:	GROUND SURFACE
Start Date:	1/24/2018
Finish Date:	1/24/2018
Inspector:	AS

Project Name:	Pierce Arrow BCP (RI)
Location:	1695, 1721, and 1723 Elmwood Avenue
Client:	Pierce Arrow, LLC
Drilling Firm:	Trec Environmental, Inc.

Groundwater	Depth	Date & Time
While Drilling:		
Before Casing Removal:		
After Casing Removal:		

Drill Rig:	Geoprobe 6620D1				
Casing:		**Rock Core:**		**Undist:**	
Sampler:		**Other:**	Boring west of above ground tank		
Hammer:					

(N -- No. of blows to drive sampler 12" w/140 lb. hammer falling 30" ASTM D-1586, Standard Penetration Test)

c - coarse, m - medium, f - fine
a - and - 35-50%, s - some - 20-35%, l - little - 10-20%, t - trace - 0-10%
S - Sand, $ - Silt, G - Gravel, C - Clay, cly - clayey

Depth (ft)	Sample No.	Symbol	Blows on Sampler per 6"	MATERIAL DESCRIPTION			COMMENTS (e.g., N-value, recovery, relative moisture, core run, RQD, % recovered)
				0”-2”	***Wood material***	ppm:	10:58 AM
1				2”-14”	***(FILL) Sand, brick, blue-green***	0.0 ppm	26” recovered
				14”-26”	***Grey, Silty CLAY, dense, red brick at the end***	0.0 ppm	
2						0.0 ppm	No visual and no petro-like odors
3							
4							
				0”-14”	***(FILL) Grey, soft, Silty CLAY, red brick pieces from 0” to 2”,***	0.0 ppm	
5					***FILL at 3” to 6”***	0.0 ppm	24.5” recovered
				14”-24.5’	***Red-brown, dense, Silty CLAY***	0.0 ppm	
6							No visual and no petro-like odors
7							
8							
				0”-5”	***Slug (FILL)***	0.0 ppm	
9				5”-46”	***Red-brown, dense, Silty CLAY***	0.0 ppm	46” recovered
10							No visual and no petro-like odors
11							
12							
				0”-4”	***Slug***	0.0 ppm	
13				4”-46”	***Red-brown, dense, Silty CLAY***	0.0 ppm	46” recovered
14							No visual and no petro-like odors
15							
16							
17					***END OF BORING AT 16 FT***		*Sample:*
							11:13 AM
18						*0.5-2 FT*	*BH-5*
						4.5-5 FT	*BH-5 N*
19						*5-5.5 FT*	*BH-5 N+0.5*
						5.5-6 FT	*BH-5 N+1*
20						*8-8.5 FT*	*BH-5 N+1.5*
						8.5-9 FT	*BH-5 N+2*
21							
22							
23							
23							

C&S Engineers, Inc.	BORING LOG	Boring No.	BH-6
141 Elm Street Buffalo, New York 14203 Phone: 716-847-1630 Fax: 716-847-1454 www.cscos.com		Sheet 1 of:	1
		Project No.:	Q69.001.001

Project Name:	Pierce Arrow BCP (RI)	**Surface Elev.:**	
Location:	1695, 1721, and 1723 Elmwood Avenue	**Datum:**	GROUND SURFACE
Client:	Pierce Arrow, LLC	**Start Date:**	1/24/2018
Drilling Firm:	Trec Environmental, Inc.	**Finish Date:**	1/24/2018

Groundwater	Depth	Date & Time	Drill Rig:	Geoprobe 6620D1		Inspector:	AS
While Drilling:			Casing:		Rock Core:	Undist:	
Before Casing Removal:			Sampler:		Other:		
After Casing Removal:			Hammer:				

(N -- No. of blows to drive sampler 12" w/140 lb. hammer falling 30" ASTM D-1586, Standard Penetration Test)

Depth (ft)	Sample No.	Symbol	Blows on Sampler per 6"	c - coarse m - medium f - fine	MATERIAL DESCRIPTION S - Sand, $ - Silt, G - Gravel, C - Clay, cly - clayey	a - and - 35-50% s - some - 20-35% l - little - 10-20% t - trace - 0-10%		COMMENTS (e.g., N-value, recovery, relative moisture, core run, RQD, % recovered)
				0”-2.5”	***Topsoil***		ppm:	12:30 PM
1				2.5”-10”	***(FILL) Silty SAND, brick***		1.3 ppm	32” recovered
				10”-22”	***Red-brown to grey, Silty CLAY, dense to medium soft***		0.1 ppm	
2				22”-23”	***Wood pieces***			No visual and no petro-like odors
				23”-32”	***Red-brown, soft, Silty CLAY***			
3								
4								
				0”-12”	***(FILL) Sandy, Silty CLAY, very soft, greyish discoloration,***		0.1 ppm	
5					***no odor***		1.3 ppm	27” recovered
				12”-27”	***Red-brown, dense, Silty CLAY, moist***		0.0 ppm	
6								No visual and no petro-like odors
7								
8								
				0”-3”	***Slug? Red-brown, dense, Silty CLAY***		0.0 ppm	
9				3”-11”	***Slug? Grey, Silty CLAY, soft***		0.0 ppm	41” recovered
				11”-41”	***Red-brown, Silty CLAY, dense***		0.0 ppm	
10								No visual and no petro-like odors
11								
12								
				0”-46”	***Red-brown, dense, Silty CLAY***		0.0 ppm	
13							0.0 ppm	46” recovered
							0.0 ppm	
14								No visual and no petro-like odors
15								
16								
17					***END OF BORING AT 16 FT***			*Sample:*
								1:00 PM
18							*4-5 FT*	*BH-6 N PLUS CYN/HEX*
							5-5.5 FT	*BH-6 N+0.5*
19							*5.5-6 FT*	*BH-6 N+1*
							6-6.5 FT	*BH-6 N+1.5*
20							*8-8.5 FT*	*BH-6 N+2*
21								
22								
23								

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BORING LOG

Boring No.	**BH-7**		
Sheet 1 of:	1		
Project No.:	Q69.001.001		
Project Name:	Pierce Arrow BCP (RI)	**Surface Elev.:**	
Location:	1695, 1721, and 1723 Elmwood Avenue	**Datum:**	GROUND SURFACE
Client:	Pierce Arrow, LLC	**Start Date:**	1/24/2018
Drilling Firm:	Trec Environmental, Inc.	**Finish Date:**	1/24/2018

Groundwater	**Depth**	**Date & Time**				
While Drilling:			**Drill Rig:**	Geoprobe 6620D1	**Inspector:**	AS
Before Casing Removal:			**Casing:**		**Rock Core:**	**Undist:**
After Casing Removal:			**Sampler:**		**Other:**	PID died; calibration of other PID failed multiple time
			Hammer:			

(N -- No. of blows to drive sampler 12" w/140 lb. hammer falling 30" ASTM D-1586, Standard Penetration Test)

c - coarse, m - medium, f - fine
S - Sand, $ - Silt, G - Gravel, C - Clay, cly - clayey
a - and - 35-50%, s - some - 20-35%, l - little - 10-20%, t - trace - 0-10%

Depth (ft)	Sample No.	Symbol	Blows on Sampler per 6"		MATERIAL DESCRIPTION		COMMENTS (e.g., N-value, recovery, relative moisture, core run, RQD, % recovered)
				0"-2"	***Asphalt, gravel***	ppm:	1:30 PM
1				2"-16"	***(FILL) Gravel, yellow mottles, dark material, rock***	NO PID	33" recovered
				16"-27"	***Red-brown, Silty CLAY, soft***		
2				27"-33"	***Rock, soft, grey, Silty CLAY, petro-like odor***		Visual and petro-like odor
3							
4							
				0"-4"	***Dark staining, Silty CLAY, odor***		
5				4"-40"	***Red-brown, dense, Silty CLAY***		40" recovered
6							No visual and no petro-like odors
							Only in Slug
7							
8							
				0"-4"	***Slug? Red-brown, dense, Silty CLAY***		
9				4"-9"	***Slug? Dark staining on Silty CLAY, odor***		46" recovered
				9"-46"	***Rocks (3/4" diameter and smaller), sparsely embedded***		
10					***throughout, Red-brown, Silty CLAY***		No visual and no petro-like odors
11							
12							
				0"-21"	***(Slug) Dark stained and odor, soft, grey, Silty CLAY***		
13				21"-44"	***Red-brown, dense, moist, Silty CLAY***		44" recovered
14							No visual and no petro-like odors
15							
16							
17					***END OF BORING AT 16 FT***		*Sample:*
							2:14 PM
18						*1-2.5 FT*	*BH-7 PLUS CYN/HEX*
						4.5-5 FT	*BH-7 N*
19						*5-5.5 FT*	*BH-7 N+0.5*
						5.5-6 FT	*BH-7 N+1*
20						*6-6.5 FT*	*BH-7 N+1.5*
						6.5-7 FT	*BH-7 N+2*
21							
22							
23							

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BORING LOG

Boring No.	**BH-8**
Sheet 1 of:	1
Project No.:	Q69.001.001
Surface Elev.:	
Datum:	GROUND SURFACE
Start Date:	1/24/2018
Finish Date:	1/24/2018
Inspector:	AS

Project Name:	Pierce Arrow BCP (RI)						
Location:	1695, 1721, and 1723 Elmwood Avenue						
Client:	Pierce Arrow, LLC						
Drilling Firm:	Trec Environmental, Inc.						
Groundwater	**Depth**	**Date & Time**	**Drill Rig:**	Geoprobe 6620D1			
While Drilling:			**Casing:**		**Rock Core:**		**Undist:**
Before Casing Removal:			**Sampler:**		**Other:**	By anomaly near fence	
After Casing Removal:			**Hammer:**				

(N -- No. of blows to drive sampler 12" w/140 lb. hammer falling 30" ASTM D-1586, Standard Penetration Test)

c - coarse
m - medium
f - fine

S - Sand, $ - Silt, G - Gravel, C - Clay, cly - clayey

a - and - 35-50%
s - some - 20-35%
l - little - 10-20%
t - trace - 0-10%

Depth (ft)	Sample No.	Symbol	Blows on Sampler per 6"	MATERIAL DESCRIPTION		COMMENTS (e.g., N-value, recovery, relative moisture, core run, RQD, % recovered)
				0”-15”	***Asphalt, gravel, stone, brown, Sand, moist***	ppm: 2:48 PM
1				15”-29”	***Red-brown, dense, Silty CLAY, softer at end***	NO PID 29” recovered
2						No visual and slight odor
3						
4						
				0”-5”	***(Slug) Gravel, wet, soft***	
5				5”-31”	***Red-brown, dense, Silty CLAY***	31” recovered
6						No visual and slight odor
7						
8						
				0”-45”	***Red-brown, dense, Silty CLAY***	
9						45” recovered
10						No visual and no petro-like odors
11						
12						
				0”-30”	***Red-brown, dense, Silty CLAY***	
13						30” recovered
14						No visual and no petro-like odors
15						
16						
17					***END OF BORING AT 16 FT***	*Sample:*
						3:10 PM
18						*0.5-1.5 FT BH-8 PLUS CYN/HEX*
						1.5-2 FT BH-8 N
19						*2-2.5 FT BH-8 N+0.5*
						2.5-3 FT BH-8 N+1
20						*3-3.5 FT BH-8 N+1.5*
						3.5-4 FT BH-8 N+2
21						
22						
23						

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BORING LOG

Boring No.	**BH-9**
Sheet 1 of:	1
Project No.:	Q69.001.001
Surface Elev.:	
Datum:	GROUND SURFACE
Start Date:	1/25/2018
Finish Date:	1/25/2018
Inspector:	AS

Project Name:	Pierce Arrow BCP (RI)						
Location:	1695, 1721, and 1723 Elmwood Avenue						
Client:	Pierce Arrow, LLC						
Drilling Firm:	Trec Environmental, Inc.						
Groundwater	**Depth**	**Date & Time**	**Drill Rig:**	Geoprobe 6620D1			
While Drilling:			**Casing:**		**Rock Core:**		**Undist:**
Before Casing Removal:			**Sampler:**		**Other:**	West of garage building	
After Casing Removal:			**Hammer:**				

(N -- No. of blows to drive sampler 12" w/140 lb. hammer falling 30" ASTM D-1586, Standard Penetration Test)

Depth (ft)	Sample No.	Symbol	Blows on Sampler per 6"	MATERIAL DESCRIPTION (c - coarse, m - medium, f - fine; a - and - 35-50%, s - some - 20-35%, l - little - 10-20%, t - trace - 0-10%; S - Sand, $ - Silt, G - Gravel, C - Clay, cly - clayey)		COMMENTS (e.g., N-value, recovery, relative moisture, core run, RQD, % recovered)
				0”-0.25”	**Asphalt**	ppm: 8:48 AM
1				0.25”-3”	**Brown, gravel, large**	0.0 ppm 32” recovered
				3”-5”	**Brown, gravel, small (1/8” diameter and less)**	0.0 ppm Weather: 18F, Partly Cloudy
2				5”-13”	**Concrete, grey Rock**	0.1 ppm No visual and no petro-like odors
				13”-32”	**Red-brown, dense, Silty CLAY, at 24” to 31” grey and**	0.0 ppm
3					**green discoloration, no odor**	
4						
				0”-6”	**(Slug) FILL**	0.0 ppm
5				6”-45”	**Red-brown, dense, Silty CLAY**	0.1 ppm 45” recovered
						0.0 ppm
6						0.0 ppm No visual and no petro-like odors
7						
8						
				0”-5”	**(Slug) Red-brown, dense, Silty CLAY**	0.1 ppm
9				5”-8”	**(Slug) Gravel, stone**	0.0 ppm 46” recovered
				8”-46”	**Red-brown, dense, Silty CLAY**	0.0 ppm
10						No visual and no petro-like odors
11						
12						
				0”-9”	**(Slug) Soft Clay, dark gravel**	0.1 ppm
13				9”-43”	**Red-brown, dense, Silty CLAY**	0.1 ppm 43” recovered
						0.0 ppm
14						0.0 ppm No visual and no petro-like odors
15						
16						
17					**END OF BORING AT 16 FT**	Sample:
						9:00 AM
18						1.5-3 FT BH-9
						3-4 FT BH-9 N PLUS CYN/HEX
19						4-4.5 FT BH-9 N+0.5
						4.5-5 FT BH-9 N+1
20						5-5.5 FT BH-9 N+1.5
						5.5-6 FT BH-9 N+2
21						
22						
23						

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BORING LOG

Boring No.	**BH-10**
Sheet 1 of:	1
Project No.:	Q69.001.001
Surface Elev.:	
Datum:	GROUND SURFACE
Start Date:	1/25/2018
Finish Date:	1/25/2018
Inspector:	AS

Project Name:	Pierce Arrow BCP (RI)						
Location:	1695, 1721, and 1723 Elmwood Avenue						
Client:	Pierce Arrow, LLC						
Drilling Firm:	Trec Environmental, Inc.						
Groundwater	**Depth**	**Date & Time**	**Drill Rig:**	Geoprobe 6620D1			
While Drilling:			**Casing:**		**Rock Core:**		**Undist:**
Before Casing Removal:			**Sampler:**		**Other:**	West of administration building	
After Casing Removal:			**Hammer:**				

(N -- No. of blows to drive sampler 12" w/140 lb. hammer falling 30" ASTM D-1586, Standard Penetration Test)

Depth (ft)	Sample No.	Symbol	Blows on Sampler per 6"	MATERIAL DESCRIPTION (c - coarse, m - medium, f - fine; a - and - 35-50%, s - some - 20-35%, l - little - 10-20%, t - trace - 0-10%; S - Sand, $ - Silt, G - Gravel, C - Clay, cly - clayey)		COMMENTS (e.g., N-value, recovery, relative moisture, core run, RQD, % recovered)
				0”-6”	***Brick***	ppm:	9:45 AM
1				6”-10”	***Light brown, Silty SAND, medium grain***	0.2 ppm	36” recovered
				10”-14”	***Concrete***	0.1 ppm	
2				14”-36”	***Red-brown, dense, Silty CLAY***	0.1 ppm	No visual and no petro-like odors
						0.1 ppm	
3							
4							
				0”-3”	***(Slug)***	0.1 ppm	
5				3”-45.5”	***Red-brown, dense, Silty CLAY***	0.1 ppm	45.5” recovered
						0.1 ppm	
6							No visual and no petro-like odors
7							
8							
				0”-4”	***(Slug)***	0.1 ppm	
9				4”-48”	***Red-brown, dense, Silty CLAY, black spots but no odors,***	0.2 ppm	48” recovered
					embedded rare 1” diameter rock	0.1 ppm	
10						0.1 ppm	No visual and no petro-like odors
11							
12							
				0”-31”	***Red-brown, dense, Silty CLAY, Sandy and gravelly layer***	0.1 ppm	
13					***from 5” to 6”***	0.1 ppm	31” recovered
						0.1 ppm	
14							No visual and no petro-like odors
15							
16							
17					***END OF BORING AT 16 FT***		*Sample:*
							10:00 AM
18						*1-2 FT*	*BH-10 N PLUS CYN/HEX*
						2-2.5 FT	*BH-10 N+0.5*
19						*2.5-3 FT*	*BH-10 N+1*
						4-4.5 FT	*BH-10 N+1.5*
20						*4.5-5 FT*	*BH-10 N+2*
21							
22							
23							

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BORING LOG

Boring No.	**BH-11**
Sheet 1 of:	1
Project No.:	Q69.001.001
Project Name:	Pierce Arrow BCP (RI)
Surface Elev.:	
Location:	1695, 1721, and 1723 Elmwood Avenue
Datum:	GROUND SURFACE
Client:	Pierce Arrow, LLC
Start Date:	1/25/2018
Drilling Firm:	Trec Environmental, Inc.
Finish Date:	1/25/2018
Groundwater / **Depth** / **Date & Time**	**Drill Rig:** Geoprobe 6620D1
Inspector:	AS
While Drilling:	**Casing:** **Rock Core:** **Undist:**
Before Casing Removal:	**Sampler:** **Other:** West of administration building near roadway loop to
After Casing Removal:	**Hammer:**

(N -- No. of blows to drive sampler 12" w/140 lb. hammer falling 30" ASTM D-1586, Standard Penetration Test)

c - coarse
m - medium
f - fine

S - Sand, $ - Silt, G - Gravel, C - Clay, cly - clayey

a - and - 35-50%
s - some - 20-35%
l - little - 10-20%
t - trace - 0-10%

Depth (ft)	Sample No.	Symbol	Blows on Sampler per 6"	MATERIAL DESCRIPTION									COMMENTS (e.g., N-value, recovery, relative moisture, core run, RQD, % recovered)
				0”-4”	***Asphalt, gravel***							ppm:	10:49 AM
1				4”-7”	***(FILL) Blue-green rock***							0.1 ppm	36” recovered
				7”-16”	***(FILL) Embedded in red-brown, dense, Silty CLAY***							0.1 ppm	
2				16”-36”	***Red-brown, soft, Silty CLAY***							0.1 ppm	No visual and no petro-like odors
												0.1 ppm	
3													
4													
				0”-14”	***Red-brown, Silty CLAY, moist, soft, greyish***							0.1 ppm	
5				14”-39”	***Red-brown, dense, Silty CLAY***							0.1 ppm	39” recovered
												0.1 ppm	
6												0.1 ppm	No visual and no petro-like odors
7													
8													
				0”-8”	***(Slug)***							0.1 ppm	
9				8”-46”	***Red-brown, dense, Silty CLAY, moist***							0.1 ppm	46” recovered
												0.1 ppm	
10													No visual and no petro-like odors
11													
12													
				0”-15”	***Red-brown, dense, Silty CLAY***							0.1 ppm	
13				15”-19”	***Gravel, rock, dark brown, Silty***							0.1 ppm	49” recovered
				19”-49”	***Red-brown, dense, Silty CLAY, moist***							0.1 ppm	
14													No visual and no petro-like odors
15													
16													
17					***END OF BORING AT 16 FT***								*Sample:*
													11:25 AM
18												*0.5-1.5 FT*	*BH-11 N PLUS CYN/HEX*
												1.5-2 FT	*BH-11 N+0.5*
19												*2-2.5 FT*	*BH-11 N+1*
												2.5-3 FT	*BH-11 N+1.5*
20												*4-4.5 FT*	*BH-11 N+2*
21													
22													
23													

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BORING LOG

Boring No.	**BH-12**
Sheet 1 of:	1
Project No.:	Q69.001.001
Surface Elev.:	
Datum:	GROUND SURFACE
Start Date:	1/25/2018
Finish Date:	1/25/2018
Inspector:	AS

Project Name:	Pierce Arrow BCP (RI)						
Location:	1695, 1721, and 1723 Elmwood Avenue						
Client:	Pierce Arrow, LLC						
Drilling Firm:	Trec Environmental, Inc.						
Groundwater	**Depth**	**Date & Time**	**Drill Rig:**	Geoprobe 6620D1			
While Drilling:			**Casing:**		**Rock Core:**		**Undist:**
Before Casing Removal:			**Sampler:**		**Other:**	South of concrete vault	
After Casing Removal:			**Hammer:**				

(N -- No. of blows to drive sampler 12" w/140 lb. hammer falling 30" ASTM D-1586, Standard Penetration Test)

Depth (ft)	Sample No.	Symbol	Blows on Sampler per 6"	MATERIAL DESCRIPTION (c - coarse, m - medium, f - fine; a - and - 35-50%, s - some - 20-35%, l - little - 10-20%, t - trace - 0-10%; S - Sand, $ - Silt, G - Gravel, C - Clay, cly - clayey)			COMMENTS (e.g., N-value, recovery, relative moisture, core run, RQD, % recovered)
				0”-8”	***Asphalt, gravel, concrete from 5” to 8”***	ppm:	12:20 PM
1				8”-41”	***Brown, Silty CLAY, medium soft***	0.1 ppm	41” recovered
						0.1 ppm	
2						0.1 ppm	No visual and no petro-like odors
3							
4							
				0”-3”	***(Slug)***	0.2 ppm	
5				3”-20”	***Brown, Silty CLAY***	0.1 ppm	40” recovered
				20”-22”	***Brown, Silty CLAY, moist to wet, soft***	0.1 ppm	
6				22”-40”	***Brown, dense, Silty CLAY***		No visual and no petro-like odors
7							
8							
				0”-5”	***(Slug)***	0.1 ppm	
9				5”-48”	***Red-brown, dense, Silty CLAY, softer at 46” to 48”***	0.1 ppm	48” recovered
						0.1 ppm	
10							No visual and no petro-like odors
11							
12							
				0”-46”	***Red-brown, moist, dense and soft, Silty CLAY***	0.1 ppm	
13					***Gravel and small rock at 17”***	0.1 ppm	46” recovered
						0.2 ppm	
14						0.2 ppm	No visual and no petro-like odors
15							
16							
17					***END OF BORING AT 16 FT***		*Sample:*
							12:40 PM
18						*0-1.5 FT*	*BH-12 PLUS CYN/HEX*
						1.5-2.5 FT	*BH-12 N PLUS CYN/HEX*
19						*2.5-3 FT*	*BH-12 N+0.5*
						3-3.5 FT	*BH-12 N+1*
20						*3.5-4 FT*	*BH-12 N+1.5*
						4-4.5 FT	*BH-12 N+2*
21							
22							
23							

C&S Engineers, Inc.	BORING LOG	Boring No.	BH-13
141 Elm Street Buffalo, New York 14203 Phone: 716-847-1630 Fax: 716-847-1454 www.cscos.com		Sheet 1 of:	1
		Project No.:	Q69.001.001

Project Name:	Pierce Arrow BCP (RI)	**Surface Elev.:**	
Location:	1695, 1721, and 1723 Elmwood Avenue	**Datum:**	GROUND SURFACE
Client:	Pierce Arrow, LLC	**Start Date:**	1/25/2018
Drilling Firm:	Trec Environmental, Inc.	**Finish Date:**	1/25/2018

Groundwater	Depth	Date & Time	Drill Rig:	Geoprobe 6620D1			Inspector:	AS
While Drilling:			Casing:		Rock Core:		Undist:	
Before Casing Removal:			Sampler:		Other:	North of possible UST anomaly		
After Casing Removal:			Hammer:					

(N -- No. of blows to drive sampler 12" w/140 lb. hammer falling 30" ASTM D-1586, Standard Penetration Test)

Depth (ft)	Sample No.	Symbol	Blows on Sampler per 6"	MATERIAL DESCRIPTION (c - coarse, m - medium, f - fine; a - and - 35-50%, s - some - 20-35%, l - little - 10-20%, t - trace - 0-10%; S - Sand, $ - Silt, G - Gravel, C - Clay, cly - clayey)			COMMENTS (e.g., N-value, recovery, relative moisture, core run, RQD, % recovered)
				0”-13”	***Asphalt, gravel***	ppm:	1:08 PM
1				13”-14”	***Red brick***	0.1 ppm	36” recovered
				14”-36”	***(FILL) Brown, Silty CLAY, embedded brick and mottles***	0.1 ppm	
2						0.1 ppm	No visual and no petro-like odors
3							
4							
				0”-4”	***(Slug)***	0.1 ppm	
5				4”-16”	***Brown, Silty CLAY***	0.1 ppm	44” recovered
				16”-44”	***Red-brown, dense, Silty CLAY***	0.1 ppm	
6							No visual and no petro-like odors
7							
8							
				0”-5”	***(Slug)***	0.1 ppm	
9				5”-45”	***Red-brown, dense, Silty CLAY***	0.1 ppm	45” recovered
10							No visual and no petro-like odors
11							
12							
				0”-12”	***(Slug)***	0.1 ppm	
13				12”-45”	***Red-brown, dense, Silty CLAY***	0.1 ppm	45” recovered
					Softer at 44” to 45”	0.1 ppm	
14							No visual and no petro-like odors
15							
16							
17					***END OF BORING AT 16 FT***		*Sample:*
							1:30 PM
18						*0.5-1.5 FT*	*BH-13*
						5-5.5 FT	*BH-13 N*
19						*5.5-6 FT*	*BH-13 N+0.5*
						6-6.5 FT	*BH-13 N+1*
20						*6.5-7 FT*	*BH-13 N+1.5*
						7-7.5 FT	*BH-13 N+2*
21							
22							
23							

C&S Engineers, Inc.	BORING LOG	Boring No.	BH-14
141 Elm Street Buffalo, New York 14203 Phone: 716-847-1630 Fax: 716-847-1454 www.cscos.com		Sheet 1 of:	1
		Project No.:	Q69.001.001

Project Name:	Pierce Arrow BCP (RI)	**Surface Elev.:**	
Location:	1695, 1721, and 1723 Elmwood Avenue	**Datum:**	GROUND SURFACE
Client:	Pierce Arrow, LLC	**Start Date:**	1/25/2018
Drilling Firm:	Trec Environmental, Inc.	**Finish Date:**	1/25/2018

Groundwater	Depth	Date & Time	Drill Rig:	Geoprobe 6620D1		Inspector:	AS
While Drilling:			Casing:		Rock Core:	Undist:	
Before Casing Removal:			Sampler:		Other:	West of possible UST anomaly	
After Casing Removal:			Hammer:				

(N -- No. of blows to drive sampler 12" w/140 lb. hammer falling 30" ASTM D-1586, Standard Penetration Test)

c - coarse, m - medium, f - fine

a - and - 35-50%, s - some - 20-35%, l - little - 10-20%, t - trace - 0-10%

S - Sand, $ - Silt, G - Gravel, C - Clay, cly - clayey

Depth (ft)	Sample No.	Symbol	Blows on Sampler per 6"	MATERIAL DESCRIPTION							COMMENTS (e.g., N-value, recovery, relative moisture, core run, RQD, % recovered)
				0”-1/3”	***Asphalt***					ppm:	1:57 PM
1				1/3”-8”	***Gravel, dark brown stone***					0.1 ppm	36” recovered
				8”-13”	***Porous rock and coarse Sand***					0.1 ppm	
2				13”-20”	***Brown, Silty CLAY***					0.1 ppm	No visual and no petro-like odors
				20”-28”	***Dark brown, Silty SAND***						
3				28”-36”	***Brown, soft, moist, Silty CLAY***						
4											
				0”-5”	***(Slug)***					0.1 ppm	
5				5”-19”	***Grey, Silty CLAY***					0.1 ppm	38” recovered
				19”-38”	***Red-brown, dense, Silty CLAY***					0.1 ppm	
6											No visual and no petro-like odors
7											
8											
				0”-6”	***(Slug) Dark Gravel at 5” to 6”***					0.1 ppm	
9				6”-46”	***Red-brown, dense, Silty CLAY***					0.1 ppm	46” recovered
										0.1 ppm	
10											No visual and no petro-like odors
11											
12											
				0”-8”	***(Slug) Dark Gravel at 7” to 8”***					0.1 ppm	
13				8”-46”	***Red-brown, dense, Silty CLAY***					0.1 ppm	46” recovered
										0.1 ppm	
14											No visual and no petro-like odors
15											
16											
17					***END OF BORING AT 16 FT***						*Sample:*
											2:20 PM
18										*4-4.5 FT*	*BH-14 N*
										4.5-5 FT	*BH-14 N+0.5*
19										*5-5.5 FT*	*BH-14 N+1*
										5.5-6 FT	*BH-14 N+1.5*
20										*6-6.5 FT*	*BH-14 N+2*
21											
22											
23											

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BORING LOG

Boring No.	**BH-15**
Sheet 1 of:	1
Project No.:	Q69.001.001
Surface Elev.:	
Datum:	GROUND SURFACE
Start Date:	1/26/2018
Finish Date:	1/26/2018
Inspector:	AS

Project Name:	Pierce Arrow BCP (RI)						
Location:	1695, 1721, and 1723 Elmwood Avenue						
Client:	Pierce Arrow, LLC						
Drilling Firm:	Trec Environmental, Inc.						
Groundwater	**Depth**	**Date & Time**	**Drill Rig:**	Geoprobe 6620D1			
While Drilling:			**Casing:**		**Rock Core:**		**Undist:**
Before Casing Removal:			**Sampler:**		**Other:**	South of possible UST anomaly	
After Casing Removal:			**Hammer:**				

(N -- No. of blows to drive sampler 12" w/140 lb. hammer falling 30" ASTM D-1586, Standard Penetration Test)

Depth (ft)	Sample No.	Symbol	Blows on Sampler per 6"	MATERIAL DESCRIPTION (c - coarse, m - medium, f - fine; S - Sand, $ - Silt, G - Gravel, C - Clay, cly - clayey; a - and - 35-50%, s - some - 20-35%, l - little - 10-20%, t - trace - 0-10%)		COMMENTS (e.g., N-value, recovery, relative moisture, core run, RQD, % recovered)
				0”-4”	***Asphalt, gravel sub base***	ppm:	8:35 AM
1				4”-11”	***Gravel, rock***	0.0 ppm	39” recovered
				11”-39”	***Brown, Silty CLAY, orange mottles, soft from 11” to 33”***	0.0 ppm	Weather: 26F, Sunny
2						0.0 ppm	No visual and no petro-like odors
						0.0 ppm	
3							
4							
				0”-46”	***Red-brown, dense, moist, Silty CLAY***	0.0 ppm	
5						0.0 ppm	46” recovered
						0.0 ppm	
6						0.0 ppm	No visual and no petro-like odors
7							
8							
				0”-9”	***(Slug) Silty CLAY, Dark Gravel at 7” to 9”***	0.0 ppm	
9				9”-46”	***Red-brown, dense, moist, Silty CLAY***	0.1 ppm	46” recovered
						0.0 ppm	
10						0.0 ppm	No visual and no petro-like odors
11							
12							
				0”-22”	***(Slug) Silty CLAY, Stone and Gravel at 21” to 22”***	0.1 ppm	
13				22”-46”	***Red-brown, dense, Silty CLAY, moist***	0.1 ppm	46” recovered
						0.0 ppm	
14						0.1 ppm	No visual and no petro-like odors
15							
16							
17					***END OF BORING AT 16 FT***		*Sample:*
							9:00 AM
18						*0.5-2.5 FT*	*BH-15 MS/MSD*
						2.5-3 FT	*BH-15 N*
19						*3-3.5 FT*	*BH-15 N+0.5*
						4-4.5 FT	*BH-15 N+1*
20						*4.5-5 FT*	*BH-15 N+1.5*
						5-5.5 FT	*BH-15 N+2*
21							
22							
23							

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BORING LOG

Boring No.	**BH-16**
Sheet 1 of:	1
Project No.:	Q69.001.001
Surface Elev.:	
Datum:	GROUND SURFACE
Start Date:	1/26/2018
Finish Date:	1/26/2018
Inspector:	AS

Project Name:	Pierce Arrow BCP (RI)							
Location:	1695, 1721, and 1723 Elmwood Avenue							
Client:	Pierce Arrow, LLC							
Drilling Firm:	Trec Environmental, Inc.							
Groundwater	**Depth**	**Date & Time**	**Drill Rig:**	Geoprobe 6620D1				
While Drilling:			**Casing:**		**Rock Core:**		**Undist:**	
Before Casing Removal:			**Sampler:**		**Other:**			
After Casing Removal:			**Hammer:**					

(N -- No. of blows to drive sampler 12" w/140 lb. hammer falling 30" ASTM D-1586, Standard Penetration Test)

Depth (ft)	Sample No.	Symbol	Blows on Sampler per 6"	MATERIAL DESCRIPTION (c - coarse, m - medium, f - fine; a - and - 35-50%, s - some - 20-35%, l - little - 10-20%, t - trace - 0-10%; S - Sand, $ - Silt, G - Gravel, C - Clay, cly - clayey)			COMMENTS (e.g., N-value, recovery, relative moisture, core run, RQD, % recovered)
				0”-7”	***Asphalt, gravel sub base***	ppm:	9:26 AM
1				7”-18”	***Brown, dense, Silty CLAY, mottles***	0.1 ppm	36” recovered
				18”-21”	***Brown, moist, soft, Silty SAND***	0.1 ppm	
2				21”-36”	***Red-brown, dense, Silty CLAY***	0.1 ppm	No visual and no petro-like odors
3							
4							
				0”-4”	***(Slug)***	0.1 ppm	
5				4”-46”	***Red-brown, dense, Silty CLAY***	0.1 ppm	46” recovered
						0.1 ppm	
6							No visual and no petro-like odors
7							
8							
				0”-7”	***(Slug) Wet, soft, Silty CLAY, SAND***	0.1 ppm	
9				7”-46”	***Red-brown, dense and medium soft, Silty CLAY***	0.1 ppm	46” recovered
						0.1 ppm	
10							No visual and no petro-like odors
11							
12							
13					***No Recovery***		
14							
15							
16							
17					***No Recovery***		*Sample:*
							10:00 AM
18						*0.5-1.5 FT*	*BH-16 N PLUS CYN/HEX*
						1.5-2 FT	*BH-16 N+0.5*
19						*2-2.5 FT*	*BH-16 N+1*
						2.5-3 FT	*BH-16 N+1.5*
20						*4-4.5 FT*	*BH-16 N+2*
21					***END OF BORING AT 20 FT***		
22							
23							

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BORING LOG

Boring No.	**BH-17**
Sheet 1 of:	1
Project No.:	Q69.001.001
Surface Elev.:	
Datum:	GROUND SURFACE
Start Date:	1/26/2018
Finish Date:	1/26/2018
Inspector:	AS

Project Name:	Pierce Arrow BCP (RI)							
Location:	1695, 1721, and 1723 Elmwood Avenue							
Client:	Pierce Arrow, LLC							
Drilling Firm:	Trec Environmental, Inc.							
Groundwater	**Depth**	**Date & Time**	**Drill Rig:**	Geoprobe 6620D1				
While Drilling:			**Casing:**		**Rock Core:**		**Undist:**	
Before Casing Removal:			**Sampler:**		**Other:**			
After Casing Removal:			**Hammer:**					

(N -- No. of blows to drive sampler 12" w/140 lb. hammer falling 30" ASTM D-1586, Standard Penetration Test)

Depth (ft)	Sample No.	Symbol	Blows on Sampler per 6"	MATERIAL DESCRIPTION (c - coarse, m - medium, f - fine; a - and - 35-50%, s - some - 20-35%, l - little - 10-20%, t - trace - 0-10%; S - Sand, $ - Silt, G - Gravel, C - Clay, cly - clayey)		COMMENTS (e.g., N-value, recovery, relative moisture, core run, RQD, % recovered)
				0”-8.5”	***Asphalt, gravel sub base***	ppm:	10:23 AM
1				8.5”-36”	***Brown, soft, moist, Silty CLAY, embedded FILL***	0.1 ppm	36” recovered
						0.2 ppm	
2						0.1 ppm	No visual and no petro-like odors
3							
4							
				0”-5”	***(Slug) Brown, soft, moist, Silty CLAY, embedded FILL***	0.1 ppm	
5				5”-45”	***Red-brown, dense, Silty CLAY***	0.2 ppm	45” recovered
						0.1 ppm	
6						0.1 ppm	No visual and no petro-like odors
7							
8							
				0”-7”	***(Slug) Grey, Silty CLAY, gravel at 5” to 7”***	0.2 ppm	
9				7”-43”	***Red-brown, dense, Silty CLAY***	0.1 ppm	43” recovered
						0.1 ppm	
10						0.1 ppm	No visual and no petro-like odors
11							
12							
				0”-19”	***(Slug) Silty CLAY, Gravel at 18” to 19”***	0.2 ppm	
13				19”-45”	***Red-brown, dense to medium soft, moist, Silty CLAY***	0.1 ppm	45” recovered
						0.1 ppm	
14							No visual and no petro-like odors
15							
16							
17					***END OF BORING AT 16 FT***		*Sample:*
							10:50 AM
18						*4-4.5 FT*	*BH-17 N*
						4.5-5 FT	*BH-17 N+0.5*
19						*5-5.5 FT*	*BH-17 N+1*
						5.5-6 FT	*BH-17 N+1.5*
20						*6-6.5 FT*	*BH-17 N+2*
							BH-17-15 FT
21							
							WC-1 (Waste Characterization)
22							*Composite Fill*
23							

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BORING LOG

Boring No.	**BH-18**
Sheet 1 of:	1
Project No.:	Q69.001.001
Surface Elev.:	
Datum:	GROUND SURFACE
Start Date:	1/26/2018
Finish Date:	1/26/2018
Inspector:	AS

Project Name:	Pierce Arrow BCP (RI)						
Location:	1695, 1721, and 1723 Elmwood Avenue						
Client:	Pierce Arrow, LLC						
Drilling Firm:	Trec Environmental, Inc.						
Groundwater	**Depth**	**Date & Time**	**Drill Rig:**	Geoprobe 6620D1			
While Drilling:			**Casing:**		**Rock Core:**		**Undist:**
Before Casing Removal:			**Sampler:**		**Other:**	South of administration building	
After Casing Removal:			**Hammer:**				

(N -- No. of blows to drive sampler 12" w/140 lb. hammer falling 30" ASTM D-1586, Standard Penetration Test)

Depth (ft)	Sample No.	Symbol	Blows on Sampler per 6"	MATERIAL DESCRIPTION (c - coarse, m - medium, f - fine; S - Sand, $ - Silt, G - Gravel, C - Clay, cly - clayey; a - and - 35-50%, s - some - 20-35%, l - little - 10-20%, t - trace - 0-10%)		COMMENTS (e.g., N-value, recovery, relative moisture, core run, RQD, % recovered)
				0”-6.5”	***Asphalt, gravel sub base***	ppm: 11:05 AM
1				6.5”-32”	***Red-brown, dense, Silty CLAY, red-orange mottles***	0.2 ppm 32” recovered
						0.2 ppm
2						0.2 ppm No visual and no petro-like odors
3						
4						
				0”-5”	***(Slug) Gravel***	0.2 ppm
5				5”-46”	***Red-brown, dense, Silty CLAY***	0.2 ppm 46” recovered
						0.2 ppm
6						No visual and no petro-like odors
7						
8						
				0”-10”	***(Slug) Silty CLAY, gravel at 8” to 10”***	0.2 ppm
9				10”-46”	***Red-brown, dense, Silty CLAY***	0.2 ppm 46” recovered
						0.2 ppm
10						No visual and no petro-like odors
11						
12						
				0”-21”	***(Slug) Silty CLAY, Gravel at 17” to 21”***	0.2 ppm
13				21”-46”	***Red-brown, dense to medium soft, Silty CLAY***	0.1 ppm 46” recovered
						0.1 ppm
14						No visual and no petro-like odors
15						
16						
17					***END OF BORING AT 16 FT***	*Sample:*
						11:20 AM
18						*0.5-1.5 FT BH-18 PLUS CYN/HEX*
						2.5-3 FT BH-18 N
19						*4-4.5 FT BH-18 N+0.5*
						4.5-5 FT BH-18 N+1
20						*5-5.5 FT BH-18 N+1.5*
						5.5-6 FT BH-18 N+2
21						
22						
23						

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BORING LOG

Boring No.	**BH-19**
Sheet 1 of:	1
Project No.:	Q69.001.001
Surface Elev.:	
Datum:	GROUND SURFACE
Start Date:	1/26/2018
Finish Date:	1/26/2018
Inspector:	AS

Project Name:	Pierce Arrow BCP (RI)						
Location:	1695, 1721, and 1723 Elmwood Avenue						
Client:	Pierce Arrow, LLC						
Drilling Firm:	Trec Environmental, Inc.						
Groundwater	**Depth**	**Date & Time**	**Drill Rig:**	Geoprobe 6620D1			
While Drilling:			**Casing:**		**Rock Core:**		**Undist:**
Before Casing Removal:			**Sampler:**		**Other:**	East of administration building; north of Great Arrow	
After Casing Removal:			**Hammer:**				

(N -- No. of blows to drive sampler 12" w/140 lb. hammer falling 30" ASTM D-1586, Standard Penetration Test)

c - coarse
m - medium
f - fine

S - Sand, $ - Silt, G - Gravel, C - Clay, cly - clayey

a - and - 35-50%
s - some - 20-35%
l - little - 10-20%
t - trace - 0-10%

Depth (ft)	Sample No.	Symbol	Blows on Sampler per 6"	MATERIAL DESCRIPTION		COMMENTS (e.g., N-value, recovery, relative moisture, core run, RQD, % recovered)
				0”-2”	***Asphalt***	ppm: 11:05 AM
1				2”-13”	***Gravel sub base, mixed sizes, dark brown, Silty Sand***	0.0 ppm 32” recovered
				13”-17”	***Brick embedded in Silty CLAY***	0.0 ppm
2				17”-20”	***Concrete, yellow and light brown SAND***	0.0 ppm No visual and no petro-like odors
				20”-24”	***Silty, yellow SAND, moist, coarse***	0.0 ppm
3				24”-32”	***Brown, moist, soft, Silty CLAY***	
4						
				0”-6”	***(Slug) FILL***	0.0 ppm
5				6”-30”	***Red-brown, dense, moist, Silty CLAY***	0.0 ppm 30” recovered
						0.0 ppm
6						No visual and no petro-like odors
7						
8						
				0”-14”	***(Slug) Dark brown, wet, Silty SAND***	0.0 ppm
9				14”-46”	***Red-brown, dense, Silty CLAY***	0.0 ppm 46” recovered
						0.0 ppm
10						0.0 ppm No visual and no petro-like odors
11						
12						
				0”-14”	***(Slug) Silty CLAY, Gravel and Sand at 12” to 14”***	0.0 ppm
13				14”-46”	***Red-brown, dense, moist, Silty CLAY***	0.0 ppm 46” recovered
						0.0 ppm
14						No visual and no petro-like odors
15						
16						
17				***END OF BORING AT 16 FT***		*Sample:*
						12:40 PM
18						*0.5-2.5 FT BH-19 PLUS CYN/HEX*
						4-4.5 FT BH-19 N PLUS CYN/HEX
19						*4.5-5 FT BH-19 N+0.5*
						5-5.5 FT BH-19 N+1
20						*5.5-6 FT BH-19 N+1.5*
21						
22						
23						

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BORING LOG

Boring No.	**BH-20**
Sheet 1 of:	1
Project No.:	Q69.001.001
Surface Elev.:	
Datum:	GROUND SURFACE
Start Date:	1/26/2018
Finish Date:	1/26/2018
Inspector:	AS

Project Name:	Pierce Arrow BCP (RI)						
Location:	1695, 1721, and 1723 Elmwood Avenue						
Client:	Pierce Arrow, LLC						
Drilling Firm:	Trec Environmental, Inc.						
Groundwater	**Depth**	**Date & Time**	**Drill Rig:**	Geoprobe 6620D1			
While Drilling:			**Casing:**		**Rock Core:**		**Undist:**
Before Casing Removal:			**Sampler:**		**Other:**		
After Casing Removal:			**Hammer:**				

(N -- No. of blows to drive sampler 12" w/140 lb. hammer falling 30" ASTM D-1586, Standard Penetration Test)

Depth (ft)	Sample No.	Symbol	Blows on Sampler per 6"	c - coarse m - medium f - fine	**MATERIAL DESCRIPTION** S - Sand, $ - Silt, G - Gravel, C - Clay, cly - clayey	a - and - 35-50% s - some - 20-35% l - little - 10-20% t - trace - 0-10%		**COMMENTS** (e.g., N-value, recovery, relative moisture, core run, RQD, % recovered)
				0”-2”	***Concrete, Asphalt***		ppm:	1:05 PM
1				2”-11”	***Gravel sub base, dark brown, small stone***		0.1 ppm	23” recovered
				11”-13”	***Clay, SAND, soft, moist***		0.1 ppm	
2				13”-17”	***Concrete***		0.0 ppm	No visual and no petro-like odors
				17”-23”	***Red-brown, dense, Silty CLAY***			
3								
4								
				0”-46”	***(Slug) Red-brown, dense, Silty CLAY, appeared to have***		0.0 ppm	
5					***mottles and Sand at 0” to 18”***		0.0 ppm	46” recovered
							0.0 ppm	
6								No visual and no petro-like odors
7								
8								
				0”-8”	***(Slug)***		0.0 ppm	
9				8”-37”	***Red-brown, dense, Silty CLAY***		0.0 ppm	37” recovered
							0.0 ppm	
10								No visual and no petro-like odors
11								
12								
				0”-20”	***(Slug) Silty CLAY, Gravel at 20”***		0.0 ppm	
13				20”-39”	***Red-brown, dense, Silty CLAY***		0.0 ppm	39” recovered
14								No visual and no petro-like odors
15								
16								
17					***END OF BORING AT 16 FT***			*Sample:*
								1:30 PM
18							*5.5-6 FT*	*BH-20 N PLUS CYN/HEX*
							6-6.5 FT	*BH-20 N+0.5*
19							*6.5-7 FT*	*BH-20 N+1*
							7-7.5 FT	*BH-20 N+1.5*
20							*7.5-8 FT*	*BH-20 N+2*
								BH-20-15 FT
21								
22								
23								

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BORING LOG

Boring No.	**BH-21**
Sheet 1 of:	1
Project No.:	Q69.001.001
Project Name:	Pierce Arrow BCP (RI)
Surface Elev.:	
Location:	1695, 1721, and 1723 Elmwood Avenue
Datum:	GROUND SURFACE
Client:	Pierce Arrow, LLC
Start Date:	1/26/2018
Drilling Firm:	Trec Environmental, Inc.
Finish Date:	1/26/2018
Groundwater / **Depth** / **Date & Time**	**Drill Rig:** Geoprobe 6620D1
Inspector:	AS
While Drilling:	***Casing:*** ***Rock Core:*** ***Undist:***
Before Casing Removal:	***Sampler:*** ***Other:***
After Casing Removal:	***Hammer:***

(N -- No. of blows to drive sampler 12" w/140 lb. hammer falling 30" ASTM D-1586, Standard Penetration Test)

Depth (ft)	Sample No.	Blows on Sampler per 6"	MATERIAL DESCRIPTION (c - coarse, m - medium, f - fine; S - Sand, $ - Silt, G - Gravel, C - Clay, cly - clayey; a - and - 35-50%, s - some - 20-35%, l - little - 10-20%, t - trace - 0-10%)			COMMENTS (e.g., N-value, recovery, relative moisture, core run, RQD, % recovered)
			0”-2”	***Concrete, Asphalt***	ppm:	2:00 PM
1			2”-9”	***Brick***	0.0 ppm	23” recovered
			9”-15”	***Concrete***	0.0 ppm	
2			15”-19”	***Brown, soft, moist, Silty CLAY, dark material, Sand***	0.0 ppm	No visual and no petro-like odors
			19”-23”	***Brown, dense, Silty CLAY***		
3						
4						
			0”-5”	***(Slug) FILL***	0.0 ppm	
5			5”-41”	***Red-brown, dense, Silty CLAY***	0.0 ppm	41” recovered
					0.0 ppm	
6						No visual and no petro-like odors
7						
8						
			0”-3”	***(Slug) FILL at 2” to 3”***	0.0 ppm	
9			3”-46”	***Red-brown, dense, Silty CLAY***	0.0 ppm	46” recovered
					0.0 ppm	
10						No visual and no petro-like odors
11						
12						
			0”-20”	***(Slug) Silty CLAY, Gravel at 16” to 20”***	0.0 ppm	
13			20”-44”	***Red-brown, dense, Silty CLAY***	0.0 ppm	44” recovered
					0.0 ppm	
14						No visual and no petro-like odors
15						
16						
17				***END OF BORING AT 16 FT***		*Sample:*
						2:20 PM
18					*4-4.5 FT*	*BH-21 N PLUS CYN/HEX*
					4.5-5 FT	*BH-21 N+0.5*
19					*5-5.5 FT*	*BH-21 N+1*
					5.5-6 FT	*BH-21 N+1.5*
20					*6-6.5 FT*	*BH-21 N+2*
21						
22						
23						

C&S Engineers, Inc.	BORING LOG	Boring No.	BH-22
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		Project No.:	Q69.001.001

Project Name:	Pierce Arrow BCP (RI)	**Surface Elev.:**	
Location:	1695, 1721, and 1723 Elmwood Avenue	**Datum:**	GROUND SURFACE
Client:	Pierce Arrow, LLC	**Start Date:**	1/26/2018
Drilling Firm:	Trec Environmental, Inc.	**Finish Date:**	1/26/2018

Groundwater	Depth	Date & Time	Drill Rig:	Geoprobe 6620D1		Inspector:	AS
While Drilling:			Casing:		Rock Core:	Undist:	
Before Casing Removal:			Sampler:		Other:	Location of excavated tank	
After Casing Removal:			Hammer:				

(N -- No. of blows to drive sampler 12" w/140 lb. hammer falling 30" ASTM D-1586, Standard Penetration Test)

Depth (ft)	Sample No.	Symbol	Blows on Sampler per 6"	MATERIAL DESCRIPTION (c - coarse, m - medium, f - fine; S - Sand, $ - Silt, G - Gravel, C - Clay, cly - clayey; a - and - 35-50%, s - some - 20-35%, l - little - 10-20%, t - trace - 0-10%)		COMMENTS (e.g., N-value, recovery, relative moisture, core run, RQD, % recovered)
				0”-2”	***Asphalt, gravel***	ppm: 2:30 PM
1				2”-5”	***Fine gravel***	0.0 ppm 27” recovered
				5”-22”	***(FILL) stone, dark material, sand, rocks, brick***	0.0 ppm
2				22”-27”	***Brown, soft, Silty CLAY***	0.0 ppm No visual and no petro-like odors
3						
4						
				0”-8”	***(Slug) Gravel***	0.0 ppm
5				8”-19”	***Soft, Silty CLAY, wet, FILL at 13” to 18” w/ brick at 13” to 16”***	0.0 ppm 34” recovered
				19”-34”	***Red-brown, dense, Silty CLAY***	0.0 ppm
6						No visual and no petro-like odors
7						
8						
				0”-4”	***Red-brown, dense, Silty CLAY***	0.0 ppm
9				4”-10”	***Gravel, larger stone is 1/4” diameter***	0.0 ppm 41” recovered
				10”-13”	***Brown, wet, Silty CLAY***	0.0 ppm
10				13”-15”	***Gravel, larger stone is 1/4” diameter***	No visual and no petro-like odors
				15”-41”	***Red-brown, dense, Silty CLAY***	
11						
12						
				0”-8”	***Loose, wet, red-brown, Silty CLAY***	0.0 ppm
13				8”-13”	***Gravel, larger stone is 1/4” diameter***	0.0 ppm 36” recovered
				13”-36”	***Red-brown, dense, Silty CLAY, wet outside from above layer***	0.0 ppm
14						No visual and no petro-like odors
15						
16						
17					***END OF BORING AT 16 FT***	*Sample:*
						3:20 PM
18						*0.5-2.5 FT BH-22 PLUS CYN/HEX*
						5-5.5 FT BH-22 N
19						*5.5-6 FT BH-22 N+0.5*
						6-6.5 FT BH-22 N+1
20						*6.5-7 FT BH-22 N+1.5*
21						
22						
23						

C&S Engineers, Inc.	BORING LOG	Boring No.	BH-23
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		Project No.:	Q69.001.001

Project Name:	Pierce Arrow BCP (RI)					**Surface Elev.:**	
Location:	1695, 1721, and 1723 Elmwood Avenue					**Datum:**	GROUND SURFACE
Client:	Pierce Arrow, LLC					**Start Date:**	1/29/2018
Drilling Firm:	Trec Environmental, Inc.					**Finish Date:**	1/29/2018
Groundwater	**Depth**	**Date & Time**	**Drill Rig:**	Geoprobe 6620D1		**Inspector:**	AS
While Drilling:			**Casing:**		**Rock Core:**	**Undist:**	
Before Casing Removal:			**Sampler:**		**Other:**	Near loading dock ramp	
After Casing Removal:			**Hammer:**				

(N -- No. of blows to drive sampler 12" w/140 lb. hammer falling 30" ASTM D-1586, Standard Penetration Test)

Depth (ft)	Sample No.	Symbol	Blows on Sampler per 6"	c - coarse m - medium f - fine **MATERIAL DESCRIPTION** S - Sand, $ - Silt, G - Gravel, C - Clay, cly - clayey a - and - 35-50% s - some - 20-35% l - little - 10-20% t - trace - 0-10%								**COMMENTS** (e.g., N-value, recovery, relative moisture, core run, RQD, % recovered)
				0”-3”	***Asphalt***						ppm:	8:46 AM
1				3”-5”	***Gravel, 1/4” diameter stone pieces***						0.0 ppm	31” recovered
				5”-11”	***Brick pieces***						0.0 ppm	Weather: 30F, Cloudy
2				11”-14”	***Concrete***						0.0 ppm	No visual and no petro-like odors
				14”-16”	***Sand***							
3				16”-31”	***Brown, moist, dense to medium soft, Silty CLAY***							
4												
				0”-5”	***(Slug) FILL***						0.0 ppm	
5				5”-46”	***Red-brown, dense, Silty CLAY***						0.0 ppm	46” recovered
											0.0 ppm	
6												No visual and no petro-like odors
7												
8												
				0”-5”	***(Slug)***						0.0 ppm	
9				5”-46”	***Red-brown, dense, moist, Silty CLAY***						0.0 ppm	46” recovered
											0.0 ppm	
10												No visual and no petro-like odors
11												
12												
				0”-14”	***(Slug)***						0.1 ppm	
13				14”-46”	***Red-brown, dense, moist, Silty CLAY***						0.1 ppm	46” recovered
											0.0 ppm	
14												No visual and no petro-like odors
15												
16												
				0”-46”	***Red-brown, dense to medium soft, moist, Silty CLAY***						0.1 ppm	
17											0.1 ppm	46” recovered
											0.1 ppm	
18											0.1 ppm	No visual and no petro-like odors
19												
												Sample:
20												*9:00 AM*
											4-5 FT	*BH-23 N PLUS CYN/HEX*
21					***END OF BORING AT 20 FT***						*5-5.5 FT*	*BH-23 N+0.5*
							9:24 AM				*5.5-6 FT*	*BH-23 N+1*
22							*WC-2 (Waste Characterization)*				*6-6.5 FT*	*BH-23 N+1.5*
							Composite Fill				*6.5-7 FT*	*BH-23 N+2*
23												

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BORING LOG

Boring No.	**BH-24**
Sheet 1 of:	1
Project No.:	Q69.001.001
Surface Elev.:	
Datum:	GROUND SURFACE
Start Date:	1/29/2018
Finish Date:	1/29/2018
Inspector:	AS

Project Name:	Pierce Arrow BCP (RI)							
Location:	1695, 1721, and 1723 Elmwood Avenue							
Client:	Pierce Arrow, LLC							
Drilling Firm:	Trec Environmental, Inc.							
Groundwater	**Depth**	**Date & Time**	**Drill Rig:**	Geoprobe 6620D1				
While Drilling:			**Casing:**		**Rock Core:**		**Undist:**	
Before Casing Removal:			**Sampler:**		**Other:**	Near loading dock ramp		
After Casing Removal:			**Hammer:**					

(N -- No. of blows to drive sampler 12" w/140 lb. hammer falling 30" ASTM D-1586, Standard Penetration Test)

Depth (ft)	Sample No.	Symbol	Blows on Sampler per 6"	MATERIAL DESCRIPTION (c - coarse, m - medium, f - fine; a - and - 35-50%, s - some - 20-35%, l - little - 10-20%, t - trace - 0-10%; S - Sand, $ - Silt, G - Gravel, C - Clay, cly - clayey)			COMMENTS (e.g., N-value, recovery, relative moisture, core run, RQD, % recovered)
				0”-4”	***Asphalt***	ppm:	9:40 AM
1				4”-10”	***Gravel, Silty SAND***	0.1 ppm	22” recovered
				10”-17”	***Concrete, grey and white***	0.2 ppm	
2				17”-21”	***Brick, orange, red, and pink where moist***	0.2 ppm	No visual and no petro-like odors
3							
4							
				0”-4”	***Gravel, brick***	0.1 ppm	
5				4”-6”	***Concrete, gravel***	0.1 ppm	21” recovered
				6”-8”	***Brown, moist, SAND***	0.1 ppm	
6				8”-21”	***Brown to dark, soft, wet, Silty CLAY, no odors***	0.2 ppm	No visual and no petro-like odors
7							
8							
				0”-1”	***(Slug)***	0.1 ppm	
9				1”-48”	***Red-brown, dense, Silty CLAY***	0.1 ppm	48” recovered
						0.2 ppm	
10						0.2 ppm	No visual and no petro-like odors
11							
12							
				0”-12”	***Red-brown, dense to medium soft, moist, Silty CLAY***	0.2 ppm	
13						0.2 ppm	12” recovered
14							No visual and no petro-like odors
15							
16							
17					***END OF BORING AT 16 FT***		*Sample:*
							10:00 AM
18						*8-8.5 FT*	*BH-24 N PLUS CYN/HEX*
						8.5-9 FT	*BH-24 N+0.5*
19						*9-9.5 FT*	*BH-24 N+1*
						9.5-10 FT	*BH-24 N+1.5*
20						*10-10.5 FT*	*BH-24 N+2*
							BH-24-15 FT
21							
22							
23							

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BORING LOG

Boring No.	**BH-25**
Sheet 1 of:	1
Project No.:	Q69.001.001
Surface Elev.:	
Datum:	GROUND SURFACE
Start Date:	1/29/2018
Finish Date:	1/29/2018
Inspector:	AS

Project Name:	Pierce Arrow BCP (RI)
Location:	1695, 1721, and 1723 Elmwood Avenue
Client:	Pierce Arrow, LLC
Drilling Firm:	Trec Environmental, Inc.

Groundwater	Depth	Date & Time
While Drilling:		
Before Casing Removal:		
After Casing Removal:		

Drill Rig:	Geoprobe 6620D1		
Casing:		**Rock Core:**	**Undist:**
Sampler:		**Other:**	On loading dock ramp; newer fill because this area was built up later
Hammer:			

(N -- No. of blows to drive sampler 12" w/140 lb. hammer falling 30" ASTM D-1586, Standard Penetration Test)

c - coarse
m - medium
f - fine

a - and - 35-50%
s - some - 20-35%
l - little - 10-20%
t - trace - 0-10%

S - Sand, $ - Silt, G - Gravel, C - Clay, cly - clayey

Depth (ft)	Sample No.	Symbol	Blows on Sampler per 6"	MATERIAL DESCRIPTION			COMMENTS (e.g., N-value, recovery, relative moisture, core run, RQD, % recovered)
				0"-4"	***Asphalt, Gravel sub base***	ppm:	10:45 AM
1				4"-26"	***(FILL) SAND, blue-green material, concrete***	0.2 ppm	26" recovered
						0.2 ppm	
2						0.2 ppm	No visual and no petro-like odors
3							
4							
5							
6							
				REFUSAL AT 5.5 FT; IN VARIOUS LOCATIONS ON LOADING DOCK			
7							
8							
9							
10							
11							
12							
13							
14							
15							
16							
17							*Sample:*
							11:00 AM
18						*0.5-2 FT*	*BH-25 MS/MSD*
							No native sampling due to
19							*refusal in multiple attempts*
20							
21							
22							
23							

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BORING LOG

Boring No.	**G-10-E 8.5 FT**
Sheet 1 of:	1
Project No.:	Q69.001.001
Surface Elev.:	
Datum:	GROUND SURFACE
Start Date:	1/29/2018
Finish Date:	1/29/2018
Inspector:	AS

Project Name:	Pierce Arrow BCP (RI)							
Location:	1695, 1721, and 1723 Elmwood Avenue							
Client:	Pierce Arrow, LLC							
Drilling Firm:	Trec Environmental, Inc.							
Groundwater	**Depth**	**Date & Time**	**Drill Rig:**	Geoprobe 6620D1				
While Drilling:			**Casing:**		**Rock Core:**		**Undist:**	
Before Casing Removal:			**Sampler:**		**Other:**			
After Casing Removal:			**Hammer:**					

(N -- No. of blows to drive sampler 12" w/140 lb. hammer falling 30" ASTM D-1586, Standard Penetration Test)

Depth (ft)	Sample No.	Symbol	Blows on Sampler per 6"	MATERIAL DESCRIPTION (c - coarse, m - medium, f - fine; a - and - 35-50%, s - some - 20-35%, l - little - 10-20%, t - trace - 0-10%; S - Sand, $ - Silt, G - Gravel, C - Clay, cly - clayey)			COMMENTS (e.g., N-value, recovery, relative moisture, core run, RQD, % recovered)
				0”-4”	***Concrete***	ppm:	11:20 AM
1				4”-8”	***Sand, Gravel sub base***	0.2 ppm	32” recovered
				8”-15”	***Light brown, Silty SAND, coarse***	0.2 ppm	
2				15”-32”	***Brown, Silty CLAY, FILL at 28” to 32”***	0.2 ppm	No visual and no petro-like odors
3							
4							
				0”-5”	***Brown, soft, Silty CLAY, moist and wet***	0.2 ppm	
5				5”-46”	***Red-brown, dense, Silty CLAY***	0.2 ppm	46” recovered
						0.2 ppm	
6							No visual and no petro-like odors
7							
8							
				0”-4.5”	***(Slug)***	0.3 ppm	
9				4.5”-46”	***Red-brown, dense, Silty CLAY***	0.4 ppm	46” recovered
						0.3 ppm	
10							No visual and no petro-like odors
11							
12							
13					***END OF BORING AT 12 FT***		
14							
15							
16							
17							*Sample:*
							No Sample
18							
19							
20							
21							
22							
23							

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BORING LOG

Boring No.	**G-10-N 8FT**
Sheet 1 of:	1
Project No.:	Q69.001.001
Surface Elev.:	
Datum:	GROUND SURFACE
Start Date:	1/29/2018
Finish Date:	1/29/2018
Inspector:	AS

Project Name:	Pierce Arrow BCP (RI)
Location:	1695, 1721, and 1723 Elmwood Avenue
Client:	Pierce Arrow, LLC
Drilling Firm:	Trec Environmental, Inc.

Groundwater	Depth	Date & Time
While Drilling:		
Before Casing Removal:		
After Casing Removal:		

Drill Rig:	Geoprobe 6620D1		
Casing:		**Rock Core:**	**Undist:**
Sampler:		**Other:**	
Hammer:			

(N -- No. of blows to drive sampler 12" w/140 lb. hammer falling 30" ASTM D-1586, Standard Penetration Test)

c - coarse
m - medium
f - fine

a - and - 35-50%
s - some - 20-35%
l - little - 10-20%
t - trace - 0-10%

S - Sand, $ - Silt, G - Gravel, C - Clay, cly - clayey

Depth (ft)	Sample No.	Symbol	Blows on Sampler per 6"	MATERIAL DESCRIPTION	COMMENTS (e.g., N-value, recovery, relative moisture, core run, RQD, % recovered)
					12:31 PM
1				***Hit something which shot the boring sideways at 1 ft bgs;***	
				No Recovery	
2				***Moved southeast approximately 1 ft; hit open vault area***	
				along garage northern edge; Refusal at 3.5 ft; No Recovery	
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					*Sample:*
					No Sample
18					
19					
20					
21					

C&S COMPANIES	C&S Engineers, Inc. 141 Elm Street Buffalo, New York 14203 Phone: 716-847-1630 Fax: 716-847-1454 www.cscos.com	**BORING LOG**	**Boring No.** G-10-W 8.5FT

Project Name:	Pierce Arrow BCP (RI)	**Sheet 1 of:**	1
		Project No.:	Q69.001.001
Location:	1695, 1721, and 1723 Elmwood Avenue	**Surface Elev.:**	
Client:	Pierce Arrow, LLC	**Datum:**	GROUND SURFACE
Drilling Firm:	Trec Environmental, Inc.	**Start Date:**	1/29/2018
		Finish Date:	1/29/2018

Groundwater	Depth	Date & Time						
			Drill Rig:	Geoprobe 6620D1			**Inspector:**	AS
While Drilling:			**Casing:**		**Rock Core:**		**Undist:**	
Before Casing Removal:			**Sampler:**		**Other:**			
After Casing Removal:			**Hammer:**					

(N -- No. of blows to drive sampler 12" w/140 lb. hammer falling 30" ASTM D-1586, Standard Penetration Test)

c - coarse, m - medium, f - fine; a - and - 35-50%, s - some - 20-35%, l - little - 10-20%, t - trace - 0-10%; S - Sand, $ - Silt, G - Gravel, C - Clay, cly - clayey

Depth (ft)	Sample No.	Symbol	Blows on Sampler per 6"	MATERIAL DESCRIPTION		ppm	COMMENTS (e.g., N-value, recovery, relative moisture, core run, RQD, % recovered)
				0"-2"	***Concrete***	ppm:	12:50 PM
1				2"-5.5"	***Gravel sub base***	1.0 ppm	33" recovered
				5.5"-14"	***Light brown, SAND, coarse***	1.0 ppm	
2				14"-24"	***Brown, dense, Silty CLAY***	1.0 ppm	No visual and no petro-like odors
				24"-33"	***Red-brown, dense, Silty CLAY***		
3							
4							
				0"-46"	***Red-brown, dense, Silty CLAY***	1.0 ppm	
5						1.0 ppm	46" recovered
						1.0 ppm	
6							No visual and no petro-like odors
7							
8							
				0"-46"	***Red-brown, dense, Silty CLAY***	1.0 ppm	
9						1.0 ppm	46" recovered
						1.0 ppm	
10							No visual and no petro-like odors
11							
12							
13					***END OF BORING AT 12 FT***		
14							
15							
16							
17							*Sample:*
							No Sample
18							
19							
20							
21							
22							
46							
23							

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BORING LOG

Boring No.	**G-10-S 8FT**
Sheet 1 of:	1
Project No.:	Q69.001.001
Surface Elev.:	
Datum:	GROUND SURFACE
Start Date:	1/29/2018
Finish Date:	1/29/2018
Inspector:	AS

Project Name:	Pierce Arrow BCP (RI)							
Location:	1695, 1721, and 1723 Elmwood Avenue							
Client:	Pierce Arrow, LLC							
Drilling Firm:	Trec Environmental, Inc.							
Groundwater	**Depth**	**Date & Time**	**Drill Rig:**	Geoprobe 6620D1				
While Drilling:			**Casing:**		**Rock Core:**		**Undist:**	
Before Casing Removal:			**Sampler:**		**Other:**			
After Casing Removal:			**Hammer:**					

(N -- No. of blows to drive sampler 12" w/140 lb. hammer falling 30" ASTM D-1586, Standard Penetration Test)

Depth (ft)	Sample No.	Symbol	Blows on Sampler per 6"	MATERIAL DESCRIPTION (c - coarse, m - medium, f - fine; a - and - 35-50%, s - some - 20-35%, l - little - 10-20%, t - trace - 0-10%; S - Sand, $ - Silt, G - Gravel, C - Clay, cly - clayey)			COMMENTS (e.g., N-value, recovery, relative moisture, core run, RQD, % recovered)
				0”-4”	***Concrete***	ppm:	1:10 PM
1				4”-9”	***Gravel sub base, 1/4” diameter stones***	1.1 ppm	35” recovered
				9”-17”	***White SAND, embedded stone***	1.1 ppm	
2				17”-35”	***Brown, Silty CLAY, at 22” to 25” FILL comprised of sand,***	1.2 ppm	No visual and no petro-like odors
					brick, etc.	1.0 ppm	
3							
4							
				0”-6”	***Silty CLAY, gravel at 5” to 6”***	1.1 ppm	
5				6”-45.5”	***Red-brown, dense, Silty CLAY***	1.1 ppm	45.5” recovered
						1.1 ppm	
6							No visual and no petro-like odors
7							
8							
				0”-7”	***Silty CLAY, gravel and sand at 5” to 7”***	1.1 ppm	
9				7”-46”	***Red-brown, dense, Silty CLAY***	1.1 ppm	46” recovered
						1.1 ppm	
10						1.1 ppm	No visual and no petro-like odors
11							
12							
13					***END OF BORING AT 12 FT***		
14							
15							
16							
17							*Sample:*
							No Sample
18							
19							
20							
21							
22							
23							

C&S Engineers, Inc.	BORING LOG	Boring No.	G-10-N 6 FT
141 Elm Street Buffalo, New York 14203 Phone: 716-847-1630 Fax: 716-847-1454 www.cscos.com		Sheet 1 of:	1
		Project No.:	Q69.001.001

Project Name:	Pierce Arrow BCP (RI)	**Surface Elev.:**	
Location:	1695, 1721, and 1723 Elmwood Avenue	**Datum:**	GROUND SURFACE
Client:	Pierce Arrow, LLC	**Start Date:**	1/29/2018
Drilling Firm:	Trec Environmental, Inc.	**Finish Date:**	1/29/2018

Groundwater	Depth	Date & Time	Drill Rig:	Geoprobe 6620D1		Inspector:	AS
While Drilling:			Casing:		Rock Core:	Undist:	
Before Casing Removal:			Sampler:		Other:		
After Casing Removal:			Hammer:				

(N -- No. of blows to drive sampler 12" w/140 lb. hammer falling 30" ASTM D-1586, Standard Penetration Test)

Depth (ft)	Sample No.	Symbol	Blows on Sampler per 6"	c - coarse m - medium f - fine **MATERIAL DESCRIPTION** S - Sand, $ - Silt, G - Gravel, C - Clay, cly - clayey a - and - 35-50% s - some - 20-35% l - little - 10-20% t - trace - 0-10%		**COMMENTS** (e.g., N-value, recovery, relative moisture, core run, RQD, % recovered)
				0”-3”	***Concrete***	ppm:	1:25 PM
1				3”-6”	***Brown, Gravel sub base***	1.8 ppm	15” recovered
				6”-15”	***SAND, white, stone, blue-greens and grey discolorations***	2.3 ppm	
2						1.5 ppm	No visual and no petro-like odors
3							
4							
				0”-46”	***Red-brown, dense and medium soft to dense, Silty CLAY***	1.1 ppm	
5						1.1 ppm	46” recovered
						1.2 ppm	
6							No visual and no petro-like odors
7							
8							
				0”-6”	***(Slug) Silty CLAY, sand and gravel at 4” to 6”***	1.2 ppm	
9				6”-44”	***Red-brown, dense, Silty CLAY***	1.2 ppm	44” recovered
						1.2 ppm	
10							No visual and no petro-like odors
11							
12							
13					***END OF BORING AT 12 FT***		
14							
15							
16							
17							*Sample:*
							No Sample
18							
19							
20							
21							
22							
23							

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GROUNDWATER OBSERVATION WELL CONSTRUCTION LOG

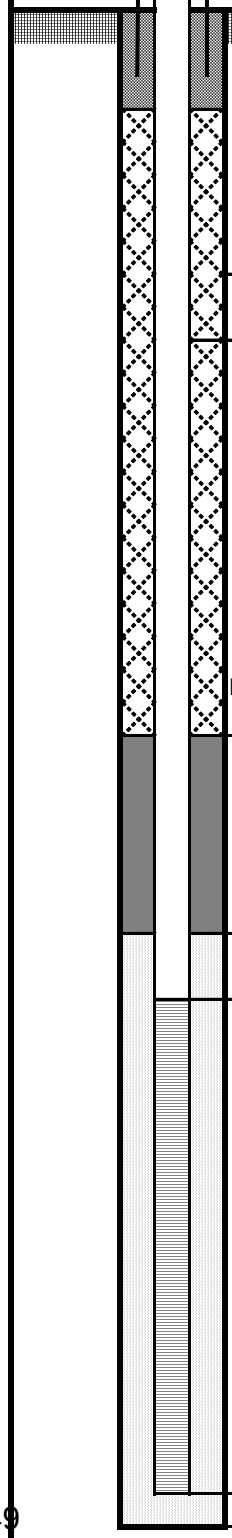
Well No.	**MW-1**
Project No.:	Q69.001.001
Surface Elev.:	
Datum:	GROUND SURFACE
Start Date:	1/31/18
Finish Date:	1/31/18
Inspector:	AS

Project Name:	Pierce Arrow BCP (RI)
Location:	1695, 1721, and 1723 Elmwood Avenue
Client:	Pierce Arrow, LLC
Drilling Firm:	Trec Environmental, Inc.

Drill Rig: Geoprobe 6620D1 **Casing:** PVC Pipe

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

Over boring hole on the curb near roadway west of the administration building.



N/A **Top Protective Casing**

N/A **Top of Riser**

FLUSH MOUNT COVER

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:

10 ft **Top of Seal**

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

13 ft **Top of Filter Pack**

15 ft **Top of Screen**

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

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

30 ft **Bottom of Screen**

30.3 ft **Bottom of Bore Hole**

Groundwater Measurement Data

Date	Time	Depth to Water	Water Elevation	Tide Status

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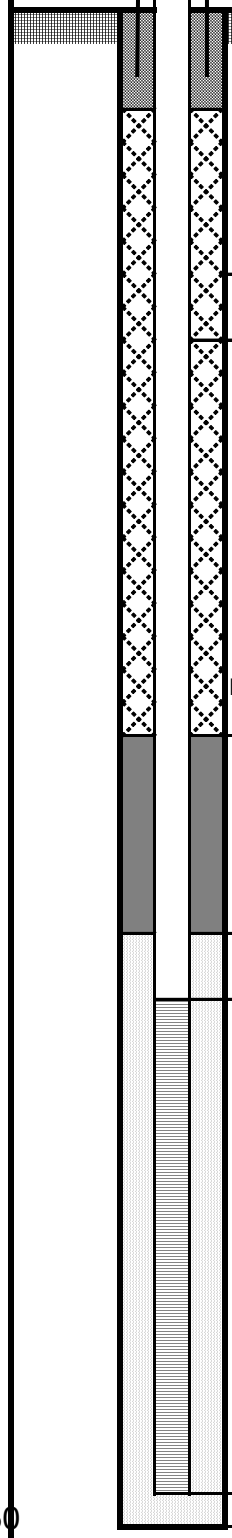
GROUNDWATER OBSERVATION WELL CONSTRUCTION LOG

Well No.	**MW-2**
Project No.:	Q69.001.001
Surface Elev.:	
Datum:	GROUND SURFACE
Start Date:	1/31/18
Finish Date:	1/31/18
Inspector:	AS

Project Name:	Pierce Arrow BCP (RI)		
Location:	1695, 1721, and 1723 Elmwood Avenue		
Client:	Pierce Arrow, LLC		
Drilling Firm:	Trec Environmental, Inc.	**Drill Rig:**	Geoprobe 6620D1
		Casing:	PVC Pipe

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

Well location south of area where tank was excavated.



N/A **Top Protective Casing**

N/A **Top of Riser**

FLUSH MOUNT COVER

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:

5 ft **Top of Seal**

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

8 ft **Top of Filter Pack**

10 ft **Top of Screen**

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

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

20 ft **Bottom of Screen**

20 ft **Bottom of Bore Hole**

Groundwater Measurement Data

Date	Time	Depth to Water	Water Elevation	Tide Status

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GROUNDWATER OBSERVATION WELL CONSTRUCTION LOG

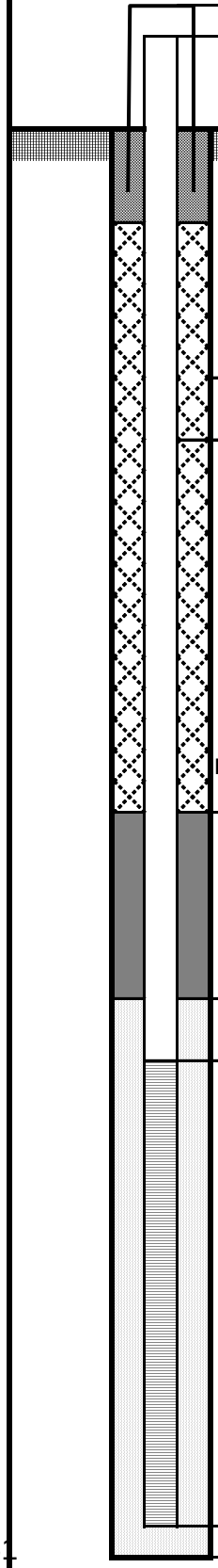
Well No.	**MW-3**
Project No.:	Q69.001.001
Surface Elev.:	
Datum:	GROUND SURFACE
Start Date:	2/1/18
Finish Date:	2/1/18
Inspector:	AS

Project Name:	Pierce Arrow BCP (RI)
Location:	1695, 1721, and 1723 Elmwood Avenue
Client:	Pierce Arrow, LLC
Drilling Firm:	Trec Environmental, Inc.

Drill Rig: Geoprobe 6620D1 **Casing:** PVC Pipe

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

Well location inside garage building because locations outside are too close to the gas line; concrete was broken up first before auger used to drill well.



N/A Top Protective Casing

N/A Top of Riser

FLUSH MOUNT COVER

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:

10 ft Top of Seal

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

13 ft Top of Filter Pack

15 ft Top of Screen

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

Filter Material
- [X] 00 Sand Pack — Seven bags of sand used
- [ ] 0 Sand Pack
- [ ] 1 Sand Pack
- [ ] 2 Sand Pack
- [ ] 3 Sand Pack
- [ ] 4 Sand Pack

25 ft Bottom of Screen

25 ft Bottom of Bore Hole

Groundwater Measurement Data

Date	Time	Depth to Water	Water Elevation	Tide Status

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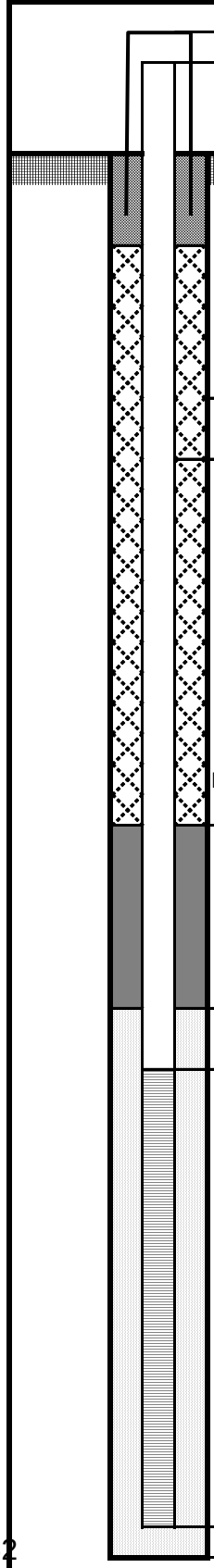
GROUNDWATER OBSERVATION WELL CONSTRUCTION LOG

		Well No.	
		Project No.:	Q69.001.001
		Surface Elev.:	
Project Name:	Pierce Arrow BCP (RI)	**Datum:**	GROUND SURFACE
Location:	1695, 1721, and 1723 Elmwood Avenue	**Start Date:**	2/1/18
Client:	Pierce Arrow, LLC	**Finish Date:**	2/1/18
Drilling Firm:	Trec Environmental, Inc.	**Inspector:**	AS
		Drill Rig: Geoprobe 6620D1	**Casing:** PVC Pipe

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

***1/30/18 - Well auger into location BH-3 start at 9:25 AM - hit gasline - National Fuel, 911, etc. called - Valves finally closed and gas shut off at 11:12 AM. Gasline excavated, repaired, and backfilled.**
***1/31/18 - Second attempt to install well. Hit concrete slab at 2.5 feet. After half-hour of attempted augering, no success. After various boring attempts near location north of gasline, moved to front of Administration Building after multiple refusal attempts.**
***2/1/18 - Additional auger and boring attempts toward northwest corner near BH-3 location. After concrete slab, refusal at approximately 3.5 feet and 4 feet (another concrete slab)**

UNABLE TO COMPLETE WELL



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

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

Bore Hole Diameter
Well Diameter

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

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

Depth To:
Top of Seal

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

Top of Filter Pack
Top of Screen

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

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

Bottom of Screen
Bottom of Bore Hole

Groundwater Measurement Data

Date	Time	Depth to Water	Water Elevation	Tide Status

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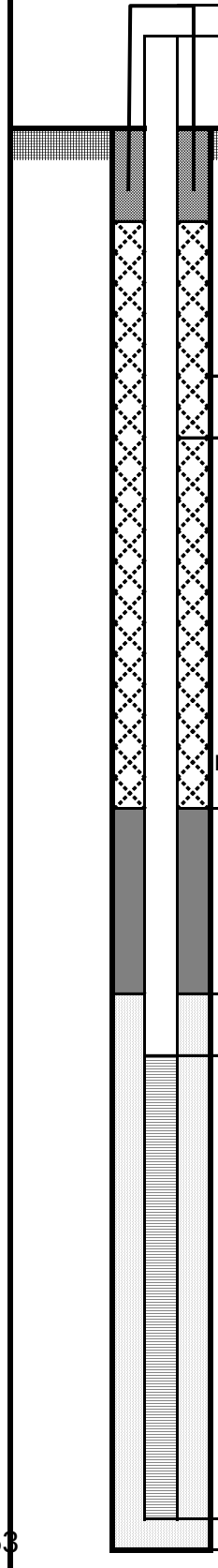
GROUNDWATER OBSERVATION WELL CONSTRUCTION LOG

Well No.	**MW-4**
Project No.:	Q69.001.001
Surface Elev.:	
Datum:	GROUND SURFACE
Start Date:	3/5/18
Finish Date:	3/5/18
Inspector:	AS

Project Name:	Pierce Arrow BCP (RI)		
Location:	1695, 1721, and 1723 Elmwood Avenue		
Client:	Pierce Arrow, LLC		
Drilling Firm:	Trec Environmental, Inc.	**Drill Rig:**	Geoprobe 6620D1
		Casing:	PVC Pipe

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

Weather: 25°F; partly-cloudy; Wind 5 MPH N **Soil: Red-brown, moist, sticky, Silty CLAY, no odors or visual, 0.0 ppm PID Reading** **Located behind garage building (northeasternmost corner)** **Originally planned to drill well inside building, but ended up doing it outside and therefore used flush-mount cover, eventhough steel stick-up casing would have been preferred for outside**



N/A **Top Protective Casing**

N/A **Top of Riser**

FLUSH MOUNT COVER

0'-0" **Ground Surface**

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

8.5" **Bore Hole Diameter**

2" **Well Diameter**

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

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

Depth To:

0 ft **Top of Seal**

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

12 ft **Top of Filter Pack**

15 ft **Top of Screen**

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

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

30 ft **Bottom of Screen**

30 ft **Bottom of Bore Hole**

Groundwater Measurement Data

Date	Time	Depth to Water	Water Elevation	Tide Status

10 bags of sand used, 4 bags of bentonite chips

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BORING LOG

Boring No.	**BH-24-15**
Sheet 1 of:	1
Project No.:	Q69.001.001
Surface Elev.:	
Datum:	GROUND SURFACE
Start Date:	3/5/2018
Finish Date:	3/5/2018
Inspector:	AS

Project Name:	Pierce Arrow BCP (RI)						
Location:	1695, 1721, and 1723 Elmwood Avenue						
Client:	Pierce Arrow, LLC						
Drilling Firm:	Trec Environmental, Inc.						
Groundwater	**Depth**	**Date & Time**	**Drill Rig:**	Geoprobe			
While Drilling:			**Casing:**		**Rock Core:**		**Undist:**
Before Casing Removal:			**Sampler:**		**Other:**	Near loading dock ramp; delineation for nickel;	
After Casing Removal:			**Hammer:**			original location of BH-24	

(N -- No. of blows to drive sampler 12" w/140 lb. hammer falling 30" ASTM D-1586, Standard Penetration Test)

Depth (ft)	Sample No.	Symbol	Blows on Sampler per 6"	MATERIAL DESCRIPTION (c - coarse, m - medium, f - fine; S - Sand, $ - Silt, G - Gravel, C - Clay, cly - clayey; a - and - 35-50%, s - some - 20-35%, l - little - 10-20%, t - trace - 0-10%)		COMMENTS (e.g., N-value, recovery, relative moisture, core run, RQD, % recovered)	
					ppm:	1:00 PM	
1				***See BH-24***			
2							
3							
4							
5				***See BH-24***			
6							
7							
8							
9				***See BH-24***			
10							
11							
12							
				0"-46" ***Red-brown, Silty CLAY, dense, moist***	0.0 ppm		
13					0.0 ppm	46" recovered	
					0.1 ppm		
14					0.1 ppm	No visual and no petro-like odors	
15	S						
	S+0.5						
16	S+1						
17				***END OF BORING AT 16 FT***		*Sample:*	
						1:30 PM	
18						*Analysis for Nickel*	
						BH-24-15	*@15 FT*
19					*HOLD*	*BH-24-15+0.5*	*@15.5 FT*
					HOLD	*BH-24-15+1*	*@16 FT*
20							
21							
22							
23							

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BORING LOG

Boring No.	**BH-24-W**
Sheet 1 of:	1
Project No.:	Q69.001.001
Surface Elev.:	
Datum:	GROUND SURFACE
Start Date:	3/5/2018
Finish Date:	3/5/2018
Inspector:	AS

Project Name:	Pierce Arrow BCP (RI)						
Location:	1695, 1721, and 1723 Elmwood Avenue						
Client:	Pierce Arrow, LLC						
Drilling Firm:	Trec Environmental, Inc.						
Groundwater	**Depth**	**Date & Time**	**Drill Rig:**	Geoprobe			
While Drilling:			**Casing:**		**Rock Core:**		**Undist:**
Before Casing Removal:			**Sampler:**		**Other:**	Near loading dock ramp; delineation for nickel;	
After Casing Removal:			**Hammer:**			located 10.75 FT west of BH-24-15	

(N -- No. of blows to drive sampler 12" w/140 lb. hammer falling 30" ASTM D-1586, Standard Penetration Test)

c - coarse, m - medium, f - fine
a - and - 35-50%, s - some - 20-35%, l - little - 10-20%, t - trace - 0-10%
S - Sand, $ - Silt, G - Gravel, C - Clay, cly - clayey

Depth (ft)	Sample No.	Symbol	Blows on Sampler per 6"	MATERIAL DESCRIPTION			COMMENTS (e.g., N-value, recovery, relative moisture, core run, RQD, % recovered)	
						ppm:	1:32 PM	
1				***No Recovery; piece of red brick***			Attempt#1 (12 FT west) had	
							refusal at 3.5 FT BGS due to	
2							concrete from building; moved	
							Attempt#2 (current log)	
3							No recovery	
							No visual and no petro-like odors	
4								
			0"-6"	***(FILL) Asphalt, blue/green rock, red brick, coarse sand***		0.0 ppm		
5			6"-18"	***Greyish brown, Silty CLAY, soft, moist***		0.2 ppm	32" recovered	
			18"-19"	***Grey, wood***		0.0 ppm		
6			19"-32"	***Red-brown, dense, Silty CLAY***		0.0 ppm	No visual and no petro-like odors	
7								
8								
			0"-3"	***Slug (FILL)***		0.0 ppm		
9			3"-46"	***Red-brown, dense, moist, Silty CLAY***		0.0 ppm	46" recovered	
						0.0 ppm		
10						0.0 ppm	No visual and no petro-like odors	
						0.0 ppm		
11								
12								
			0"-6"	***Grey, saturated, wet, Silty CLAY***		0.1 ppm		
13			6"-34"	***Red-brown, dense, moist, Silty CLAY***		0.0 ppm	34" recovered	
						0.1 ppm		
14						0.1 ppm	No visual and no petro-like odors	
15	S							
	S+0.5							
16	S+1							
17				***END OF BORING AT 16 FT***			*Sample:*	
							1:57 PM	
18							*Analysis for Nickel*	
							BH-24-W	*@15 FT*
19						*HOLD*	*BH-24-W+0.5*	*@15.5 FT*
						HOLD	*BH-24-W+1*	*@16 FT*
20								
21								
22								
23								

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BORING LOG

Boring No.	**BH-24-N**
Sheet 1 of:	1
Project No.:	Q69.001.001
Surface Elev.:	
Datum:	GROUND SURFACE
Start Date:	3/5/2018
Finish Date:	3/5/2018
Inspector:	AS

Project Name:	Pierce Arrow BCP (RI)
Location:	1695, 1721, and 1723 Elmwood Avenue
Client:	Pierce Arrow, LLC
Drilling Firm:	Trec Environmental, Inc.

Groundwater	Depth	Date & Time
While Drilling:		
Before Casing Removal:		
After Casing Removal:		

Drill Rig:	Geoprobe		
Casing:		**Rock Core:**	**Undist:**
Sampler:		**Other:**	Near loading dock ramp; delineation for nickel;
Hammer:			located 8.75 FT north of BH-24-15

(N -- No. of blows to drive sampler 12" w/140 lb. hammer falling 30" ASTM D-1586, Standard Penetration Test)

c - coarse
m - medium
f - fine

a - and - 35-50%
s - some - 20-35%
l - little - 10-20%
t - trace - 0-10%

S - Sand, $ - Silt, G - Gravel, C - Clay, cly - clayey

Depth (ft)	Sample No.	Symbol	Blows on Sampler per 6"	MATERIAL DESCRIPTION			COMMENTS (e.g., N-value, recovery, relative moisture, core run, RQD, % recovered)	
				0"-7"	***Asphalt, Gravel***	ppm:	1:57 PM	
1				7"-31"	***Red-brown, Sandy SILT/Clayey SILT, moist, rock at 12 to 13***	0.1 ppm	31" recovered	
					inches (1.5-inch long rock)	0.1 ppm		
2						0.1 ppm	No visual and no petro-like odors	
						0.1 ppm		
3								
4								
				0"-30"	***Red-brown, Clayey SILT, moist, soft***	0.1 ppm		
5				30"-36"	***Red-brown, Silty CLAY, saturated***	0.0 ppm	36" recovered	
						0.0 ppm		
6						0.2 ppm	No visual and no petro-like odors	
7								
8								
9					***NOT LOGGED***			
10								
11								
12								
				0"-17"	***Red-brown, Clayey SILT, saturated, wet***	0.1 ppm		
13				17"-48"	***Red-brown, dense, moist, Silty CLAY***	0.1 ppm	48" recovered	
						0.2 ppm		
14						0.1 ppm	No visual and no petro-like odors	
15	S							
	S+0.5							
16	S+1							
17					***END OF BORING AT 16 FT***		*Sample:*	
							2:24 PM	
18							*Analysis for Nickel*	
							BH-24-N	*@15 FT*
19						*HOLD*	*BH-24-N+0.5*	*@15.5 FT*
						HOLD	*BH-24-N+1*	*@16 FT*
20								
21								
22								
23								

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BORING LOG

Boring No.	**BH-24-E**
Sheet 1 of:	1
Project No.:	Q69.001.001
Surface Elev.:	
Datum:	GROUND SURFACE
Start Date:	3/5/2018
Finish Date:	3/5/2018
Inspector:	AS

Project Name:	Pierce Arrow BCP (RI)
Location:	1695, 1721, and 1723 Elmwood Avenue
Client:	Pierce Arrow, LLC
Drilling Firm:	Trec Environmental, Inc.

Groundwater	Depth	Date & Time
While Drilling:		
Before Casing Removal:		
After Casing Removal:		

Drill Rig:	Geoprobe		
Casing:		**Rock Core:**	**Undist:**
Sampler:		**Other:**	Near loading dock ramp; delineation for nickel; located 10 FT east of BH-24-15
Hammer:			

(N -- No. of blows to drive sampler 12" w/140 lb. hammer falling 30" ASTM D-1586, Standard Penetration Test)

c - coarse
m - medium
f - fine

a - and - 35-50%
s - some - 20-35%
l - little - 10-20%
t - trace - 0-10%

S - Sand, $ - Silt, G - Gravel, C - Clay, cly - clayey

Depth (ft)	Sample No.	Symbol	Blows on Sampler per 6"		MATERIAL DESCRIPTION		COMMENTS (e.g., N-value, recovery, relative moisture, core run, RQD, % recovered)
				0"-5"	***Asphalt, Gravel, concrete at 3 inches***	ppm:	2:24 PM
1				5"-15"	***(FILL) Red brick, pink from 14 to 15 inches where it was wet,***	0.2 ppm	Attempt#1 had refusal, moved
					coarse Sand, Gravel	0.2 ppm	Attempt#2 (current log)
2						0.1 ppm	15" recovered
							No visual and no petro-like odors
3							
4							
				0"-3"	***Red, brick***	0.2 ppm	
5				3"-5"	***Brown, Silty CLAY, coarse Sand, moist***	0.2 ppm	37" recovered
				5"-8"	***Concrete, grey and white stones***	0.2 ppm	
6				8"-32"	***Red-brown, soft, moist, Silty CLAY***	0.2 ppm	No visual and no petro-like odors
				32"-37"	***Red-brown, dense, Silty CLAY***		
7							
8							
				0"-19"	***(Slug) Gravel, red brick***	0.2 ppm	
9				19"-46"	***Red-brown, dense, moist, Silty CLAY***	0.2 ppm	46" recovered
						0.2 ppm	
10						0.2 ppm	No visual and no petro-like odors
11							
12							
				0"-11"	***(Slug) Red-brown, Silty CLAY, embedded brick, sand, gravel,***	0.2 ppm	
13					***yellow mottles, etc.***	0.2 ppm	44" recovered
				11"-44"	***Red-brown, dense, moist, Silty CLAY***	0.2 ppm	
14						0.2 ppm	No visual and no petro-like odors
15	S						
	S+0.5						
16	S+1						
17					***END OF BORING AT 16 FT***		*Sample:*
							3:03 PM
18							*Analysis for Nickel*
							BH-24-E *@15 FT*
19						*HOLD*	*BH-24-E+0.5* *@15.5 FT*
						HOLD	*BH-24-E+1* *@16 FT*
20							
21							
22							
23							

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BORING LOG

Boring No.	**BH-24-S**
Sheet 1 of:	1
Project No.:	Q69.001.001
Surface Elev.:	
Datum:	GROUND SURFACE
Start Date:	3/5/2018
Finish Date:	3/5/2018
Inspector:	AS

Project Name:	Pierce Arrow BCP (RI)
Location:	1695, 1721, and 1723 Elmwood Avenue
Client:	Pierce Arrow, LLC
Drilling Firm:	Trec Environmental, Inc.

Groundwater	Depth	Date & Time
While Drilling:		
Before Casing Removal:		
After Casing Removal:		

Drill Rig:	Geoprobe				
Casing:		**Rock Core:**		**Undist:**	
Sampler:		**Other:**	Near loading dock ramp; delineation for nickel;		
Hammer:			located 9.75 FT south of BH-24-15		

(N -- No. of blows to drive sampler 12" w/140 lb. hammer falling 30" ASTM D-1586, Standard Penetration Test)

Depth (ft)	Sample No.	Symbol	Blows on Sampler per 6"	MATERIAL DESCRIPTION (c - coarse, m - medium, f - fine; a - and - 35-50%, s - some - 20-35%, l - little - 10-20%, t - trace - 0-10%; S - Sand, $ - Silt, G - Gravel, C - Clay, cly - clayey)		COMMENTS (e.g., N-value, recovery, relative moisture, core run, RQD, % recovered)
				0"-3"	***Asphalt, Gravel, concrete at 3 inches***	ppm: 3:03 PM
1				3"-6"	***(FILL) Red brick, dark brown, Silty CLAY, moist***	0.3 ppm 6" recovered
						0.3 ppm
2						0.2 ppm No visual and no petro-like odors
3						
4						
				0"-2"	***(FILL)***	0.3 ppm
5				2"-4"	***Concrete, whoite and black stones, coarse Sand***	0.2 ppm 46" recovered
				4"-46"	***Red-brown, dense, moist, Silty CLAY***	0.2 ppm
6						0.3 ppm No visual and no petro-like odors
7						
8						
				0"-3"	***(FILL)***	0.2 ppm
9				3"-4"	***Red, brick***	0.2 ppm 46" recovered
				4"-46"	***Red-brown, moist, dense, Silty CLAY***	0.2 ppm
10						No visual and no petro-like odors
11						
12						
				0"-15"	***(Slug) (FILL) brick, red and orange, sand, gravel***	0.1 ppm
13				15"-46"	***Red-brown, dense, moist, Silty CLAY***	0.1 ppm 46" recovered
						0.1 ppm
14						No visual and no petro-like odors
15	S					
	S+0.5					
16	S+1					
17					***END OF BORING AT 16 FT***	*Sample:*
						3:40 PM
18						*Analysis for Nickel*
						BH-24-S @15 FT
19						*HOLD BH-24-S+0.5 @15.5 FT*
						HOLD BH-24-S+1 @16 FT
20						
21						
22						
23						

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GROUNDWATER OBSERVATION WELL CONSTRUCTION LOG

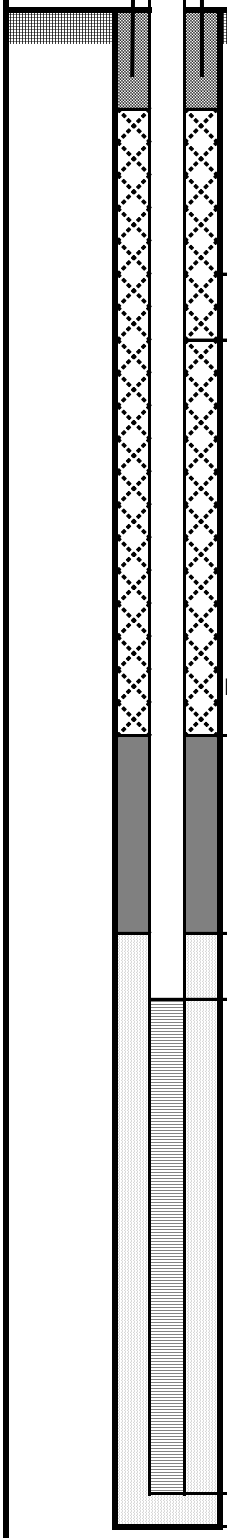
Well No.	**MW-1**
Project No.:	Q69.001.001
Surface Elev.:	
Datum:	GROUND SURFACE
Start Date:	1/31/18
Finish Date:	1/31/18
Inspector:	AS

Project Name:	Pierce Arrow BCP (RI)
Location:	1695, 1721, and 1723 Elmwood Avenue
Client:	Pierce Arrow, LLC
Drilling Firm:	Trec Environmental, Inc.

Drill Rig: Geoprobe 6620D1 **Casing:** PVC Pipe

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

Over boring hole on the curb near roadway west of the administration building.



N/A Top Protective Casing

N/A Top of Riser

FLUSH MOUNT COVER

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:

10 ft Top of Seal

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

13 ft Top of Filter Pack

15 ft Top of Screen

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

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

30 ft Bottom of Screen

30.3 ft Bottom of Bore Hole

Groundwater Measurement Data

Date	Time	Depth to Water	Water Elevation	Tide Status

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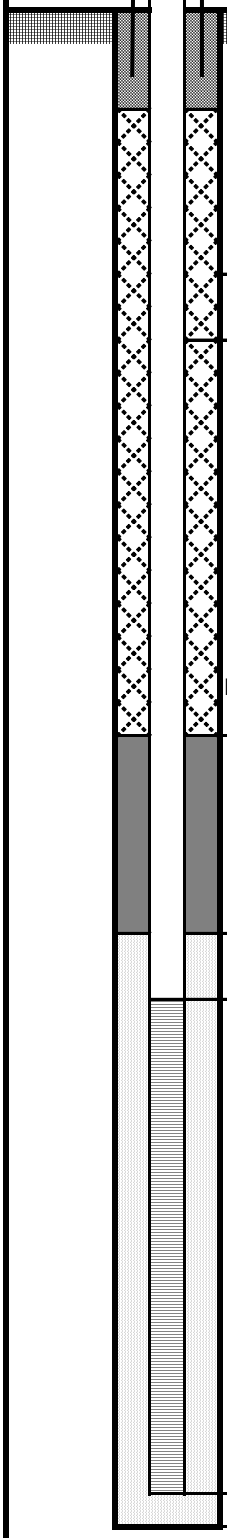
GROUNDWATER OBSERVATION WELL CONSTRUCTION LOG

Well No.	**MW-2**
Project No.:	Q69.001.001
Surface Elev.:	
Datum:	GROUND SURFACE
Start Date:	1/31/18
Finish Date:	1/31/18
Inspector:	AS

Project Name:	Pierce Arrow BCP (RI)		
Location:	1695, 1721, and 1723 Elmwood Avenue		
Client:	Pierce Arrow, LLC		
Drilling Firm:	Trec Environmental, Inc.	**Drill Rig:**	Geoprobe 6620D1
		Casing:	PVC Pipe

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

Well location south of area where tank was excavated.



N/A **Top Protective Casing**

N/A **Top of Riser**

FLUSH MOUNT COVER

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:

5 ft **Top of Seal**

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

8 ft **Top of Filter Pack**

10 ft **Top of Screen**

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

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

20 ft **Bottom of Screen**

20 ft **Bottom of Bore Hole**

Groundwater Measurement Data

Date	Time	Depth to Water	Water Elevation	Tide Status

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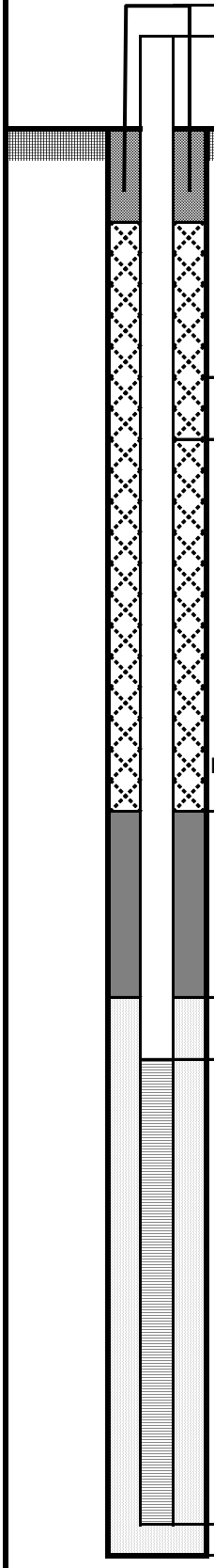
GROUNDWATER OBSERVATION WELL CONSTRUCTION LOG

Well No.	**MW-3**
Project No.:	Q69.001.001
Surface Elev.:	
Datum:	GROUND SURFACE
Start Date:	2/1/18
Finish Date:	2/1/18
Inspector:	AS

Project Name:	Pierce Arrow BCP (RI)		
Location:	1695, 1721, and 1723 Elmwood Avenue		
Client:	Pierce Arrow, LLC		
Drilling Firm:	Trec Environmental, Inc.	**Drill Rig:**	Geoprobe 6620D1
		Casing:	PVC Pipe

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

Well location inside garage building because locations outside are too close to the gas line; concrete was broken up first before auger used to drill well.



N/A **Top Protective Casing**

N/A **Top of Riser**

FLUSH MOUNT COVER

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:

10 ft **Top of Seal**

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

13 ft **Top of Filter Pack**

15 ft **Top of Screen**

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

Filter Material
- [X] 00 Sand Pack — Seven bags of sand used
- [ ] 0 Sand Pack
- [ ] 1 Sand Pack
- [ ] 2 Sand Pack
- [ ] 3 Sand Pack
- [ ] 4 Sand Pack

25 ft **Bottom of Screen**

25 ft **Bottom of Bore Hole**

Groundwater Measurement Data

Date	Time	Depth to Water	Water Elevation	Tide Status

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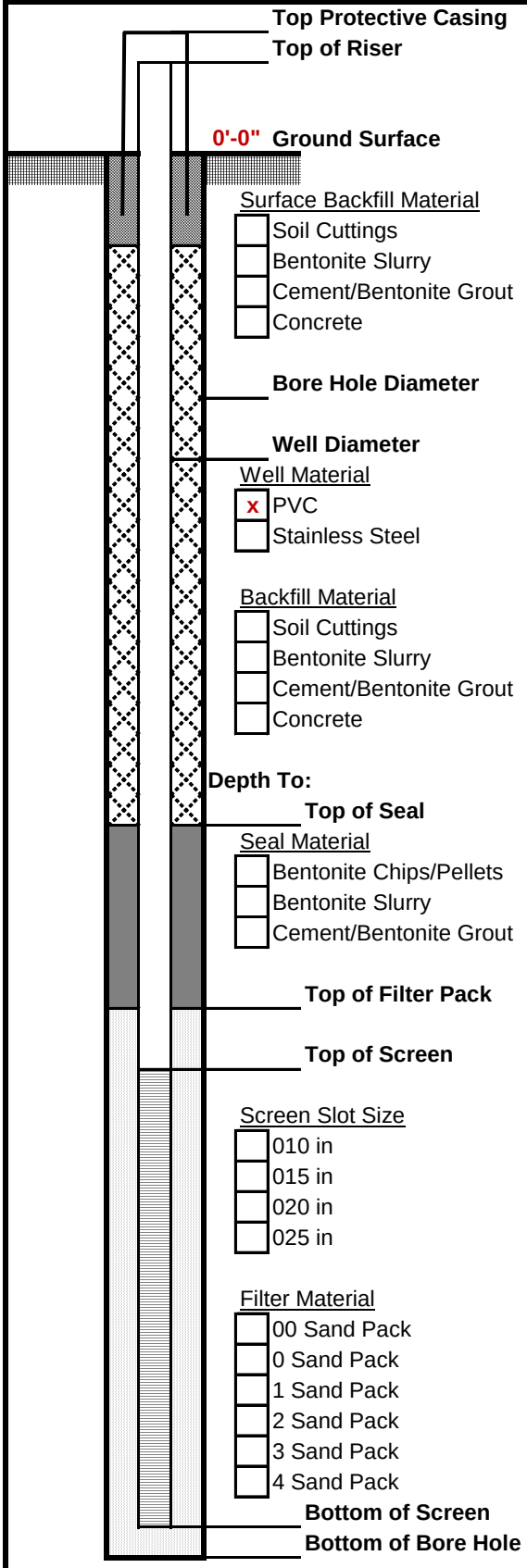
GROUNDWATER OBSERVATION WELL CONSTRUCTION LOG

		Well No.	
		Project No.:	Q69.001.001
		Surface Elev.:	
Project Name:	Pierce Arrow BCP (RI)	**Datum:**	GROUND SURFACE
Location:	1695, 1721, and 1723 Elmwood Avenue	**Start Date:**	2/1/18
Client:	Pierce Arrow, LLC	**Finish Date:**	2/1/18
Drilling Firm:	Trec Environmental, Inc.	**Inspector:**	AS
		Drill Rig: Geoprobe 6620D1	**Casing:** PVC Pipe

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

***1/30/18 - Well auger into location BH-3 start at 9:25 AM - hit gasline - National Fuel, 911, etc. called - Valves finally closed and gas shut off at 11:12 AM. Gasline excavated, repaired, and backfilled.**
***1/31/18 - Second attempt to install well. Hit concrete slab at 2.5 feet. After half-hour of attempted augering, no success. After various boring attempts near location north of gasline, moved to front of Administration Building after multiple refusal attempts.**
***2/1/18 - Additional auger and boring attempts toward northwest corner near BH-3 location. After concrete slab, refusal at approximately 3.5 feet and 4 feet (another concrete slab)**

UNABLE TO COMPLETE WELL



Groundwater Measurement Data

Date	Time	Depth to Water	Water Elevation	Tide Status

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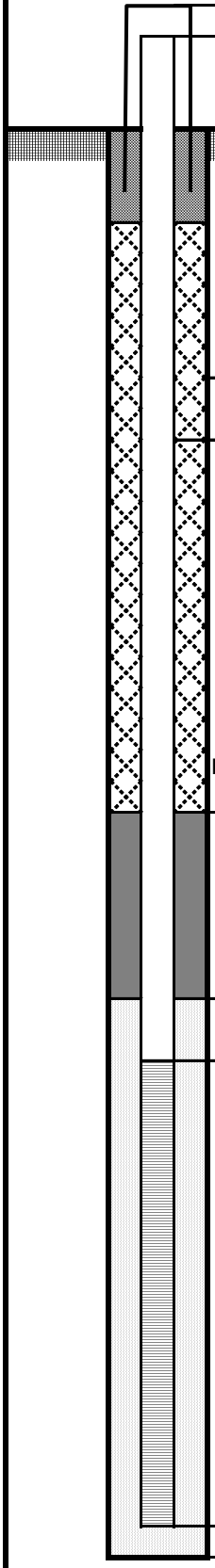
GROUNDWATER OBSERVATION WELL CONSTRUCTION LOG

Well No.	**MW-4**
Project No.:	Q69.001.001
Surface Elev.:	
Datum:	GROUND SURFACE
Start Date:	3/5/18
Finish Date:	3/5/18
Inspector:	AS
Project Name:	Pierce Arrow BCP (RI)
Location:	1695, 1721, and 1723 Elmwood Avenue
Client:	Pierce Arrow, LLC
Drilling Firm:	Trec Environmental, Inc.
Drill Rig:	Geoprobe 6620D1
Casing:	PVC Pipe

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

Weather: 25°F; partly-cloudy; Wind 5 MPH N **Soil: Red-brown, moist, sticky, Silty CLAY, no odors or visual, 0.0 ppm PID Reading** **Located behind garage building (northeasternmost corner)** **Originally planned to drill well inside building, but ended up doing it outside and therefore used flush-mount cover, eventhough steel stick-up casing would have been preferred for outside**



N/A **Top Protective Casing**

N/A **Top of Riser**

FLUSH MOUNT COVER

0'-0" **Ground Surface**

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

8.5" **Bore Hole Diameter**

2" **Well Diameter**

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

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

Depth To:

0 ft **Top of Seal**

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

12 ft **Top of Filter Pack**

15 ft **Top of Screen**

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

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

30 ft **Bottom of Screen**

30 ft **Bottom of Bore Hole**

Groundwater Measurement Data

Date	Time	Depth to Water	Water Elevation	Tide Status

10 bags of sand used, 4 bags of bentonite chips

APPENDIX D

EXCAVATION WORK PLAN

APPENDIX D – EXCAVATION WORK PLAN (EWP)

D-1 NOTIFICATION

At least 15 days prior to the start of any activity that is anticipated to encounter remaining contamination, the site owner or their representative will notify the NYSDEC. **Table 1** includes contact information for the above notification. The information on this table will be updated as necessary to provide accurate contact information. A full listing of site-related contact information is provided in **Appendix B**.

Table 1: Notifications*

Name	Contact Information
NYSDEC Project Manager Anthony Lopes	(716) 851-7220 Anthony.lopes@dec.ny.gov
NYSDEC Regional HW Engineer Chad Staniszewski	(716) 851-7220 Chad.staniszewski@dec.ny.gov
NYSDEC Site Control Bernadette Anderson	(518) 402-9543 bernadette.anderson@dec.ny.gov
NYSDOH Public Health Specialist Kristin Kulow	(518) 402-7860 kristin.kulow@health.ny.gov

* Note: Notifications are subject to change and will be updated as necessary.

This notification will include:

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

- A summary of environmental conditions anticipated to be encountered in the work areas, including the nature and concentration levels of contaminants of concern, potential presence of grossly contaminated media, and plans for any pre-construction sampling;
- A schedule for the work, detailing the start and completion of all intrusive work;
- A summary of the applicable components of this EWP;
- A statement that the work will be performed in compliance with this EWP and 29 CFR 1910.120;
- A copy of the contractor's health and safety plan (HASP), in electronic format, if it differs from the HASP provided in **Appendix E** of this SMP;
- Identification of disposal facilities for potential waste streams; and
- Identification of sources of any anticipated backfill, along with all required chemical testing results.

D-2 SOIL SCREENING METHODS

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

Soils will be segregated based on previous environmental data and screening results into material that requires off-site disposal 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. Further discussion of off-site disposal of materials and on-site reuse is provided in **Section D-6** of this Appendix.

D-3 SOIL STAGING METHODS

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

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

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

D-4 MATERIALS EXCAVATION AND LOAD-OUT

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

The owner of the property and remedial party (if applicable) and its contractors are responsible for safe execution of all invasive and other work performed under this Plan.

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

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

A truck wash will be operated on-site, 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 section are complete Truck wash waters will be collected and disposed of off-site in an appropriate manner.

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

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

D-5 MATERIALS TRANSPORT OFF-SITE

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

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

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

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

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

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

D-6 MATERIALS DISPOSAL OFF-SITE

All material excavated and removed from the site will be treated as contaminated and regulated material and will be transported and disposed in accordance with all local, State (including 6NYCRR Part 360) and Federal regulations. If disposal of material from this site is proposed for unregulated off-site disposal (i.e. clean soil removed for development purposes), a formal request with an associated plan will be made to the NYSDEC. Unregulated off-site management of materials from this site will not occur without formal NYSDEC approval.

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

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

D-7 MATERIALS REUSE ON-SITE

The qualified environmental professional will ensure that procedures defined for materials reuse in this SMP are followed and that unacceptable material does not remain on-site. Contaminated on-site material, including historic fill and contaminated soil, that is acceptable for reuse on-site will be placed below the demarcation layer or impervious

surface, and will not be reused within a cover soil layer, within landscaping berms, or as backfill for subsurface utility lines.

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

D-8 FLUIDS MANAGEMENT

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

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

D-9 COVER SYSTEM RESTORATION

After the completion of soil removal and any other invasive activities the cover system will be restored in a manner that complies with the Decision Document. The existing cover system is comprised of a pavement, concrete covered sidewalks and concrete building, etc. The demarcation layer, consisting of geotextile will be replaced to provide a visual reference to the top of the remaining contamination zone, the zone that requires adherence to special conditions for disturbance of remaining contaminated soils defined in this SMP. If the type of cover system changes from that which exists prior to the excavation (i.e., a soil cover is replaced by asphalt), this will constitute a modification of the cover element of the

remedy and the upper surface of the remaining contamination. A figure showing the modified surface will be included in the subsequent Periodic Review Report and in an updated SMP.

D-10 BACKFILL FROM OFF-SITE SOURCES

All materials proposed for import onto the site will be approved by the qualified environmental professional and will be in compliance with provisions in this SMP prior to receipt at the site. A Request to Import/Reuse Fill or Soil form, which can be found at http://www.dec.ny.gov/regulations/67386.html, will be prepared and submitted to the NYSDEC project manager allowing a minimum of 5 business days for review.

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

All imported soils will meet the backfill and cover soil quality standards established in 6NYCRR 375-6.7(d). Soils that meet 'exempt' fill requirements under 6 NYCRR Part 360, but do not meet backfill or cover soil objectives for this site, will not be imported onto the site without prior approval by NYSDEC. Solid waste will not be imported onto the site.

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

D-11 STORMWATER POLLUTION PREVENTION

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

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

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

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

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

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

D-12 EXCAVATION CONTINGENCY PLAN

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

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

Identification of unknown or unexpected contaminated media identified by screening during invasive site work will be promptly communicated by phone to NYSDEC's Project Manager. Reportable quantities of petroleum product will also be reported to the NYSDEC spills hotline. These findings will be also included in the Periodic Review Report.

D-13 COMMUNITY AIR MONITORING PLAN

Continuous air monitoring will be conducted at upwind and downwind locations during all ground intrusive activities as per DOH Generic CAMP (CAMP) included in **Appendix E.** A particulate monitor will be used at a downwind location on the perimeter of the Site. Another handheld detector was used in the excavation to ensure that the worker area was safe.

The action threshold for VOCs established in the CAMP is 5 ppm above background. If this value is exceeded for the 15-minute average work will be halted and work may resume once instantaneous readings fall below 5 ppm work. The action level for dust is 100 micrograms per cubic meter over background during a 15-minute average. If this limit is exceeded, dust suppression techniques will be employed, including using water to wet the area.

Special Requirements 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 must 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 should be considered to prevent exposures related to the work activities and to control dust and odors. Consideration should 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 should occur within the occupied structure(s). 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 mcg/m3, work activities should be suspended until controls are implemented and are successful in reducing the total particulate concentration to 150 mcg/m3 or less at the monitoring point.

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

D-15 DUST CONTROL PLAN

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

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

APPENDIX E

HEALTH AND SAFETY PLAN

Health and Safety Plan for Brownfield Site Investigation And Interim Remedial Measures

Pierce Arrow Site
1695, 1721, and 1723 Elmwood Avenue
(SBL 78.77-2-2,3 & 6)
Buffalo, Erie County, New York

Site No. C915308

Prepared by

C&S Engineers, Inc.
141 Elm Street, Suite 100
Buffalo, New York 14203

January 2017

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SECTION 1 – GENERAL INFORMATION

The Health and Safety Plan (HASP) described in this document will address health and safety considerations for all those activities that personnel employed by C&S Engineers, Inc., may be engaged in during site investigation and remediation work at the Campus Square Brownfield Site located on a portion of 1695, 1721, and 1723 Elmwood Avenue in Buffalo, Erie County, New York (Site). Figure 1 shows the approximate location of the Site in downtown Buffalo, New York. This HASP will be implemented by the Health and Safety Officer (HSO) during site work.

Compliance with this HASP is required of all 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.

Responsibilities

Project Manager…….	Mark Colmerauer Phone: (716) 847-1630 Cell: (716) 570-3457
Site Health and Safety Officer……..	Cody Martin Phone: (716) 847-1630 Cell: (716) 864-3752
Emergency Coordinator…….	Cody Martin Phone: (716) 847-1630 Cell: (716) 864-3752
Health and Safety Manager……	Cody Martin Phone: (716) 847-1630 Cell: (716) 864-3752

Emergency Phone Numbers

Emergency Medical Service.....911

Police: Buffalo Police Department (NYPD) 911

Hospital: Buffalo General Hospital.....(716) 859-5600

Fire: Buffalo Fire Department.....911

National Response Center .....(800) 424-8802

Poison Control Center .....(800) 222-1222
Center for Disease Control.....(800) 311-3435
NYSDEC Region 9 (Buffalo, New York) .....(716) 851-7220
C&S Engineers.....(716) 847-1630
Site Superintendent .....Bill Gannon (716) 517-0792

Project Field Office Trailer .....(716) 847-1630

SECTION 2 - HEALTH AND SAFETY PERSONNEL

2.0 Health and Safety Personnel Designations

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 all 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 Construction Manager (CM) Project Manager and Superintendent 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.
- Reports to the CM Project Manager and Superintendent to provide summaries of field operations and progress.
- 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 to the Health and Safety Manager by each Subcontractor as a Competent Person having, at a minimum, the OSHA 30-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 that 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 Construction Manager's Project Manager and Health and Safety Manager.

- Must report all work related injuries, regardless of severity, to the Construction Manager's 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 Campus Square, LLC., 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 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 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.

SECTION 3 - PERTINENT SITE INFORMATION

3.1 Site Location and General History

The Pierce Arrow Site is located in the City of Buffalo on Elmwood Avenue, at the intersection of Elmwood Avenue and Great Arrow Avenue, extending north to Conrail Railroad. The Site consists of three buildings from the former Pierce Arrow facility. The former Pierce Arrow Administrative Building located near the intersection of Elmwood Avenue and Great Arrow Avenue consists of a

three- to four-story commercial building. A small parking lot is located along Elmwood Avenue and a private driveway, accessed from Great Arrow Avenue, runs along the east side of the building. The Site also consists of two conjoined buildings north of the Administrative Building. These buildings were constructed as one-story brick and concrete slab-on-grade structures. A private driveway runs east to west in front of the buildings. Rail lines are located off-site to the immediate north of these buildings.

Figure 1 presents the Site's location.

Site History and Suspect Recognized Environmental Conditions

The land comprising the Site was historically divided into small, mostly residential lots that were consolidated in the early 1900s to facilitate the development of the Pierce-Arrow Motor Car Company.

The Pierce-Arrow Motor Car Company once built the world's most luxurious automobiles at the Site in Buffalo, New York. Pierce Arrow cars were manufactured on this facility from 1906 to 1938. The Site includes the former Administrative Building which was used primarily as office space and the two buildings along the rail line which were used to test engines. Ancillary uses within these buildings include aboveground and underground tanks for heating oil and gasoline storage, and coal storage. Since the closing of the Pierce Arrow facility, the Site has been used for commercial and industrial purposes. Past uses of the Site include the following:

- Tool and die manufacturing
- Cleaning compound manufacturing
- Garage, brazing and heat treatment
- Machine shop operations
- Dry cleaning
- Office space

Some remedial events were completed prior to Brownfield Cleanup Program sampling. On June 13, 2016, the NYSDEC was notified of an underground storage tank that was removed in November 2011 from the east side of the Administrative Building. The tank was removed and cut into pieces onsite. The tank size, contents, and removal of contaminated soil is unknown at this time, but is located in the NYSDEC as open spill number 1602559.

Based on recent investigation results, contaminated urban fill appears to have been deposited at the Site at some point in its history.

The Site soils generally consist of one to three feet of urban fill material. Consistent with urban fill, this urban fill contains SVOC and metal contamination, as shown in recent sampling. No discrete contamination layer was observed within the fill, and therefore, the extent of contamination within the fill material is difficult to identify due to its heterogeneous nature.

SECTION 4 - HAZARD ASSESSMENT AND HAZARD COMMUNICATION

Hazards to workers during a site work include typical construction-related hazards such as slip-trip-fall, equipment malfunction, faulty electrical grounding, and heat/cold/excessive noise exposure. In addition to those typical construction-related hazards, there is also the potential for chemical exposures associated with environmental conditions. The most likely routes of chemical exposure during site work tasks include skin adsorption and inhalation of airborne dust particles.

It is difficult to draw a correlation between the concentrations of contaminants found in one media and the potential for exposure to these contaminants to site workers. However, their potential presence indicates that the potential for exposure to these compounds exist, and the requirements for protective measures and monitoring of exposure is based on this potential.

SECTION 5 - TRAINING

5.1 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.

5.2 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.

SECTION 6 - ZONES

Four types of Site activity zones are identified for the Brownfield investigation activities, including the Exclusion Zone, Contamination Reduction Zone, Remediation Zone and the Support Zone. Prior to commencement of field work a further definition of where these zones will be set up will be established.

6.1 Exclusion Zone

The area where the unexpected condition is discovered would be considered the Exclusion Zone (EZ). All excavation and handling of contaminated materials generated as a result of the discovery of an unexpected condition would take place within the EZ. This zone will be clearly delineated by hay bales, jersey barriers, and/or similar methods. Safety tape may be used as secondary delineation within the EZ. The zone delineation markings may be opened in areas for varying lengths of time to accommodate equipment operation or specific construction activities. The Site Safety Manager/Director may establish more than one EZ where different levels of protection may be employed or where different hazards exist. Site Workers will not be allowed in the EZ without:

- A buddy (co-worker);
- Appropriate PPE in accordance with OSHA regulations;
- Medical authorization; and
- Training certification in accordance with 29 CFR 1910.120.

6.2 Contamination Reduction Zone

A Contamination Reduction Zone (CRZ) will be established between the EZ and the property limits. The CRZ contains the Contamination Reduction Corridor (CRC) and provides an area for decontamination of Site equipment. The CRZ will be used for general Site entry and egress, in

addition to access for heavy equipment and emergency support services. Site Workers will not be allowed in the CRZ without:

- A buddy (co-worker);
- Appropriate PPE in accordance with OSHA regulations;
- Medical authorization; and
- Training certification in accordance with 29 CFR 1910.120.

In addition, the CRZ will include a Site Worker Cleaning Area that will include a field wash station for Site Workers, equipment, and PPE to allow Site Workers to wash their hands, arms, neck, and face after exiting areas of grossly contaminated soil or hazardous materials. All Site Workers will be required to pass through the Site Worker Cleaning Area and wash their hands and remove any loose fill and soils from their clothing and boots prior to exiting the CRZ.

6.3 Remediation Zone

A Remediated Zone (RZ) will be established in portions of the Site where the remediation has been completed and only general construction work will be performed. Setup of the RZ will consist of implementing several measures designed to reduce the risk of workers' exposure and prevent non-trained workers from entering the non-remediated zone. Non-trained workers will work only in areas where the potential for exposure has been minimized by removal of all hazardous materials. The remediated zone will then be separated from the non-remediated zone by installing and maintaining temporary plywood or other construction fences along the boundary between the two zones. If potentially impacted material is uncovered in the RZ, all non-trained workers will be removed and the Site Safety Manager/Director will assess the potential risks. If, at any other time, the risk of exposure increases while non-trained workers are present in the RZ, the non-trained workers will be removed. At all times, when non- trained workers are present in the RZ, air monitoring for the presence of VOCs will be conducted in the RZ, as well as at the fence line of the non-remediated zone.

6.4 Support Zone

The Support Zone (SZ) will be an uncontaminated area that will be the field support area for the Site operations. The SZ will contain the temporary project trailers and provide for field team communications and staging for emergency response. Appropriate sanitary facilities and safety equipment will be located in this zone. Potentially contaminated equipment or materials are not allowed in this zone. The only exception will be appropriately packaged/decontaminated and labeled samples. Meteorological conditions will be observed and noted from this zone, as well as those factors pertinent to heat and cold.

SECTION 7 - PERSONAL PROTECTIVE EQUIPMENT

7.1 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.

7.2 Personal Protective Equipment – Site Specific

Level D with some modification will be required when working in the work zone on this Site. In addition to the basic work uniform specified by Level D protection, Nitrile gloves will be required when contact with soil or ground water is likely. Hearing protection will be worn when power equipment is used to perform subsurface investigation work. An upgrade to a higher level (Level C) of protection may occur if determined necessary by the HSO.

SECTION 8 - MONITORING PROCEDURES

8.1 Monitoring During Site Operations

All Site environmental monitoring should be accompanied by periodic meteorological monitoring of appropriate climatic conditions.

8.1.1 Drilling Operations (Monitoring Well Installation and Subsurface Borings) and Test Pit Excavations

Monitoring will be performed by the HSO or drilling observer during the conduct of work. A photoionization detector (PID) equipped with a 10.0 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.

8.1.2 Interim Remedial Measures

If future Interim Remedial Measures (IRM) occurs, monitoring will be performed during excavation and sampling operations when C&S personnel are within the work zone. Although historical information previously obtained at the Site indicates low level of volatile organic vapors and compounds, a photoionization detector (PID) will be used during subsurface activities. If an IRM is performed, the, the remedial contractor will be required to employ dust control practices during work.

8.2 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 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.

8.3 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.

SECTION 9 - COMMUNICATIONS

A phone will be located on Site to be utilized by personnel conducting investigation and IRM efforts. Cell phones will be the primary means of communicating with emergency support services/facilities.

SECTION 10 - SAFETY CONSIDERATIONS FOR SITE OPERATIONS

10.1 General

Standard safe work practices that will be followed include:

- Do not climb over/under drums, or other obstacles.
- Do not enter the work zone alone.
- Practice contamination avoidance, on and off-site.
- Plan activities ahead of time, use caution when conducting concurrently running activities.
- No eating, drinking, chewing or smoking is permitted in work zones.
- 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 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 health and safety officer.
- 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:
  - 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.

10.2 Field Operations

10.2.1 Intrusive 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.

10.2.2 Excavations and Excavation Trenching

Guidance relating to safe work practices for C&S employees regarding excavations and excavating/trenching operation is presented in Appendix A of this HASP.

SECTION 11 - DECONTAMINATION PROCEDURES

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 from the work zone.
- Avoid exposing unprotected personnel outside of the work zone to contaminants.

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.
- Do not enter a contaminated area unless it is necessary to carry out a specific objective.
- When in a contaminated area, avoid touching anything unnecessarily.
- Walk around pools of liquids, discolored areas, or any area that shows evidence of possible contamination.
- Walk upwind of contamination, if possible.
- Do not sit or lean against anything in a contaminated area. If you must kneel (e.g., to take samples), use a plastic ground sheet.
- If at all possible, do not set sampling equipment directly on contaminated areas. Place equipment on a protective cover such as a ground cloth.
- Use the proper tools necessary to safely conduct the work.

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.

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. Monitoring instruments may be wrapped in plastic bags prior to entering the field in order to reduce the potential for contamination. 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.

SECTION 12 – 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 will be managed consistent with the work plan for this Site and DER-10 Technical Guidance for Site Investigation and Remediation dated May 2010.

SECTION 13 - 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.

13.1 Emergency Coordinator

Emergency Coordinator: ..... Cody Martin .....Work Phone: (716) 847-1630

The Emergency Coordinator or his on-site designee will, in concert with Campus Square LLC, 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 as necessary, and

notification of emergency response units (refer to phone listing in the beginning of this HASP) and the appropriate management staff.

13.2 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.

13.3 Potential or 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.

13.4 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.

13.5 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. The directions to the hospital are shown in Section 1 of this HASP and a map is shown in Attachment A.

13.6 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.

13.7 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.

13.8 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.

SECTION 14 - COMMUNITY RELATIONS

14.1 Community Health and Safety Plan

14.1.1 Community Health and Safety Monitoring

As part of the site work, three general types of efforts are scheduled, including, non-intrusive reconnaissance tasks, sampling or monitoring tasks (monitoring point sampling), and intrusive tasks (test trenching, subsurface borings, monitoring well installation). During completion of general reconnaissance and sampling or monitoring tasks, potential for health and safety risks to off-site landowners or the local community are not anticipated.

During completion of intrusive efforts at or adjacent to the Site, health and safety monitoring efforts will be concentrated on the area or areas in which intrusive efforts are being completed. Since the air pathway is the most available and likely avenue for the release of potential contaminants to the atmosphere at or near the Site, in addition to limiting public or community

access to the areas in which intrusive efforts are completed, health and safety measures will primarily consist of monitoring the air pathway for worker exposure.

14.1.2 Community Air Monitoring Plan

Efforts will be taken to complete field work in a manner which will minimize the creation of airborne dust or particulates. Under dry conditions, work areas may be wetted to control dust. During periods of extreme wind, intrusive field work may be halted until such time as the potential for creating airborne dust or particulate matter as a result of investigation activities is limited. Periodic monitoring following the guidelines of the site's Community Air Monitoring Plan (see Appendix C of the IRM) will be implemented during all non-intrusive Site investigation activities, including surface soil and sediment sampling, and collection of groundwater samples from groundwater monitoring wells.

During completion of Site investigation, a community air monitoring plan meeting the requirements of the site's Community Air Monitoring Plan (see Appendix C of the IRM) will be implemented for the duration of intrusive activities. These additional air monitoring activities will include establishment of background conditions, continuous monitoring for volatile organic compounds and/or particulates at the downwind work area (exclusion zone) perimeter, recording of monitoring data, and institution and documentation of Response Levels and appropriate actions in accordance with NYSDOH guidance.

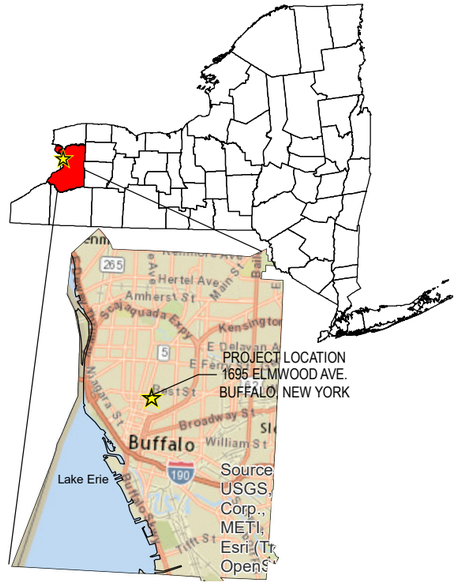
SECTION 15 - AUTHORIZATIONS

Personnel authorized to enter the Site while operations are being conducted must be approved by the HSO. Authorization will involve completion of appropriate training courses, medical examination requirements, and review and sign-off of this HASP. No C&S personnel should enter the work zone alone. Each site visitor should check in with the HSO or Project Manager prior to entering the work zones.

FIGURE 1

SITE LOCATION MAP

C&S ENGINEERS



LEGEND

BCP BOUNDARY

0 500 1,000 2,000 Feet

C&S COMPANIES®
C&S Engineers, Inc.
141 Elm Street
Buffalo, New York 14203
Phone: 716-847-1630
Fax: 716-847-1454
www.cscos.com

N

PIERCE ARROW BCP
WORK PLAN

BUFFALO, NEW YORK

MARK	DATE	DESCRIPTION

REVISIONS

PROJECT NO:	C69.001.001
DATE:	12/30/2016
DRAWN BY:	S.HERBERGER
DESIGNED BY:	S.HERBERGER
CHECKED BY:	DAN RIKER

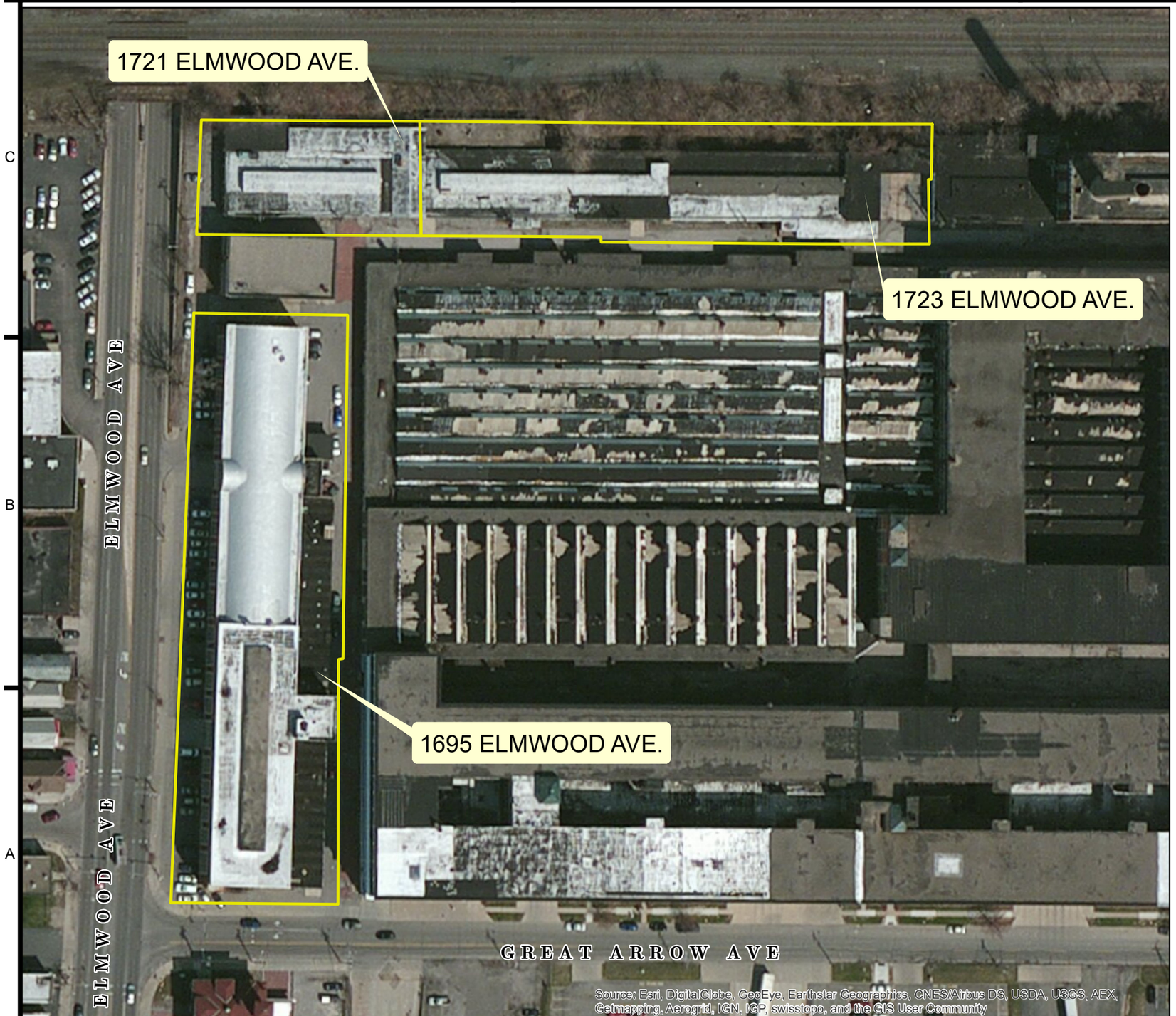
SITE LOCATION MAP

FIGURE 1

FIGURE 2

SITE AERIAL PHOTO

C&S ENGINEERS



LEGEND

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0 45 90 180 Feet

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DESIGNED BY:	S.HERBERGER
CHECKED BY:	DAN RIKER

SITE MAP

FIGURE 2

ATTACHMENT A

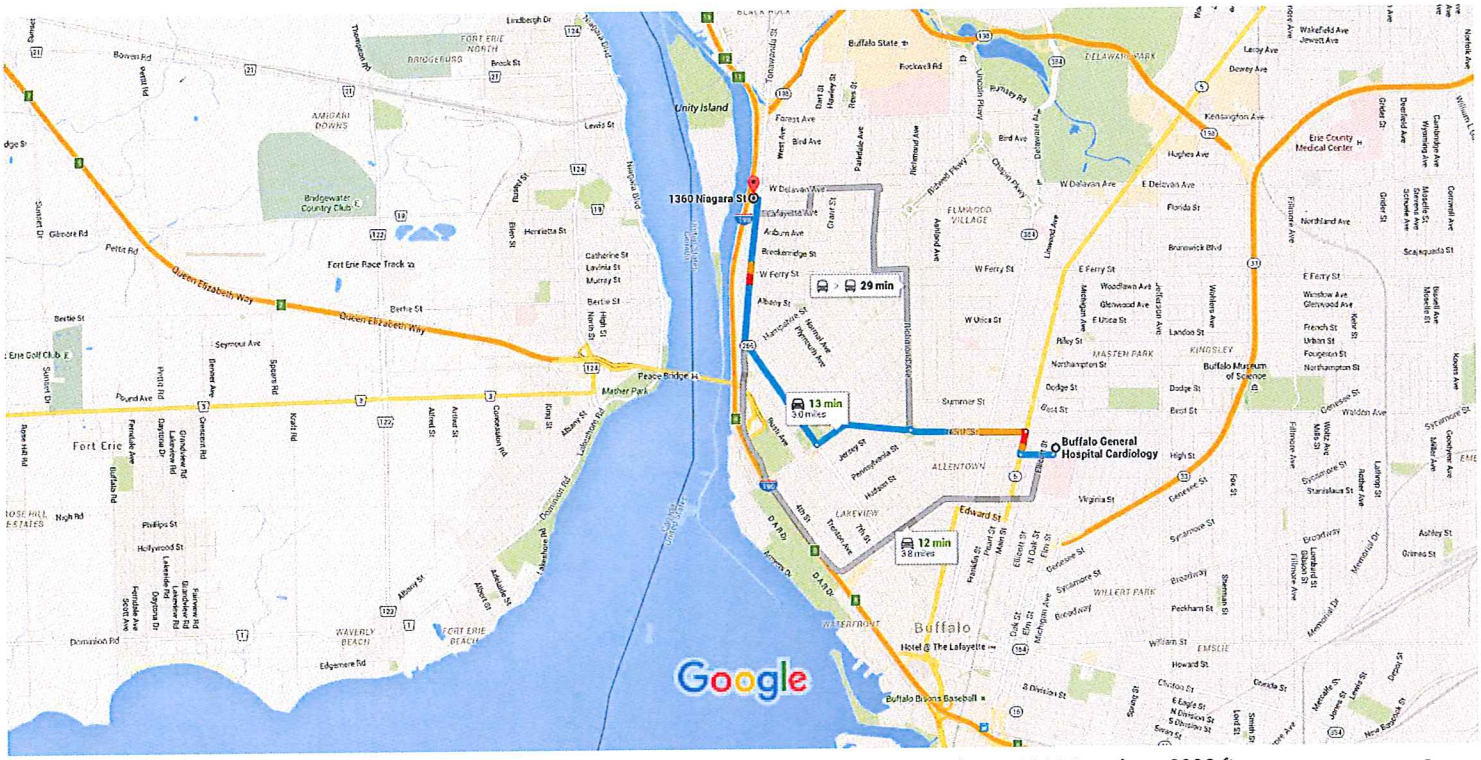
MAP TO HOSPITAL

C&S ENGINEERS

Google Maps

Buffalo General Hospital Cardiology to 1360 Niagara St, Buffalo, NY 14213

Drive 3.0 miles, 13 min



Map data ©2016 Google 2000 ft

Buffalo General Hospital Cardiology

100 High Street, Buffalo, NY 14203

1. Head west on High St toward Ellicott St — 0.2 mi
2. Turn right onto Main St — 0.1 mi
3. Turn left onto North St — 0.6 mi
4. At the traffic circle, continue straight onto Porter Ave — 0.6 mi
5. Turn right onto Niagara St
   Destination will be on the left — 1.5 mi

1360 Niagara St

Buffalo, NY 14213

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

Appendix A

EXCAVATION/TRENCHING GUIDELINE

C&S ENGINEERS

C&S ENGINEERS, INC. HEALTH & SAFETY GUIDELINE #14
EXCAVATION/TRENCHING OPERATIONS

TABLE OF CONTENTS

C&S ENGINEERS, INC.
EXCAVATION/TRENCHING OPERATIONS

1.0 PURPOSE

To establish safe operating procedures for excavation/trenching operations at C&S work sites.

2.0 SCOPE

Applies to all C&S activity where excavation or trenching operations take place.

3.0 DEFINITIONS

Excavation — Any manmade cavity or depression in the earth's surface, including its sides, walls, or faces, formed by earth removal and producing unsupported earth conditions by reasons of the excavation.

Trench — A narrow excavation made below the surface of the ground. In general, the depth is greater than the width, but the width of a trench is not greater than 15 feet.

4.0 RESPONSIBILITY EMPLOYEES

Employees — All employees must understand and follow the procedures outlined in this guideline during all excavation and trenching operations.

Health and Safety Coordinator/Officer (HSC/HSO) - The HSC/HSO is responsible for ensuring that these procedures are implemented at each work site.

5.0 GUIDELINES

5.1 Hazards Associated With Excavation/Trenching

The principal hazards associated with excavation/trenching are:

- Suffocation, crushing, or other injury from falling material.
- Damage/failure of installed underground services and consequent hazards.
- Tripping, slipping, or falling.
- Possibility of explosive, flammable, toxic, or oxygen-deficient atmosphere in excavation.

5.2 Procedures Prior to Excavation

1. Underground Utilities

   - Determine the presence and location of any underground chemical or utility pipes, electrical, telephone, or instrument wire or cables.
   - If the local DigSafely NY is unable to locate private/domestic or plant utilities, then an independent utility locating service must be contacted and mobilized to the site.
   - Identify the location of underground services by stakes, markers or paint.
   - Arrange to de-energize or isolate underground services during excavation. If not possible, or if location is not definite, method of excavation shall be established to minimize hazards by such means as:

     a) Use of hand tools in area of underground services.
     b) Insulating personnel and equipment from possible electrical contact.
     c) Use of tools or equipment that will reduce possibility of damage to underground services and hazard to worker.

2. Identify Excavation Area — Areas to be excavated shall be identified and segregated by means of barricades, ropes, and/or signs to prevent access of unauthorized personnel and equipment. Suitable means shall be provided to make barriers visible at all times.
3. Surface Water Provide means of diverting surface water from excavation.
4. Shoring/Bracing — Shoring or bracing that may be required for installed equipment adjacent to the excavation shall be designed by a competent person.
5. Structural Ramps — Structural ramps that are used solely by employees as a means of access to or egress from the excavation shall be designed by a competent person.

5.3 Procedures For Doing The Excavation

1. **Determine the need for shoring/sloping** — the type of soil will establish the need for shoring, slope of the excavation, support systems, and equipment to be used. The soil condition may change as the excavation proceeds. Appendices A, B, C, D, E, and F of the OSHA Excavation Regulation, 29 CFR 1926 Subpart P, are to be used in defining shoring and sloping requirements.

2. **Mobile equipment** — For safe use of mobile industrial equipment in or near the excavation, the load carrying capacity of soil shall be established and suitable protection against collapse of soil provided by the use of mats, barricades, restricting the location of equipment, or shoring.

3. Excavated material (spoil) shall be stored at least two (2) feet from the edge of the excavation.

4. All trench (vertical sides) excavations greater than five (5) feet deep shall be shored.

5. The excavation shall be inspected daily for changes in conditions, including the presence of ground water, change in soil condition, or effects of weather such as rain or freeze. A safe means of continuing the work shall be established based on changes in condition. Typically test trench excavations made as part of an environmental subsurface nvestigation are made and backfilled the same day.

6. Appropriate monitoring for gas, toxic, or flammable materials will be conducted to establish the need for respiratory equipment, ventilation, or other measures required to continue the excavation safely.

7. Adequate means of dewatering the excavation shall be provided by the contractor as required.

8. A signal person shall be provided to direct powered equipment if working in the excavation with other personnel.

9. A signal person shall be provided when backfilling excavations to direct powered equipment working in the excavation with other personnel.

10. Warning vests will be worn when employees are exposed to public vehicular traffic.

11. Employees shall stand away from vehicles being loaded or unloaded, and shall not be permitted underneath loads handled by lifting or dragging equipment.

12. Emergency rescue equipment, such as breathing apparatus, a safety harness and line, or a basket stretcher, shall be readily available if hazardous atmospheric conditions exist or may be expected to develop. The specifics will be determined by the HSC/HSM.

13. Walkways or bridges with standard guardrail shall be provided where employees or equipment are required or permitted to cross over excavations.

5.4 Entering the Excavation

No C&S Engineers, Inc., employee shall enter an excavation which fails to meet the requirements of Section 5.3 of this guideline.

6.0 REFERENCES

29 CFR 1926, Subpart P - Excavations

7.0 ATTACHMENTS

29 CFR 1926 Subpart P - Appendices A, B, F

• **Part Number:**	1926
• **Part Title:**	Safety and Health Regulations for Construction
• **Subpart:**	P
• **Subpart Title:**	Excavations
• **Standard Number:**	1926 Subpart P App A
• **Title:**	Soil Classification

(a) Scope and application - (1) Scope. This appendix describes a method of classifying soil and rock deposits based on site and environmental conditions, and on the structure and composition of the earth deposits. The appendix contains definitions, sets for requirements, and describes acceptable visual and manual tests for use in classifying soils.

(2) Application. This appendix applies when a sloping or benching system is designed in accordance with the requirements set fo 1926.652(b)(2) as a method of protection for employees from cave-ins. This appendix also applies when timber shoring for excav designed as a method of protection from cave-ins in accordance with appendix C to subpart P of part 1926, and when aluminum shoring is designed in accordance with appendix D. This Appendix also applies if other protective systems are designed and selec from data prepared in accordance with the requirements set forth in 1926.652(c), and the use of the data is predicated on the us classification system set forth in this appendix.

(b) Definitions. The definitions and examples given below are based on, in whole or in part, the following; American Society for T Materials (ASTM) Standards D653-85 and D2488; The Unified Soils Classification System; The U.S. Department of Agriculture (US Textural Classification Scheme; and The National Bureau of Standards Report BSS-121.

"Cemented soil" means a soil in which the particles are held together by a chemical agent, such as calcium carbonate, such that a hand-size sample cannot be crushed into powder or individual soil particles by finger pressure.

"Cohesive soil" means clay (fine grained soil), or soil with a high clay content, which has cohesive strength. Cohesive soil does not crumble, can be excavated with vertical sideslopes, and is plastic when moist. Cohesive soil is hard to break up when dry, and exhibits significant cohesion when submerged. Cohesive soils include clayey silt, sandy clay, silty clay, clay and organic clay.

"Dry soil" means soil that does not exhibit visible signs of moisture content.

"Fissured" means a soil material that has a tendency to break along definite planes of fracture with little resistance, or a material that exhibits open cracks, such as tension cracks, in an exposed surface.

"Granular soil" means gravel, sand, or silt (coarse grained soil) with little or no clay content. Granular soil has no cohesive strength. Some moist granular soils exhibit apparent cohesion. Granular soil cannot be molded when moist and crumbles easily when dry.

"Layered system" means two or more distinctly different soil or rock types arranged in layers. Micaceous seams or weakened planes in rock or shale are considered layered.

"Moist soil" means a condition in which a soil looks and feels damp. Moist cohesive soil can easily be shaped into a ball and rolled into small diameter threads before crumbling. Moist granular soil that contains some cohesive material will exhibit signs of cohesion between particles.

"Plastic" means a property of a soil which allows the soil to be

deformed or molded without cracking, or appreciable volume change.
"Saturated soil" means a soil in which the voids are filled with water. Saturation does not require flow. Saturation, or near saturation, is necessary for the proper use of instruments such as a pocket penetrometer or sheer vane.
"Soil classification system" means, for the purpose of this subpart, a method of categorizing soil and rock deposits in a hierarchy of Stable Rock, Type A, Type B, and Type C, in decreasing order of stability. The categories are determined based on an analysis of the properties and performance characteristics of the deposits and the characteristics of the deposits and the environmental conditions of exposure.
"Stable rock" means natural solid mineral matter that can be excavated with vertical sides and remain intact while exposed.
"Submerged soil" means soil which is underwater or is free seeping.
"Type A" means cohesive soils with an unconfined, compressive strength of 1.5 ton per square foot (tsf) (144 kPa) or greater. Examples of cohesive soils are: clay, silty clay, sandy clay, clay loam and, in some cases, silty clay loam and sandy clay loam. Cemented soils such as caliche and hardpan are also considered Type A. However, no soil is Type A if:
(i) The soil is fissured; or
(ii) The soil is subject to vibration from heavy traffic, pile driving, or similar effects; or
(iii) The soil has been previously disturbed; or
(iv) The soil is part of a sloped, layered system where the layers dip into the excavation on a slope of four horizontal to one vertical (4H:1V) or greater; or
(v) The material is subject to other factors that would require it to be classified as a less stable material.
"Type B" means:
(i) Cohesive soil with an unconfined compressive strength greater than 0.5 tsf (48 kPa) but less than 1.5 tsf (144 kPa); or
(ii) Granular cohesionless soils including: angular gravel (similar to crushed rock), silt, silt loam, sandy loam and, in some cases, silty clay loam and sandy clay loam.
(iii) Previously disturbed soils except those which would otherwise be classed as Type C soil.
(iv) Soil that meets the unconfined compressive strength or cementation requirements for Type A, but is fissured or subject to vibration; or
(v) Dry rock that is not stable; or
(vi) Material that is part of a sloped, layered system where the layers dip into the excavation on a slope less steep than four horizontal to one vertical (4H:1V), but only if the material would otherwise be classified as Type B.
"Type C" means:
(i) Cohesive soil with an unconfined compressive strength of 0.5 tsf (48 kPa) or less; or
(ii) Granular soils including gravel, sand, and loamy sand; or
(iii) Submerged soil or soil from which water is freely seeping; or
(iv) Submerged rock that is not stable, or
(v) Material in a sloped, layered system where the layers dip into the excavation or a slope of four horizontal to one vertical (4H:1V) or steeper.
"Unconfined compressive strength" means the load per unit area at which a soil will fail in compression. It can be determined by laboratory testing, or estimated in the field using a pocket penetrometer, by thumb penetration tests, and other methods.
"Wet soil" means soil that contains significantly more moisture than moist soil, but in such a range of values that cohesive material will slump or begin to flow when vibrated. Granular material that would exhibit cohesive properties when moist will lose those cohesive properties when wet.

(c) Requirements - (1) Classification of soil and rock deposits. Each soil and rock deposit shall be classified by a competent perso Rock, Type A, Type B, or Type C in accordance with the definitions set forth in paragraph (b) of this appendix.

(2) Basis of classification. The classification of the deposits shall be made based on the results of at least one visual and at least analysis. Such analyses shall be conducted by a competent person using tests described in paragraph (d) below, or in other reco methods of soil classification and testing such as those adopted by the American Society for Testing Materials, or the U.S. Depart Agriculture textural classification system.

(3) Visual and manual analyses. The visual and manual analyses, such as those noted as being acceptable in paragraph (d) of thi shall be designed and conducted to provide sufficient quantitative and qualitative information as may be necessary to identify prc properties, factors, and conditions affecting the classification of the deposits.

(4) Layered systems. In a layered system, the system shall be classified in accordance with its weakest layer. However, each laye classified individually where a more stable layer lies under a less stable layer.

(5) Reclassification. If, after classifying a deposit, the properties, factors, or conditions affecting its classification change in any w changes shall be evaluated by a competent person. The deposit shall be reclassified as necessary to reflect the changed circumst

(d) Acceptable visual and manual tests. - (1) Visual tests. Visual analysis is conducted to determine qualitative information regarc excavation site in general, the soil adjacent to the excavation, the soil forming the sides of the open excavation, and the soil take samples from excavated material.

(i) Observe samples of soil that are excavated and soil in the sides of the excavation. Estimate the range of particle sizes and the amounts of the particle sizes. Soil that is primarily composed of fine-grained material material is cohesive material. Soil composec of coarse-grained sand or gravel is granular material.

(ii) Observe soil as it is excavated. Soil that remains in clumps when excavated is cohesive. Soil that breaks up easily and does nc clumps is granular.

(iii) Observe the side of the opened excavation and the surface area adjacent to the excavation. Crack-like openings such as tens could indicate fissured material. If chunks of soil spall off a vertical side, the soil could be fissured. Small spalls are evidence of m ground and are indications of potentially hazardous situations.

(iv) Observe the area adjacent to the excavation and the excavation itself for evidence of existing utility and other underground s and to identify previously disturbed soil.

(v) Observed the opened side of the excavation to identify layered systems. Examine layered systems to identify if the layers slop the excavation. Estimate the degree of slope of the layers.

(vi) Observe the area adjacent to the excavation and the sides of the opened excavation for evidence of surface water, water see the sides of the excavation, or the location of the level of the water table.

(vii) Observe the area adjacent to the excavation and the area within the excavation for sources of vibration that may affect the s the excavation face.

(2) Manual tests. Manual analysis of soil samples is conducted to determine quantitative as well as qualitative properties of soil a provide more information in order to classify soil properly.

(i) Plasticity. Mold a moist or wet sample of soil into a ball and attempt to roll it into threads as thin as 1/8-inch in diameter. Cohe material can be successfully rolled into threads without crumbling. For example, if at least a two inch (50 mm) length of 1/8-inch be held on one end without tearing, the soil is cohesive.

(ii) Dry strength. If the soil is dry and crumbles on its own or with moderate pressure into individual grains or fine powder, it is g combination of gravel, sand, or silt). If the soil is dry and falls into clumps which break up into smaller clumps, but the smaller clu only be broken up with difficulty, it may be clay in any combination with gravel, sand or silt. If the dry soil breaks into clumps wh break up into small clumps and which can only be broken with difficulty, and there is no visual indication the soil is fissured, the s considered unfissured.

(iii) Thumb penetration. The thumb penetration test can be used to estimate the unconfined compressive strength of cohesive so test is based on the thumb penetration test described in American Society for Testing and Materials (ASTM) Standard designatior "Standard Recommended Practice for Description of Soils (Visual - Manual Procedure).") Type A soils with an unconfined compre strength of 1.5 tsf can be readily indented by the thumb; however, they can be penetrated by the thumb only with very great eff soils with an unconfined compressive strength of 0.5 tsf can be easily penetrated several inches by the thumb, and can be molde finger pressure. This test should be conducted on an undisturbed soil sample, such as a large clump of spoil, as soon as practicat excavation to keep to a minimum the effects of exposure to drying influences. If the excavation is later exposed to wetting influe flooding), the classification of the soil must be changed accordingly.

(iv) Other strength tests. Estimates of unconfined compressive strength of soils can also be obtained by use of a pocket penetron using a hand-operated shearvane.

(v) Drying test. The basic purpose of the drying test is to differentiate between cohesive material with fissures, unfissured cohesi and granular material. The procedure for the drying test involves drying a sample of soil that is approximately one inch thick (2.5 six inches (15.24 cm) in diameter until it is thoroughly dry:

(A) If the sample develops cracks as it dries, significant fissures are indicated.

(B) Samples that dry without cracking are to be broken by hand. If considerable force is necessary to break a sample, the soil ha cohesive material content. The soil can be classified as an unfissured cohesive material and the unconfined compressive strength determined.

(C) If a sample breaks easily by hand, it is either a fissured cohesive material or a granular material. To distinguish between the t pulverize the dried clumps of the sample by hand or by stepping on them. If the clumps do not pulverize easily, the material is cc fissures. If they pulverize easily into very small fragments, the material is granular.

Next Standard (1926 Subpart P App B)

Regulations (Standards - 29 CFR) - Table of Contents

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www.OSHA.gov

• **Part Number:**	1926
• **Part Title:**	Safety and Health Regulations for Construction
• **Subpart:**	P
• **Subpart Title:**	Excavations
• **Standard Number:**	1926 Subpart P App B
• **Title:**	Sloping and Benching

(a) ***Scope and application***. This appendix contains specifications for sloping and benching when used as methods of protecting working in excavations from cave-ins. The requirements of this appendix apply when the design of sloping and benching protectiv is to be performed in accordance with the requirements set forth in § 1926.652(b)(2).

(b) ***Definitions***.

Actual slope means the slope to which an excavation face is excavated.

Distress means that the soil is in a condition where a cave-in is imminent or is likely to occur. Distress is evidenced by such phen the development of fissures in the face of or adjacent to an open excavation; the subsidence of the edge of an excavation; the slu material from the face or the bulging or heaving of material from the bottom of an excavation; the spalling of material from the fa excavation; and ravelling, i.e., small amounts of material such as pebbles or little clumps of material suddenly separating from the excavation and trickling or rolling down into the excavation.

Maximum allowable slope means the steepest incline of an excavation face that is acceptable for the most favorable site condi protection against cave-ins, and is expressed as the ratio of horizontal distance to vertical rise (H:V).

Short term exposure means a period of time less than or equal to 24 hours that an excavation is open.

(c) ***Requirements*** -- (1) ***Soil classification***. Soil and rock deposits shall be classified in accordance with appendix A to subpart I 1926.

(2) ***Maximum allowable slope***. The maximum allowable slope for a soil or rock deposit shall be determined from Table B-1 of tl appendix.

(3) ***Actual slope***. (i) The actual slope shall not be steeper than the maximum allowable slope.

(ii) The actual slope shall be less steep than the maximum allowable slope, when there are signs of distress. If that situation occur slope shall be cut back to an actual slope which is at least ½ horizontal to one vertical (½H:1V) less steep than the maximum allo slope.

(iii) When surcharge loads from stored material or equipment, operating equipment, or traffic are present, a competent person sh determine the degree to which the actual slope must be reduced below the maximum allowable slope, and shall assure that such achieved. Surcharge loads from adjacent structures shall be evaluated in accordance with § 1926.651(i).

(4) ***Configurations***. Configurations of sloping and benching systems shall be in accordance with Figure B-1.

TABLE B-1
MAXIMUM ALLOWABLE SLOPES

SOIL OR ROCK TYPE	MAXIMUM ALLOWABLE SLOPES (H:V)(1) FOR EXCAVATIONS LESS THAN 20 FEET DEEP(3)
STABLE ROCK	VERTICAL (90°)
TYPE A (2)	3/4:1 (53°)
TYPE B	1:1 (45°)
TYPE C	1 ½:1 (34°)

Footnote(1) Numbers shown in parentheses next to maximum allowable slopes are angles expressed in degrees from the horizontal. Angle rounded off.

Footnote(2) A short-term maximum allowable slope of 1/2H:1V (63°) is allowed in excavations in Type A soil that are 12 feed (3.67 m) or l depth. Short-term maximum allowable slopes for excavations greater than 12 feet (3.67 m) in depth shall be 3/4H:1V (53°).

Footnote(3) Sloping or benching for excavations greater than 20 feet deep shall be designed by a registered professional engineer.

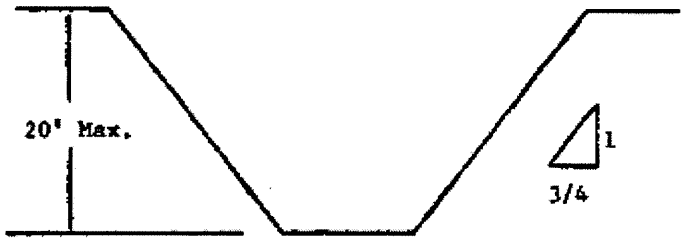
Figure B-1

Slope Configurations

(All slopes stated below are in the horizontal to vertical ratio)

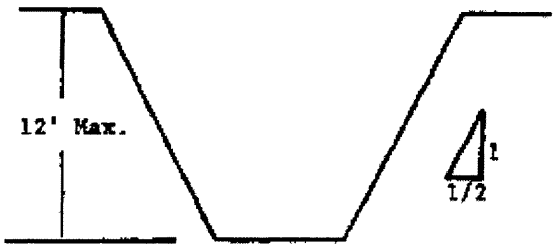
B-1.1 Excavations made in Type A soil.

1. All simple slope excavation 20 feet or less in depth shall have a maximum allowable slope of ¾:1.



SIMPLE SLOPE -- GENERAL

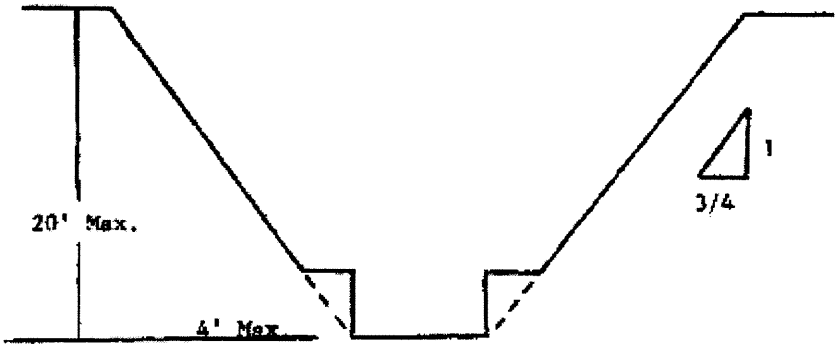
Exception: Simple slope excavations which are open 24 hours or less (short term) and which are 12 feet or less in depth shall have maximum allowable slope of ½:1.



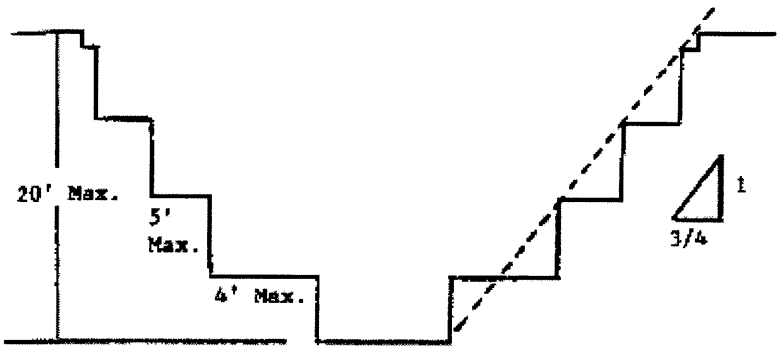
SIMPLE SLOPE -- SHORT TERM

2. All benched excavations 20 feet or less in depth shall have a maximum allowable slope of 3/4 to 1 and maximum bench dimens

follows:

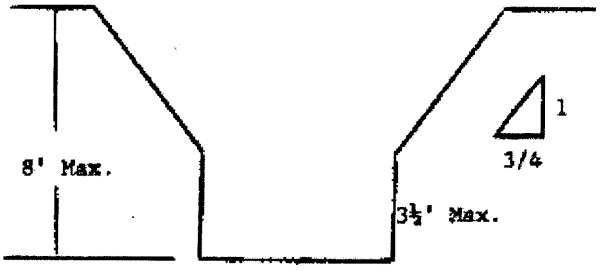


SIMPLE BENCH



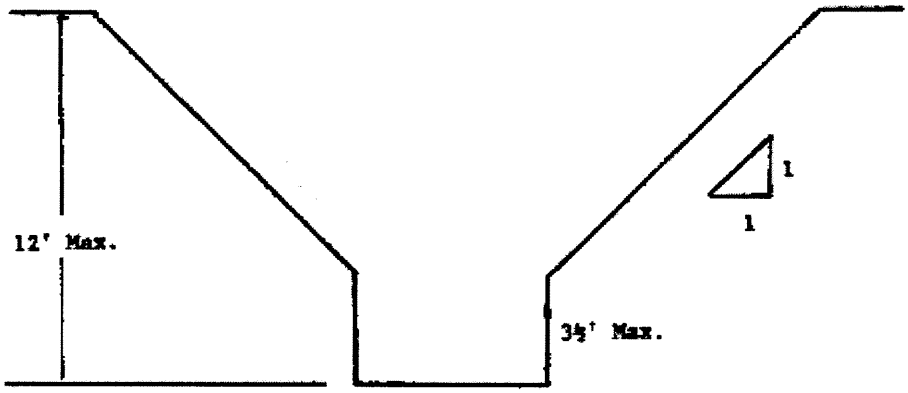
MULTIPLE BENCH

3. All excavations 8 feet or less in depth which have unsupported vertically sided lower portions shall have a maximum vertical sid feet.



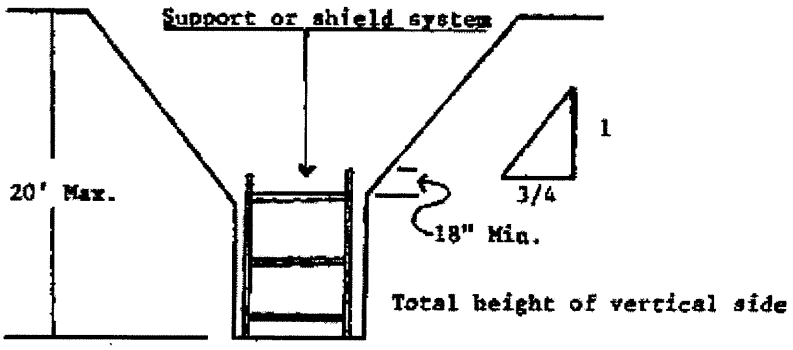
UNSUPPORTED VERTICALLY SIDED LOWER PORTION -- MAXIMUM 8 FEET IN DEPTH)

All excavations more than 8 feet but not more than 12 feet in depth with unsupported vertically sided lower portions shall have a r allowable slope of 1:1 and a maximum vertical side of 3½ feet.



UNSUPPORTED VERTICALLY SIDED LOWER PORTION -- MAXIMUM 12 FEET IN DEPTH)

All excavations 20 feet or less in depth which have vertically sided lower portions that are supported or shielded shall have a maxi allowable slope of ¾:1. The support or shield system must extend at least 18 inches above the top of the vertical side.

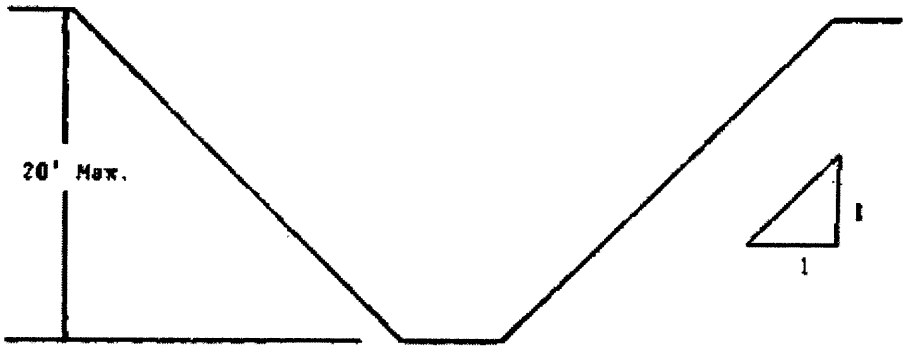


SUPPORTED OR SHIELDED VERTICALLY SIDED LOWER PORTION

4. All other simple slope, compound slope, and vertically sided lower portion excavations shall be in accordance with the other opt permitted under § 1926.652(b).

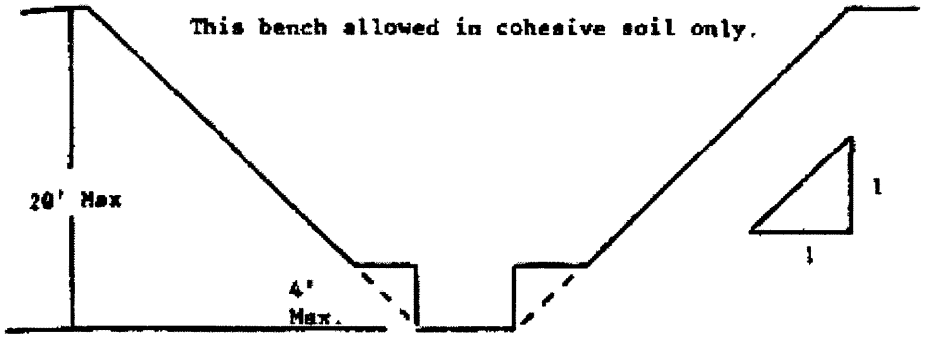
B-1.2 Excavations Made in Type B Soil

1. All simple slope excavations 20 feet or less in depth shall have a maximum allowable slope of 1:1.

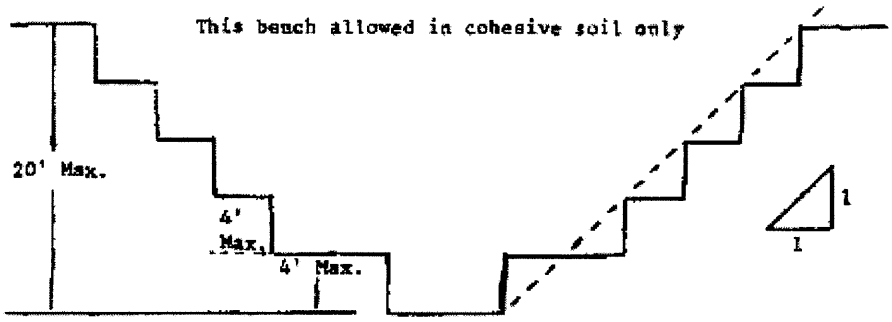


SIMPLE SLOPE

2. All benched excavations 20 feet or less in depth shall have a maximum allowable slope of 1:1 and maximum bench dimensions

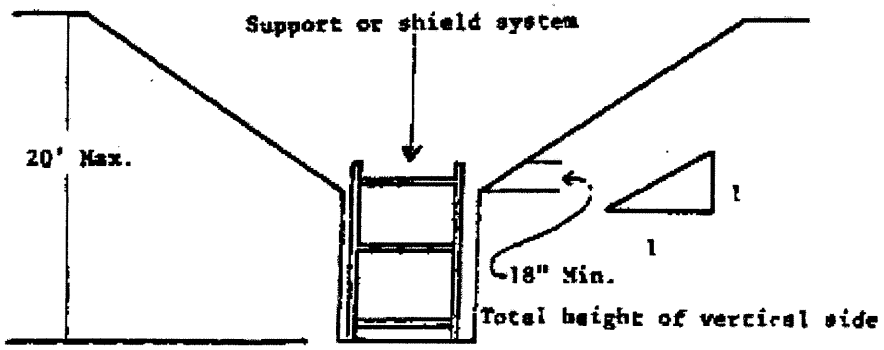


SINGLE BENCH



MULTIPLE BENCH

3. All excavations 20 feet or less in depth which have vertically sided lower portions shall be shielded or supported to a height at le inches above the top of the vertical side. All such excavations shall have a maximum allowable slope of 1:1.

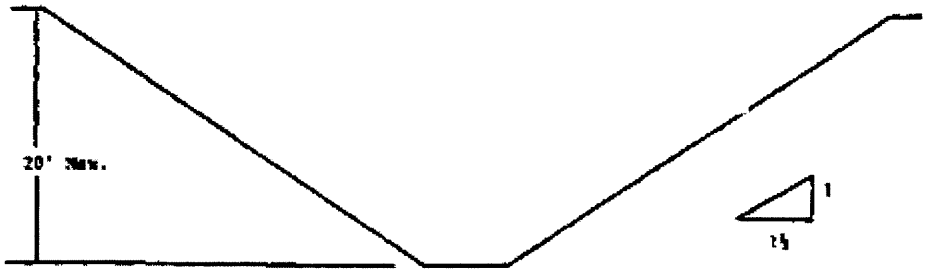


VERTICALLY SIDED LOWER PORTION

4. All other sloped excavations shall be in accordance with the other options permitted in § 1926.652(b).

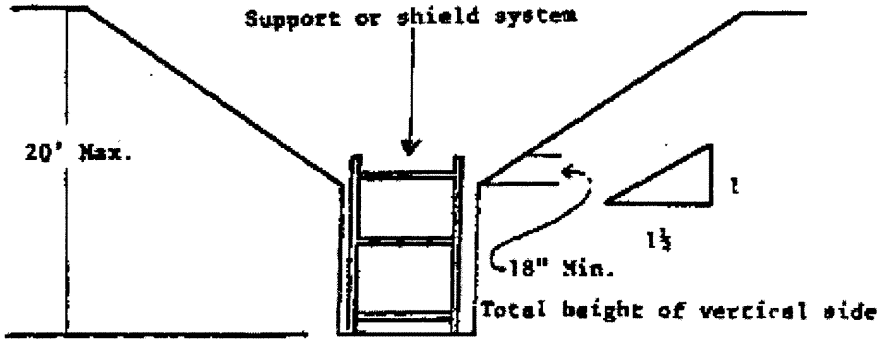
B-1.3 Excavations Made in Type C Soil

1. All simple slope excavations 20 feet or less in depth shall have a maximum allowable slope of 1½:1.



SIMPLE SLOPE

2. All excavations 20 feet or less in depth which have vertically sided lower portions shall be shielded or supported to a height at le inches above the top of the vertical side. All such excavations shall have a maximum allowable slope of 1½:1.

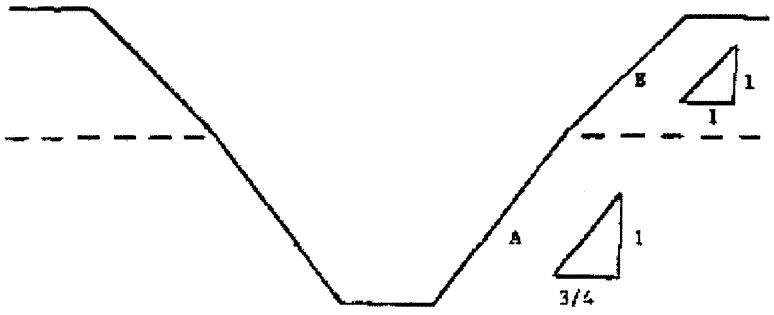


VERTICAL SIDED LOWER PORTION

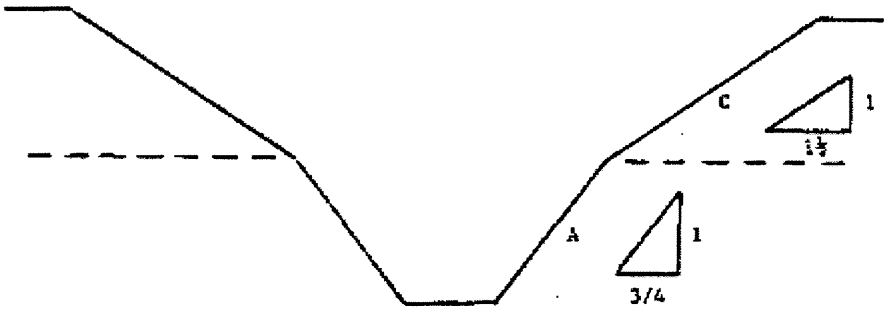
3. All other sloped excavations shall be in accordance with the other options permitted in § 1926.652(b).

B-1.4 Excavations Made in Layered Soils

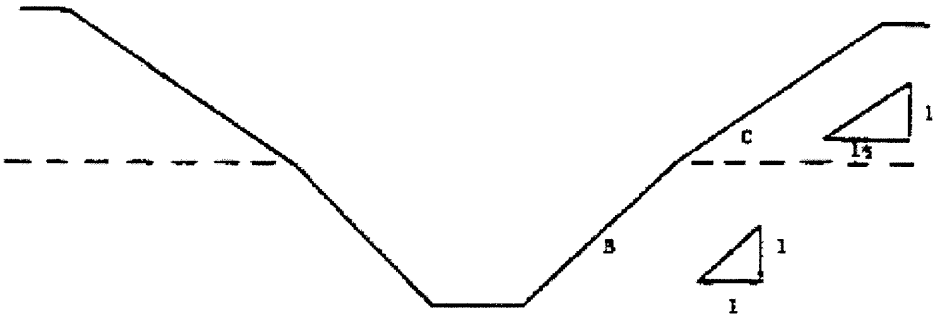
1. All excavations 20 feet or less in depth made in layered soils shall have a maximum allowable slope for each layer as set forth b



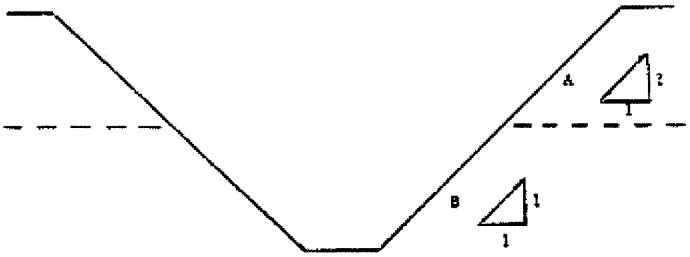
B OVER A



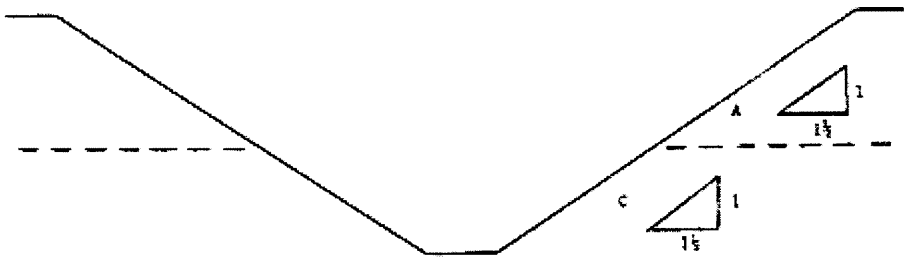
C OVER A



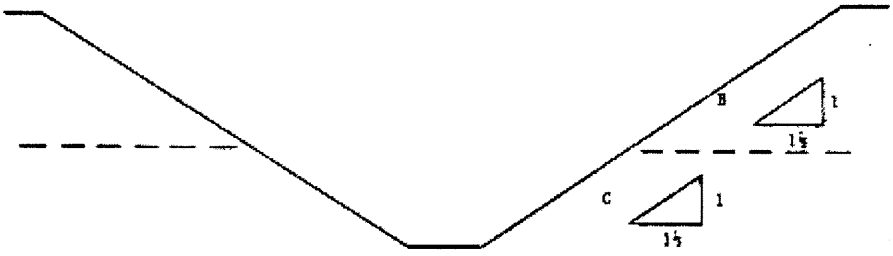
C OVER B



A OVER B



A OVER C



B OVER C

2. All other sloped excavations shall be in accordance with the other options permitted in § 1926.652(b).

Next Standard (1926 Subpart P App C)

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• **Part Number:**	1926
• **Part Title:**	Safety and Health Regulations for Construction
• **Subpart:**	P
• **Subpart Title:**	Excavations
• **Standard Number:**	1926 Subpart P App F
• **Title:**	Selection of Protective Systems

The following figures are a graphic summary of the requirements contained in subpart P for excavations 20 feet or less in depth. Prc systems for use in excavations more than 20 feet in depth must be designed by a registered professional engineer in accordance wit 1926.652(b) and (c).

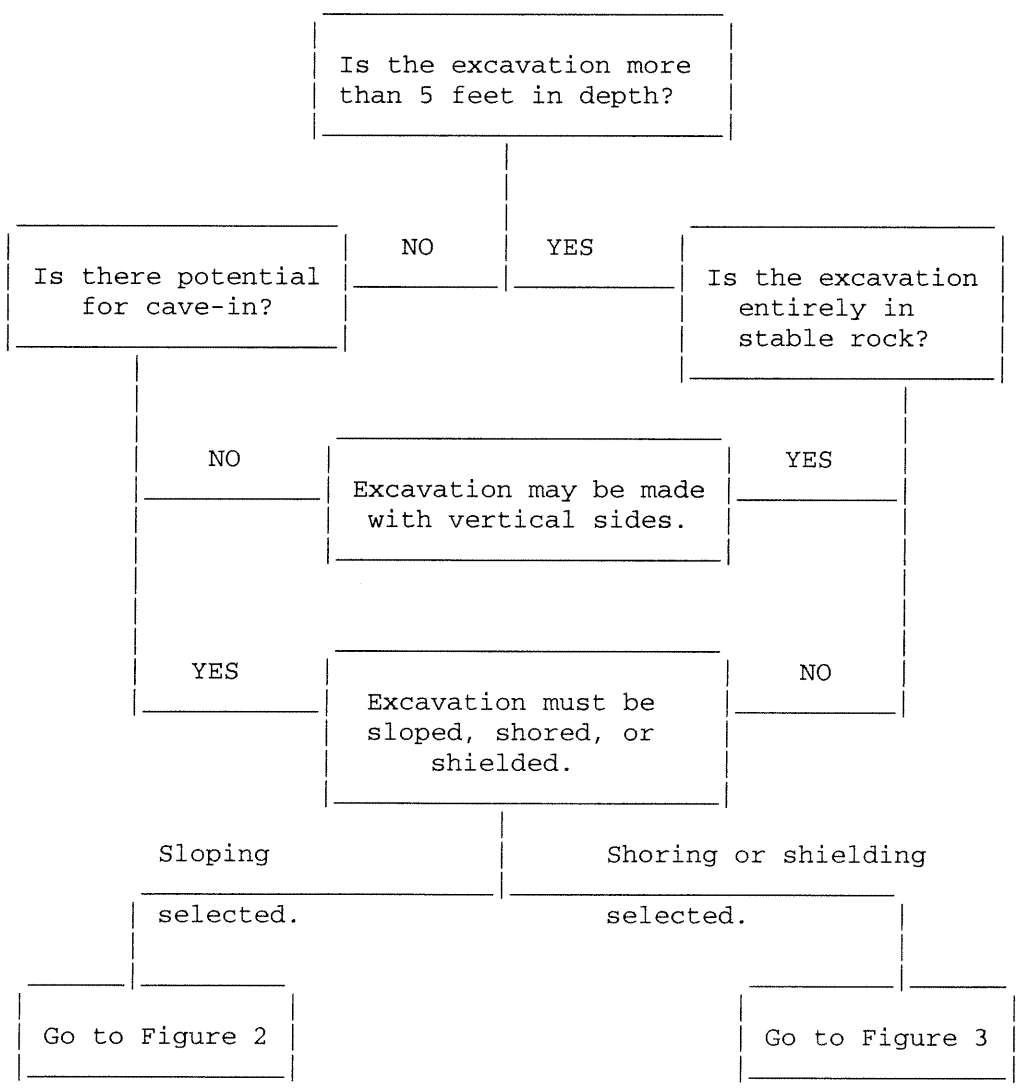

FIGURE 1 - PRELIMINARY DECISIONS

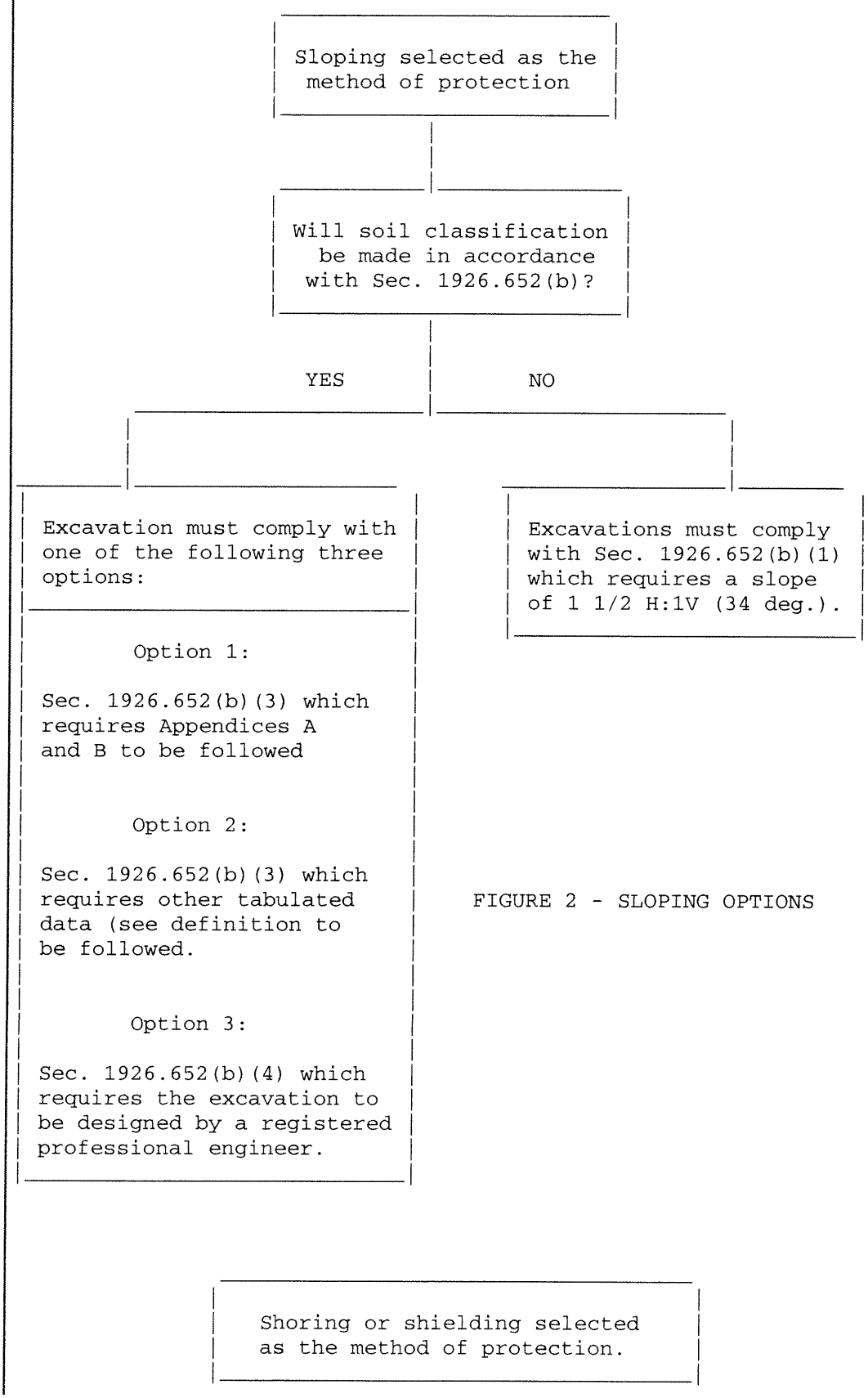

FIGURE 2 - SLOPING OPTIONS

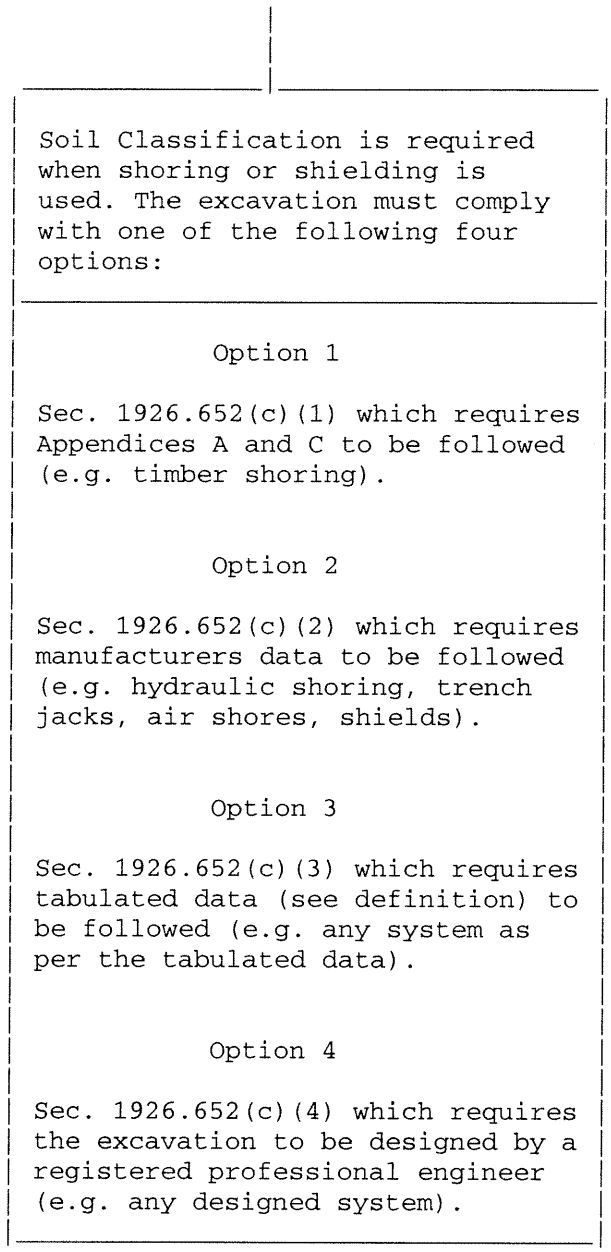

FIGURE 3 - SHORING AND SHIELDING OPTIONS

Next Standard (1926 Subpart Q)

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Appendix B

GUIDANCE ON INCIDENT INVESTIGATION

AND REPORTING

C&S ENGINEERS

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.

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. The project manager will ensure that the treatment facility is aware that this is a workers compensation case.
4. Will assist the Health and Safety Manager in the analysis of the incident.

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. 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.
3. The Health and Safety Manager will work with the owner/client as necessary to investigate the accident.
4. The Health & Safety manager will ensure that the site is safe to resume work.
5. 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.
6. The Health and Safety manager, upon completion of the investigation, will provide the Project Manager with a written investigative report (copy to the President)
7. The accident will be reviewed at the next Project Managers meeting with the intent to prevent further or similar events on other projects.
8. 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.

Incident Response

1.0 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.

2.0 SCOPE

Applies to all incidents related to C&S Engineers, Inc. work activities.

3.0 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.

4.0 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.

5.0 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.

5.5.1 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.

5.6 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.

5.7 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.

6.0 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

Date _____

Foreman: _____

INCIDENT FOLLOW-UP REPORT

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

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 is defined as 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) They must be treated only by a physician or licensed medical personnel.

b) They impair bodily function (i.e. normal use of senses, limbs, etc.).

c) They result in damage to physical structure of a non superficial nature (fractures).

d) They involve complications requiring follow up medical treatment.

Community Air Monitoring Plan

for

Pierce Arrow Site
1695, 1721, and 1723 Elmwood Avenue (SBL 78.77-2-2,3 & 6)
Buffalo, Erie County, New York

Site No. C915308

November 2019

Community Air Monitoring Plan

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.

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

Continuous monitoring will be required for all ground intrusive activities 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.

<u>VOC Monitoring, Response Levels and Actions</u>

Volatile organic compounds (VOCs) must be monitored at the downwind perimeter of the immediate work area (i.e., the exclusion zone) on a continuous basis or as otherwise specified. Upwind concentrations should be measured at the start of each workday and periodically thereafter to establish background conditions, particularly if wind direction changes. The monitoring work should be performed using equipment appropriate to measure the types of contaminants known or suspected to be present. The equipment should be calibrated at least daily for the contaminant(s) of concern or for an appropriate

surrogate, such as isobutylene. The equipment should be capable of calculating 15-minute running average concentrations, which will be compared to the levels specified below.

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.

Particulate Monitoring, Response Levels, and Actions

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

1. If the downwind PM-10 particulate level is 100 micrograms per cubic meter (mcg/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 mcg/m^3 above 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 mcg/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 mcg/m3 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.

Fugitive Dust and Particulate Monitoring

A program for suppressing fugitive dust and particulate matter monitoring at hazardous waste sites is a responsibility on the remedial party performing the work. These procedures must be incorporated into appropriate intrusive work plans. The following fugitive dust suppression and particulate monitoring program should be employed at sites during construction and other intrusive activities which warrant its use:

1. Reasonable fugitive dust suppression techniques must be employed during all site activities which may generate fugitive dust.

2. Particulate monitoring must be employed during the handling of waste or contaminated soil or when activities on site may generate fugitive dust from exposed waste or contaminated soil. Remedial activities may also include the excavation, grading, or placement of clean fill. These control measures should not be considered necessary for these activities.

3. Particulate monitoring must be performed using real-time particulate monitors and shall monitor particulate matter less than ten microns (PM10) with the following minimum performance standards:

(a) Objects to be measured: Dust, mists or aerosols;
(b) Measurement Ranges: 0.001 to 400 mg/m3 (1 to 400,000 :ug/m3);
(c) Precision (2-sigma) at constant temperature: +/- 10 :g/m3 for one second averaging; and +/- 1.5 g/m3 for sixty second averaging;
(d) Accuracy: +/- 5% of reading +/- precision (Referred to gravimetric calibration with SAE fine test dust (mmd= 2 to 3 :m, g= 2.5, as aerosolized);
(e) Resolution: 0.1% of reading or 1g/m3, whichever is larger;
(f) Particle Size Range of Maximum Response: 0.1-10;
(g) Total Number of Data Points in Memory: 10,000;
(h) Logged Data: Each data point with average concentration, time/date and data point number;
(i) 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;
(j) Alarm Averaging Time (user selectable): real-time (1-60 seconds) or STEL (15 minutes), alarms required;

(k) Operating Time: 48 hours (fully charged NiCd battery); continuously with charger;
(l) Operating Temperature: -10 to 50$_o$ C (14 to 122$_o$ F); and
(m) Particulate levels will be monitored upwind and immediately downwind at the working site and integrated over a period not to exceed 15 minutes.

4. In order to ensure the validity of the fugitive dust measurements performed, there must be appropriate Quality Assurance/Quality Control (QA/QC). It is the responsibility of the remedial party to adequately supplement QA/QC Plans to include the following critical features: periodic instrument calibration, operator training, daily instrument performance (span) checks, and a record-keeping plan.

5. The action level will be established at 150 ug/m3 (15 minutes average). While conservative, this short-term interval will provide a real-time assessment of on-site air quality to assure both health and safety. If particulate levels are detected in excess of 150 ug/m3, the upwind background level must be confirmed immediately. If the working site particulate measurement is greater than 100 ug/m3 above the background level, additional dust suppression techniques must be implemented to reduce the generation of fugitive dust and corrective action taken to protect site personnel and reduce the potential for contaminant migration. Corrective measures may include increasing the level of personal protection for on-site personnel and implementing additional dust suppression techniques (see paragraph 7). Should the action level of 150 ug/m3 continue to be exceeded work must stop and DER must be notified as provided in the site design or remedial work plan. The notification shall include a description of the control measures implemented to prevent further exceedances.

6. It must be recognized that the generation of dust from waste or contaminated soil that migrates off-site, has the potential for transporting contaminants off-site. There may be situations when dust is being generated and leaving the site and the monitoring equipment does not measure PM-10 at or above the action level. Since this situation has the potential to allow for the migration of contaminants off-site, it is unacceptable. While it is not practical to quantify total suspended particulates on a real-time basis, it is appropriate to rely on visual observation. If dust is observed leaving the working site, additional dust suppression techniques must be employed.

7. The following techniques have been shown to be effective for the controlling of the generation and migration of dust during construction activities:
(a) Applying water on haul roads;
(b) Wetting equipment and excavation faces;
(c) Spraying water on buckets during excavation and dumping;
(d) Hauling materials in properly tarped or watertight containers;
(e) Restricting vehicle speeds to 10 mph;
(f) Covering excavated areas and material after excavation activity ceases; and
(g) Reducing the excavation size and/or number of excavations.

Experience has shown that the chance of exceeding the 150ug/m3 action level is remote when the above-mentioned techniques are used. When techniques involving water application are used, care must be taken not to use excess water, which can result in unacceptably wet conditions. Using atomizing sprays will prevent overly wet conditions, conserve water, and provide an effective means of suppressing the fugitive dust.

8. The evaluation of weather conditions is necessary for proper fugitive dust control. When extreme wind conditions make dust control ineffective, as a last resort remedial actions may need to be suspended. There may be situations that require fugitive dust suppression and particulate monitoring requirements with action levels more stringent than those provided above. Under some circumstances, the contaminant concentration and/or toxicity may require additional monitoring to protect site personnel and the public. Additional integrated sampling and chemical analysis of the dust may also be in order. This must be evaluated when a health and safety plan is developed and when appropriate suppression and monitoring requirements are established for protection of health and the environment.

APPENDIX F

SITE MANAGEMENT FORMS

Pierce Arrow Site

1695, 1721 and 1723 Elmwood Avenue

Inspector's Name: Weather Conditions:

Inspection Date: Temperature (^{o}F):

Inspection Time:

Comments:

Pre Inspection Checklist

- Review previous annual inspections
- Meet with the site representative to solicit comments/concerns regarding the operation of the Engineering Controls over the past 12 months.

Comments:

Cover System - Floor Inspection

1. Walk all freely accessable floors

- Any visible cracks or settlement in the ground floors?
- Any other visible openings (unintended) in the ground floors?
- Draw approximate location of floor cracks/openings on site map.
- Note the length of the crack/opening.
- Note the width of the crack/opening.

Comments:

Cover System - Exterior Inspection

1. **Walk and inspect the entire perimeter of the Site.**
2. **Walk and inspect all of the paved areas (concrete and asphalt) of the Site.**
    - Are there any signs of significant cracks, settlement or deterioration of the paved areas?
    - Has any of the pavement material been removed?
    - Have any structures been constructed on the unpaved areas?
    - Are there any signs of soil washing or erosion (gullies, soil washed out onto the pavement)?
    - Are there any signs of intrusive activities (drilling, digging, trenching, grading, excavating, etc.)?

Comments:

Repair

Summarize needed/completed repairs to the Engineering Controls:

Inspector's Signature: _____

APPENDIX G

RESPONSIBILITIES OF OWNER AND REMEDIAL PARTY

Responsibilities

The responsibilities for implementing the Site Management Plan ("SMP") for the Pierce Arrow site (the "site"), number C915308, are divided between the site owner(s) and a Remedial Party, as defined below. The owner(s) is/are currently listed as:
Pierce Arrow Kanaka LLC (the "owner").

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

Pierce Arrow Kanaka, LLC.
2150 Wehrle Drive, Suite 400
Williamsville, NY 14221

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

Site Owner's Responsibilities:

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

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

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

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

5) The owner is responsible for assuring the security of the remedial components located on its property to the best of its ability. In the event that damage to the remedial components or vandalism is evident, the owner shall notify the site's RP and the NYSDEC in accordance with the timeframes indicated in **Section 1.3**-Notifications.

6) In the event some action or inaction by the owner adversely impacts the site, the owner must notify the site's RP and the NYSDEC in accordance with the time frame indicated in **Section 1.3**- Notifications and (ii) coordinate the performance of necessary corrective actions with the RP.

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

Remedial Party Responsibilities

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

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

3) Before accessing the site property to undertake a specific activity, the RP shall provide the owner advance notification that shall include an explanation of the work expected to be completed. The RP shall provide to (i) the owner, upon the owner's request, (ii) the

NYSDEC, and (iii) other entities, if required by the SMP, a copy of any data generated during the site visit and/or any final report produced.

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

5) The RP shall notify the NYSDEC and the owner of any changes in RP ownership and/or control and of any changes in the party/entity responsible for the operation, maintenance, and monitoring of and reporting with respect to any remedial system (Engineering Controls). The RP shall provide contact information for the new party/entity. Such activity constitutes a Change of Use pursuant to 375-1.11(d) and requires 60-days prior notice to the NYSDEC. A 60-Day Advance Notification Form and Instructions are found at http://www.dec.ny.gov/chemical/76250.html .

6) The RP shall notify the NYSDEC of any damage to or modification of the systems as required under **Section 1.3**- Notifications] of the SMP.

7) The RP is responsible for the proper monitoring and maintenance of any installed soil cover system associated with the site, as required in **Section 3.3**).

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

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

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

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