Prepared for:
Steel Treaters, Inc.
Troy, New York

Prepared By:
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Date
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Project Number
1690000663

SITE MANAGEMENT PLAN

STEEL TREATERS, INC. SITE
520 CAMPBELL AVENUE
TROY, NEW YORK
NEW YORK STATE VOLUNTARY CLEANUP PROGRAM
SITE NO. V00578

Revisions to Final Approved Site Management Plan:

Revision No.	Date Submitted	Summary of Revision	NYSDEC Approval Date
1	12/04/2019	a) Updated Tables 2 and 7 and Appendix J to reflect well survey performed 02/20/2019. b) Replaced MW-102I and MW-103E with MW-102IR and MW-103ER; replaced well construction logs in Appendix C. c) Updated Table 6 and Appendix J to reflect change in 1,4-dioxane analysis method from EPA Method 8260C to EPA Method 8270 SIM.	December 12, 2025

CERTIFICATION STATEMENT

I, Russell Kemp, 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).

Signature

09 December 2019

Date

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LIST OF ACRONYMS AND ABBREVIATIONS

1,1-DCA	1,1-dichloroethane
1,1-DCE	1,1-dichloroethene
1,2-DCA	1,2-dichloroethane
1,2-DCE	cis-1,2-dichloroethene
ASP	Analytical Services Protocol
AWQS	Ambient Water Quality Standards
BCP	Brownfield Cleanup Program
BITM	Bedrock Investigation Technical Memorandum
CAMP	Community Air Monitoring Plan
C/D	Construction and Demolition
CFR	Code of Federal Regulation
COC	Certificate of Completion
CP	Commissioner Policy
cVOC	Chlorinated Volatile Organic Compound
DER	Division of Environmental Remediation
EC	Engineering Control
ECL	Environmental Conservation Law
EWP	Excavation Work Plan
HASP	Health and Safety Plan
IC	Institutional Control
IRM	Interim Remedial Measure
MIP	Membrane Interface Probe
MIPTM	Membrane Interface Probe Technical Memorandum
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
PCB	Polychlorinated Biphenyls
PCE	Tetrachloroethene
PDIR/RAWP	Pre-Design Investigation Report and Remedial Action Workplan
PID	Photoionization Detector
PRB	Permeable Reactive Barrier
PRDWP	Pre-Remedy Design Workplan
PRIR	Pre Remedial Investigation Report
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
RIR	Remedial Investigation Report
RP	Remedial Party
RSO	Remedial System Optimization
SCG	Standards, Criteria and Guidelines

SCO	Soil Cleanup Objective
SF	Square Feet
SGTM	Structural Geology Technical Memorandum
SIR	Site Investigation Report
SMP	Site Management Plan
SPDES	State Pollutant Discharge Elimination System
SSD	Sub-Slab Depressurization
SSIR	Supplemental Site Investigation Report
STI	Steel Treaters, Inc.
SVE	Soil Vapor Extraction
SVI	Soil Vapor Intrusion
TAL	Target Analyte List
TCA	Trichloroethane
TCE	Trichloroethylene
TCL	Target Compound List
TCLP	Toxicity Characteristic Leachate Procedure
TMP	Temporary Monitoring Point
TOGS	Technical and Operational Guidance Series
USEPA	United States Environmental Protection Agency
UST	Underground Storage Tank
VCA	Voluntary Cleanup Agreement
VCP	Voluntary Cleanup Program
VOC	Volatile Organic Compound
ZVI	Zero-Valent Iron

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:	Site Identification No. V00578 Steel Treaters, Inc. 520 Campbell Avenue Troy, New York
Institutional Controls:	1. The property may be used for commercial or industrial use; 2. A series of ICs are 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 commercial or industrial 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 9. These ICs are: • The property may be used for commercial and/or industrial 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 Rensselaer 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; • 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 9, and any potential impacts that are identified must be monitored or mitigated; and • Vegetable gardens and farming and the raising of livestock on the site are prohibited.

Site Identification:	Site Identification No. V00578 Steel Treaters, Inc. 520 Campbell Avenue Troy, New York
Engineering Controls:	1. Cover System 2. Permeable Reactive Barrier and ZVI Treatment Zone 3. A sub-slab depressurization (SSD) system will be designed and installed should future site development plan include a building

Inspections:	Frequency
1. Site Wide inspections	Biannually prior to redevelopment, then at a minimum of once per year thereafter
2. Inspection of Groundwater Monitoring Wells	Quarterly for the first year, annually thereafter (concurrent with groundwater monitoring events)
Monitoring:	
1. Groundwater Monitoring Wells MW-100I, MW-100B, MW-100E, MW-101I, MW-101E, MW-102IR, MW-102B, MW-102ER, MW-103I, MW-103B, MW-103ER, MW-104I, MW-104E, MW-1, MW-5, MW-8, MW-11, MW-13, MW-14, MW-17, MW-18, and MW-19	Annually
2. Monitoring of PRB effectiveness	Quarterly for first year; semi-annually for the next two years and annually thereafter
Maintenance:	
1. Cover system maintenance	As needed
Reporting:	
1. Periodic Review Report	Annually
2. Groundwater Monitoring Reports for PRB Effectiveness	Quarterly for first year; semi-annually for the next two years and annually thereafter

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 the Former Steel Treaters, Inc. Facility located in Troy, New York (hereinafter referred to as the "Site"). See Figure 1. The Site is currently in the New York State (NYS) Voluntary Cleanup Program (VCP) Site No. V00578-4, which is administered by New York State Department of Environmental Conservation (NYSDEC).

Steel Treaters, Inc. (STI) entered into a Voluntary Cleanup Agreement (VCA) on September 19, 2003 with the NYSDEC to remediate the site. The property ownership was transferred to ESCO Corporation, STI's parent company and current property owner in 2012. A figure showing the site location and boundaries of this site is provided in Figure 1. 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 Rensselaer 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 liability release;
- Failure to comply with this SMP is also a violation of Environmental Conservation Law, 6NYCRR Part 375 and the VCA (Index #V00578-4, Site #V00578) 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 ENVIRON Engineers of North Carolina, PC, on behalf of ESCO Corporation 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 VCA, 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 VCA, 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 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: Notifications*

Name	**Contact Information**
Javier Perez-Maldonado, NYSDEC Project Manager	518-402-8172 javier.perez-maldonado@dec.ny.gov
Janet Brown, NYSDEC Section Chief, Bureau B, Section B	518-402-9697 janet.brown@dec.ny.gov
Richard Mustico, NYSDEC Region 4, Hazardous Waste Remediation Engineer	518-357-2273 richard.mustico@dec.ny.gov
Kelly Lewandowski, NYSDEC, Section Chief, Site Control Section	518-402-9553 kelly.lewandowski@dec.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 Troy, Rensselaer County, New York and is identified as Section 112 Block 4 and Lot 25 on the Rensselaer County Tax Map (see Figure 1). The site is an approximately 1.109-acre area and is bounded by Campbell Avenue to the north, a butcher shop to the south, undeveloped land to the east, and commercial properties 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(s) of the site parcel(s) at the time of issuance of this SMP is ESCO Corporation.

2.2 Physical Setting

2.2.1 Land Use

The Site consists of the following: the concrete slab of a former building that was demolished after a fire in 2005, surrounding asphalt parking lot, and wooded areas. The Site is zoned industrial and is currently vacant.

The properties adjoining the Site and in the neighborhood surrounding the Site primarily include commercial, residential and undeveloped properties. The properties immediately south of the Site include residential properties; the properties immediately north of the Site include commercial properties; the properties immediately east of the Site include undeveloped land and commercial properties; and the properties to the west of the Site include commercial properties.

2.2.2 Geology

Exposed bedrock is present upslope, bordering the site to the east and south. The bedrock surface map indicates a surface sloping from south and southwest to the north and northeast, generally mimicking site topography. A gray silty clay layer generally 2 to 5 feet in thickness appears to be present across most of the site just above bedrock. A sequence containing fine sands with variable amounts of clay and silt sits above the gray silty clay layer. A layer of brown silty clay is present on top of this previous layer, at least within the general footprint of the former site building. Finally, a layer of silty sand is present near the surface throughout the site, in variable thickness.

Geologic cross sections are shown in Figures 3A through 3D. Site specific boring logs are provided in Appendix C.

2.2.3 Hydrogeology

Overburden groundwater has consistently flowed in a generally northern direction toward the Wynantskill, the nearest surface water body. The water table is in the overburden and ranges from just below ground surface to 6 feet below grade. Pump testing shows that the hydraulic conductivity of the overburden ranges between 1.26 ft/day (4.445×10^{-4} cm/sec) and 0.163 ft/day (5.750×10^{-5} cm/sec) based on the well drawdown and recovery data, respectively. Groundwater in the shallow bedrock zone appears to mimic the overburden groundwater and flows to the north. Based on hydraulic data from nested shallow and deep bedrock wells, the vertical gradient in the bedrock zone appears to be generally upward.

There are no private or public supply wells in the Site vicinity.

A groundwater contour map is shown in Figure 4. Groundwater elevation data are provided in Table 2. Groundwater monitoring well construction logs are provided in Appendix C.

Table 2 – Groundwater Elevation Measurements

Well ID	X Coordinate	Y Coordinate	Top of Casing Elevation (ft amsl)	Water Level (ft amsl)
MW-1	713240.0	1412203.1	277.26	271.36
MW-5	713199.6	1412173.5	276.94	272.69
MW-8	713169.9	1412258.5	273.65	267.85
MW-11	713161.6	1412429.6	266.89	255.80
MW-13	713252.2	1412396.2	266.17	257.55
MW-14	713221.1	1412454.7	266.34	255.22
MW-17	713159.4	1412347.9	267.71	261.80
MW-18	713216.4	1412227.0	274.30	269.42
MW-19	713224.4	1412221.5	274.53	269.88
Note: Water levels measured on February 20, 2019.				

2.3 Investigation and Remedial History

In 1965, STI acquired the site, which consisted of vacant land, and starting in 1966, utilized the facility to heat treat metal machine parts, which were received from various manufacturers. The majority of the work conducted at the site involved tempering and case hardening of metal parts, as well as annealing of metal parts. Air and vacuum furnaces were used at the facility, and some parts were cooled using quench oil. Anhydrous ammonia was also used onsite during the heat treatment process to generate atmosphere for the furnaces. Operations ceased following a fire on February 24, 2005, which damaged the single-story building. The building's superstructure was demolished during the week of April 17, 2017. The building concrete pad remains today.

Past site activities were believed to have included the use of solvents, including 1,1,1-trichloroethane (TCA) and trichloroethylene (TCE), which were stored in 55-gallon drums and used for degreasing of metal parts. The solvents were reportedly reclaimed following use. STI believed that usage of these solvents ended in approximately 1991. The site entered into a Voluntary Cleanup Agreement (VCA) with the New York State Department of Environmental Conservation (NYSDEC) in 2003.

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.

ESCO completed several phases of remedial investigation at the site, which identified chlorinated ethenes and ethanes as the primary contaminants of concern. The primary source of contamination has been identified as a former parts degreaser pit located in the southeast portion of the former building (see Figure 2). Soil sampling indicates that ethenes (1,1-dichloroethene (1,1-DCE), cis-1,2-dichloroethene (1,2-DCE), tetrachloroethene (PCE),

trichloroethene, vinyl chloride), ethanes (1,1-dichloroethane (1,1-DCA), 1,2-dichloroethane (1,2-DCA), 1,1,1-trichloroethane) and 1,4-dioxane are present in site soils in excess of the NYSDEC unrestricted soil cleanup objective (SCO). In addition, some metals (barium, cadmium, total chromium[7], copper, nickel and zinc) were detected in surficial soils (less than 12 inches deep) in excess of the NYSDEC unrestricted SCO. Groundwater sampling indicates the presence of chlorinated volatile organic compounds (cVOCs; TCA, PCE and associated breakdown products) above New York's Ambient Water Quality Standards (AWQS) for Class GA water. The groundwater containing cVOCs extends to wells located on the north side of Campbell Avenue.

UST Closure Report (InteGreyted, January 2002)

Two unregistered USTs were previously located at the site, along the east wall. A 3,000-gallon tank (first UST), which was used to store virgin and recycled quench oil, was reportedly installed in 1974 and last utilized in 1994. This tank reportedly replaced another 3,000-gallon tank (the second UST) at the same location; details about the previous tank are not known. Quench oil stored in this process tank was routinely re-circulated to the tank for cooling following usage during various processes within the facility. The quench oil tank was closed in place by Pureland Corporation on August 22, 2000, by filling it with sand and gravel and pouring a concrete pad over the footprint of the tank.

As part of the tank closure, in November 2001, InteGreyted advanced eight soil borings to a depth of 16 feet and collected six soil samples and a groundwater grab sample (three of the boreholes were advanced at the north end of the concrete pad to determine the location of the former tank). The subsurface soil sampling results indicated the presence of TPH, 1,2-DCE and TCE above the applicable NYSDEC soil quality criteria. Shallow groundwater was found to contain 1,1-DCE, cis-1,2-DCA, TPH, ethylbenzene, naphthalene, TCE and vinyl chloride above the applicable Class GA AWQS. The source of the chlorinated solved VOCs was unknown.

Site Investigation Report (SIR; InteGreyted, June 2004)

The SIR discusses the scope and findings of an initial site investigation conducted at the Site in March and April 2004 in accordance with InteGreyted's October 2003 Site Investigation Work Plan and as modified with concurrence with NYSDEC on April 19, 2004. A total of 14 soil borings (TB-02-01 through TB-02-14) were advanced, six monitoring wells (MW-02-01 through MW-02-06) were installed to the top of bedrock, and two surface soil samples (SS-02-01 and SS-02-01) were collected. The subsurface soil sampling results indicated the presence of 1,1-DCE, 1,2-DCA, 1,1,1-TCA, TCE and PCE above the applicable NYSDEC soil quality criteria. The surface soil sampling results indicated that detected metals that exceeded the applicable NYSDEC soil quality criteria (barium, chromium, mercury and selenium) were not significantly dissimilar to reported mean background concentration ranges in non-cultivated soils (Geochemistry, 1979). Shallow groundwater was estimated to flow in a northerly direction and was found to contain 1,1-DCE, 1,1-DCA, cis-1,2-DCA, TCE and vinyl chloride above the applicable Class GA AWQS. The investigation concluded that the source of VOCs appeared to the former degreasing area located within the building.

Supplemental Site Investigation Report (SSIR; InteGreyted, October 2004)

The SSIR discusses the scope and findings of a supplemental site investigation conducted at the Site in September 2004 and March 2005 in accordance with InteGreyted's August 17, 2014 Site Investigation Work Plan Addendum. A total of ten soil borings (TB-1, TB-4, TB-10A, and TB-15 through TB-21) were advanced, five monitoring wells (MW-7 to MW-11) were installed to the top of bedrock, and slug tests were performed in four monitoring wells (MW-1, MW-2, MW-8 and MW-9). The soil sampling results indicated the presence of 1,1-DCE, 1,1-DCA, 1,1,1-TCA, TCE and PCE. Shallow groundwater was estimated to flow in a northerly and northeasterly direction and was found to contain 1,1-DCE, 1,1-DCA, cis- and trans-1,2-DCA, chloroform, 1,1,1-TCA, benzene, 1,2-DCA, TCE, bromodichloroethane, ethylbenzene, m- and p-xylene, and vinyl chloride above the applicable Class GA AWQS. The hydraulic conductivities calculated from the slug tests averaged 6.54E-5 cm/s and the estimated seepage rate was estimated to be in the order of 9.02E-6 cm/s. The investigation concluded that the sole source of the detected VOCs appeared to be the former degreaser area.

October 2007 Quarterly Progress Report (Barton & Loguidice, October 2007)

In the third quarter of 2007, Barton & Loguidice (B&L) installed eight temporary monitoring points inside the building to a depth of approximately 15 feet. In addition, permanent monitoring wells MW-12 and MW-13 were installed per Remedial Work Plan approved by NYSDEC on January 26, 2007. Groundwater samples were collected from MW-2, MW-3, MW-9, MW-10 and the newly installed wells (MW-12 and MW-13) on August 20, 2007. Shallow groundwater was found to contain 1,1-DCE, cis-1,2-DCE, and/or TCE above the applicable Class GA AWQS.

In addition, four subslab samples were collected using Summa canisters by inserting the sampling tubing through the annulus of the temporary monitoring points (TMPs) into the sub slab at four locations (TMP-1 through TMP-4) and sealing the surface with bentonite slurry. The subslab sampling results indicated elevated concentrations of 1,1-DCE (up to 840,000 ug/m3), cis-1,2-DCE (up to 96,000 ug/m3), and/or TCE (up to 1,200,000 ug/m3), and/or TCA (up to 7,400,000 ug/m3). Based on these measured concentrations, the TMPs were modified to allow simultaneous extraction of soil vapor and subslab zone vapor. The extracted vapor (4 to 5 cubic feet per minute) was treated through activated carbon canisters.

Interim Remedial Measure – Soil Vapor Extraction (July 2007 through 2010)

From 2008 through mid-June 2010, soil vapor continued to be extracted from the subsurface using the four TMP-1 through TMP-4 and the collected vapors passed through activated carbon units prior to discharge to ambient air. Four activated carbon drums were replaced during the 2008 to 2010 time period. Because the soil vapor extraction activities were a self-directed effort, the particular locations or other details regarding the soil vapor extraction activities are not reported in prior reports for the site.

April 2008 Quarterly Progress Report (Barton & Loguidice, April 2008)

In the first quarter of 2008, Barton & Loguidice (B&L) installed three soil vapor monitoring points (SV-1, SV-2 and SV-3) on the northern side of the property, along Campbell Avenue as described in the December 18, 2007 letter to NYSDEC (and modified through emails dated December 26 and 27, 2007). In addition, groundwater monitoring well MW-14 was installed. Soil vapor samples were collected on March 11, 2018. Soil vapor sampling results indicate that chlorinated ethenes (cis-1,2-dichloroethene, tetrachloroethene, and trichloroethene) and ethanes (,1,1-trichloroethane), which are the contaminants of concern at the site, were detected. Of these compounds the highest concentrations were of trichloroethene, which ranged from 1,300 to 2,100 ug/m^3). The soil gas sampling results also indicated the detection of numerous VOCs not associated with site activities (including, but not limited to, acetone, benzene, carbon disulfide, ethyl benzene, Freon, heptane, hexane, methyl ethyl ketone, toluene, xylenes). Of these compounds the highest concentrations were of toluene, which ranged from 41 to 870 ug/m^3).

Supplementary Site Investigation Report (SSIR; Barton & Loguidice, January 7, 2010)

The SSIR discusses the scope and findings of a supplemental site investigation conducted at the Site between March 2008 and December 2009 in accordance with B&L's November 2, 2009 Work Plan, which NYSDEC approved on November 6, 2006. A total of fourteen soil borings (DB-1 through DB-14) were advanced, and two monitoring wells (MW-15 and MW-16) were installed to the top of bedrock. The soil sampling in the degreaser footprint indicated a fairly steep decline in contaminant concentrations with depth, with residual contamination present immediately under the bottom of the degreaser (roughly four to eight feet below the building floor). Soil sampling just outside the degreaser footprint identified residual contamination generally un he upper portion of the water table (6 to 10 feet below grade), while sampling near the front of the building or north of the building indicated somewhat isolated detections at depth of over 12 feet below ground surface. Groundwater sampling at MW-1, MW-2, MW-7, MW-8, MW-9, MW-10 and the newly installed wells (MW-15 and MW-16) on December 3, 2009 indicated the continued presence of 1,1-DCE, cis-1,2-DCE, TCE, and/or 1,1,1-TCA above the applicable Class GA AWQS in shallow groundwater at the Site.

In December 2009, B&L also installed three soil vapor monitoring points (SV-4, SV-5 and SV-6) on the northern side of the property, across Campbell Avenue. Soil vapor sampling results detected target contaminants just slightly above detection limits. Further, the report presents the results of three rounds of soil vapor sampling at SV-1, SV-2 and SV-3 (March 11, 2008, May 5, 2009 and December 11, 2009). The results indicated the detection of target contaminants just slightly above detection limits (0.2 ppbV for PCE and 0.04 ppbV for TCE). In correspondence dated January 27, 2010, NYSDEC and NYSDOH indicated that no further action was needed.

Structural Geology Technical Memorandum (SGTM; Barton & Loguidice, around September 17, 2010)

The SGTM presents the results of the structural geology evaluation performed as part of B&L's June 28, 2010 Bedrock Investigation Work Plan and approved by NYSDEC on July 21,

2010. The work performed included a literature review of regional and local geology studies, field observations of bedrock outcrops to the south and east of the site (on September 3 and 14, 2010), collecting strike and dip information along bedding planes/cleavage, recording the general orientation of several joint systems, and performing a fracture trace analysis using area color infrared aerial photography and topographic mapping to identify surface features indicative of underlying bedrock structures that may potentially influence the groundwater flow through bedrock at the site. Bedrock outcrops at the site were described as thinly bedded shale and slate with fine grained quartzite and exhibited intense thin, slaty cleavage. The bedrock outcrops at the site exhibited apparent bedding planes with strike measurements between N46°W to N27°W, dipping to the northeast anywhere from 40 to 45 degrees. The fracture trace analysis did not identify any obvious fracture systems at the site.

Based on previously completed drilling activities at the site and soil boring refusal depths it appears that the elevation of the bedrock surface decreases to the north and east. These observations, coupled with the northwest-striking/northeast-dipping bedding/cleavage surfaces, the mapped thrust fault orientation (likely indicative of other smaller associated faults), the generalized northeast joint orientation, and the configuration of the Wynantskill Creek valley suggest that groundwater in the bedrock at the site flows generally northward toward Wynantskill Creek.

Bedrock Investigation Technical Memorandum (BITM; Barton & Loguidice, April 27, 2011)

The BITM presents the results of the bedrock well installation at the Site in February 2011 in accordance with B&L's June 28, 2010 Bedrock Investigation Work Plan and approved by NYSDEC on July 21, 2010, and the recommendations of the structural geology evaluation, which were accepted by NYSDEC on January 7, 2011. Three shallow bedrock monitoring wells (BRMW-01, BRMW-02S and BRMW-03) and one deep bedrock monitoring well (BRMW-02D) were installed based on the conclusions of the structural geology evaluation to the northwest, north, and northeast of the former source area. All bedrock wells were installed at least 15 feet into bedrock and provided with a 10-foot screen, except the deep bedrock well which was installed at least 32 feet into bedrock.

The overburden soil sampling results indicated the presence of chlorinated VOCs, but at concentrations several orders of magnitude below their respective NYSDEC commercial SCOs. 1,2-DCE and TCE were detected in the three shallow bedrock wells, but not detected in the deep bedrock well. The data indicated that the bedrock flow system is not a meaningful contaminant migration pathway.

Membrane Interface Probe Technical Memorandum (MIPTM; Barton & Loguidice, August 25, 2010)

The MIPTM presents the results of the subsurface characterization activities performed in preparation for the source removal interim remedial measure (IRM) in August 11, 2010 in accordance with B&L's June 28, 2010 Pre-Source Removal Characterization Work Plan and approved by NYSDEC on July 21, 2010. A total of 16 Membrane Interface Probes (MIPs) were advanced to characterize the lateral and vertical extent of impacted soils that could be considered "source material." Based on the results of this investigation the extent of

planned excavation was defined as extending approximately 3 feet from the eastern edge of the former degreaser footprint, to a depth of about 8 feet.

Pre-Remedial Investigation Report (PRIR; Barton & Loguidice, October 2011)

The PRIR was prepared at the request of NYSDEC on September 13, 2011 and summarized previous environmental investigations conducted and interim remedial measures performed at the site. This report was approved by NYSDEC in February 2012.

Construction Completion Report (CCR; Barton & Loguidice, April 2013)

The CCR was prepared at the request of NYSDEC to document the implementation and completion of the in-situ chemical oxidation IRM and the results of the follow-up sampling performed to document the effectiveness of the IRM activities.

- Interim Remedial Measure – In-situ Chemical Oxidation (August 2006 through 2009)

  Given the low permeability of the subsurface materials and that the majority of the contamination was localized under the building footprint, the August 2006 Remedial Action Work Plan by Barton & Loguidice proposed the injection of a liquid chemical oxidant (RegenOX™) to destroy contaminants in the saturated and unsaturated zones near the former degreaser pit. In March and April 2007, approximately 8,000 pounds of a proprietary chemical oxidant (RegenOX™) were injected into three zones in the subsurface in the vicinity of a former degreaser pit located in the southeast portion of the former building (identified as the primary source of contamination). Saturated conditions prevented injection of any additional material. In July 2007, an additional 4,800 pounds of the chemical oxidant were injected into the subsurface. Additional targeted injections of chemical oxidant reportedly occurred from 2007 through 2009. The exact location and amount of oxidant injected following the initial injections in April and July 2007 were not reported in prior reports for the site.

- Interim Remedial Measure – Contaminant Source Removal (December 2010)

  In accordance with the May 2010 Source Removal Workplan, in December 2010, the floor of the former building in the vicinity of the former degreaser pit was removed and unsaturated soils from beneath the base of the degreaser pit, approximately four feet below the floor surface, were excavated to a depth of 8 feet. The horizontal and vertical extents of the soil excavation were delineated in August 2010 using a MIP. Upon completion of the excavation, confirmatory soil samples were collected from the base of the excavation as well as each side wall at approximately 6 feet below the floor surface. Additional soil was removed along the western wall of the excavation based on screening of the confirmatory soil sample from the wall. A total of 8 confirmatory soil samples were reportedly collected. Analytical results for the confirmatory soil samples were below the commercial Soil Cleanup Objectives (SCO); however, the unrestricted-use SCO for TCE was exceeded in sample collected from the north wall at a depth of 6 feet (2.1 mg/kg). Based on the results, the excavation was backfilled with material that had previously been used to fill the degreaser pit and additional clean fill from an off-site source. Three soil vapor extraction points were placed in the excavation during the backfilling operations and connected to the SVE blower.

In September 2012, a MIP was used to characterize the source area following the interim remedial actions. Twenty-nine borings (A-1 through A-29) were advanced within the former building footprint and to the west of the building. At select locations, soil samples were also collected for laboratory analysis and correlation with the MIP results. Based on these correlations, it was established that only an area roughly bounded by A-18, A-20, A-21, A-24 and A-25 exceeded the protection of groundwater SCO.

Remedial Investigation Report (RIR; Barton & Loguidice, November 2013)

The RIR addressed the data gaps identified by NYSDEC in its February 22, 2012 approval of the PRIR. Specifically, the extent of subsurface contamination and the area around BRMW-03 was investigated through the September 2012 MIP investigation and installation of a shallow bedrock monitoring well (BRMW-04) in April 2013. The piping features outside the building were assessed on November 19, 2012 as potential secondary sources of contamination. The assessment included consultation with STI personnel on the purpose of the piping, screening with a photoionization detector, and visual and mechanical inspection of the pipes.

The RIR also included a qualitative human health exposure assessment that, while it concluded that there are no currently complete exposure pathways, identified the following potential exposure pathways: (a) exposure of future on-site workers to soil, groundwater or soil vapor during future intrusive activities at the site; and (b) exposure to groundwater if groundwater wells are installed and used for drinking water. These potential future exposure pathways were to be minimized and/or eliminated through a Site Management Plan and/or appropriate deed restrictions.

The RIR also presented the results of an additional round of groundwater sampling conducted on May 23-24, 2013. The groundwater sampling results indicated that several chlorinated ethenes and ethanes were detected at concentrations that exceed the applicable Class GA AWQS.

Remedial Action Work Plan (RAWP; Barton & Loguidice, December 2014)

This RAWP presented conceptual remedial alternatives being considered for the site and was subsequently replaced by the 2017 PDIR/RAWP.

Pre-Design Investigation Report and Remedial Action Work Plan (PDIR/RAWP; EENC, July 19, 2017)

In accordance with Pre-Remedy Design Work Plan (PRDWP) last revised on October 2015 and approved by NYSDEC on November 5, 2015, ENVIRON conducted additional investigatory activities to: (a) provide a more comprehensive understanding of the extent and magnitude of site contamination (particularly groundwater), (b) preliminarily evaluate the appropriateness of the conceptual remedial alternatives being considered, and (c) select and design the most appropriate remedial alternative for the site. To this effect, between December 2015 and March 2016, 35 soil borings (B-1 through B-55) were advanced, 27 surface sampling locations (SS-1 through SS-7 and associated delineation samples) collected, two soil gas samples (SV-10 and SV-11) collected, three wells reinstalled/replaced

(MW-17/MW-4, MW-18/MW-16, and MW-19/MW-15) and seven temporary observation wells installed. The findings of the pre-design investigation were as follows:

- Subsurface soil sampling results indicate that ethenes (cis-1,2-dichloroethene, tetrachloroethene, trichloroethene, vinyl chloride), ethanes (1,1-dichloroethane, 1,2-dichloroethane, 1,1,1-trichloroethane) and 1,4-dioxane are present in site soils in excess of the NYSDEC unrestricted SCO. However, the detected concentrations do not exceed the NYSDEC restricted use SCOs for commercial and industrial sites. The greatest concentrations were detected in samples from borings located northeast of the former degreaser pit and generally at depths below the water table. TCE is the most prevalent contaminant, as it was detected at concentrations exceeding the unrestricted SCO in each of the samples where other parameters exceed the unrestricted SCO.
- Surface soil sampling results indicate that several metals (barium, cadmium, total chromium, copper, lead, nickel, and zinc) were detected sporadically and discontinuously in excess of the applicable restricted SCOs. Of these constituents, barium (at locations SS-7A and SS-7B), cadmium (at location SS-1-W), copper (at locations SS-1-W and SS-1-N2), lead (at location SS1-E) and nickel (at location SS-1-N1) were detected above the commercial SCOs.
- Soil vapor sampling results indicate that of the chlorinated ethenes (1,1-dichloroethene, cis-1,2-dichloroethene, trans-1,2-dichloroethene, tetrachloroethene, trichloroethene, and vinyl chloride) and ethanes (1,1-dichloroethane, 1,2-dichloroethane, 1,1,1-trichloroethane, and 1,1,2-trichloroethane), which are the contaminants of concern at the site, only tetrachloroethene and trichloroethene were detected (although the trichloroethene concentrations were flagged as estimates and were below the reporting limit of 1.1 ug/m^3). The soil gas sampling results also indicated the presence of numerous VOCs not associated with site activities and that have not been detected in prior sampling (including, but not limited to, acetone, benzene, ethyl benzene, toluene, xylenes). These VOCs could be attributable to historical operations at the property to the west of the Site.
- Groundwater sampling from all of the monitoring wells indicated the presence of several chlorinated ethenes (1,1-dichloroethene, cis-1,2-dichloroethene, trans-1,2-dichloroethene, tetrachloroethene, trichloroethene, and vinyl chloride) and ethanes (1,1-dichloroethane, 1,2-dichloroethane, 1,1,1-trichloroethane, and 1,1,2-trichloroethane) at concentrations that exceed the applicable Class GA AWQS. TCE is the most prevalent contaminant in groundwater as it was detected at concentrations above the AWQS-GA (5 µg/L) in samples from each of the locations where other parameters exceed their applicable AWQS. In the bedrock wells, only TCE and cis-1,2-DCE were detected at concentrations above the applicable AWQS-GA in BRMW-1, BRMW-3, and BRMW-4. Relative to the results for the most recent groundwater water samples collected from the site in May 2013, concentrations have remained fairly constant, which indicate that the plume is relatively stable.
- Evaluation of the geochemical conditions at the site and analytical data suggest that complete reductive dechlorination of TCE to ethane may be limited under current subsurface conditions at the site.
- The pump test data analysis and capture zone evaluation concluded that the hydraulic conductivity of the overburden ranges between 1.26 ft/day (4.445 x 10^{-4} cm/sec) and

0.163 ft/day (5.750 x 10^{-5} cm/sec) based on the well drawdown and recovery data, respectively. The hydraulic conductivity determined from the well recovery data is consistent with that determined from geotechnical laboratory testing (0.056 to 0.108 ft/day or 1.97 x 10^{-5} to 3.82 x 10^{-5} cm/sec).

The PDI/RAWP was subsequently used to support the issuance of the NYSDEC Decision Document dated October 13, 2017.

Letter Report – Additional Soil Vapor Investigation (EENC, March 15, 2018)

In correspondence dated January 27, 2010, NYSDEC indicated that off-site soil vapor sampling to the north of the site confirmed that no further action was warranted. However, at the request of NYSDEC and NYSDOH, between March 1, 2018 and March 5, 2018 additional offsite soil vapor sampling was performed concurrent with the remedy implementation on properties to the east and west of the site as outlined in the February 26, 2018 Proposed Additional SVI Work Plan approved by NYSDEC on February 27, 2018.

On March 1, 2018, a groundwater sample was collected from a temporary monitoring well (TWP-14-180301) and a soil vapor sample (SV-12-180301) was collected from a permanent soil vapor sampling point at the property located to the east of the site (i.e., the Fire Station at 530 Campbell Avenue). The data gathered from the property to the east (fire station), indicate that no VOCs were detected in groundwater and that, other than butane which was detected at a concentration of 39 ug/m3 and is not associated with historical site activities, no contaminants were detected above detection limits[1] in the soil vapor sample.

Similarly, a subslab gas sample (SS-01-180305), an indoor air sample (IA-01-180305) and an ambient air sample (AA-01-180305) were collected from the northeastern portion of the strip mall located to the west of the Site (i.e., 506 Campbell Avenue) on March 5, 2018. The data generated from the property to the west (strip mall) indicate that no site-related constituents were detected and comparison of the data against the NYSDOH Soil Vapor/Indoor Air matrices indicate that no further action is warranted with respect to off-site migration of vapor to the east or west of the site. NYSDEC and NYSDOH agreed with this conclusion in correspondence dated March 29, 2018.

A copy of the letter report and NYSDEC approval letter are provided in Appendix D. In addition, in conformance with Appendix 2B of NYSDEC DER-10, a data usability summary report (DUSR) evaluating the analytical data collected during this investigation has also been prepared and is included as Appendix D.

2.4 Remedial Action Objectives

The Remedial Action Objectives (RAOs) and standards, criteria and guidance (SCGs) for the Site as listed in the Decision Document dated October 13, 2017 are as follows:

[1] While estimated concentrations were provided for some constituents, these were all below the method detection limit.

Groundwater

RAOs for Public Health Protection

- Prevent ingestion of groundwater with contaminant levels exceeding drinking water standards.
- Prevent contact with, or inhalation of, volatiles from contaminated groundwater.

RAOs for Environmental Protection

- Restore ground water aquifer to pre-disposal/pre-release conditions, to the extent practicable.
- Remove the source of groundwater contamination.

The specific SCGs for groundwater are established pursuant to 6 NYCRR Parts 700-706 NYSDEC Water Quality Standards Regulations for Surface Waters and Groundwater, specifically the Ambient Water Quality Standards for Class GA water (AWQS-GA) under Part 703-6 Groundwater Effluent Limitations for Discharges to Class GA Waters. These standards have been used to date to evaluate and delineate identified groundwater impacts at the Site. Accordingly, attainment of those standards will be one of the RAOs for groundwater remediation.

Soil

RAOs for Public Health Protection

- Prevent ingestion/direct contact with contaminated soil.
- Prevent inhalation of or exposure to contaminants volatilizing from contaminants in soil.

RAOs for Environmental Protection

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

Within the context of the generic RAOs listed above, applicable SCGs for remedial programs undertaken at VCP sites include the land-use-specific SCOs contained in the Environmental Remediation Program regulations at 6 NYCRR Part 375. Considering surrounding local property uses, current zoning and targeted future land use, SCOs appropriate for the Site include restricted use SCOs for commercial and industrial sites. Therefore, development of site-specific SCOs is not necessary.

Soil Vapor

RAOs for Public Health Protection

- Mitigate impacts to public health resulting from existing, or the potential for, soil vapor intrusion into buildings at a site.

2.5 Remaining Contamination

This section provides summary information regarding the nature and locations of residual contamination remaining at the Site. This information is provided so that any future property owners performing excavations or development at the Site can anticipate the environmental conditions that might be encountered.

2.5.1 Soil

This section of the SMP describes the existing on-site soil conditions that remain after completion of the remedy. As previously explained, prior remedial actions conducted at the site have addressed, to the extent practicable, the primary source of soil and groundwater contamination at the site. These remedial actions have resulted in soil concentrations that comply with the NYSDEC restricted commercial or industrial SCOs; however, potential secondary groundwater contamination sources remain as evidenced by the soil exceedances of the groundwater SCO.

As presented in Section 2.3, surface soil sampling results indicate that several metals (barium, cadmium, total chromium, copper, nickel, and zinc) were detected sporadically and discontinuously in excess of the applicable restricted SCOs in the immediate surroundings of the former building. Of these constituents, barium (at locations SS-7A and SS-7B), cadmium (at location SS-1-W), copper (at locations SS-1-W and SS-1-N2), lead (at location SS1-E), and nickel (at location SS-1-N1) were detected above the commercial SCOs. Subsurface soil sampling results indicate that ethenes (cis-1,2-dichloroethene, tetrachloroethene, trichloroethene, vinyl chloride), ethanes (1,1-dichloroethane, 1,2-dichloroethane, 1,1,1-trichloroethane) and 1,4-dioxane are present in site soils in excess of the NYSDEC unrestricted SCO. However, the detected concentrations do not exceed the NYSDEC restricted use SCOs for commercial and industrial sites. The greatest concentrations were detected in samples from borings located northeast of the former degreaser pit and generally at depths below the water table.

Table 3 and Figures 5A, 5B and 5C summarize the results of all soil samples collected that exceed the Unrestricted Use SCOs and the restricted commercial or industrial Use SCOs at the site after completion of remedial action. Metals contamination of surface soil (Figure 5A) extends over an area of approximately 4,500 square feet (SF). VOC contamination in unsaturated subsurface soils (Figure 5B) extends over an area of approximately 4,000 SF and vertically to a depth of 8 feet ngs, representing a volume of approximately 1,200 cubic yards. In the saturated zone (Figure 5C), VOC contamination extends over an area of approximately 2,600 SF and vertically from 8 feet bgs to the bedrock surface, representing a volume of approximately 860 cubic yards. Figures 3A through 3D provide cross-sectional views depicting the vertical extent of remaining soil contamination and the thickness of the remaining contamination, to that extent that the thickness has been determined.

As detailed in the RAWP, the presence of the metal and VOC exceedances in soil are addressed via the institutional and engineering controls that were placed as part of the approved remedy. As described in Section 3.3, the engineering control addressing soil contamination consists of a cover system that combines the concrete slab of the former building, asphalt pavement and soil capping. The soil capping was placed around the former building and was comprised of a demarcation layer (orange snow fence) and one-foot thick layer of coarse aggregate. Figure 10 shows the extent of this cover system.

The site is currently vacant and service to all underground utilities has been disconnected and deactivated. During installation of the groundwater engineering control, a 1-inch copper water line, a 6-inch clay pipe sewer line and a 2-inch gas line were disconnected and capped where they intersected the alignment of the groundwater engineering control. The alignment of the former underground utility lines is depicted on Figures 2 and 10.

2.5.2 Groundwater

This section describes the existing groundwater conditions, both on-site and off-site, after completion of the remedy. As previously explained, prior remedial actions conducted at the site have addressed, to the extent practicable, the primary source of groundwater contamination at the site; however, potential secondary groundwater contamination sources remain as evidenced by the soil exceedances of the groundwater SCO.

As presented in Section 2.3, chlorinated ethenes (1,1-dichloroethene, cis-1,2-dichloroethene, trans-1,2-dichloroethene, tetrachloroethene, trichloroethene, and vinyl chloride) and ethanes (1,1-dichloroethane, 1,2-dichloroethane, 1,1,1-trichloroethane, and 1,1,2-trichloroethane) remain in the shallow groundwater above Class GA AWQS. In the bedrock wells, only TCE and cis-1,2-DCE were detected at concentrations above the applicable AWQS-GA in BRMW-1, BRMW-3, and BRMW-4. The overburden wells monitor a saturated interval that extends to a depth of 10 feet, as defined from the 2015 groundwater elevation measurements. The shallow groundwater plume extends from the former degreaser pit northward, to the wells located on the north side of Campbell Avenue; however, the plume has remained relatively stable over time. The engineering control for groundwater, consisting of a zero valent iron (ZVI) treatment zone and a permeable reactive barrier (PRB), is a passive treatment system that will reduce concentrations in groundwater in-situ and mitigate offsite migration of impacted groundwater. Specifically, to address off-site migration, the PRB includes two sheetpile walls along the eastern and western plume boundaries that direct groundwater towards the permeable ZVI reactive media in the central portion of the plume.

Table 4 and Figure 6 summarize the results of all samples of groundwater that exceed the SCGs after completion of the remedial action. Figure 7 provides an approximate boundary of cVOC contamination (i.e., a plume boundary).

2.5.3 Soil Vapor

This section describes the existing soil vapor concentrations and any concerns regarding the potential for on-site soil vapor intrusion conditions after completion of the remedy. As indicated in Section 2.3, in NYSDEC correspondence dated January 27, 2010, analytical results of off-site soil vapor evaluations to the north of the site confirmed that no further action was warranted. Similarly, in NYSDEC correspondence dated March 29, 2018, analytical results of off-site soil vapor evaluations to the east and west of the site confirmed that no further action was warranted. Thus, there are no off-site soil vapor conditions that are addressed in this SMP.

As discussed in Section 2.3, various VOCs were detected in soil vapor samples collected, including PCE and TCE. Prior to the IRMs, the maximum concentrations of PCE and TCE in soil vapor were detected in the vicinity of the former excavation area (i.e., the former degreaser pit area) of the site at the respective concentrations of 2,100 mg/m^3 and 1,200,000 ug/m^3. Sampling of post-IRM soil vapor was not conducted in the vicinity of the

pit area. In light of these findings, future development at the site must consider potential soil vapor intrusion into planned structures at the site. Such actions could include installation of a passive sub-slab ventilation system, which could be later used for active soil vapor removal (i.e., as a sub-slab depressurization system) should analytical results of indoor air sampling suggest that such mitigation measures are appropriate. The need for and scope of any actions taken to address soil vapor concerns should be reviewed with NYSDEC and NYSDOH staff familiar with this site.

Table 5 summarizes the results of all samples of soil vapor that exceed the SCGs after completion of the remedial action. Sample locations are shown in Figure 8.

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 E) 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 commercial or industrial 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 9. These ICs are:

- The property may be used for: commercial and/or industrial 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 Rensselaer 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 9, 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 Cover (or Cap)

Exposure to remaining contamination at the site is prevented by a cover system placed over the site. This cover system is comprised of a minimum of 12 inches of clean coarse aggregate over a demarcation layer in areas immediately around the former building, as well as the concrete slab of the former building and asphalt pavement. In the areas where the PRB and ZVI treatment zone were excavated, the upper 12 inches were backfilled with 8 inches of dense graded aggregate (DGA) and four inches of asphalt and concrete, respectively. In addition, the existing pavement was milled and repaved to create a new finished asphalt surface. The coarse aggregate cover system, concrete slab and asphalt pavement extend over approximately 4,500 SF, 9,000 SF and 8,300 SF, respectively. Figure 10 presents the location of the cover system and applicable demarcation layers.

The Excavation Work Plan (EWP) provided in Appendix E 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 F.

3.3.2 Permeable Reactive Barrier and ZVI Treatment Zone

A granular zero valent iron (ZVI) permeable reactive barrier (PRB) was installed around the northern side of the former building to passively reduce concentrations of contaminants in groundwater in-situ and mitigate, to the extent practicable, offsite migrations of impacted groundwater. In addition, a ZVI Treatment Zone was installed immediately downgradient of the former degreaser pit (where TCA and TCE concentrations are highest) to passively reduce concentrations in groundwater, improve the effectiveness of the PRB and reduce remedial timeframes.

The PRB includes an approximately 30-foot long pervious ZVI treatment barrier and impermeable hydraulic barriers on either side of the PRB with a total combined length of 220 linear feet. The PRB is approximately three (3) feet wide and installed to a depth between approximately 15.2 and 16.2 feet bgs, and extends to the top of the underlying bedrock. The impermeable hydraulic barriers of the PRB consists of sealed Grade 50 Steel PZC-13 steel sheetpile sections coated with Carboline Bitumastic® 300 M and serve to route groundwater towards the permeable section containing the reactive media and located between the two sheetpile wall spans. The ZVI backfill for the PRB consists of 20% ZVI (Connelly-GPM's CC-1190 ZVI) and 80% washed sand with a D50 of 0.6 millimeters.

The ZVI Treatment Zone consists of an approximately three (3) foot wide and 25-foot long barrier installed to a depth of approximately 13.7 and 17.7 feet bgs and extends to the top of the underlying bedrock. The ZVI backfill for this treatment zone consists of 35% ZVI (Connelly-GPM's CC-1190) and 65% washed sand with a D50 of 0.6 millimeters.

This PRB system and ZVI Treatment Zone were installed in February and March 2018. Since the PRB and ZVI Treatment Zone are passive groundwater treatment systems, there are no operational and maintenance requirements for these systems. In addition, since the PRB and ZVI Treatment Zone are subsurface structures, the disturbed area has been restored to pre-existing conditions and no maintenance of the PRB is required.

To monitor the performance of the reactive media in the PRB and ZVI Treatment Zone, monitoring well pairs were installed upgradient and downgradient of the PRB (MW-101I, MW-101E, MW-102I, MW-102ER, MW-103I, MW-103E, MW-1041I and MW-104E[2]) and ZVI Treatment Zone (i.e., MW-100I and MW-100E). In addition, monitoring wells were also installed within the reactive media (MW-100B, MW-102B and MW103B). Effectiveness of the remedy will be demonstrated by a decrease in the groundwater VOC concentrations between the upgradient and downgradient wells.

As built drawings, signed and sealed by a professional engineer, are included in Appendix G. Figure 10 shows the location of the ECs for the site.

3.3.3 Sub-Slab Depressurization System

Currently, there are no structures on-site and there is no sub-slab depressurization system in place. However, future development at the site must consider potential soil vapor intrusion into planned structures at the site and could include installation of a passive sub-slab ventilation system or a sub-slab depressurization system. The need for and scope of any actions taken to address soil vapor concerns should be reviewed with NYSDEC and NYSDOH staff familiar with this site.

If a passive sub-slab ventilation system or a sub-slab depressurization system is installed, this SMP will be revised to include a description, including figures as appropriate, of the system, objective, design and operation.

[2] MW-102I and MW-103E were replaced with new monitoring wells MW-102IR and MW-103ER on January 23, 2019.

3.3.4 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.

3.3.4.1 Cover (or Cap)

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.

3.3.4.2 Permeable Reactive Barrier and ZVI Treatment Zone

Groundwater monitoring activities to assess treatment system performance will continue, as determined by the NYSDEC with consultation with NYSDOH, until residual groundwater concentrations are found to be consistently below ambient water quality standards, the site SCGs, or have become asymptotic at an acceptable level over an extended period. In the event that monitoring data indicates that monitoring for treatment system performance may no longer be required, a proposal to discontinue the system will be submitted by the remedial party. Monitoring will continue until permission to discontinue is granted in writing by the NYSDEC. If groundwater contaminant levels become asymptotic at a level that is not acceptable to the NYSDEC, additional source removal, treatment and/or control measures will be evaluated.

3.3.4.3 Sub-Slab Depressurization (SSD) System

Currently, there are no structures on-site and there is no sub-slab depressurization system in place. However, if future development at the site include installation of a passive sub-slab ventilation system or a sub-slab depressurization system, any active SSD system will not be discontinued unless prior written approval is granted by the NYSDEC and the NYSDOH. In the event that monitoring data indicates that the SSD system may no longer be required, a proposal to discontinue the SSD system will be submitted by the remedial party to the NYSDEC and NYSDOH.

4. MONITORING AND SAMPLING PLAN

4.1 General

This Monitoring and Sampling Plan describes the measures for evaluating the overall performance and effectiveness of the remedy. This Monitoring and Sampling Plan may only be revised with the approval of the NYSDEC. Details regarding the sampling procedures, data quality usability objectives, analytical methods, etc. for all samples collected as part of site management for the site are included in the Quality Assurance Project Plan provided in Appendix H.

This Monitoring and Sampling Plan describes the methods to be used for:

- Sampling and analysis of all appropriate media (e.g., groundwater, indoor air, soil vapor, soils);
- Assessing compliance with applicable NYSDEC standards, criteria and guidance (SCGs), particularly groundwater standards and Part 375 SCOs for soil; and
- Evaluating site information periodically to confirm that the remedy continues to be effective in protecting public health and the environment;

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

- Sampling locations, protocol and frequency;
- Information on all designed monitoring systems;
- Analytical sampling program requirements;
- Inspection and maintenance requirements for monitoring wells;
- Monitoring well decommissioning procedures; and
- 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 biannually prior to redevelopment, then at a minimum of once per year thereafter. 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 I – 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.

4.3 Treatment System Monitoring and Sampling

4.3.1 Remedial System Monitoring

The PRB and ZVI Treatment Zone are passive groundwater treatment systems. Therefore, currently there are no active (that is systems requiring energy, pumping or moving parts) remedial systems requiring monitoring or operation and maintenance. Standard groundwater monitoring as described in this document will be used to assess performance of the system over time. While no replacement or modification of the PRB system is anticipated, monitoring will be used to assess whether any part of the PRB system would require modifications to restore unanticipated performance.

However, if future development at the site includes installation of a passive sub-slab ventilation system or a sub-slab depressurization system, this SMP will be revised to include details on the remedial system monitoring requirements, including visual inspections, sampling, and pressure measurements. In addition, a complete list of remedial system components to be inspected will be provided in Appendix I - Site Management Forms.

4.3.2 Remedial System Sampling

The PRB and ZVI Treatment Zone are passive groundwater treatment systems. Therefore, currently there are no active remedial systems requiring sampling other than conventional

groundwater sampling. However, if future development at the site includes installation of a passive sub-slab ventilation system or a sub-slab depressurization system, this SMP will be revised to include details on the remedial system sampling requirements, including a brief description of sample collection methods, sampling equipment and waste management.

4.4 Post-Remediation Media Monitoring and Sampling

Samples shall be collected from the groundwater on a routine basis. Sampling locations, required analytical parameters and schedule are provided in Table 6 – Post Remediation Sampling Requirements and Schedule below. Modification to the frequency or sampling requirements will require approval from the NYSDEC.

The specific wells will include overburden monitoring wells (to monitor changes in the plume and performance of the in-situ groundwater treatment system), reactive treatment media monitoring wells (to monitor conditions and performance of the reactive treatment media) and water level monitoring wells (to monitor water level changes across the PRB). Samples from these nine wells will be collected quarterly during the first year, then semi-annually for the next two years and annually thereafter, with certain wells potentially eliminated overtime, or reduced in sampling frequency, as the periodic sampling confirms that the in-situ groundwater treatment system has reduced cVOC concentrations to below the Part 703.5 standards.

Table 6 – Post Remediation Sampling Requirements and Schedule

Sampling Location (1)	VOC Analysis (3)	Cations, Anions, Dissolved Fe, and Dissolved H2 (4)	Water Levels	Schedule
Overburden monitoring wells MW-101I, MW-104I, MW-104E, MW-11, MW-13, MW-14, MW-17, MW-18, and MW-19	X (2)		X	Annually
Groundwater monitoring for PRB effectiveness (monitoring wells MW-100I, MW-100B, MW-100E, MW-102IR, MW-102B, MW-102ER, MW-103I, MW-103B, and MW-103ER)	X (2)	X	X	Quarterly for first year; semi-annually for the next two years and annually thereafter
Water level monitoring wells MW-101E, MW-1, MW-5 and MW-8			X	Annually

Note 1: Existing monitoring wells MW-2, MW-3, MW-6, MW-7, MW-10, BRMW-1, BRMW-2S, BRMW-2D, BRMW-3 and BRMW-4 will be maintained but not sampled or monitored. Monitoring wells MW-4, MW-9, MW-12, MW-15 and MW-16 will be abandoned, if not abandoned already.

2: The laboratory will achieve detection limits of no greater than 1 ug/L for all chlorinated VOCs of concern for this site.

3: Per correspondence with NYSDEC on July 31, 2019, VOC analysis will be by EPA Method 8260C except for 1,4-dioxane analysis which will be by EPA Method 8270 SIM.

4: Cations refers to calcium, magnesium, sodium, and potassium (EPA Method 200.7). Anions refers to alkalinity (Method SM 2320B), nitrate (EPA Method 300), sulfate (EPA Method 300), and chloride (EPA Method 300). Samples to be analyzed for these parameters will be collected using low-flow sampling techniques and will include measurement of standard water quality parameters (pH, redox potential specific conductivity, and dissolved oxygen).

The groundwater samples will be collected via low flow sampling methods and/or using passive diffusion bag samplers. Each groundwater sample will be transferred to laboratory-provided 40-mL septum-capped glass vials for laboratory analysis. Detailed sample collection and analytical procedures and protocols are provided in Appendix J – Field Activities Plan and Appendix H – Quality Assurance Project Plan. All purge water will be containerized pending proper off-site disposal.

4.4.1 Groundwater Sampling

Groundwater monitoring will be performed annually to assess the performance of the remedy. Modification to the frequency or sampling requirements will require approval from the NYSDEC.

The network of monitoring wells has been installed to monitor upgradient, on-site and downgradient groundwater conditions at the site. The network of on-site and off-site wells has been designed based on the following criteria:

- For a passive remedy, the groundwater monitoring program should monitor changes in the groundwater plume characteristics, including contaminant concentrations and the horizontal extent of the plume. Documentation of continued decreasing trends in VOC concentrations before and after each treatment zone (i.e., ZVI Treatment Zone and PRB) is considered sufficient to demonstrate the continued effectiveness of the remedy.
- Monitoring groundwater geochemistry across each treatment zone (i.e., ZVI Treatment Zone and PRB) is considered sufficient to monitor the effectiveness of the treatment system.

Table 7 summarizes the wells identification number, as well as the purpose, location, depths, diameter and screened intervals of the wells. As part of the groundwater monitoring, two upgradient wells, one sidegradient well, two source areas, and four downgradient wells (of which two are off-site sentinel wells) are sampled to evaluate the effectiveness of the remedial system. In addition, five monitoring wells are installed immediately inside the PRB or ZVI Treatment Zone, three monitoring wells are installed within the reactive media, and five monitoring wells are installed immediately outside the PRB or ZVI Treatment Zone to monitor the performance of the treatment system.

Table 7 – Monitoring Well Construction Details

Monitoring Well ID	Well Location	Coordinates (state plane coordinates)	Well Diameter (inches)	Elevation (above mean sea level)			
				Casing	Surface	Screen Top	Screen Bottom
MW-1	Upgradient	X: 713240.0 Y: 1412203.1	2	277.26	274.89	273.26	258.26
MW-5	Upgradient	X: 713199.6 Y: 1412173.5	2	276.94	275.52	272.64	268.64
MW-8	Sidegradient	X: 713169.9 Y: 1412258.5	2	273.65	274.00	268.65	263.65
MW-11	Downgradient sentinel	X: 713161.6 Y: 1412429.6	2	266.89	267.04	262.89	253.89

Monitoring Well ID	Well Location	Coordinates (state plane coordinates)	Well Diameter (inches)	Elevation (above mean sea level)			
				Casing	Surface	Screen Top	Screen Bottom
MW-13*	Downgradient	X: 713252.2 Y: 1412396.2	1	266.17	266.35	259.49	254.49
MW-14*	Downgradient sentinel	X: 713221.1 Y: 1412454.7	1	266.34	266.51	258.70	248.70
MW-17	Downgradient	X: 713159.4 Y: 1412347.9	2	267.71	267.99	263.71	258.71
MW-18	Source Area	X: 713216.4 Y: 1412227.0	2	274.30	274.66	267.30	257.30
MW-19	Source Area	X: 713244.4 Y: 1412221.5	4	274.53	274.56	268.91	258.91
MW-100I	Upgradient from ZVI Treatment Zone	X: 713221.9 Y: 1412254.6	2	274.26	274.62	267.76	257.76
MW-100B	Within ZVI Treatment Zone	X: 713221.7 Y: 1412259.1	2	274.38	274.63	265.69	255.69
MW-100E	Downgradient from ZVI Treatment Zone	X: 713221.9 Y: 1412263.6	2	274.26	274.61	268.26	258.26
MW-101I	Inside Sheetpile wall	X: 713173.7 Y: 1412337.1	2	269.24	269.59	265.24	257.24
MW-101E	Outside Sheetpile wall	X: 713169.5 Y: 1412341.1	2	268.70	269.13	264.45	257.45
MW-102IR	Upgradient from PRB	X: 713200.2 Y: 1412347.8	2	268.85	269.22	261.85	251.85
MW-102B	Within PRB	X: 713200.4 Y: 1412351.4	2	268.61	269.02	261.96	251.96
MW-102ER	Downgradient from PRB	X: 713199.3 Y: 1412354.8	2	268.01	268.45	262.01	252.01
MW-103I	Upgradient from PRB	X: 713218.1 Y: 1412347.1	2	269.35	269.61	262.35	252.35
MW-103B	Within PRB	X: 713217.6 Y: 1412350.4	2	269.02	269.43	262.38	252.38
MW-103ER	Downgradient from PRB	X: 713218.2 Y: 1412354.2	2	268.46	269.00	263.46	253.46
MW-104I	Inside Sheetpile wall	X: 713251.5 Y: 1412273.2	2	275.97	274.87	257.97	247.97
MW-104E	Outside Sheetpile wall	X: 713257.4 Y: 1412274.3	2	274.90	274.86	258.40	248.40

* Well construction records for MW-13 and MW-14 are not available. The top and bottom of screen elevations for these wells were defined based on field measurements of the top of casing elevation and the well depth.

The location of these wells is presented on Figure 10 with representative flow directions presented in Figure 4. The overburden wells, which extend to a depth of 18 feet below ground surface, monitor water within the layer of fine sand with variable amounts of clay and silt. Most of the wells are screened across the water table, which given the variation in ground-surface elevations across the site, ranges from approximately 5 to 25 feet. Groundwater flow at the site generally mimics surface topography, and thus, is overall to the north toward the Wynantskill. Cross sections of site geology are provided as Figures 3a, 3b, 3c and 3d.

Monitoring well construction logs are included in Appendix C of this document.

If biofouling or silt accumulation occurs in the on-site and/or off-site monitoring wells, the wells will be physically agitated/surged and redeveloped. Additionally, monitoring wells will be properly decommissioned and replaced, if an event renders the wells unusable or no longer necessary.

Repairs and/or replacement of wells in the monitoring well network will be performed based on assessments of structural integrity and overall performance.

The NYSDEC will be notified prior to any repair or decommissioning of any monitoring well for the purpose of replacement, and the repair or decommissioning and replacement process will be documented in the subsequent Periodic Review Report. Well decommissioning without replacement will be done only with the prior approval of the NYSDEC. Well abandonment will be performed in accordance with NYSDEC's guidance entitled "CP-43: Groundwater Monitoring Well Decommissioning Procedures." Monitoring wells that are decommissioned because they have been rendered unusable will be replaced in kind in the nearest available location, unless otherwise approved by the NYSDEC.

The sampling frequency may only be modified with the approval of the NYSDEC. This SMP will be modified to reflect changes in sampling plans approved by the NYSDEC.

Deliverables for the groundwater monitoring program are specified in Section 7.0 – Reporting Requirements.

4.4.2 Monitoring and Sampling Protocol

All sampling activities will be recorded in a field book and associated sampling log as provided in Appendix I - Site Management Forms. Other observations (e.g., groundwater monitoring well integrity, etc.) will be noted on the sampling log. The sampling log will serve as the inspection form for the monitoring network. Additional detail regarding monitoring and sampling protocols are provided in the site-specific Field Activities Plan provided as Appendix J of this document.

5. OPERATION AND MAINTENANCE PLAN

5.1 General

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.

If a sub-slab depressurization system is installed as part of the future redevelopment of the site, the Operation and Maintenance (O&M) Plan of this SMP will be modified to provide a brief description of the measures necessary to operate, monitor and maintain the mechanical components of the system. The revised O&M Plan will include definition of the performance criteria and operation and maintenance requirements.

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.

No vulnerability assessments have been performed or required for the site. Additionally, there are no future vulnerability assessments planned or considered necessary. Because the engineering controls will consist only of a cover system and a passive in-situ groundwater remediation system, a climate change vulnerability assessment is not considered necessary as part of this SMP. Specific reasons in that regard include:

- The site is not located in a flood plain, or a low-lying or low-groundwater recharge area.
- Post-remedial grading did not alter site elevations. The site did not and does not have areas that are prone to flooding during severe rain events because of insufficient groundwater recharge capabilities or inadequate storm water management systems.
- Based on post-remedial site conditions, the site does not have areas where erosion occurs or are susceptible to erosion during periods of severe rain events.
- There are no areas or features at the site susceptible to damage from high wind or falling objects such as trees or utility structures during periods of high wind.
- Since the passive remedial system does not have mechanical or electrical components, the remedial system is not susceptible to power loss and/or dips/surges in voltage during severe weather events, including lightning strikes.
- There are no areas of the site and/or remedial system which may be susceptible to a spill or other contaminant release due to storm-related damage caused by flooding, erosion, high winds, loss of power etc.

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).

The site remedy incorporated the fundamental aspects of NYSDEC DER-31 by minimizing the generation of waste requiring off-site disposal, limiting operation and maintenance requirements, preventing disturbance of previously undisturbed areas, and avoiding interference with potential site redevelopment plans. Specifically,

- excavation and off-site disposal of impacted soils was minimized by implementing an in-situ remedy for groundwater. This resulted in reduced truck traffic to and from the site (and associated emissions and transportation related risks), and minimized the consumption of available airspace in the disposal facilities.
- the in-situ groundwater treatment system does not have any mechanical components requiring power, maintenance or operation, thereby optimizing the use of resources and minimizing energy demands and potential shutdowns for equipment failure, which is particularly important in a site that is currently vacant and de-energized.
- implementation of the remedy did not result in the disturbance of areas not previously altered by prior site improvements, thereby minimizing impacts to the surrounding habitat (i.e., the southern wooded/undeveloped portion of the site).
- since the remedy is an in-situ technology with no above ground structures (other than monitoring wells), it will not interfere with potential redevelopment of the site.

In addition, the following environmentally-sustainable practices were implemented, to the maximum extent practicable, during remedy implementation:

- operating equipment at peak efficiency, thereby minimizing fossil fuel usage, air emission, and waste generation;
- using low-sulfur fuel or biodiesels in lieu of diesel, thereby reducing air emissions and greenhouse gas contributions;
- using mufflers and sound attenuation equipment to reduce noise; and
- using passive sampling devices for long-term groundwater monitoring, thereby reducing the amount of investigation derived waste requiring off-site management.

Any post-redevelopment methods proposed to reduce energy consumption, resource usage, waste generation, water usage, etc. should be included in the PRR.

6.2.1 Frequency of System Checks, Sampling and Other Periodic Activities

Transportation to and from the Site and use of consumables in relation to visiting the Site in order to collect samples and shipping samples to a laboratory for analyses have direct and/or inherent energy costs. The schedule and/or means of these periodic activities have been prepared so that these tasks can be accomplished in a manner that does not impact remedy protectiveness but reduces expenditure of energy or resources. Accordingly, consideration was given to reduced sampling frequencies and combining site visits for multiple purposes. Given the relatively minor scope of periodic activities, which comprise groundwater monitoring and site inspection, these actions will be completed in a single annual site visit.

6.3 Remedial System Optimization

A Remedial Site Optimization (RSO) study will be conducted any time that the NYSDEC or the remedial party requests in writing that an in-depth evaluation of the remedy is needed. An RSO may be appropriate if any of the following occur:

- The remedial actions have not met or are not expected to meet RAOs in the time frame estimated in the Decision Document;

- The management and operation of the remedial system is exceeding the estimated costs;
- The remedial system is not performing as expected or as designed;
- Previously unidentified source material may be suspected;
- Plume shift has potentially occurred;
- Site conditions change due to development, change of use, change in groundwater use, etc.;
- There is an anticipated transfer of the site management to another remedial party or agency; and
- A new and applicable remedial technology becomes available.

An RSO will provide a critique of a site's conceptual model, give a summary of past performance, document current cleanup practices, summarize progress made toward the site's cleanup goals, gather additional performance or media specific data and information and provide recommendations for improvements to enhance the ability of the present system to reach RAOs or to provide a basis for changing the remedial strategy.

The RSO study will focus on overall site cleanup strategy, process optimization and management with the intent of identifying impediments to cleanup and improvements to site operations to increase efficiency, cost effectiveness and remedial time frames. Green remediation technology and principals are to be considered when performing the RSO.

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 I. 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 8 and summarized in the Periodic Review Report.

Table 8: Schedule of Interim Monitoring/Inspection Reports

Task/Report	Reporting Frequency*
Groundwater Monitoring Reports for PRB Effectiveness	Quarterly for first year; semi-annually for the next two years and annually thereafter
Inspection Report	Monthly (for any construction, excavation and related soil management activities) Annual for other activities, including those related to institutional and engineering controls
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^{TM} 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 Professional Engineer licensed to practice in New York State 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 generally accepted engineering practices; 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, Travis Quarles, of ESCO Corporation, 2141 NW 25th Avenue, Portland, Oregon 97201, am certifying as Owner/Remedial Party Representative."

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.

7.4 Remedial Site Optimization Report

In the event that an RSO is to be performed (see Section 6.3, upon completion of an RSO, an RSO report must be submitted to the Department for approval. A general outline for the RSO report is provided in Appendix K. The RSO report will document the research/ investigation and data gathering that was conducted, evaluate the results and facts obtained, present a revised conceptual site model and present recommendations. RSO recommendations are to be implemented upon approval from the NYSDEC. Additional work plans, design documents, HASPs etc., may still be required to implement the

recommendations, based upon the actions that need to be taken. A final engineering report and update to the SMP may also be required.

The RSO report will be submitted, in electronic format, to the NYSDEC Central Office, Regional Office in which the site is located, Site Control and the NYSDOH Bureau of Environmental Exposure Investigation.

8. REFERENCES

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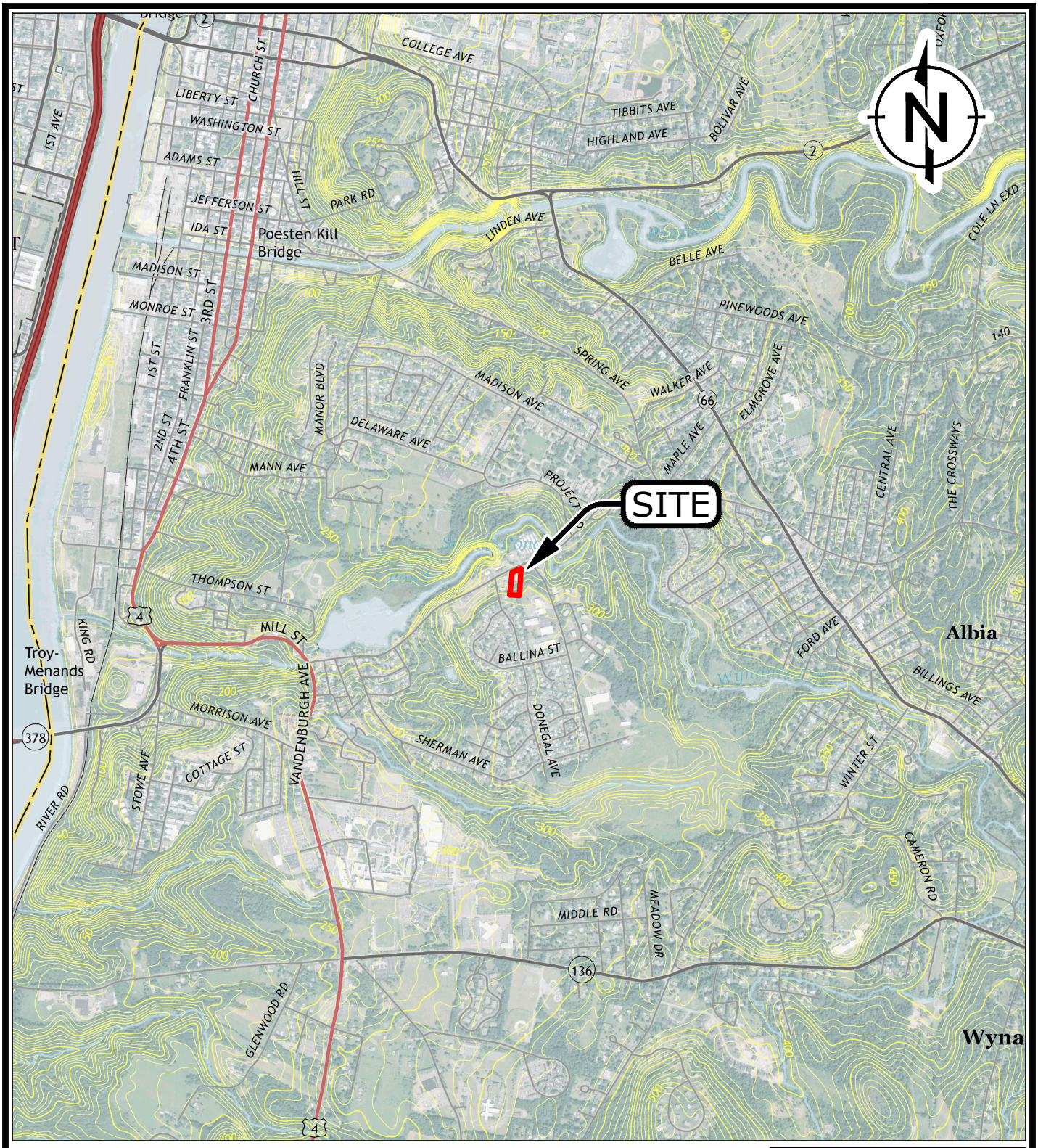
FIGURES



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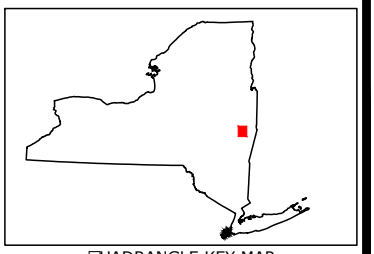

□UADRANGLE KEY MAP

SOURCE:
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ENVIRON Engineers of North Carolina, PC
CERTIFICATE NUMBER: 0012568

DRAFTED BY: KPM | DATE: 06/15/2017

SITE LOCATION MA□

520 CAMPBELL AVENUE
CITY OF TROY, NEW YORK

FIGURE
□

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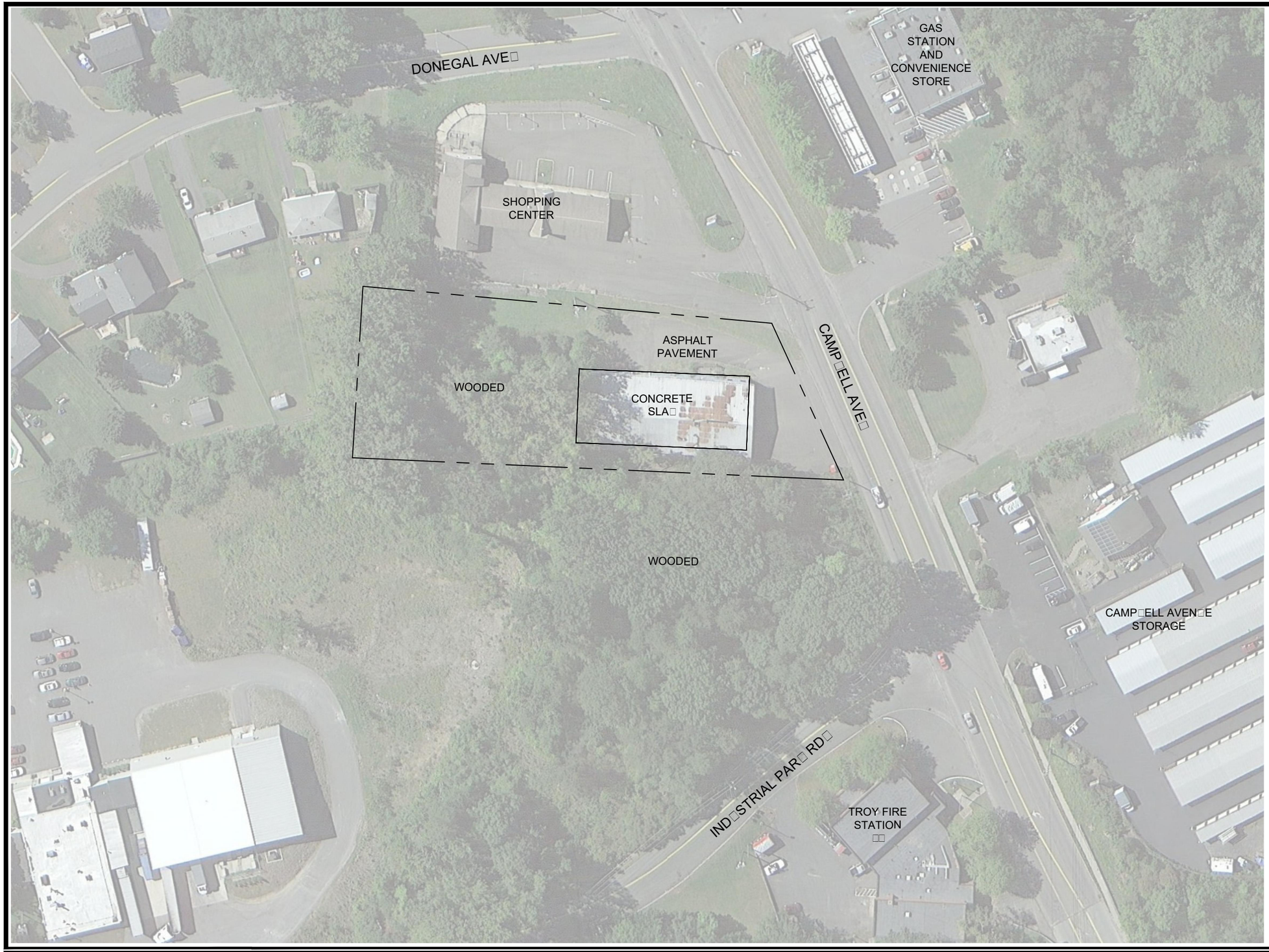

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520 CAMPBELL AVENUE
CITY OF TROY, NEW YORK

FIGURE

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SV-3
SV-4
SV-5
SV-6
MW-6
BRMW-3
MW-4
MW-17/GB-01
MW-11
TB-13
ASPHALT
BRMW-4
SHEETPILE WALL
CONCRETE SIDEWALK
GRANITE CURB
CAMPBELL AVE
MW-POSSIBLE
MW-14
MW-12
DB-6
DB-2
DB-4
DB-7
DB-3
DB-1
MW-3
MW-13
SS-2
MW-8
SS-1-W
SS-1-S1
SS-1-S2
SS-1
SS-1-N1
SS-1-N2
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SS-1
SS-6
MW-1
MW-2
BRMW-1
SS-7-W2
SS-7-W1
SS-7
SS-7-N1
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SS-7-S2
SS-7-S1
SS-7A
SS-7B
SS-7-E1
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MW-10
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B-12
B-13
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TB-10-10A
DB-8
BRMW-2S
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TB-991
TB-992
TB-993
TB-994
TB-995
TB-996
TB-997
TB-998
TB-999
TB-1000

SOURCE:

1. SITE TOPOGRAPHY AND PLANIMETRY "POST CONSTRUCTION SURVEY" PREPARED BY NMB LAND SURVEYING PLLC, JUNE 6, 2018.
2. SAMPLE LOCATIONS: "STEEL TREATERS, 520 CAMPBELL AVENUE, SAMPLE LOCATIONS" PREPARED BY BARTON AND LOGUIDICE, P.C., PROJECT NO. 1047.001, AND INCLUDED AS FIGURE 3 OF THE NOVEMBER 2013 REMEDIAL INVESTIGATION REPORT.
3. ALL SAMPLE LOCATIONS SHOWN IN LIGHT GRAY ARE APPROXIMATE. LOCATIONS BASED ON "SITE MAP SHOWING SOIL AND GROUNDWATER SAMPLING LOCATIONS" PREPARED BY BARTON & LOGUIDICE, P.C. AND INCLUDED AS FIGURE 3 OF THE NOVEMBER 2013 REMEDIAL INVESTIGATION REPORT.
4. "UNKNOWN UNDERGROUND FEATURE" REFERS TO SUBSURFACE METALLIC ANOMALIES IDENTIFIED DURING THE GEOPHYSICAL SURVEY COMPLETED BY NAEVA GEOPHYSICS ON NOVEMBER 24, 2015.

LEGEND

- PROPERTY BOUNDARY
- AS-BUILT GRADE CONTOUR
- UNKNOWN PENETRATION
- DB-2 BORING LOCATION
- MW MONITORING WELL LOCATION
- SV-5 SOIL VAPOR SAMPLING POINTS
- B-10 BORING LOCATION (ENVIRON 2015 & 2016)
- PTO-04 PUMP TEST OBSERVATION POINT (ENVIRON 2015)
- TMP-06 TEMPORARY MONITORING POINT
- TB-21 TEST BORING LOCATION
- MIP-4 MEMBRANE INTERFACE PROBE (08/10)
- A-3 MEMBRANE INTERFACE PROBE (09/12)
- MW-4 WELL NO LONGER SUITABLE FOR SAMPLING
- MW-15 WELL REMOVED DURING DEC. 2010 EXCAVATION IRM
- SS-7 SOIL COVER SAMPLE (REH 2016 & 2017)
- SV-10 SOIL GAS SAMPLE (REH 2016 & 2017)

10 0 10 20
SCALE IN FEET

REV.	DATE	DR.	CH.	REVISION

CROSS-SECTION KEY MAP

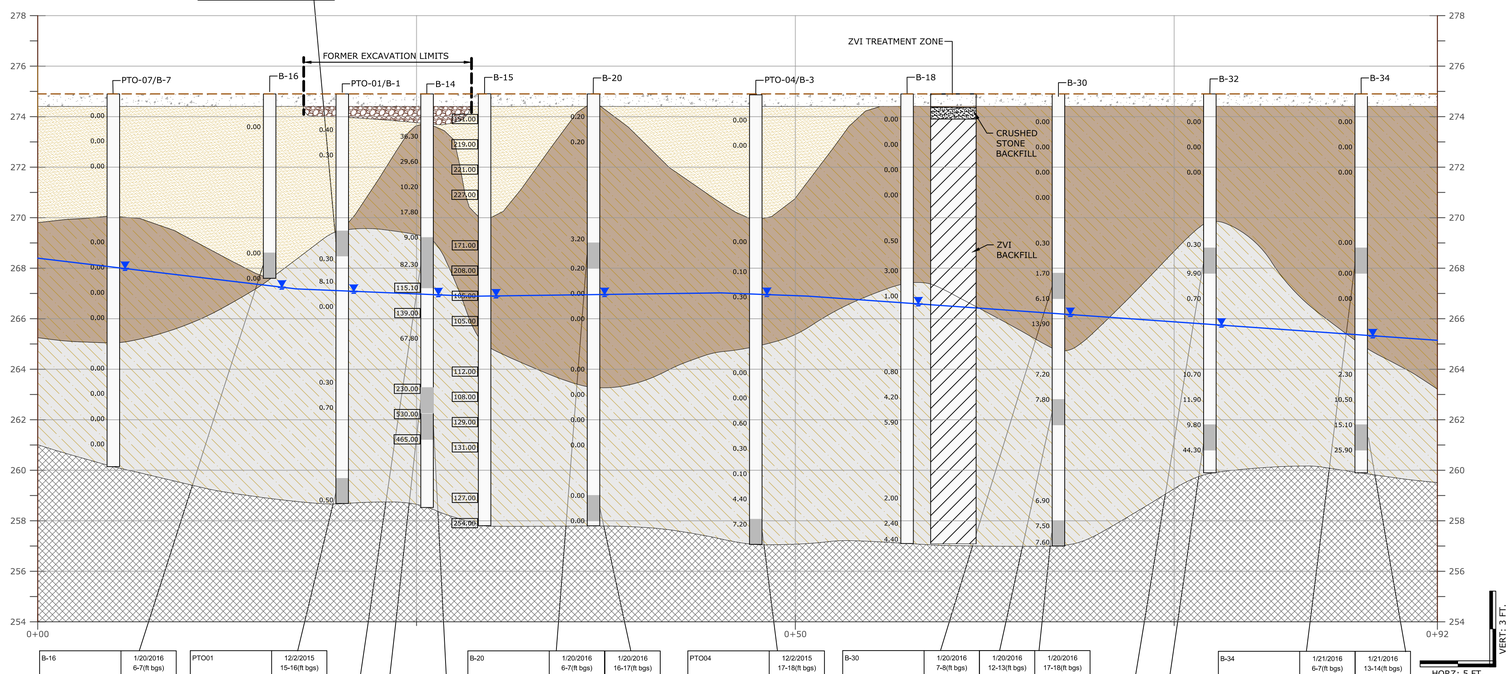
ESCO STEEL
520 CAMPBELL AVENUE
CITY OF TROY, NEW YORK

ENVIRON
ENVIRON Engineers of North Carolina, PC
CERTIFICATE NUMBER: 0012568

PREPARED BY: EL	DATE: 06/08/2018	FIGURE 3A
DRAFTED BY: KPM	SCALE: AS SHOWN	
APPROVED BY: JS	PROJECT: 1690000663	

MBLEI 6/8/18
F:\1690000663_ESCO STEEL_SMP-FER < SECT_SMP-FER >

PT001	12/2/2015 5-6(ft bgs) mg/kg
VOC	
1,1-Dichloroethane	0.68 U
1,2-Dichloroethane	0.68 U
1,1-Dichloroethene	0.68 U
cis-1,2-Dichloroethene	0.26 J (A)
trans-1,2-Dichloroethene	0.68 U
1,4-Dioxane	13 U
Methylene Chloride	0.68 U
Tetrachloroethene	2.2 (A)
1,1,1-Trichloroethane	1.1 (A)
1,1,2-Trichloroethane	0.68 U
Trichloroethene	36 (AB)
Vinyl Chloride	0.68 U



B-16	1/20/2016 6-7(ft bgs) mg/kg
VOC	
1,1-Dichloroethane	0.0043 U
1,2-Dichloroethane	0.0043 U
1,1-Dichloroethene	0.0043 U
cis-1,2-Dichloroethene	0.0043 U
trans-1,2-Dichloroethene	0.0043 U
1,4-Dioxane	0.086 U
Methylene Chloride	0.0043 U
Tetrachloroethene	0.0043 U
1,1,1-Trichloroethane	0.0016 J
1,1,2-Trichloroethane	0.0043 U
Trichloroethene	0.094
Vinyl Chloride	0.0043 U

PTO01	12/2/2015 15-16(ft bgs) mg/kg
VOC	
1,1-Dichloroethane	0.0032 U
1,2-Dichloroethane	0.0032 U
1,1-Dichloroethene	0.0032 U
cis-1,2-Dichloroethene	0.0032 U
trans-1,2-Dichloroethene	0.0032 U
1,4-Dioxane	0.065 U*
Methylene Chloride	0.0032 U
Tetrachloroethene	0.0032 U*
1,1,1-Trichloroethane	0.0032 U
1,1,2-Trichloroethane	0.0032 U*
Trichloroethene	0.0032 U
Vinyl Chloride	0.0032 U

B-20	1/20/2016 6-7(ft bgs) mg/kg	1/20/2016 16-17(ft bgs) mg/kg
VOC		
1,1-Dichloroethane	0.0012 J	0.00077 J
1,2-Dichloroethane	0.0047 U	0.004 U
1,1-Dichloroethene	0.0047 U	0.004 U
cis-1,2-Dichloroethene	0.018	0.004 U
trans-1,2-Dichloroethene	0.0047 U	0.004 U
1,4-Dioxane	0.093 U	0.08 U
Methylene Chloride	0.0047 U	0.004 U
Tetrachloroethene	0.0023 J	0.004 U
1,1,1-Trichloroethane	0.0044 J	0.004 U
1,1,2-Trichloroethane	0.0047 U	0.004 U
Trichloroethene	0.16	0.004 U
Vinyl Chloride	0.0047 U	0.004 U

PTO04	12/2/2015 17-18(ft bgs) mg/kg
VOC	
1,1-Dichloroethene	6.8 (A)
1,2-Dichloroethene	1 U
1,1-Dichloroethene	2.3 (A)
cis-1,2-Dichloroethene	1 (A)
trans-1,2-Dichloroethene	1 U
1,4-Dioxane	20 U
Methylene Chloride	1 U
Tetrachloroethene	1 U
1,1,1-Trichloroethane	1 U
1,1,2-Trichloroethane	1 U
Trichloroethene	27 (AB)
Vinyl Chloride	1 U

B-30	1/20/2016 7-8(ft bgs) mg/kg	1/20/2016 12-13(ft bgs) mg/kg	1/20/2016 17-18(ft bgs) mg/kg
VOC			
1,1-Dichloroethene	0.021	0.31 (A)	0.88 (A)
1,2-Dichloroethene	0.0011 J	0.053 U	0.04 J (A)
1,1-Dichloroethene	0.089	0.24	0.9 (A)
cis-1,2-Dichloroethene	5.4 (A)	0.58 (A)	1.9 (A)
trans-1,2-Dichloroethene	0.014	0.053 U	0.053 U
1,4-Dioxane	0.094 U	1 U*	1 U*
Methylene Chloride	0.0047 U	0.053 U	0.053 U
Tetrachloroethene	0.00094 J	0.97	0.053 U
1,1,1-Trichloroethane	0.00052 J	0.053 U	0.053 U
1,1,2-Trichloroethane	0.0047 U	0.053 U	0.053 U
Trichloroethene	100 (AB)	48 (AB)	94 (AB)
Vinyl Chloride	0.065 (A)	0.053 U	0.18 (A)

B-34	1/21/2016 6-7(ft bgs) mg/kg	1/21/2016 13-14(ft bgs) mg/kg
VOC		
1,1-Dichloroethene	0.0046 U	0.089 U
1,2-Dichloroethene	0.0046 U	0.089 U
1,1-Dichloroethene	0.0046 U	0.089 U
cis-1,2-Dichloroethene	0.0016 J	1.9 (A)
trans-1,2-Dichloroethene	0.0046 U	0.023 J
1,4-Dioxane	0.093 U	1.7 U
Methylene Chloride	0.0046 U	0.051 JB (A)
Tetrachloroethene	0.0046 U	0.26
1,1,1-Trichloroethane	0.0046 U	0.089 U
1,1,2-Trichloroethane	0.0046 U	0.089 U
Trichloroethene	0.0054	34 (AB)
Vinyl Chloride	0.001 J	0.036 J (A)

B-14	12/3/2015 5-7(ft bgs) mg/kg	12/3/2015 11-12(ft bgs) mg/kg	12/3/2015 12-13(ft bgs) mg/kg
VOC			
1,1-Dichloroethene	0.0038 U	0.0053 U	0.0033 U
1,2-Dichloroethene	0.0038 U	0.0053 U	0.0033 U
1,1-Dichloroethene	0.0038 U	0.0053 U	0.0033 U
cis-1,2-Dichloroethene	0.0038 U	0.0053 U	0.0033 U
trans-1,2-Dichloroethene	0.0038 U	0.0053 U	0.0033 U
1,4-Dioxane	0.077 U	0.11 U	0.067 U
Methylene Chloride	0.0038 U	0.0053 U	0.0033 U
Tetrachloroethene	0.0038 U	0.0053 U	0.0033 U
1,1,1-Trichloroethane	0.0038 U	0.0053 U	0.0033 U
1,1,2-Trichloroethane	0.0038 U	0.0053 U	0.0033 U
Trichloroethene	0.0028 J	0.0053 U	0.0033 U
Vinyl Chloride	0.0038 U	0.0053 U	0.0033 U

B-32	1/21/2016 6-7(ft bgs) mg/kg	1/21/2016 13-14(ft bgs) mg/kg
VOC		
1,1-Dichloroethene	0.014	1.5 (A)
1,2-Dichloroethene	0.0042 U	0.05 J (A)
1,1-Dichloroethene	0.09	1.8 (A)
cis-1,2-Dichloroethene	4.7 (A)	10 (A)
trans-1,2-Dichloroethene	0.0066	0.018 J
1,4-Dioxane	0.084 U	1 U*
Methylene Chloride	0.0042 U	0.017 J
Tetrachloroethene	0.44	0.054 U
1,1,1-Trichloroethane	0.032	0.054 U
1,1,2-Trichloroethane	0.0042 U	0.054 U
Trichloroethene	5.9 (A)	80 (AB)
Vinyl Chloride	1.5 (AB)	0.77 (A)

CROSS SECTION A□-A□
SCALE: HORZ. 1" = 5□
VERT. 1" = 3□

Chemical	(A) NYSDEC Unrestricted Soil Cleanup Objectives (Unrestricted SCO) (mg/kg)	(B) NYSDEC Restricted Use Soil Cleanup Objectives - Residential (Restricted Res SCO) (mg/kg)	(C) NYSDEC Commercial Soil Cleanup Objectives (Commercial SCO) (mg/kg)	(D) NYSDEC Restricted Use Soil Cleanup Objectives - Industrial (Restricted Ind SCO) (mg/kg)
WQ				
Chloride				
VOC				
1,1-Dichloroethene	0.27	26	240	480
1,2-Dichloroethene	0.02	3.1	30	60
1,1-Dichloroethene	0.33	100	500	1000
cis-1,2-Dichloroethene	0.25	100	500	1000
trans-1,2-Dichloroethene	0.19	100	500	1000
1,4-Dioxane	0.1	13	130	250
Methylene Chloride	0.05	100	500	1000
Tetrachloroethene	1.3	19	150	300
1,1,1-Trichloroethane	0.68	100	500	1000
1,1,2-Trichloroethane				
Trichloroethene	0.47	21	200	400
Vinyl Chloride	0.02	0.9	13	27

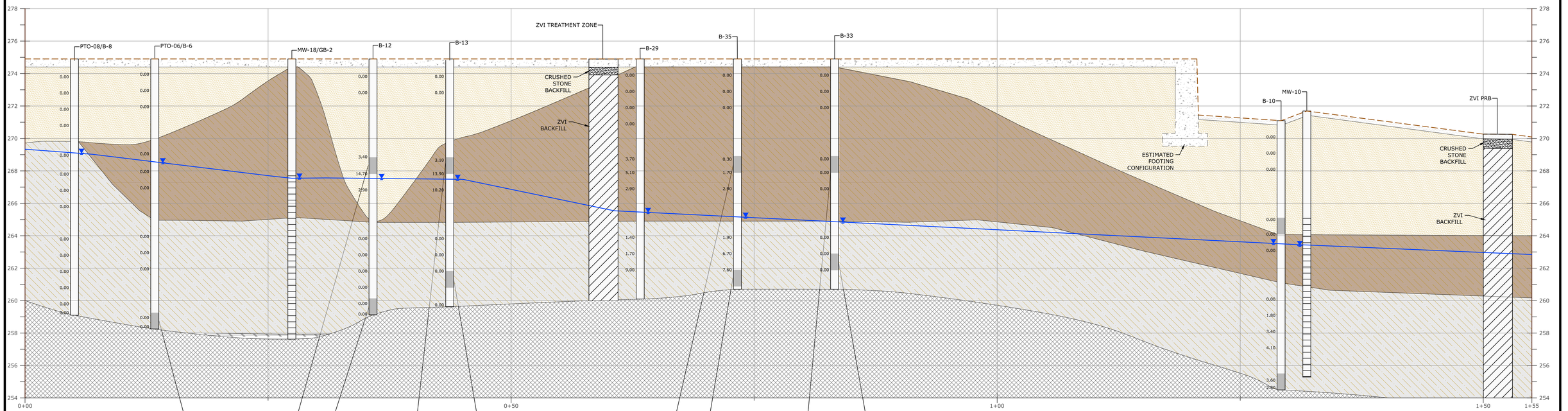
B - B□□□C□□□□ □□□□□□
J - E□□□□□□ C□□□□□□□□□
□ - L□□□□□□□C□□□□S□□ □□□□□□□□□□□□□□□□

□A□ E□□□□□□NYSDEC U□□□□□□□□ SCO
□B□ E□□□□□□NYSDEC R□□□□□□□□ R□□SCO
□C□ E□□□□□□NYSDEC C□□□□□□□□SCO
□D□ E□□□□□□NYSDEC R□□□□□□□□ I□□ SCO

NOTES:
1. A□□□□□□□□□□□□□□□

LEGEND

- CONCRETE
- GRAVEL
- ASPHALT
- SAND□SILT
- □ROWN SILT
- GRAY SILT
- WEATHERED □EDROC□
- □EDROC□
- GRO□NDWATER LEVEL □REFER TO 2015 GW CONTO□R MAPS□
- MONITORING WELL
- MONITORING WELL SCREEN
- SAMPLE DEPTH
- HORI□ONTAL LIMITS OF FORMER E□CAVATION
- □10 PID MEAS□REMENT □PPM□



PTO06	12/2/2015 16-17(ft bgs) mg/kg
VOC	
1,1-Dichloroethane	0.005 U
1,2-Dichloroethane	0.005 U
1,1-Dichloroethene	0.005 U
cis-1,2-Dichloroethene	0.005 U
trans-1,2-Dichloroethene	0.005 U
1,4-Dioxane	0.1 U*
Methylene Chloride	0.005 U
Tetrachloroethene	0.005 U*
1,1,1-Trichloroethane	0.005 U
1,1,2-Trichloroethane	0.005 U*
Trichloroethene	0.005 U
Vinyl Chloride	0.005 U

B-12	12/3/2015 6-7(ft bgs) mg/kg	12/3/2015 15-16(ft bgs) mg/kg
VOC		
1,1-Dichloroethane	0.018	0.0034 U
1,2-Dichloroethane	0.015	0.0034 U
1,1-Dichloroethene	0.089	0.0034 U
cis-1,2-Dichloroethene	0.071	0.0006 J
trans-1,2-Dichloroethene	0.0038 U	0.0034 U
1,4-Dioxane	0.81 (A)	0.067 U*
Methylene Chloride	0.0038 U	0.0034 U
Tetrachloroethene	0.081	0.0034 U*
1,1,1-Trichloroethane	1.8 (A)	0.0034 U
1,1,2-Trichloroethane	0.023	0.0034 U*
Trichloroethene	18 (A)	0.0073
Vinyl Chloride	0.0038 U	0.00098 J

B-13	12/3/2015 6-7(ft bgs) mg/kg	12/3/2015 13-14(ft bgs) mg/kg
VOC		
1,1-Dichloroethane	0.033	0.57 J (A)
1,2-Dichloroethane	0.022 (A)	1.8 U
1,1-Dichloroethene	0.09	1.8 U
cis-1,2-Dichloroethene	0.27 J (A)	1.8 U
trans-1,2-Dichloroethene	0.0013 J	1.8 U
1,4-Dioxane	2.4 (A)	34 U
Methylene Chloride	0.0037 U	1.8 U
Tetrachloroethene	0.034	1.8 U
1,1,1-Trichloroethane	0.84 (A)	1.8 U
1,1,2-Trichloroethane	0.028	1.8 U
Trichloroethene	14 (A)	120 (A8)
Vinyl Chloride	0.0037 U	1.8 U

B-35	1/21/2016 6-7(ft bgs) mg/kg	1/21/2016 13-14(ft bgs) mg/kg
VOC		
1,1-Dichloroethane	0.0096	0.036
1,2-Dichloroethane	0.0009 J	0.0011 J
1,1-Dichloroethene	0.013	0.092
cis-1,2-Dichloroethene	0.079	0.079
trans-1,2-Dichloroethene	0.001 J	0.0018 J
1,4-Dioxane	0.091 U	0.3 (A)
Methylene Chloride	0.0046 U	0.011 U
Tetrachloroethene	0.00094 J	0.0044 J
1,1,1-Trichloroethane	0.022	0.12
1,1,2-Trichloroethane	0.0046 U	0.011 U
Trichloroethene	0.48 (A)	1.3 (A)
Vinyl Chloride	0.0088	0.011 U

B-33	1/21/2016 6-7(ft bgs) mg/kg	1/21/2016 12-13(ft bgs) mg/kg
VOC		
1,1-Dichloroethane	0.0051 U	0.016
1,2-Dichloroethane	0.0051 U	0.0011 J
1,1-Dichloroethene	0.0051 U	0.043
cis-1,2-Dichloroethene	0.017	2.6 (A)
trans-1,2-Dichloroethene	0.0051 U	0.0095
1,4-Dioxane	0.1 U	0.093 U
Methylene Chloride	0.0051 U	0.0046 U
Tetrachloroethene	0.0051 U	0.002 J
1,1,1-Trichloroethane	0.0051 U	0.0033 J
1,1,2-Trichloroethane	0.0051 U	0.00063 J
Trichloroethene	0.009	73 (A8)
Vinyl Chloride	0.0015 J	0.028 (A)

HORZ: 5 FT.
VERT: 3 FT.

CROSS SECTION B□B□
SCALE: HORZ. 1" = 5□
VERT. 1" = 3□

Chemical	(A) NYSDEC Unrestricted Soil Cleanup Objectives (Unrestricted SCO) (mg/kg)	(B) NYSDEC Restricted Use Soil Cleanup Objectives - Residential (Restricted Res SCO) (mg/kg)	(C) NYSDEC Commercial Soil Cleanup Objectives (Commercial SCO) (mg/kg)	(D) NYSDEC Restricted Use Soil Cleanup Objectives - Industrial (Restricted Ind SCO) (mg/kg)
WQ				
Chloride				
VOC				
1,1-Dichloroethane	0.27	26	240	480
1,2-Dichloroethane	0.02	3.1	30	60
1,1-Dichloroethene	0.33	100	500	1000
cis-1,2-Dichloroethene	0.25	100	500	1000
trans-1,2-Dichloroethene	0.19	100	500	1000
1,4-Dioxane	0.1	13	130	250
Methylene Chloride	0.05	100	500	1000
Tetrachloroethene	1.3	19	150	300
1,1,1-Trichloroethane	0.68	100	500	1000
1,1,2-Trichloroethane				
Trichloroethene	0.47	21	200	400
Vinyl Chloride	0.02	0.9	13	27

B - B□□□C□□□□ □□□□□□
J - E□□□ □□□ C□□□□□□□□
□ - L□□□□□□ □C□□□□S □□ □□□□□□□□□□ □□□□

□A□ E□□□□□ □NYSDEC U□□□□□□□ SCO
□B□ E□□□□□ □NYSDEC R□□□□□□□ □□SCO
□C□ E□□□□□ □NYSDEC C□□ □ C□□SCO
□D□ E□□□□□ □NYSDEC R□□□□□□ 1□ SCO

NOTES:
1. A□□□□□□□□□

Chemical	(A) NYSDEC Unrestricted Soil Cleanup Objectives (Unrestricted SCO) (mg/kg)	(B) NYSDEC Restricted Use Soil Cleanup Objectives - Residential (Restricted Res SCO) (mg/kg)	(C) NYSDEC Commercial Soil Cleanup Objectives (Commercial SCO) (mg/kg)	(D) NYSDEC Restricted Use Soil Cleanup Objectives - Industrial (Restricted Ind SCO) (mg/kg)
WQ				
Chloride				
VOC				
1,1-Dichloroethane	0.27	26	240	480
1,2-Dichloroethane	0.02	3.1	30	60
1,1-Dichloroethene	0.33	100	500	1000
cis-1,2-Dichloroethene	0.25	100	500	1000
trans-1,2-Dichloroethene	0.19	100	500	1000
1,4-Dioxane	0.1	13	130	250
Methylene Chloride	0.05	100	500	1000
Tetrachloroethene	1.3	19	150	300
1,1,1-Trichloroethane	0.68	100	500	1000
1,1,2-Trichloroethane				
Trichloroethene	0.47	21	200	400
Vinyl Chloride	0.02	0.9	13	27

B - B□□C□□□□□□□□
) - E□□□□□□□ C□□□□□□□□□
□ - □□□□□□□□□□

GRASS

VEGETATION/TREE LINE

UNKNOWN UNDERGROUND FEATURE

ASPHALT

BOLLARD

UNKNOWN UNDERGROUND FEATURE

UNKNOWN UNDERGROUND FEATURE

CONCRETE

CONCRETE SLAB

CONC. PAD

FORMER EXCAVATION LIMITS

FORMER PIT

FORMER PIT

CONC. PAD (BURIED, SIZE UNKNOWN)

CONC. PAD (BURIED, SIZE UNKNOWN)

UNKNOWN UNDERGROUND FEATURE

GRASS

ASPHALT

CONC. STAIRS

ASPHALT

ASPHALT

CAMPBELL AVE

GRANITE CURB

GRANITE CURB

CONCRETE SIDEWALK

268.84 MW-6

268.52 MW-8

BRMW-3

BRMW-4

260.60 MW-17/GB-01

255.9 MW-11

271.48 MW-5

267.69 MW-18/MW-16/GB-2/PTO-5

267.29 MW-7

267.19 B-2/MW-19/EW-1/MW-15

267.5 MW-1

266.36 MW-2

BRMW-1

266.1

263.55 MW-10

BRMW-2S

BRMW-2D

257.6 MW-3

MW-13

253.48 MW-14

MW-POSSIBLE

SOURCE:

1. SITE TOPOGRAPHY AND PLANIMETRY "EXISTING CONDITIONS SURVEY" PREPARED BY NMB LAND SURVEYING PLLC, FEBRUARY 26, 2018.
2. SAMPLE LOCATIONS: "STEEL TREATERS, 520 CAMPBELL AVENUE, SAMPLE LOCATIONS" PREPARED BY BARTON AND LOGUIDICE, P.C., PROJECT NO. 1047.001, AND INCLUDED AS FIGURE 3 OF THE NOVEMBER 2013 REMEDIAL INVESTIGATION REPORT.
3. ALL SAMPLE LOCATIONS SHOWN IN LIGHT GRAY ARE APPROXIMATE. LOCATIONS BASED ON "SITE MAP SHOWING SOIL AND GROUNDWATER SAMPLING LOCATIONS" PREPARED BY BARTON & LOGUIDICE, P.C. AND INCLUDED AS FIGURE 3 OF THE NOVEMBER 2013 REMEDIAL INVESTIGATION REPORT.
4. "UNKNOWN UNDERGROUND FEATURE" REFERS TO SUBSURFACE METALLIC ANOMALIES IDENTIFIED DURING THE GEOPHYSICAL SURVEY COMPLETED BY NAEVA GEOPHYSICS ON NOVEMBER 24, 2015.

LEGEND

- PROPERTY BOUNDARY
- DB-2 — BORING LOCATION
- MW-3 — OVERBURDEN MONITORING WELL LOCATION
- BRMW-1 — BEDROCK MONITORING WELL LOCATION
- SV-5 — SOIL VAPOR SAMPLING POINTS
- B-10 — BORING LOCATION (ENVIRON 2015 & 2016)
- PTO-04 — PUMP TEST OBSERVATION POINT (ENVIRON 2015)
- TMP-06 — TEMPORARY MONITORING POINT
- TB-21 — TEST BORING LOCATION
- MIP-4 — MEMBRANE INTERFACE PROBE (08/10)
- A-3 — MEMBRANE INTERFACE PROBE (09/12)
- MW-4 — WELL NO LONGER SUITABLE FOR SAMPLING
- MW-15 — WELL REMOVED DURING DEC. 2010 EXCAVATION IRM
- SS-7 — SOIL COVER SAMPLE (REH 2016 & 2017)
- SV-10 — SOIL GAS SAMPLE (REH 2016 & 2017)
- 260 — GROUNDWATER ELEVATION CONTOUR (IN FEET AMSL)
- 257.60 — GROUNDWATER ELEVATION AT WELL (IN FEET AMSL)
- GROUNDWATER FLOW DIRECTION
- EXISTING GRADE CONTOUR

10 0 10 20
SCALE IN FEET

REV.	DATE	DR.	CH.	REVISION

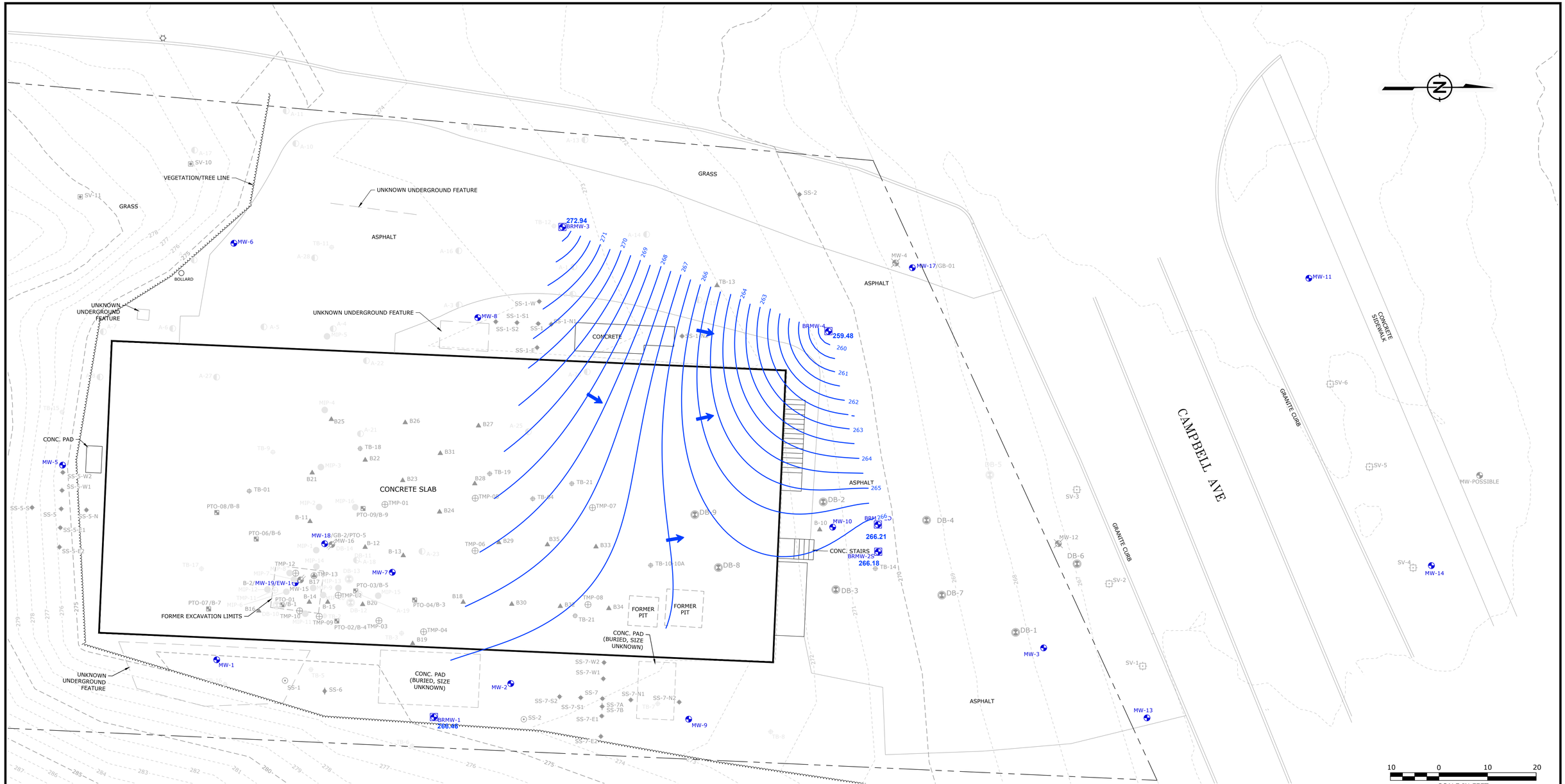
PRE-REMEDIATION
GROUNDWATER CONTOURS
SHALLOW OVERBURDEN
MAY 5, 2016

ESCO STEEL
520 CAMPBELL AVENUE
CITY OF TROY, NEW YORK

ENVIRON
ENVIRON Engineers of North Carolina, PC
CERTIFICATE NUMBER: 0012568

PREPARED BY: JW/BR	DATE: 06/08/2018	FIGURE 4A
DRAFTED BY: MSB	SCALE: AS SHOWN	
APPROVED BY: JS	PROJECT: 1690000663	

MBLEI 6/8/18
F:\1690000663_ESCO STEEL_SMP-FER_< GW_CONT_OVERBURDEN_2016_SMP >


GRASS
VEGETATION/TREE LINE
UNKNOWN UNDERGROUND FEATURE
ASPHALT
MW-6
SV-10
SV-11
BOLLARD
UNKNOWN UNDERGROUND FEATURE
UNKNOWN UNDERGROUND FEATURE
MW-8
SS-1-W
SS-1-S1
SS-1-S2
SS-1-S
SS-1-N1
SS-1-E
CONCRETE
272.94
BRMW-3
259.48
BRMW-4
TB-13
MW-4
MW-17/GB-01
ASPHALT
SS-2
CONC. PAD
MW-5
SS-5-W2
SS-5-W1
SS-5-S
SS-5
SS-5-N
SS-5-E1
SS-5-E2
CONCRETE SLAB
TB-01
PTO-08/B-8
PTO-06/B-6
MW-18/GB-2/PTO-5
MW-16
B-12
B-13
B-11
PTO-09/B-9
TMP-01
B24
TMP-06
B29
B35
B33
TB-10-10A
DB-8
DB-9
TB-21
TMP-07
TMP-08
TB-20
B28
TB-19
B27
B31
B26
B25
TB-18
B22
B23
B21
MIP-3
TB-9
MIP-4
A-21
A-25
A-22
A-27
TB-15
A-5
A-6
A-4
MIP-5
A-3
A-16
A-28
TB-11
A-14
A-17
A-11
A-10
A-13
A-12
SV-3
DB-5
DB-2
B-10
MW-10
BRMW-2
266.21
CONC. STAIRS
BRMW-2S
266.18
DB-4
MW-12
DB-6
DB-3
DB-7
DB-1
MW-3
SV-2
SV-1
MW-13
ASPHALT
CAMPBELL AVE
GRANITE CURB
CONCRETE SIDEWALK
SV-6
SV-5
MW-11
MW-POSSIBLE
SV-4
MW-14
TMP-12
TMP-13
B17
MW-7
B-2/MW-19/EW-1
MW-15
PTO-03/B-5
TMP-02
B-14
B-15
B20
PTO-07/B-7
PTO-01
PTO-1/B-1
B16
TMP-10
TMP-09
PTO-02/B-4
TMP-03
TMP-04
B19
B18
PTO-04/B-3
B30
B32
B34
TMP-08
TB-21
FORMER PIT
FORMER PIT
FORMER EXCAVATION LIMITS
CONC. PAD (BURIED, SIZE UNKNOWN)
MW-1
UNKNOWN UNDERGROUND FEATURE
TB-5
SS-1
SS-6
CONC. PAD (BURIED, SIZE UNKNOWN)
MW-2
SS-7-W2
SS-7-W1
SS-7-S2
SS-7-S1
SS-7
SS-7-N1
SS-7-N2
SS-7A
SS-7B
SS-7-E1
SS-7-E2
SS-2
BRMW-1
266.46
MW-9
TB-8
TB-7
TB-14
B-1
B-2
B-3
B-4
B-5
B-6
B-7
B-8
B-9
A-1
A-2
A-7
A-8
A-9
A-15
A-18
A-19
A-20
A-23
A-24
A-26
MIP-1
MIP-2
MIP-6
MIP-7
MIP-8
MIP-9
MIP-10
MIP-11
MIP-12
MIP-13
MIP-14
MIP-15
MIP-16
DB-10
DB-11
DB-12
DB-13
DB-14
TB-1
TB-2
TB-3
TB-4
TB-5
TB-6
TB-7
TB-8
TB-9
TB-10
TB-11
TB-12
TB-13
TB-14
TB-15
TB-16
TB-17
TB-18
TB-19
TB-20
TB-21
TMP-01
TMP-02
TMP-03
TMP-04
TMP-05
TMP-06
TMP-07
TMP-08
TMP-09
TMP-10
TMP-11
TMP-12
TMP-13
TMP-14
TMP-15
TMP-16
TMP-17
TMP-18
TMP-19
TMP-20
TMP-21
TMP-22
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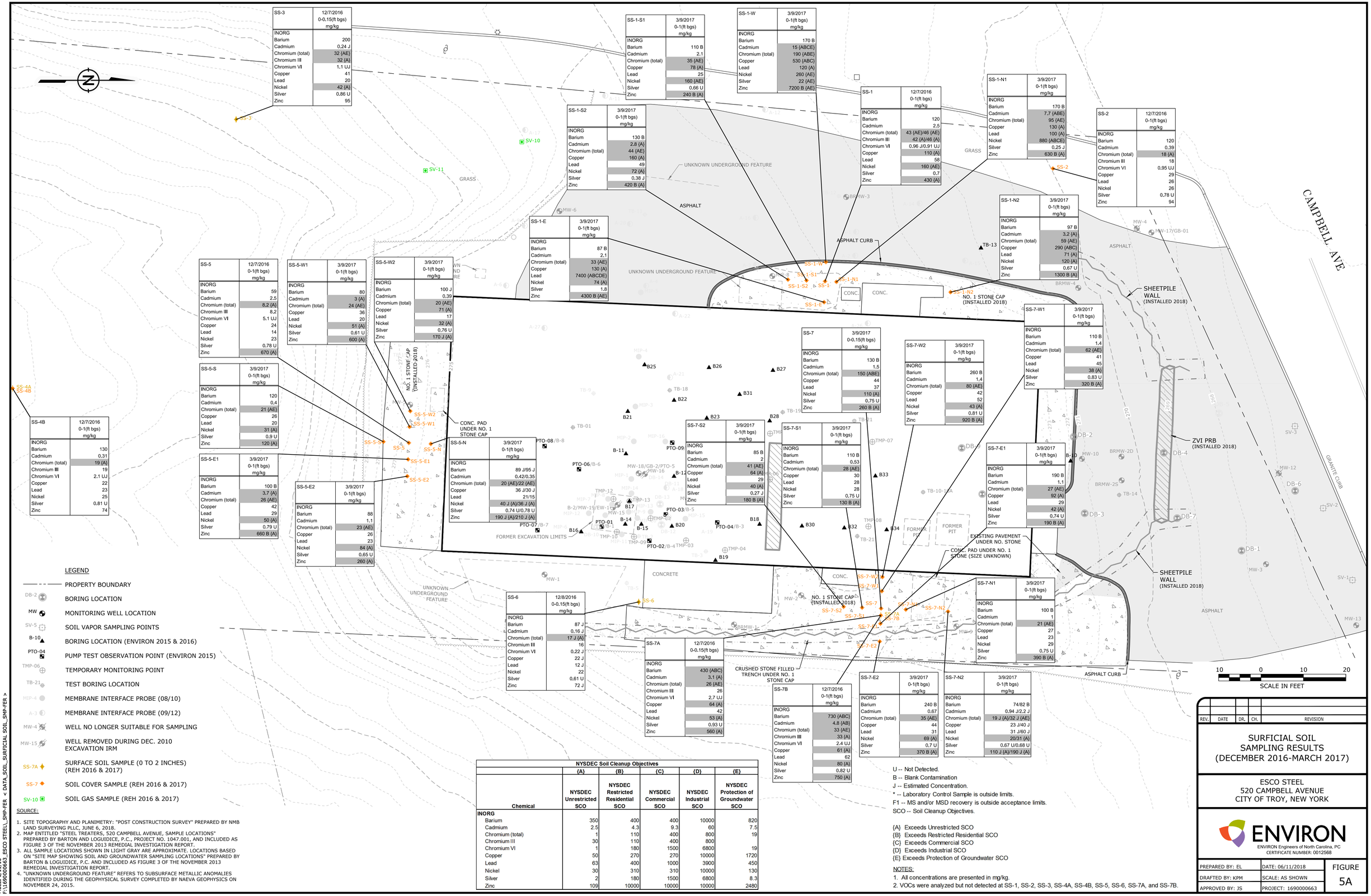
TMP-36
TMP-37
TMP-38
TMP-39
TMP-40



SS-3	12/7/2016 0-0.15(ft bgs) mg/kg
INORG	
Barium	200
Cadmium	0.24 J
Chromium (total)	32 (AE)
Chromium III	32 (A)
Chromium VI	1.1 UJ
Copper	41
Lead	20
Nickel	42 (A)
Silver	0.86 U
Zinc	95

SS-1-S1	3/9/2017 0-1(ft bgs) mg/kg
INORG	
Barium	110 B
Cadmium	2.1
Chromium (total)	35 (AE)
Copper	78 (A)
Lead	25
Nickel	160 (AE)
Silver	0.66 U
Zinc	240 B (A)

SS-1-W	3/9/2017 0-1(ft bgs) mg/kg
INORG	
Barium	170 B
Cadmium	15 (ABCE)
Chromium (total)	190 (ABE)
Copper	530 (ABC)
Lead	120 (A)
Nickel	260 (AE)
Silver	22 (AE)
Zinc	7200 B (AE)

SS-1-S2	3/9/2017 0-1(ft bgs) mg/kg
INORG	
Barium	130 B
Cadmium	2.8 (A)
Chromium (total)	44 (AE)
Copper	160 (A)
Lead	49
Nickel	72 (A)
Silver	0.38 J
Zinc	420 B (A)

SS-1	12/7/2016 0-1(ft bgs) mg/kg
INORG	
Barium	120
Cadmium	2.5
Chromium (total)	43 (AE)/46 (AE)
Chromium III	42 (A)/46 (A)
Chromium VI	0.96 J/0.91 UJ
Copper	110 (A)
Lead	58
Nickel	160 (AE)
Silver	0.7
Zinc	430 (A)

SS-1-N1	3/9/2017 0-1(ft bgs) mg/kg
INORG	
Barium	170 B
Cadmium	7.7 (ABE)
Chromium (total)	95 (AE)
Copper	130 (A)
Lead	100 (A)
Nickel	880 (ABCE)
Silver	0.25 J
Zinc	630 B (A)

SS-2	12/7/2016 0-1(ft bgs) mg/kg
INORG	
Barium	120
Cadmium	0.39
Chromium (total)	18 (A)
Chromium III	18
Chromium VI	0.95 UJ
Copper	29
Lead	26
Nickel	26
Silver	0.78 U
Zinc	94

SS-1-E	3/9/2017 0-1(ft bgs) mg/kg
INORG	
Barium	87 B
Cadmium	2.1
Chromium (total)	33 (AE)
Copper	130 (A)
Lead	7400 (ABCDE)
Nickel	74 (A)
Silver	1.8
Zinc	4300 B (AE)

SS-1-N2	3/9/2017 0-1(ft bgs) mg/kg
INORG	
Barium	97 B
Cadmium	3.2 (A)
Chromium (total)	59 (AE)
Copper	290 (ABC)
Lead	71 (A)
Nickel	120 (A)
Silver	0.67 U
Zinc	1300 B (A)

SS-5	12/7/2016 0-1(ft bgs) mg/kg
INORG	
Barium	59
Cadmium	2.5
Chromium (total)	8.2 (A)
Chromium III	8.2
Chromium VI	5.1 UJ
Copper	24
Lead	14
Nickel	23
Silver	0.78 U
Zinc	670 (A)

SS-5-W1	3/9/2017 0-1(ft bgs) mg/kg
INORG	
Barium	80
Cadmium	3 (A)
Chromium (total)	24 (AE)
Copper	36
Lead	20
Nickel	51 (A)
Silver	0.61 U
Zinc	600 (A)

SS-5-W2	3/9/2017 0-1(ft bgs) mg/kg
INORG	
Barium	100 J
Cadmium	0.39
Chromium (total)	20 (AE)
Copper	71 (A)
Lead	17
Nickel	32 (A)
Silver	0.76 U
Zinc	170 J (A)

SS-5-S	3/9/2017 0-1(ft bgs) mg/kg
INORG	
Barium	120
Cadmium	0.4
Chromium (total)	21 (AE)
Copper	26
Lead	20
Nickel	31 (A)
Silver	0.9 U
Zinc	120 (A)

SS-5-E1	3/9/2017 0-1(ft bgs) mg/kg
INORG	
Barium	100 B
Cadmium	3.7 (A)
Chromium (total)	26 (AE)
Copper	42
Lead	29
Nickel	50 (A)
Silver	0.79 U
Zinc	660 B (A)

SS-5-E2	3/9/2017 0-1(ft bgs) mg/kg
INORG	
Barium	88
Cadmium	1.1
Chromium (total)	23 (AE)
Copper	26
Lead	23
Nickel	84 (A)
Silver	0.65 U
Zinc	260 (A)

SS-5-N	3/9/2017 0-1(ft bgs) mg/kg
INORG	
Barium	89 J/95 J
Cadmium	0.42/0.35
Chromium (total)	20 (AE)/22 (AE)
Copper	36 J/30 J
Lead	21/15
Nickel	40 J (A)/36 J (A)
Silver	0.74 UJ/0.78 U
Zinc	190 J (A)/210 J (A)

SS-4B	12/7/2016 0-1(ft bgs) mg/kg
INORG	
Barium	130
Cadmium	0.31
Chromium (total)	19 (A)
Chromium III	19
Chromium VI	2.1 UJ
Copper	22
Lead	23
Nickel	25
Silver	0.81 U
Zinc	74

SS-6	12/8/2016 0-0.15(ft bgs) mg/kg
INORG	
Barium	87 J
Cadmium	0.16 J
Chromium (total)	17 J (A)
Chromium III	16
Chromium VI	0.22 J
Copper	22 J
Lead	12 J
Nickel	22
Silver	0.61 U
Zinc	72 J

SS-7A	12/7/2016 0-0.15(ft bgs) mg/kg
INORG	
Barium	430 (ABC)
Cadmium	3.1 (A)
Chromium (total)	26 (AE)
Chromium III	26
Chromium VI	2.7 UJ
Copper	64 (A)
Lead	42
Nickel	53 (A)
Silver	0.93 U
Zinc	560 (A)

SS-7B	12/7/2016 0-1(ft bgs) mg/kg
INORG	
Barium	730 (ABC)
Cadmium	4.8 (AB)
Chromium (total)	33 (AE)
Chromium III	33 (A)
Chromium VI	2.4 UJ
Copper	61 (A)
Lead	62
Nickel	80 (A)
Silver	0.82 U
Zinc	750 (A)

SS-7	3/9/2017 0-0.15(ft bgs) mg/kg
INORG	
Barium	130 B
Cadmium	1.5
Chromium (total)	150 (ABE)
Copper	44
Lead	37
Nickel	110 (A)
Silver	0.75 U
Zinc	260 B (A)

SS-7-W1	3/9/2017 0-1(ft bgs) mg/kg
INORG	
Barium	110 B
Cadmium	1.4
Chromium (total)	62 (AE)
Copper	41
Lead	45
Nickel	38 (A)
Silver	0.83 U
Zinc	320 B (A)

SS-7-W2	3/9/2017 0-1(ft bgs) mg/kg
INORG	
Barium	260 B
Cadmium	1.4
Chromium (total)	80 (AE)
Copper	42
Lead	52
Nickel	43 (A)
Silver	0.81 U
Zinc	920 B (A)

SS-7-S1	3/9/2017 0-1(ft bgs) mg/kg
INORG	
Barium	110 B
Cadmium	0.53
Chromium (total)	28 (AE)
Copper	30
Lead	28
Nickel	28
Silver	0.75 U
Zinc	130 B (A)

SS-7-S2	3/9/2017 0-1(ft bgs) mg/kg
INORG	
Barium	85 B
Cadmium	2
Chromium (total)	41 (AE)
Copper	64 (A)
Lead	29
Nickel	40 (A)
Silver	0.27 J
Zinc	180 B (A)

SS-7-E1	3/9/2017 0-1(ft bgs) mg/kg
INORG	
Barium	190 B
Cadmium	1.1
Chromium (total)	27 (AE)
Copper	92 (A)
Lead	29
Nickel	42 (A)
Silver	0.74 U
Zinc	190 B (A)

SS-7-E2	3/9/2017 0-1(ft bgs) mg/kg
INORG	
Barium	240 B
Cadmium	0.67
Chromium (total)	35 (AE)
Copper	44
Lead	31
Nickel	69 (A)
Silver	0.7 U
Zinc	370 B (A)

SS-7-N1	3/9/2017 0-1(ft bgs) mg/kg
INORG	
Barium	100 B
Cadmium	1
Chromium (total)	21 (AE)
Copper	27
Lead	23
Nickel	29
Silver	0.75 U
Zinc	390 B (A)

SS-7-N2	3/9/2017 0-1(ft bgs) mg/kg
INORG	
Barium	74/82 B
Cadmium	0.94 J/2.2 J
Chromium (total)	19 J (A)/32 J (AE)
Copper	23 J/40 J
Lead	31 J/60 J
Nickel	20/31 (A)
Silver	0.67 U/0.68 U
Zinc	110 J (A)/190 J (A)

NYSDEC Soil Cleanup Objectives	(A)	(B)	(C)	(D)	(E)
Chemical	NYSDEC Unrestricted SCO	NYSDEC Restricted Residential SCO	NYSDEC Commercial SCO	NYSDEC Industrial SCO	NYSDEC Protection of Groundwater SCO
INORG					
Barium	350	400	400	10000	820
Cadmium	2.5	4.3	9.3	60	7.5
Chromium (total)	1	110	400	800	19
Chromium III	30	110	400	800	
Chromium VI	1	180	1500	6800	19
Copper	50	270	270	10000	1720
Lead	63	400	1000	3900	450
Nickel	30	310	310	10000	130
Silver	2	180	1500	6800	8.3
Zinc	109	10000	10000	10000	2480

LEGEND

- PROPERTY BOUNDARY
- DB-2 BORING LOCATION
- MW MONITORING WELL LOCATION
- SV-5 SOIL VAPOR SAMPLING POINTS
- B-10 BORING LOCATION (ENVIRON 2015 & 2016)
- PTO-04 PUMP TEST OBSERVATION POINT (ENVIRON 2015)
- TMP-06 TEMPORARY MONITORING POINT
- TB-21 TEST BORING LOCATION
- MIP-4 MEMBRANE INTERFACE PROBE (08/10)
- A-3 MEMBRANE INTERFACE PROBE (09/12)
- MW-4 WELL NO LONGER SUITABLE FOR SAMPLING
- MW-15 WELL REMOVED DURING DEC. 2010 EXCAVATION IRM
- SS-7A SURFACE SOIL SAMPLE (0 TO 2 INCHES) (REH 2016 & 2017)
- SS-7 SOIL COVER SAMPLE (REH 2016 & 2017)
- SV-10 SOIL GAS SAMPLE (REH 2016 & 2017)

SOURCE:

1. SITE TOPOGRAPHY AND PLANIMETRY: "POST CONSTRUCTION SURVEY" PREPARED BY NMB LAND SURVEYING PLLC, JUNE 6, 2018.
2. MAP ENTITLED "STEEL TREATERS, 520 CAMPBELL AVENUE, SAMPLE LOCATIONS" PREPARED BY BARTON AND LOGUIDICE, P.C., PROJECT NO. 1047.001, AND INCLUDED AS FIGURE 3 OF THE NOVEMBER 2013 REMEDIAL INVESTIGATION REPORT.
3. ALL SAMPLE LOCATIONS SHOWN IN LIGHT GRAY ARE APPROXIMATE. LOCATIONS BASED ON "SITE MAP SHOWING SOIL AND GROUNDWATER SAMPLING LOCATIONS" PREPARED BY BARTON & LOGUIDICE, P.C. AND INCLUDED AS FIGURE 3 OF THE NOVEMBER 2013 REMEDIAL INVESTIGATION REPORT.
4. "UNKNOWN UNDERGROUND FEATURE" REFERS TO SUBSURFACE METALLIC ANOMALIES IDENTIFIED DURING THE GEOPHYSICAL SURVEY COMPLETED BY NAEVA GEOPHYSICS ON NOVEMBER 24, 2015.

U -- Not Detected.
B -- Blank Contamination
J -- Estimated Concentration.
* -- Laboratory Control Sample is outside limits.
F1 -- MS and/or MSD recovery is outside acceptance limits.
SCO -- Soil Cleanup Objectives.

{A} Exceeds Unrestricted SCO
{B} Exceeds Restricted Residential SCO
{C} Exceeds Commercial SCO
{D} Exceeds Industrial SCO
{E} Exceeds Protection of Groundwater SCO

NOTES:

1. All concentrations are presented in mg/kg.
2. VOCs were analyzed but not detected at SS-1, SS-2, SS-3, SS-4A, SS-4B, SS-5, SS-6, SS-7A, and SS-7B.

REV.	DATE	DR.	CH.	REVISION

SURFICIAL SOIL SAMPLING RESULTS (DECEMBER 2016-MARCH 2017)

ESCO STEEL
520 CAMPBELL AVENUE
CITY OF TROY, NEW YORK

ENVIRON
ENVIRON Engineers of North Carolina, PC
CERTIFICATE NUMBER: 0012568

PREPARED BY: EL	DATE: 06/11/2018	FIGURE 5A
DRAFTED BY: KPM	SCALE: AS SHOWN	
APPROVED BY: JS	PROJECT: 1690000663	

MBLET 6/11/18
F:\1690000663_ESCO STEEL_SMP-FER_ < DATA_SOIL_SURFICIAL SOIL_SMP-FER >

B-21	1/20/2016 3-4(ft bgs) mg/kg
VOC	
1,1-Dichloroethane	0.0043 U
1,2-Dichloroethane	0.0043 U
1,1-Dichloroethene	0.0043 U
cis-1,2-Dichloroethene	0.027
trans-1,2-Dichloroethene	0.00062 J
1,4-Dioxane	0.086 U
Methylene Chloride	0.0043 U
Tetrachloroethene	0.0042 J
1,1,1-Trichloroethane	0.0043 U
1,1,2-Trichloroethane	0.0043 U
Trichloroethene	9.7 (AE)
Vinyl Chloride	0.0043 U
Xylenes (total)	0.0086 U

B-25	1/20/2016 4-5(ft bgs) mg/kg
VOC	
1,1-Dichloroethane	0.066 U
1,2-Dichloroethane	0.066 U
1,1-Dichloroethene	0.066 U
cis-1,2-Dichloroethene	0.066 U
trans-1,2-Dichloroethene	0.066 U
1,4-Dioxane	1.2 U
Methylene Chloride	0.066 U
Tetrachloroethene	0.066 U
1,1,1-Trichloroethane	0.066 U
1,1,2-Trichloroethane	0.066 U
Trichloroethene	1.5 (AE)
Vinyl Chloride	0.066 U
Xylenes (total)	0.13 U

B-22	1/20/2016 5-6(ft bgs) mg/kg
VOC	
1,1-Dichloroethane	0.0046 U
1,2-Dichloroethane	0.0046 U
1,1-Dichloroethene	0.0046 U
cis-1,2-Dichloroethene	0.06
trans-1,2-Dichloroethene	0.00062 J
1,4-Dioxane	0.092 U
Methylene Chloride	0.0046 U
Tetrachloroethene	0.0025 J
1,1,1-Trichloroethane	0.0046 U
1,1,2-Trichloroethane	0.0046 U
Trichloroethene	7.5 (AE)
Vinyl Chloride	0.0046 U
Xylenes (total)	0.0092 U

B-26	1/20/2016 5-6(ft bgs) mg/kg
VOC	
1,1-Dichloroethane	0.0052 U
1,2-Dichloroethane	0.0052 U
1,1-Dichloroethene	0.0052 U
cis-1,2-Dichloroethene	0.0052 U
trans-1,2-Dichloroethene	0.0052 U
1,4-Dioxane	0.1 U
Methylene Chloride	0.0052 U
Tetrachloroethene	0.0052 U
1,1,1-Trichloroethane	0.0052 U
1,1,2-Trichloroethane	0.0052 U
Trichloroethene	0.0052 U
Vinyl Chloride	0.0052 U
Xylenes (total)	J

B-23	1/20/2016 5-6(ft bgs) mg/kg
VOC	
1,1-Dichloroethane	0.007 U
1,2-Dichloroethane	0.007 U
1,1-Dichloroethene	0.007 U
cis-1,2-Dichloroethene	0.0037 J
trans-1,2-Dichloroethene	0.007 U
1,4-Dioxane	0.14 U
Methylene Chloride	0.007 U
Tetrachloroethene	0.007 U
1,1,1-Trichloroethane	0.007 U
1,1,2-Trichloroethane	0.007 U
Trichloroethene	0.085
Vinyl Chloride	0.007 U
Xylenes (total)	0.014 U

B-27	1/21/2016 6-7(ft bgs) mg/kg
VOC	
1,1-Dichloroethane	0.0045 U
1,2-Dichloroethane	0.0045 U
1,1-Dichloroethene	0.0045 U
cis-1,2-Dichloroethene	0.018
trans-1,2-Dichloroethene	0.0041 J
1,4-Dioxane	0.091 U
Methylene Chloride	0.0045 U
Tetrachloroethene	0.00067 J
1,1,1-Trichloroethane	0.0045 U
1,1,2-Trichloroethane	0.0045 U
Trichloroethene	0.024
Vinyl Chloride	0.0045 U
Xylenes (total)	0.0091 U

B-31	1/21/2016 6-7(ft bgs) mg/kg
VOC	
1,1-Dichloroethane	0.0044 U
1,2-Dichloroethane	0.0044 U
1,1-Dichloroethene	0.0044 U
cis-1,2-Dichloroethene	0.0071
trans-1,2-Dichloroethene	0.0044 U
1,4-Dioxane	0.087 U
Methylene Chloride	0.0044 U
Tetrachloroethene	0.0044 U
1,1,1-Trichloroethane	0.0044 U
1,1,2-Trichloroethane	0.0044 U
Trichloroethene	33 (ABE)
Vinyl Chloride	0.0044 U
Xylenes (total)	0.0087 U

B-28	1/21/2016 5-6(ft bgs) mg/kg
VOC	
1,1-Dichloroethane	0.0044 U
1,2-Dichloroethane	0.0044 U
1,1-Dichloroethene	0.0044 U
cis-1,2-Dichloroethene	0.085
trans-1,2-Dichloroethene	0.0074
1,4-Dioxane	0.088 U
Methylene Chloride	0.0062
Tetrachloroethene	0.0044 U
1,1,1-Trichloroethane	0.0044 U
1,1,2-Trichloroethane	0.0044 U
Trichloroethene	0.11
Vinyl Chloride	0.0044 U
Xylenes (total)	0.0088 U

B-11	12/3/2015 3-4(ft bgs) mg/kg
VOC	
1,1-Dichloroethane	0.011
1,2-Dichloroethane	0.00046 J
1,1-Dichloroethene	0.02
cis-1,2-Dichloroethene	0.021
trans-1,2-Dichloroethene	0.0038 U
1,4-Dioxane	0.15 (AE)
Methylene Chloride	0.0038 U
Tetrachloroethene	0.0032 J
1,1,1-Trichloroethane	0.026
1,1,2-Trichloroethane	0.0038 U
Trichloroethene	3.3 (AE)
Vinyl Chloride	0.0038 U
Xylenes (total)	0.0077 U

B-12	12/3/2015 6-7(ft bgs) mg/kg
VOC	
1,1-Dichloroethane	0.018
1,2-Dichloroethane	0.015
1,1-Dichloroethene	0.089
cis-1,2-Dichloroethene	0.071
trans-1,2-Dichloroethene	0.0038 U
1,4-Dioxane	0.81 (AE)
Methylene Chloride	0.0038 U
Tetrachloroethene	0.081
1,1,1-Trichloroethane	1.8 (AE)
1,1,2-Trichloroethane	0.023
Trichloroethene	18 (AE)
Vinyl Chloride	0.0038 U
Xylenes (total)	0.0076 U

B-24	1/20/2016 7-8(ft bgs) mg/kg
VOC	
1,1-Dichloroethane	0.0034 J
1,2-Dichloroethane	0.0044 U
1,1-Dichloroethene	0.0089
cis-1,2-Dichloroethene	0.037
trans-1,2-Dichloroethene	0.0044 U
1,4-Dioxane	0.088 U
Methylene Chloride	0.0044 U
Tetrachloroethene	0.0018 J
1,1,1-Trichloroethane	0.022
1,1,2-Trichloroethane	0.0044 U
Trichloroethene	6.5 (AE)
Vinyl Chloride	0.0044 U
Xylenes (total)	0.0088 U

B-35	1/21/2016 6-7(ft bgs) mg/kg
VOC	
1,1-Dichloroethane	0.0096
1,2-Dichloroethane	0.0009 J
1,1-Dichloroethene	0.013
cis-1,2-Dichloroethene	0.079
trans-1,2-Dichloroethene	0.001 J
1,4-Dioxane	0.091 U
Methylene Chloride	0.0046 U
Tetrachloroethene	0.00094 J
1,1,1-Trichloroethane	0.022
1,1,2-Trichloroethane	0.0046 U
Trichloroethene	0.48 (AE)
Vinyl Chloride	0.0088
Xylenes (total)	0.0091 U

B-33	1/21/2016 6-7(ft bgs) mg/kg
VOC	
1,1-Dichloroethane	0.0051 U
1,2-Dichloroethane	0.0051 U
1,1-Dichloroethene	0.0051 U
cis-1,2-Dichloroethene	0.017
trans-1,2-Dichloroethene	0.0051 U
1,4-Dioxane	0.1 U
Methylene Chloride	0.0051 U
Tetrachloroethene	0.0051 U
1,1,1-Trichloroethane	0.0051 U
1,1,2-Trichloroethane	0.0051 U
Trichloroethene	0.009
Vinyl Chloride	0.0015 J
Xylenes (total)	0.01 U

B-13	12/3/2015 6-7(ft bgs) mg/kg
VOC	
1,1-Dichloroethane	0.033
1,2-Dichloroethane	0.022 (AE)
1,1-Dichloroethene	0.09
cis-1,2-Dichloroethene	0.27 J (AE)
trans-1,2-Dichloroethene	0.0013 J
1,4-Dioxane	2.4 (AE)
Methylene Chloride	0.0037 U
Tetrachloroethene	0.034
1,1,1-Trichloroethane	0.84 (AE)
1,1,2-Trichloroethane	0.028
Trichloroethene	14 (AE)
Vinyl Chloride	0.0037 U
Xylenes (total)	0.0073 U

B-16	1/20/2016 6-7(ft bgs) mg/kg
VOC	
1,1-Dichloroethane	0.0043 U
1,2-Dichloroethane	0.0043 U
1,1-Dichloroethene	0.0043 U
cis-1,2-Dichloroethene	0.0043 U
trans-1,2-Dichloroethene	0.0043 U
1,4-Dioxane	0.086 U
Methylene Chloride	0.0043 U
Tetrachloroethene	0.0043 U
1,1,1-Trichloroethane	0.0016 J
1,1,2-Trichloroethane	0.0043 U
Trichloroethene	0.094
Vinyl Chloride	0.0043 U
Xylenes (total)	0.0086 U

PTO01	12/2/2015 5-6(ft bgs) mg/kg
VOC	
1,1-Dichloroethane	0.68 U
1,2-Dichloroethane	0.68 U
1,1-Dichloroethene	0.68 U
cis-1,2-Dichloroethene	0.26 J (AE)
trans-1,2-Dichloroethene	0.68 U
1,4-Dioxane	13 U
Methylene Chloride	0.68 U
Tetrachloroethene	2.2 (AE)
1,1,1-Trichloroethane	1.1 (AE)
1,1,2-Trichloroethane	0.68 U
Trichloroethene	36 (ABE)
Vinyl Chloride	0.68 U
Xylenes (total)	1.4 U

B-14	12/3/2015 5-7(ft bgs) mg/kg
VOC	
1,1-Dichloroethane	0.0038 U
1,2-Dichloroethane	0.0038 U
1,1-Dichloroethene	0.0038 U
cis-1,2-Dichloroethene	0.0038 U
trans-1,2-Dichloroethene	0.0038 U
1,4-Dioxane	0.077 U
Methylene Chloride	0.0038 U
Tetrachloroethene	0.0038 U
1,1,1-Trichloroethane	0.0038 U
1,1,2-Trichloroethane	0.0038 U
Trichloroethene	0.0028 J
Vinyl Chloride	0.0038 U
Xylenes (total)	0.0077 U

B-17	1/20/2016 6-7(ft bgs) mg/kg
VOC	
1,1-Dichloroethane	0.038
1,2-Dichloroethane	0.0038 U
1,1-Dichloroethene	0.0092
cis-1,2-Dichloroethene	0.017
trans-1,2-Dichloroethene	0.0038 U
1,4-Dioxane	0.075 U
Methylene Chloride	0.0038 U
Tetrachloroethene	0.011
1,1,1-Trichloroethane	0.013
1,1,2-Trichloroethane	0.0038 U
Trichloroethene	12 (AE)
Vinyl Chloride	0.0038 U
Xylenes (total)	0.0075 U

B-20	1/20/2016 6-7(ft bgs) mg/kg
VOC	
1,1-Dichloroethane	0.0012 J
1,2-Dichloroethane	0.0047 U
1,1-Dichloroethene	0.0047 U
cis-1,2-Dichloroethene	0.018
trans-1,2-Dichloroethene	0.0047 U
1,4-Dioxane	0.093 U
Methylene Chloride	0.0047 U
Tetrachloroethene	0.0023 J
1,1,1-Trichloroethane	0.0044 J
1,1,2-Trichloroethane	0.0047 U
Trichloroethene	0.16
Vinyl Chloride	0.0047 U
Xylenes (total)	0.0093 U

B-19	1/20/2016 6-7(ft bgs) mg/kg
VOC	
1,1-Dichloroethane	0.0013 J
1,2-Dichloroethane	0.0052 U
1,1-Dichloroethene	0.0064
cis-1,2-Dichloroethene	1.1 (AE)
trans-1,2-Dichloroethene	0.0019 J
1,4-Dioxane	0.1 U
Methylene Chloride	0.0052 U
Tetrachloroethene	0.096
1,1,1-Trichloroethane	0.0052 U
1,1,2-Trichloroethane	0.0052 U
Trichloroethene	1.2 (AE)
Vinyl Chloride	0.056 (AE)
Xylenes (total)	0.002 J

B-30	1/20/2016 7-8(ft bgs) mg/kg
VOC	
1,1-Dichloroethane	0.021
1,2-Dichloroethane	0.0011 J
1,1-Dichloroethene	0.089
cis-1,2-Dichloroethene	5.4 (AE)
trans-1,2-Dichloroethene	0.014
1,4-Dioxane	0.094 U
Methylene Chloride	0.0047 U
Tetrachloroethene	0.00094 J
1,1,1-Trichloroethane	0.00052 J
1,1,2-Trichloroethane	0.0047 U
Trichloroethene	100 (ABE)
Vinyl Chloride	0.065 (AE)
Xylenes (total)	0.0094 U

B-32	1/21/2016 6-7(ft bgs) mg/kg
VOC	
1,1-Dichloroethane	0.014
1,2-Dichloroethane	0.0042 U
1,1-Dichloroethene	0.09
cis-1,2-Dichloroethene	4.7 (AE)
trans-1,2-Dichloroethene	0.0066
1,4-Dioxane	0.084 U
Methylene Chloride	0.0042 U
Tetrachloroethene	0.44
1,1,1-Trichloroethane	0.032
1,1,2-Trichloroethane	0.0042 U
Trichloroethene	5.9 (AE)
Vinyl Chloride	1.5 (ABE)
Xylenes (total)	0.0084

B-34	1/21/2016 6-7(ft bgs) mg/kg
VOC	
1,1-Dichloroethane	0.0046 U
1,2-Dichloroethane	0.0046 U
1,1-Dichloroethene	0.0046 U
cis-1,2-Dichloroethene	0.0016 J
trans-1,2-Dichloroethene	0.0046 U
1,4-Dioxane	0.093 U
Methylene Chloride	0.0046 U
Tetrachloroethene	0.0046 U
1,1,1-Trichloroethane	0.0046 U
1,1,2-Trichloroethane	0.0046 U
Trichloroethene	0.0054
Vinyl Chloride	0.001 J
Xylenes (total)	0.0093 U

NYSDEC Soil Cleanup Objectives					
	(A)	(B)	(C)	(D)	(E)
Chemical	NYSDEC Unrestricted SCO	NYSDEC Restricted Residential SCO	NYSDEC Commercial SCO	NYSDEC Industrial SCO	NYSDEC Protection of Groundwater SCO
WQ					
Chloride					
VOC					
1,1-Dichloroethane	0.27	26	240	480	0.27
1,2-Dichloroethane	0.02	3.1	30	60	0.02
1,1-Dichloroethene	0.33	100	500	1000	0.33
cis-1,2-Dichloroethene	0.25	100	500	1000	0.25
trans-1,2-Dichloroethene	0.19	100	500	1000	0.19
1,4-Dioxane	0.1	13	130	250	0.1
Methylene Chloride	0.05	100	500	1000	0.05
Tetrachloroethene	1.3	19	150	300	1.3
1,1,1-Trichloroethane	0.68	100	500	1000	0.68
1,1,2-Trichloroethane					
Trichloroethene	0.47	21	200	400	0.47
Vinyl Chloride	0.02	0.9	13	27	0.02
Xylenes (total)	0.26	100	500	1000	1.6

U -- Not Detected.
B -- Blank Contamination
J -- Estimated Concentration.
* -- Laboratory Control Sample is outside limits.
F1 -- MS and/or MSD recovery is outside acceptance limits.
SCO -- Soil Cleanup Objectives.

{A} Exceeds Unrestricted SCO
{B} Exceeds Restricted Res SCO
{C} Exceeds Commercial SCO
{D} Exceeds Restricted Ind SCO
{E} Exceeds Protection of Groundwater SCO

NOTES:
1. A[illegible]
2. N[illegible] I[illegible]SCO[illegible]
3. S[illegible] boring logs). In most locations this transition occurred around at about 5 to 6 [illegible]

LEGEND

- PROPERTY BOUNDARY
- DB-2 BORING LOCATION
- MW MONITORING WELL LOCATION
- SV-5 SOIL VAPOR SAMPLING POINTS
- B-10 BORING LOCATION (ENVIRON 2015 & 2016)
- PTO-04 PUMP TEST OBSERVATION POINT (ENVIRON 2015)
- TMP-06 TEMPORARY MONITORING POINT
- TB-21 TEST BORING LOCATION
- MIP-4 MEMBRANE INTERFACE PROBE (08/10)
- A-3 MEMBRANE INTERFACE PROBE (09/12)
- MW-4 WELL NO LONGER SUITABLE FOR SAMPLING
- MW-15 WELL REMOVED DURING DEC. 2010 EXCAVATION IRM
- SS-7A SURFACE SOIL SAMPLE (0 TO 2 INCHES) (REH 2016 & 2017)
- SS-7 SOIL COVER SAMPLE (REH 2016 & 2017)
- SV-10 SOIL GAS SAMPLE (REH 2016 & 2017)

10 0 10 20
SCALE IN FEET

SOURCE:

1. SITE TOPOGRAPHY AND PLANIMETRY: "POST CONSTRUCTION SURVEY" PREPARED BY NMB LAND SURVEYING PLLC, JUNE 6, 2018.
2. MAP ENTITLED "STEEL TREATERS, 520 CAMPBELL AVENUE, SAMPLE LOCATIONS" PREPARED BY BARTON AND LOGUIDICE, P.C., PROJECT NO. 1047.001, AND INCLUDED AS FIGURE 3 OF THE NOVEMBER 2013 REMEDIAL INVESTIGATION REPORT.
3. ALL SAMPLE LOCATIONS SHOWN IN LIGHT GRAY ARE APPROXIMATE. LOCATIONS BASED ON "SITE MAP SHOWING SOIL AND GROUNDWATER SAMPLING LOCATIONS" PREPARED BY BARTON & LOGUIDICE, P.C. AND INCLUDED AS FIGURE 3 OF THE NOVEMBER 2013 REMEDIAL INVESTIGATION REPORT.
4. "UNKNOWN UNDERGROUND FEATURE" REFERS TO SUBSURFACE METALLIC ANOMALIES IDENTIFIED DURING THE GEOPHYSICAL SURVEY COMPLETED BY NAEVA GEOPHYSICS ON NOVEMBER 24, 2015.

REV.	DATE	DR.	CH.	REVISION

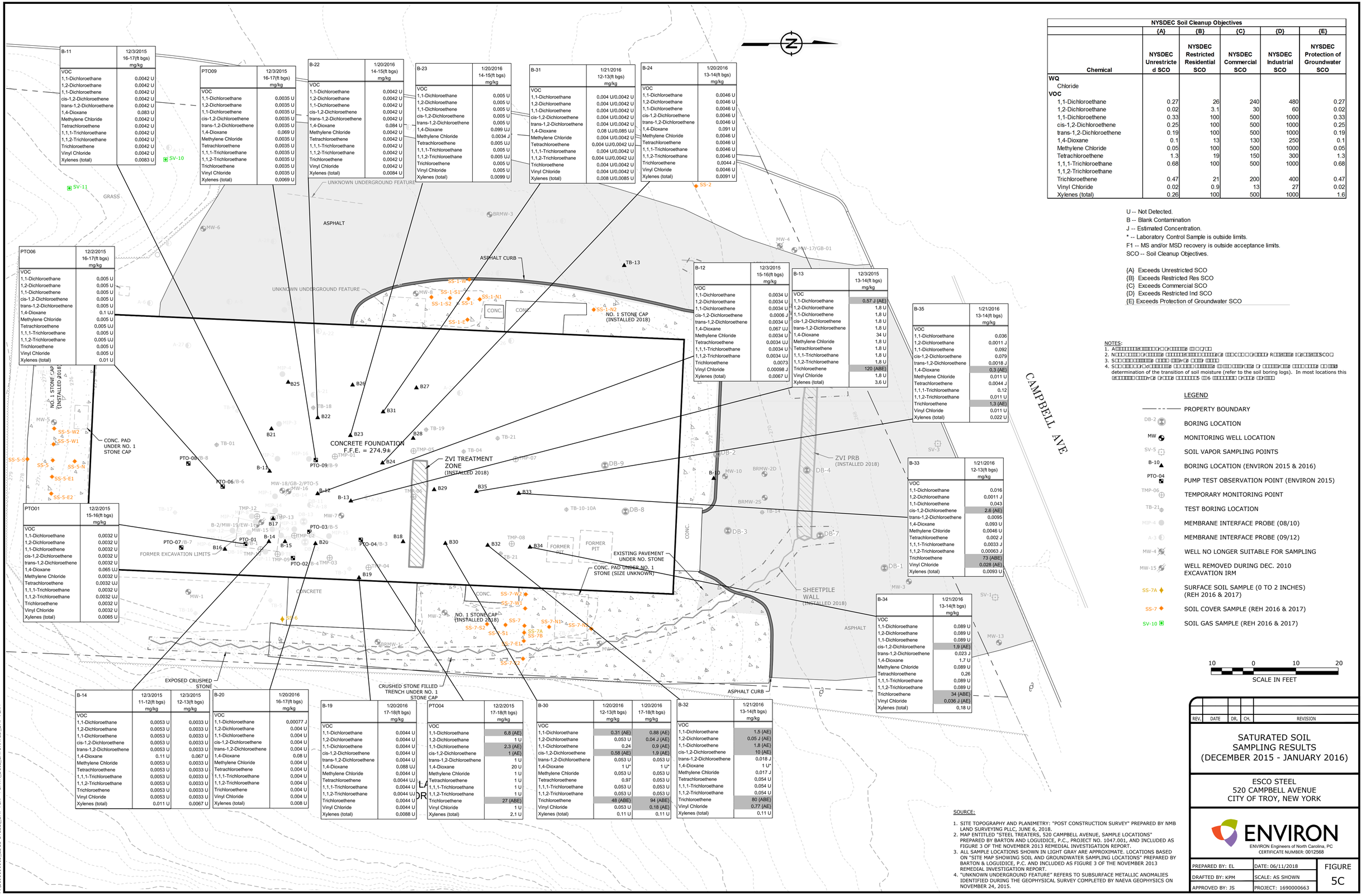
UNSATURATED SOIL SAMPLING RESULTS (DECEMBER 2015 - JANUARY 2016)

ESCO STEEL
520 CAMPBELL AVENUE
CITY OF TROY, NEW YORK

ENVIRON
ENVIRON Engineers of North Carolina, PC
CERTIFICATE NUMBER: 0012568

PREPARED BY: EL	DATE: 06/11/2018	FIGURE 5B
DRAFTED BY: KPM	SCALE: AS SHOWN	
APPROVED BY: JS	PROJECT: 1690000663	

MBLEI 6/11/18
F:\1690000663_ESCO STEEL_SMP-FER_< DATA_SOIL_UNSATURATED_SMP-FER_>



B-11	12/3/2015 16-17(ft bgs) mg/kg
VOC	
1,1-Dichloroethane	0.0042 U
1,2-Dichloroethane	0.0042 U
1,1-Dichloroethene	0.0042 U
cis-1,2-Dichloroethene	0.0042 U
trans-1,2-Dichloroethene	0.0042 U
1,4-Dioxane	0.083 U
Methylene Chloride	0.0042 U
Tetrachloroethene	0.0042 U
1,1,1-Trichloroethane	0.0042 U
1,1,2-Trichloroethane	0.0042 U
Trichloroethene	0.0042 U
Vinyl Chloride	0.0042 U
Xylenes (total)	0.0083 U

PTO09	12/3/2015 16-17(ft bgs) mg/kg
VOC	
1,1-Dichloroethane	0.0035 U
1,2-Dichloroethane	0.0035 U
1,1-Dichloroethene	0.0035 U
cis-1,2-Dichloroethene	0.0035 U
trans-1,2-Dichloroethene	0.0035 U
1,4-Dioxane	0.069 U
Methylene Chloride	0.0035 U
Tetrachloroethene	0.0035 U
1,1,1-Trichloroethane	0.0035 U
1,1,2-Trichloroethane	0.0035 U
Trichloroethene	0.0035 U
Vinyl Chloride	0.0035 U
Xylenes (total)	0.0069 U

B-22	1/20/2016 14-15(ft bgs) mg/kg
VOC	
1,1-Dichloroethane	0.0042 U
1,2-Dichloroethane	0.0042 U
1,1-Dichloroethene	0.0042 U
cis-1,2-Dichloroethene	0.0042 U
trans-1,2-Dichloroethene	0.0042 U
1,4-Dioxane	0.084 U
Methylene Chloride	0.0042 U
Tetrachloroethene	0.0042 U
1,1,1-Trichloroethane	0.0042 U
1,1,2-Trichloroethane	0.0042 U
Trichloroethene	0.0042 U
Vinyl Chloride	0.0042 U
Xylenes (total)	0.0084 U

B-23	1/20/2016 14-15(ft bgs) mg/kg
VOC	
1,1-Dichloroethane	0.005 U
1,2-Dichloroethane	0.005 U
1,1-Dichloroethene	0.005 U
cis-1,2-Dichloroethene	0.005 U
trans-1,2-Dichloroethene	0.005 U
1,4-Dioxane	0.099 UJ
Methylene Chloride	0.0034 J
Tetrachloroethene	0.005 UJ
1,1,1-Trichloroethane	0.005 U
1,1,2-Trichloroethane	0.005 UJ
Trichloroethene	0.005 U
Vinyl Chloride	0.005 U
Xylenes (total)	0.0099 U

B-31	1/21/2016 12-13(ft bgs) mg/kg
VOC	
1,1-Dichloroethane	0.004 UJ/0.0042 U
1,2-Dichloroethane	0.004 UJ/0.0042 U
1,1-Dichloroethene	0.004 UJ/0.0042 U
cis-1,2-Dichloroethene	0.004 UJ/0.0042 U
trans-1,2-Dichloroethene	0.004 UJ/0.0042 U
1,4-Dioxane	0.08 UJ/0.085 UJ
Methylene Chloride	0.004 UJ/0.0042 U
Tetrachloroethene	0.004 UJ/0.0042 UJ
1,1,1-Trichloroethane	0.004 UJ/0.0042 U
1,1,2-Trichloroethane	0.004 UJ/0.0042 UJ
Trichloroethene	0.004 UJ/0.0042 U
Vinyl Chloride	0.004 UJ/0.0042 U
Xylenes (total)	0.008 UJ/0.0085 U

B-24	1/20/2016 13-14(ft bgs) mg/kg
VOC	
1,1-Dichloroethane	0.0046 U
1,2-Dichloroethane	0.0046 U
1,1-Dichloroethene	0.0046 U
cis-1,2-Dichloroethene	0.0046 U
trans-1,2-Dichloroethene	0.0046 U
1,4-Dioxane	0.091 U
Methylene Chloride	0.0046 U
Tetrachloroethene	0.0046 U
1,1,1-Trichloroethane	0.0046 U
1,1,2-Trichloroethane	0.0046 U
Trichloroethene	0.0044 J
Vinyl Chloride	0.0046 U
Xylenes (total)	0.0091 U

PTO06	12/2/2015 16-17(ft bgs) mg/kg
VOC	
1,1-Dichloroethene	0.005 U
1,2-Dichloroethene	0.005 U
1,1-Dichloroethene	0.005 U
cis-1,2-Dichloroethene	0.005 U
trans-1,2-Dichloroethene	0.005 U
1,4-Dioxane	0.1 UJ
Methylene Chloride	0.005 U
Tetrachloroethene	0.005 UJ
1,1,1-Trichloroethane	0.005 U
1,1,2-Trichloroethane	0.005 UJ
Trichloroethene	0.005 U
Vinyl Chloride	0.005 U
Xylenes (total)	0.01 U

B-12	12/3/2015 15-16(ft bgs) mg/kg
VOC	
1,1-Dichloroethane	0.0034 U
1,2-Dichloroethane	0.0034 U
1,1-Dichloroethene	0.0034 U
cis-1,2-Dichloroethene	0.0006 J
trans-1,2-Dichloroethene	0.0034 U
1,4-Dioxane	0.067 UJ
Methylene Chloride	0.0034 U
Tetrachloroethene	0.0034 UJ
1,1,1-Trichloroethane	0.0034 U
1,1,2-Trichloroethane	0.0034 UJ
Trichloroethene	0.0073
Vinyl Chloride	0.00098 J
Xylenes (total)	0.0067 U

B-13	12/3/2015 13-14(ft bgs) mg/kg
VOC	
1,1-Dichloroethane	0.57 J (AE)
1,2-Dichloroethane	1.8 U
1,1-Dichloroethene	1.8 U
cis-1,2-Dichloroethene	1.8 U
trans-1,2-Dichloroethene	1.8 U
1,4-Dioxane	34 U
Methylene Chloride	1.8 U
Tetrachloroethene	1.8 U
1,1,1-Trichloroethane	1.8 U
1,1,2-Trichloroethane	1.8 U
Trichloroethene	120 (ABE)
Vinyl Chloride	1.8 U
Xylenes (total)	3.6 U

B-35	1/21/2016 13-14(ft bgs) mg/kg
VOC	
1,1-Dichloroethane	0.036
1,2-Dichloroethane	0.0011 J
1,1-Dichloroethene	0.092
cis-1,2-Dichloroethene	0.079
trans-1,2-Dichloroethene	0.0018 J
1,4-Dioxane	0.3 (AE)
Methylene Chloride	0.011 U
Tetrachloroethene	0.0044 J
1,1,1-Trichloroethane	0.12
1,1,2-Trichloroethane	0.011 U
Trichloroethene	1.3 (AE)
Vinyl Chloride	0.011 U
Xylenes (total)	0.022 U

B-33	1/21/2016 12-13(ft bgs) mg/kg
VOC	
1,1-Dichloroethane	0.016
1,2-Dichloroethane	0.0011 J
1,1-Dichloroethene	0.043
cis-1,2-Dichloroethene	2.6 (AE)
trans-1,2-Dichloroethene	0.0095
1,4-Dioxane	0.093 U
Methylene Chloride	0.0046 U
Tetrachloroethene	0.002 J
1,1,1-Trichloroethane	0.0033 J
1,1,2-Trichloroethane	0.0063 J
Trichloroethene	73 (ABE)
Vinyl Chloride	0.028 (AE)
Xylenes (total)	0.0093 U

B-34	1/21/2016 13-14(ft bgs) mg/kg
VOC	
1,1-Dichloroethane	0.089 U
1,2-Dichloroethane	0.089 U
1,1-Dichloroethene	0.089 U
cis-1,2-Dichloroethene	1.9 (AE)
trans-1,2-Dichloroethene	0.023 J
1,4-Dioxane	1.7 U
Methylene Chloride	0.089 U
Tetrachloroethene	0.26
1,1,1-Trichloroethane	0.089 U
1,1,2-Trichloroethane	0.089 U
Trichloroethene	34 (ABE)
Vinyl Chloride	0.036 J (AE)
Xylenes (total)	0.18 U

PTO01	12/2/2015 15-16(ft bgs) mg/kg
VOC	
1,1-Dichloroethane	0.0032 U
1,2-Dichloroethane	0.0032 U
1,1-Dichloroethene	0.0032 U
cis-1,2-Dichloroethene	0.0032 U
trans-1,2-Dichloroethene	0.0032 U
1,4-Dioxane	0.065 UJ
Methylene Chloride	0.0032 U
Tetrachloroethene	0.0032 UJ
1,1,1-Trichloroethane	0.0032 U
1,1,2-Trichloroethane	0.0032 UJ
Trichloroethene	0.0032 U
Vinyl Chloride	0.0032 U
Xylenes (total)	0.0065 U

B-14	12/3/2015 11-12(ft bgs) mg/kg	12/3/2015 12-13(ft bgs) mg/kg
VOC		
1,1-Dichloroethene	0.0053 U	0.0033 U
1,2-Dichloroethene	0.0053 U	0.0033 U
1,1-Dichloroethene	0.0053 U	0.0033 U
cis-1,2-Dichloroethene	0.0053 U	0.0033 U
trans-1,2-Dichloroethene	0.0053 U	0.0033 U
1,4-Dioxane	0.11 U	0.067 U
Methylene Chloride	0.0053 U	0.0033 U
Tetrachloroethene	0.0053 U	0.0033 U
1,1,1-Trichloroethane	0.0053 U	0.0033 U
1,1,2-Trichloroethane	0.0053 U	0.0033 U
Trichloroethene	0.0053 U	0.0033 U
Vinyl Chloride	0.0053 U	0.0033 U
Xylenes (total)	0.011 U	0.0067 U

B-20	1/20/2016 16-17(ft bgs) mg/kg
VOC	
1,1-Dichloroethane	0.00077 J
1,2-Dichloroethane	0.004 U
1,1-Dichloroethene	0.004 U
cis-1,2-Dichloroethene	0.004 U
trans-1,2-Dichloroethene	0.004 U
1,4-Dioxane	0.08 U
Methylene Chloride	0.004 U
Tetrachloroethene	0.004 U
1,1,1-Trichloroethane	0.004 U
1,1,2-Trichloroethane	0.004 U
Trichloroethene	0.004 U
Vinyl Chloride	0.004 U
Xylenes (total)	0.008 U

B-19	1/20/2016 17-18(ft bgs) mg/kg
VOC	
1,1-Dichloroethane	0.0044 U
1,2-Dichloroethane	0.0044 U
1,1-Dichloroethene	0.0044 U
cis-1,2-Dichloroethene	0.0044 U
trans-1,2-Dichloroethene	0.0044 U
1,4-Dioxane	0.088 UJ
Methylene Chloride	0.0044 U
Tetrachloroethene	0.0044 UJ
1,1,1-Trichloroethane	0.0044 U
1,1,2-Trichloroethane	0.0044 UJ
Trichloroethene	0.0044 U
Vinyl Chloride	0.0044 U
Xylenes (total)	0.0088 U

PTO04	12/2/2015 17-18(ft bgs) mg/kg
VOC	
1,1-Dichloroethene	6.8 (AE)
1,2-Dichloroethene	1 U
1,1-Dichloroethene	2.3 (AE)
cis-1,2-Dichloroethene	1 (AE)
trans-1,2-Dichloroethene	1 U
1,4-Dioxane	20 U
Methylene Chloride	1 U
Tetrachloroethene	1 U
1,1,1-Trichloroethane	1 U
1,1,2-Trichloroethane	1 U
Trichloroethene	27 (ABE)
Vinyl Chloride	1 U
Xylenes (total)	2.1 U

B-30	1/20/2016 12-13(ft bgs) mg/kg	1/20/2016 17-18(ft bgs) mg/kg
VOC		
1,1-Dichloroethane	0.31 (AE)	0.88 (AE)
1,2-Dichloroethane	0.053 U	0.04 J (AE)
1,1-Dichloroethene	0.24	0.9 (AE)
cis-1,2-Dichloroethene	0.58 (AE)	1.9 (AE)
trans-1,2-Dichloroethene	0.053 U	0.053 U
1,4-Dioxane	1 U*	1 U*
Methylene Chloride	0.053 U	0.053 U
Tetrachloroethene	0.97	0.053 U
1,1,1-Trichloroethane	0.053 U	0.053 U
1,1,2-Trichloroethane	0.053 U	0.053 U
Trichloroethene	48 (ABE)	94 (ABE)
Vinyl Chloride	0.053 U	0.18 (AE)
Xylenes (total)	0.11 U	0.11 U

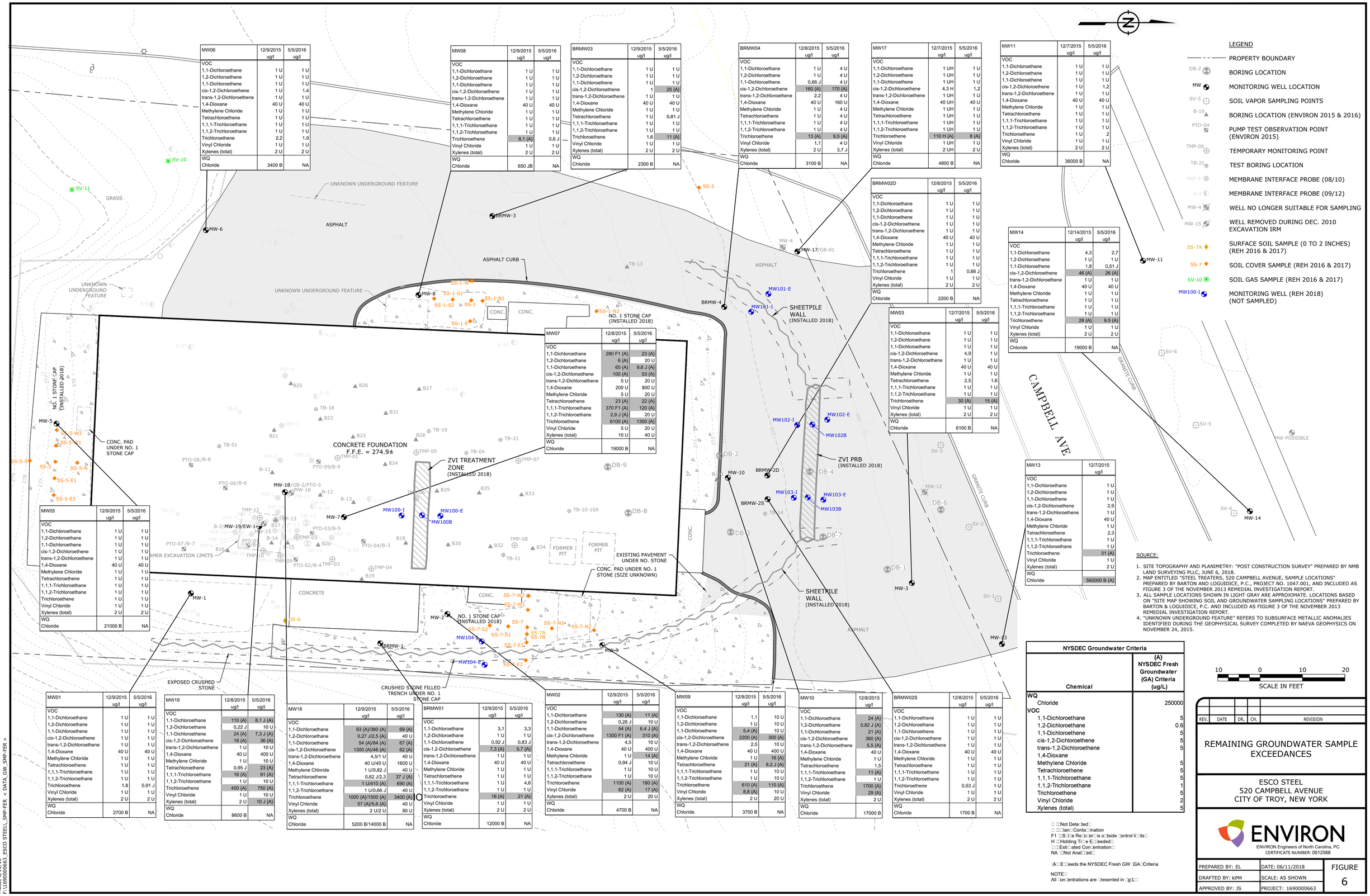
B-32	1/21/2016 13-14(ft bgs) mg/kg
VOC	
1,1-Dichloroethene	1.5 (AE)
1,2-Dichloroethene	0.05 J (AE)
1,1-Dichloroethene	1.8 (AE)
cis-1,2-Dichloroethene	10 (AE)
trans-1,2-Dichloroethene	0.018 J
1,4-Dioxane	1 U*
Methylene Chloride	0.017 J
Tetrachloroethene	0.054 U
1,1,1-Trichloroethane	0.054 U
1,1,2-Trichloroethane	0.054 U
Trichloroethene	80 (ABE)
Vinyl Chloride	0.77 (AE)
Xylenes (total)	0.11 U

Chemical	NYSDEC Soil Cleanup Objectives {A} NYSDEC Unrestricted SCO	{B} NYSDEC Restricted Residential SCO	{C} NYSDEC Commercial SCO	{D} NYSDEC Industrial SCO	{E} NYSDEC Protection of Groundwater SCO
WQ					
Chloride					
VOC					
1,1-Dichloroethane	0.27	26	240	480	0.27
1,2-Dichloroethane	0.02	3.1	30	60	0.02
1,1-Dichloroethene	0.33	100	500	1000	0.33
cis-1,2-Dichloroethene	0.25	100	500	1000	0.25
trans-1,2-Dichloroethene	0.19	100	500	1000	0.19
1,4-Dioxane	0.1	13	130	250	0.1
Methylene Chloride	0.05	100	500	1000	0.05
Tetrachloroethene	1.3	19	150	300	1.3
1,1,1-Trichloroethane	0.68	100	500	1000	0.68
1,1,2-Trichloroethane					
Trichloroethene	0.47	21	200	400	0.47
Vinyl Chloride	0.02	0.9	13	27	0.02
Xylenes (total)	0.26	100	500	1000	1.6

U -- Not Detected.
B -- Blank Contamination
J -- Estimated Concentration.
* -- Laboratory Control Sample is outside limits.
F1 -- MS and/or MSD recovery is outside acceptance limits.
SCO -- Soil Cleanup Objectives.

{A} Exceeds Unrestricted SCO
{B} Exceeds Restricted Res SCO
{C} Exceeds Commercial SCO
{D} Exceeds Restricted Ind SCO
{E} Exceeds Protection of Groundwater SCO

NOTES:
1. A[illegible] [illegible] [illegible] [



MW06	12/9/2015 ug/l	5/5/2016 ug/l
VOC		
1,1-Dichloroethane	1 U	1 U
1,2-Dichloroethane	1 U	1 U
1,1-Dichloroethene	1 U	1 U
cis-1,2-Dichloroethene	1 U	1,4
trans-1,2-Dichloroethene	1 U	1 U
1,4-Dioxane	40 U	40 U
Methylene Chloride	1 U	1 U
Tetrachloroethene	1 U	1 U
1,1,1-Trichloroethane	1 U	1 U
1,1,2-Trichloroethane	1 U	1 U
Trichloroethene	2,2	1,9
Vinyl Chloride	1 U	1 U
Xylenes (total)	2 U	2 U
WQ		
Chloride	3400 B	NA

MW08	12/9/2015 ug/l	5/5/2016 ug/l
VOC		
1,1-Dichloroethane	1 U	1 U
1,2-Dichloroethane	1 U	1 U
1,1-Dichloroethene	1 U	1 U
cis-1,2-Dichloroethene	1 U	1 U
trans-1,2-Dichloroethene	1 U	1 U
1,4-Dioxane	40 U	40 U
Methylene Chloride	1 U	1 U
Tetrachloroethene	1 U	1 U
1,1,1-Trichloroethane	1 U	1 U
1,1,2-Trichloroethane	1 U	1 U
Trichloroethene	8,1 (A)	0,6 J
Vinyl Chloride	1 U	1 U
Xylenes (total)	2 U	2 U
WQ		
Chloride	650 JB	NA

BRMW03	12/9/2015 ug/l	5/5/2016 ug/l
VOC		
1,1-Dichloroethane	1 U	1 U
1,2-Dichloroethane	1 U	1 U
1,1-Dichloroethene	1 U	1 U
cis-1,2-Dichloroethene	1	25 (A)
trans-1,2-Dichloroethene	1 U	1 U
1,4-Dioxane	40 U	40 U
Methylene Chloride	1 U	1 U
Tetrachloroethene	1 U	0,81 J
1,1,1-Trichloroethane	1 U	1 U
1,1,2-Trichloroethane	1 U	1 U
Trichloroethene	1,6	11 (A)
Vinyl Chloride	1 U	1 U
Xylenes (total)	2 U	2 U
WQ		
Chloride	2300 B	NA

BRMW04	12/8/2015 ug/l	5/5/2016 ug/l
VOC		
1,1-Dichloroethane	1 U	4 U
1,2-Dichloroethane	1 U	4 U
1,1-Dichloroethene	0,66 J	4 U
cis-1,2-Dichloroethene	160 (A)	170 (A)
trans-1,2-Dichloroethene	2,2	4 U
1,4-Dioxane	40 U	160 U
Methylene Chloride	1 U	4 U
Tetrachloroethene	1 U	4 U
1,1,1-Trichloroethane	1 U	4 U
1,1,2-Trichloroethane	1 U	4 U
Trichloroethene	13 (A)	9,5 (A)
Vinyl Chloride	1,1	4 U
Xylenes (total)	2 U	3,7 J
WQ		
Chloride	3100 B	NA

MW17	12/7/2015 ug/l	5/5/2016 ug/l
VOC		
1,1-Dichloroethane	1 UH	1 U
1,2-Dichloroethane	1 UH	1 U
1,1-Dichloroethene	1 UH	1 U
cis-1,2-Dichloroethene	4,3 H	1,2
trans-1,2-Dichloroethene	1 UH	1 U
1,4-Dioxane	40 UH	40 U
Methylene Chloride	1 UH	1 U
Tetrachloroethene	1 UH	1 U
1,1,1-Trichloroethane	1 UH	1 U
1,1,2-Trichloroethane	1 UH	1 U
Trichloroethene	110 H (A)	8 (A)
Vinyl Chloride	1 UH	1 U
Xylenes (total)	2 UH	2 U
WQ		
Chloride	4800 B	NA

BRMW02D	12/8/2015 ug/l	5/5/2016 ug/l
VOC		
1,1-Dichloroethane	1 U	1 U
1,2-Dichloroethane	1 U	1 U
1,1-Dichloroethene	1 U	1 U
cis-1,2-Dichloroethene	1 U	1 U
trans-1,2-Dichloroethene	1 U	1 U
1,4-Dioxane	40 U	40 U
Methylene Chloride	1 U	1 U
Tetrachloroethene	1 U	1 U
1,1,1-Trichloroethane	1 U	1 U
1,1,2-Trichloroethane	1 U	1 U
Trichloroethene	1	0,66 J
Vinyl Chloride	1 U	1 U
Xylenes (total)	2 U	2 U
WQ		
Chloride	2200 B	NA

MW11	12/7/2015 ug/l	5/5/2016 ug/l
VOC		
1,1-Dichloroethane	1 U	1 U
1,2-Dichloroethane	1 U	1 U
1,1-Dichloroethene	1 U	1 U
cis-1,2-Dichloroethene	1 U	1,2
trans-1,2-Dichloroethene	1 U	1 U
1,4-Dioxane	40 U	40 U
Methylene Chloride	1 U	1 U
Tetrachloroethene	1 U	1 U
1,1,1-Trichloroethane	1 U	1 U
1,1,2-Trichloroethane	1 U	1 U
Trichloroethene	1 U	2
Vinyl Chloride	1 U	1 U
Xylenes (total)	2 U	2 U
WQ		
Chloride	36000 B	NA

MW14	12/14/2015 ug/l	5/5/2016 ug/l
VOC		
1,1-Dichloroethane	4,3	2,7
1,2-Dichloroethane	1 U	1 U
1,1-Dichloroethene	1,8	0,51 J
cis-1,2-Dichloroethene	46 (A)	26 (A)
trans-1,2-Dichloroethene	1 U	1 U
1,4-Dioxane	40 U	40 U
Methylene Chloride	1 U	1 U
Tetrachloroethene	1 U	1 U
1,1,1-Trichloroethane	1 U	1 U
1,1,2-Trichloroethane	1 U	1 U
Trichloroethene	28 (A)	9,5 (A)
Vinyl Chloride	1 U	1 U
Xylenes (total)	2 U	2 U
WQ		
Chloride	19000 B	NA

MW07	12/8/2015 ug/l	5/5/2016 ug/l
VOC		
1,1-Dichloroethane	280 F1 (A)	23 (A)
1,2-Dichloroethane	6 (A)	20 U
1,1-Dichloroethene	65 (A)	9,6 J (A)
cis-1,2-Dichloroethene	100 (A)	53 (A)
trans-1,2-Dichloroethene	5 U	20 U
1,4-Dioxane	200 U	800 U
Methylene Chloride	5 U	20 U
Tetrachloroethene	23 (A)	22 (A)
1,1,1-Trichloroethane	370 F1 (A)	120 (A)
1,1,2-Trichloroethane	2,9 J (A)	20 U
Trichloroethene	6100 (A)	1300 (A)
Vinyl Chloride	5 U	20 U
Xylenes (total)	10 U	40 U
WQ		
Chloride	19000 B	NA

MW03	12/7/2015 ug/l	5/5/2016 ug/l
VOC		
1,1-Dichloroethane	1 U	1 U
1,2-Dichloroethane	1 U	1 U
1,1-Dichloroethene	1 U	1 U
cis-1,2-Dichloroethene	4,9	1 U
trans-1,2-Dichloroethene	1 U	1 U
1,4-Dioxane	40 U	40 U
Methylene Chloride	1 U	1 U
Tetrachloroethene	2,5	1,6
1,1,1-Trichloroethane	1 U	1 U
1,1,2-Trichloroethane	1 U	1 U
Trichloroethene	30 (A)	15 (A)
Vinyl Chloride	1 U	1 U
Xylenes (total)	2 U	2 U
WQ		
Chloride	6100 B	NA

MW13	12/7/2015 ug/l
VOC	
1,1-Dichloroethane	1 U
1,2-Dichloroethane	1 U
1,1-Dichloroethene	1 U
cis-1,2-Dichloroethene	2,9
trans-1,2-Dichloroethene	1 U
1,4-Dioxane	40 U
Methylene Chloride	1 U
Tetrachloroethene	2,3
1,1,1-Trichloroethane	1 U
1,1,2-Trichloroethane	1 U
Trichloroethene	31 (A)
Vinyl Chloride	1 U
Xylenes (total)	2 U
WQ	
Chloride	560000 B (A)

MW05	12/9/2015 ug/l	5/5/2016 ug/l
VOC		
1,1-Dichloroethane	1 U	1 U
1,2-Dichloroethane	1 U	1 U
1,1-Dichloroethene	1 U	1 U
cis-1,2-Dichloroethene	1 U	1 U
trans-1,2-Dichloroethene	1 U	1 U
1,4-Dioxane	40 U	40 U
Methylene Chloride	1 U	1 U
Tetrachloroethene	1 U	1 U
1,1,1-Trichloroethane	1 U	1 U
1,1,2-Trichloroethane	1 U	1 U
Trichloroethene	1 U	1 U
Vinyl Chloride	1 U	1 U
Xylenes (total)	2 U	2 U
WQ		
Chloride	21000 B	NA

MW01	12/9/2015 ug/l	5/5/2016 ug/l
VOC		
1,1-Dichloroethane	1 U	1 U
1,2-Dichloroethane	1 U	1 U
1,1-Dichloroethene	1 U	1 U
cis-1,2-Dichloroethene	1 U	1 U
trans-1,2-Dichloroethene	1 U	1 U
1,4-Dioxane	40 U	40 U
Methylene Chloride	1 U	1 U
Tetrachloroethene	1 U	1 U
1,1,1-Trichloroethane	1 U	1 U
1,1,2-Trichloroethane	1 U	1 U
Trichloroethene	1,8	0,91 J
Vinyl Chloride	1 U	1 U
Xylenes (total)	2 U	2 U
WQ		
Chloride	2700 B	NA

MW19	12/8/2015 ug/l	5/5/2016 ug/l
VOC		
1,1-Dichloroethane	110 (A)	8,1 (A)
1,2-Dichloroethane	0,22 J	10 U
1,1-Dichloroethene	24 (A)	7,3 J (A)
cis-1,2-Dichloroethene	18 (A)	36 (A)
trans-1,2-Dichloroethene	1 U	10 U
1,4-Dioxane	40 U	400 U
Methylene Chloride	1 U	10 U
Tetrachloroethene	0,95 J	23 (A)
1,1,1-Trichloroethane	16 (A)	91 (A)
1,1,2-Trichloroethane	1 U	10 U
Trichloroethene	400 (A)	750 (A)
Vinyl Chloride	1 U	10 U
Xylenes (total)	2 U	10 J (A)
WQ		
Chloride	8600 B	NA

MW18	12/9/2015 ug/l	5/5/2016 ug/l
VOC		
1,1-Dichloroethane	93 (A)/380 (A)	69 (A)
1,2-Dichloroethane	0,27 J/2,5 (A)	40 U
1,1-Dichloroethene	54 (A)/84 (A)	67 (A)
cis-1,2-Dichloroethene	1300 (A)/46 (A)	62 (A)
trans-1,2-Dichloroethene	4,5/1 U	40 U
1,4-Dioxane	40 U/40 U	1600 U
Methylene Chloride	1 U/0,82 J	40 U
Tetrachloroethene	0,62 J/2,3	37 J (A)
1,1,1-Trichloroethane	1 U/410 (A)	690 (A)
1,1,2-Trichloroethane	1 U/0,66 J	40 U
Trichloroethene	1000 (A)/1500 (A)	3400 (A)
Vinyl Chloride	57 (A)/5,6 (A)	40 U
Xylenes (total)	2 U/2 U	80 U
WQ		
Chloride	5200 B/14000 B	NA

BRMW01	12/9/2015 ug/l	5/5/2016 ug/l
VOC		
1,1-Dichloroethane	3,1	3,3
1,2-Dichloroethane	1 U	1 U
1,1-Dichloroethene	0,92 J	0,83 J
cis-1,2-Dichloroethene	7,3 (A)	5,7 (A)
trans-1,2-Dichloroethene	1 U	1 U
1,4-Dioxane	40 U	40 U
Methylene Chloride	1 U	1 U
Tetrachloroethene	1 U	1 U
1,1,1-Trichloroethane	1 U	4,6
1,1,2-Trichloroethane	1 U	1 U
Trichloroethene	16 (A)	21 (A)
Vinyl Chloride	1 U	1 U
Xylenes (total)	2 U	2 U
WQ		
Chloride	12000 B	NA

MW02	12/9/2015 ug/l	5/5/2016 ug/l
VOC		
1,1-Dichloroethane	130 (A)	11 (A)
1,2-Dichloroethane	0,28 J	10 U
1,1-Dichloroethene	54 (A)	6,4 J (A)
cis-1,2-Dichloroethene	1300 F1 (A)	310 (A)
trans-1,2-Dichloroethene	4,5	10 U
1,4-Dioxane	40 U	400 U
Methylene Chloride	1 U	14 (A)
Tetrachloroethene	0,94 J	10 U
1,1,1-Trichloroethane	1 U	10 U
1,1,2-Trichloroethane	1 U	10 U
Trichloroethene	1100 (A)	180 (A)
Vinyl Chloride	62 (A)	17 (A)
Xylenes (total)	2 U	20 U
WQ		
Chloride	4700 B	NA

MW09	12/9/2015 ug/l	5/5/2016 ug/l
VOC		
1,1-Dichloroethane	1,1	10 U
1,2-Dichloroethane	1 U	10 U
1,1-Dichloroethene	5,4 (A)	10 U
cis-1,2-Dichloroethene	360 (A)	5,5 (A)
trans-1,2-Dichloroethene	2,5	10 U
1,4-Dioxane	40 U	400 U
Methylene Chloride	1 U	16 (A)
Tetrachloroethene	21 (A)	8,2 J (A)
1,1,1-Trichloroethane	1 U	10 U
1,1,2-Trichloroethane	1 U	10 U
Trichloroethene	610 (A)	110 (A)
Vinyl Chloride	8,8 (A)	10 U
Xylenes (total)	2 U	20 U
WQ		
Chloride	3700 B	NA

MW10	12/8/2015 ug/l
VOC	
1,1-Dichloroethane	24 (A)
1,2-Dichloroethane	0,82 J (A)
1,1-Dichloroethene	21 (A)
cis-1,2-Dichloroethene	360 (A)
trans-1,2-Dichloroethene	5,5 (A)
1,4-Dioxane	40 U
Methylene Chloride	1 U
Tetrachloroethene	1,5
1,1,1-Trichloroethane	11 (A)
1,1,2-Trichloroethane	1 U
Trichloroethene	1700 (A)
Vinyl Chloride	29 (A)
Xylenes (total)	2 U
WQ	
Chloride	17000 B

BRMW02S	12/8/2015 ug/l	5/5/2016 ug/l
VOC		
1,1-Dichloroethane	1 U	1 U
1,2-Dichloroethane	1 U	1 U
1,1-Dichloroethene	1 U	1 U
cis-1,2-Dichloroethene	1 U	1 U
trans-1,2-Dichloroethene	1 U	1 U
1,4-Dioxane	40 U	40 U
Methylene Chloride	1 U	1 U
Tetrachloroethene	1 U	1 U
1,1,1-Trichloroethane	1 U	1 U
1,1,2-Trichloroethane	1 U	1 U
Trichloroethene	0,53 J	1 U
Vinyl Chloride	1 U	1 U
Xylenes (total)	2 U	2 U
WQ		
Chloride	1700 B	NA

NYSDEC Groundwater Criteria	
Chemical	(A) NYSDEC Fresh Groundwater (GA) Criteria (ug/L)
WQ	
Chloride	250000
VOC	
1,1-Dichloroethane	5
1,2-Dichloroethane	0.6
1,1-Dichloroethene	5
cis-1,2-Dichloroethene	5
trans-1,2-Dichloroethene	5
1,4-Dioxane	
Methylene Chloride	5
Tetrachloroethene	5
1,1,1-Trichloroethane	5
1,1,2-Trichloroethane	1
Trichloroethene	5
Vinyl Chloride	2
Xylenes (total)	5

LEGEND

- PROPERTY BOUNDARY
- DB-2 BORING LOCATION
- MW MONITORING WELL LOCATION
- SV-5 SOIL VAPOR SAMPLING POINTS
- B-10 BORING LOCATION (ENVIRON 2015 & 2016)
- PTO-04 PUMP TEST OBSERVATION POINT (ENVIRON 2015)
- TMP-06 TEMPORARY MONITORING POINT
- TB-21 TEST BORING LOCATION
- MIP-4 MEMBRANE INTERFACE PROBE (08/10)
- A-3 MEMBRANE INTERFACE PROBE (09/12)
- MW-4 WELL NO LONGER SUITABLE FOR SAMPLING
- MW-15 WELL REMOVED DURING DEC. 2010 EXCAVATION IRM
- SS-7A SURFACE SOIL SAMPLE (0 TO 2 INCHES) (REH 2016 & 2017)
- SS-7 SOIL COVER SAMPLE (REH 2016 & 2017)
- SV-10 SOIL GAS SAMPLE (REH 2016 & 2017)
- MW100-I MONITORING WELL (REH 2018) (NOT SAMPLED)

SOURCE:

1. SITE TOPOGRAPHY AND PLANIMETRY: "POST CONSTRUCTION SURVEY" PREPARED BY NMB LAND SURVEYING PLLC, JUNE 6, 2018.
2. MAP ENTITLED "STEEL TREATERS, 520 CAMPBELL AVENUE, SAMPLE LOCATIONS" PREPARED BY BARTON AND LOGUIDICE, P.C., PROJECT NO. 1047.001, AND INCLUDED AS FIGURE 3 OF THE NOVEMBER 2013 REMEDIAL INVESTIGATION REPORT.
3. ALL SAMPLE LOCATIONS SHOWN IN LIGHT GRAY ARE APPROXIMATE. LOCATIONS BASED ON "SITE MAP SHOWING SOIL AND GROUNDWATER SAMPLING LOCATIONS" PREPARED BY BARTON & LOGUIDICE, P.C. AND INCLUDED AS FIGURE 3 OF THE NOVEMBER 2013 REMEDIAL INVESTIGATION REPORT.
4. "UNKNOWN UNDERGROUND FEATURE" REFERS TO SUBSURFACE METALLIC ANOMALIES IDENTIFIED DURING THE GEOPHYSICAL SURVEY COMPLETED BY NAEVA GEOPHYSICS ON NOVEMBER 24, 2015.

10 0 10 20
SCALE IN FEET

□ □Not Dete□ted□
□ □□□an□ Conta□ination
F1 □S□□e Re□o□er□is o□tside □ontrol li□its□
H □Holding Ti□ e E□□eeded□
□□Esti□ated Con□entration□
NA □Not Anal□ed□

□A□ E□□eeds the NYSDEC Fresh GW □GA□Criteria

NOTE□
All □on□entrations are □resented in □g/L□

REV.	DATE	DR.	CH.	REVISION

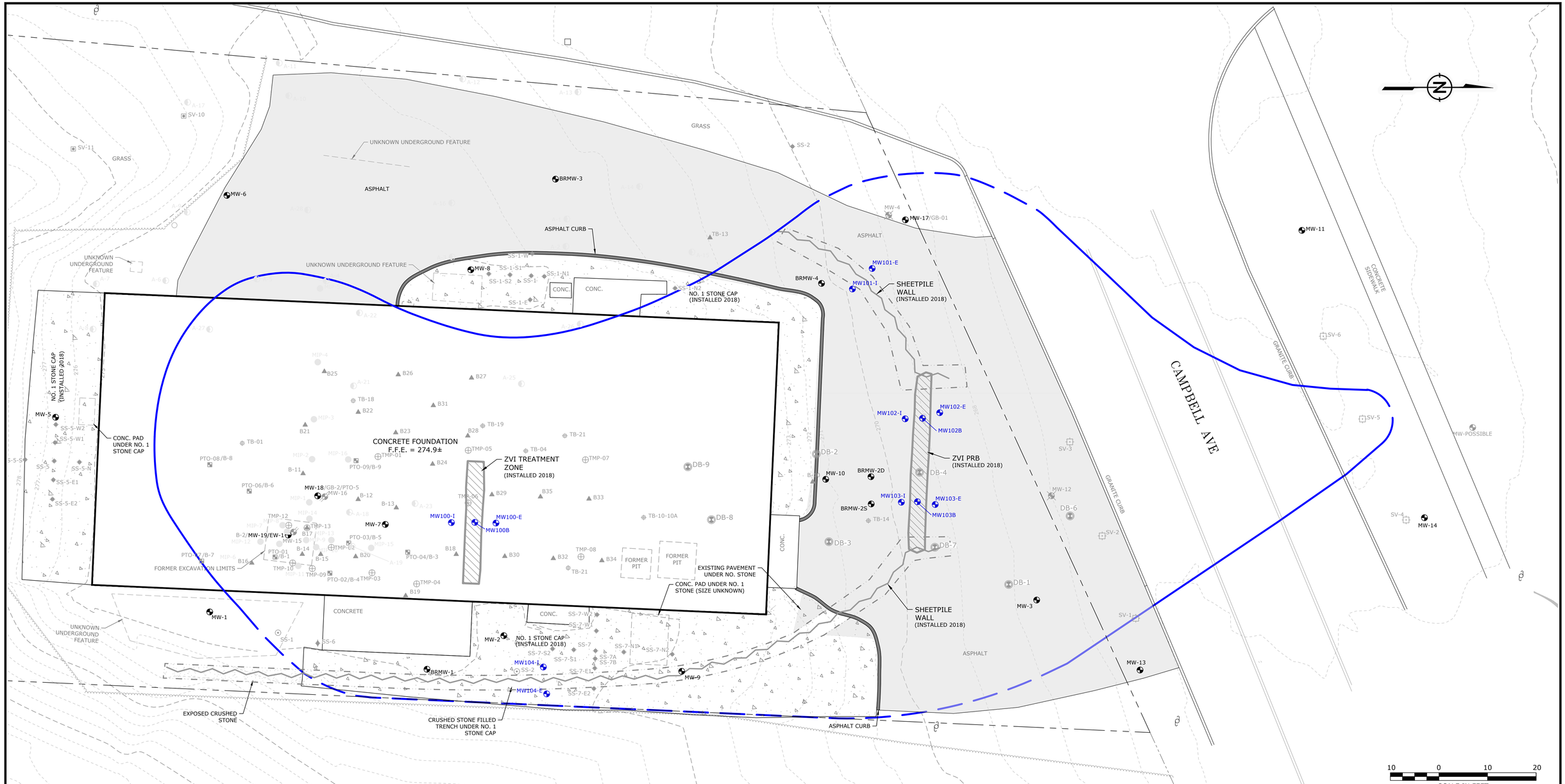
REMAINING GROUNDWATER SAMPLE EXCEEDANCES

ESCO STEEL
520 CAMPBELL AVENUE
CITY OF TROY, NEW YORK

ENVIRON
ENVIRON Engineers of North Carolina, PC
CERTIFICATE NUMBER: 0012568

PREPARED BY: EL	DATE: 06/11/2018	FIGURE 6
DRAFTED BY: KPM	SCALE: AS SHOWN	
APPROVED BY: JS	PROJECT: 1690000663	

MBLEI 6/11/18
F:\1690000663_ESCO STEEL_SMP-FER_< DATA_GW_SMP-FER >



NOTES:

1. GROUNDWATER PLUME BOUNDARY DEFINED AS THE OUTERMOST ISO-CONCENTRATION LINE FOR ANY CONSTITUENT EXCEEDING THE NYSDEC FRESHWATER (GA) CRITERIA DURING THE MOST RECENT GROUNDWATER SAMPLING EVENT.

SOURCE:

1. SITE TOPOGRAPHY AND PLANIMETRY: "POST CONSTRUCTION SURVEY" PREPARED BY NMB LAND SURVEYING PLLC, JUNE 6, 2018.
2. MAP ENTITLED "STEEL TREATERS, 520 CAMPBELL AVENUE, SAMPLE LOCATIONS" PREPARED BY BARTON AND LOGUIDICE, P.C., PROJECT NO. 1047.001, AND INCLUDED AS FIGURE 3 OF THE NOVEMBER 2013 REMEDIAL INVESTIGATION REPORT.
3. ALL SAMPLE LOCATIONS SHOWN IN LIGHT GRAY ARE APPROXIMATE. LOCATIONS BASED ON "SITE MAP SHOWING SOIL AND GROUNDWATER SAMPLING LOCATIONS" PREPARED BY BARTON & LOGUIDICE, P.C. AND INCLUDED AS FIGURE 3 OF THE NOVEMBER 2013 REMEDIAL INVESTIGATION REPORT.
4. "UNKNOWN UNDERGROUND FEATURE" REFERS TO SUBSURFACE METALLIC ANOMALIES IDENTIFIED DURING THE GEOPHYSICAL SURVEY COMPLETED BY NAEVA GEOPHYSICS ON NOVEMBER 24, 2015.

LEGEND

- PROPERTY BOUNDARY
- DB-2 BORING LOCATION
- MW MONITORING WELL LOCATION
- SV-5 SOIL VAPOR SAMPLING POINTS
- B-10 BORING LOCATION (ENVIRON 2015 & 2016)
- PTO-04 PUMP TEST OBSERVATION POINT (ENVIRON 2015)
- TMP-06 TEMPORARY MONITORING POINT
- TB-21 TEST BORING LOCATION
- MIP-4 MEMBRANE INTERFACE PROBE (08/10)
- A-3 MEMBRANE INTERFACE PROBE (09/12)
- MW-4 WELL NO LONGER SUITABLE FOR SAMPLING
- MW-15 WELL REMOVED DURING DEC. 2010 EXCAVATION IRM
- SS-7A SURFACE SOIL SAMPLE (0 TO 2 INCHES) (REH 2016 & 2017)
- SS-7 SOIL COVER SAMPLE (REH 2016 & 2017)
- SV-10 SOIL GAS SAMPLE (REH 2016 & 2017)
- MW100-I MONITORING WELL (REH 2018) (NOT SAMPLED)
- GROUNDWATER PLUME BOUNDARY
- INFERRED GROUNDWATER PLUME BOUNDARY

REV.	DATE	DR.	CH.	REVISION

GROUNDWATER PLUME BOUNDARY

ESCO STEEL
520 CAMPBELL AVENUE
CITY OF TROY, NEW YORK

ENVIRON
ENVIRON Engineers of North Carolina, PC
CERTIFICATE NUMBER: 0012568

PREPARED BY: JW	DATE: 06/11/2018	FIGURE 7
DRAFTED BY: KPM	SCALE: AS SHOWN	
APPROVED BY: JS	PROJECT: 0239035A	

MBLEI 6/11/18
F:\1690000663_ESCO STEEL_SMP-FER_ < GW_PLUME_SMP-FER >

SOURCE:

1. SITE TOPOGRAPHY AND PLANIMETRY "EXISTING CONDITIONS SURVEY" PREPARED BY NMB LAND SURVEYING PLLC, JUNE 6, 2018.
2. SAMPLE LOCATIONS: "STEEL TREATERS, 520 CAMPBELL AVENUE, SAMPLE LOCATIONS" PREPARED BY BARTON AND LOGUIDICE, P.C., PROJECT NO. 1047.001, AND INCLUDED AS FIGURE 3 OF THE NOVEMBER 2013 REMEDIAL INVESTIGATION REPORT.
3. GOOGLE EARTH AERIAL IMAGERY DATED 9/19/2013.

ENVIRON

ENVIRON Engineers of North Carolina, PC
CERTIFICATE NUMBER: 0012568

DRAFTED BY: KPM/MSB | DATE: 06/08/2018

SOIL □A□OR SAM□LE LOCATIONS

520 CAMPBELL AVENUE
CITY OF TROY, NEW YORK

FIGURE
□

PROJECT:1690000663

MBLEI 6/8/18 F:\1690000663_ESCO STEEL_SMP-FER < SMPL_SOIL VAPOR_SMP >

SOURCE:

1. SITE TOPOGRAPHY AND PLANIMETRY: "POST CONSTRUCTION SURVEY" PREPARED BY NMB LAND SURVEYING PLLC, JUNE 6, 2018.
2. GOOGLE EARTH AERIAL IMAGERY DATED 9/19/2013.

ENVIRON

ENVIRON Engineers of North Carolina, PC
CERTIFICATE NUMBER: 0012568

DRAFTED BY: KPM/MSB | DATE: 06/08/2018

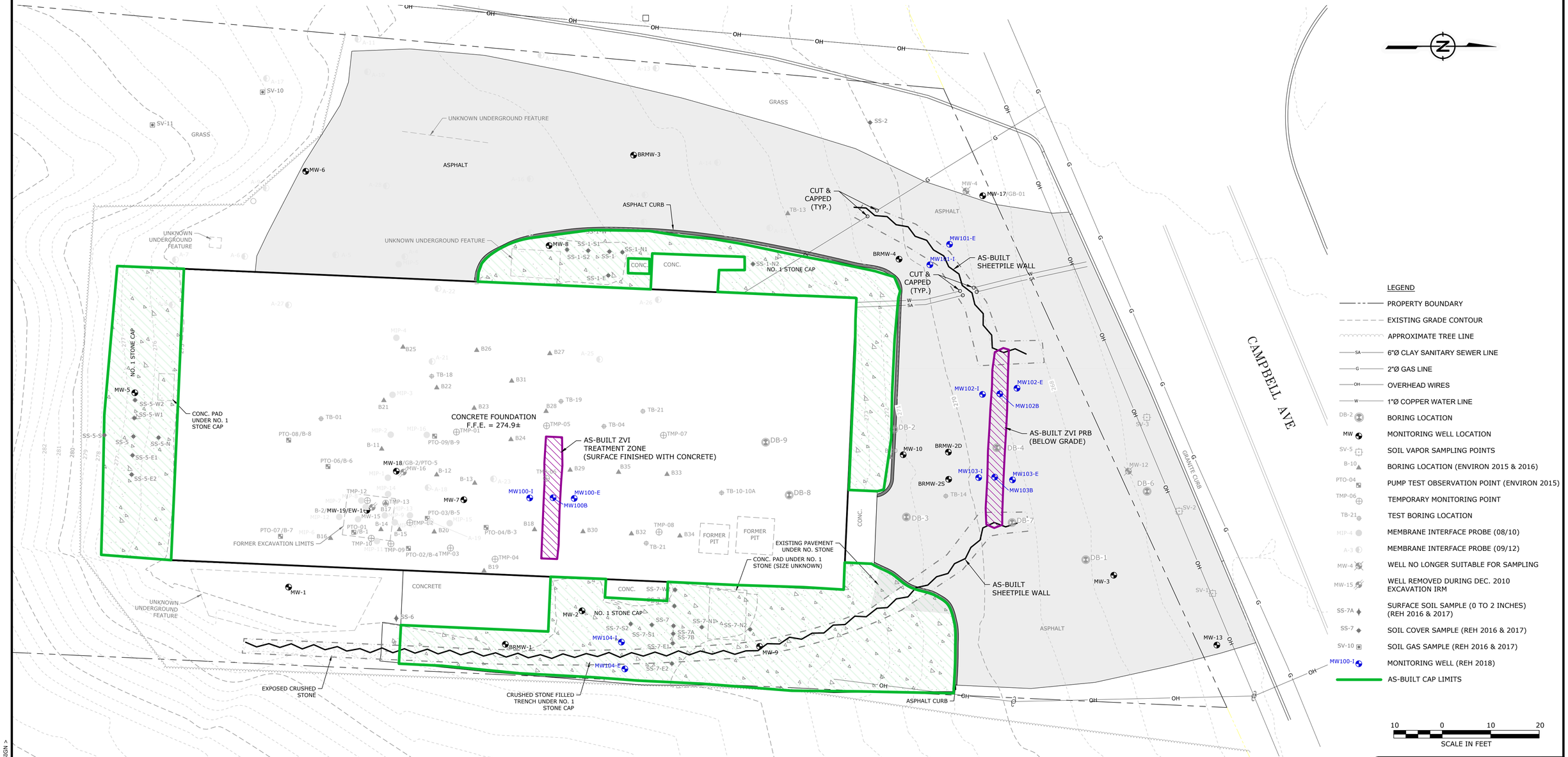
INSTITUTIONAL CONTROL BOUNDARIES

520 CAMPBELL AVENUE
CITY OF TROY, NEW YORK

FIGURE
9

PROJECT:1690000663

MBLEI 6/8/18 F:\1690000663_ESCO STEEL_SMP-FER < INSTITUTIONAL CONTROL BOUNDARY_SMP >



LEGEND

- PROPERTY BOUNDARY
- EXISTING GRADE CONTOUR
- APPROXIMATE TREE LINE
- SA — 6"Ø CLAY SANITARY SEWER LINE
- G — 2"Ø GAS LINE
- OH — OVERHEAD WIRES
- W — 1"Ø COPPER WATER LINE
- DB-2 — BORING LOCATION
- MW — MONITORING WELL LOCATION
- SV-5 — SOIL VAPOR SAMPLING POINTS
- B-10 — BORING LOCATION (ENVIRON 2015 & 2016)
- PTO-04 — PUMP TEST OBSERVATION POINT (ENVIRON 2015)
- TMP-06 — TEMPORARY MONITORING POINT
- TB-21 — TEST BORING LOCATION
- MIP-4 — MEMBRANE INTERFACE PROBE (08/10)
- A-3 — MEMBRANE INTERFACE PROBE (09/12)
- MW-4 — WELL NO LONGER SUITABLE FOR SAMPLING
- MW-15 — WELL REMOVED DURING DEC. 2010 EXCAVATION IRM
- SS-7A — SURFACE SOIL SAMPLE (0 TO 2 INCHES) (REH 2016 & 2017)
- SS-7 — SOIL COVER SAMPLE (REH 2016 & 2017)
- SV-10 — SOIL GAS SAMPLE (REH 2016 & 2017)
- MW100-I — MONITORING WELL (REH 2018)
- AS-BUILT CAP LIMITS

10 0 10 20
SCALE IN FEET

SOURCE:

1. SITE TOPOGRAPHY AND PLANIMETRY "POST CONSTRUCTION SURVEY" PREPARED BY NMB LAND SURVEYING PLLC, JUNE 6, 2018.
2. SAMPLE LOCATIONS: "STEEL TREATERS, 520 CAMPBELL AVENUE, SAMPLE LOCATIONS" PREPARED BY BARTON AND LOGUIDICE, P.C., PROJECT NO. 1047.001, AND INCLUDED AS FIGURE 3 OF THE NOVEMBER 2013 REMEDIAL INVESTIGATION REPORT.
3. ALL SAMPLE LOCATIONS SHOWN IN LIGHT GRAY ARE APPROXIMATE. LOCATIONS BASED ON "SITE MAP SHOWING SOIL AND GROUNDWATER SAMPLING LOCATIONS" PREPARED BY BARTON & LOGUIDICE, P.C. AND INCLUDED AS FIGURE 3 OF THE NOVEMBER 2013 REMEDIAL INVESTIGATION REPORT.
4. "UNKNOWN UNDERGROUND FEATURE" REFERS TO SUBSURFACE METALLIC ANOMALIES IDENTIFIED DURING THE GEOPHYSICAL SURVEY COMPLETED BY NAEVA GEOPHYSICS ON NOVEMBER 24, 2015.

REV.	DATE	DR.	CH.	REVISION

ENGINEERING CONTROLS LOCATION

ESCO STEEL
520 CAMPBELL AVENUE
CITY OF TROY, NEW YORK

ENVIRON
ENVIRON Engineers of North Carolina, PC
CERTIFICATE NUMBER: 0012568

PREPARED BY: JS/TA	DATE: 06/11/2018	FIGURE 10
DRAFTED BY: MSB	SCALE: AS SHOWN	
APPROVED BY: JS	PROJECT: 0239035A	

MBLEI 6/11/18
F:\1690000663_ESCO STEEL_SMP-FER < POST-REMEDIAL ACTION_ASBUILT DESIGN >

TABLES

TABLE 3A
Summary of Soil Sampling Results
ESCO Steel, Inc.; Troy, NY

Location							B-11	B-11	B-12	B-12	B-13	B-13
Field Sample ID							B-11 (3-4)	B-11 (16-17)	B-12 (6-7)	B-12 (15-16)	B-13 (6-7)	B-13 (13-14)
Lab Sample ID							480-92089-5	480-92089-6	480-92089-7	480-92089-8	480-92089-9	480-92089-10
Collection Depth (ft bgs)							3 - 4	16 - 17	6 - 7	15 - 16	6 - 7	13 - 14
Sample Method							Terra Core	Terra Core	Terra Core	Terra Core	Terra Core	Terra Core
Sample Date							12/3/2015	12/3/2015	12/3/2015	12/3/2015	12/3/2015	12/3/2015
Comments	NYSDEC Unrestricted SCO	NYSDEC Restricted Residential SCO	NYSDEC Commercial SCO	NYSDEC Industrial SCO	NYSDEC Protection of Groundwater SCO							
VOC												
Acetone	0.05	100	500	1000	0.05		U (0.019)	U (0.021)	0.0089 JB (0.019)	0.0038 JB (0.017)	U (0.018)	U (9)
Benzene	0.06	4.8	44	89	0.06		U (0.0038)	U (0.0042)	U (0.0038)	U (0.0034)	0.00019 J (0.0037)	U (1.8)
Bromodichloromethane							U (0.0038)	U (0.0042)	0.001 J (0.0038)	U (0.0034)	U (0.0037)	U (1.8)
Chloroform	0.37	49	350	700	0.37		0.00077 J (0.0038)	U (0.0042)	0.0013 J (0.0038)	U (0.0034)	0.0017 J (0.0037)	U (1.8)
Cumene					2.3		U (0.0038)	U* (0.0042)	U (0.0038)	U* (0.0034)	U (0.0037)	U (1.8)
1,1-Dichloroethane	0.27	26	240	480	0.27		0.011 (0.0038)	U (0.0042)	0.018 (0.0038)	U (0.0034)	0.033 (0.0037)	0.57 J (1.8)
1,2-Dichloroethane	0.02	3.1	30	60	0.02		0.00046 J (0.0038)	U (0.0042)	0.015 (0.0038)	U (0.0034)	0.022 (0.0037)	U (1.8)
1,1-Dichloroethene	0.33	100	500	1000	0.33		0.02 (0.0038)	U (0.0042)	0.089 (0.0038)	U (0.0034)	0.09 (0.0037)	U (1.8)
cis-1,2-Dichloroethene	0.25	100	500	1000	0.25		0.021 (0.0038)	U (0.0042)	0.071 (0.0038)	0.0006 J (0.0034)	0.27 J (0.4)	U (1.8)
trans-1,2-Dichloroethene	0.19	100	500	1000	0.19		U (0.0038)	U (0.0042)	U (0.0038)	U (0.0034)	0.0013 J (0.0037)	U (1.8)
1,4-Dioxane	0.1	13	130	250	0.1		0.15 (0.077)	U (0.083)	0.81 (0.076)	U* (0.067)	2.4 (0.073)	U (34)
Ethyl Benzene	1	41	390	780	1		U (0.0038)	U (0.0042)	U (0.0038)	U* (0.0034)	U (0.0037)	U (1.8)
4-Methyl-2-pentanone					1		U (0.019)	U (0.021)	U (0.019)	U* (0.017)	U (0.018)	U (9)
Methylcyclohexane							U (0.0038)	U (0.0042)	U (0.0038)	U (0.0034)	U (0.0037)	U (1.8)
Methylene Chloride	0.05	100	500	1000	0.05		U (0.0038)	U (0.0042)	U (0.0038)	U (0.0034)	U (0.0037)	U (1.8)
Tetrachloroethene	1.3	19	150	300	1.3		0.0032 J (0.0038)	U (0.0042)	0.081 (0.0038)	U* (0.0034)	0.034 (0.0037)	U (1.8)
Toluene	0.7	100	500	1000	0.7		U (0.0038)	U (0.0042)	U (0.0038)	U* (0.0034)	U (0.0037)	U (1.8)
1,1,1-Trichloroethane	0.68	100	500	1000	0.68		0.026 (0.0038)	U (0.0042)	1.8 (0.41)	U (0.0034)	0.84 (0.4)	U (1.8)
1,1,2-Trichloroethane							U (0.0038)	U (0.0042)	0.023 (0.0038)	U* (0.0034)	0.028 (0.0037)	U (1.8)
Trichloroethene	0.47	21	200	400	0.47		3.3 (0.088)	U (0.0042)	18 (0.41)	0.0073 (0.0034)	14 (0.4)	**120 (1.8)**
1,1,2-Trichloro-1,2,2-trifluoroethane					6		U (0.0038)	U (0.0042)	U (0.0038)	U (0.0034)	U (0.0037)	U (1.8)
Vinyl Chloride	0.02	0.9	13	27	0.02		U (0.0038)	U (0.0042)	U (0.0038)	0.00098 J (0.0034)	U (0.0037)	U (1.8)
Xylenes (total)	0.26	100	500	1000	1.6		U (0.0077)	U (0.0083)	U (0.0076)	U (0.0067)	U (0.0073)	U (3.6)

Notes:

1 All concentrations are presented in mg/kg (ppm).
2 Only compounds with at least one detection are shown.
3 Concentrations that exceed the NYSDEC Unrestricted SCO are double underlined.
4 Concentrations that exceed the NYSDEC Restricted Residential SCO are **boldfaced**.
5 No concentrations exceed the NYSDEC Commercial SCO.
6 No concentrations that exceed the NYSDEC Industrial SCO.
7 Concentrations that exceed the NYSDEC Protection of Groundwater SCO are grey-shaded.

Abbreviations:

U -- Not Detected.
J -- Estimated Concentration.
B --Blank Contamination
* -- LCS is outside limits.
( ) -- Reporting Limit.

TABLE 3A
Summary of Soil Sampling Results
ESCO Steel, Inc.; Troy, NY

Location	NYSDEC Unrestricted SCO	NYSDEC Restricted Residential SCO	NYSDEC Commercial SCO	NYSDEC Industrial SCO	NYSDEC Protection of Groundwater SCO	B-14	B-14	B-14	B-16	B-17	B-19
Field Sample ID						B-14 (5-7)	B-14 (11-12)	B-14 (12-13)	B-16 (6-7)	B-17 (6-7)	B-19 (6-7)
Lab Sample ID						480-92089-14	480-92089-12	480-92089-13	480-94198-1	480-94198-2	480-94198-6
Collection Depth (ft bgs)						5 - 7	11 - 12	12 - 13	6 - 7	6 - 7	6 - 7
Sample Method						Terra Core	Terra Core	Terra Core	Terra Core	Terra Core	Terra Core
Sample Date						12/3/2015	12/3/2015	12/3/2015	1/20/2016	1/20/2016	1/20/2016
Comments											
VOC											
Acetone	0.05	100	500	1000	0.05	0.0052 JB (0.019)	0.0061 JB (0.027)	U (0.017)	0.025 (0.021)	U (0.019)	0.03 (0.026)
Benzene	0.06	4.8	44	89	0.06	U (0.0038)	U (0.0053)	U (0.0033)	U (0.0043)	U (0.0038)	U (0.0052)
Bromodichloromethane						U (0.0038)	U (0.0053)	U (0.0033)	U (0.0043)	U (0.0038)	U (0.0052)
Chloroform	0.37	49	350	700	0.37	U (0.0038)	U (0.0053)	U (0.0033)	U (0.0043)	U (0.0038)	U (0.0052)
Cumene					2.3	U (0.0038)	U (0.0053)	U* (0.0033)	U (0.0043)	U (0.0038)	0.0017 J (0.0052)
1,1-Dichloroethane	0.27	26	240	480	0.27	U (0.0038)	U (0.0053)	U (0.0033)	U (0.0043)	0.038 (0.0038)	0.0013 J (0.0052)
1,2-Dichloroethane	0.02	3.1	30	60	0.02	U (0.0038)	U (0.0053)	U (0.0033)	U (0.0043)	U (0.0038)	U (0.0052)
1,1-Dichloroethene	0.33	100	500	1000	0.33	U (0.0038)	U (0.0053)	U (0.0033)	U (0.0043)	0.0092 (0.0038)	0.0064 (0.0052)
cis-1,2-Dichloroethene	0.25	100	500	1000	0.25	U (0.0038)	U (0.0053)	U (0.0033)	U (0.0043)	0.017 (0.0038)	1.1 (0.056)
trans-1,2-Dichloroethene	0.19	100	500	1000	0.19	U (0.0038)	U (0.0053)	U (0.0033)	U (0.0043)	U (0.0038)	0.0019 J (0.0052)
1,4-Dioxane	0.1	13	130	250	0.1	U (0.077)	U (0.11)	U (0.067)	U (0.086)	U (0.075)	U (0.1)
Ethyl Benzene	1	41	390	780	1	U (0.0038)	U (0.0053)	U (0.0033)	U (0.0043)	U (0.0038)	U (0.0052)
4-Methyl-2-pentanone					1	U (0.019)	U (0.027)	U (0.017)	U (0.021)	U (0.019)	U (0.026)
Methylcyclohexane						U (0.0038)	U (0.0053)	U (0.0033)	U (0.0043)	U (0.0038)	0.0019 J (0.0052)
Methylene Chloride	0.05	100	500	1000	0.05	U (0.0038)	U (0.0053)	U (0.0033)	U (0.0043)	U (0.0038)	U (0.0052)
Tetrachloroethene	1.3	19	150	300	1.3	U (0.0038)	U (0.0053)	U (0.0033)	U (0.0043)	0.011 (0.0038)	0.096 (0.0052)
Toluene	0.7	100	500	1000	0.7	U (0.0038)	U (0.0053)	U (0.0033)	U (0.0043)	U (0.0038)	0.0014 J (0.0052)
1,1,1-Trichloroethane	0.68	100	500	1000	0.68	U (0.0038)	U (0.0053)	U (0.0033)	0.0016 J (0.0043)	0.013 (0.0038)	U (0.0052)
1,1,2-Trichloroethane						U (0.0038)	U (0.0053)	U (0.0033)	U (0.0043)	U (0.0038)	U (0.0052)
Trichloroethene	0.47	21	200	400	0.47	0.0028 J (0.0038)	U (0.0053)	U (0.0033)	0.094 (0.0043)	12 (0.24)	
1,1,2-Trichloro-1,2,2-trifluoroethane					6	U (0.0038)	U (0.0053)	U (0.0033)	U (0.0043)	U (0.0038)	U (0.0052)
Vinyl Chloride	0.02	0.9	13	27	0.02	U (0.0038)	U (0.0053)	U (0.0033)	U (0.0043)	U (0.0038)	0.056 (0.0052)
Xylenes (total)	0.26	100	500	1000	1.6	U (0.0077)	U (0.011)	U (0.0067)	U (0.0086)	U (0.0075)	0.002 J (0.01)

Notes:

1 All concentrations are presented in mg/kg (ppm).
2 Only compounds with at least one detection are shown.
3 Concentrations that exceed the NYSDEC Unrestricted SCO are double underlined.
4 Concentrations that exceed the NYSDEC Restricted Residential SCO are **boldfaced**.
5 No concentrations exceed the NYSDEC Commercial SCO.
6 No concentrations that exceed the NYSDEC Industrial SCO.
7 Concentrations that exceed the NYSDEC Protection of Groundwater SCO are grey-shaded.

Abbreviations:

U -- Not Detected.
J -- Estimated Concentration.
B --Blank Contamination
* -- LCS is outside limits.
( ) -- Reporting Limit.

TABLE 3A
Summary of Soil Sampling Results
ESCO Steel, Inc.; Troy, NY

Location	NYSDEC Unrestricted SCO	NYSDEC Restricted Residential SCO	NYSDEC Commercial SCO	NYSDEC Industrial SCO	NYSDEC Protection of Groundwater SCO	B-19	B-20	B-20	B-21	B-22	B-22
Field Sample ID						B-19 (17-18)	B-20 (6-7)	B-20 (16-17)	B-21 (3-4)	B-22 (5-6)	B-22 (14-15)
Lab Sample ID						480-94198-7	480-94198-4	480-94198-5	480-94198-15	480-94198-13	480-94198-14
Collection Depth (ft bgs)						17 - 18	6 - 7	16 - 17	3 - 4	5 - 6	14 - 15
Sample Method						Terra Core	Terra Core	Terra Core	Terra Core	Terra Core	Terra Core
Sample Date						1/20/2016	1/20/2016	1/20/2016	1/20/2016	1/20/2016	1/20/2016
Comments											
VOC											
Acetone	0.05	100	500	1000	0.05	0.0082 JB (0.022)	0.0053 J (0.023)	U (0.02)	0.0049 J (0.021)	0.0074 J (0.023)	0.0036 JB (0.021)
Benzene	0.06	4.8	44	89	0.06	U (0.0044)	U (0.0047)	U (0.004)	U (0.0043)	U (0.0046)	U (0.0042)
Bromodichloromethane						U (0.0044)	U (0.0047)	U (0.004)	U (0.0043)	U (0.0046)	U (0.0042)
Chloroform	0.37	49	350	700	0.37	U (0.0044)	U (0.0047)	U (0.004)	0.00094 J (0.0043)	0.00034 J (0.0046)	U (0.0042)
Cumene					2.3	U* (0.0044)	U (0.0047)	U* (0.004)	U (0.0043)	U (0.0046)	U* (0.0042)
1,1-Dichloroethane	0.27	26	240	480	0.27	U (0.0044)	0.0012 J (0.0047)	0.00077 J (0.004)	U (0.0043)	U (0.0046)	U (0.0042)
1,2-Dichloroethane	0.02	3.1	30	60	0.02	U (0.0044)	U (0.0047)	U (0.004)	U (0.0043)	U (0.0046)	U (0.0042)
1,1-Dichloroethene	0.33	100	500	1000	0.33	U (0.0044)	U (0.0047)	U (0.004)	U (0.0043)	U (0.0046)	U (0.0042)
cis-1,2-Dichloroethene	0.25	100	500	1000	0.25	U (0.0044)	0.018 (0.0047)	U (0.004)	0.027 (0.0043)	0.06 (0.0046)	U (0.0042)
trans-1,2-Dichloroethene	0.19	100	500	1000	0.19	U (0.0044)	U (0.0047)	U (0.004)	0.00062 J (0.0043)	0.00062 J (0.0046)	U (0.0042)
1,4-Dioxane	0.1	13	130	250	0.1	U* (0.088)	U (0.093)	U (0.08)	U (0.086)	U (0.092)	U (0.084)
Ethyl Benzene	1	41	390	780	1	U* (0.0044)	U (0.0047)	U (0.004)	U (0.0043)	U (0.0046)	U (0.0042)
4-Methyl-2-pentanone					1	U* (0.022)	U (0.023)	U (0.02)	U (0.021)	U (0.023)	U (0.021)
Methylcyclohexane						U (0.0044)	U (0.0047)	U (0.004)	U (0.0043)	U (0.0046)	U (0.0042)
Methylene Chloride	0.05	100	500	1000	0.05	U (0.0044)	U (0.0047)	U (0.004)	U (0.0043)	U (0.0046)	U (0.0042)
Tetrachloroethene	1.3	19	150	300	1.3	U* (0.0044)	0.0023 J (0.0047)	U (0.004)	0.0042 J (0.0043)	0.0025 J (0.0046)	U (0.0042)
Toluene	0.7	100	500	1000	0.7	U* (0.0044)	U (0.0047)	U (0.004)	U (0.0043)	0.00051 J (0.0046)	U (0.0042)
1,1,1-Trichloroethane	0.68	100	500	1000	0.68	U (0.0044)	0.0044 J (0.0047)	U (0.004)	U (0.0043)	U (0.0046)	U (0.0042)
1,1,2-Trichloroethane						U* (0.0044)	U (0.0047)	U (0.004)	U (0.0043)	U (0.0046)	U (0.0042)
Trichloroethene	0.47	21	200	400	0.47	U (0.0044)	0.16 (0.0047)	U (0.004)	9.7 (0.11)	7.5 (0.12)	U (0.0042)
1,1,2-Trichloro-1,2,2-trifluoroethane					6	U (0.0044)	U (0.0047)	U (0.004)	U (0.0043)	U (0.0046)	U (0.0042)
Vinyl Chloride	0.02	0.9	13	27	0.02	U (0.0044)	U (0.0047)	U (0.004)	U (0.0043)	U (0.0046)	U (0.0042)
Xylenes (total)	0.26	100	500	1000	1.6	U (0.0088)	U (0.0093)	U (0.008)	U (0.0086)	U (0.0092)	U (0.0084)

Notes:

1 All concentrations are presented in mg/kg (ppm).
2 Only compounds with at least one detection are shown.
3 Concentrations that exceed the NYSDEC Unrestricted SCO are double underlined.
4 Concentrations that exceed the NYSDEC Restricted Residential SCO are **boldfaced**.
5 No concentrations exceed the NYSDEC Commercial SCO.
6 No concentrations that exceed the NYSDEC Industrial SCO.
7 Concentrations that exceed the NYSDEC Protection of Groundwater SCO are grey-shaded.

Abbreviations:

U -- Not Detected.
J -- Estimated Concentration.
B --Blank Contamination
* -- LCS is outside limits.
( ) -- Reporting Limit.

TABLE 3A
Summary of Soil Sampling Results
ESCO Steel, Inc.; Troy, NY

Location						B-23	B-23	B-24	B-24	B-25	B-26
Field Sample ID						B-23 (5-6)	B-23 (14-15)	B-24 (7-8)	B-24 (13-14)	B-25 (4-5)	B-26 (5-6)
Lab Sample ID						480-94198-19	480-94198-20	480-94198-23	480-94198-24	480-94198-17	480-94198-21
Collection Depth (ft bgs)						5 - 6	14 - 15	7 - 8	13 - 14	4 - 5	5 - 6
Sample Method						Terra Core	Terra Core	Terra Core	Terra Core	Unknown	Unknown
Sample Date						1/20/2016	1/20/2016	1/20/2016	1/20/2016	1/20/2016	1/20/2016
Comments											
VOC											
Acetone	0.05	100	500	1000	0.05	U (0.035)	U (0.025)	U (0.022)	U (0.023)	U (0.33)	0.013 JB (0.026)
Benzene	0.06	4.8	44	89	0.06	U (0.007)	U (0.005)	U (0.0044)	U (0.0046)	U (0.066)	U (0.0052)
Bromodichloromethane						U (0.007)	U (0.005)	U (0.0044)	U (0.0046)	U (0.066)	U (0.0052)
Chloroform	0.37	49	350	700	0.37	U (0.007)	U (0.005)	0.00039 J (0.0044)	U (0.0046)	U (0.066)	U (0.0052)
Cumene					2.3	U (0.007)	U* (0.005)	U (0.0044)	U (0.0046)	U (0.066)	U (0.0052)
1,1-Dichloroethane	0.27	26	240	480	0.27	U (0.007)	U (0.005)	0.0034 J (0.0044)	U (0.0046)	U (0.066)	U (0.0052)
1,2-Dichloroethane	0.02	3.1	30	60	0.02	U (0.007)	U (0.005)	U (0.0044)	U (0.0046)	U (0.066)	U (0.0052)
1,1-Dichloroethene	0.33	100	500	1000	0.33	U (0.007)	U (0.005)	0.0089 (0.0044)	U (0.0046)	U (0.066)	U (0.0052)
cis-1,2-Dichloroethene	0.25	100	500	1000	0.25	0.0037 J (0.007)	U (0.005)	0.037 (0.0044)	U (0.0046)	U (0.066)	U (0.0052)
trans-1,2-Dichloroethene	0.19	100	500	1000	0.19	U (0.007)	U (0.005)	U (0.0044)	U (0.0046)	U (0.066)	U (0.0052)
1,4-Dioxane	0.1	13	130	250	0.1	U (0.14)	U* (0.099)	U (0.088)	U (0.091)	U (1.2)	U (0.1)
Ethyl Benzene	1	41	390	780	1	U (0.007)	U* (0.005)	U (0.0044)	U (0.0046)	U (0.066)	U (0.0052)
4-Methyl-2-pentanone					1	U (0.035)	U* (0.025)	U (0.022)	U (0.023)	U (0.33)	U (0.026)
Methylcyclohexane						U (0.007)	U (0.005)	U (0.0044)	U (0.0046)	U (0.066)	U (0.0052)
Methylene Chloride	0.05	100	500	1000	0.05	U (0.007)	0.0034 J (0.005)	U (0.0044)	U (0.0046)	U (0.066)	0.0083 (0.0052)
Tetrachloroethene	1.3	19	150	300	1.3	U (0.007)	U* (0.005)	0.0018 J (0.0044)	U (0.0046)	U (0.066)	U (0.0052)
Toluene	0.7	100	500	1000	0.7	U (0.007)	U* (0.005)	U (0.0044)	U (0.0046)	U (0.066)	.00053 JB (0.0052)
1,1,1-Trichloroethane	0.68	100	500	1000	0.68	U (0.007)	U (0.005)	0.022 (0.0044)	U (0.0046)	U (0.066)	U (0.0052)
1,1,2-Trichloroethane						U (0.007)	U* (0.005)	U (0.0044)	U (0.0046)	U (0.066)	U (0.0052)
Trichloroethene	0.47	21	200	400	0.47	0.085 (0.007)	U (0.005)	6.5 (0.11)	0.0044 J (0.0046)	1.5 (0.066)	0.011 (0.0052)
1,1,2-Trichloro-1,2,2-trifluoroethane					6	U (0.007)	U (0.005)	U (0.0044)	U (0.0046)	U (0.066)	U (0.0052)
Vinyl Chloride	0.02	0.9	13	27	0.02	U (0.007)	U (0.005)	U (0.0044)	U (0.0046)	U (0.066)	U (0.0052)
Xylenes (total)	0.26	100	500	1000	1.6	U (0.014)	U (0.0099)	U (0.0088)	U (0.0091)	U (0.13)	0.001 J (0.01)

Notes:

1 All concentrations are presented in mg/kg (ppm).
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3 Concentrations that exceed the NYSDEC Unrestricted SCO are double underlined.
4 Concentrations that exceed the NYSDEC Restricted Residential SCO are **boldfaced**.
5 No concentrations exceed the NYSDEC Commercial SCO.
6 No concentrations that exceed the NYSDEC Industrial SCO.
7 Concentrations that exceed the NYSDEC Protection of Groundwater SCO are grey-shaded.

Abbreviations:

U -- Not Detected.
J -- Estimated Concentration.
B --Blank Contamination
* -- LCS is outside limits.
( ) -- Reporting Limit.

TABLE 3A
Summary of Soil Sampling Results
ESCO Steel, Inc.; Troy, NY

Location Field Sample ID Lab Sample ID Collection Depth (ft bgs) Sample Method Sample Date Comments	NYSDEC Unrestricted SCO	NYSDEC Restricted Residential SCO	NYSDEC Commercial SCO	NYSDEC Industrial SCO	NYSDEC Protection of Groundwater SCO	B-27 B-27 (6-7) 480-94280-4 6 - 7 Terra Core 1/21/2016	B-28 B-28 (5-6) 480-94280-6 5 - 6 Terra Core 1/21/2016	B-30 B-30 (7-8) 480-94198-10 7 - 8 Terra Core 1/20/2016	B-30 B-30 (12-13) 480-94198-12 12 - 13 Terra Core 1/20/2016	B-30 B-30 (17-18) 480-94198-11 17 - 18 Terra Core 1/20/2016	B-31 B-31 (6-7) 480-94280-1 6 - 7 Terra Core 1/21/2016
VOC											
Acetone	0.05	100	500	1000	0.05	0.0066 JB (0.023)	0.01 JB (0.022)	0.044 (0.024)	U (0.26)	U (0.26)	U (0.022)
Benzene	0.06	4.8	44	89	0.06	U (0.0045)	U (0.0044)	U (0.0047)	U (0.053)	U (0.053)	U (0.0044)
Bromodichloromethane						U (0.0045)	U (0.0044)	U (0.0047)	U (0.053)	U (0.053)	U (0.0044)
Chloroform	0.37	49	350	700	0.37	U (0.0045)	U (0.0044)	U (0.0047)	U (0.053)	U (0.053)	U (0.0044)
Cumene					2.3	U (0.0045)	U (0.0044)	U (0.0047)	U (0.053)	U (0.053)	U (0.0044)
1,1-Dichloroethane	0.27	26	240	480	0.27	U (0.0045)	U (0.0044)	0.021 (0.0047)	0.31 (0.053)	0.88 (0.053)	U (0.0044)
1,2-Dichloroethane	0.02	3.1	30	60	0.02	U (0.0045)	U (0.0044)	0.0011 J (0.0047)	U (0.053)	0.04 J (0.053)	U (0.0044)
1,1-Dichloroethene	0.33	100	500	1000	0.33	U (0.0045)	U (0.0044)	0.089 (0.0047)	0.24 (0.053)	0.9 (0.053)	U (0.0044)
cis-1,2-Dichloroethene	0.25	100	500	1000	0.25	0.018 (0.0045)	0.085 (0.0044)	5.4 (2)	0.58 (0.053)	1.9 (0.053)	0.0071 (0.0044)
trans-1,2-Dichloroethene	0.19	100	500	1000	0.19	0.0041 J (0.0045)	0.0074 (0.0044)	0.014 (0.0047)	U (0.053)	U (0.053)	U (0.0044)
1,4-Dioxane	0.1	13	130	250	0.1	U (0.091)	U (0.088)	U (0.094)	U* (1)	U* (1)	U (0.087)
Ethyl Benzene	1	41	390	780	1	U (0.0045)	U (0.0044)	U (0.0047)	U (0.053)	U (0.053)	U (0.0044)
4-Methyl-2-pentanone					1	U (0.023)	U (0.022)	U (0.024)	U (0.26)	U (0.26)	U (0.022)
Methylcyclohexane						U (0.0045)	U (0.0044)	U (0.0047)	U (0.053)	U (0.053)	U (0.0044)
Methylene Chloride	0.05	100	500	1000	0.05	U (0.0045)	0.0062 (0.0044)	U (0.0047)	U (0.053)	U (0.053)	U (0.0044)
Tetrachloroethene	1.3	19	150	300	1.3	0.00067 J (0.0045)	U (0.0044)	0.00094 J (0.0047)	0.97 (0.053)	U (0.053)	U (0.0044)
Toluene	0.7	100	500	1000	0.7	U (0.0045)	.00039 JB (0.0044)	0.0013 J (0.0047)	0.16 (0.053)	U (0.053)	U (0.0044)
1,1,1-Trichloroethane	0.68	100	500	1000	0.68	U (0.0045)	U (0.0044)	0.00052 J (0.0047)	U (0.053)	U (0.053)	U (0.0044)
1,1,2-Trichloroethane						U (0.0045)	U (0.0044)	U (0.0047)	U (0.053)	U (0.053)	U (0.0044)
Trichloroethene	0.47	21	200	400	0.47	0.024 (0.0045)	0.11 (0.0044)	**100 (2)**	**48 (1.1)**	**94 (2.1)**	**33 (0.51)**
1,1,2-Trichloro-1,2,2-trifluoroethane					6	U (0.0045)	U (0.0044)	U (0.0047)	U (0.053)	U (0.053)	U (0.0044)
Vinyl Chloride	0.02	0.9	13	27	0.02	U (0.0045)	U (0.0044)	0.065 (0.0047)	U (0.053)	0.18 (0.053)	U (0.0044)
Xylenes (total)	0.26	100	500	1000	1.6	U (0.0091)	U (0.0088)	U (0.0094)	U (0.11)	U (0.11)	U (0.0087)

Notes:

1 All concentrations are presented in mg/kg (ppm).
2 Only compounds with at least one detection are shown.
3 Concentrations that exceed the NYSDEC Unrestricted SCO are double underlined.
4 Concentrations that exceed the NYSDEC Restricted Residential SCO are **boldfaced**.
5 No concentrations exceed the NYSDEC Commercial SCO.
6 No concentrations that exceed the NYSDEC Industrial SCO.
7 Concentrations that exceed the NYSDEC Protection of Groundwater SCO are grey-shaded.

Abbreviations:

U -- Not Detected.
J -- Estimated Concentration.
B --Blank Contamination
* -- LCS is outside limits.
( ) -- Reporting Limit.

TABLE 3A
Summary of Soil Sampling Results
ESCO Steel, Inc.; Troy, NY

Location							B-31	B-31	B-32	B-32	B-33	B-33
Field Sample ID							B-31 (12-13)	B-31 (12-13) X	B-32 (6-7)	B-32 (13-14)	B-33 (6-7)	B-33 (12-13)
Lab Sample ID							480-94280-2	480-94280-3	480-94280-10	480-94280-11	480-94280-12	480-94280-13
Collection Depth (ft bgs)							12 - 13	12 - 13	6 - 7	13 - 14	6 - 7	12 - 13
Sample Method							Terra Core	Terra Core	Terra Core	Terra Core	Terra Core	Terra Core
Sample Date							1/21/2016	1/21/2016	1/21/2016	1/21/2016	1/21/2016	1/21/2016
Comments	NYSDEC Unrestricted SCO	NYSDEC Restricted Residential SCO	NYSDEC Commercial SCO	NYSDEC Industrial SCO	NYSDEC Protection of Groundwater SCO			Field Duplicate				
VOC												
Acetone	0.05	100	500	1000	0.05		U (0.021)	U (0.02)	0.035 B (0.021)	U (0.27)	U (0.026)	0.0042 JB (0.023)
Benzene	0.06	4.8	44	89	0.06		U (0.0042)	U (0.004)	0.00076 J (0.0042)	U (0.054)	U (0.0051)	0.00025 J (0.0046)
Bromodichloromethane							U (0.0042)	U (0.004)	U (0.0042)	U (0.054)	U (0.0051)	U (0.0046)
Chloroform	0.37	49	350	700	0.37		U (0.0042)	U (0.004)	U (0.0042)	U (0.054)	U (0.0051)	U (0.0046)
Cumene					2.3		U* (0.0042)	U* (0.004)	0.0018 J (0.0042)	U (0.054)	U (0.0051)	U (0.0046)
1,1-Dichloroethane	0.27	26	240	480	0.27		U (0.0042)	U (0.004)	0.014 (0.0042)	1.5 (0.054)	U (0.0051)	0.016 (0.0046)
1,2-Dichloroethane	0.02	3.1	30	60	0.02		U (0.0042)	U (0.004)	U (0.0042)	0.05 J (0.054)	U (0.0051)	0.0011 J (0.0046)
1,1-Dichloroethene	0.33	100	500	1000	0.33		U (0.0042)	U (0.004)	0.09 (0.0042)	1.8 (0.054)	U (0.0051)	0.043 (0.0046)
cis-1,2-Dichloroethene	0.25	100	500	1000	0.25		U (0.0042)	U (0.004)	4.7 (0.12)	10 (1.1)	0.017 (0.0051)	2.6 (1.3)
trans-1,2-Dichloroethene	0.19	100	500	1000	0.19		U (0.0042)	U (0.004)	0.0066 (0.0042)	0.018 J (0.054)	U (0.0051)	0.0095 (0.0046)
1,4-Dioxane	0.1	13	130	250	0.1		U* (0.085)	U* (0.08)	U (0.084)	U* (1)	U (0.1)	U (0.093)
Ethyl Benzene	1	41	390	780	1		U* (0.0042)	U* (0.004)	0.0023 J (0.0042)	U (0.054)	U (0.0051)	U (0.0046)
4-Methyl-2-pentanone					1		U* (0.021)	U* (0.02)	U (0.021)	0.037 J (0.27)	U (0.026)	U (0.023)
Methylcyclohexane							U (0.0042)	U (0.004)	U (0.0042)	U (0.054)	U (0.0051)	U (0.0046)
Methylene Chloride	0.05	100	500	1000	0.05		U (0.0042)	U (0.004)	U (0.0042)	0.017 J (0.054)	U (0.0051)	U (0.0046)
Tetrachloroethene	1.3	19	150	300	1.3		U* (0.0042)	U* (0.004)	0.44 (0.12)	U (0.054)	U (0.0051)	0.002 J (0.0046)
Toluene	0.7	100	500	1000	0.7		U* (0.0042)	U* (0.004)	0.039 (0.0042)	U (0.054)	U (0.0051)	.00039 JB (0.0046)
1,1,1-Trichloroethane	0.68	100	500	1000	0.68		U (0.0042)	U (0.004)	0.032 (0.0042)	U (0.054)	U (0.0051)	0.0033 J (0.0046)
1,1,2-Trichloroethane							U* (0.0042)	U* (0.004)	U (0.0042)	U (0.054)	U (0.0051)	0.00063 J (0.0046)
Trichloroethene	0.47	21	200	400	0.47		U (0.0042)	U (0.004)	5.9 (0.12)	**80 (1.1)**	0.009 (0.0051)	**73 (1.3)**
1,1,2-Trichloro-1,2,2-trifluoroethane					6		U (0.0042)	U (0.004)	0.019 (0.0042)	U (0.054)	U (0.0051)	U (0.0046)
Vinyl Chloride	0.02	0.9	13	27	0.02		U (0.0042)	U (0.004)	**1.5 (0.12)**	0.77 (0.054)	0.0015 J (0.0051)	0.028 (0.0046)
Xylenes (total)	0.26	100	500	1000	1.6		U (0.0085)	U (0.008)	0.0084 (0.0084)	U (0.11)	U (0.01)	U (0.0093)

Notes:

1 All concentrations are presented in mg/kg (ppm).
2 Only compounds with at least one detection are shown.
3 Concentrations that exceed the NYSDEC Unrestricted SCO are double underlined.
4 Concentrations that exceed the NYSDEC Restricted Residential SCO are **boldfaced**.
5 No concentrations exceed the NYSDEC Commercial SCO.
6 No concentrations that exceed the NYSDEC Industrial SCO.
7 Concentrations that exceed the NYSDEC Protection of Groundwater SCO are grey-shaded.

Abbreviations:

U -- Not Detected.
J -- Estimated Concentration.
B --Blank Contamination
* -- LCS is outside limits.
( ) -- Reporting Limit.

TABLE 3A
Summary of Soil Sampling Results
ESCO Steel, Inc.; Troy, NY

Location Field Sample ID Lab Sample ID Collection Depth (ft bgs) Sample Method Sample Date Comments	NYSDEC Unrestricted SCO	NYSDEC Restricted Residential SCO	NYSDEC Commercial SCO	NYSDEC Industrial SCO	NYSDEC Protection of Groundwater SCO	B-34 B-34 (6-7) 480-94280-14 6 - 7 Terra Core 1/21/2016	B-34 B-34 (13-14) 480-94280-15 13 - 14 Terra Core 1/21/2016	B-35 B-35 (6-7) 480-94280-16 6 - 7 Terra Core 1/21/2016	B-35 B-35 (13-14) 480-94280-17 13 - 14 Terra Core 1/21/2016	PTO01 PTO01 (5-6) 480-92015-1 5 - 6 Terra Core 12/2/2015	PTO01 PTO01 (15-16) 480-92015-2 15 - 16 Terra Core 12/2/2015
VOC											
Acetone	0.05	100	500	1000	0.05	0.012 JB (0.023)	U (0.44)	U (0.023)	U (0.056)	U (3.4)	0.0039 JB (0.016)
Benzene	0.06	4.8	44	89	0.06	U (0.0046)	U (0.089)	U (0.0046)	U (0.011)	U (0.68)	U (0.0032)
Bromodichloromethane						U (0.0046)	U (0.089)	U (0.0046)	U (0.011)	U (0.68)	U (0.0032)
Chloroform	0.37	49	350	700	0.37	U (0.0046)	U (0.089)	U (0.0046)	U (0.011)	U (0.68)	U (0.0032)
Cumene					2.3	U (0.0046)	U (0.089)	U (0.0046)	U* (0.011)	U (0.68)	U* (0.0032)
1,1-Dichloroethane	0.27	26	240	480	0.27	U (0.0046)	U (0.089)	0.0096 (0.0046)	0.036 (0.011)	U (0.68)	U (0.0032)
1,2-Dichloroethane	0.02	3.1	30	60	0.02	U (0.0046)	U (0.089)	0.0009 J (0.0046)	0.0011 J (0.011)	U (0.68)	U (0.0032)
1,1-Dichloroethene	0.33	100	500	1000	0.33	U (0.0046)	U (0.089)	0.013 (0.0046)	0.092 (0.011)	U (0.68)	U (0.0032)
cis-1,2-Dichloroethene	0.25	100	500	1000	0.25	0.0016 J (0.0046)	1.9 (0.089)	0.079 (0.05)	0.079 (0.011)	0.26 J (0.68)	U (0.0032)
trans-1,2-Dichloroethene	0.19	100	500	1000	0.19	U (0.0046)	0.023 J (0.089)	0.001 J (0.0046)	0.0018 J (0.011)	U (0.68)	U (0.0032)
1,4-Dioxane	0.1	13	130	250	0.1	U (0.093)	U (1.7)	U (0.091)	0.3 (0.22)	U (13)	U* (0.065)
Ethyl Benzene	1	41	390	780	1	U (0.0046)	U (0.089)	U (0.0046)	U (0.011)	U (0.68)	U* (0.0032)
4-Methyl-2-pentanone					1	U (0.023)	U (0.44)	U (0.023)	U (0.056)	U (3.4)	U* (0.016)
Methylcyclohexane						U (0.0046)	U (0.089)	U (0.0046)	U (0.011)	U (0.68)	U (0.0032)
Methylene Chloride	0.05	100	500	1000	0.05	U (0.0046)	0.051 JB (0.089)	U (0.0046)	U (0.011)	U (0.68)	U (0.0032)
Tetrachloroethene	1.3	19	150	300	1.3	U (0.0046)	0.26 (0.089)	0.00094 J (0.0046)	0.0044 J (0.011)	2.2 (0.68)	U* (0.0032)
Toluene	0.7	100	500	1000	0.7	U (0.0046)	0.034 J (0.089)	U (0.0046)	U (0.011)	U (0.68)	U* (0.0032)
1,1,1-Trichloroethane	0.68	100	500	1000	0.68	U (0.0046)	U (0.089)	0.022 (0.0046)	0.12 (0.011)	1.1 (0.68)	U (0.0032)
1,1,2-Trichloroethane						U (0.0046)	U (0.089)	U (0.0046)	U (0.011)	U (0.68)	U* (0.0032)
Trichloroethene	0.47	21	200	400	0.47	0.0054 (0.0046)	**34 (0.35)**	0.48 (0.05)	1.3 (0.057)	**36 (0.68)**	U (0.0032)
1,1,2-Trichloro-1,2,2-trifluoroethane					6	U (0.0046)	U (0.089)	U (0.0046)	U (0.011)	U (0.68)	U (0.0032)
Vinyl Chloride	0.02	0.9	13	27	0.02	0.001 J (0.0046)	0.036 J (0.089)	0.0088 (0.0046)	U (0.011)	U (0.68)	U (0.0032)
Xylenes (total)	0.26	100	500	1000	1.6	U (0.0093)	U (0.18)	U (0.0091)	U (0.022)	U (1.4)	U (0.0065)

Notes:

1 All concentrations are presented in mg/kg (ppm).
2 Only compounds with at least one detection are shown.
3 Concentrations that exceed the NYSDEC Unrestricted SCO are double underlined.
4 Concentrations that exceed the NYSDEC Restricted Residential SCO are **boldfaced**.
5 No concentrations exceed the NYSDEC Commercial SCO.
6 No concentrations that exceed the NYSDEC Industrial SCO.
7 Concentrations that exceed the NYSDEC Protection of Groundwater SCO are grey-shaded.

Abbreviations:

U -- Not Detected.
J -- Estimated Concentration.
B --Blank Contamination
* -- LCS is outside limits.
( ) -- Reporting Limit.

TABLE 3A
Summary of Soil Sampling Results
ESCO Steel, Inc.; Troy, NY

Location Field Sample ID Lab Sample ID Collection Depth (ft bgs) Sample Method Sample Date Comments	NYSDEC Unrestricted SCO	NYSDEC Restricted Residential SCO	NYSDEC Commercial SCO	NYSDEC Industrial SCO	NYSDEC Protection of Groundwater SCO	PTO04 PTO04 (17-18) 480-92015-4 17 - 18 Terra Core 12/2/2015	PTO06 PTO06 (16-17) 480-92015-7 16 - 17 Terra Core 12/2/2015	PTO09 PTO09 (16-17) 480-92089-2 16 - 17 Terra Core 12/3/2015
VOC								
Acetone	0.05	100	500	1000	0.05	U (5.2)	0.0057 JB (0.025)	0.0047 JB (0.017)
Benzene	0.06	4.8	44	89	0.06	U (1)	U (0.005)	U (0.0035)
Bromodichloromethane						U (1)	U (0.005)	U (0.0035)
Chloroform	0.37	49	350	700	0.37	U (1)	U (0.005)	U (0.0035)
Cumene					2.3	U (1)	U* (0.005)	U* (0.0035)
1,1-Dichloroethane	0.27	26	240	480	0.27	6.8 (1)	U (0.005)	U (0.0035)
1,2-Dichloroethane	0.02	3.1	30	60	0.02	U (1)	U (0.005)	U (0.0035)
1,1-Dichloroethene	0.33	100	500	1000	0.33	2.3 (1)	U (0.005)	U (0.0035)
cis-1,2-Dichloroethene	0.25	100	500	1000	0.25	1 (1)	U (0.005)	U (0.0035)
trans-1,2-Dichloroethene	0.19	100	500	1000	0.19	U (1)	U (0.005)	U (0.0035)
1,4-Dioxane	0.1	13	130	250	0.1	U (20)	U* (0.1)	U (0.069)
Ethyl Benzene	1	41	390	780	1	U (1)	U* (0.005)	U (0.0035)
4-Methyl-2-pentanone					1	U (5.2)	U* (0.025)	U (0.017)
Methylcyclohexane						U (1)	U (0.005)	U (0.0035)
Methylene Chloride	0.05	100	500	1000	0.05	U (1)	U (0.005)	U (0.0035)
Tetrachloroethene	1.3	19	150	300	1.3	U (1)	U* (0.005)	U (0.0035)
Toluene	0.7	100	500	1000	0.7	U (1)	U* (0.005)	U (0.0035)
1,1,1-Trichloroethane	0.68	100	500	1000	0.68	U (1)	U (0.005)	U (0.0035)
1,1,2-Trichloroethane						U (1)	U* (0.005)	U (0.0035)
Trichloroethene	0.47	21	200	400	0.47	**27 (1)**	U (0.005)	U (0.0035)
1,1,2-Trichloro-1,2,2-trifluoroethane					6	U (1)	U (0.005)	U (0.0035)
Vinyl Chloride	0.02	0.9	13	27	0.02	U (1)	U (0.005)	U (0.0035)
Xylenes (total)	0.26	100	500	1000	1.6	U (2.1)	U (0.01)	U (0.0069)

Notes:

1 All concentrations are presented in mg/kg (ppm).
2 Only compounds with at least one detection are shown.
3 Concentrations that exceed the NYSDEC Unrestricted SCO are double underlined.
4 Concentrations that exceed the NYSDEC Restricted Residential SCO are **boldfaced**.
5 No concentrations exceed the NYSDEC Commercial SCO.
6 No concentrations that exceed the NYSDEC Industrial SCO.
7 Concentrations that exceed the NYSDEC Protection of Groundwater SCO are grey-shaded.

Abbreviations:

U -- Not Detected.
J -- Estimated Concentration.
B --Blank Contamination
* -- LCS is outside limits.
( ) -- Reporting Limit.

TABLE 3B
Summary of Surface Soil Sampling Results
ESCO Steel, Inc.; Troy, NY

Location		NYSDEC Unrestricted SCO	NYSDEC Restricted Residential SCO	NYSDEC Commercial SCO	NYSDEC Industrial SCO	NYSDEC Protection of Groundwater SCO	SS-1	SS-1	SS-1-E	SS-1-N1	SS-1-N2	SS-1-S1	SS-1-S2	SS-1-W	SS-2	SS-3
Field Sample ID							SS-1	DUP-1-20161207	SS-1-E	SS-1-N1	SS-1-N2	SS-1-S1	SS-1-S2	SS-1-W	SS-2	SS-3
Lab Sample ID							480-110709-1	480-110709-11	480-114478-14	480-114478-12	480-114478-13	480-114478-17	480-114478-15	480-114478-16	480-110709-2	480-110709-3
Collection Depth (ft bgs)							0 - 1	0 - 1	0 - 1	0 - 1	0 - 1	0 - 1	0 - 1	0 - 1	0 - 1	0 - 0.15
Sample Method							Terra Core	Terra Core	Grab	Grab	Grab	Grab	Grab	Grab	Terra Core	Terra Core
Sample Date							12/7/2016	12/7/2016	3/9/2017	3/9/2017	3/9/2017	3/9/2017	3/9/2017	3/9/2017	12/7/2016	12/7/2016
Comments								Field Duplicate								
VOC																
	Tetrachloroethene	1.3	19	150	300	1.3	U (0.0041)	--	--	--	--	--	--	--	U (0.0057)	U (0.0061)
	Trichloroethene	0.47	21	200	400	0.47	U (0.0041)	--	--	--	--	--	--	--	U (0.0057)	U (0.0061)
SVOC																
	Benzo(b)fluoranthene	1	1	5.6	11	1.7	U (0.94)	--	--	--	--	--	--	--	U (1)	U (1.2)
	Fluoranthene	100	100	500	1000	1000	U (0.94)	--	--	--	--	--	--	--	0.21 J (1)	U (1.2)
	Pyrene	100	100	500	1000	1000	U (0.94)	--	--	--	--	--	--	--	0.17 J (1)	U (1.2)
PHYS																
	Hardness (as CaCO3)						150 (77)	--	--	--	--	--	--	--	150 (77)	160 (79)
PEST																
	beta-BHC	0.036	0.36	3	14	0.09	0.00037 J (0.0018)	--	--	--	--	--	--	--	0.00044 J (0.002)	U (0.0023)
	delta-BHC	0.04	100	500	1000	0.25	U (0.0018)	--	--	--	--	--	--	--	U (0.002)	U (0.0023)
	4,4'-DDD	0.0033	13	92	180	14	U (0.0018)	--	--	--	--	--	--	--	U (0.002)	U (0.0023)
	4,4'-DDE	0.0033	8.9	62	120	17	0.0027 (0.0018)	--	--	--	--	--	--	--	U (0.002)	U (0.0023)
	Dieldrin	0.005	0.2	1.4	2.8	0.1	U (0.0018)	--	--	--	--	--	--	--	U (0.002)	U (0.0023)
	Endrin aldehyde						0.0049 (0.0018)	--	--	--	--	--	--	--	U (0.002)	U (0.0023)
	Methoxychlor					900	U (0.0018)	--	--	--	--	--	--	--	U (0.002)	U (0.0023)
PCB																
	PCBs (total)	0.1	1	1	25	3.2	U (0.26)	--	--	--	--	--	--	--	U (0.29)	U (0.3)
INORG																
	Aluminum						13000 (11)	--	12000 B (13)	12000 B (12)	9400 B (11)	8900 B (11)	9900 B (12)	9500 B (12)	14000 (13)	26000 (14)
	Antimony						0.57 J (17)	--	64 (20)	1.1 J (17)	2.5 J (17)	0.66 J (17)	1.2 J (18)	2.4 J (18)	U (19)	U (22)
	Arsenic	13	16	16	16	16	7.4 (2.3)	--	8.5 (2.7)	8.9 (2.3)	7.9 (2.2)	4.5 (2.2)	7.5 (2.4)	3.8 (2.3)	6.9 (2.6)	9.1 (2.9)
	Barium	350	400	400	10000	820	120 (0.56)	--	87 B (0.67)	170 B (0.58)	97 B (0.55)	110 B (0.55)	130 B (0.6)	170 B (0.59)	120 (0.65)	200 (0.72)
	Beryllium	7.2	72	590	2700	47	0.62 (0.23)	--	0.65 (0.27)	0.71 (0.23)	0.53 (0.22)	0.55 (0.22)	0.63 (0.24)	0.5 (0.23)	0.65 (0.26)	1.3 (0.29)
	Cadmium	2.5	4.3	9.3	60	7.5	2.5 (0.23)	--	2.1 (0.27)	**7.7 (0.23)**	3.2 (0.22)	2.1 (0.22)	2.8 (0.24)	***15 (0.23)***	0.39 (0.26)	0.24 J (0.29)
	Calcium						1900 B (56)	--	1500 B (67)	4100 B (58)	3400 B (55)	45000 B (55)	3200 B (60)	39000 B (59)	7200 B (65)	3000 B (72)
	Chromium (total)	1	110	400	800	19	46 (0.56)	43 (1)	33 (0.67)	95 (0.58)	59 (0.55)	35 (0.55)	44 (0.6)	**190 (0.59)**	18 (0.65)	32 (0.72)
	Chromium III	30	180	1500	6800		46 (1.5)	42 (2.3)	--	--	--	--	--	--	18 (1.5)	32 (1.5)
	Chromium VI	1	110	400	800	19	UJ (0.91)	0.96 J (0.94)	--	--	--	--	--	--	UJ (0.95)	UJ (1.1)
	Cobalt						12 (0.56)	--	10 (0.67)	17 (0.58)	12 (0.55)	8.5 (0.55)	12 (0.6)	8.5 (0.59)	12 (0.65)	17 (0.72)
	Copper	50	270	270	10000	1720	110 (1.1)	--	130 (1.3)	130 (1.2)	***290 (1.1)***	78 (1.1)	160 (1.2)	***530 (1.2)***	29 (1.3)	41 (1.4)
	Cyanide (total)	27	27	27	10000	40	0.89 J (1.1)	--	--	--	--	--	--	--	U (1)	U (1.3)
	Iron						44000 ^ (11)	--	28000 B^ (13)	30000 B^ (12)	38000 B^ (11)	19000 B^ (11)	32000 B^ (12)	27000 B^ (12)	27000 ^ (13)	38000 ^ (14)
	Lead	63	400	1000	3900	450	58 (1.1)	--	***7400 (1.3)***	100 (1.2)	71 (1.1)	25 (1.1)	49 (1.2)	120 (1.2)	26 (1.3)	20 (1.4)
	Magnesium						4100 B (23)	--	3800 B (27)	4900 B (23)	5400 B (22)	7700 B (22)	4500 B (24)	3800 B (23)	5200 B (26)	6800 B (29)
	Manganese	1600	2000	10000	10000	2000	620 B (0.23)	--	840 B (0.27)	690 B (0.23)	740 B (0.22)	420 B (0.22)	610 B (0.24)	1500 B (0.23)	700 B (0.26)	660 B (0.29)
	Mercury	0.18	0.81	2.8	5.7	0.73	0.035 (0.022)	--	0.049 (0.026)	0.035 (0.021)	0.032 (0.023)	0.03 (0.02)	0.037 (0.024)	0.064 (0.021)	0.041 (0.024)	0.033 (0.029)
	Nickel	30	310	310	10000	130	160 (5.6)	--	74 (6.7)	***880 (5.8)***	120 (5.5)	160 (5.5)	72 (6)	260 (5.9)	26 (6.5)	42 (7.2)
	Potassium						2200 (34)	--	1900 (40)	2500 (35)	2000 (33)	1900 (33)	2000 (36)	1400 (35)	2200 (39)	5700 (43)
	Selenium	3.9	180	1500	6800	4	U (4.5)	--	0.82 J (5.3)	U (4.6)	0.53 J (4.4)	U (4.4)	U (4.8)	1.5 J (4.7)	U (5.2)	U (5.8)
	Silver	2	180	1500	6800	8.3	0.7 (0.68)	--	1.8 (0.8)	0.25 J (0.69)	U (0.67)	U (0.66)	0.38 J (0.72)	22 (0.7)	U (0.78)	U (0.86)
	Sodium						67 J (160)	--	110 J (190)	69 J (160)	54 J (160)	68 J (150)	62 J (170)	140 J (160)	53 J (180)	130 J (200)
	Vanadium						22 (0.56)	--	31 (0.67)	23 (0.58)	21 (0.55)	17 (0.55)	19 (0.6)	18 (0.59)	24 (0.65)	41 (0.72)
	Zinc	109	10000	10000	10000	2480	430 (2.3)	--	4300 B (13)	630 B (2.3)	1300 B (2.2)	240 B (2.2)	420 B (2.4)	7200 B (12)	94 (2.6)	95 (2.9)

Notes:
1 All concentrations are presented in mg/kg (ppm).
2 Only compounds with at least one detection are shown.
3 Concentrations that exceed the NYSDEC Unrestricted SCO are double underlined.
4 Concentrations that exceed the NYSDEC Restricted Residential SCO are **boldfaced**.
5 Concentrations that exceed the NYSDEC Commercial SCO are *italicized*.
6 Concentrations that exceed the NYSDEC Industrial SCO have blue text.
7 Concentrations that exceed the NYSDEC Protection of Groundwater SCO are grey-shaded.

Abbreviations:
U -- Not Detected.
J -- Estimated Concentration.
B -- Blank Contamination.
^ -- Lab Instrument Related QC Outside Acceptance Limits.
( ) -- Detection Limit.
-- -- Not Analyzed.

TABLE 3B
Summary of Surface Soil Sampling Results
ESCO Steel, Inc.; Troy, NY

Location	NYSDEC Unrestricted SCO	NYSDEC Restricted Residential SCO	NYSDEC Commercial SCO	NYSDEC Industrial SCO	NYSDEC Protection of Groundwater SCO	SS-4A	SS-4B	SS-5	SS-5-E1	SS-5-E2	SS-5-N	SS-5-N	SS-5-S	SS-5-W1	SS-5-W2
Field Sample ID						SS-4A	SS-4B	SS-5	SS-5-E1	SS-5-E2	SS-5-N	DUP-1-20170309	SS-5-S	SS-5-W1	SS-5-W2
Lab Sample ID						480-110709-4	480-110709-5	480-110709-6	480-114478-18	480-114478-19	480-114478-20	480-114478-11	480-114478-21	480-114478-22	480-114478-1
Collection Depth (ft bgs)						0 - 0.15	0 - 1	0 - 1	0 - 1	0 - 1	0 - 1	0 - 1	0 - 1	0 - 1	0 - 1
Sample Method						Terra Core	Terra Core	Terra Core	Grab	Grab	Grab	Grab	Grab	Grab	Grab
Sample Date						12/7/2016	12/7/2016	12/7/2016	3/9/2017	3/9/2017	3/9/2017	3/9/2017	3/9/2017	3/9/2017	3/9/2017
Comments												Field Duplicate			
VOC															
Tetrachloroethene	1.3	19	150	300	1.3	U (0.011)	U (0.0084)	--	--	--	--	--	--	--	--
Trichloroethene	0.47	21	200	400	0.47	U (0.011)	U (0.0084)	--	--	--	--	--	--	--	--
SVOC															
Benzo(b)fluoranthene	1	1	5.6	11	1.7	U (1.1)	U (1.1)	0.23 J (1.1)	--	--	--	--	--	--	--
Fluoranthene	100	100	500	1000	1000	U (1.1)	U (1.1)	0.28 J (1.1)	--	--	--	--	--	--	--
Pyrene	100	100	500	1000	1000	U (1.1)	U (1.1)	0.21 J (1.1)	--	--	--	--	--	--	--
PHYS															
Hardness (as CaCO3)						160 (78)	150 (76)	540 (77)	--	--	--	--	--	--	--
PEST															
beta-BHC	0.036	0.36	3	14	0.09	U (0.0021)	U (0.0021)	0.00054 J (0.0021)	--	--	--	--	--	--	--
delta-BHC	0.04	100	500	1000	0.25	0.00058 J (0.0021)	U (0.0021)	0.00049 J (0.0021)	--	--	--	--	--	--	--
4,4'-DDD	0.0033	13	92	180	14	U (0.0021)	U (0.0021)	U (0.0021)	--	--	--	--	--	--	--
4,4'-DDE	0.0033	8.9	62	120	17	U (0.0021)	U (0.0021)	0.00053 J (0.0021)	--	--	--	--	--	--	--
Dieldrin	0.005	0.2	1.4	2.8	0.1	U (0.0021)	U (0.0021)	U (0.0021)	--	--	--	--	--	--	--
Endrin aldehyde						U (0.0021)	U (0.0021)	0.0031 (0.0021)	--	--	--	--	--	--	--
Methoxychlor					900	U (0.0021)	U (0.0021)	U (0.0021)	--	--	--	--	--	--	--
PCB															
PCBs (total)	0.1	1	1	25	3.2	U (0.3)	U (0.29)	U (0.3)	--	--	--	--	--	--	--
INORG															
Aluminum						14000 (13)	16000 (14)	2600 (13)	8900 B (13)	7700 B (11)	12000 B (13)	13000 B (12)	14000 B (15)	6900 B (10)	14000 B (13)
Antimony						U (19)	U (20)	7.6 J (19)	4.4 J (20)	1.7 J (16)	1.3 J (19)	U (18)	U (22)	2.8 J (15)	0.96 J (19)
Arsenic	13	16	16	16	16	8.9 (2.5)	9.2 (2.7)	0.81 J (2.6)	3.5 (2.6)	3.1 (2.2)	5.2 (2.6)	6.2 (2.5)	5.7 (3)	2.7 (2)	5.5 (2.5)
Barium	350	400	400	10000	820	120 (0.63)	130 (0.68)	59 (0.65)	100 B (0.66)	88 (0.54)	95 J (0.65)	89 J (0.61)	120 (0.75)	80 (0.51)	100 J (0.64)
Beryllium	7.2	72	590	2700	47	0.65 (0.25)	0.73 (0.27)	0.12 J (0.26)	0.47 (0.26)	0.44 (0.22)	0.71 (0.26)	0.68 (0.25)	0.83 (0.3)	0.36 (0.2)	0.76 (0.25)
Cadmium	2.5	4.3	9.3	60	7.5	0.3 (0.25)	0.31 (0.27)	2.5 (0.26)	3.7 (0.26)	1.1 (0.22)	0.35 (0.26)	0.42 (0.25)	0.4 (0.3)	3 (0.2)	0.39 (0.25)
Calcium						2600 B (63)	2800 B (68)	13000 B (65)	8500 B (66)	4500 B (54)	5600 J (65)	20000 J (61)	4700 B (75)	5700 B (51)	3600 J (64)
Chromium (total)	1	110	400	800	19	18 (0.63)	19 (0.68)	8.2 (0.65)	26 (0.66)	23 (0.54)	22 (0.65)	20 (0.61)	21 (0.75)	24 (0.51)	20 (0.64)
Chromium III	30	180	1500	6800		18 (1.5)	19 (1.5)	8.2 (1.5)	--	--	--	--	--	--	--
Chromium VI	1	110	400	800	19	UJ (2.1)	UJ (2.1)	UJ (5.1)	--	--	--	--	--	--	--
Cobalt						10 (0.63)	10 (0.68)	3.4 (0.65)	8.7 (0.66)	8.2 (0.54)	9.6 (0.65)	12 (0.61)	12 (0.75)	7.4 (0.51)	9.5 (0.64)
Copper	50	270	270	10000	1720	21 (1.3)	22 (1.4)	24 (1.3)	42 (1.3)	26 (1.1)	30 J (1.3)	36 J (1.2)	26 (1.5)	36 (1)	71 (1.3)
Cyanide (total)	27	27	27	10000	40	U (1.3)	U (1.1)	0.74 J (1.2)	--	--	--	--	--	--	--
Iron						29000 ^ (13)	32000 ^ (14)	4800 ^ (13)	18000 B^ (13)	21000 ^B (11)	21000 B (13)	24000 B^ (12)	22000 B (15)	13000 B (10)	25000 B (13)
Lead	63	400	1000	3900	450	20 (1.3)	23 (1.4)	14 (1.3)	29 (1.3)	23 (1.1)	15 (1.3)	21 (1.2)	20 (1.5)	20 (1)	17 (1.3)
Magnesium						4300 B (25)	4800 B (27)	1200 B (26)	2900 B (26)	2400 B (22)	4500 J (26)	6900 J (25)	4500 B (30)	2400 B (20)	5200 B (25)
Manganese	1600	2000	10000	10000	2000	1400 B (0.25)	1400 B (0.27)	290 B (0.26)	600 B (0.26)	490 ^B (0.22)	430 B (0.26)	530 B (0.25)	570 B (0.3)	450 B (0.2)	620 B (0.25)
Mercury	0.18	0.81	2.8	5.7	0.73	0.056 (0.026)	0.058 (0.026)	0.09 (0.026)	0.067 (0.027)	0.043 (0.022)	0.034 (0.026)	0.024 (0.024)	0.042 (0.027)	0.041 (0.021)	0.037 (0.025)
Nickel	30	310	310	10000	130	23 (6.3)	25 (6.8)	23 (6.5)	50 (6.6)	84 (5.4)	36 J (6.5)	40 J (6.1)	31 (7.5)	51 (5.1)	32 (6.4)
Potassium						2600 (38)	2700 (41)	890 (39)	2500 (40)	2100 B (33)	3300 J (39)	3100 J (37)	3900 B (45)	1700 B (31)	2800 J (38)
Selenium	3.9	180	1500	6800	4	U (5)	U (5.4)	U (5.2)	0.68 J (5.3)	0.8 J (4.4)	U (5.2)	U (4.9)	1 J (6)	0.64 J (4.1)	1.3 J (5.1)
Silver	2	180	1500	6800	8.3	U (0.75)	U (0.81)	U (0.78)	U (0.79)	U (0.65)	U (0.78)	U (0.74)	U (0.9)	U (0.61)	U (0.76)
Sodium						41 J (180)	48 J (190)	36 J (180)	66 J (180)	U (150)	U (180)	120 J (170)	U (210)	U (140)	72 J (180)
Vanadium						25 (0.63)	28 (0.68)	4.5 (0.65)	17 (0.66)	15 (0.54)	22 J (0.65)	23 J (0.61)	24 (0.75)	12 (0.51)	24 J (0.64)
Zinc	109	10000	10000	10000	2480	71 (2.5)	74 (2.7)	670 (2.6)	660 B (2.6)	260 (2.2)	210 J (2.6)	190 J (2.5)	120 (3)	600 (2)	170 J (2.5)

Notes:

1 All concentrations are presented in mg/kg (ppm).
2 Only compounds with at least one detection are shown.
3 Concentrations that exceed the NYSDEC Unrestricted SCO are double underlined.
4 Concentrations that exceed the NYSDEC Restricted Residential SCO are **boldfaced**.
5 Concentrations that exceed the NYSDEC Commercial SCO are *italicized*.
6 Concentrations that exceed the NYSDEC Industrial SCO have blue text.
7 Concentrations that exceed the NYSDEC Protection of Groundwater SCO are grey-shaded.

Abbreviations:

U -- Not Detected.
J -- Estimated Concentration.
B -- Blank Contamination.
^ -- Lab Instrument Related QC Outside Acceptance Limits.
( ) -- Detection Limit.
-- -- Not Analyzed.

TABLE 3B
Summary of Surface Soil Sampling Results
ESCO Steel, Inc.; Troy, NY

	Location						SS-6	SS-6	SS-7	SS-7A	SS-7B	SS-7-E1	SS-7-E2	SS-7-N1	SS-7-N2	SS-7-N2
	Field Sample ID						SS-6	SS-6	SS-7	SS-7A	SS-7B	SS-7-E1	SS-7-E2	SS-7-N1	SS-7-N2	UP-2-20170309B
	Lab Sample ID						480-110709-10	480-110709-7	480-114478-2	480-110709-8	480-110709-9	480-114478-5	480-114478-6	480-114478-3	480-114478-4	480-114478-23
	Collection Depth (ft bgs)	NYSDEC Unrestricted SCO	NYSDEC Restricted Residential SCO	NYSDEC Commercial SCO	NYSDEC Industrial SCO	NYSDEC Protection of Groundwater SCO	0 - 0.15	0 - 0.15	0 - 0.15	0 - 0.15	0 - 1	0 - 1	0 - 1	0 - 1	0 - 1	0 - 1
	Sample Method						Terra Core	Terra Core	Grab	Terra Core	Terra Core	Grab	Grab	Grab	Grab	Grab
	Sample Date						12/8/2016	12/8/2016	3/9/2017	12/7/2016	12/7/2016	3/9/2017	3/9/2017	3/9/2017	3/9/2017	3/9/2017
	Comments															Field Duplicate
VOC																
	Tetrachloroethene	1.3	19	150	300	1.3	U (0.0039)	--	--	0.01 J (0.011)	0.03 (0.0091)	--	--	--	--	--
	Trichloroethene	0.47	21	200	400	0.47	U (0.0039)	--	--	U (0.011)	0.0053 J (0.0091)	--	--	--	--	--
SVOC																
	Benzo(b)fluoranthene	1	1	5.6	11	1.7	--	U (0.94)	--	U (1.4)	U (12)	--	--	--	--	--
	Fluoranthene	100	100	500	1000	1000	--	U (0.94)	--	0.3 J (1.4)	U (12)	--	--	--	--	--
	Pyrene	100	100	500	1000	1000	--	U (0.94)	--	0.27 J (1.4)	U (12)	--	--	--	--	--
PHYS																
	Hardness (as CaCO3)						--	230 (76)	--	230 (78)	310 (78)	--	--	--	--	--
PEST																
	beta-BHC	0.036	0.36	3	14	0.09	--	0.00075 J (0.0018)	--	U (0.0027)	U (0.24)	--	--	--	--	--
	delta-BHC	0.04	100	500	1000	0.25	--	U (0.0018)	--	U (0.0027)	U (0.24)	--	--	--	--	--
	4,4'-DDD	0.0033	13	92	180	14	--	U (0.0018)	--	0.001 J (0.0027)	U (0.24)	--	--	--	--	--
	4,4'-DDE	0.0033	8.9	62	120	17	--	U (0.0018)	--	0.0016 J (0.0027)	U (0.24)	--	--	--	--	--
	Dieldrin	0.005	0.2	1.4	2.8	0.1	--	U (0.0018)	--	0.0017 J (0.0027)	U (0.24)	--	--	--	--	--
	Endrin aldehyde						--	0.00064 J (0.0018)	--	U (0.0027)	U (0.24)	--	--	--	--	--
	Methoxychlor					900	--	U (0.0018)	--	0.0038 (0.0027)	U (0.24)	--	--	--	--	--
PCB																
	PCBs (total)	0.1	1	1	25	3.2	--	U (0.24)	--	U (0.37)	U (0.34)	--	--	--	--	--
INORG																
	Aluminum						--	11000 J (10)	14000 B (12)	14000 (16)	15000 (14)	14000 B (12)	14000 B (12)	13000 B (12)	14000 B (11)	12000 B (11)
	Antimony						--	UJ (15)	0.56 J (19)	U (23)	U (21)	U (19)	0.5 J (17)	0.72 J (19)	1.2 J (17)	0.49 J (17)
	Arsenic	13	16	16	16	16	--	5.8 (2)	6.8 (2.5)	5.8 (3.1)	6.6 (2.7)	6.4 (2.5)	6.7 (2.3)	6.2 (2.5)	5.5 (2.3)	4.5 (2.2)
	Barium	350	400	400	10000	820	--	87 J (0.51)	130 B (0.62)	***430 (0.78)***	***730 (0.69)***	190 B (0.62)	240 B (0.58)	100 B (0.62)	82 B (0.56)	74 (0.56)
	Beryllium	7.2	72	590	2700	47	--	0.67 (0.2)	0.67 (0.25)	0.72 (0.31)	0.73 (0.27)	0.79 (0.25)	0.84 (0.23)	0.7 (0.25)	0.69 (0.23)	0.59 (0.22)
	Cadmium	2.5	4.3	9.3	60	7.5	--	0.16 J (0.2)	1.5 (0.25)	3.1 (0.31)	**4.8 (0.27)**	1.1 (0.25)	0.67 (0.23)	1 (0.25)	2.2 J (0.23)	0.94 J (0.22)
	Calcium						--	6100 J (51)	11000 B (62)	6500 B (78)	5000 B (69)	2400 B (62)	3200 B (58)	2900 B (62)	2100 B (56)	1100 B (56)
	Chromium (total)	1	110	400	800	19	--	17 J (0.51)	**150 (0.62)**	26 (0.78)	33 (0.69)	27 (0.62)	35 (0.58)	21 (0.62)	32 J (0.56)	19 J (0.56)
	Chromium III	30	180	1500	6800		--	16 (1.5)	--	26 (1.5)	33 (1.5)	--	--	--	--	--
	Chromium VI	1	110	400	800	19	--	0.22 J (0.89)	--	UJ (2.7)	UJ (2.4)	--	--	--	--	--
	Cobalt						--	9.2 (0.51)	12 (0.62)	9.9 (0.78)	10 (0.69)	11 (0.62)	12 (0.58)	9.5 (0.62)	11 (0.56)	7.9 (0.56)
	Copper	50	270	270	10000	1720	--	22 J (1)	44 (1.2)	64 (1.6)	61 (1.4)	92 (1.2)	44 (1.2)	27 (1.2)	40 J (1.1)	23 J (1.1)
	Cyanide (total)	27	27	27	10000	40	--	U (0.95)	--	7 (1.4)	3.8 (1.3)	--	--	--	--	--
	Iron						--	22000 J (10)	43000 B^ (12)	23000 ^ (16)	27000 ^ (14)	28000 B^ (12)	27000 B^ (12)	22000 B^ (12)	29000 B^ (11)	19000 B (11)
	Lead	63	400	1000	3900	450	--	12 J (1)	37 (1.2)	42 (1.6)	62 (1.4)	29 (1.2)	31 (1.2)	23 (1.2)	60 J (1.1)	31 J (1.1)
	Magnesium						--	6000 J (20)	5500 B (25)	4200 B (31)	4400 B (27)	4600 B (25)	4900 B (23)	4800 B (25)	5200 B (23)	3800 B (22)
	Manganese	1600	2000	10000	10000	2000	--	450 J (0.2)	820 B (0.25)	1000 B (0.31)	1000 B (0.27)	810 B (0.25)	730 B (0.23)	750 B (0.25)	600 B (0.23)	480 B (0.22)
	Mercury	0.18	0.81	2.8	5.7	0.73	--	0.016 J (0.022)	0.034 (0.026)	0.087 (0.033)	0.095 (0.029)	0.04 (0.024)	0.039 (0.024)	0.028 (0.025)	0.026 (0.025)	0.023 J (0.025)
	Nickel	30	310	310	10000	130	--	22 (5.1)	110 (6.2)	53 (7.8)	80 (6.9)	42 (6.2)	69 (5.8)	29 (6.2)	31 (5.6)	20 (5.6)
	Potassium						--	2300 J (31)	2800 (37)	2600 (47)	2900 (41)	2800 (37)	3200 (35)	2700 (37)	2600 (34)	2300 B (34)
	Selenium	3.9	180	1500	6800	4	--	U (4.1)	0.99 J (5)	U (6.2)	U (5.5)	0.82 J (4.9)	0.88 J (4.6)	1.1 J (5)	0.67 J (4.5)	0.45 J (4.5)
	Silver	2	180	1500	6800	8.3	--	U (0.61)	U (0.75)	U (0.93)	U (0.82)	U (0.74)	U (0.7)	U (0.75)	U (0.68)	U (0.67)
	Sodium						--	50 J (140)	91 J (170)	66 J (220)	83 J (190)	70 J (170)	88 J (160)	51 J (170)	79 J (160)	U (160)
	Vanadium						--	20 J (0.51)	29 (0.62)	34 (0.78)	40 (0.69)	25 (0.62)	26 (0.58)	23 (0.62)	24 (0.56)	23 (0.56)
	Zinc	109	10000	10000	10000	2480	--	72 J (2)	260 B (2.5)	560 (3.1)	750 (2.7)	190 B (2.5)	370 B (2.3)	390 B (2.5)	190 J (2.3)	110 J (2.2)

Notes:

1 All concentrations are presented in mg/kg (ppm).
2 Only compounds with at least one detection are shown.
3 Concentrations that exceed the NYSDEC Unrestricted SCO are double underlined.
4 Concentrations that exceed the NYSDEC Restricted Residential SCO are **boldfaced**.
5 Concentrations that exceed the NYSDEC Commercial SCO are *italicized*.
6 Concentrations that exceed the NYSDEC Industrial SCO have blue text.
7 Concentrations that exceed the NYSDEC Protection of Groundwater SCO are grey-shaded.

Abbreviations:

U -- Not Detected.
J -- Estimated Concentration.
B -- Blank Contamination.
^ -- Lab Instrument Related QC Outside Acceptance Limits.
( ) -- Detection Limit.
-- -- Not Analyzed.

TABLE 3B
Summary of Surface Soil Sampling Results
ESCO Steel, Inc.; Troy, NY

	Location Field Sample ID Lab Sample ID Collection Depth (ft bgs) Sample Method Sample Date Comments	NYSDEC Unrestricted SCO	NYSDEC Restricted Residential SCO	NYSDEC Commercial SCO	NYSDEC Industrial SCO	NYSDEC Protection of Groundwater SCO	SS-7-S1 SS-7-S1 480-114478-7 0 - 1 Grab 3/9/2017	SS-7-S2 SS-7-S2 480-114478-8 0 - 1 Grab 3/9/2017	SS-7-W1 SS-7-W1 480-114478-9 0 - 1 Grab 3/9/2017	SS-7-W2 SS-7-W2 480-114478-10 0 - 1 Grab 3/9/2017
VOC										
	Tetrachloroethene	1.3	19	150	300	1.3	--	--	--	--
	Trichloroethene	0.47	21	200	400	0.47	--	--	--	--
SVOC										
	Benzo(b)fluoranthene	1	1	5.6	11	1.7	--	--	--	--
	Fluoranthene	100	100	500	1000	1000	--	--	--	--
	Pyrene	100	100	500	1000	1000	--	--	--	--
PHYS										
	Hardness (as CaCO3)						--	--	--	--
PEST										
	beta-BHC	0.036	0.36	3	14	0.09	--	--	--	--
	delta-BHC	0.04	100	500	1000	0.25	--	--	--	--
	4,4'-DDD	0.0033	13	92	180	14	--	--	--	--
	4,4'-DDE	0.0033	8.9	62	120	17	--	--	--	--
	Dieldrin	0.005	0.2	1.4	2.8	0.1	--	--	--	--
	Endrin aldehyde						--	--	--	--
	Methoxychlor					900	--	--	--	--
PCB										
	PCBs (total)	0.1	1	1	25	3.2	--	--	--	--
INORG										
	Aluminum						14000 B (12)	10000 B (12)	12000 B (14)	12000 B (14)
	Antimony						U (19)	1.5 J (19)	1.1 J (21)	1.4 J (20)
	Arsenic	13	16	16	16	16	6.5 (2.5)	5.9 (2.5)	6.8 (2.8)	10 (2.7)
	Barium	350	400	400	10000	820	110 B (0.62)	85 B (0.62)	110 B (0.69)	260 B (0.68)
	Beryllium	7.2	72	590	2700	47	0.71 (0.25)	0.53 (0.25)	0.59 (0.28)	0.53 (0.27)
	Cadmium	2.5	4.3	9.3	60	7.5	0.53 (0.25)	2 (0.25)	1.4 (0.28)	1.4 (0.27)
	Calcium						1500 B (62)	2900 B (62)	2600 B (69)	3000 B (68)
	Chromium (total)	1	110	400	800	19	28 (0.62)	41 (0.62)	62 (0.69)	80 (0.68)
	Chromium III	30	180	1500	6800		--	--	--	--
	Chromium VI	1	110	400	800	19	--	--	--	--
	Cobalt						9.4 (0.62)	9 (0.62)	9.7 (0.69)	11 (0.68)
	Copper	50	270	270	10000	1720	30 (1.2)	64 (1.2)	41 (1.4)	42 (1.4)
	Cyanide (total)	27	27	27	10000	40	--	--	--	--
	Iron						27000 B^ (12)	62000 B^ (12)	48000 B^ (14)	36000 B^ (14)
	Lead	63	400	1000	3900	450	28 (1.2)	29 (1.2)	45 (1.4)	52 (1.4)
	Magnesium						4400 B (25)	3400 B (25)	4300 B (28)	4200 B (27)
	Manganese	1600	2000	10000	10000	2000	620 B (0.25)	860 B (0.25)	820 B (0.28)	1100 B (0.27)
	Mercury	0.18	0.81	2.8	5.7	0.73	0.027 (0.024)	0.033 (0.025)	0.03 (0.024)	0.045 (0.026)
	Nickel	30	310	310	10000	130	28 (6.2)	40 (6.2)	38 (6.9)	43 (6.8)
	Potassium						2600 (37)	1700 (37)	2300 (41)	2300 (41)
	Selenium	3.9	180	1500	6800	4	0.97 J (5)	0.66 J (5)	0.91 J (5.5)	0.78 J (5.4)
	Silver	2	180	1500	6800	8.3	U (0.75)	0.27 J (0.75)	U (0.83)	U (0.81)
	Sodium						73 J (170)	64 J (170)	55 J (190)	54 J (190)
	Vanadium						26 (0.62)	21 (0.62)	26 (0.69)	23 (0.68)
	Zinc	109	10000	10000	10000	2480	130 B (2.5)	180 B (2.5)	320 B (2.8)	920 B (2.7)

Notes:

1 All concentrations are presented in mg/kg (ppm).
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Abbreviations:

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J -- Estimated Concentration.
B -- Blank Contamination.
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-- -- Not Analyzed.

TABLE 4
Summary of Groundwater Sampling Results
ESCO Steel, Inc.; Troy, NY

Location		BRMW01	BRMW01	BRMW02D	BRMW02D	BRMW02S	BRMW02S	BRMW03	BRMW03
Field Sample ID	NY Fresh	BRMW01-20151209	BRMW01-20160505	BRMW02D-20151208	BRMW02D-20160505	BRMW02S-20151208	BRMW02S-20160505	BRMW03-20151209	BRMW03-20160505
Lab Sample ID	Groundwater	480-92451-7	480-99821-14	480-92324-11	480-99821-7	480-92324-10	480-99821-6	480-92451-6	480-99821-3
Sample Date	(GA) Standards	12/9/2015	5/5/2016	12/8/2015	5/5/2016	12/8/2015	5/5/2016	12/9/2015	5/5/2016
Comments									
WQ									
Total Alkalinity as CaCO3		240000 B (5000)	--	88000 B (5000)	--	79000 B (5000)	--	67000 B (5000)	--
Carbon Dioxide		710 J (1000)	--	650 J (1000)	--	U (1000)	--	930 J (1000)	--
Chloride	250000	12000 B (1000)	--	2200 B (1000)	--	1700 B (1000)	--	2300 B (1000)	--
Sulfate	250000	51000 B (10000)	--	U (5000)	--	13000 (5000)	--	16000 B (5000)	--
Organic Carbon (total)		1200 (1000)	--	980 J (1000)	--	1700 (1000)	--	3300 (1000)	--
Organic Carbon (total) - Serial #1		1200 (1000)	--	990 J (1000)	--	1700 (1000)	--	3100 (1000)	--
Organic Carbon (total) - Serial #2		1200 (1000)	--	970 J (1000)	--	1600 (1000)	--	3400 (1000)	--
Organic Carbon (total) - Serial #3		1200 (1000)	--	960 J (1000)	--	1700 (1000)	--	3200 (1000)	--
Organic Carbon (total) - Serial #4		1100 (1000)	--	1000 (1000)	--	1600 (1000)	--	3400 (1000)	--
Organic Carbon (dissolved)		910 J (1000)	--	970 J (1000)	--	1400 (1000)	--	2300 (1000)	--
Organic Carbon (dissolved) - Serial #1		920 J (1000)	--	870 J (1000)	--	1300 (1000)	--	2100 (1000)	--
Organic Carbon (dissolved) - Serial #2		970 J (1000)	--	1100 (1000)	--	1400 (1000)	--	2400 (1000)	--
Organic Carbon (dissolved) - Serial #3		800 J (1000)	--	900 J (1000)	--	1300 (1000)	--	2200 (1000)	--
Organic Carbon (dissolved) - Serial #4		960 J (1000)	--	1000 (1000)	--	1400 (1000)	--	2500 (1000)	--
VOC									
Acetone	50	U* (10)	U (10)	U (10)	3.3 J (10)	U (10)	3.6 J (10)	U* (10)	3.1 J (10)
Benzene	1	U (1)	U (1)	U (1)	U (1)	U (1)	U (1)	U (1)	U (1)
Carbon Disulfide	60	U (1)	U (1)	U (1)	U (1)	U (1)	U (1)	U (1)	U (1)
1,1-Dichloroethane	5	3.1 (1)	3.3 (1)	U (1)	U (1)	U (1)	U (1)	U (1)	U (1)
1,2-Dichloroethane	0.6	*U (1)*	*U (1)*	*U (1)*	*U (1)*	*U (1)*	*U (1)*	*U (1)*	*U (1)*
1,1-Dichloroethene	5	0.92 J (1)	0.83 J (1)	U (1)	U (1)	U (1)	U (1)	U (1)	U (1)
cis-1,2-Dichloroethene	5	**7.3 (1)**	**5.7 (1)**	U (1)	U (1)	U (1)	U (1)	1 (1)	**25 (1)**
trans-1,2-Dichloroethene	5	U (1)	U (1)	U (1)	U (1)	U (1)	U (1)	U (1)	U (1)
Methyl tert-butyl ether	10	U (1)	U (1)	U (1)	U (1)	U (1)	U (1)	U (1)	U (1)
Methylene Chloride	5	U (1)	U (1)	U (1)	U (1)	U (1)	U (1)	U (1)	U (1)
Tetrachloroethene	5	U (1)	U (1)	U (1)	U (1)	U (1)	U (1)	U (1)	0.81 J (1)
Toluene	5	U (1)	U (1)	1 (1)	1.2 (1)	U (1)	U (1)	U (1)	U (1)
1,1,1-Trichloroethane	5	U (1)	4.6 (1)	U (1)	U (1)	U (1)	U (1)	U (1)	U (1)
1,1,2-Trichloroethane	1	U (1)	U (1)	U (1)	U (1)	U (1)	U (1)	U (1)	U (1)
Trichloroethene	5	**16 (1)**	**21 (1)**	1 (1)	0.66 J (1)	0.53 J (1)	U (1)	1.6 (1)	**11 (1)**
Vinyl Chloride	2	U (1)	U (1)	U (1)	U (1)	U (1)	U (1)	U (1)	U (1)
Xylenes (total)	5	U (2)	U (2)	U (2)	U (2)	U (2)	U (2)	U (2)	U (2)
INORG (Total)									
Iron, Ferrous		U (100)	--	U (100)	--	360 HF (100)	--	U (100)	--
Nitrate	10000	25 J (50)	--	U (50)	--	U (50)	--	U (50)	--
Nitrite	1000	U (50)	--	U (50)	--	U (50)	--	U (50)	--

Notes:

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H --Holding Time exceeded.
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-- Not analyzed.

TABLE 4
Summary of Groundwater Sampling Results
ESCO Steel, Inc.; Troy, NY

Location		BRMW04	BRMW04	MW01	MW01	MW02	MW02	MW03	MW03	MW05	MW05
Field Sample ID	NY Fresh	BRMW04-20151208	BRMW04-20160505	MW01-20151209	MW01-20160505	MW02-20151209	MW02-20160505	MW03-20151207	MW03-20160505	MW05-20151209	MW05-20160505
Lab Sample ID	Groundwater	480-92324-14	480-99821-4	480-92451-8	480-99821-13	480-92451-9	480-99821-15	480-92324-3	480-99821-8	480-92451-3	480-99821-12
Sample Date	(GA) Standards	12/8/2015	5/5/2016	12/9/2015	5/5/2016	12/9/2015	5/5/2016	12/7/2015	5/5/2016	12/9/2015	5/5/2016
Comments											
WQ											
Total Alkalinity as CaCO3		140000 B (5000)	--	130000 B (5000)	--	340000 B (5000)	--	230000 B (5000)	--	310000 B (5000)	--
Carbon Dioxide		900 J (1000)	--	910 J (1000)	--	6300 (1000)	--	13000 (1000)	--	4100 (1000)	--
Chloride	250000	3100 B (1000)	--	2700 B (1000)	--	4700 B (1000)	--	6100 B (1000)	--	21000 B (1000)	--
Sulfate	250000	3500 J (5000)	--	3100 JB (5000)	--	30000 B (5000)	--	34000 (5000)	--	190000 B (25000)	--
Organic Carbon (total)		1200 (1000)	--	3100 (1000)	--	7400 (1000)	--	3500 (1000)	--	1800 (1000)	--
Organic Carbon (total) - Serial #1		1100 (1000)	--	3100 (1000)	--	7300 (1000)	--	3600 (1000)	--	1800 (1000)	--
Organic Carbon (total) - Serial #2		1200 (1000)	--	3000 (1000)	--	7500 (1000)	--	3400 (1000)	--	1900 (1000)	--
Organic Carbon (total) - Serial #3		1200 (1000)	--	3200 (1000)	--	7500 (1000)	--	3600 (1000)	--	1800 (1000)	--
Organic Carbon (total) - Serial #4		1200 (1000)	--	3000 (1000)	--	7400 (1000)	--	3400 (1000)	--	1800 (1000)	--
Organic Carbon (dissolved)		780 J (1000)	--	2300 (1000)	--	8700 (1000)	--	2000 (1000)	--	1400 (1000)	--
Organic Carbon (dissolved) - Serial #1		690 J (1000)	--	2100 (1000)	--	8500 B (1000)	--	1900 (1000)	--	1200 (1000)	--
Organic Carbon (dissolved) - Serial #2		840 J (1000)	--	2400 (1000)	--	8400 (1000)	--	2300 (1000)	--	1500 (1000)	--
Organic Carbon (dissolved) - Serial #3		670 J (1000)	--	2200 (1000)	--	9000 B (1000)	--	1800 (1000)	--	1400 (1000)	--
Organic Carbon (dissolved) - Serial #4		900 J (1000)	--	2400 (1000)	--	8700 (1000)	--	2100 (1000)	--	1400 (1000)	--
VOC											
Acetone	50	U (10)	U (40)	U* (10)	U (10)	U* (10)	*U (100)*	U* (10)	U (10)	U (10)	U (10)
Benzene	1	U (1)	*U (4)*	U (1)	U (1)	0.49 J (1)	*U (10)*	U (1)	U (1)	U (1)	U (1)
Carbon Disulfide	60	U (1)	U (4)	U (1)	U (1)	U (1)	U (10)	U (1)	U (1)	U (1)	U (1)
1,1-Dichloroethane	5	U (1)	U (4)	U (1)	U (1)	**130 (40)**	**11 (10)**	U (1)	U (1)	U (1)	U (1)
1,2-Dichloroethane	0.6	*U (1)*	*U (4)*	*U (1)*	*U (1)*	0.28 J (1)	*U (10)*	*U (1)*	*U (1)*	*U (1)*	*U (1)*
1,1-Dichloroethene	5	0.66 J (1)	U (4)	U (1)	U (1)	**54 (1)**	**6.4 J (10)**	U (1)	U (1)	U (1)	U (1)
cis-1,2-Dichloroethene	5	**160 (4)**	**170 (4)**	U (1)	U (1)	**1300 F1 (40)**	**310 (10)**	4.9 (1)	U (1)	U (1)	U (1)
trans-1,2-Dichloroethene	5	2.2 (1)	U (4)	U (1)	U (1)	4.5 (1)	*U (10)*	U (1)	U (1)	U (1)	U (1)
Methyl tert-butyl ether	10	U (1)	U (4)	U (1)	U (1)	U (1)	U (10)	U (1)	U (1)	U (1)	U (1)
Methylene Chloride	5	U (1)	U (4)	U (1)	U (1)	U (1)	**14 (10)**	U (1)	U (1)	U (1)	U (1)
Tetrachloroethene	5	U (1)	U (4)	U (1)	U (1)	0.94 J (1)	*U (10)*	2.5 (1)	1.6 (1)	U (1)	U (1)
Toluene	5	U (1)	U (4)	U (1)	U (1)	U (1)	*U (10)*	U (1)	U (1)	U (1)	U (1)
1,1,1-Trichloroethane	5	U (1)	U (4)	U (1)	U (1)	U (1)	*U (10)*	U (1)	U (1)	U (1)	U (1)
1,1,2-Trichloroethane	1	U (1)	*U (4)*	U (1)	U (1)	U (1)	*U (10)*	U (1)	U (1)	U (1)	U (1)
Trichloroethene	5	**13 (1)**	**9.5 (4)**	1.8 (1)	0.91 J (1)	**1100 (40)**	**180 (10)**	**30 (1)**	**15 (1)**	U (1)	U (1)
Vinyl Chloride	2	1.1 (1)	*U (4)*	U (1)	U (1)	**62 (1)**	**17 (10)**	U (1)	U (1)	U (1)	U (1)
Xylenes (total)	5	U (2)	3.7 J (8)	U (2)	U (2)	U (2)	*U (20)*	U (2)	U (2)	U (2)	U (2)
INORG (Total)											
Iron, Ferrous		200 HF (100)	--	300 HF (200)	--	U (100)	--	U (100)	--	U (100)	--
Nitrate	10000	U (50)	--	25 J (50)	--	U (50)	--	1700 (50)	--	U (50)	--
Nitrite	1000	U (50)	--	U (50)	--	U (50)	--	27 J (50)	--	U (50)	--

Notes:

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Abbreviations:

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J -- Estimated Concentration.
F -- Field parameter.
H --Holding Time exceeded.
F1 -- Spike recovery is outside limits.
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-- Not analyzed.

TABLE 4
Summary of Groundwater Sampling Results
ESCO Steel, Inc.; Troy, NY

Location		MW06	MW06	MW07	MW07	MW08	MW08	MW09	MW09	MW10	MW11	MW11
Field Sample ID	NY Fresh	MW06-20151209	MW06-20160505	MW07-20151208	MW07-20160505	MW08-20151209	MW08-20160505	MW09-20151209	MW09-20160505	MW10-20151208	MW11-20151207	MW11-20160505
Lab Sample ID	Groundwater	480-92451-4	480-99821-1	480-92451-1	480-99821-9	480-92451-5	480-99821-2	480-92451-10	480-99821-16	480-92324-12	480-92324-1	480-99821-17
Sample Date	(GA) Standards	12/9/2015	5/5/2016	12/8/2015	5/5/2016	12/9/2015	5/5/2016	12/9/2015	5/5/2016	12/8/2015	12/7/2015	5/5/2016
Comments												
WQ												
Total Alkalinity as CaCO3		220000 B (5000)	--	490000 B (5000)	--	95000 B (5000)	--	210000 B (5000)	--	360000 B (5000)	350000 B (5000)	--
Carbon Dioxide		1800 (1000)	--	1300 (1000)	--	1300 (1000)	--	8900 (1000)	--	6500 (1000)	6300 (1000)	--
Chloride	250000	3400 B (1000)	--	19000 B (1000)	--	650 JB (1000)	--	3700 B (1000)	--	17000 B (1000)	36000 B (1000)	--
Sulfate	250000	22000 B (5000)	--	77000 B (10000)	--	1900 JB (5000)	--	12000 B (5000)	--	56000 B (10000)	96000 (20000)	--
Organic Carbon (total)		2600 (1000)	--	8600 (1000)	--	1000 (1000)	--	2400 (1000)	--	3500 (1000)	9300 (1000)	--
Organic Carbon (total) - Serial #1		2600 (1000)	--	8300 (1000)	--	990 J (1000)	--	2400 (1000)	--	3300 (1000)	9600 (1000)	--
Organic Carbon (total) - Serial #2		2600 (1000)	--	8800 (1000)	--	1000 (1000)	--	2500 (1000)	--	3500 (1000)	8800 (1000)	--
Organic Carbon (total) - Serial #3		2600 (1000)	--	8400 (1000)	--	1000 (1000)	--	2400 (1000)	--	3400 (1000)	9700 (1000)	--
Organic Carbon (total) - Serial #4		2600 (1000)	--	8800 (1000)	--	1000 (1000)	--	2400 (1000)	--	3500 (1000)	9100 (1000)	--
Organic Carbon (dissolved)		2200 (1000)	--	7100 (1000)	--	700 J (1000)	--	2600 (1000)	--	2700 (1000)	5600 (1000)	--
Organic Carbon (dissolved) - Serial #1		2100 (1000)	--	6700 (1000)	--	650 J (1000)	--	2600 B (1000)	--	2500 (1000)	5400 (1000)	--
Organic Carbon (dissolved) - Serial #2		2200 (1000)	--	7300 (1000)	--	780 J (1000)	--	2500 (1000)	--	2800 (1000)	5800 (1000)	--
Organic Carbon (dissolved) - Serial #3		2200 (1000)	--	7000 (1000)	--	620 J (1000)	--	2700 B (1000)	--	2500 (1000)	5000 (1000)	--
Organic Carbon (dissolved) - Serial #4		2300 (1000)	--	7400 (1000)	--	730 J (1000)	--	2500 (1000)	--	2900 (1000)	6100 (1000)	--
VOC												
Acetone	50	U (10)	U (10)	U (50)	*U (200)*	U (10)	U (10)	U* (10)	*U (100)*	U (10)	U* (10)	U (10)
Benzene	1	U (1)	U (1)	*U (5)*	*U (20)*	U (1)	U (1)	U (1)	*U (10)*	U (1)	U (1)	U (1)
Carbon Disulfide	60	U (1)	U (1)	U (5)	U (20)	U (1)	U (1)	U (1)	U (10)	U (1)	U (1)	U (1)
1,1-Dichloroethane	5	U (1)	U (1)	**280 F1 (5)**	**23 (20)**	U (1)	U (1)	1.1 (1)	*U (10)*	**24 (1)**	U (1)	U (1)
1,2-Dichloroethane	0.6	*U (1)*	*U (1)*	**6 (5)**	*U (20)*	*U (1)*	*U (1)*	*U (1)*	*U (10)*	**0.82 J (1)**	*U (1)*	*U (1)*
1,1-Dichloroethene	5	U (1)	U (1)	**65 (5)**	**9.6 J (20)**	U (1)	U (1)	**5.4 (1)**	*U (10)*	**21 (1)**	U (1)	U (1)
cis-1,2-Dichloroethene	5	U (1)	1.4 (1)	**100 (5)**	**53 (20)**	U (1)	U (1)	**2200 (40)**	**300 (10)**	**360 (50)**	U (1)	1.2 (1)
trans-1,2-Dichloroethene	5	U (1)	U (1)	U (5)	*U (20)*	U (1)	U (1)	2.5 (1)	*U (10)*	**5.5 (1)**	U (1)	U (1)
Methyl tert-butyl ether	10	U (1)	U (1)	U (5)	*U (20)*	U (1)	U (1)	U (1)	U (10)	U (1)	U (1)	U (1)
Methylene Chloride	5	U (1)	U (1)	U (5)	*U (20)*	U (1)	U (1)	U (1)	**16 (10)**	U (1)	U (1)	U (1)
Tetrachloroethene	5	U (1)	U (1)	**23 (5)**	**22 (20)**	U (1)	U (1)	**21 (1)**	**8.2 J (10)**	1.5 (1)	U (1)	U (1)
Toluene	5	U (1)	U (1)	U (5)	*U (20)*	U (1)	U (1)	U (1)	*U (10)*	U (1)	U (1)	U (1)
1,1,1-Trichloroethane	5	U (1)	U (1)	**370 F1 (5)**	**120 (20)**	U (1)	U (1)	U (1)	*U (10)*	**11 (1)**	U (1)	U (1)
1,1,2-Trichloroethane	1	U (1)	U (1)	**2.9 J (5)**	*U (20)*	U (1)	U (1)	U (1)	*U (10)*	U (1)	U (1)	U (1)
Trichloroethene	5	2.2 (1)	1.9 (1)	**6100 (100)**	**1300 (20)**	**8.1 (1)**	0.6 J (1)	**610 (40)**	**110 (10)**	**1700 (50)**	U (1)	2 (1)
Vinyl Chloride	2	U (1)	U (1)	*U (5)*	*U (20)*	U (1)	U (1)	**8.8 (1)**	*U (10)*	**29 (1)**	U (1)	U (1)
Xylenes (total)	5	U (2)	U (2)	*U (10)*	*U (40)*	U (2)	U (2)	U (2)	*U (20)*	U (2)	U (2)	U (2)
INORG (Total)												
Iron, Ferrous		U (100)	--	U (100)	--	U (100)	--	U (100)	--	U (100)	U (100)	--
Nitrate	10000	30 J (50)	--	U (50)	--	710 (50)	--	75 (50)	--	2700 (50)	340 (50)	--
Nitrite	1000	U (50)	--	U (50)	--	U (50)	--	U (50)	--	U (50)	U (50)	--

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Summary of Groundwater Sampling Results
ESCO Steel, Inc.; Troy, NY

Location		MW13	MW14	MW14	MW17	MW17	MW18	MW18	MW18	MW19	MW19
Field Sample ID	NY Fresh	MW13-20151207	MW14-20151214	MW14-20160505	MW17-20151207	MW17-20160505	MW18-20151209	DUP-20151209	MW18-20160505	MW19-20151208	MW19-20160505
Lab Sample ID	Groundwater	480-92324-4	480-92737-1	480-99821-18	480-92324-2	480-99821-5	480-92451-11	480-92451-13	480-99821-10	480-92451-2	480-99821-11
Sample Date	(GA) Standards	12/7/2015	12/14/2015	5/5/2016	12/7/2015	5/5/2016	12/9/2015	12/9/2015	5/5/2016	12/8/2015	5/5/2016
Comments								Field Duplicate			
WQ											
Total Alkalinity as CaCO3		260000 B (5000)	300000 (5000)	--	220000 (5000)	--	480000 B (5000)	340000 B (5000)	--	340000 B (5000)	--
Carbon Dioxide		21000 (1000)	2100 (1000)	--	480 JH (1000)	--	480 J (1000)	6800 (1000)	--	1900 (1000)	--
Chloride	250000	**60000 B (10000)**	19000 B (1000)	--	4800 B (1000)	--	14000 B (1000)	5200 B (1000)	--	8600 B (1000)	--
Sulfate	250000	85000 (15000)	70000 (10000)	--	43000 (10000)	--	150000 B (25000)	24000 B (5000)	--	69000 B (10000)	--
Organic Carbon (total)		4500 (1000)	1500 (1000)	--	2500 (1000)	--	1500 (1000)	7700 (1000)	--	2600 (1000)	--
Organic Carbon (total) - Serial #1		4700 (1000)	1500 (1000)	--	2600 (1000)	--	1400 (1000)	7400 (1000)	--	2500 (1000)	--
Organic Carbon (total) - Serial #2		4300 (1000)	1500 (1000)	--	2300 (1000)	--	1700 (1000)	7700 (1000)	--	2500 (1000)	--
Organic Carbon (total) - Serial #3		4600 (1000)	1500 (1000)	--	2600 (1000)	--	1400 (1000)	7700 (1000)	--	2600 (1000)	--
Organic Carbon (total) - Serial #4		4400 (1000)	1400 (1000)	--	2400 (1000)	--	1700 (1000)	7800 (1000)	--	2600 (1000)	--
Organic Carbon (dissolved)		2500 (1000)	1200 (1000)	--	2100 (1000)	--	4500 (1000)	8400 (1000)	--	1900 (1000)	--
Organic Carbon (dissolved) - Serial #1		2200 (1000)	1100 (1000)	--	2000 (1000)	--	4600 B (1000)	8400 B (1000)	--	1700 (1000)	--
Organic Carbon (dissolved) - Serial #2		2700 (1000)	1200 (1000)	--	2200 (1000)	--	4200 (1000)	8400 (1000)	--	2100 (1000)	--
Organic Carbon (dissolved) - Serial #3		2500 (1000)	1300 (1000)	--	2100 (1000)	--	4800 B (1000)	8400 B (1000)	--	1900 (1000)	--
Organic Carbon (dissolved) - Serial #4		2700 (1000)	1200 (1000)	--	2200 (1000)	--	4400 (1000)	8300 (1000)	--	2000 (1000)	--
VOC											
Acetone	50	U* (10)	U (10)	U (10)	UH (10)	5.9 J (10)	7.4 (10)	U* (10)	*U (400)*	U (10)	*U (100)*
Benzene	1	U (1)	U (1)	U (1)	UH (1)	U (1)	U (1)	0.5 J (1)	*U (40)*	U (1)	*U (10)*
Carbon Disulfide	60	U (1)	U (1)	U (1)	0.29 JH (1)	U (1)	U (1)	U (1)	U (40)	U (1)	U (10)
1,1-Dichloroethane	5	U (1)	4.3 (1)	2.7 (1)	UH (1)	U (1)	**380 (20)**	**93 (1)**	**69 (40)**	**110 (10)**	**8.1 J (10)**
1,2-Dichloroethane	0.6	*U (1)*	*U (1)*	*U (1)*	*UH (1)*	*U (1)*	**2.5 (1)**	0.27 J (1)	*U (40)*	0.22 J (1)	*U (10)*
1,1-Dichloroethene	5	U (1)	1.8 (1)	0.51 J (1)	UH (1)	U (1)	**84 (1)**	**54 (1)**	**67 (40)**	**24 (1)**	**7.3 J (10)**
cis-1,2-Dichloroethene	5	2.9 (1)	**46 (1)**	**26 (1)**	4.3 H (1)	1.2 (1)	**46 (1)**	**1300 (40)**	**62 (40)**	**18 (1)**	**36 (10)**
trans-1,2-Dichloroethene	5	U (1)	U (1)	U (1)	UH (1)	U (1)	U (1)	4.5 (1)	*U (40)*	U (1)	*U (10)*
Methyl tert-butyl ether	10	U (1)	0.17 J (1)	U (1)	UH (1)	U (1)	U (1)	U (1)	*U (40)*	U (1)	U (10)
Methylene Chloride	5	U (1)	U (1)	U (1)	UH (1)	U (1)	0.82 J (1)	U (1)	*U (40)*	U (1)	*U (10)*
Tetrachloroethene	5	2.3 (1)	U (1)	U (1)	UH (1)	U (1)	2.3 (1)	0.62 J (1)	**37 J (40)**	0.95 J (1)	**23 (10)**
Toluene	5	U (1)	U (1)	U (1)	UH (1)	U (1)	U (1)	U (1)	*U (40)*	U (1)	*U (10)*
1,1,1-Trichloroethane	5	U (1)	U (1)	U (1)	UH (1)	U (1)	**410 (20)**	U (1)	**690 (40)**	**16 (1)**	**91 (10)**
1,1,2-Trichloroethane	1	U (1)	U (1)	U (1)	UH (1)	U (1)	0.66 J (1)	U (1)	*U (40)*	U (1)	*U (10)*
Trichloroethene	5	**31 (1)**	**28 (1)**	**9.5 (1)**	**110 H (4)**	**8 (1)**	**1500 (20)**	**1000 (40)**	**3400 (80)**	**400 (10)**	**750 (10)**
Vinyl Chloride	2	U (1)	U (1)	U (1)	UH (1)	U (1)	**5.6 (1)**	**57 (1)**	*U (40)*	U (1)	*U (10)*
Xylenes (total)	5	U (2)	U (2)	U (2)	UH (2)	U (2)	U (2)	U (2)	*U (80)*	U (2)	**10 J (20)**
INORG (Total)											
Iron, Ferrous		U (100)	160 HF (100)	--	U (100)	--	U (2500)	U (100)	--	U (100)	--
Nitrate	10000	4400 (50)	90 (50)	--	240 (50)	--	20 J (50)	U (50)	--	U (50)	--
Nitrite	1000	U (50)	U (50)	--	U (50)	--	U (50)	U (50)	--	U (50)	--

Notes:

1 All concentrations are presented in ug/L (ppb).
2 Only compounds with at least one detection are shown.
3 Concentrations that exceed the NY Fresh Groundwater (GA) Standards are **boldfaced**.
4 Reporting limits that exceed the NY Fresh Groundwater (GA) Standards are *italicized* .

Abbreviations:

U -- Not Detected.
J -- Estimated Concentration.
F -- Field parameter.
H --Holding Time exceeded.
F1 -- Spike recovery is outside limits.
B -- Blank contamination.
* -- LCS is outside limits.
( ) -- Reporting Limit.
-- Not analyzed.

TABLE 5
Summary of Soil Gas Sampling Results
ESCO Steel Treaters, Troy, NY

Location	SV-01	SV-02	SV-03	SV-10	SV-11	SV-11
Field Sample ID	SV-1-080311	SV-2-080311	SV-3-080311	SV-10-030917	SV-11-030917	DUP-1-030917
Lab Sample ID	C0803012-001A	C0803012-001A	C0803012-001A	140-7379-1	140-7379-2	140-7379-3
Sample Method	Summa Canister	Summa Canister	Summa Canister	6L Summa	6L Summa	6L Summa
Sample Date	3/11/2008	3/11/2008	3/11/2008	3/9/2017	3/9/2017	3/9/2017
Comments						Field Duplicate
VOC						
2,3-Dihydroindene	--	--	--	1.2 (0.97)	U (0.97)	U (0.97)
2,3-DIMETHYLPENTANE	--	--	--	2.6 (0.82)	U (0.82)	U (0.82)
Acetone	31 (7.2)	76 (29)	U (0.72)	190 (12)	83 (12)	98 (12)
Benzene	29 (4.9)	55 (4.9)	6.6 (0.49)	9.1 (0.64)	5.8 (0.64)	6.7 (0.64)
1,3-Butadiene	U (0.34)	U (0.34)	U (0.34)	6.7 (0.88)	0.37 J (0.88)	0.36 J (0.88)
BUTANE	--	--	--	21 (0.95)	2.2 (0.95)	2.2 (0.95)
BUTANE, 2-METHYL-	--	--	--	9.1 (1.5)	1.3 J (1.5)	0.92 J (1.5)
2-Butanone	30 (9)	91 (36)	33 (9)	28 (2.9)	16 (2.9)	18 (2.9)
Carbon Disulfide	45 (4.7)	110 (19)	6.4 (0.47)	3.6 (1.6)	0.49 J (1.6)	0.51 J (1.6)
Carbon Tetrachloride	U (0.96)	U (0.96)	U (0.96)	0.59 J (1.3)	0.45 J (1.3)	0.48 J (1.3)
Chloroform	1.8 (0.74)	1.6 (0.74)	1.4 (0.74)	U (0.98)	0.92 J (0.98)	0.97 (0.98)
Chloromethane	0.21 (0.31)	0.27 (0.31)	0.82 (0.31)	1 J (1)	1 (1)	1.1 (1)
Cumene	--	--	--	1.3 J (3.9)	7.6 (3.9)	9.1 (3.9)
Cyclohexane	1.9 (0.52)	7.1 (0.52)	U (0.52)	3 (1.7)	0.95 J (1.7)	1 J (1.7)
Cyclohexane, -butyl	--	--	--	2 (1.1)	U (1.1)	U (1.1)
Decane	--	--	--	8 (5.8)	4.7 J (5.8)	3.9 J (5.8)
Dichlorodifluoromethane	2.1 (0.75)	3.1 (0.75)	2.8 (0.75)	2.2 J (2.5)	2.2 J (2.5)	2.2 J (2.5)
cis-1,2-Dichloroethene	0.56 (0.6)	1.4 (0.6)	1.7 (0.6)	U (0.79)	U (0.79)	U (0.79)
trans-1,2-Dichloroethene	U (0.6)	U (0.6)	0.48 (0.6)	U (0.79)	U (0.79)	U (0.79)
Dodecane	--	--	--	1.1 J (7)	U (7)	U (7)
Ethanol	--	--	--	10 (3.8)	9.6 (3.8)	10 (3.8)
Acetic acid, ethyl ester	2 (0.92)	2.9 (0.92)	2.1 (0.92)	--	--	--
Ethyl Benzene	49 (6.6)	74 (6.6)	17 (6.6)	9.7 (0.87)	6.7 (0.87)	7.4 (0.87)
4-Ethyltoluene	4.9 (0.75)	8.3 (0.75)	5 (0.75)	2.9 (2)	1 J (2)	1.2 J (2)
n-Heptane	32 (6.2)	140 (25)	U (0.62)	8.4 (2)	3 (2)	3.5 (2)
n-Hexane	U (0.54)	61 (5.4)	U (0.54)	12 (2.8)	1.3 J (2.8)	1.4 J (2.8)
2-Hexanone	U (1.2)	U (1.2)	U (1.2)	0.49 J (2)	0.29 J (2)	0.26 J (2)
Isooctane	2.7 (0.71)	20 (7.1)	0.95 (0.71)	6 (2.3)	0.8 J (2.3)	1 J (2.3)
Isopropanol	U (0.37)	U (0.37)	U (0.37)	2.2 J (12)	1.6 J (12)	1.2 J (12)
Methyl tert-butyl ether	1.8 (0.55)	2.6 (0.55)	U (0.55)	1.4 J (3.6)	0.81 J (3.6)	0.94 J (3.6)
4-Methyl-2-pentanone	1.1 (1.2)	U (1.2)	U (1.2)	5.3 (2)	2.1 (2)	2.2 (2)
Methylene Chloride	5.6 (0.53)	12 (5.3)	6.3 (0.53)	U (1.7)	U (1.7)	U (1.7)
Naphthalene	--	--	--	0.93 J (2.6)	U (2.6)	U (2.6)
Nonane	--	--	--	9 (2.6)	5.5 (2.6)	5.4 (2.6)
n-Octane	--	--	--	6.1 (1.9)	4.1 (1.9)	4.6 (1.9)
n-Pentane	--	--	--	12 (3)	1.4 J (3)	1.1 J (3)
Styrene	1.5 (0.65)	2.4 (0.65)	1.1 (0.65)	0.29 J (0.85)	U (0.85)	U (0.85)
tert Butyl alcohol	--	--	--	3.6 J (6.1)	1.9 J (6.1)	1.9 J (6.1)
Tetrachloroethene	32 (10)	84 (10)	89 (10)	200 (1.4)	150 (1.4)	170 (1.4)
Tetrahydrofuran	3.2 (0.45)	5.9 (0.45)	3.2 (0.45)	--	--	--
1,2,3,5-Tetramethylbenzene	--	--	--	1.5 (1.1)	U (1.1)	U (1.1)
Toluene	600 (46)	870 (92)	41 (5.7)	30 (0.75)	26 (0.75)	29 (0.75)
1,1,1-Trichloroethane	6.8 (0.83)	18 (8.3)	4.5 (0.83)	U (1.1)	U (1.1)	U (1.1)
Trichloroethene	1300 (130)	1700 (130)	2100 (260)	0.25 J (1.1)	0.84 J (1.1)	0.9 J (1.1)
Trichlorofluoromethane	0.97 (0.86)	1.1 (0.86)	1.3 (0.86)	2.2 (1.1)	1.1 (1.1)	1.1 (1.1)
1,1,2-Trichloro-1,2,2-trifluoroethane	52 (12)	83 (12)	92 (12)	0.56 J (1.5)	0.51 J (1.5)	0.43 J (1.5)
1,2,3-Trimethylbenzene	--	--	--	3.1 (0.98)	U (0.98)	U (0.98)
1,2,4-Trimethylbenzene	8 (0.75)	16 (7.5)	9 (0.75)	7.9 (0.98)	2.1 (0.98)	2.1 (0.98)
1,3,5-Trimethylbenzene	2.3 (0.75)	5.2 (0.75)	2.7 (0.75)	3.1 (0.98)	0.98 (0.98)	1.1 (0.98)
Undecane	--	--	--	2.2 J (6.4)	0.58 J (6.4)	0.68 J (6.4)
m,p-xylene	160 (53)	190 (53)	56 (13)	25 (3.5)	18 (3.5)	19 (3.5)
ortho-xylene	22 (6.6)	39 (6.6)	11 (6.6)	8.6 (0.87)	5.4 (0.87)	6.1 (0.87)
Xylenes (total)	182 (6.6)	229 (6.6)	67 (6.6)	33.6 (3.5)	23.4 (3.5)	25.1 (3.5)

Notes:

1 All concentrations are presented in ug/m^3.

2 Only compounds with at least one detection are shown.

Abbreviations:

U -- Not Detected.

J -- Estimated Concentration.

( ) -- Detection Limit.

-- -- Not Analyzed.

APPENDIX A
ENVIRONMENTAL EASEMENT

RENSSELAER COUNTY – STATE OF NEW YORK
FRANK MEROLA COUNTY CLERK
105 THIRD STREET, TROY, NEW YORK 12180

COUNTY CLERK'S RECORDING PAGE
THIS PAGE IS PART OF THE DOCUMENT – DO NOT DETACH

BOOK/PAGE: 8450 / 244
INSTRUMENT #: 2018-530098

Receipt#: 1117806
Clerk: RK
Rec Date: 03/01/2018 11:53:33 AM
Doc Grp: RP
Descrip: EASEMENT
Num Pgs: 10
Rec'd Frm: SNEERINGER PROVOST & REDGRAVE

Party1: ESCO CORP
Party2: PEOPLE OF THE STATE OF NEW YORK
Town: TROY

Recording:	
Cover Page	5.00
Recording Fee	65.00
Cultural Ed	14.25
Records Management - Coun	1.00
Records Management - Stat	4.75
TP584	5.00
Sub Total:	95.00
Transfer Tax	
Transfer Tax - State	0.00
Sub Total:	0.00
Total:	95.00

**** NOTICE: THIS IS NOT A BILL ****

***** Transfer Tax *****
Transfer Tax #: 2899
Transfer Tax
Consideration: 0.00

Total: 0.00

WARNING***
I hereby certify that the within and foregoing was recorded in the Rensselaer County Clerk's Office, State of New York. This sheet constitutes the Clerks endorsement required by Section 316 of the Real Property Law of the State of New York.

Frank Merola
Rensselaer County Clerk

Record and Return To:

SNEERINGER PROVOST & REDGRAVE
50 CHAPEL STREET
ALBANY NY 12207

Instr # 2018-530098
Bk 8450 Pg: 244

10/104

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

THIS INDENTURE made this 21st day of February, 20 18 between Owner(s) ESCO Corporation, having an office at 2141 NW 25th Avenue, Portland, Oregon 97210, County of Multnomah, State of Oregon (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 520 Campbell Avenue in the City of Troy, County of Rensselaer and State of New York, known and designated on the tax map of the County Clerk of Rensselaer as tax map parcel numbers: Section 112 Block 4 Lot 25, being the same as that property conveyed to Grantor by deed dated October 23, 2012 and recorded in the Rensselaer County Clerk's Office in Instrument No. 2012-00420835. The property subject to this Environmental Easement (the "Controlled Property") comprises approximately 1.109 +/- acres, and is hereinafter more fully described in the Land Title Survey dated January 30, 2018 prepared by Nathan M. Burrows, LLS of NMB Land Surveying PLLC, 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

R+R - Box SMPR - Courtesy Recording Bond, Schoeneck & King Attn: Theresa

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 Voluntary Cleanup Agreement Index Number: V00578-4, 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:

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 Rensselaer 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 or Restricted Residential purposes as defined in 6NYCRR 375-1.8(g)(2)(i) and (ii), 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: V00578
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.

ESCO Corporation:

By: _____

Print Name: Kevin Thomas

Title: SVP, GC & Secy Date: 2/12/18

Grantor's Acknowledgment

STATE OF Oregon)
) ss:
COUNTY OF Multnomah)

On the 12th day of February, in the year 2018, before me, the undersigned, personally appeared Kevin S. Thomas 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.

Mary Denise Roberts
Notary Public - State of Oregon

OFFICIAL STAMP
MARY DENISE ROBERTS
NOTARY PUBLIC-OREGON
COMMISSION NO. 925759
MY COMMISSION EXPIRES MARCH 05, 2018

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, Assistant Director
Division of Environmental Remediation

Grantee's Acknowledgment

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

On the 21st day of February, in the year 2018 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, 2018

SCHEDULE "A" PROPERTY DESCRIPTION

ALL THAT PIECE OR PARCEL OF LAND situate in the City of Troy, County of Rensselaer, State of New York, BEGINNING AT A POINT in the South line of Campbell's Highway said point being in the Northeast corner of the new Weber Lot resulting from a sub division of his original lot which was shown on a map prepared by James F. Hoffman, PE, LS, CE of HOFFMAN ENGINEERS AND SURVEYORS dated November 23, 1965 said point being further North 80 degrees 00 minutes East (N. 80° 00' E.) along the said South line of Campbell's Highway one hundred seventy five feet (175.00') from a concrete monument set in the division line between the Lands of the Airport Inn and the original Charles Weber parcel; thence according to the magnetic meridian and along the said South line of Campbell's Highway North 80 degrees 00 minutes East (N. 80° 00' E.) one hundred forty point twenty feet (140.20') to a point; thence South 17 degrees 12 minutes West (S. 17° 12" W.) four hundred feet (400.00') to a point in the North line of the lands of the Troy Airport; thence along this same North line North 71 degrees 54 minutes West (N. 71° 54' W.) one hundred thirty nine point eighty feet (139.80') to a point in the Southeast corner of the new aforementioned Weber lot; thence along the East line of the Weber lot which is the West line of the lot herein described North 19 degrees 46 minutes East (N. 19° 46' E.) three hundred thirty-four point zero eight feet (334.08') to a point in the South line of Campbell's Highway, said point being the point of beginning.

Containing approximately 1.109 acres more or less.

APPENDIX B
LIST OF SITE CONTACTS

APPENDIX B – LIST OF SITE CONTACTS

Name	Phone/Email Address
Site Owner: Travis Quarles ESCO Corporation	503.778.6493 travis.quarles@escocorp.com
Remedial Party: Same as Site Owner	
Qualified Environmental Professional: Jose Sananes Ramboll US Corporation	609.243.9882 jsananes@ramboll.com
NYSDEC DER Project Manager: Javier Pérez-Maldonado	518-402-8172 javier.perez-maldonado@dec.ny.gov
Janet Brown, NYSDEC Section Chief, Bureau B, Section B	518-402-9697 janet.brown@dec.ny.gov
NYSDEC Regional HW Engineer: Richard Mustico, NYSDEC Region 4	518-357-2273 richard.mustico@dec.ny.gov
NYSDEC Site Control: Kelly Lewandowski, NYSDEC, Section Chief	518-402-9553 kelly.lewandowski@dec.ny.gov
On and off-site access contacts such as tenants, adjacent property owners, etc.: Not Applicable	
Remedial Party Attorney: Robert Tyson Bond, Schoeneck & King PLLC	One Lincoln Center, Syracuse, NY 13202-1355

APPENDIX C
MONITORING WELL CONSTRUCTION AND BORING LOGS

InteGreyted International

TEST BORING LOG

Boring ID:MW-02-01

Page 1 of 1

InteGreyted Project Number/Name: 0209003P - Steel Treaters | Location: Troy, NY

Drilling Contractor/Personnel: ADT, Harry Connal

Geologist/Inspector:Kevin Phelan | Start/ Finish Date:3/16/04

Drilling Equip/Method: Geoprobe ATV/Hollow Stem Auger | Size/Type of Bit: 4.25" ID

Sampling Method: Auger Cuttings | Well Installed? Yes

Elevation/Ground Surface:

Depth to Ground Water from Top of PVC Casing (Date): 4.72' (3/30/04)

REMARKS:

Depth (Ft)	Sample No.	PID Headspace Reading (ppm)	Unified Classif-ication	DESCRIPTION	REMARKS
1					Well Construction Depths:
2				Clayey SILT	
3	AC-1	0.7			
4					Screened Interval (4'-19')
5					
6					Sand Pack (2'-19')
7					
8	AC-2	0.6			Bentonite Seal (1'-2')
9					
10			ML		Locking Standpipe (5' length)
11					
12					
13	AC-3	0.6			
14					
15					
16					
17	AC-4	0.5			
18					
19				Refusal at 19.0'	
20					

Proportions Used: Trace=0-10% Little=10-20% Some=20-35% And-35-50%

InteGreyted International

TEST BORING LOG

Boring ID:MW-02-05

Page 1 of 1

InteGreyted Project Number/Name: 0209003P - Steel Treaters | Location: Troy, NY

Drilling Contractor/Personnel: ADT, Harry Connal

Geologist/Inspector:Kevin Phelan | Start/ Finish Date:3/17/04

Drilling Equip/Method: Geoprobe ATV/Hollow Stem Auger | Size/Type of Bit: 4.25" ID

Sampling Method: Auger Cuttings | Well Installed? Yes

Elevation/Ground Surface:

Depth to Ground Water from Top of PVC Casing (Date): 3.29 (3/30/04)

REMARKS:

Depth (Ft)	Sample No.	PID Headspace Reading (ppm)	Unified Classif-ication	DESCRIPTION	REMARKS
1				Silty CLAY to Clayey SILT	Well Construction Depths: Screened Interval (4.3'-8.3') Sand Pack (2'-8.3') Bentonite Seal (1'-2') Locking Standpipe (5' length)
2	AC-1	0.4			
3					
4					
5					
6	AC-2	0.4			
7					
8					
9				Refusal at 8.3'	
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					

Proportions Used: Trace=0-10% Little=10-20% Some=20-35% And-35-50%

Delta Environmental Consultants, Inc.

TEST BORING LOG

Boring ID:MW-8

Page 1 of 1

InteGreyted Project Number/Name: 0209003P - Steel Treaters — Location: Troy, NY

Drilling Contractor/Personnel: ADT, Harry Connal

Geologist/Inspector:Kevin Phelan — Start/ Finish Date: 9/15/04

Drilling Equip/Method: Geoprobe ATV/Hollow Stem Auger — Size/Type of Bit:

Sampling Method: Auger Cuttings — Well Installed? Yes

Elevation/Ground Surface:

Depth to Ground Water from Top of PVC Casing (Date):

REMARKS:

Depth (Ft)	Sample No.	PID Headspace Reading (ppm)	Unified Classif-ication	DESCRIPTION	REMARKS
1				Brown clayey Silt, moist	
2	AC-1	0.4			Well construction depths: Screened Interval (5'-10') Sand Pack (3'-10') Bentonite Seal: (1'-3') Roadbox
3					
4					
5			ML		
6				Brown clayey Silt, wet	
7	AC-2	0.3			
8					
9					
10				Auger Refusal 10.0'	
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					

Proportions Used: Trace=0-10% Little=10-20% Some=20-35% And-35-50%

Delta Environmental Consultants, Inc.

TEST BORING LOG

Boring ID:MW-11

Page 1 of 1

InteGreyted Project Number/Name: 0209003P - Steel Treaters — Location: Troy, NY

Drilling Contractor/Personnel: ADT, Harry Connal

Geologist/Inspector:Kevin Phelan — Start/ Finish Date: 1/24/05

Drilling Equip/Method: CME-55/Hollow Stem Auger — Size/Type of Bit: 4.25"ID. HSA

Sampling Method: Auger Cuttings/ Split Spoon Sampler — Well Installed? Yes

Elevation/Ground Surface:

Depth to Ground Water from Top of PVC Casing (Date):

REMARKS:

Depth (Ft)	Sample No.	PID Headspace Reading (ppm)	Unified Classif-ication	DESCRIPTION	REMARKS
1				Brown fine Sand and Silt, little fine gravel, trace organics, moist.	
2	AC-1	1.1	SM		
3					
4					
5				Brown coarse to fine Sand and medium to fine Gravel, some silt, moist (gravel lens from 5.4'-5.7')	Sampler Blows 7-5-4-6 Recovery 1.9'
6	SS-1	1.2			
7					
8			SW		
9					
10		1.5		Brown fine Sand, some fine gravel, little silt moist, occasional black stains from 10-10.5' 11.3' Bedrock (crushed) gray coarse to fine Gravel, some silt little coarse to fine sand dry.	Sampler Blows 24-13-50-50/0.2' Split spoon refusal at 11.7' Recovery 1.6'
11	SS-2	1.0			
		0.5			
12			GM		
13				Total Depth = 13.0'	Well construction depths: Screened Interval (4'-13') Sand Pack (2.3'-13') Bentonite Seal: (0.5'- 2.3') Road Box
14					
15					
16					
17					
18					
19					
20					

Proportions Used: Trace=0-10% Little=10-20% Some=20-35% And-35-50%

SOIL BORING LOG

PROJECT NAME: ESCO Steel Treaters
PROJECT NUMBER: 02-39035A
PROJECT LOCATION: Troy, NY

SOIL BORING NUMBER: B-1
WELL DESIGNATION: PTO-1
LOGGED BY: B. Robinson
DATE: 12/2/2015

DRILLING CONTRACTOR: ADT
DRILLER: Marty
RIG TYPE: Geoprobe 6610DT
SAMPLING METHOD: Macrocore

TOTAL BORING DEPTH: 15.8'
BOREHOLE DIAMETER: 2"

NORTHING (FT):
EASTING (FT):
GROUND ELEV (FT):
TOC ELEV (FT):

WELL DEPTH: 15.5'
WELL DIAMETER: 1"
DEPTH TO WATER (DTW): 7.6'
SAMPLED: 5-6', 15-16'

DEPTH IN FEET	RECOVERY (FT)	PID (ppm)	BLOW COUNT	SOIL STRENGTH (POCKET PENTROMETER) (TON/FT^2)	WELL CONSTRUCTION	GRAPHIC LOG	INFERRED WATER LEVEL	SAMPLE DESCRIPTION
1	2.2	0.4 0.3		1.25 1.25 1.25 1.25				0.0-0.5' Gravel 0.5-5.0' Brown SAND, some silt, trace clay (moist, firm)
5				1.0 1.0 1.0 1.0				5.0-15.8' Gray SILT, little sand (moist, firm) at 6.0' same, transitions to (wet)
10	2.9	0.3 8.1 0.0		0.5 0.5 0.5 0.5				at 10.0' same, grades to trace clay
15	2.3	0.3 0.7	NA	> 4.5				15.8' Bedrock refusal, boring terminated
20	0.8	0.5						
25								
30								

SOIL BORING LOG

PROJECT NAME:	ESCO Steel Treaters
PROJECT NUMBER:	02-39035A
PROJECT LOCATION:	Troy, NY
SOIL BORING NUMBER:	B-2
WELL DESIGNATION:	MW-19 / EW-1
LOGGED BY:	B. Robinson
DATE:	12/2/2015
DRILLING CONTRACTOR:	ADT
DRILLER:	Marty
RIG TYPE:	Geoprobe 6610DT
SAMPLING METHOD:	Macrocore
TOTAL BORING DEPTH:	14.8'
BOREHOLE DIAMETER:	2"
NORTHING (FT):	
EASTING (FT):	
GROUND ELEV (FT):	
TOC ELEV (FT):	
WELL DEPTH:	15.6'
WELL DIAMETER:	4"
DEPTH TO WATER (DTW):	8.0'
SAMPLED:	14-15'

DEPTH IN FEET	RECOVERY (FT)	PID (ppm)	BLOW COUNT	SOIL STRENGTH (POCKET PENTROMETER) (TON/FT^2)	WELL CONSTRUCTION	GRAPHIC LOG	INFERRED WATER LEVEL	SAMPLE DESCRIPTION
1	1.2	0.0		1.25				0.0-1.0' Gravel
2								1.0-5.0' Brown SAND and SILT (moist, firm)
3								
4								
5				1.25				5.0-7.5' Brown SILT, trace sand and clay (moist, firm)
6				1.25				at 6.0' same, transitions to (wet)
7	3.1	0.0		1.25				
8		0.0		1.25				7.5-14.8' Gray SILT, trace sand (wet, firm)
9		0.0		1.0				
10								
11				1.75				
12	2.8	0.0		1.75				
13		0.0		1.75				
14		0.0		1.75				
15			NA	1.75				14.8' Bedrock refusal, boring terminated
16								
17								
18								
19								
20								
21								
22								
23								
24								
25								
26								
27								
28								
29								
30								

SOIL BORING LOG

PROJECT NAME: ESCO Steel Treaters
PROJECT NUMBER: 02-39035A
PROJECT LOCATION: Troy, NY

SOIL BORING NUMBER: B-3
WELL DESIGNATION: PTO-4
LOGGED BY: B. Robinson
DATE: 12/2/2015

DRILLING CONTRACTOR: ADT
DRILLER: Marty
RIG TYPE: Geoprobe 6610DT
SAMPLING METHOD: Macrocore

TOTAL BORING DEPTH: 17.8'
BOREHOLE DIAMETER: 2"

NORTHING (FT):
EASTING (FT):
GROUND ELEV (FT):
TOC ELEV (FT):

WELL DEPTH:
WELL DIAMETER: 1"
DEPTH TO WATER (DTW): 7.7'
SAMPLED: 17-18'

DEPTH IN FEET	RECOVERY (FT)	PID (ppm)	BLOW COUNT	SOIL STRENGTH (POCKET PENTROMETER) (TON/FT^2)	WELL CONSTRUCTION	GRAPHIC LOG	INFERRED WATER LEVEL	SAMPLE DESCRIPTION
1	2.6	0.0 0.0		3.75 3.75 3.75 3.75				0.0-0.5' Concrete 0.5-5.0' Brown SAND, little silt (moist, firm)
5				2.0 2.0 2.0 2.0 2.0 2.0				5.0-10.0' Brown SILT, trace sand (moist, firm) at 6.0' same, transitions to (wet)
10	3.1	0.0 0.1 0.3						
10	4.8	0.0 0.0 0.6 0.3 0.1	NA	2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0				10.0-17.8' Gray SILT, trace sand (wet, firm)
15	2.4	4.4 7.2		0.25 0.25 0.25 0.25				17.8' Bedrock refusal, boring terminated
20								
25								
30								

SOIL BORING LOG

PROJECT NAME: ESCO Steel Treaters
PROJECT NUMBER: 02-39035A
PROJECT LOCATION: Troy, NY

SOIL BORING NUMBER: B-4
WELL DESIGNATION: PTO-2
LOGGED BY: B. Robinson
DATE: 12/2/2015

DRILLING CONTRACTOR: ADT
DRILLER: Marty
RIG TYPE: Geoprobe 6610DT
SAMPLING METHOD: Macrocore

TOTAL BORING DEPTH: 18.5'
BOREHOLE DIAMETER: 2"

NORTHING (FT):
EASTING (FT):
GROUND ELEV (FT):
TOC ELEV (FT):

WELL DEPTH: 18.5'
WELL DIAMETER: 1"
DEPTH TO WATER (DTW): 7.4'
SAMPLED: 17-18'

DEPTH IN FEET	RECOVERY (FT)	PID (ppm)	BLOW COUNT	SOIL STRENGTH (POCKET PENTROMETER) (TON/FT^2)	WELL CONSTRUCTION	GRAPHIC LOG	INFERRED WATER LEVEL	SAMPLE DESCRIPTION
1	4.8	0.0	NA	3.5				0.0-0.5' Concrete
2		0.0		3.5				0.5-10.0' Brown SILT, little sand, trace clay (moist, firm)
3		0.0		3.5				
4		0.0		3.5				
5		0.0		3.5				
6				3.5				
7				3.5				
8				3.5				
9								
10	4.5	0.0		0.5				at 5.0' same, grades to no trace clay
11		0.0		0.5				
12		0.0		0.5				at 6.0' same, transitions to (wet)
13		0.0		0.5				
14		0.0		0.5				
15		0.0		0.5				
16				0.5				
17				0.5				
18				0.5				
19								
20	3.2	0.0		0.25				10.0-18.5' Gray SILT, trace sand (wet, firm)
21		0.0		0.25				
22		0.0		0.25				
23				0.25				
24				0.25				
25				0.25				
26								
27								
28								
29								
30								
	3.4	0.0		2.0				18.5' Bedrock refusal, boring terminated
		0.0		2.0				
		0.0		2.0				
		0.0		2.0				
				2.0				
				2.0				

SOIL BORING LOG

PROJECT NAME: ESCO Steel Treaters
PROJECT NUMBER: 02-39035A
PROJECT LOCATION: Troy, NY

SOIL BORING NUMBER: B-5
WELL DESIGNATION: PTO-3
LOGGED BY: B. Robinson
DATE: 12/2/2015

DRILLING CONTRACTOR: ADT
DRILLER: Marty
RIG TYPE: Geoprobe 6610DT
SAMPLING METHOD: Macrocore

TOTAL BORING DEPTH: 17.6'
BOREHOLE DIAMETER: 2"

WELL DEPTH: 17.5'
WELL DIAMETER: 1"
DEPTH TO WATER (DTW): 8.3'
SAMPLED: 17-18'

NORTHING (FT):
EASTING (FT):
GROUND ELEV (FT):
TOC ELEV (FT):

DEPTH IN FEET	RECOVERY (FT)	PID (ppm)	BLOW COUNT	SOIL STRENGTH (POCKET PENTROMETER) (TON/FT^2)	WELL CONSTRUCTION	GRAPHIC LOG	INFERRED WATER LEVEL	SAMPLE DESCRIPTION
0								0.0-0.5' Concrete
1				2.0				0.5-5.0' Brown SAND and SILT, trace clay (moist, firm)
2	2.3	0.0		2.0				
3		0.0		2.0				
4		0.0						
5								
6				1.25				5.0-10.0' Brown SILT, some sand (moist, firm)
7	2.8	0.0		1.25				
8		0.0		1.25				
9		0.0		1.25				
10				1.25				at 7.5' same, transitions to (wet)
11								
12								
13								
14								
15								
16	3.4	0.0	NA	1.5				10.0-17.6' Gray SILT, trace sand (wet, firm)
17		0.0		1.5				
18		0.0		1.5				
19		0.0		1.5				
20				1.5				
21				1.5				
22								
23								
24								
25								
26				2.0				
27				2.0				
28				2.0				
29								
30								
	1.6	0.0						17.6' Bedrock refusal, boring terminated
		0.0						

SOIL BORING LOG

PROJECT NAME:	ESCO Steel Treaters
PROJECT NUMBER:	02-39035A
PROJECT LOCATION:	Troy, NY
SOIL BORING NUMBER:	B-6
WELL DESIGNATION:	PTO-6
LOGGED BY:	B. Robinson
DATE:	12/2/2015
DRILLING CONTRACTOR:	ADT
DRILLER:	Marty
RIG TYPE:	Geoprobe 6610DT
SAMPLING METHOD:	Macrocore
TOTAL BORING DEPTH:	16.7'
BOREHOLE DIAMETER:	2"
NORTHING (FT):	
EASTING (FT):	
GROUND ELEV (FT):	
TOC ELEV (FT):	
WELL DEPTH:	16.5'
WELL DIAMETER:	1"
DEPTH TO WATER (DTW):	7.2'
SAMPLED:	16-17'

DEPTH IN FEET	RECOVERY (FT)	PID (ppm)	BLOW COUNT	SOIL STRENGTH (POCKET PENTROMETER) (TON/FT^2)	WELL CONSTRUCTION	GRAPHIC LOG	INFERRED WATER LEVEL	SAMPLE DESCRIPTION
0								0.0-0.5' Concrete
1				2.5				0.5-5.0' Brown SAND and SILT (moist, firm)
2	2.8	0.0 0.0 0.0		2.5 2.5 2.5 2.5				
3								
4								
5				1.25				5.0-10.0' Brown SILT, trace sand (moist, firm)
6				1.25 1.25				at 6.0' same, transitions to (wet)
7	3.4	0.0 0.0 0.0		1.25 1.25 1.25 1.25				
8								
9								
10				0.75				10.0-16.7' Gray SILT, trace sand (wet, firm)
11				0.75 0.75 0.75 0.75				
12	2.4	0.0 0.0 0.0						
13								
14								
15			NA	2.75				
16				2.75 2.75				
17	1.6	0.0 0.0						16.7' Bedrock refusal, boring terminated
18								
19								
20								
21								
22								
23								
24								
25								
26								
27								
28								
29								
30								

SOIL BORING LOG

PROJECT NAME: ESCO Steel Treaters
PROJECT NUMBER: 02-39035A
PROJECT LOCATION: Troy, NY

SOIL BORING NUMBER: B-7
WELL DESIGNATION: PTO-7
LOGGED BY: B. Robinson
DATE: 12/2/2015

DRILLING CONTRACTOR: ADT
DRILLER: Marty
RIG TYPE: Geoprobe 6610DT
SAMPLING METHOD: Macrocore

TOTAL BORING DEPTH: 14.9'
BOREHOLE DIAMETER: 2"

WELL DEPTH: 14.9'
WELL DIAMETER: 1"
DEPTH TO WATER (DTW): 6.9'
SAMPLED: 14-15'

NORTHING (FT):
EASTING (FT):
GROUND ELEV (FT):
TOC ELEV (FT):

DEPTH IN FEET	RECOVERY (FT)	PID (ppm)	BLOW COUNT	SOIL STRENGTH (POCKET PENTROMETER) (TON/FT^2)	WELL CONSTRUCTION	GRAPHIC LOG	INFERRED WATER LEVEL	SAMPLE DESCRIPTION
0								0.0-0.5' Concrete
1				1.25				0.5-5.0' Brown SAND and SILT, little clay (moist, firm)
2	2.8	0.0		1.25				
3		0.0		1.25				
4		0.0		1.25				
5								
6				1.75				5.0-10.0' Brown SILT, some sand, trace clay (moist, firm)
7	4.3	0.0		1.75				at 5.5' same, transitions to (wet)
8		0.0		1.75				
9		0.0		1.75				
10		0.0		1.75				
11				1.75				10.0-14.9' Gray SILT, trace sand (wet, firm)
12	3.6	0.0		1.75				
13		0.0		1.75				
14		0.0		1.75				
15			NA	1.75				14.9' Bedrock refusal, boring terminated
16								
17								
18								
19								
20								
21								
22								
23								
24								
25								
26								
27								
28								
29								
30								

SOIL BORING LOG

PROJECT NAME: ESCO Steel Treaters
PROJECT NUMBER: 02-39035A
PROJECT LOCATION: Troy, NY

SOIL BORING NUMBER: B-8
WELL DESIGNATION: PTO-8
LOGGED BY: B. Robinson
DATE: 12/2/2015

DRILLING CONTRACTOR: ADT
DRILLER: Marty
RIG TYPE: Geoprobe 6610DT
SAMPLING METHOD: Macrocore

TOTAL BORING DEPTH: 15.7'
BOREHOLE DIAMETER: 2"

NORTHING (FT):
EASTING (FT):
GROUND ELEV (FT):
TOC ELEV (FT):

WELL DEPTH: 15.5'
WELL DIAMETER: 1"
DEPTH TO WATER (DTW): 6.9'
SAMPLED: 15-16'

DEPTH IN FEET	RECOVERY (FT)	PID (ppm)	BLOW COUNT	SOIL STRENGTH (POCKET PENTROMETER) (TON/FT^2)	WELL CONSTRUCTION	GRAPHIC LOG	INFERRED WATER LEVEL	SAMPLE DESCRIPTION
0								0.0-0.5' Concrete
1				3.0				0.5-5.0' Brown SAND and SILT, little clay (moist, firm)
2	4.3	0.0		3.0				
3		0.0		3.0				
4		0.0		3.0				
5		0.0		3.0				
6				3.0				
7								
8				1.0				5.0-15.7' Gray Brown SILT, little sand (moist, firm)
9	3.9	0.0		1.0				at 6.0' same, transitions to (wet)
10		0.0		1.0				
11		0.0		1.0				
12		0.0		1.0				
13				1.0				
14				1.0				
15								
16								
17				1.25				at 10.0' same, grades to trace sand
18	4.9	0.0		1.25				
19		0.0		1.25				
20		0.0		1.25				
21		0.0		1.25				
22		0.0		1.25				
23		0.0		1.25				
24		0.0		1.25				
25				1.25				
26				1.25				
27								
28				1.25				15.7' Bedrock refusal, boring terminated
29	0.6	0.0	NA					
30								

SOIL BORING LOG

PROJECT NAME:	ESCO Steel Treaters
PROJECT NUMBER:	02-39035A
PROJECT LOCATION:	Troy, NY
SOIL BORING NUMBER:	B-9
WELL DESIGNATION:	PTO-9
LOGGED BY:	B. Robinson
DATE:	12/2/2015
DRILLING CONTRACTOR:	ADT
DRILLER:	Marty
RIG TYPE:	Geoprobe 6610DT
SAMPLING METHOD:	Macrocore
TOTAL BORING DEPTH:	16.8'
BOREHOLE DIAMETER:	2"
NORTHING (FT):	
EASTING (FT):	
GROUND ELEV (FT):	
TOC ELEV (FT):	
WELL DEPTH:	16.8'
WELL DIAMETER:	1"
DEPTH TO WATER (DTW):	9.5'
SAMPLED:	16-17'

DEPTH IN FEET	RECOVERY (FT)	PID (ppm)	BLOW COUNT	SOIL STRENGTH (POCKET PENTROMETER) (TON/FT^2)	WELL CONSTRUCTION	GRAPHIC LOG	INFERRED WATER LEVEL	SAMPLE DESCRIPTION
1	4.3	0.9		3.5				0.0-0.5' Concrete
2		1.1		3.5				0.5-10.0' Brown SILT, trace sand (moist, firm)
3		0.0		3.5				
4		3.9		3.5				
5				3.5				
6	2.9	0.3		3.0				at 6.0' same, transitions to (wet)
7		0.0		3.0				
8		0.0		3.0				
9				3.0				
10	3.4	0.0		0.75				10.0-15.0' Gray SILT, some sand (wet, loose)
11		0.0		0.75				
12		0.0		0.75				
13				0.75				
14				0.75				
15			NA	0.75				at 15.0' same , transistions to (firm)
16	1.4	0.0		3.5				
17		0.0		3.5				16.8' Bedrock refusal, boring terminated
18								
19								
20								
21								
22								
23								
24								
25								
26								
27								
28								
29								
30								

SOIL BORING LOG

PROJECT NAME: ESCO Steel Treaters
PROJECT NUMBER: 02-39035A
PROJECT LOCATION: Troy, NY

SOIL BORING NUMBER: B-10
WELL DESIGNATION:
LOGGED BY: B. Robinson
DATE: 12/3/2015

DRILLING CONTRACTOR: ADT
DRILLER: Marty
RIG TYPE: Geoprobe 6610DT
SAMPLING METHOD: Macrocore

TOTAL BORING DEPTH: 16.6'
BOREHOLE DIAMETER: 2"

NORTHING (FT):
EASTING (FT):
GROUND ELEV (FT):
TOC ELEV (FT):

WELL DEPTH:
WELL DIAMETER:
DEPTH TO WATER (DTW):
SAMPLED: 6-7', 16-17'

DEPTH IN FEET	RECOVERY (FT)	PID (ppm)	BLOW COUNT	SOIL STRENGTH (POCKET PENTROMETER) (TON/FT^2)	WELL CONSTRUCTION	GRAPHIC LOG	INFERRED WATER LEVEL	SAMPLE DESCRIPTION
0								0.0-0.2' Asphalt
1				1.25				0.5-5.0' Brown SAND and SILT, some clay (moist, firm)
2	2.8	0.0 0.0 0.0		1.25				
3				1.25				
4								
5				1.25				at 5.0' same, with black staining
6				1.25				at 6.0' same, transitions to (wet)
7	2.6	0.0 0.0 0.0		1.0				7.0-10.0' Brown SILT, little sand (wet, firm)
8								
9								
10				1.75				10.0-16.6' Gray SILT, trace clay, wet, loose
11								
12	3.8	0.0 1.8 3.4 4.1		1.75				
13				1.75				
14								
15			NA					
16				2.0				
17	1.5	3.6 2.8						16.6' Bedrock refusal, boring terminated
18								
19								
20								
21								
22								
23								
24								
25								
26								
27								
28								
29								
30								

SOIL BORING LOG

PROJECT NAME: ESCO Steel Treaters
PROJECT NUMBER: 02-39035A
PROJECT LOCATION: Troy, NY

SOIL BORING NUMBER: B-11
WELL DESIGNATION:
LOGGED BY: B. Robinson
DATE: 12/3/2015

DRILLING CONTRACTOR: ADT
DRILLER: Marty
RIG TYPE: Geoprobe 6610DT
SAMPLING METHOD: Macrocore

TOTAL BORING DEPTH: 16.7'
BOREHOLE DIAMETER: 2"

NORTHING (FT):
EASTING (FT):
GROUND ELEV (FT):
TOC ELEV (FT):

WELL DEPTH:
WELL DIAMETER:
DEPTH TO WATER (DTW):
SAMPLED: 3-4', 16-17'

DEPTH IN FEET	RECOVERY (FT)	PID (ppm)	BLOW COUNT	SOIL STRENGTH (POCKET PENTROMETER) (TON/FT^2)	WELL CONSTRUCTION	GRAPHIC LOG	INFERRED WATER LEVEL	SAMPLE DESCRIPTION
0								0.0-0.5' Concrete
1				2.0				0.5-10.0' Brown SAND and SILT, some clay (moist, firm)
2	3.8	3.4 1.5 4.4 4.6		2.0				
3				2.0				
4								
5				1.0				
6	3.3	0.0 0.0 0.0		1.0				at 6.0' same, transitions to (wet)
7				1.0				
8								
9								
10	3.2	0.0 0.0 0.0		1.25				10.0-16.7' Gray SILT, some sand (wet, loose)
11				1.25				
12				1.25				
13								
14								
15			NA	1.5				
16	1.6	0.0 0.0						16.7' Bedrock refusal, boring terminated
17								
18								
19								
20								
21								
22								
23								
24								
25								
26								
27								
28								
29								
30								

SOIL BORING LOG

PROJECT NAME: ESCO Steel Treaters
PROJECT NUMBER: 02-39035A
PROJECT LOCATION: Troy, NY

SOIL BORING NUMBER: B-12
WELL DESIGNATION:
LOGGED BY: B. Robinson
DATE: 12/3/2015

DRILLING CONTRACTOR: ADT
DRILLER: Marty
RIG TYPE: Geoprobe 6610DT
SAMPLING METHOD: Macrocore

TOTAL BORING DEPTH: 15.9'
BOREHOLE DIAMETER: 2"

NORTHING (FT):
EASTING (FT):
GROUND ELEV (FT):
TOC ELEV (FT):

WELL DEPTH:
WELL DIAMETER:
DEPTH TO WATER (DTW):
SAMPLED: 6-7', 15-16'

DEPTH IN FEET	RECOVERY (FT)	PID (ppm)	BLOW COUNT	SOIL STRENGTH (POCKET PENTROMETER) (TON/FT^2)	WELL CONSTRUCTION	GRAPHIC LOG	INFERRED WATER LEVEL	SAMPLE DESCRIPTION
1	1.8	0.0 0.0		2.0				0.0-0.5' Concrete 0.5-10.0' Brown SAND and SILT, trace clay (moist, firm)
2								
3								
4								
5				1.25				
6	3.5	3.4 14.7 2.9		1.25				at 6.0' same, transitions to (wet)
7				1.25				
8								
9								
10	4.3	0.0 0.0 0.0 0.0 0.0		1.75				10.0-15.7' Gray SILT, trace sand (wet, loose)
11								
12				1.75				
13				1.75				
14				1.75				
15			NA					
16	0.5	0.0		2.5				15.9' Bedrock refusal, boring terminated
17								
18								
19								
20								
21								
22								
23								
24								
25								
26								
27								
28								
29								
30								

SOIL BORING LOG

PROJECT NAME: ESCO Steel Treaters
PROJECT NUMBER: 02-39035A
PROJECT LOCATION: Troy, NY

SOIL BORING NUMBER: B-13
WELL DESIGNATION:
LOGGED BY: B. Robinson
DATE: 12/3/2015

DRILLING CONTRACTOR: ADT
DRILLER: Marty
RIG TYPE: Geoprobe 6610DT
SAMPLING METHOD: Macrocore

TOTAL BORING DEPTH: 15.2'
BOREHOLE DIAMETER: 2"

NORTHING (FT):
EASTING (FT):
GROUND ELEV (FT):
TOC ELEV (FT):

WELL DEPTH:
WELL DIAMETER:
DEPTH TO WATER (DTW):
SAMPLED: 6-7', 13-14'

DEPTH IN FEET	RECOVERY (FT)	PID (ppm)	BLOW COUNT	SOIL STRENGTH (POCKET PENTROMETER) (TON/FT^2)	WELL CONSTRUCTION	GRAPHIC LOG	INFERRED WATER LEVEL	SAMPLE DESCRIPTION
0				1.5				0.0-0.5' Concrete
1	1.4	0.0 0.0						0.5-5.0' Brown SAND and SILT (moist, firm)
2								
3								
4								
5				1.0				5.0-10.0' Brown SILT, some sand (moist, firm)
6				1.0				at 6.0' same, transitions to (wet)
7	3.6	3.1 13.9 10.2		1.0				
8								
9								
10				1.5				10.0-15.2' Gray SILT, little sand (wet, loose)
11								
12	3.3	0.0 0.0 0.0		1.5				
13				1.5				
14								
15			NA					
16	0.2	0.0						15.2' Bedrock refusal, boring terminated
17								
18								
19								
20								
21								
22								
23								
24								
25								
26								
27								
28								
29								
30								

SOIL BORING LOG

PROJECT NAME: ESCO Steel Treaters
PROJECT NUMBER: 02-39035A
PROJECT LOCATION: Troy, NY

SOIL BORING NUMBER: B-14
WELL DESIGNATION:
LOGGED BY: B. Robinson
DATE: 12/3/2015

DRILLING CONTRACTOR: ADT
DRILLER: Marty
RIG TYPE: Geoprobe 6610DT
SAMPLING METHOD: Macrocore

TOTAL BORING DEPTH: 15.7'
BOREHOLE DIAMETER: 2"

NORTHING (FT):
EASTING (FT):
GROUND ELEV (FT):
TOC ELEV (FT):

WELL DEPTH:
WELL DIAMETER:
DEPTH TO WATER (DTW):
SAMPLED: 5-7', 7-9', 10-11', 11-12', 12-13'

DEPTH IN FEET	RECOVERY (FT)	PID (ppm)	BLOW COUNT	SOIL STRENGTH (POCKET PENTROMETER) (TON/FT^2)	WELL CONSTRUCTION	GRAPHIC LOG	INFERRED WATER LEVEL	SAMPLE DESCRIPTION
0								0.0-0.5' Gravel
1				2.5				0.5-5.0' Brown SILT (moist, firm)
2	4.5	36.3 29.6 10.2		2.5				
3		17.8		2.5				
4		9.0						
5				2.0				5.0-15.7' Gray SILT, trace sand (moist, firm)
6				2.0				at 6.0' same, transitions to (wet)
7	3.8	82.3 115.1		2.0				
8		139.0 67.8						
9								
10				3.0				
11				3.0				
12	2.3	230						
13		530						
14		465						
15			NA					15.7' Bedrock refusal, boring terminated
16								
17	NR	NA						
18								
19								
20								Note: FLUTe deployed. No evidence of free product observed
21								
22								
23								
24								
25								
26								
27								
28								
29								
30								

SOIL BORING LOG

PROJECT NAME: ESCO Steel Treaters
PROJECT NUMBER: 02-39035A
PROJECT LOCATION: Troy, NY

SOIL BORING NUMBER: B-15
WELL DESIGNATION:
LOGGED BY: B. Robinson
DATE: 12/3/2015

DRILLING CONTRACTOR: ADT
DRILLER: Marty
RIG TYPE: Geoprobe 6610DT
SAMPLING METHOD: Macrocore

TOTAL BORING DEPTH: 17.1'
BOREHOLE DIAMETER: 2"

NORTHING (FT):
EASTING (FT):
GROUND ELEV (FT):
TOC ELEV (FT):

WELL DEPTH:
WELL DIAMETER:
DEPTH TO WATER (DTW):
SAMPLED: 6-7', 16-17'

DEPTH IN FEET	RECOVERY (FT)	PID (ppm)	BLOW COUNT	SOIL STRENGTH (POCKET PENTROMETER) (TON/FT^2)	WELL CONSTRUCTION	GRAPHIC LOG	INFERRED WATER LEVEL	SAMPLE DESCRIPTION
0								0.0-0.5' Concrete
1	2.6	151 219 221 227	NA	2.0 2.0				0.5-5.0' Brown SAND and SILT, some clay (moist, firm)
5	3.5	171 208 105 105		1.0 1.0 1.0				5.0-10.0' Brown SILT (moist, firm) at 6.0' same, transitions to (wet)
10	3.8	112 108 129 131		1.25 1.25 1.25				10.0-17.1' Gray SILT (wet, loose)
15	1.9	127 254		1.5 1.5				17.1' Bedrock refusal, boring terminated
20								
25								
30								

SOIL BORING LOG

PROJECT NAME: ESCO Steel Treaters
PROJECT NUMBER: 02-39035A
PROJECT LOCATION: Troy, NY

SOIL BORING NUMBER: B-16
WELL DESIGNATION:
LOGGED BY: B. Robinson
DATE: 1/20/2016

DRILLING CONTRACTOR: ADT
DRILLER: Roger
RIG TYPE: Geoprobe 6610DT
SAMPLING METHOD: Macrocore

TOTAL BORING DEPTH: 7.0'
BOREHOLE DIAMETER: 2"

NORTHING (FT):
EASTING (FT):
GROUND ELEV (FT):
TOC ELEV (FT):

WELL DEPTH:
WELL DIAMETER:
DEPTH TO WATER (DTW):
SAMPLED: 6-7'

DEPTH IN FEET	RECOVERY (FT)	PID (ppm)	BLOW COUNT	SOIL STRENGTH (TON/FT^2)	WELL CONSTRUCTION	GRAPHIC LOG	INFERRED WATER LEVEL	SAMPLE DESCRIPTION
1	1.3	0.0	NA	NA				0.0-0.5' Concrete 0.5-7.0' Brown SAND, some silt (moist, firm)
2								
3								
4								
5								
6	2.0	0.0 0.0						at 6.0' same, transitions to (wet)
7								7.0' Bedrock refusal, boring terminated
8								
9								
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
21								
22								
23								
24								
25								
26								
27								
28								
29								
30								

SOIL BORING LOG

PROJECT NAME: ESCO Steel Treaters
PROJECT NUMBER: 02-39035A
PROJECT LOCATION: Troy, NY

SOIL BORING NUMBER: B-17
WELL DESIGNATION:
LOGGED BY: B. Robinson
DATE: 1/20/2016

DRILLING CONTRACTOR: ADT
DRILLER: Roger
RIG TYPE: Geoprobe 6610DT
SAMPLING METHOD: Macrocore

TOTAL BORING DEPTH: 14.7'
BOREHOLE DIAMETER: 2"

NORTHING (FT):
EASTING (FT):
GROUND ELEV (FT):
TOC ELEV (FT):

WELL DEPTH:
WELL DIAMETER:
DEPTH TO WATER (DTW):
SAMPLED: 6-7', 14-15'

DEPTH IN FEET	RECOVERY (FT)	PID (ppm)	BLOW COUNT	SOIL STRENGTH (TON/FT^2)	WELL CONSTRUCTION	GRAPHIC LOG	INFERRED WATER LEVEL	SAMPLE DESCRIPTION
1	1.5	0.0	NA	NA				0.0-1.5' Gravel
2								1.5-7.0' Brown SAND, little silt (moist, firm)
3								
4								
5								
6	3.2	1.4 1.6 0.7						at 6.0' same, transitions to (wet)
7								7.0-14.7' Gray SILT, trace sand (wet, firm)
8								
9								
10								
11	4.7	0.0 0.0 0.0 0.0						
12								
13								
14								
15								14.7' Bedrock refusal, boring terminated
16								
17								
18								
19								
20								
21								
22								
23								
24								
25								
26								
27								
28								
29								
30								

SOIL BORING LOG

PROJECT NAME: ESCO Steel Treaters
PROJECT NUMBER: 02-39035A
PROJECT LOCATION: Troy, NY

SOIL BORING NUMBER: B-18
WELL DESIGNATION:
LOGGED BY: B. Robinson
DATE: 1/20/2016

DRILLING CONTRACTOR: ADT
DRILLER: Roger
RIG TYPE: Geoprobe 6610DT
SAMPLING METHOD: Macrocore

TOTAL BORING DEPTH: 17.8'
BOREHOLE DIAMETER: 2"

NORTHING (FT):
EASTING (FT):
GROUND ELEV (FT):
TOC ELEV (FT):

WELL DEPTH:
WELL DIAMETER:
DEPTH TO WATER (DTW):
SAMPLED: 6-7', 17-18'

DEPTH IN FEET	RECOVERY (FT)	PID (ppm)	BLOW COUNT	SOIL STRENGTH (TON/FT^2)	WELL CONSTRUCTION	GRAPHIC LOG	INFERRED WATER LEVEL	SAMPLE DESCRIPTION
1–5	3.8	0.0 0.0 0.0 0.0						0.0-0.5' Concrete 0.5-7.5' Brown SILT, trace sand (moist, firm)
6–10	3.2	0.5 3.0 1.0						at 6.0' same, transitions to (wet)
11–15	3.3	0.8 4.2 5.9	NA	NA				7.5-17.8' Gray SILT (wet, firm)
16–20	2.8	2.0 2.4 4.4						17.8' Bedrock refusal, boring terminated
21–25								
26–30								

SOIL BORING LOG

PROJECT NAME: ESCO Steel Treaters
PROJECT NUMBER: 02-39035A
PROJECT LOCATION: Troy, NY

SOIL BORING NUMBER: B-19
WELL DESIGNATION:
LOGGED BY: B. Robinson
DATE: 1/20/2016

DRILLING CONTRACTOR: ADT
DRILLER: Roger
RIG TYPE: Geoprobe 6610DT
SAMPLING METHOD: Macrocore

TOTAL BORING DEPTH: 18.2'
BOREHOLE DIAMETER: 2"

NORTHING (FT):
EASTING (FT):
GROUND ELEV (FT):
TOC ELEV (FT):

WELL DEPTH:
WELL DIAMETER:
DEPTH TO WATER (DTW):
SAMPLED: 6-7', 17-18'

DEPTH IN FEET	RECOVERY (FT)	PID (ppm)	BLOW COUNT	SOIL STRENGTH (TON/FT^2)	WELL CONSTRUCTION	GRAPHIC LOG	INFERRED WATER LEVEL	SAMPLE DESCRIPTION
1–5	5.0	0.0 0.2 3.2 5.5 5.9						0.0-0.5' Concrete 0.5-12.2' Brown SILT, trace sand (moist, firm) at 5.0' same, grades to no trace sand
6–10	4.8	6.8 1.4 0.0 0.0 0.0						at 6.0' same, transitions to (wet)
11–15	4.7	0.0 1.4 0.2 0.0 0.0	NA	NA				12.2-18.2 Gray SILT (wet, firm)
16–20	3.3	0.0 0.0 0.0						18.2' Bedrock refusal, boring terminated
21–25								
26–30								

SOIL BORING LOG

PROJECT NAME: ESCO Steel Treaters
PROJECT NUMBER: 02-39035A
PROJECT LOCATION: Troy, NY

SOIL BORING NUMBER: B-20
WELL DESIGNATION:
LOGGED BY: B. Robinson
DATE: 1/20/2016

DRILLING CONTRACTOR: ADT
DRILLER: Roger
RIG TYPE: Geoprobe 6610DT
SAMPLING METHOD: Macrocore

TOTAL BORING DEPTH: 17.2'
BOREHOLE DIAMETER: 2"

NORTHING (FT):
EASTING (FT):
GROUND ELEV (FT):
TOC ELEV (FT):

WELL DEPTH:
WELL DIAMETER:
DEPTH TO WATER (DTW):
SAMPLED: 6-7', 16'-17'

DEPTH IN FEET	RECOVERY (FT)	PID (ppm)	BLOW COUNT	SOIL STRENGTH (TON/FT^2)	WELL CONSTRUCTION	GRAPHIC LOG	INFERRED WATER LEVEL	SAMPLE DESCRIPTION
1	2.4	0.2 0.2	NA	NA				0.0-0.5' Concrete 0.5-11.7' Brown SILT, trace sand (moist, firm)
2								
3								
4								
5								
6	3.5	3.2 0.2 0.0 0.0						at 6.0' same, transitions to (wet)
7								
8								
9								
10								
11	4.8	0.0 0.0 0.0 0.0						11.7-17.2' Gray SILT (wet, firm)
12								
13								
14								
15								
16	2.2	0.0 0.0						17.2' Bedrock refusal, boring terminated
17								
18								
19								
20								
21								
22								
23								
24								
25								
26								
27								
28								
29								
30								

SOIL BORING LOG

PROJECT NAME: ESCO Steel Treaters
PROJECT NUMBER: 02-39035A
PROJECT LOCATION: Troy, NY

SOIL BORING NUMBER: B-21
WELL DESIGNATION:
LOGGED BY: B. Robinson
DATE: 1/20/2016

DRILLING CONTRACTOR: ADT
DRILLER: Roger
RIG TYPE: Geoprobe 6610DT
SAMPLING METHOD: Macrocore

TOTAL BORING DEPTH: 14.8'
BOREHOLE DIAMETER: 2"

NORTHING (FT):
EASTING (FT):
GROUND ELEV (FT):
TOC ELEV (FT):

WELL DEPTH:
WELL DIAMETER:
DEPTH TO WATER (DTW):
SAMPLED: 3-4', 13-14'

DEPTH IN FEET	RECOVERY (FT)	PID (ppm)	BLOW COUNT	SOIL STRENGTH (TON/FT^2)	WELL CONSTRUCTION	GRAPHIC LOG	INFERRED WATER LEVEL	SAMPLE DESCRIPTION
1–5	4.2	1.1 6.0 13.2 12.0						0.0-0.5' Concrete 0.5-10.0' Brown SILT, some sand (moist, firm)
6–10	3.7	1.2 0.0 0.0 0.0						at 6.0' same, transitions to (wet)
10–15	3.8	0.0 0.0 0.0 0.0	NA	NA				10.0-14.8' Gray SILT (wet, firm) 14.8' Bedrock refusal, boring terminated
15–30								

SOIL BORING LOG

PROJECT NAME: ESCO Steel Treaters
PROJECT NUMBER: 02-39035A
PROJECT LOCATION: Troy, NY

SOIL BORING NUMBER: B-22
WELL DESIGNATION:
LOGGED BY: B. Robinson
DATE: 1/20/2016

DRILLING CONTRACTOR: ADT
DRILLER: Roger
RIG TYPE: Geoprobe 6610DT
SAMPLING METHOD: Macrocore

TOTAL BORING DEPTH: 14.8'
BOREHOLE DIAMETER: 2"

NORTHING (FT):
EASTING (FT):
GROUND ELEV (FT):
TOC ELEV (FT):

WELL DEPTH:
WELL DIAMETER:
DEPTH TO WATER (DTW):
SAMPLED: 5-6', 14-15'

DEPTH IN FEET	RECOVERY (FT)	PID (ppm)	BLOW COUNT	SOIL STRENGTH (TON/FT^2)	WELL CONSTRUCTION	GRAPHIC LOG	INFERRED WATER LEVEL	SAMPLE DESCRIPTION
1–5	4.5	0.0 16.1 17.3 13.5 21.8						0.0-0.5' Concrete 0.5-8.1' Brown SILT, some sand (moist, firm)
6–10	3.9	29.8 11.1 2.2 2.0						at 6.0' same, transitions to (wet)
11–15	4.5	0.0 0.0 0.0 0.0	NA	NA				8.1-14.8' Gray SILT (wet, firm) 14.8' Bedrock refusal, boring terminated
16–20								
21–25								
26–30								

SOIL BORING LOG

PROJECT NAME: ESCO Steel Treaters
PROJECT NUMBER: 02-39035A
PROJECT LOCATION: Troy, NY

SOIL BORING NUMBER: B-23
WELL DESIGNATION:
LOGGED BY: B. Robinson
DATE: 1/20/2016

DRILLING CONTRACTOR: ADT
DRILLER: Roger
RIG TYPE: Geoprobe 6610DT
SAMPLING METHOD: Macrocore

TOTAL BORING DEPTH: 14.8'
BOREHOLE DIAMETER: 2"

NORTHING (FT):
EASTING (FT):
GROUND ELEV (FT):
TOC ELEV (FT):

WELL DEPTH:
WELL DIAMETER:
DEPTH TO WATER (DTW):
SAMPLED: 5-6', 14-15'

DEPTH IN FEET	RECOVERY (FT)	PID (ppm)	BLOW COUNT	SOIL STRENGTH (TON/FT^2)	WELL CONSTRUCTION	GRAPHIC LOG	INFERRED WATER LEVEL	SAMPLE DESCRIPTION
1–5	3.9	0.0 0.4 0.0 0.8						0.0-0.5' Concrete 0.5-7.6' Brown SILT, trace sand (moist, firm)
6–10	3.4	0.0 0.0 0.0 0.0						at 6.0' same, transitions to (wet)
11–15	4.8	0.0 0.0 0.0 0.0	NA	NA				7.6-14.8' Gray SILT (wet, firm) 14.8' Bedrock refusal, boring terminated
16–20								
21–25								
26–30								

SOIL BORING LOG

PROJECT NAME: ESCO Steel Treaters
PROJECT NUMBER: 02-39035A
PROJECT LOCATION: Troy, NY

SOIL BORING NUMBER: B-24
WELL DESIGNATION:
LOGGED BY: B. Robinson
DATE: 1/20/2016

DRILLING CONTRACTOR: ADT
DRILLER: Roger
RIG TYPE: Geoprobe 6610DT
SAMPLING METHOD: Macrocore

TOTAL BORING DEPTH: 14.2'
BOREHOLE DIAMETER: 2"

NORTHING (FT):
EASTING (FT):
GROUND ELEV (FT):
TOC ELEV (FT):

WELL DEPTH:
WELL DIAMETER:
DEPTH TO WATER (DTW):
SAMPLED: 7-8', 13-14'

DEPTH IN FEET	RECOVERY (FT)	PID (ppm)	BLOW COUNT	SOIL STRENGTH (TON/FT^2)	WELL CONSTRUCTION	GRAPHIC LOG	INFERRED WATER LEVEL	SAMPLE DESCRIPTION
1	4.3	0.0 0.0 0.0 0.0						0.0-0.5' Concrete 0.5-10.0' Brown SILT, trace sand (moist, firm)
2								
3								
4								
5								
6	3.8	3.6 3.4 10.9 2.2						at 6.0' same, transitions to (wet)
7								
8								
9								
10	3.8	2.0 2.8 0.2 0.0						10.0-14.2' Gray SILT (wet, firm)
11								
12								
13								
14								14.2' Bedrock refusal, boring terminated
15			NA	NA				
16								
17								
18								
19								
20								
21								
22								
23								
24								
25								
26								
27								
28								
29								
30								

SOIL BORING LOG

PROJECT NAME: ESCO Steel Treaters
PROJECT NUMBER: 02-39035A
PROJECT LOCATION: Troy, NY

SOIL BORING NUMBER: B-25
WELL DESIGNATION:
LOGGED BY: B. Robinson
DATE: 1/20/2016

DRILLING CONTRACTOR: ADT
DRILLER: Roger
RIG TYPE: Geoprobe 6610DT
SAMPLING METHOD: Macrocore

TOTAL BORING DEPTH: 14.4'
BOREHOLE DIAMETER: 2"

NORTHING (FT):
EASTING (FT):
GROUND ELEV (FT):
TOC ELEV (FT):

WELL DEPTH:
WELL DIAMETER:
DEPTH TO WATER (DTW):
SAMPLED: 4-5', 12-13'

DEPTH IN FEET	RECOVERY (FT)	PID (ppm)	BLOW COUNT	SOIL STRENGTH (TON/FT^2)	WELL CONSTRUCTION	GRAPHIC LOG	INFERRED WATER LEVEL	SAMPLE DESCRIPTION
1	4.8	0.0 2.2 4.4 4.7	NA	NA				0.0-0.5' Concrete 0.5-10.0' Brown SILT (moist, firm)
2								
3								
4								
5								
6	3.1	0.0 0.0 0.0						at 6.0' same, transitions to (wet)
7								
8								
9								
10	2.8	0.6 0.3 0.1						10.0-14.4' Gray SILT (wet, firm)
11								
12								
13								
14								14.4' Bedrock refusal, boring terminated
15								
16								
17								
18								
19								
20								
21								
22								
23								
24								
25								
26								
27								
28								
29								
30								

SOIL BORING LOG

PROJECT NAME: ESCO Steel Treaters
PROJECT NUMBER: 02-39035A
PROJECT LOCATION: Troy, NY

SOIL BORING NUMBER: B-26
WELL DESIGNATION:
LOGGED BY: B. Robinson
DATE: 1/20/2016

DRILLING CONTRACTOR: ADT
DRILLER: Roger
RIG TYPE: Geoprobe 6610DT
SAMPLING METHOD: Macrocore

TOTAL BORING DEPTH: 14.2'
BOREHOLE DIAMETER: 2"

NORTHING (FT):
EASTING (FT):
GROUND ELEV (FT):
TOC ELEV (FT):

WELL DEPTH:
WELL DIAMETER:
DEPTH TO WATER (DTW):
SAMPLED: 5-6', 13-14'

DEPTH IN FEET	RECOVERY (FT)	PID (ppm)	BLOW COUNT	SOIL STRENGTH (TON/FT^2)	WELL CONSTRUCTION	GRAPHIC LOG	INFERRED WATER LEVEL	SAMPLE DESCRIPTION
1–5	2.3	0.0 0.0 0.0						0.0-0.5' Concrete 0.5-8.0' Brown SILT, trace sand (moist, firm)
6–10	3.8	0.0 0.0 0.0 0.0						at 6.0' same, transitions to (wet)
11–15	3.5	0.0 0.0 0.0	NA	NA				8.0-14.2' Gray SILT (wet, firm) 14.2' Bedrock refusal, boring terminated
16–20								
21–25								
26–30								

SOIL BORING LOG

PROJECT NAME: ESCO Steel Treaters
PROJECT NUMBER: 02-39035A
PROJECT LOCATION: Troy, NY

SOIL BORING NUMBER: B-27
WELL DESIGNATION:
LOGGED BY: B. Robinson
DATE: 1/21/2016

DRILLING CONTRACTOR: ADT
DRILLER: Roger
RIG TYPE: Geoprobe 6610DT
SAMPLING METHOD: Macrocore

TOTAL BORING DEPTH: 14.2'
BOREHOLE DIAMETER: 2"

NORTHING (FT):
EASTING (FT):
GROUND ELEV (FT):
TOC ELEV (FT):

WELL DEPTH:
WELL DIAMETER:
DEPTH TO WATER (DTW):
SAMPLED: 6-7', 13-14'

DEPTH IN FEET	RECOVERY (FT)	PID (ppm)	BLOW COUNT	SOIL STRENGTH (TON/FT^2)	WELL CONSTRUCTION	GRAPHIC LOG	INFERRED WATER LEVEL	SAMPLE DESCRIPTION
1	3.4	0.0 0.0 0.0 0.0						0.0-0.5' Concrete 0.5-11.4' Brown SILT (moist, firm)
2								
3								
4								
5								
6	3.8	0.0 0.0 0.0 0.0						at 6.0' same, transitions to (wet)
7								
8								
9								
10								
11	3.7	0.0 0.0 0.0 0.3						11.4-14.2' Gray SILT (wet, firm)
12								
13								
14								
15			NA	NA				14.2' Bedrock refusal, boring terminated
16								
17								
18								
19								
20								
21								
22								
23								
24								
25								
26								
27								
28								
29								
30								

SOIL BORING LOG

PROJECT NAME: ESCO Steel Treaters
PROJECT NUMBER: 02-39035A
PROJECT LOCATION: Troy, NY

SOIL BORING NUMBER: B-28
WELL DESIGNATION:
LOGGED BY: B. Robinson
DATE: 1/21/2016

DRILLING CONTRACTOR: ADT
DRILLER: Roger
RIG TYPE: Geoprobe 6610DT
SAMPLING METHOD: Macrocore

TOTAL BORING DEPTH: 14.6'
BOREHOLE DIAMETER: 2"

NORTHING (FT):
EASTING (FT):
GROUND ELEV (FT):
TOC ELEV (FT):

WELL DEPTH:
WELL DIAMETER:
DEPTH TO WATER (DTW):
SAMPLED: 5-6', 12-13'

DEPTH IN FEET	RECOVERY (FT)	PID (ppm)	BLOW COUNT	SOIL STRENGTH (TON/FT^2)	WELL CONSTRUCTION	GRAPHIC LOG	INFERRED WATER LEVEL	SAMPLE DESCRIPTION
1–5	4.3	0.0 0.0 0.0 0.0						0.0-0.5' Concrete 0.5-10.0' Brown SILT, little sand (moist, firm)
6–10	3.0	0.3 0.3 0.3						at 6.0' same, transitions to (wet)
10–15	3.2	0.0 0.0 0.0	NA	NA				10.0-14.6' Gray SILT (wet, firm) 14.6' Bedrock refusal, boring terminated
15–30								

SOIL BORING LOG

PROJECT NAME: ESCO Steel Treaters
PROJECT NUMBER: 02-39035A
PROJECT LOCATION: Troy, NY

SOIL BORING NUMBER: B-29
WELL DESIGNATION:
LOGGED BY: B. Robinson
DATE: 1/21/2016

DRILLING CONTRACTOR: ADT
DRILLER: Roger
RIG TYPE: Geoprobe 6610DT
SAMPLING METHOD: Macrocore

TOTAL BORING DEPTH: 14.8'
BOREHOLE DIAMETER: 2"

NORTHING (FT):
EASTING (FT):
GROUND ELEV (FT):
TOC ELEV (FT):

WELL DEPTH:
WELL DIAMETER:
DEPTH TO WATER (DTW):
SAMPLED: 6-7', 13-14'

DEPTH IN FEET	RECOVERY (FT)	PID (ppm)	BLOW COUNT	SOIL STRENGTH (TON/FT^2)	WELL CONSTRUCTION	GRAPHIC LOG	INFERRED WATER LEVEL	SAMPLE DESCRIPTION
1	3.3	0.0 0.0 0.0 0.0						0.0-0.5' Concrete 0.5-10.0' Brown SILT, trace sand (moist, firm)
2								
3								
4								
5								
6	2.9	3.7 5.1 2.9						at 6.0' same, transitions to (wet)
7								
8								
9								
10	3.7	1.4 1.7 9.0						10.0-14.8' Gray SILT (wet, loose)
11								
12								
13								
14								
15			NA	NA				14.8' Bedrock refusal, boring terminated
16								
17								
18								
19								
20								
21								
22								
23								
24								
25								
26								
27								
28								
29								
30								

SOIL BORING LOG

PROJECT NAME:	ESCO Steel Treaters
PROJECT NUMBER:	02-39035A
PROJECT LOCATION:	Troy, NY
SOIL BORING NUMBER:	B-30
WELL DESIGNATION:	
LOGGED BY:	B. Robinson
DATE:	1/20/2016
DRILLING CONTRACTOR:	ADT
DRILLER:	Roger
RIG TYPE:	Geoprobe 6610DT
SAMPLING METHOD:	Macrocore
TOTAL BORING DEPTH:	17.8'
BOREHOLE DIAMETER:	2"
NORTHING (FT):	
EASTING (FT):	
GROUND ELEV (FT):	
TOC ELEV (FT):	
WELL DEPTH:	
WELL DIAMETER:	
DEPTH TO WATER (DTW):	
SAMPLED:	7-8', 12-13', 17-18'

DEPTH IN FEET	RECOVERY (FT)	PID (ppm)	BLOW COUNT	SOIL STRENGTH (TON/FT^2)	WELL CONSTRUCTION	GRAPHIC LOG	INFERRED WATER LEVEL	SAMPLE DESCRIPTION
1–5	2.8	0.0 0.0 0.0 0.0						0.0-0.5' Concrete 0.5-10.0' Brown SILT, trace sand (moist, firm)
6–10	3.0	0.3 1.7 6.1 13.9						at 6.0' same, transitions to (wet)
10–15	3.2	7.2 7.8 21.8	NA	NA				10.0-17.8' Gray SILT (wet, firm)
15–20	2.8	6.9 7.5 7.6						17.8' Bedrock refusal, boring terminated
20–25								
25–30								

SOIL BORING LOG

PROJECT NAME: ESCO Steel Treaters
PROJECT NUMBER: 02-39035A
PROJECT LOCATION: Troy, NY

SOIL BORING NUMBER: B-31
WELL DESIGNATION:
LOGGED BY: B. Robinson
DATE: 1/21/2016

DRILLING CONTRACTOR: ADT
DRILLER: Roger
RIG TYPE: Geoprobe 6610DT
SAMPLING METHOD: Macrocore

TOTAL BORING DEPTH: 15.3'
BOREHOLE DIAMETER: 2"

NORTHING (FT):
EASTING (FT):
GROUND ELEV (FT):
TOC ELEV (FT):

WELL DEPTH:
WELL DIAMETER:
DEPTH TO WATER (DTW):
SAMPLED: 6-7', 12-13' (DUP)

DEPTH IN FEET	RECOVERY (FT)	PID (ppm)	BLOW COUNT	SOIL STRENGTH (TON/FT^2)	WELL CONSTRUCTION	GRAPHIC LOG	INFERRED WATER LEVEL	SAMPLE DESCRIPTION
1–5	4.5	0.0 0.0 0.0 0.0						0.0-0.5' Concrete 0.5-7.8' Brown SILT (moist, firm)
6–10	3.8	0.0 1.1 0.0 0.0						at 6.0' same, transitions to (wet)
11–15	2.8	0.0 0.0 0.0	NA	NA				7.8-15.3' Gray SILT (wet, firm)
16–20	NR	NR						15.3' Bedrock refusal, boring terminated
21–25								
26–30								

SOIL BORING LOG

PROJECT NAME: ESCO Steel Treaters
PROJECT NUMBER: 02-39035A
PROJECT LOCATION: Troy, NY

SOIL BORING NUMBER: B-32
WELL DESIGNATION:
LOGGED BY: B. Robinson
DATE: 1/21/2016

DRILLING CONTRACTOR: ADT
DRILLER: Roger
RIG TYPE: Geoprobe 6610DT
SAMPLING METHOD: Macrocore

TOTAL BORING DEPTH: 14.9'
BOREHOLE DIAMETER: 2"

NORTHING (FT):
EASTING (FT):
GROUND ELEV (FT):
TOC ELEV (FT):

WELL DEPTH:
WELL DIAMETER:
DEPTH TO WATER (DTW):
SAMPLED: 6-7', 13-14'

DEPTH IN FEET	RECOVERY (FT)	PID (ppm)	BLOW COUNT	SOIL STRENGTH (TON/FT^2)	WELL CONSTRUCTION	GRAPHIC LOG	INFERRED WATER LEVEL	SAMPLE DESCRIPTION
1–5	2.8	0.0 0.0 0.0						0.0-0.5' Concrete 0.5-5.0' Brown SILT, trace sand (moist, firm)
5–10	3.5	0.3 9.9 0.7						5.0-14.9' Gray SILT (moist, firm) at 6.0' same, transitions to (wet)
10–15	4.2	10.7 11.9 9.8 44.3	NA	NA				14.9' Bedrock refusal, boring terminated
15–20								
20–25								
25–30								

SOIL BORING LOG

PROJECT NAME: ESCO Steel Treaters
PROJECT NUMBER: 02-39035A
PROJECT LOCATION: Troy, NY

SOIL BORING NUMBER: B-33
WELL DESIGNATION:
LOGGED BY: B. Robinson
DATE: 1/21/2016

DRILLING CONTRACTOR: ADT
DRILLER: Roger
RIG TYPE: Geoprobe 6610DT
SAMPLING METHOD: Macrocore

TOTAL BORING DEPTH: 14.2'
BOREHOLE DIAMETER: 2"

NORTHING (FT):
EASTING (FT):
GROUND ELEV (FT):
TOC ELEV (FT):

WELL DEPTH:
WELL DIAMETER:
DEPTH TO WATER (DTW):
SAMPLED: 6-7', 12-13'

DEPTH IN FEET	RECOVERY (FT)	PID (ppm)	BLOW COUNT	SOIL STRENGTH (TON/FT^2)	WELL CONSTRUCTION	GRAPHIC LOG	INFERRED WATER LEVEL	SAMPLE DESCRIPTION
1–5	3.1	0.0 0.0 0.0						0.0-0.5' Concrete 0.5-10.0' Brown SILT, trace sand (moist, firm)
5–10	3.0	0.0 0.0 0.0						at 5.0' same, grades to no trace sand at 6.0' same, transitions to (wet)
10–15	2.8	0.0 0.0 0.0	NA	NA				10.0-14.2' Gray SILT, wet, loose 14.2' Bedrock refusal, boring terminated
15–20								
20–25								
25–30								

SOIL BORING LOG

PROJECT NAME:	ESCO Steel Treaters
PROJECT NUMBER:	02-39035A
PROJECT LOCATION:	Troy, NY
SOIL BORING NUMBER:	B-34
WELL DESIGNATION:	
LOGGED BY:	B. Robinson
DATE:	1/21/2016
DRILLING CONTRACTOR:	ADT
DRILLER:	Roger
RIG TYPE:	Geoprobe 6610DT
SAMPLING METHOD:	Macrocore
TOTAL BORING DEPTH:	14.9'
BOREHOLE DIAMETER:	2"
WELL DEPTH:	
WELL DIAMETER:	
DEPTH TO WATER (DTW):	
SAMPLED:	6-7', 13-14'
NORTHING (FT):	
EASTING (FT):	
GROUND ELEV (FT):	
TOC ELEV (FT):	

DEPTH IN FEET	RECOVERY (FT)	PID (ppm)	BLOW COUNT	SOIL STRENGTH (TON/FT^2)	WELL CONSTRUCTION	GRAPHIC LOG	INFERRED WATER LEVEL	SAMPLE DESCRIPTION
1–5	3.0	0.0 0.0 0.0						0.0-0.5' Concrete 0.5-10.0' Brown SILT, trace sand (moist, firm)
6–10	2.7	0.0 0.0 0.0						at 6.0' same, transitions to (wet)
10–15	3.8	2.3 10.5 15.1 25.9	NA	NA				10.0-14.9' Gray SILT, wet, firm 14.9' Bedrock refusal, boring terminated
15–30								

SOIL BORING LOG

PROJECT NAME: ESCO Steel Treaters
PROJECT NUMBER: 02-39035A
PROJECT LOCATION: Troy, NY

SOIL BORING NUMBER: B-35
WELL DESIGNATION:
LOGGED BY: B. Robinson
DATE: 1/21/2016

DRILLING CONTRACTOR: ADT
DRILLER: Roger
RIG TYPE: Geoprobe 6610DT
SAMPLING METHOD: Macrocore

TOTAL BORING DEPTH: 14.2'
BOREHOLE DIAMETER: 2"

NORTHING (FT):
EASTING (FT):
GROUND ELEV (FT):
TOC ELEV (FT):

WELL DEPTH:
WELL DIAMETER:
DEPTH TO WATER (DTW):
SAMPLED: 6-7', 13-14'

DEPTH IN FEET	RECOVERY (FT)	PID (ppm)	BLOW COUNT	SOIL STRENGTH (TON/FT^2)	WELL CONSTRUCTION	GRAPHIC LOG	INFERRED WATER LEVEL	SAMPLE DESCRIPTION
1–5	2.8	0.0 0.0 0.0						0.0-0.5' Concrete 0.5-5.0' Brown SILT, trace sand (moist, firm)
5–10	3.2	0.3 1.7 2.9						5.0-10.0' Brown SILT (moist, firm) at 6.0' same, transitions to (wet)
10–15	3.3	1.9 6.7 7.6	NA	NA				10.0-14.2' Gray SILT (wet, firm) 14.2' Bedrock refusal, boring terminated
15–20								
20–25								
25–30								

SOIL BORING LOG

PROJECT NAME: ESCO Steel Treaters
PROJECT NUMBER: 02-39035A
PROJECT LOCATION: Troy, NY

SOIL BORING NUMBER: GB-01
WELL DESIGNATION: MW-17
LOGGED BY: B. Robinson
DATE: 12/1/2015

DRILLING CONTRACTOR: ADT
DRILLER: Roger
RIG TYPE: LC-55
SAMPLING METHOD: Split Spoon

TOTAL BORING DEPTH: 9.3'
BOREHOLE DIAMETER: 4"

WELL DEPTH: 9.0'
WELL DIAMETER: 2"
DEPTH TO WATER (DTW):
SAMPLED: 0.5-1.5', 4.5-5.5'

NORTHING (FT):
EASTING (FT):
GROUND ELEV (FT):
TOC ELEV (FT):

DEPTH IN FEET	RECOVERY (FT)	PID (ppm)	BLOW COUNT	SHEAR STRENGTH (KG/CM^2)	COMP STRENGTH (TON/FT^2)	WELL CONSTRUCTION	GRAPHIC LOG	INFERRED WATER LEVEL	SAMPLE DESCRIPTION
1	0.9	0.0	5	2.50	0.25				0.0-0.3' Organic topsoil
		0.0	7	2.50	0.25				0.3-9.1' Brown SAND, some gravel, trace silt and clay (moist, firm)
			10	2.50	0.25				
2			7	2.50	0.25				
	1.7	0.0	8	2.00	1.25				
3		0.0	8	2.00	1.00				
		0.0	6	2.00	0.75				
4			7	2.00	0.75				
	1.6	0.0	8	2.50	0.25				
5		0.0	8	2.50	0.25				
		0.0	7	2.50	1.00				
6			12	2.50	1.00				
	1.6	0.0	10	2.00	1.00				
7		0.0	9	2.00	1.00				
		0.0	10	1.50	0.75				
8			10	1.50	0.75				
	1.3	0.0	8	1.50	0.75				
9		0.0	10	1.50	1.00				at 8.5' same, transitions to (wet)
			50/3						9.1-9.3' Red rock
10			NR						9.3' Bedrock refusal, boring terminated
11									
12									
13									
14									
15									
16									
17									
18									
19									
20									
21									
22									
23									
24									
25									
26									
27									
28									
29									
30									

SOIL BORING LOG

PROJECT NAME: ESCO Steel Treaters
PROJECT NUMBER: 02-39035A
PROJECT LOCATION: Troy, NY

SOIL BORING NUMBER: GB-02
WELL DESIGNATION: MW-18
LOGGED BY: B. Robinson
DATE: 12/1/2015

DRILLING CONTRACTOR: ADT
DRILLER: Roger
RIG TYPE: LC-55
SAMPLING METHOD: Split Spoon

TOTAL BORING DEPTH: 17.3
BOREHOLE DIAMETER: 4"

WELL DEPTH: 17.0'
WELL DIAMETER: 2"
DEPTH TO WATER (DTW):
SAMPLED: 0.5-2.5', 6.5-8.5', 8.5'-10.5'

NORTHING (FT):
EASTING (FT):
GROUND ELEV (FT):
TOC ELEV (FT):

DEPTH IN FEET	RECOVERY (FT)	PID (ppm)	BLOW COUNT	SHEAR STRENGTH (KG/CM^2)	COMP STRENGTH (TON/FT^2)	WELL CONSTRUCTION	GRAPHIC LOG	INFERRED WATER LEVEL	SAMPLE DESCRIPTION
1	1.5	11.7	3						0.0-0.5' Concrete
		24.5	4	0.60	3.00				0.5-9.8' Brown SILT, little clay, trace sand (moist, firm)
		28.3	4	0.25	3.00				
2			4	0.60	1.75				
	0.5	48.7	4	0.50	3.25				
3			5	0.50	3.25				
			5	0.50	3.25				
4			3	0.50	3.25				
5	Shelby Tube								
6									at 6.0' same, transitions to (wet)
7	1.4	55.9	3	0.10	0.75				
		29.6	4	0.20	1.00				
8		16.4	5	0.25	0.75				
			7	0.25	0.75				
9	1.6	6.6	7	0.10	0.75				
		5.2	5	0.15	0.75				
10		4	6	0.20	1.25				
			8	0.20	1.25				9.8-17.0' Gray SILT, some sand, little clay (wet, firm)
11									
12	Shelby Tube								
13									
		1.9	3	0.10	1.25				
14	1.4	0.8	4	0.05	1.50				
		0.9	3	0.10	0.50				
15			3	0.10	0.50				
		1.2	6	0.35	0.50				
16	0.9	0.8	7	0.30	> 4.5				
			8	0.30	> 4.5				
17			12	0.30	> 4.5				
			50/4						17.0-17.3' Gray Green Rock
18	0.3		NR						17.2' Bedrock refusal, boring terminated
			NR						
19			NR						
20									
21									
22									
23									
24									
25									
26									
27									
28									
29									
30									

Aztech Environmental
5 McCrea Hill Rd.
Ballston Spa, New York 12020
Phone: (518) 885-5383 Fax: (518) 885-5385

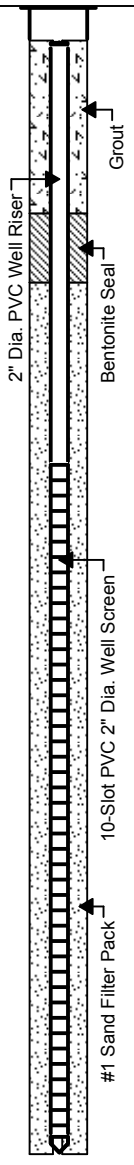
Boring Log: MW-100-I

Client: Land Remediation
Project:
Street Address: 520 Cambell Ave
City / State: Troy, NY
Drilling Co.: Aztech Environmental
Address: 5 McCrea Hill Rd
Driller: Bob Gannon

Drilling Method: 4 1/4" Auger
Drill Fluid:
Drilled Borehole Dia: 7 5/8"
Total Drilled Depth: 16' 6"
Ground Elevation: 0
Depth to water:

Start date and time: 1-9-18
Finish date and time: 1-9-18

Depth (Feet)	Sample ID	Sample Interval (feet)	Headspace PID	Recovery	Description	Depth (feet)	Well Construction	Lithology
1					No Samples Collected	1		
2						2		
3						3		
4						4		
5						5		
6						6		
7						7		
8						8		
9						9		
10						10		
11						11		
12						12		
13						13		
14						14		
15						15		
16						16		
17						17		



Notes:
NA - Not Available
fbg - feet below grade
" - inches

PID - Photoionization Detector
ppm - parts per million
' -feet

Geologist:

Aztech Environmental Technologies
5 McCrea Hill Rd.
Ballston Spa, New York 12020
Phone: (518) 885-5383 Fax: (518) 885-5385

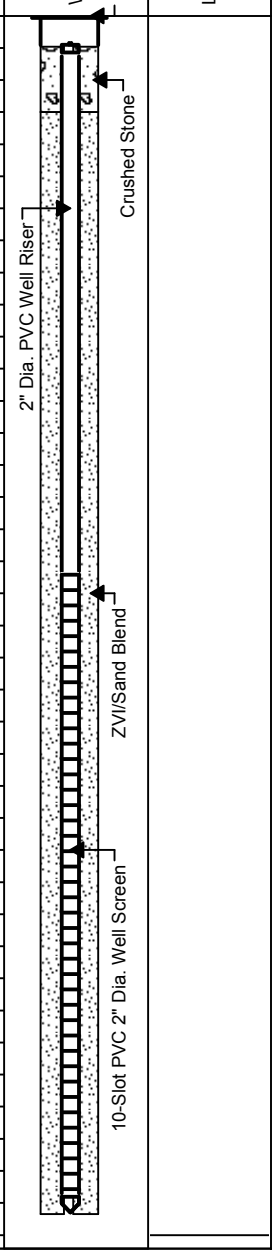
Boring Log: MW-100-B

Client: Land Remediation
Project:
Street Address: 520 Campbell Ave
City / State: Troy, NY
Drilling Co.: Land Remediation
Address: 74 Hudson River Rd Waterford, NY 12188
Driller:

Drilling Method: Installed by Land Remediation Inc during slurry wall and PRB Trench installation
Drill Fluid:
Drilled Borehole Dia:
Total Drilled Depth: 18.69
Ground Elevation: 0
Depth to water:

Start date and time: 2-26-18
Finish date and time: 2-26-18

Depth (Feet)	Sample ID	Sample Interval (feet)	Headspace PID	Recovery	Description
					No Samples Collected



Notes:
NA - Not Available
fbg - feet below grade
" - inches

PID - Photoionization Detector
ppm - parts per million
' -feet

Geologist:

Aztech Environmental Technologies
5 McCrea Hill Rd.
Ballston Spa, New York 12020
Phone: (518) 885-5383 Fax: (518) 885-5385

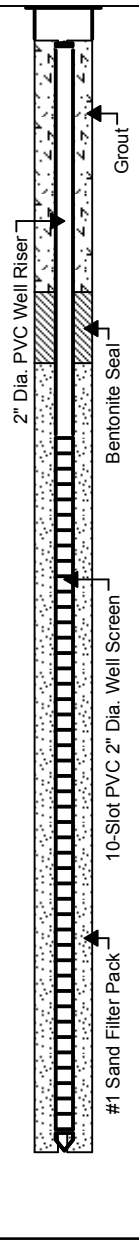
Boring Log: MW-100-E

Client: Land Remediation
Project:
Street Address: 520 Cambell Ave
City / State: Troy, NY
Drilling Co.: Aztech Environmental
Address: 5 McCrea Hill Rd
Driller: Bob Gannon

Drilling Method: 4 1/4" Auger
Drill Fluid:
Drilled Borehole Dia: 7 5/8"
Total Drilled Depth: 16'
Ground Elevation: 0
Depth to water:

Start date and time: 1-9-18
Finish date and time: 1-9-18

Depth (Feet)	Sample ID	Sample Interval (feet)	Headspace PID	Recovery	Description
					No Samples Collected



Notes:
NA - Not Available
fbg - feet below grade
" - inches

PID - Photoionization Detector
ppm - parts per million
' -feet

Geologist:

Aztech Environmental Technologies

5 McCrea Hill Rd.
Ballston Spa, New York 12020
Phone: (518) 885-5383 Fax: (518) 885-5385

Boring Log: MW-101-I

Client: Land Remediation
Project:
Street Address: 520 Cambell Ave
City / State: Troy, NY
Drilling Co.: Aztech Environmental
Address: 5 McCrea Hill Rd
Driller: Bob Gannon

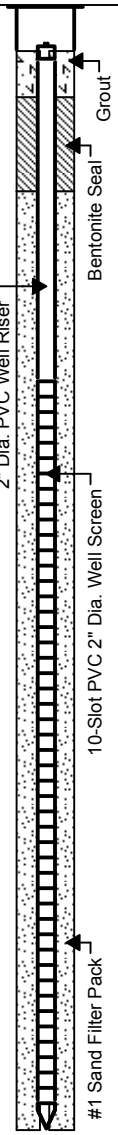
Drilling Method: 4 1/4" Auger
Drill Fluid:
Drilled Borehole Dia: 7 5/8"
Total Drilled Depth: 12"
Ground Elevation: 0
Depth to water:

Start date and time: 1-12-18
Finish date and time: 1-12-18

Depth (Feet)	Sample ID	Sample Interval (feet)	Headspace PID	Recovery	Description
					No Samples Collected

Depth (feet)

Well Construction



Lithology

Notes:
NA - Not Available
fbg - feet below grade
" - inches

PID - Photoionization Detector
ppm - parts per million
' -feet

Geologist:

Aztech Environmental
5 McCrea Hill Rd.
Ballston Spa, New York 12020
Phone: (518) 885-5383 Fax: (518) 885-5385

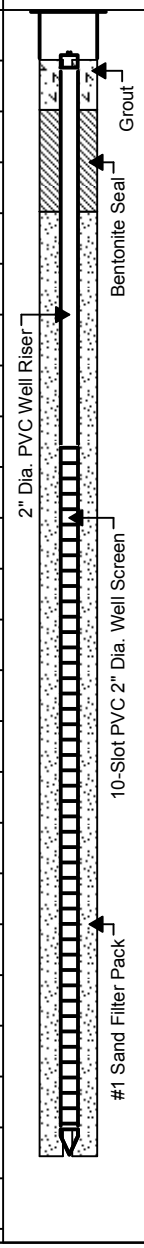
Boring Log: MW-101-E

Client: Land Remediation
Project:
Street Address: 520 Cambell Ave
City / State: Troy, NY
Drilling Co.: Aztech Environmental
Address: 5 McCrea Hill Rd
Driller: Bob Gannon

Drilling Method: 4 1/4" Auger
Drill Fluid:
Drilled Borehole Dia: 7 5/8"
Total Drilled Depth: 11' 3"
Ground Elevation: 0
Depth to water:

Start date and time: 1-12-18
Finish date and time: 1-12-18

Depth (Feet)	Sample ID	Sample Interval (feet)	Headspace PID	Recovery	Description
					No Samples Collected



Notes:
NA - Not Available
fbg - feet below grade
" - inches

PID - Photoionization Detector
ppm - parts per million
' -feet

Geologist:

MONITORING WELL LOG: MW-102IR

DRILLING CONTRACTOR: Cascade Drilling
DRILLER: J. Hutchins
RIG: Geoprobe 7822DT
DRILLING METHOD: Hollow-stem auger
BOREHOLE DIAMETER: 8 in WELL DIAMETER: 2 in
TOTAL DEPTH: 16.25 ft
DEPTH TO WATER: 15.1 ft

PROJECT NAME: ESCO Steel Treaters, Inc.
PROJECT NUMBER: 1690000663
LOCATION: Troy, NY
LOGGED BY: A. Papalian
START TIME: 10:30 STOP TIME: 12:00
DATE(S): 01/23/2019

COMMENTS:
MW-102IR is a replacement well for MW-102I that was not producing water. MW-102I was overdrilled and MW-102IR was installed in its place.

LEGEND:
"-" - No recovery for screening

WELL CONSTRUCTION KEY:
- Concrete
- Bentonite
- #00 sand
- PVC riser pipe
- Well Screen (0.010 inch slot)

DEPTH (ft)	RECOVERY (ft/ft)	SAMPLER TYPE	PID (ppm)	GRAPHIC LOG	USCS CODE	DEPTH INTERVAL (ft)	MATERIAL DESCRIPTION
			-		-	0 - 1.0	Concrete and asphalt.
			-		ML	1.0 - 16.25	Light grayish-brown sandy silt, moist.
5			-				
10			-				
15			-				
							At 16.25 ft bgs bedrock refusal encountered
							EOB at 16.25 ft
20							

WELL CONSTRUCTION: Concrete; Bentonite; #00 sand; PVC riser pipe; Well Screen (0.010 inch slot)

WATER LEVEL

Aztech Environmental Technologies
5 McCrea Hill Rd.
Ballston Spa, New York 12020
Phone: (518) 885-5383 Fax: (518) 885-5385

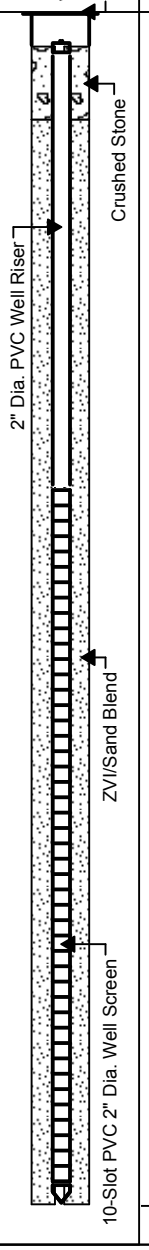
Boring Log: MW-102-B

Client: Land Remediation
Project:
Street Address: 520 Campbell Ave
City / State: Troy, NY
Drilling Co.: Land Remediation
Address: 74 Hudson River Rd Waterford, NY 12188
Driller:

Drilling Method: Installed by Land Remediation Inc during slurry wall and PRB Trench installation
Drill Fluid:
Drilled Borehole Dia:
Total Drilled Depth: 16.65
Ground Elevation: 0
Depth to water:

Start date and time: 2-23-18
Finish date and time: 2-23-18

Depth (Feet)	Sample ID	Sample Interval (feet)	Headspace PID	Recovery	Description
					No Samples Collected



Notes:
NA - Not Available
fbg - feet below grade
" - inches

PID - Photoionization Detector
ppm - parts per million
' -feet

Geologist:

5 McCrea Hill Rd.
Ballston Spa, New York 12020
Phone: (518) 885-5383 Fax: (518) 885-5385

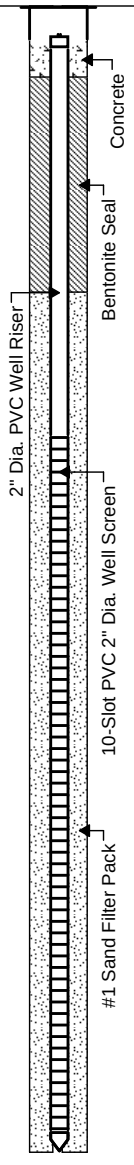
Boring Log: MW-102-ER

Client: Land Remediation
Project:
Street Address: 520 Campbell Ave
City / State: Troy, NY
Drilling Co.: Aztech Environmental
Address: 5 McCrea Hill Rd
Driller: Jeff Morgan

Drilling Method: 4 1/4" Auger
Drill Fluid:
Drilled Borehole Dia: 7 5/8"
Total Drilled Depth: 16'
Ground Elevation: 0
Depth to water:

Start date and time: 3-26-18
Finish date and time: 3-26-18

Depth (Feet)	Sample ID	Sample Interval (feet)	Headspace PID	Recovery	Description	Depth (feet)	Well Construction	Lithology
					No Samples Collected			



Notes:
NA - Not Available
fbg - feet below grade

PID - Photoionization Detector
ppm - parts per million
' -feet

Geologist:

Aztech Environmental Technologies
5 McCrea Hill Rd.
Ballston Spa, New York 12020
Phone: (518) 885-5383 Fax: (518) 885-5385

Boring Log: MW-103-I

Client: Land Remediation
Project:
Street Address: 520 Cambell Ave
City / State: Troy, NY
Drilling Co.: Aztech Environmental
Address: 5 McCrea Hill Rd
Driller: Bob Gannon

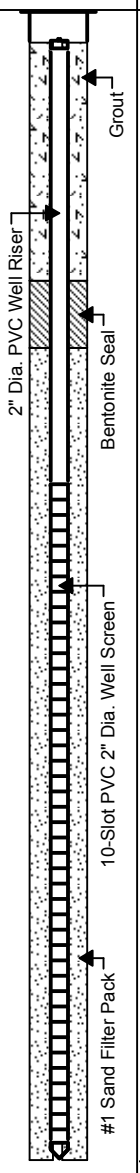
Drilling Method: 4 1/4" Auger
Drill Fluid:
Drilled Borehole Dia: 7 5/8"
Total Drilled Depth: 17'
Ground Elevation: 0
Depth to water:

Start date and time: 1-10-18
Finish date and time: 1-10-18

Depth (Feet)	Sample ID	Sample Interval (feet)	Headspace PID	Recovery	Description
					No Samples Collected

Depth (feet)

Well Construction



Lithology

Notes:
NA - Not Available
fbg - feet below grade
" - inches

PID - Photoionization Detector
ppm - parts per million
' -feet

Geologist:

Aztech Environmental Technologies
5 McCrea Hill Rd.
Ballston Spa, New York 12020
Phone: (518) 885-5383 Fax: (518) 885-5385

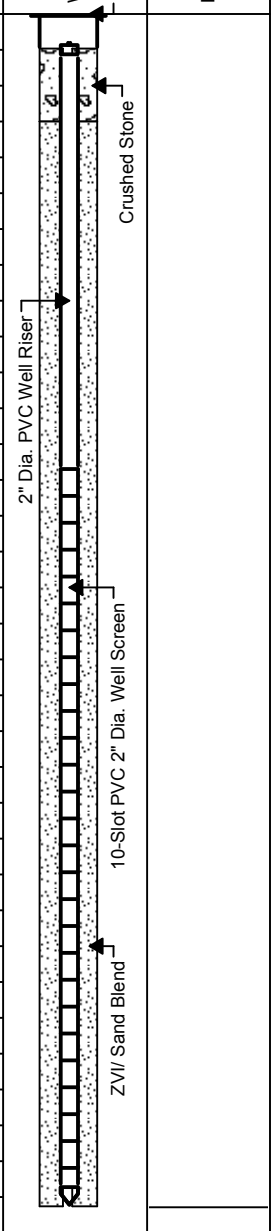
Boring Log: MW-103-B

Client: Land Remediation
Project:
Street Address: 520 Campbell Ave
City / State: Troy, NY
Drilling Co.: Land Remediation
Address: 74 Hudson River Rd Waterford, NY 12188
Driller:

Drilling Method: Install by Land Remediation Inc during slurry wall and PRB trench installation
Drill Fluid:
Drilled Borehole Dia:
Total Drilled Depth: 16.64
Ground Elevation: 0
Depth to water:

Start date and time: 2-23-18
Finish date and time: 2-23-18

Depth (Feet)	Sample ID	Sample Interval (feet)	Headspace PID	Recovery	Description
					No Samples Collected



Notes:
NA - Not Available
fbg - feet below grade
" - inches

PID - Photoionization Detector
ppm - parts per million
' -feet

Geologist:

MONITORING WELL LOG: MW-103ER

DRILLING CONTRACTOR: Cascade Drilling
DRILLER: J. Hutchins
RIG: Geoprobe 7822DT
DRILLING METHOD: Hollow-stem auger
BOREHOLE DIAMETER: 8 in WELL DIAMETER: 2 in
TOTAL DEPTH: 16.0 ft
DEPTH TO WATER: 14.7 ft

PROJECT NAME: ESCO Steel Treaters, Inc.
PROJECT NUMBER: 1690000663
LOCATION: Troy, NY
LOGGED BY: A. Papalian
START TIME: 12:00 STOP TIME: 15:00
DATE(S): 01/23/2019

COMMENTS:
MW-103ER replaces MW-103E, which was damaged during PRB construction and was unable to be sampled. MW-103E was overdrilled and MW-103ER was installed in its place.

LEGEND:
"-" - No recovery for screening

WELL CONSTRUCTION KEY:
- Concrete
- Bentonite
- #00 sand
- PVC riser pipe
- Well Screen (0.010 inch slot)

DEPTH (ft)	RECOVERY (ft/ft)	SAMPLER TYPE	PID (ppm)	GRAPHIC LOG	USCS CODE	DEPTH INTERVAL (ft)	MATERIAL DESCRIPTION
0			-		-	0 - 1.0	Asphalt and concrete.
			-				Light grayish-brown sandy silt, moist.
5			-				
			-				
			-				
			-				
			-				
			-				
			-				
			-				
			-				
			-		ML	1.0 - 16.0	
10			-				
			-				
			-				
			-				
			-				
			-				
			-				
			-				
15			-				
			-				At 16.0 ft bgs bedrock refusal encountered.
							EOB at 16.0 ft
20							

WELL CONSTRUCTION

WATER LEVEL

Aztech Environmental Technologies

5 McCrea Hill Rd.
Ballston Spa, New York 12020
Phone: (518) 885-5383 Fax: (518) 885-5385

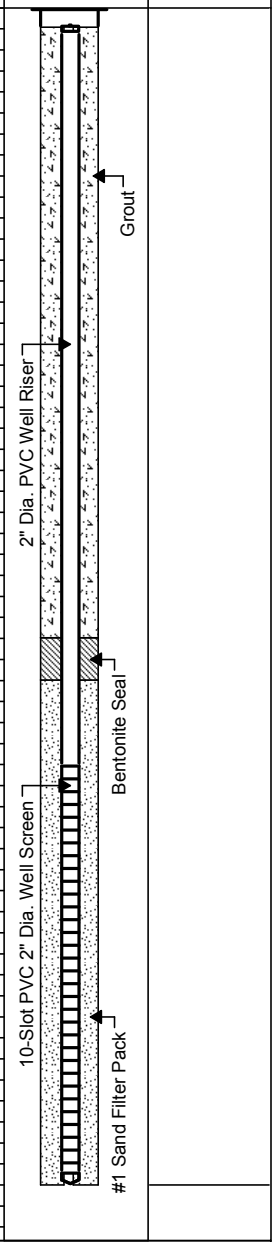
Boring Log: MW-104-I

Client: Land Remediation
Project:
Street Address: 520 Cambell Ave
City / State: Troy, NY
Drilling Co.: Aztech Environmental
Address: 5 McCrea Hill Rd
Driller: Bob Gannon

Drilling Method: 4 1/4" Auger
Drill Fluid:
Drilled Borehole Dia: 7 5/8"
Total Drilled Depth: 28'
Ground Elevation: 0
Depth to water:

Start date and time: 1-11-18
Finish date and time: 1-11-18

Depth (Feet)	Sample ID	Sample Interval (feet)	Headspace PID	Recovery	Description
1–29					No Samples Collected



Notes:
NA - Not Available
fbg - feet below grade
" - inches

PID - Photoionization Detector
ppm - parts per million
' -feet

Geologist:

Aztech Environmental Technologies

5 McCrea Hill Rd.
Ballston Spa, New York 12020
Phone: (518) 885-5383 Fax: (518) 885-5385

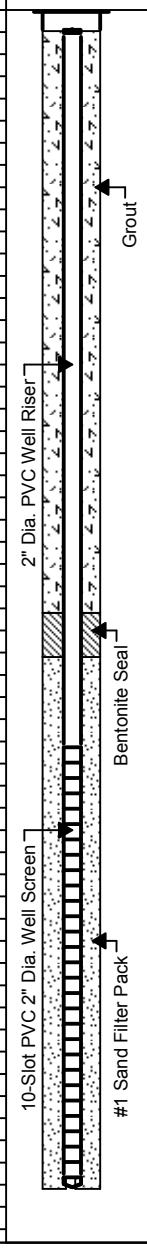
Boring Log: MW-104-E

Client: Land Remediation
Project:
Street Address: 520 Cambell Ave
City / State: Troy, NY
Drilling Co.: Aztech Environmental
Address: 5 McCrea Hill Rd
Driller: Bob Gannon

Drilling Method: 4 1/4" Auger
Drill Fluid:
Drilled Borehole Dia: 7 5/8"
Total Drilled Depth: 26'.6"
Ground Elevation: 0
Depth to water:

Start date and time: 1-11-18
Finish date and time: 1-11-18

Depth (Feet)	Sample ID	Sample Interval (feet)	Headspace PID	Recovery	Description
1–27					No Samples Collected



Notes:
NA - Not Available
fbg - feet below grade
" - inches

PID - Photoionization Detector
ppm - parts per million
' -feet

Geologist:

APPENDIX D
ADDITIONAL SOIL VAPOR INVESTIGATION

MARCH 15, 2018 LETTER REPORT

ENVIRON
Engineers of North Carolina

March 15, 2018

Via Electronic Mail

Javier Perez-Maldonado
Project Manager
Division of Environmental Remediation
New York State Department of Environmental Conservation
625 Broadway, 12th Floor
Albany, New York, 12233

RE: LETTER REPORT - ADDITIONAL SOIL VAPOR INVESTIGATION
FORMER STEEL TREATERS, INC. (VCP NO. V00578)
520 CAMPBELL AVENUE
TROY, NEW YORK 12180

Dear Mr. Perez-Maldonado:

On behalf of ESCO Corporation, ENVIRON Engineers of North Carolina, P.C. ("ENVIRON") is submitting to the New York State Department of Environmental Conservation ("NYSDEC") the results of the additional soil vapor investigation (SVI) at properties located to the east and west of the former Steel Treaters Site in Troy, New York (the "Site"). The sampling was performed as outlined in the February 26, 2018 Proposed Additional SVI Work Plan approved by NYSDEC on February 27, 2018 between March 1, 2018 and March 5, 2018.

Environ Engineers of
North Carolina, PC
1600 Parkwood Circle
Suite 310
Atlanta, GA 30339
USA

T +1 770 874 5010

www.ramboll.com

ADDITIONAL SOIL VAPOR INVESTIGATION

On March 1, 2018, a groundwater sample was collected from a temporary monitoring well (TWP-14-180301) and a soil vapor sample (SV-12-180301) was collected from a permanent soil vapor sampling point at the property located to the east of the site (i.e., the Fire Station at 530 Campbell Avenue). Similarly, a subslab gas sample (SS-01-180305), an indoor air sample (IA-01-180305) and an ambient air sample (AA-01-180305) were collected from the northeastern portion of the strip mall located to the west of the Site (i.e., 506 Campbell Avenue) on March 5, 2018.

The subslab sampling point (SS-01) was constructed using a Vapor Pin®, while the soil vapor sampling point (SV-12) was constructed using a Geoprobe®. The subslab, indoor air, and ambient air samples were collected at a maximum extraction rate of 0.2 liters/minute using Summa® canisters after installation of sampling points and after three well volumes (i.e., the volume of the sample probe and tube) had been purged from the sampling points (purging was not applicable to the ambient air and indoor air samples). The subslab, indoor air, and ambient air samples were collected over an approximately 7.5-hour period, while the soil vapor sample was collected over an approximately 1-hour period. The four vapor samples were analyzed by TestAmerica, a NELAP certified laboratory approved by NYSDOH, using USEPA Method TO-15.

Consistent with prior sampling at the Site, the temporary monitoring point was installed using direct push drilling using a 1-inch diameter and 10-foot long pre-packed filter screen. The groundwater sample was collected using low-flow sampling procedures. The groundwater sample was analyzed for VOCs on the Target Compound List by TestAmerica, a NELAP certified laboratory approved by NYSDOH, using USEPA Method 8260C. Following sample collection, the temporary monitoring point was dismantled, the borehole backfilled with the soil cuttings generated during installation of the temporary monitoring point, and the surface restored.

The approximate sampling locations are shown in **Figure 1**.

SOIL VAPOR INVESTIGATION RESULTS

The soil vapor investigation results are provided in the attached laboratory analytical reports (**Attachments B** and **C**) and summarized in the attached **Tables 1, 2, 3 and 4**. The data gathered from the property to the east (fire station), indicate that no VOCs were detected in groundwater (**Table 1**) and that, other than butane which was detected at a concentration of 39 ug/m^3 and is not associated with historical site activities, no contaminants were detected above detection limits[1] in the soil vapor sample collected from SV-12 (**Table 2**).

The data generated from the property to the west (strip mall) indicate that (a) other than ethanol which was detected at a concentration of 250 ug/m^3 and is not associated with historical site activities, no contaminants were detected above detection limits[2] in the subslab sample (**Table 3**); (b) various constituents were detected in the indoor air sample which are not associated with historical Site activities (**Table 4**) - some detections (e.g., acetone, isopropyl alcohol) may be associated with the use of the adjoining space as a nail salon; and (c) various constituents were detected in the ambient air sample which are not associated with historical Site activities (**Table 4**). With the exception of acetone, ethanol and isopropyl alcohol, detections are very low. Comparison of the data against the NYSDOH Soil Vapor/Indoor Are matrices indicate that:

- the measured subslab vapor and indoor air concentrations of Trichloroethene (TCE), cis-1,2-Dichloroethene (c12-DCE), 1,1-Dichloroethene (11-DCE), and Carbon Tetrachloride are below 6 ug/m^3 and 0.2 ug/m^3, respectively, and would therefore warrant no further action (Soil Vapor/Indoor Air Matrix A, last revised May 2017). In fact, none of these parameters were detected in the subslab and only Carbon Tetrachloride (0.44 ug/m^3) was detected in indoor air.
- the measured subslab vapor and indoor air concentrations of Tetrachloroethene (PCE), 1,1,1-Trichloroethane (111-TCA) and Methylene Chloride are below 100 ug/m^3 and 3 ug/m^3, respectively, and would therefore warrant no further action (Soil Vapor/Indoor Air Matrix B, last revised May 2017). In fact, only Methylene Chloride was detected in the subslab sample (3.8 ug/m^3) and indoor air sample (2.6 ug/m^3).
- the measured subslab vapor and indoor air concentrations of Vinyl Chloride are below 6 ug/m^3 and 0.2 ug/m^3, respectively, and would therefore warrant no further action (Soil Vapor/Indoor Air Matrix C, last revised May 2017). In fact, vinyl chloride was not detected in either the subslab sample or the indoor air sample.

[1] While estimated concentrations were provide for some constituents, these were all below the method detection limit.

[2] Ibid.

ENVIRON
Engineers of North Carolina

We believe that the attached data support the conclusion that no further action is warranted with respect to off-site migration of vapor to the east or west of the Site. Considering the ongoing remedial activities and the March 31, 2018 deadline to complete all work at the site, we would appreciate NYSDEC's and NYSDOH's prompt review of this letter report. Should you have any questions or require any further information, please contact Jose Sananes (609-243-9882).

Sincerely,

Andrew R. Bonas
Principal

Jose Sananes
Principal Consultant

Russell Kemp
Principal

ARB/JS/RK:cas
1690000663/PRIN_WP/45782v1

Attachments

FIGURE
ADDITIONAL SVI SAMPLING LOCATIONS

LEGEND

- PROPERTY BOUNDARY
- DB-2 BORING LOCATION
- MW MONITORING WELL LOCATION
- SV-5 SOIL VAPOR SAMPLING POINTS
- B-10 BORING LOCATION (ENVIRON 2015 & 2016)
- PTO-04 PUMP TEST OBSERVATION POINT (ENVIRON 2015)
- TMP-06 TEMPORARY MONITORING POINT
- TB-21 TEST BORING LOCATION
- MIP-4 MEMBRANE INTERFACE PROBE (08/10)
- A-3 MEMBRANE INTERFACE PROBE (09/12)
- MW-4 WELL NO LONGER SUITABLE FOR SAMPLING
- MW-15 WELL REMOVED DURING DEC. 2010 EXCAVATION IRM
- SS-7A SURFACE SOIL SAMPLE (0 TO 2 INCHES) (REH 2016 & 2017)
- SS-7 SOIL COVER SAMPLE (REH 2016 & 2017)
- SV-10 SOIL GAS SAMPLE (REH 2016 & 2017)
- SS-01 / IA-01 INDOOR AIR AND SUBSLAB SAMPLE (REH 2018)
- AA-01 AMBIENT AIR SAMPLE (REH 2018)
- SV-12 SOIL VAPOR SAMPLE (REH 2018)
- TMP-14 TEMPORARY MONITORING POINT (REH 2018)

30 0 30 60
SCALE IN FEET

MAP REFERENCES

1. MAP ENTITLED "STEEL TREATERS, 520 CAMPBELL AVENUE, SAMPLE LOCATIONS" PREPARED BY BARTON AND LOGUIDICE, P.C., PROJECT NO. 1047.001, AND INCLUDED AS FIGURE 3 OF THE NOVEMBER 2013 REMEDIAL INVESTIGATION REPORT.
2. RENSSELAER COUNTY, CITY OF TROY TAX MAP 112
3. "LANDS OF ESCO CORPORATION", NMB SURVEY: NB16-001 520 C□□ □□□□A□□020416.d□□DATED FEB. 4, 2016.
4. ALL SAMPLE LOCATIONS SHOWN IN LIGHT GRAY ARE APPROXIMATE. LOCATIONS BASED ON "SITE MAP SHOWING SOIL AND GROUNDWATER SAMPLING LOCATIONS" PREPARED BY BARTON & LOGUIDICE, P.C. AND INCLUDED AS FIGURE 3 OF THE NOVEMBER 2013 REMEDIAL INVESTIGATION REPORT.
5. "UNKNOWN UNDERGROUND FEATURE" REFERS TO SUBSURFACE METALLIC ANOMALIES IDENTIFIED DURING THE GEOPHYSICAL SURVEY COMPLETED BY NAEVA GEOPHYSICS ON NOVEMBER 24, 2015.

REV.	DATE	DR.	CH.	REVISION

ADDITIONAL S□I SAM□LIN□ LOCATIONS

ESCO STEEL
520 CAMPBELL AVENUE
CITY OF TROY, NEW YORK

ENVIRON
ENVIRON Engineers of North Carolina, PC
CERTIFICATE NUMBER: 0012568

PREPARED BY: TA	DATE: 03/14/2018
DRAFTED BY: KPM	SCALE: 1" = 30□
APPROVED BY: JS	PROJECT: 169000663

FIGURE □

MBLEI 3/14/18
F:\169000663_ESCO STEEL_WORK PLAN < SMPL_SVI >

TABLES

TABLE 1
Summary of Groundwater Sampling Results
530 Campbell Ave., Troy, NY

Location	NY Fresh Groundwater (GA) Standards	TWP-14
Field Sample ID		TWP-14-180301
Lab Sample ID		480-132108-1
Sample Method		Bladder Pump
Sample Date		3/1/2018
Comments		
VOC		U

Abbreviations:
U -- Not Detected.

TABLE 2
Summary of Soil Gas Sampling Results
530 Campbell Ave., Troy, NY

	Location	SV-12
	Field Sample ID	SV-12-180301
	Lab Sample ID	140-10856-1
	Sample Method	Summa Canister
	Sample Date	3/1/2018
	Comments	
VOC		
	Butane	39 (9.5)
	2-methyl Butane	3.1 J (15)
	Carbon Disulfide	1.6 J (16)
	n-Hexane	3.7 J (28)
	Methylene Chloride	16 J (17)
	Tetrachloroethene	5.4 J (14)
	Trichlorofluoromethane	1.5 J (11)

Notes:

1 All concentrations are presented in ug/m^3.

2 Only compounds with at least one detection are shown.

Abbreviations:

U -- Not Detected.

J -- Estimated Concentration.

( ) -- Reporting Detection Limit.

TABLE 3
Summary of Sub Slab Vapor Sampling Results
506 Campbell Ave, Troy, NY

	Location	SS-01
	Field Sample ID	SS-01-180305
	Lab Sample ID	140-10882-1
	Sample Method	Summa Canister
	Sample Date	3/5/2018
	Comments	
VOC		
	Acetone	57 J (120)
	Butane	3.5 J (9.5)
	2-Methyl-butane	3 J (15)
	Carbon Disulfide	1.1 J (16)
	Ethanol	470 (38)
	n-Hexane	1.5 J (28)
	Isopropanol	7.7 J (120)
	Methylene Chloride	13 J (17)
	Trichlorofluoromethane	1.4 J (11)

Notes:

1 All concentrations are presented in ug/m^3 (micrograms per cubic meter).

2 Only compounds with at least one detection are shown.

Abbreviations:

U -- Not Detected.

J -- Estimated Concentration.

( ) -- Reporting Detection Limit.

TABLE 4
Summary of Air Sampling Results
506 Campbell Ave, Troy, NY

Location		IA-01	AA-01
Field Sample ID		IA-01-180305	AA-01-180305
Lab Sample ID	NYSDOH	140-10882-2	140-10882-3
Matrix	Guideline	Indoor Air	Ambient Air
Sample Method	Value	Summa Canister	Summa Canister
Sample Date		3/5/2018	3/5/2018
Comments			
VOC			
Acetone		630 (79)	5.4 J (12)
Benzene		0.73 (0.64)	0.82 (0.64)
Butane		7.7 (0.95)	2.5 (0.95)
2-Methyl-butane		9 (1.5)	2.5 (1.5)
2-Butanone		1.2 J (2.9)	U (2.9)
Carbon Disulfide		0.18 J (1.6)	U (1.6)
Carbon Tetrachloride		0.44 J (1.3)	0.49 J (1.3)
Chloroform		1.8 (0.98)	U (0.98)
Chloromethane		2 (1)	1.2 (1)
Cyclohexane		0.29 J (1.7)	U (1.7)
Decane		0.87 J (5.8)	0.44 J (5.8)
Dichlorodifluoromethane		3 (2.5)	2.4 J (2.5)
Ethanol		74 (3.8)	13 (3.8)
Ethyl Benzene		0.41 J (0.87)	0.3 J (0.87)
n-Heptane		0.66 J (2)	0.41 J (2)
n-Hexane		1.4 J (2.8)	2 J (2.8)
Isooctane		1.1 J (2.3)	0.83 J (2.3)
Isopropanol		130 (12)	3.7 J (12)
Methylene Chloride	60	2.6 (1.7)	5.1 (1.7)
n-Octane		0.35 J (1.9)	0.21 J (1.9)
n-Pentane		4.1 (3)	2.3 J (3)
Toluene		2.1 (0.75)	1.8 (0.75)
Trichlorofluoromethane		1.6 (1.1)	1.6 (1.1)
1,1,2-Trichloro-1,2,2-trifluoroethane		0.58 J (1.5)	0.51 J (1.5)
m,p-xylene		1.6 J (3.5)	1 J (3.5)
ortho-xylene		0.47 J (0.87)	0.34 J (0.87)
Xylenes (total)		2.07 J (3.5)	1.34 J (3.5)

Notes:

1 All concentrations are presented in ug/m^3 (micrograms per cubic meter).
2 Only compounds with at least one detection are shown.
3 NYSDOH Air Guideline Value are defined in the NYSDOH's October 2016 Guidance for Evaluating Soil Vapor Intrusion in the State of New York (Table 3.1), last updated August 2015

Abbreviations:

U -- Not Detected.
J -- Estimated Concentration.
( ) -- Reporting Detection Limit.

ATTACHMENT A
LABORATORY ANALYTICAL REPORT
530 CAMPBELL AVENUE

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Knoxville
5815 Middlebrook Pike
Knoxville, TN 37921
Tel: (865)291-3000

TestAmerica Job ID: 140-10856-1
Client Project/Site: ESCO Steel Treaters Troy NY

For:
Ramboll US Corporation
101 Carnegie Center
Suite 200
Princeton, New Jersey 08540

Attn: Alex Papalian

Denise L Giglia

Authorized for release by:
3/9/2018 3:42:09 PM
Denise Giglia, Project Management Assistant II
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Designee for

Becky Mason, Project Manager II
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LINKS

Review your project results through TotalAccess

Have a Question? Ask The Expert

Visit us at: www.testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Definitions/Glossary

Client: Ramboll US Corporation
Project/Site: ESCO Steel Treaters Troy NY

TestAmerica Job ID: 140-10856-1

Qualifiers

Air - GC/MS VOA

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
*	LCS or LCSD is outside acceptance limits.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Job ID: 140-10856-1

Laboratory: TestAmerica Knoxville

Narrative

Job Narrative
140-10856-1

Receipt
The sample was received on 3/3/2018 10:30 AM; the sample arrived in good condition, properly preserved and, where required, on ice.

Air - GC/MS VOA
Method TO 15 LL, TO-15: EPA methods TO-14A and TO-15 specify the use of humidified “zero air” as the blank reagent for canister cleaning, instrument calibration and sample analysis. Ultra-high purity humidified nitrogen from a cryogenic reservoir is used in place of “zero air” by TestAmerica Knoxville.

Method TO-15: The following analyte recovered outside control limits for the LCS associated with analytical batch 140-18586: 3-Chloropropene. This is not indicative of a systematic control problem because these were random marginal exceedances. Qualified results have been reported.

Method TO-15: The continuing calibration verification (CCV) associated with batch 140-18586 exhibited % difference of greater than 30% for the following analytes 3-Chloropropene and tert-Butyl alcohol; however, the results were within the LCS acceptance limits. The EPA method requires that all target analytes in the continuing calibration verification standard be within 30% difference from the initial calibration. According to the laboratory standard operating procedure, the continuing calibration is acceptable if it meets the laboratory control sample acceptance criteria.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Detection Summary

Client: Ramboll US Corporation
Project/Site: ESCO Steel Treaters Troy NY

TestAmerica Job ID: 140-10856-1

Client Sample ID: SV-12-180301 — Lab Sample ID: 140-10856-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
2-Methylbutane	1.0	J	5.0	0.31	ppb v/v	1		TO-15	Total/NA
Butane	17		4.0	0.73	ppb v/v	1		TO-15	Total/NA
Carbon disulfide	0.52	J	5.0	0.31	ppb v/v	1		TO-15	Total/NA
Hexane	1.1	J	8.0	0.32	ppb v/v	1		TO-15	Total/NA
Methylene Chloride	4.7	J	5.0	3.2	ppb v/v	1		TO-15	Total/NA
Tetrachloroethene	0.80	J	2.0	0.40	ppb v/v	1		TO-15	Total/NA
Trichlorofluoromethane	0.27	J	2.0	0.24	ppb v/v	1		TO-15	Total/NA

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
2-Methylbutane	3.1	J	15	0.91	ug/m3	1		TO-15	Total/NA
Butane	39		9.5	1.7	ug/m3	1		TO-15	Total/NA
Carbon disulfide	1.6	J	16	0.97	ug/m3	1		TO-15	Total/NA
Hexane	3.7	J	28	1.1	ug/m3	1		TO-15	Total/NA
Methylene Chloride	16	J	17	11	ug/m3	1		TO-15	Total/NA
Tetrachloroethene	5.4	J	14	2.7	ug/m3	1		TO-15	Total/NA
Trichlorofluoromethane	1.5	J	11	1.3	ug/m3	1		TO-15	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: SV-12-180301
Date Collected: 03/01/18 16:36
Date Received: 03/03/18 10:30
Sample Container: Summa Canister 6L

Lab Sample ID: 140-10856-1
Matrix: Air

Method: TO-15 - Volatile Organic Compounds in Ambient Air

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		2.0	0.30	ppb v/v			03/08/18 21:37	1
1,1,2,2-Tetrachloroethane	ND		2.0	0.61	ppb v/v			03/08/18 21:37	1
1,1,2-Trichloroethane	ND		2.0	0.54	ppb v/v			03/08/18 21:37	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		2.0	0.31	ppb v/v			03/08/18 21:37	1
1,1-Dichloroethane	ND		2.0	0.26	ppb v/v			03/08/18 21:37	1
1,1-Dichloroethene	ND		2.0	0.34	ppb v/v			03/08/18 21:37	1
1,2,3-Trimethylbenzene	ND		2.0	2.0	ppb v/v			03/08/18 21:37	1
1,2,4,5-Tetramethylbenzene	ND		2.0	2.0	ppb v/v			03/08/18 21:37	1
1,2,4-Trichlorobenzene	ND		20	0.98	ppb v/v			03/08/18 21:37	1
1,2,4-Trimethylbenzene	ND		2.0	0.63	ppb v/v			03/08/18 21:37	1
1,2-Dibromoethane (EDB)	ND		2.0	0.44	ppb v/v			03/08/18 21:37	1
1,2-Dichlorobenzene	ND		2.0	0.70	ppb v/v			03/08/18 21:37	1
1,2-Dichloroethane	ND		2.0	0.47	ppb v/v			03/08/18 21:37	1
1,2-Dichloropropane	ND		2.0	0.52	ppb v/v			03/08/18 21:37	1
1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND		2.0	0.32	ppb v/v			03/08/18 21:37	1
1,3,5-Trimethylbenzene	ND		2.0	0.65	ppb v/v			03/08/18 21:37	1
1,3-Butadiene	ND		4.0	0.64	ppb v/v			03/08/18 21:37	1
1,3-Dichlorobenzene	ND		2.0	0.65	ppb v/v			03/08/18 21:37	1
1,4-Dichlorobenzene	ND		2.0	0.64	ppb v/v			03/08/18 21:37	1
1,4-Dioxane	ND		50	0.80	ppb v/v			03/08/18 21:37	1
2,2,4-Trimethylpentane	ND		5.0	0.39	ppb v/v			03/08/18 21:37	1
2-Butanone (MEK)	ND		10	2.0	ppb v/v			03/08/18 21:37	1
2-Chlorotoluene	ND		4.0	0.63	ppb v/v			03/08/18 21:37	1
2-Hexanone	ND		5.0	0.58	ppb v/v			03/08/18 21:37	1
2-Methylbutane	**1.0**	**J**	5.0	0.31	ppb v/v			03/08/18 21:37	1
3-Chloropropene	ND	*	2.0	0.48	ppb v/v			03/08/18 21:37	1
4-Ethyltoluene	ND		4.0	0.66	ppb v/v			03/08/18 21:37	1
4-Methyl-2-pentanone (MIBK)	ND		5.0	2.0	ppb v/v			03/08/18 21:37	1
Acetone	ND		50	14	ppb v/v			03/08/18 21:37	1
Benzyl chloride	ND		8.0	0.78	ppb v/v			03/08/18 21:37	1
Benzene	ND		2.0	0.56	ppb v/v			03/08/18 21:37	1
Bromodichloromethane	ND		2.0	0.44	ppb v/v			03/08/18 21:37	1
Bromoform	ND		2.0	0.48	ppb v/v			03/08/18 21:37	1
Bromomethane	ND		2.0	0.32	ppb v/v			03/08/18 21:37	1
Butane	**17**		4.0	0.73	ppb v/v			03/08/18 21:37	1
Carbon disulfide	**0.52**	**J**	5.0	0.31	ppb v/v			03/08/18 21:37	1
Carbon tetrachloride	ND		2.0	0.38	ppb v/v			03/08/18 21:37	1
Chlorobenzene	ND		2.0	0.49	ppb v/v			03/08/18 21:37	1
Chloroethane	ND		8.0	0.35	ppb v/v			03/08/18 21:37	1
Chloroform	ND		2.0	0.38	ppb v/v			03/08/18 21:37	1
Chloromethane	ND		5.0	1.6	ppb v/v			03/08/18 21:37	1
cis-1,2-Dichloroethene	ND		2.0	0.60	ppb v/v			03/08/18 21:37	1
cis-1,3-Dichloropropene	ND		2.0	0.74	ppb v/v			03/08/18 21:37	1
Cyclohexane	ND		5.0	0.40	ppb v/v			03/08/18 21:37	1
Decane	ND		10	0.56	ppb v/v			03/08/18 21:37	1
Dibromochloromethane	ND		2.0	0.42	ppb v/v			03/08/18 21:37	1
Dichlorodifluoromethane	ND		5.0	0.68	ppb v/v			03/08/18 21:37	1
Dodecane	ND		10	0.78	ppb v/v			03/08/18 21:37	1

Client Sample ID: SV-12-180301
Date Collected: 03/01/18 16:36
Date Received: 03/03/18 10:30
Sample Container: Summa Canister 6L

Lab Sample ID: 140-10856-1
Matrix: Air

Method: TO-15 - Volatile Organic Compounds in Ambient Air (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethanol	ND		20	20	ppb v/v			03/08/18 21:37	1
Ethylbenzene	ND		2.0	0.68	ppb v/v			03/08/18 21:37	1
Heptane	ND		5.0	0.47	ppb v/v			03/08/18 21:37	1
Hexachlorobutadiene	ND		2.0	0.78	ppb v/v			03/08/18 21:37	1
Hexane	**1.1**	**J**	8.0	0.32	ppb v/v			03/08/18 21:37	1
Indene	ND		4.0	4.0	ppb v/v			03/08/18 21:37	1
Isopropyl alcohol	ND		50	0.94	ppb v/v			03/08/18 21:37	1
m-Xylene & p-Xylene	ND		8.0	1.2	ppb v/v			03/08/18 21:37	1
Methylene Chloride	**4.7**	**J**	5.0	3.2	ppb v/v			03/08/18 21:37	1
Methyl tert-butyl ether	ND		10	1.7	ppb v/v			03/08/18 21:37	1
Naphthalene	ND		5.0	0.90	ppb v/v			03/08/18 21:37	1
Nonane	ND		5.0	0.43	ppb v/v			03/08/18 21:37	1
Octane	ND		4.0	0.36	ppb v/v			03/08/18 21:37	1
o-Xylene	ND		2.0	0.61	ppb v/v			03/08/18 21:37	1
Pentane	ND		10	4.0	ppb v/v			03/08/18 21:37	1
Styrene	ND		2.0	0.58	ppb v/v			03/08/18 21:37	1
Tetrachloroethene	**0.80**	**J**	2.0	0.40	ppb v/v			03/08/18 21:37	1
Toluene	ND		2.0	1.2	ppb v/v			03/08/18 21:37	1
trans-1,2-Dichloroethene	ND		2.0	0.50	ppb v/v			03/08/18 21:37	1
trans-1,3-Dichloropropene	ND		2.0	0.48	ppb v/v			03/08/18 21:37	1
Trichloroethene	ND		2.0	0.36	ppb v/v			03/08/18 21:37	1
Trichlorofluoromethane	**0.27**	**J**	2.0	0.24	ppb v/v			03/08/18 21:37	1
Undecane	ND		10	0.62	ppb v/v			03/08/18 21:37	1
Vinyl bromide	ND		2.0	0.35	ppb v/v			03/08/18 21:37	1
Vinyl chloride	ND		2.0	0.71	ppb v/v			03/08/18 21:37	1
Thiophene	ND		2.0	2.0	ppb v/v			03/08/18 21:37	1
Isopropylbenzene	ND		8.0	0.60	ppb v/v			03/08/18 21:37	1
tert-Butyl alcohol	ND		20	0.38	ppb v/v			03/08/18 21:37	1
Indane	ND		2.0	2.0	ppb v/v			03/08/18 21:37	1

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		11	1.6	ug/m3			03/08/18 21:37	1
1,1,2,2-Tetrachloroethane	ND		14	4.2	ug/m3			03/08/18 21:37	1
1,1,2-Trichloroethane	ND		11	2.9	ug/m3			03/08/18 21:37	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		15	2.4	ug/m3			03/08/18 21:37	1
1,1-Dichloroethane	ND		8.1	1.1	ug/m3			03/08/18 21:37	1
1,1-Dichloroethene	ND		7.9	1.3	ug/m3			03/08/18 21:37	1
1,2,3-Trimethylbenzene	ND		9.8	9.8	ug/m3			03/08/18 21:37	1
1,2,4,5-Tetramethylbenzene	ND		11	11	ug/m3			03/08/18 21:37	1
1,2,4-Trichlorobenzene	ND		150	7.3	ug/m3			03/08/18 21:37	1
1,2,4-Trimethylbenzene	ND		9.8	3.1	ug/m3			03/08/18 21:37	1
1,2-Dibromoethane (EDB)	ND		15	3.4	ug/m3			03/08/18 21:37	1
1,2-Dichlorobenzene	ND		12	4.2	ug/m3			03/08/18 21:37	1
1,2-Dichloroethane	ND		8.1	1.9	ug/m3			03/08/18 21:37	1
1,2-Dichloropropane	ND		9.2	2.4	ug/m3			03/08/18 21:37	1
1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND		14	2.2	ug/m3			03/08/18 21:37	1
1,3,5-Trimethylbenzene	ND		9.8	3.2	ug/m3			03/08/18 21:37	1
1,3-Butadiene	ND		8.8	1.4	ug/m3			03/08/18 21:37	1
1,3-Dichlorobenzene	ND		12	3.9	ug/m3			03/08/18 21:37	1

Client Sample ID: SV-12-180301
Date Collected: 03/01/18 16:36
Date Received: 03/03/18 10:30
Sample Container: Summa Canister 6L

Lab Sample ID: 140-10856-1
Matrix: Air

Method: TO-15 - Volatile Organic Compounds in Ambient Air (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dichlorobenzene	ND		12	3.8	ug/m3			03/08/18 21:37	1
1,4-Dioxane	ND		180	2.9	ug/m3			03/08/18 21:37	1
2,2,4-Trimethylpentane	ND		23	1.8	ug/m3			03/08/18 21:37	1
2-Butanone (MEK)	ND		29	5.9	ug/m3			03/08/18 21:37	1
2-Chlorotoluene	ND		21	3.3	ug/m3			03/08/18 21:37	1
2-Hexanone	ND		20	2.4	ug/m3			03/08/18 21:37	1
2-Methylbutane	**3.1**	**J**	15	0.91	ug/m3			03/08/18 21:37	1
3-Chloropropene	ND	*	6.3	1.5	ug/m3			03/08/18 21:37	1
4-Ethyltoluene	ND		20	3.2	ug/m3			03/08/18 21:37	1
4-Methyl-2-pentanone (MIBK)	ND		20	8.0	ug/m3			03/08/18 21:37	1
Acetone	ND		120	33	ug/m3			03/08/18 21:37	1
Benzyl chloride	ND		41	4.0	ug/m3			03/08/18 21:37	1
Benzene	ND		6.4	1.8	ug/m3			03/08/18 21:37	1
Bromodichloromethane	ND		13	2.9	ug/m3			03/08/18 21:37	1
Bromoform	ND		21	5.0	ug/m3			03/08/18 21:37	1
Bromomethane	ND		7.8	1.2	ug/m3			03/08/18 21:37	1
Butane	**39**		9.5	1.7	ug/m3			03/08/18 21:37	1
Carbon disulfide	**1.6**	**J**	16	0.97	ug/m3			03/08/18 21:37	1
Carbon tetrachloride	ND		13	2.4	ug/m3			03/08/18 21:37	1
Chlorobenzene	ND		9.2	2.3	ug/m3			03/08/18 21:37	1
Chloroethane	ND		21	0.92	ug/m3			03/08/18 21:37	1
Chloroform	ND		9.8	1.9	ug/m3			03/08/18 21:37	1
Chloromethane	ND		10	3.3	ug/m3			03/08/18 21:37	1
cis-1,2-Dichloroethene	ND		7.9	2.4	ug/m3			03/08/18 21:37	1
cis-1,3-Dichloropropene	ND		9.1	3.4	ug/m3			03/08/18 21:37	1
Cyclohexane	ND		17	1.4	ug/m3			03/08/18 21:37	1
Decane	ND		58	3.3	ug/m3			03/08/18 21:37	1
Dibromochloromethane	ND		17	3.6	ug/m3			03/08/18 21:37	1
Dichlorodifluoromethane	ND		25	3.4	ug/m3			03/08/18 21:37	1
Dodecane	ND		70	5.4	ug/m3			03/08/18 21:37	1
Ethanol	ND		38	38	ug/m3			03/08/18 21:37	1
Ethylbenzene	ND		8.7	3.0	ug/m3			03/08/18 21:37	1
Heptane	ND		20	1.9	ug/m3			03/08/18 21:37	1
Hexachlorobutadiene	ND		21	8.3	ug/m3			03/08/18 21:37	1
Hexane	**3.7**	**J**	28	1.1	ug/m3			03/08/18 21:37	1
Indene	ND		19	19	ug/m3			03/08/18 21:37	1
Isopropyl alcohol	ND		120	2.3	ug/m3			03/08/18 21:37	1
m-Xylene & p-Xylene	ND		35	5.2	ug/m3			03/08/18 21:37	1
Methylene Chloride	**16**	**J**	17	11	ug/m3			03/08/18 21:37	1
Methyl tert-butyl ether	ND		36	6.1	ug/m3			03/08/18 21:37	1
Naphthalene	ND		26	4.7	ug/m3			03/08/18 21:37	1
Nonane	ND		26	2.3	ug/m3			03/08/18 21:37	1
Octane	ND		19	1.7	ug/m3			03/08/18 21:37	1
o-Xylene	ND		8.7	2.6	ug/m3			03/08/18 21:37	1
Pentane	ND		30	12	ug/m3			03/08/18 21:37	1
Styrene	ND		8.5	2.5	ug/m3			03/08/18 21:37	1
Tetrachloroethene	**5.4**	**J**	14	2.7	ug/m3			03/08/18 21:37	1
Toluene	ND		7.5	4.5	ug/m3			03/08/18 21:37	1

Client: Ramboll US Corporation
Project/Site: ESCO Steel Treaters Troy NY

TestAmerica Job ID: 140-10856-1

Client Sample ID: SV-12-180301
Date Collected: 03/01/18 16:36
Date Received: 03/03/18 10:30
Sample Container: Summa Canister 6L

Lab Sample ID: 140-10856-1
Matrix: Air

Method: TO-15 - Volatile Organic Compounds in Ambient Air (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
trans-1,2-Dichloroethene	ND		7.9	2.0	ug/m3			03/08/18 21:37	1
trans-1,3-Dichloropropene	ND		9.1	2.2	ug/m3			03/08/18 21:37	1
Trichloroethene	ND		11	1.9	ug/m3			03/08/18 21:37	1
Trichlorofluoromethane	**1.5**	**J**	11	1.3	ug/m3			03/08/18 21:37	1
Undecane	ND		64	4.0	ug/m3			03/08/18 21:37	1
Vinyl bromide	ND		8.7	1.5	ug/m3			03/08/18 21:37	1
Vinyl chloride	ND		5.1	1.8	ug/m3			03/08/18 21:37	1
Thiophene	ND		6.9	6.9	ug/m3			03/08/18 21:37	1
Isopropylbenzene	ND		39	2.9	ug/m3			03/08/18 21:37	1
tert-Butyl alcohol	ND		61	1.2	ug/m3			03/08/18 21:37	1
Indane	ND		9.7	9.7	ug/m3			03/08/18 21:37	1

Tentatively Identified Compound	*Est. Result*	*Qualifier*	*Unit*	*D*	*RT*	*CAS No.*	*Prepared*	*Analyzed*	*Dil Fac*
1,2,3,4-Tetramethylbenzene TIC	*ND*		*ppb v/v*			*488-23-3*		*03/08/18 21:37*	*1*
1,2,3,5-Tetramethylbenzene TIC	*ND*		*ppb v/v*			*527-53-7*		*03/08/18 21:37*	*1*

Default Detection Limits

Client: Ramboll US Corporation
Project/Site: ESCO Steel Treaters Troy NY

TestAmerica Job ID: 140-10856-1

Method: TO-15 - Volatile Organic Compounds in Ambient Air

Analyte	RL	MDL	Units	Method
1,1,1-Trichloroethane	0.20	0.030	ppb v/v	TO-15
1,1,1-Trichloroethane	1.1	0.16	ug/m3	TO-15
1,1,2,2-Tetrachloroethane	0.20	0.061	ppb v/v	TO-15
1,1,2,2-Tetrachloroethane	1.4	0.42	ug/m3	TO-15
1,1,2-Trichloro-1,2,2-trifluoroethane	0.20	0.031	ppb v/v	TO-15
1,1,2-Trichloro-1,2,2-trifluoroethane	1.5	0.24	ug/m3	TO-15
1,1,2-Trichloroethane	0.20	0.054	ppb v/v	TO-15
1,1,2-Trichloroethane	1.1	0.29	ug/m3	TO-15
1,1-Dichloroethane	0.20	0.026	ppb v/v	TO-15
1,1-Dichloroethane	0.81	0.11	ug/m3	TO-15
1,1-Dichloroethene	0.20	0.034	ppb v/v	TO-15
1,1-Dichloroethene	0.79	0.13	ug/m3	TO-15
1,2,3-Trimethylbenzene	0.20	0.20	ppb v/v	TO-15
1,2,3-Trimethylbenzene	0.98	0.98	ug/m3	TO-15
1,2,4,5-Tetramethylbenzene	0.20	0.20	ppb v/v	TO-15
1,2,4,5-Tetramethylbenzene	1.1	1.1	ug/m3	TO-15
1,2,4-Trichlorobenzene	2.0	0.098	ppb v/v	TO-15
1,2,4-Trichlorobenzene	15	0.73	ug/m3	TO-15
1,2,4-Trimethylbenzene	0.20	0.063	ppb v/v	TO-15
1,2,4-Trimethylbenzene	0.98	0.31	ug/m3	TO-15
1,2-Dibromoethane (EDB)	0.20	0.044	ppb v/v	TO-15
1,2-Dibromoethane (EDB)	1.5	0.34	ug/m3	TO-15
1,2-Dichloro-1,1,2,2-tetrafluoroethane	0.20	0.032	ppb v/v	TO-15
1,2-Dichloro-1,1,2,2-tetrafluoroethane	1.4	0.22	ug/m3	TO-15
1,2-Dichlorobenzene	0.20	0.070	ppb v/v	TO-15
1,2-Dichlorobenzene	1.2	0.42	ug/m3	TO-15
1,2-Dichloroethane	0.20	0.047	ppb v/v	TO-15
1,2-Dichloroethane	0.81	0.19	ug/m3	TO-15
1,2-Dichloropropane	0.20	0.052	ppb v/v	TO-15
1,2-Dichloropropane	0.92	0.24	ug/m3	TO-15
1,3,5-Trimethylbenzene	0.20	0.065	ppb v/v	TO-15
1,3,5-Trimethylbenzene	0.98	0.32	ug/m3	TO-15
1,3-Butadiene	0.40	0.064	ppb v/v	TO-15
1,3-Butadiene	0.88	0.14	ug/m3	TO-15
1,3-Dichlorobenzene	0.20	0.065	ppb v/v	TO-15
1,3-Dichlorobenzene	1.2	0.39	ug/m3	TO-15
1,4-Dichlorobenzene	0.20	0.064	ppb v/v	TO-15
1,4-Dichlorobenzene	1.2	0.38	ug/m3	TO-15
1,4-Dioxane	5.0	0.080	ppb v/v	TO-15
1,4-Dioxane	18	0.29	ug/m3	TO-15
2,2,4-Trimethylpentane	0.50	0.039	ppb v/v	TO-15
2,2,4-Trimethylpentane	2.3	0.18	ug/m3	TO-15
2-Butanone (MEK)	1.0	0.20	ppb v/v	TO-15
2-Butanone (MEK)	2.9	0.59	ug/m3	TO-15
2-Chlorotoluene	0.40	0.063	ppb v/v	TO-15
2-Chlorotoluene	2.1	0.33	ug/m3	TO-15
2-Hexanone	0.50	0.058	ppb v/v	TO-15
2-Hexanone	2.0	0.24	ug/m3	TO-15
2-Methylbutane	0.50	0.031	ppb v/v	TO-15
2-Methylbutane	1.5	0.091	ug/m3	TO-15
3-Chloropropene	0.20	0.048	ppb v/v	TO-15
3-Chloropropene	0.63	0.15	ug/m3	TO-15

Method: TO-15 - Volatile Organic Compounds in Ambient Air (Continued)

Analyte	RL	MDL	Units	Method
4-Ethyltoluene	0.40	0.066	ppb v/v	TO-15
4-Ethyltoluene	2.0	0.32	ug/m3	TO-15
4-Methyl-2-pentanone (MIBK)	0.50	0.20	ppb v/v	TO-15
4-Methyl-2-pentanone (MIBK)	2.0	0.80	ug/m3	TO-15
Acetone	5.0	1.4	ppb v/v	TO-15
Acetone	12	3.3	ug/m3	TO-15
Benzene	0.20	0.056	ppb v/v	TO-15
Benzene	0.64	0.18	ug/m3	TO-15
Benzyl chloride	0.80	0.078	ppb v/v	TO-15
Benzyl chloride	4.1	0.40	ug/m3	TO-15
Bromodichloromethane	0.20	0.044	ppb v/v	TO-15
Bromodichloromethane	1.3	0.29	ug/m3	TO-15
Bromoform	0.20	0.048	ppb v/v	TO-15
Bromoform	2.1	0.50	ug/m3	TO-15
Bromomethane	0.20	0.032	ppb v/v	TO-15
Bromomethane	0.78	0.12	ug/m3	TO-15
Butane	0.40	0.073	ppb v/v	TO-15
Butane	0.95	0.17	ug/m3	TO-15
Carbon disulfide	0.50	0.031	ppb v/v	TO-15
Carbon disulfide	1.6	0.097	ug/m3	TO-15
Carbon tetrachloride	0.20	0.038	ppb v/v	TO-15
Carbon tetrachloride	1.3	0.24	ug/m3	TO-15
Chlorobenzene	0.20	0.049	ppb v/v	TO-15
Chlorobenzene	0.92	0.23	ug/m3	TO-15
Chloroethane	0.80	0.035	ppb v/v	TO-15
Chloroethane	2.1	0.092	ug/m3	TO-15
Chloroform	0.20	0.038	ppb v/v	TO-15
Chloroform	0.98	0.19	ug/m3	TO-15
Chloromethane	0.50	0.16	ppb v/v	TO-15
Chloromethane	1.0	0.33	ug/m3	TO-15
cis-1,2-Dichloroethene	0.20	0.060	ppb v/v	TO-15
cis-1,2-Dichloroethene	0.79	0.24	ug/m3	TO-15
cis-1,3-Dichloropropene	0.20	0.074	ppb v/v	TO-15
cis-1,3-Dichloropropene	0.91	0.34	ug/m3	TO-15
Cyclohexane	0.50	0.040	ppb v/v	TO-15
Cyclohexane	1.7	0.14	ug/m3	TO-15
Decane	1.0	0.056	ppb v/v	TO-15
Decane	5.8	0.33	ug/m3	TO-15
Dibromochloromethane	0.20	0.042	ppb v/v	TO-15
Dibromochloromethane	1.7	0.36	ug/m3	TO-15
Dichlorodifluoromethane	0.50	0.068	ppb v/v	TO-15
Dichlorodifluoromethane	2.5	0.34	ug/m3	TO-15
Dodecane	1.0	0.078	ppb v/v	TO-15
Dodecane	7.0	0.54	ug/m3	TO-15
Ethanol	2.0	2.0	ppb v/v	TO-15
Ethanol	3.8	3.8	ug/m3	TO-15
Ethylbenzene	0.20	0.068	ppb v/v	TO-15
Ethylbenzene	0.87	0.30	ug/m3	TO-15
Heptane	0.50	0.047	ppb v/v	TO-15
Heptane	2.0	0.19	ug/m3	TO-15
Hexachlorobutadiene	0.20	0.078	ppb v/v	TO-15
Hexachlorobutadiene	2.1	0.83	ug/m3	TO-15

Method: TO-15 - Volatile Organic Compounds in Ambient Air (Continued)

Analyte	RL	MDL	Units	Method
Hexane	0.80	0.032	ppb v/v	TO-15
Hexane	2.8	0.11	ug/m3	TO-15
Indane	0.20	0.20	ppb v/v	TO-15
Indane	0.97	0.97	ug/m3	TO-15
Indene	0.40	0.40	ppb v/v	TO-15
Indene	1.9	1.9	ug/m3	TO-15
Isopropyl alcohol	5.0	0.094	ppb v/v	TO-15
Isopropyl alcohol	12	0.23	ug/m3	TO-15
Isopropylbenzene	0.80	0.060	ppb v/v	TO-15
Isopropylbenzene	3.9	0.29	ug/m3	TO-15
Methyl tert-butyl ether	1.0	0.17	ppb v/v	TO-15
Methyl tert-butyl ether	3.6	0.61	ug/m3	TO-15
Methylene Chloride	0.50	0.32	ppb v/v	TO-15
Methylene Chloride	1.7	1.1	ug/m3	TO-15
m-Xylene & p-Xylene	0.80	0.12	ppb v/v	TO-15
m-Xylene & p-Xylene	3.5	0.52	ug/m3	TO-15
Naphthalene	0.50	0.090	ppb v/v	TO-15
Naphthalene	2.6	0.47	ug/m3	TO-15
Nonane	0.50	0.043	ppb v/v	TO-15
Nonane	2.6	0.23	ug/m3	TO-15
Octane	0.40	0.036	ppb v/v	TO-15
Octane	1.9	0.17	ug/m3	TO-15
o-Xylene	0.20	0.061	ppb v/v	TO-15
o-Xylene	0.87	0.26	ug/m3	TO-15
Pentane	1.0	0.40	ppb v/v	TO-15
Pentane	3.0	1.2	ug/m3	TO-15
Styrene	0.20	0.058	ppb v/v	TO-15
Styrene	0.85	0.25	ug/m3	TO-15
tert-Butyl alcohol	2.0	0.038	ppb v/v	TO-15
tert-Butyl alcohol	6.1	0.12	ug/m3	TO-15
Tetrachloroethene	0.20	0.040	ppb v/v	TO-15
Tetrachloroethene	1.4	0.27	ug/m3	TO-15
Thiophene	0.20	0.20	ppb v/v	TO-15
Thiophene	0.69	0.69	ug/m3	TO-15
Toluene	0.20	0.12	ppb v/v	TO-15
Toluene	0.75	0.45	ug/m3	TO-15
trans-1,2-Dichloroethene	0.20	0.050	ppb v/v	TO-15
trans-1,2-Dichloroethene	0.79	0.20	ug/m3	TO-15
trans-1,3-Dichloropropene	0.20	0.048	ppb v/v	TO-15
trans-1,3-Dichloropropene	0.91	0.22	ug/m3	TO-15
Trichloroethene	0.20	0.036	ppb v/v	TO-15
Trichloroethene	1.1	0.19	ug/m3	TO-15
Trichlorofluoromethane	0.20	0.024	ppb v/v	TO-15
Trichlorofluoromethane	1.1	0.13	ug/m3	TO-15
Undecane	1.0	0.062	ppb v/v	TO-15
Undecane	6.4	0.40	ug/m3	TO-15
Vinyl bromide	0.20	0.035	ppb v/v	TO-15
Vinyl bromide	0.87	0.15	ug/m3	TO-15
Vinyl chloride	0.20	0.071	ppb v/v	TO-15
Vinyl chloride	0.51	0.18	ug/m3	TO-15

Method: TO-15 - Volatile Organic Compounds in Ambient Air

Lab Sample ID: MB 140-18586/10
Matrix: Air
Analysis Batch: 18586

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		0.20	0.030	ppb v/v			03/08/18 15:30	1
1,1,2,2-Tetrachloroethane	ND		0.20	0.061	ppb v/v			03/08/18 15:30	1
1,1,2-Trichloroethane	ND		0.20	0.054	ppb v/v			03/08/18 15:30	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.20	0.031	ppb v/v			03/08/18 15:30	1
1,1-Dichloroethane	ND		0.20	0.026	ppb v/v			03/08/18 15:30	1
1,1-Dichloroethene	ND		0.20	0.034	ppb v/v			03/08/18 15:30	1
1,2,3-Trimethylbenzene	ND		0.20	0.20	ppb v/v			03/08/18 15:30	1
1,2,4,5-Tetramethylbenzene	ND		0.20	0.20	ppb v/v			03/08/18 15:30	1
1,2,4-Trichlorobenzene	ND		2.0	0.098	ppb v/v			03/08/18 15:30	1
1,2,4-Trimethylbenzene	ND		0.20	0.063	ppb v/v			03/08/18 15:30	1
1,2-Dibromoethane (EDB)	ND		0.20	0.044	ppb v/v			03/08/18 15:30	1
1,2-Dichlorobenzene	ND		0.20	0.070	ppb v/v			03/08/18 15:30	1
1,2-Dichloroethane	ND		0.20	0.047	ppb v/v			03/08/18 15:30	1
1,2-Dichloropropane	ND		0.20	0.052	ppb v/v			03/08/18 15:30	1
1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND		0.20	0.032	ppb v/v			03/08/18 15:30	1
1,3,5-Trimethylbenzene	ND		0.20	0.065	ppb v/v			03/08/18 15:30	1
1,3-Butadiene	ND		0.40	0.064	ppb v/v			03/08/18 15:30	1
1,3-Dichlorobenzene	ND		0.20	0.065	ppb v/v			03/08/18 15:30	1
1,4-Dichlorobenzene	ND		0.20	0.064	ppb v/v			03/08/18 15:30	1
1,4-Dioxane	ND		5.0	0.080	ppb v/v			03/08/18 15:30	1
2,2,4-Trimethylpentane	ND		0.50	0.039	ppb v/v			03/08/18 15:30	1
2-Butanone (MEK)	ND		1.0	0.20	ppb v/v			03/08/18 15:30	1
2-Chlorotoluene	ND		0.40	0.063	ppb v/v			03/08/18 15:30	1
2-Hexanone	ND		0.50	0.058	ppb v/v			03/08/18 15:30	1
2-Methylbutane	ND		0.50	0.031	ppb v/v			03/08/18 15:30	1
3-Chloropropene	ND		0.20	0.048	ppb v/v			03/08/18 15:30	1
4-Ethyltoluene	ND		0.40	0.066	ppb v/v			03/08/18 15:30	1
4-Methyl-2-pentanone (MIBK)	ND		0.50	0.20	ppb v/v			03/08/18 15:30	1
Acetone	ND		5.0	1.4	ppb v/v			03/08/18 15:30	1
Benzyl chloride	ND		0.80	0.078	ppb v/v			03/08/18 15:30	1
Benzene	ND		0.20	0.056	ppb v/v			03/08/18 15:30	1
Bromodichloromethane	ND		0.20	0.044	ppb v/v			03/08/18 15:30	1
Bromoform	ND		0.20	0.048	ppb v/v			03/08/18 15:30	1
Bromomethane	ND		0.20	0.032	ppb v/v			03/08/18 15:30	1
Butane	ND		0.40	0.073	ppb v/v			03/08/18 15:30	1
Carbon disulfide	ND		0.50	0.031	ppb v/v			03/08/18 15:30	1
Carbon tetrachloride	ND		0.20	0.038	ppb v/v			03/08/18 15:30	1
Chlorobenzene	ND		0.20	0.049	ppb v/v			03/08/18 15:30	1
Chloroethane	ND		0.80	0.035	ppb v/v			03/08/18 15:30	1
Chloroform	ND		0.20	0.038	ppb v/v			03/08/18 15:30	1
Chloromethane	ND		0.50	0.16	ppb v/v			03/08/18 15:30	1
cis-1,2-Dichloroethene	ND		0.20	0.060	ppb v/v			03/08/18 15:30	1
cis-1,3-Dichloropropene	ND		0.20	0.074	ppb v/v			03/08/18 15:30	1
Cyclohexane	ND		0.50	0.040	ppb v/v			03/08/18 15:30	1
Decane	ND		1.0	0.056	ppb v/v			03/08/18 15:30	1
Dibromochloromethane	ND		0.20	0.042	ppb v/v			03/08/18 15:30	1
Dichlorodifluoromethane	ND		0.50	0.068	ppb v/v			03/08/18 15:30	1
Dodecane	ND		1.0	0.078	ppb v/v			03/08/18 15:30	1

Method: TO-15 - Volatile Organic Compounds in Ambient Air (Continued)

Lab Sample ID: MB 140-18586/10
Matrix: Air
Analysis Batch: 18586

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethanol	ND		2.0	2.0	ppb v/v			03/08/18 15:30	1
Ethylbenzene	ND		0.20	0.068	ppb v/v			03/08/18 15:30	1
Heptane	ND		0.50	0.047	ppb v/v			03/08/18 15:30	1
Hexachlorobutadiene	ND		0.20	0.078	ppb v/v			03/08/18 15:30	1
Hexane	ND		0.80	0.032	ppb v/v			03/08/18 15:30	1
Indene	ND		0.40	0.40	ppb v/v			03/08/18 15:30	1
Isopropyl alcohol	ND		5.0	0.094	ppb v/v			03/08/18 15:30	1
m-Xylene & p-Xylene	ND		0.80	0.12	ppb v/v			03/08/18 15:30	1
Methylene Chloride	ND		0.50	0.32	ppb v/v			03/08/18 15:30	1
Methyl tert-butyl ether	ND		1.0	0.17	ppb v/v			03/08/18 15:30	1
Naphthalene	ND		0.50	0.090	ppb v/v			03/08/18 15:30	1
Nonane	ND		0.50	0.043	ppb v/v			03/08/18 15:30	1
Octane	ND		0.40	0.036	ppb v/v			03/08/18 15:30	1
o-Xylene	ND		0.20	0.061	ppb v/v			03/08/18 15:30	1
Pentane	ND		1.0	0.40	ppb v/v			03/08/18 15:30	1
Styrene	ND		0.20	0.058	ppb v/v			03/08/18 15:30	1
Tetrachloroethene	ND		0.20	0.040	ppb v/v			03/08/18 15:30	1
Toluene	ND		0.20	0.12	ppb v/v			03/08/18 15:30	1
trans-1,2-Dichloroethene	ND		0.20	0.050	ppb v/v			03/08/18 15:30	1
trans-1,3-Dichloropropene	ND		0.20	0.048	ppb v/v			03/08/18 15:30	1
Trichloroethene	ND		0.20	0.036	ppb v/v			03/08/18 15:30	1
Trichlorofluoromethane	ND		0.20	0.024	ppb v/v			03/08/18 15:30	1
Undecane	ND		1.0	0.062	ppb v/v			03/08/18 15:30	1
Vinyl bromide	ND		0.20	0.035	ppb v/v			03/08/18 15:30	1
Vinyl chloride	ND		0.20	0.071	ppb v/v			03/08/18 15:30	1
Thiophene	ND		0.20	0.20	ppb v/v			03/08/18 15:30	1
Isopropylbenzene	ND		0.80	0.060	ppb v/v			03/08/18 15:30	1
tert-Butyl alcohol	ND		2.0	0.038	ppb v/v			03/08/18 15:30	1
Indane	ND		0.20	0.20	ppb v/v			03/08/18 15:30	1

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		1.1	0.16	ug/m3			03/08/18 15:30	1
1,1,2,2-Tetrachloroethane	ND		1.4	0.42	ug/m3			03/08/18 15:30	1
1,1,2-Trichloroethane	ND		1.1	0.29	ug/m3			03/08/18 15:30	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		1.5	0.24	ug/m3			03/08/18 15:30	1
1,1-Dichloroethane	ND		0.81	0.11	ug/m3			03/08/18 15:30	1
1,1-Dichloroethene	ND		0.79	0.13	ug/m3			03/08/18 15:30	1
1,2,3-Trimethylbenzene	ND		0.98	0.98	ug/m3			03/08/18 15:30	1
1,2,4,5-Tetramethylbenzene	ND		1.1	1.1	ug/m3			03/08/18 15:30	1
1,2,4-Trichlorobenzene	ND		15	0.73	ug/m3			03/08/18 15:30	1
1,2,4-Trimethylbenzene	ND		0.98	0.31	ug/m3			03/08/18 15:30	1
1,2-Dibromoethane (EDB)	ND		1.5	0.34	ug/m3			03/08/18 15:30	1
1,2-Dichlorobenzene	ND		1.2	0.42	ug/m3			03/08/18 15:30	1
1,2-Dichloroethane	ND		0.81	0.19	ug/m3			03/08/18 15:30	1
1,2-Dichloropropane	ND		0.92	0.24	ug/m3			03/08/18 15:30	1
1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND		1.4	0.22	ug/m3			03/08/18 15:30	1
1,3,5-Trimethylbenzene	ND		0.98	0.32	ug/m3			03/08/18 15:30	1
1,3-Butadiene	ND		0.88	0.14	ug/m3			03/08/18 15:30	1

Method: TO-15 - Volatile Organic Compounds in Ambient Air (Continued)

Lab Sample ID: MB 140-18586/10
Matrix: Air
Analysis Batch: 18586

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,3-Dichlorobenzene	ND		1.2	0.39	ug/m3			03/08/18 15:30	1
1,4-Dichlorobenzene	ND		1.2	0.38	ug/m3			03/08/18 15:30	1
1,4-Dioxane	ND		18	0.29	ug/m3			03/08/18 15:30	1
2,2,4-Trimethylpentane	ND		2.3	0.18	ug/m3			03/08/18 15:30	1
2-Butanone (MEK)	ND		2.9	0.59	ug/m3			03/08/18 15:30	1
2-Chlorotoluene	ND		2.1	0.33	ug/m3			03/08/18 15:30	1
2-Hexanone	ND		2.0	0.24	ug/m3			03/08/18 15:30	1
2-Methylbutane	ND		1.5	0.091	ug/m3			03/08/18 15:30	1
3-Chloropropene	ND		0.63	0.15	ug/m3			03/08/18 15:30	1
4-Ethyltoluene	ND		2.0	0.32	ug/m3			03/08/18 15:30	1
4-Methyl-2-pentanone (MIBK)	ND		2.0	0.80	ug/m3			03/08/18 15:30	1
Acetone	ND		12	3.3	ug/m3			03/08/18 15:30	1
Benzyl chloride	ND		4.1	0.40	ug/m3			03/08/18 15:30	1
Benzene	ND		0.64	0.18	ug/m3			03/08/18 15:30	1
Bromodichloromethane	ND		1.3	0.29	ug/m3			03/08/18 15:30	1
Bromoform	ND		2.1	0.50	ug/m3			03/08/18 15:30	1
Bromomethane	ND		0.78	0.12	ug/m3			03/08/18 15:30	1
Butane	ND		0.95	0.17	ug/m3			03/08/18 15:30	1
Carbon disulfide	ND		1.6	0.097	ug/m3			03/08/18 15:30	1
Carbon tetrachloride	ND		1.3	0.24	ug/m3			03/08/18 15:30	1
Chlorobenzene	ND		0.92	0.23	ug/m3			03/08/18 15:30	1
Chloroethane	ND		2.1	0.092	ug/m3			03/08/18 15:30	1
Chloroform	ND		0.98	0.19	ug/m3			03/08/18 15:30	1
Chloromethane	ND		1.0	0.33	ug/m3			03/08/18 15:30	1
cis-1,2-Dichloroethene	ND		0.79	0.24	ug/m3			03/08/18 15:30	1
cis-1,3-Dichloropropene	ND		0.91	0.34	ug/m3			03/08/18 15:30	1
Cyclohexane	ND		1.7	0.14	ug/m3			03/08/18 15:30	1
Decane	ND		5.8	0.33	ug/m3			03/08/18 15:30	1
Dibromochloromethane	ND		1.7	0.36	ug/m3			03/08/18 15:30	1
Dichlorodifluoromethane	ND		2.5	0.34	ug/m3			03/08/18 15:30	1
Dodecane	ND		7.0	0.54	ug/m3			03/08/18 15:30	1
Ethanol	ND		3.8	3.8	ug/m3			03/08/18 15:30	1
Ethylbenzene	ND		0.87	0.30	ug/m3			03/08/18 15:30	1
Heptane	ND		2.0	0.19	ug/m3			03/08/18 15:30	1
Hexachlorobutadiene	ND		2.1	0.83	ug/m3			03/08/18 15:30	1
Hexane	ND		2.8	0.11	ug/m3			03/08/18 15:30	1
Indene	ND		1.9	1.9	ug/m3			03/08/18 15:30	1
Isopropyl alcohol	ND		12	0.23	ug/m3			03/08/18 15:30	1
m-Xylene & p-Xylene	ND		3.5	0.52	ug/m3			03/08/18 15:30	1
Methylene Chloride	ND		1.7	1.1	ug/m3			03/08/18 15:30	1
Methyl tert-butyl ether	ND		3.6	0.61	ug/m3			03/08/18 15:30	1
Naphthalene	ND		2.6	0.47	ug/m3			03/08/18 15:30	1
Nonane	ND		2.6	0.23	ug/m3			03/08/18 15:30	1
Octane	ND		1.9	0.17	ug/m3			03/08/18 15:30	1
o-Xylene	ND		0.87	0.26	ug/m3			03/08/18 15:30	1
Pentane	ND		3.0	1.2	ug/m3			03/08/18 15:30	1
Styrene	ND		0.85	0.25	ug/m3			03/08/18 15:30	1
Tetrachloroethene	ND		1.4	0.27	ug/m3			03/08/18 15:30	1

Method: TO-15 - Volatile Organic Compounds in Ambient Air (Continued)

Lab Sample ID: MB 140-18586/10
Matrix: Air
Analysis Batch: 18586

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Toluene	ND		0.75	0.45	ug/m3			03/08/18 15:30	1
trans-1,2-Dichloroethene	ND		0.79	0.20	ug/m3			03/08/18 15:30	1
trans-1,3-Dichloropropene	ND		0.91	0.22	ug/m3			03/08/18 15:30	1
Trichloroethene	ND		1.1	0.19	ug/m3			03/08/18 15:30	1
Trichlorofluoromethane	ND		1.1	0.13	ug/m3			03/08/18 15:30	1
Undecane	ND		6.4	0.40	ug/m3			03/08/18 15:30	1
Vinyl bromide	ND		0.87	0.15	ug/m3			03/08/18 15:30	1
Vinyl chloride	ND		0.51	0.18	ug/m3			03/08/18 15:30	1
Thiophene	ND		0.69	0.69	ug/m3			03/08/18 15:30	1
Isopropylbenzene	ND		3.9	0.29	ug/m3			03/08/18 15:30	1
tert-Butyl alcohol	ND		6.1	0.12	ug/m3			03/08/18 15:30	1
Indane	ND		0.97	0.97	ug/m3			03/08/18 15:30	1

Tentatively Identified Compound	*MB Est. Result*	*MB Qualifier*	*Unit*	*D*	*RT*	*CAS No.*	*Prepared*	*Analyzed*	*Dil Fac*
1,2,3,4-Tetramethylbenzene TIC	*ND*		*ppb v/v*			*488-23-3*		*03/08/18 15:30*	*1*
1,2,3,5-Tetramethylbenzene TIC	*ND*		*ppb v/v*			*527-53-7*		*03/08/18 15:30*	*1*

Lab Sample ID: LCS 140-18586/1006
Matrix: Air
Analysis Batch: 18586

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1,1-Trichloroethane	2.00	2.14		ppb v/v		107	70 - 130
1,1,2,2-Tetrachloroethane	2.00	1.99		ppb v/v		100	70 - 130
1,1,2-Trichloroethane	2.00	1.89		ppb v/v		94	70 - 130
1,1,2-Trichloro-1,2,2-trifluoroethane	2.00	2.00		ppb v/v		100	70 - 130
1,1-Dichloroethane	2.00	2.02		ppb v/v		101	70 - 130
1,1-Dichloroethene	2.00	1.89		ppb v/v		94	70 - 130
1,2,3-Trimethylbenzene	2.00	1.62		ppb v/v		81	70 - 130
1,2,4,5-Tetramethylbenzene	2.00	2.19		ppb v/v		110	60 - 140
1,2,4-Trichlorobenzene	2.00	2.40		ppb v/v		120	60 - 140
1,2,4-Trimethylbenzene	2.00	2.16		ppb v/v		108	70 - 130
1,2-Dibromoethane (EDB)	2.00	2.01		ppb v/v		101	70 - 130
1,2-Dichlorobenzene	2.00	2.15		ppb v/v		107	70 - 130
1,2-Dichloroethane	2.00	2.18		ppb v/v		109	70 - 130
1,2-Dichloropropane	2.00	1.82		ppb v/v		91	70 - 130
1,2-Dichloro-1,1,2,2-tetrafluoroethane	2.00	2.04		ppb v/v		102	60 - 140
1,3,5-Trimethylbenzene	2.00	2.40		ppb v/v		120	70 - 130
1,3-Butadiene	2.00	1.81		ppb v/v		91	60 - 140
1,3-Dichlorobenzene	2.00	2.12		ppb v/v		106	70 - 130
1,4-Dichlorobenzene	2.00	2.10		ppb v/v		105	70 - 130
1,4-Dioxane	2.00	2.29		ppb v/v		115	60 - 140
2,2,4-Trimethylpentane	2.00	1.88		ppb v/v		94	70 - 130
2-Butanone (MEK)	2.00	2.03		ppb v/v		102	60 - 140
2-Chlorotoluene	2.00	2.08		ppb v/v		104	70 - 130
2-Hexanone	2.00	1.99		ppb v/v		100	60 - 140

Method: TO-15 - Volatile Organic Compounds in Ambient Air (Continued)

Lab Sample ID: LCS 140-18586/1006
Matrix: Air
Analysis Batch: 18586

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
2-Methylbutane	2.00	1.69		ppb v/v		84	70 - 130
3-Chloropropene	2.00	1.08	*	ppb v/v		54	60 - 140
4-Ethyltoluene	2.00	2.05		ppb v/v		102	70 - 130
4-Methyl-2-pentanone (MIBK)	2.00	1.98		ppb v/v		99	60 - 140
Acetone	2.00	1.88	J	ppb v/v		94	60 - 140
Benzyl chloride	2.00	2.16		ppb v/v		108	70 - 130
Benzene	2.00	1.93		ppb v/v		96	70 - 130
Bromodichloromethane	2.00	2.06		ppb v/v		103	70 - 130
Bromoform	2.00	1.89		ppb v/v		94	60 - 140
Bromomethane	2.00	1.87		ppb v/v		93	70 - 130
Butane	2.00	1.77		ppb v/v		89	60 - 140
Carbon disulfide	2.00	1.82		ppb v/v		91	70 - 130
Carbon tetrachloride	2.00	2.18		ppb v/v		109	70 - 130
Chlorobenzene	2.00	1.97		ppb v/v		99	70 - 130
Chloroethane	2.00	1.80		ppb v/v		90	70 - 130
Chloroform	2.00	2.10		ppb v/v		105	70 - 130
Chloromethane	2.00	1.87		ppb v/v		93	60 - 140
cis-1,2-Dichloroethene	2.00	2.03		ppb v/v		101	70 - 130
cis-1,3-Dichloropropene	2.00	1.96		ppb v/v		98	70 - 130
Cyclohexane	2.00	1.78		ppb v/v		89	70 - 130
Decane	2.00	1.93		ppb v/v		96	60 - 140
Dibromochloromethane	2.00	2.14		ppb v/v		107	70 - 130
Dichlorodifluoromethane	2.00	2.12		ppb v/v		106	60 - 140
Dodecane	2.00	2.19		ppb v/v		109	60 - 140
Ethanol	10.0	7.80		ppb v/v		78	60 - 140
Ethylbenzene	2.00	2.00		ppb v/v		100	70 - 130
Heptane	2.00	1.83		ppb v/v		92	70 - 130
Hexachlorobutadiene	2.00	2.23		ppb v/v		112	60 - 140
Hexane	2.00	1.80		ppb v/v		90	70 - 130
Indene	2.00	1.87		ppb v/v		93	60 - 140
Isopropyl alcohol	2.00	2.33		ppb v/v		116	60 - 140
m-Xylene & p-Xylene	4.00	4.10		ppb v/v		102	70 - 130
Methylene Chloride	2.00	1.67		ppb v/v		83	70 - 130
Methyl tert-butyl ether	2.00	2.22		ppb v/v		111	60 - 140
Naphthalene	2.00	2.23		ppb v/v		111	60 - 140
Nonane	2.00	1.86		ppb v/v		93	60 - 140
Octane	2.00	1.92		ppb v/v		96	70 - 130
o-Xylene	2.00	2.01		ppb v/v		101	70 - 130
Pentane	2.00	1.74		ppb v/v		87	70 - 130
Styrene	2.00	1.97		ppb v/v		98	70 - 130
Tetrachloroethene	2.00	2.09		ppb v/v		104	70 - 130
Toluene	2.00	1.93		ppb v/v		97	70 - 130
trans-1,2-Dichloroethene	2.00	1.90		ppb v/v		95	70 - 130
trans-1,3-Dichloropropene	2.00	2.00		ppb v/v		100	70 - 130
Trichloroethene	2.00	2.05		ppb v/v		103	70 - 130
Trichlorofluoromethane	2.00	2.09		ppb v/v		105	60 - 140
Undecane	2.00	1.91		ppb v/v		96	60 - 140
Vinyl bromide	2.00	1.95		ppb v/v		98	60 - 140

Method: TO-15 - Volatile Organic Compounds in Ambient Air (Continued)

Lab Sample ID: LCS 140-18586/1006
Matrix: Air
Analysis Batch: 18586

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Vinyl chloride	2.00	2.02		ppb v/v		101	70 - 130
Thiophene	2.00	1.93		ppb v/v		96	70 - 130
Isopropylbenzene	2.00	2.09		ppb v/v		104	70 - 130
tert-Butyl alcohol	2.00	2.66		ppb v/v		133	60 - 140
Indane	2.00	2.08		ppb v/v		104	70 - 130

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1,1-Trichloroethane	11	11.7		ug/m3		107	70 - 130
1,1,2,2-Tetrachloroethane	14	13.7		ug/m3		100	70 - 130
1,1,2-Trichloroethane	11	10.3		ug/m3		94	70 - 130
1,1,2-Trichloro-1,2,2-trifluoroethane	15	15.3		ug/m3		100	70 - 130
1,1-Dichloroethane	8.1	8.17		ug/m3		101	70 - 130
1,1-Dichloroethene	7.9	7.48		ug/m3		94	70 - 130
1,2,3-Trimethylbenzene	9.8	7.97		ug/m3		81	70 - 130
1,2,4,5-Tetramethylbenzene	11	12.0		ug/m3		110	60 - 140
1,2,4-Trichlorobenzene	15	17.8		ug/m3		120	60 - 140
1,2,4-Trimethylbenzene	9.8	10.6		ug/m3		108	70 - 130
1,2-Dibromoethane (EDB)	15	15.5		ug/m3		101	70 - 130
1,2-Dichlorobenzene	12	12.9		ug/m3		107	70 - 130
1,2-Dichloroethane	8.1	8.82		ug/m3		109	70 - 130
1,2-Dichloropropane	9.2	8.40		ug/m3		91	70 - 130
1,2-Dichloro-1,1,2,2-tetrafluoroethane	14	14.3		ug/m3		102	60 - 140
1,3,5-Trimethylbenzene	9.8	11.8		ug/m3		120	70 - 130
1,3-Butadiene	4.4	4.01		ug/m3		91	60 - 140
1,3-Dichlorobenzene	12	12.8		ug/m3		106	70 - 130
1,4-Dichlorobenzene	12	12.6		ug/m3		105	70 - 130
1,4-Dioxane	7.2	8.26		ug/m3		115	60 - 140
2,2,4-Trimethylpentane	9.3	8.76		ug/m3		94	70 - 130
2-Butanone (MEK)	5.9	5.99		ug/m3		102	60 - 140
2-Chlorotoluene	10	10.7		ug/m3		104	70 - 130
2-Hexanone	8.2	8.16		ug/m3		100	60 - 140
2-Methylbutane	5.9	4.98		ug/m3		84	70 - 130
3-Chloropropene	6.3	3.39	*	ug/m3		54	60 - 140
4-Ethyltoluene	9.8	10.1		ug/m3		102	70 - 130
4-Methyl-2-pentanone (MIBK)	8.2	8.12		ug/m3		99	60 - 140
Acetone	4.8	4.47	J	ug/m3		94	60 - 140
Benzyl chloride	10	11.2		ug/m3		108	70 - 130
Benzene	6.4	6.16		ug/m3		96	70 - 130
Bromodichloromethane	13	13.8		ug/m3		103	70 - 130
Bromoform	21	19.5		ug/m3		94	60 - 140
Bromomethane	7.8	7.26		ug/m3		93	70 - 130
Butane	4.8	4.21		ug/m3		89	60 - 140
Carbon disulfide	6.2	5.66		ug/m3		91	70 - 130
Carbon tetrachloride	13	13.7		ug/m3		109	70 - 130
Chlorobenzene	9.2	9.08		ug/m3		99	70 - 130
Chloroethane	5.3	4.74		ug/m3		90	70 - 130
Chloroform	9.8	10.2		ug/m3		105	70 - 130

Method: TO-15 - Volatile Organic Compounds in Ambient Air (Continued)

Lab Sample ID: LCS 140-18586/1006
Matrix: Air
Analysis Batch: 18586

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloromethane	4.1	3.85		ug/m3		93	60 - 140
cis-1,2-Dichloroethene	7.9	8.05		ug/m3		101	70 - 130
cis-1,3-Dichloropropene	9.1	8.89		ug/m3		98	70 - 130
Cyclohexane	6.9	6.12		ug/m3		89	70 - 130
Decane	12	11.2		ug/m3		96	60 - 140
Dibromochloromethane	17	18.3		ug/m3		107	70 - 130
Dichlorodifluoromethane	9.9	10.5		ug/m3		106	60 - 140
Dodecane	14	15.2		ug/m3		109	60 - 140
Ethanol	19	14.7		ug/m3		78	60 - 140
Ethylbenzene	8.7	8.70		ug/m3		100	70 - 130
Heptane	8.2	7.51		ug/m3		92	70 - 130
Hexachlorobutadiene	21	23.8		ug/m3		112	60 - 140
Hexane	7.0	6.36		ug/m3		90	70 - 130
Indene	9.5	8.88		ug/m3		93	60 - 140
Isopropyl alcohol	4.9	5.72		ug/m3		116	60 - 140
m-Xylene & p-Xylene	17	17.8		ug/m3		102	70 - 130
Methylene Chloride	6.9	5.80		ug/m3		83	70 - 130
Methyl tert-butyl ether	7.2	8.00		ug/m3		111	60 - 140
Naphthalene	10	11.7		ug/m3		111	60 - 140
Nonane	10	9.74		ug/m3		93	60 - 140
Octane	9.3	8.99		ug/m3		96	70 - 130
o-Xylene	8.7	8.74		ug/m3		101	70 - 130
Pentane	5.9	5.13		ug/m3		87	70 - 130
Styrene	8.5	8.37		ug/m3		98	70 - 130
Tetrachloroethene	14	14.2		ug/m3		104	70 - 130
Toluene	7.5	7.28		ug/m3		97	70 - 130
trans-1,2-Dichloroethene	7.9	7.54		ug/m3		95	70 - 130
trans-1,3-Dichloropropene	9.1	9.07		ug/m3		100	70 - 130
Trichloroethene	11	11.0		ug/m3		103	70 - 130
Trichlorofluoromethane	11	11.8		ug/m3		105	60 - 140
Undecane	13	12.2		ug/m3		96	60 - 140
Vinyl bromide	8.7	8.55		ug/m3		98	60 - 140
Vinyl chloride	5.1	5.16		ug/m3		101	70 - 130
Thiophene	6.9	6.63		ug/m3		96	70 - 130
Isopropylbenzene	9.8	10.3		ug/m3		104	70 - 130
tert-Butyl alcohol	6.1	8.06		ug/m3		133	60 - 140
Indane	9.7	10.1		ug/m3		104	70 - 130

QC Association Summary

Client: Ramboll US Corporation
Project/Site: ESCO Steel Treaters Troy NY

TestAmerica Job ID: 140-10856-1

Air - GC/MS VOA

Analysis Batch: 18586

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-10856-1	SV-12-180301	Total/NA	Air	TO-15	
MB 140-18586/10	Method Blank	Total/NA	Air	TO-15	
LCS 140-18586/1006	Lab Control Sample	Total/NA	Air	TO-15	

Lab Chronicle

Client: Ramboll US Corporation
Project/Site: ESCO Steel Treaters Troy NY

TestAmerica Job ID: 140-10856-1

Client Sample ID: SV-12-180301

Lab Sample ID: 140-10856-1

Date Collected: 03/01/18 16:36

Matrix: Air

Date Received: 03/03/18 10:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	TO-15		1	20 mL	500 mL	18586	03/08/18 21:37	HMT	TAL KNX
	Instrument ID: MJ									

Client Sample ID: Method Blank

Lab Sample ID: MB 140-18586/10

Date Collected: N/A

Matrix: Air

Date Received: N/A

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	TO-15		1	200 mL	500 mL	18586	03/08/18 15:30	HMT	TAL KNX
	Instrument ID: MJ									

Client Sample ID: Lab Control Sample

Lab Sample ID: LCS 140-18586/1006

Date Collected: N/A

Matrix: Air

Date Received: N/A

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	TO-15		1	500 mL	500 mL	18586	03/08/18 12:00	HMT	TAL KNX
	Instrument ID: MJ									

Laboratory References:

TAL KNX = TestAmerica Knoxville, 5815 Middlebrook Pike, Knoxville, TN 37921, TEL (865)291-3000

Accreditation/Certification Summary

Client: Ramboll US Corporation
Project/Site: ESCO Steel Treaters Troy NY

TestAmerica Job ID: 140-10856-1

Laboratory: TestAmerica Knoxville

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
	AFCEE		N/A	
ANAB	DoD ELAP		L2311	02-13-19
Arkansas DEQ	State Program	6	88-0688	06-16-18
California	State Program	9	2423	06-30-18
Colorado	State Program	8	TN00009	02-28-19
Connecticut	State Program	1	PH-0223	09-30-19
Florida	NELAP	4	E87177	06-30-18
Georgia	State Program	4	906	04-13-20
Hawaii	State Program	9	N/A	04-13-18
Kansas	NELAP	7	E-10349	10-31-18
Kentucky (DW)	State Program	4	90101	12-31-18
Louisiana	NELAP	6	83979	06-30-18
Louisiana (DW)	NELAP	6	LA160005	12-31-18
Maryland	State Program	3	277	03-31-19
Michigan	State Program	5	9933	04-13-20
Nevada	State Program	9	TN00009	07-31-18
New Jersey	NELAP	2	TN001	06-30-18
New York	NELAP	2	10781	03-31-18
North Carolina (DW)	State Program	4	21705	07-31-18
North Carolina (WW/SW)	State Program	4	64	12-31-18
Ohio VAP	State Program	5	CL0059	11-22-18
Oklahoma	State Program	6	9415	08-31-18
Oregon	NELAP	10	TNI0189	01-01-19
Pennsylvania	NELAP	3	68-00576	12-31-18
Tennessee	State Program	4	2014	04-13-20
Texas	NELAP	6	T104704380-16-9	08-31-18
US Fish & Wildlife	Federal		LE-058448-0	07-31-18
USDA	Federal		P330-13-00262	08-20-19
Utah	NELAP	8	TN00009	07-31-18
Virginia	NELAP	3	460176	09-14-18
Washington	State Program	10	C593	01-19-19
West Virginia (DW)	State Program	3	9955C	12-31-18
West Virginia DEP	State Program	3	345	04-30-18
Wisconsin	State Program	5	998044300	08-31-18

Laboratory: TestAmerica Buffalo

The accreditations/certifications listed below are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
New York	NELAP	2	10026	03-31-18 *

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Method Summary

Client: Ramboll US Corporation
Project/Site: ESCO Steel Treaters Troy NY

TestAmerica Job ID: 140-10856-1

Method	Method Description	Protocol	Laboratory
TO-15	Volatile Organic Compounds in Ambient Air	EPA	TAL KNX

Protocol References:

EPA = US Environmental Protection Agency

Laboratory References:

TAL KNX = TestAmerica Knoxville, 5815 Middlebrook Pike, Knoxville, TN 37921, TEL (865)291-3000

Sample Summary

Client: Ramboll US Corporation
Project/Site: ESCO Steel Treaters Troy NY

TestAmerica Job ID: 140-10856-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
140-10856-1	SV-12-180301	Air	03/01/18 16:36	03/03/18 10:30

TAL Knoxville 480501-Albany
5815 Middlebrook Pike
Knoxville, TN 37921
phone 865-291-3000 fax 865-584-4315

Canister Samples Chain of Custody Record

TestAmerica assumes no liability with respect to the collection and shipment of these samples.

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Contact Information	**Project Manager:** Jose Cananes	**Sampled By:** Alex Pafalian
Company: Ramboll US Corporation	Phone: 609 243 9887	1 of 1 COCs
Address: 101 Carnegie Center Suite 200	Site Contact: Alex Pafalian	
City/State/Zip: Princeton, NJ 08540	TAL Contact: Becky Mason	
Phone: 609 243 9800		
FAX:		
Project Name: ESCO Steel Treaters	**Analysis Turnaround Time**	
Site/location: Troy NY	Standard (Specify) 5 - Day	
PO # 169000063	Rush (Specify)	

140-10856 Chain of Custody

Sample Identification	Sample Date(s)	Time Start	Time Stop	Canister Vacuum in Field, "Hg (Start)	Canister Vacuum in Field, "Hg (Stop)	Flow Controller ID	Canister ID	TO-15	TO-14A	EPA 3C	EPA 25C	ASTM D-1946	Other (Please specify in notes section)	Sample Type	Indoor Air	Ambient Air	Soil Gas	Landfill Gas	Other (Please specify in notes section)
SV-12-180301	3/1/18	1545	1636	-29	-5	10737	10169	X									X		

Sampled by : Alex Pafalian
Miles Ingraham

Temperature (Fahrenheit)	Interior	Ambient
Start	NA	49.0
Stop	NA	48.6

Pressure (inches of Hg)	Interior	Ambient
Start	NA	29.89
Stop	NA	29.74

Received @ ambient, 1 b.x
FedEx PO
TRK# 13 00 6536 6070
No Custody Seal
KW 3/3/18

Special Instructions/QC Requirements & Comments:
Supposed to be 2-hr sample, regulator went down to -5 within an hour.

Canisters Shipped by:	Date/Time: 3/2/18 1254	Canisters Received by: Tim Knollmeyer 3-2-18 1254
Samples Relinquished by: Tim Knollmeyer	Date/Time: 3-2-18 1800	Received by: 3/3/18 1030
Relinquished by:	Date/Time:	Received by:

1 can

Loc: 140
10856

TESTAMERICA KNOXVILLE SAMPLE RECEIPT/CONDITION UPON RECEIPT ANOMALY CHECKLIST

Log In Number:

Review Items	Yes	No	NA	If No, what was the problem?
1. Are the shipping containers intact?	/			☐ **Containers, Broken**
2. Were ambient air containers received intact?			/	☑ Checked in lab
3. The coolers/containers custody seal if present, is it intact?			/	☐ Yes ☐ NA
4. Is the cooler temperature within limits? (> freezing temp. of water to 6 °C, VOST: 10°C) Thermometer ID :_____ Correction factor: _____			/	☐ **Cooler Out of Temp, Client Contacted, Proceed/Cancel** ☐ **Cooler Out of Temp, Same Day Receipt**
5. Were all of the sample containers received intact?	/			☐ **Containers, Broken**
6. Were samples received in appropriate containers?	/			☐ **Containers, Improper; Client Contacted; Proceed/Cancel**
7. Do sample container labels match COC? (IDs, Dates, Times)	/			☐ **COC & Samples Do Not Match** ☐ **COC Incorrect/Incomplete** ☐ **COC Not Received**
8. Were all of the samples listed on the COC received?	/			☐ **Sample Received, Not on COC** ☐ **Sample on COC, Not Received**
9. Is the date/time of sample collection noted?	/			☐ **COC; No Date/Time; Client Contacted**
10. Was the sampler identified on the COC?	/			☐ **Sampler Not Listed on COC**
11. Is the client and project name/# identified?	/			☐ **COC Incorrect/Incomplete**
12. Are tests/parameters listed for each sample?	/			☐ **COC No tests on COC**
13. Is the matrix of the samples noted?	/			☐ **COC Incorrect/Incomplete**
14. Was COC relinquished? (Signed/Dated/Timed)	/			☐ **COC Incorrect/Incomplete**
15. Were samples received within holding time?	/			☐ **Holding Time - Receipt**
16. Were samples received with correct chemical preservative (excluding Encore)?			/	☐ **pH Adjusted, pH Included (See box 16A)** ☐ **Incorrect Preservative**
17. Were VOA samples received without headspace?			/	☐ **Headspace (VOA only)**
18. Did you check for residual chlorine, if necessary? (e.g. 1613B, 1668) Chlorine test strip lot number:			/	☐ **Residual Chlorine**
19. For 1613B water samples is pH<9?			/	☐ If no, lab will adjust
20. For rad samples was sample activity info. Provided?			/	☐ Project missing info

Comments/Actions Taken

Labeling Verified by: **Date:**

pH test strip lot number:

Box 16A: pH Preservation	Box 18A: Residual Chlorine
Preservative:	
Lot Number:	
Exp Date:	
Analyst:	
Date:	
Time:	

Project #: 480-131148 PM Instructions: _____

Sample Receiving Associate: Ke D Date: 3/3/18

QA026R30.doc, 080916

TestAmerica

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ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Buffalo
10 Hazelwood Drive
Amherst, NY 14228-2298
Tel: (716)691-2600

TestAmerica Job ID: 480-132108-1
Client Project/Site: ESCO Steel Treaters Troy NY

For:
Ramboll US Corporation
101 Carnegie Center
Suite 200
Princeton, New Jersey 08540

Attn: Alex Papalian

Denise L Giglia

Authorized for release by:
3/9/2018 8:17:26 AM
Denise Giglia, Project Management Assistant II
denise.giglia@testamericainc.com

Designee for

Becky Mason, Project Manager II
(413)572-4000
becky.mason@testamericainc.com

LINKS

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Have a Question? Ask The Expert

Visit us at: www.testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Job ID: 480-132108-1

Laboratory: TestAmerica Buffalo

Narrative

Job Narrative
480-132108-1

Receipt
The samples were received on 3/3/2018 9:00 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 2.7° C.

GC/MS VOA
Method 8260C: The continuing calibration verification (CCV) associated with batch 480-402605 recovered above the upper control limit for 2-Butanone (MEK) and Methylcyclohexane. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported. The following samples are impacted: TWP-14-180301 (480-132108-1), FB-180301 (480-132108-2) and TB-180301 (480-132108-3).

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Detection Summary

Client: Ramboll US Corporation
Project/Site: ESCO Steel Treaters Troy NY

TestAmerica Job ID: 480-132108-1

Client Sample ID: TWP-14-180301 — Lab Sample ID: 480-132108-1

No Detections.

Client Sample ID: FB-180301 — Lab Sample ID: 480-132108-2

No Detections.

Client Sample ID: TB-180301 — Lab Sample ID: 480-132108-3

No Detections.

This Detection Summary does not include radiochemical test results.

Client: Ramboll US Corporation
Project/Site: ESCO Steel Treaters Troy NY

TestAmerica Job ID: 480-132108-1

Client Sample ID: TWP-14-180301
Date Collected: 03/01/18 16:10
Date Received: 03/03/18 09:00

Lab Sample ID: 480-132108-1
Matrix: Water

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		1.0	0.82	ug/L			03/06/18 15:40	1
1,1,2,2-Tetrachloroethane	ND		1.0	0.21	ug/L			03/06/18 15:40	1
1,1,2-Trichloroethane	ND		1.0	0.23	ug/L			03/06/18 15:40	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		1.0	0.31	ug/L			03/06/18 15:40	1
1,1-Dichloroethane	ND		1.0	0.38	ug/L			03/06/18 15:40	1
1,1-Dichloroethene	ND		1.0	0.29	ug/L			03/06/18 15:40	1
1,2,4-Trichlorobenzene	ND		1.0	0.41	ug/L			03/06/18 15:40	1
1,2-Dibromo-3-Chloropropane	ND		1.0	0.39	ug/L			03/06/18 15:40	1
1,2-Dichlorobenzene	ND		1.0	0.79	ug/L			03/06/18 15:40	1
1,2-Dichloroethane	ND		1.0	0.21	ug/L			03/06/18 15:40	1
1,2-Dichloropropane	ND		1.0	0.72	ug/L			03/06/18 15:40	1
1,3-Dichlorobenzene	ND		1.0	0.78	ug/L			03/06/18 15:40	1
1,4-Dichlorobenzene	ND		1.0	0.84	ug/L			03/06/18 15:40	1
2-Butanone (MEK)	ND		10	1.3	ug/L			03/06/18 15:40	1
2-Hexanone	ND		5.0	1.2	ug/L			03/06/18 15:40	1
4-Methyl-2-pentanone (MIBK)	ND		5.0	2.1	ug/L			03/06/18 15:40	1
Acetone	ND		10	3.0	ug/L			03/06/18 15:40	1
Benzene	ND		1.0	0.41	ug/L			03/06/18 15:40	1
Bromodichloromethane	ND		1.0	0.39	ug/L			03/06/18 15:40	1
Bromoform	ND		1.0	0.26	ug/L			03/06/18 15:40	1
Bromomethane	ND		1.0	0.69	ug/L			03/06/18 15:40	1
Carbon disulfide	ND		1.0	0.19	ug/L			03/06/18 15:40	1
Carbon tetrachloride	ND		1.0	0.27	ug/L			03/06/18 15:40	1
Chlorobenzene	ND		1.0	0.75	ug/L			03/06/18 15:40	1
Dibromochloromethane	ND		1.0	0.32	ug/L			03/06/18 15:40	1
Chloroethane	ND		1.0	0.32	ug/L			03/06/18 15:40	1
Chloroform	ND		1.0	0.34	ug/L			03/06/18 15:40	1
Chloromethane	ND		1.0	0.35	ug/L			03/06/18 15:40	1
1,4-Dioxane	ND		40	9.3	ug/L			03/06/18 15:40	1
cis-1,2-Dichloroethene	ND		1.0	0.81	ug/L			03/06/18 15:40	1
cis-1,3-Dichloropropene	ND		1.0	0.36	ug/L			03/06/18 15:40	1
Cyclohexane	ND		1.0	0.18	ug/L			03/06/18 15:40	1
Dichlorodifluoromethane	ND		1.0	0.68	ug/L			03/06/18 15:40	1
Ethylbenzene	ND		1.0	0.74	ug/L			03/06/18 15:40	1
1,2-Dibromoethane	ND		1.0	0.73	ug/L			03/06/18 15:40	1
Isopropylbenzene	ND		1.0	0.79	ug/L			03/06/18 15:40	1
Methyl acetate	ND		2.5	1.3	ug/L			03/06/18 15:40	1
Methyl tert-butyl ether	ND		1.0	0.16	ug/L			03/06/18 15:40	1
Methylcyclohexane	ND		1.0	0.16	ug/L			03/06/18 15:40	1
Methylene Chloride	ND		1.0	0.44	ug/L			03/06/18 15:40	1
Styrene	ND		1.0	0.73	ug/L			03/06/18 15:40	1
Tetrachloroethene	ND		1.0	0.36	ug/L			03/06/18 15:40	1
Toluene	ND		1.0	0.51	ug/L			03/06/18 15:40	1
trans-1,2-Dichloroethene	ND		1.0	0.90	ug/L			03/06/18 15:40	1
trans-1,3-Dichloropropene	ND		1.0	0.37	ug/L			03/06/18 15:40	1
Trichloroethene	ND		1.0	0.46	ug/L			03/06/18 15:40	1
Trichlorofluoromethane	ND		1.0	0.88	ug/L			03/06/18 15:40	1
Vinyl chloride	ND		1.0	0.90	ug/L			03/06/18 15:40	1
Xylenes, Total	ND		2.0	0.66	ug/L			03/06/18 15:40	1

Client Sample ID: TWP-14-180301

Lab Sample ID: 480-132108-1

Date Collected: 03/01/18 16:10

Matrix: Water

Date Received: 03/03/18 09:00

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	*95*		*80 - 120*		*03/06/18 15:40*	*1*
1,2-Dichloroethane-d4 (Surr)	*100*		*77 - 120*		*03/06/18 15:40*	*1*
4-Bromofluorobenzene (Surr)	*96*		*73 - 120*		*03/06/18 15:40*	*1*
Dibromofluoromethane (Surr)	*99*		*75 - 123*		*03/06/18 15:40*	*1*

Client Sample ID: FB-180301

Lab Sample ID: 480-132108-2

Date Collected: 03/01/18 16:20

Matrix: Water

Date Received: 03/03/18 09:00

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		1.0	0.82	ug/L			03/06/18 16:07	1
1,1,2,2-Tetrachloroethane	ND		1.0	0.21	ug/L			03/06/18 16:07	1
1,1,2-Trichloroethane	ND		1.0	0.23	ug/L			03/06/18 16:07	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		1.0	0.31	ug/L			03/06/18 16:07	1
1,1-Dichloroethane	ND		1.0	0.38	ug/L			03/06/18 16:07	1
1,1-Dichloroethene	ND		1.0	0.29	ug/L			03/06/18 16:07	1
1,2,4-Trichlorobenzene	ND		1.0	0.41	ug/L			03/06/18 16:07	1
1,2-Dibromo-3-Chloropropane	ND		1.0	0.39	ug/L			03/06/18 16:07	1
1,2-Dichlorobenzene	ND		1.0	0.79	ug/L			03/06/18 16:07	1
1,2-Dichloroethane	ND		1.0	0.21	ug/L			03/06/18 16:07	1
1,2-Dichloropropane	ND		1.0	0.72	ug/L			03/06/18 16:07	1
1,3-Dichlorobenzene	ND		1.0	0.78	ug/L			03/06/18 16:07	1
1,4-Dichlorobenzene	ND		1.0	0.84	ug/L			03/06/18 16:07	1
2-Butanone (MEK)	ND		10	1.3	ug/L			03/06/18 16:07	1
2-Hexanone	ND		5.0	1.2	ug/L			03/06/18 16:07	1
4-Methyl-2-pentanone (MIBK)	ND		5.0	2.1	ug/L			03/06/18 16:07	1
Acetone	ND		10	3.0	ug/L			03/06/18 16:07	1
Benzene	ND		1.0	0.41	ug/L			03/06/18 16:07	1
Bromodichloromethane	ND		1.0	0.39	ug/L			03/06/18 16:07	1
Bromoform	ND		1.0	0.26	ug/L			03/06/18 16:07	1
Bromomethane	ND		1.0	0.69	ug/L			03/06/18 16:07	1
Carbon disulfide	ND		1.0	0.19	ug/L			03/06/18 16:07	1
Carbon tetrachloride	ND		1.0	0.27	ug/L			03/06/18 16:07	1
Chlorobenzene	ND		1.0	0.75	ug/L			03/06/18 16:07	1
Dibromochloromethane	ND		1.0	0.32	ug/L			03/06/18 16:07	1
Chloroethane	ND		1.0	0.32	ug/L			03/06/18 16:07	1
Chloroform	ND		1.0	0.34	ug/L			03/06/18 16:07	1
Chloromethane	ND		1.0	0.35	ug/L			03/06/18 16:07	1
1,4-Dioxane	ND		40	9.3	ug/L			03/06/18 16:07	1
cis-1,2-Dichloroethene	ND		1.0	0.81	ug/L			03/06/18 16:07	1
cis-1,3-Dichloropropene	ND		1.0	0.36	ug/L			03/06/18 16:07	1
Cyclohexane	ND		1.0	0.18	ug/L			03/06/18 16:07	1
Dichlorodifluoromethane	ND		1.0	0.68	ug/L			03/06/18 16:07	1
Ethylbenzene	ND		1.0	0.74	ug/L			03/06/18 16:07	1
1,2-Dibromoethane	ND		1.0	0.73	ug/L			03/06/18 16:07	1
Isopropylbenzene	ND		1.0	0.79	ug/L			03/06/18 16:07	1
Methyl acetate	ND		2.5	1.3	ug/L			03/06/18 16:07	1
Methyl tert-butyl ether	ND		1.0	0.16	ug/L			03/06/18 16:07	1
Methylcyclohexane	ND		1.0	0.16	ug/L			03/06/18 16:07	1

Client Sample ID: FB-180301

Lab Sample ID: 480-132108-2

Date Collected: 03/01/18 16:20

Matrix: Water

Date Received: 03/03/18 09:00

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methylene Chloride	ND		1.0	0.44	ug/L			03/06/18 16:07	1
Styrene	ND		1.0	0.73	ug/L			03/06/18 16:07	1
Tetrachloroethene	ND		1.0	0.36	ug/L			03/06/18 16:07	1
Toluene	ND		1.0	0.51	ug/L			03/06/18 16:07	1
trans-1,2-Dichloroethene	ND		1.0	0.90	ug/L			03/06/18 16:07	1
trans-1,3-Dichloropropene	ND		1.0	0.37	ug/L			03/06/18 16:07	1
Trichloroethene	ND		1.0	0.46	ug/L			03/06/18 16:07	1
Trichlorofluoromethane	ND		1.0	0.88	ug/L			03/06/18 16:07	1
Vinyl chloride	ND		1.0	0.90	ug/L			03/06/18 16:07	1
Xylenes, Total	ND		2.0	0.66	ug/L			03/06/18 16:07	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*91*		*80 - 120*		*03/06/18 16:07*	*1*
1,2-Dichloroethane-d4 (Surr)	*99*		*77 - 120*		*03/06/18 16:07*	*1*
4-Bromofluorobenzene (Surr)	*91*		*73 - 120*		*03/06/18 16:07*	*1*
Dibromofluoromethane (Surr)	*100*		*75 - 123*		*03/06/18 16:07*	*1*

Client Sample ID: TB-180301

Lab Sample ID: 480-132108-3

Date Collected: 03/01/18 16:20

Matrix: Water

Date Received: 03/03/18 09:00

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		1.0	0.82	ug/L			03/06/18 16:34	1
1,1,2,2-Tetrachloroethane	ND		1.0	0.21	ug/L			03/06/18 16:34	1
1,1,2-Trichloroethane	ND		1.0	0.23	ug/L			03/06/18 16:34	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		1.0	0.31	ug/L			03/06/18 16:34	1
1,1-Dichloroethane	ND		1.0	0.38	ug/L			03/06/18 16:34	1
1,1-Dichloroethene	ND		1.0	0.29	ug/L			03/06/18 16:34	1
1,2,4-Trichlorobenzene	ND		1.0	0.41	ug/L			03/06/18 16:34	1
1,2-Dibromo-3-Chloropropane	ND		1.0	0.39	ug/L			03/06/18 16:34	1
1,2-Dichlorobenzene	ND		1.0	0.79	ug/L			03/06/18 16:34	1
1,2-Dichloroethane	ND		1.0	0.21	ug/L			03/06/18 16:34	1
1,2-Dichloropropane	ND		1.0	0.72	ug/L			03/06/18 16:34	1
1,3-Dichlorobenzene	ND		1.0	0.78	ug/L			03/06/18 16:34	1
1,4-Dichlorobenzene	ND		1.0	0.84	ug/L			03/06/18 16:34	1
2-Butanone (MEK)	ND		10	1.3	ug/L			03/06/18 16:34	1
2-Hexanone	ND		5.0	1.2	ug/L			03/06/18 16:34	1
4-Methyl-2-pentanone (MIBK)	ND		5.0	2.1	ug/L			03/06/18 16:34	1
Acetone	ND		10	3.0	ug/L			03/06/18 16:34	1
Benzene	ND		1.0	0.41	ug/L			03/06/18 16:34	1
Bromodichloromethane	ND		1.0	0.39	ug/L			03/06/18 16:34	1
Bromoform	ND		1.0	0.26	ug/L			03/06/18 16:34	1
Bromomethane	ND		1.0	0.69	ug/L			03/06/18 16:34	1
Carbon disulfide	ND		1.0	0.19	ug/L			03/06/18 16:34	1
Carbon tetrachloride	ND		1.0	0.27	ug/L			03/06/18 16:34	1
Chlorobenzene	ND		1.0	0.75	ug/L			03/06/18 16:34	1
Dibromochloromethane	ND		1.0	0.32	ug/L			03/06/18 16:34	1
Chloroethane	ND		1.0	0.32	ug/L			03/06/18 16:34	1
Chloroform	ND		1.0	0.34	ug/L			03/06/18 16:34	1

Client: Ramboll US Corporation
Project/Site: ESCO Steel Treaters Troy NY

TestAmerica Job ID: 480-132108-1

Client Sample ID: TB-180301
Date Collected: 03/01/18 16:20
Date Received: 03/03/18 09:00

Lab Sample ID: 480-132108-3
Matrix: Water

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloromethane	ND		1.0	0.35	ug/L			03/06/18 16:34	1
1,4-Dioxane	ND		40	9.3	ug/L			03/06/18 16:34	1
cis-1,2-Dichloroethene	ND		1.0	0.81	ug/L			03/06/18 16:34	1
cis-1,3-Dichloropropene	ND		1.0	0.36	ug/L			03/06/18 16:34	1
Cyclohexane	ND		1.0	0.18	ug/L			03/06/18 16:34	1
Dichlorodifluoromethane	ND		1.0	0.68	ug/L			03/06/18 16:34	1
Ethylbenzene	ND		1.0	0.74	ug/L			03/06/18 16:34	1
1,2-Dibromoethane	ND		1.0	0.73	ug/L			03/06/18 16:34	1
Isopropylbenzene	ND		1.0	0.79	ug/L			03/06/18 16:34	1
Methyl acetate	ND		2.5	1.3	ug/L			03/06/18 16:34	1
Methyl tert-butyl ether	ND		1.0	0.16	ug/L			03/06/18 16:34	1
Methylcyclohexane	ND		1.0	0.16	ug/L			03/06/18 16:34	1
Methylene Chloride	ND		1.0	0.44	ug/L			03/06/18 16:34	1
Styrene	ND		1.0	0.73	ug/L			03/06/18 16:34	1
Tetrachloroethene	ND		1.0	0.36	ug/L			03/06/18 16:34	1
Toluene	ND		1.0	0.51	ug/L			03/06/18 16:34	1
trans-1,2-Dichloroethene	ND		1.0	0.90	ug/L			03/06/18 16:34	1
trans-1,3-Dichloropropene	ND		1.0	0.37	ug/L			03/06/18 16:34	1
Trichloroethene	ND		1.0	0.46	ug/L			03/06/18 16:34	1
Trichlorofluoromethane	ND		1.0	0.88	ug/L			03/06/18 16:34	1
Vinyl chloride	ND		1.0	0.90	ug/L			03/06/18 16:34	1
Xylenes, Total	ND		2.0	0.66	ug/L			03/06/18 16:34	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*93*		*80 - 120*		*03/06/18 16:34*	*1*
1,2-Dichloroethane-d4 (Surr)	*101*		*77 - 120*		*03/06/18 16:34*	*1*
4-Bromofluorobenzene (Surr)	*101*		*73 - 120*		*03/06/18 16:34*	*1*
Dibromofluoromethane (Surr)	*103*		*75 - 123*		*03/06/18 16:34*	*1*

Surrogate Summary

Client: Ramboll US Corporation
Project/Site: ESCO Steel Treaters Troy NY

TestAmerica Job ID: 480-132108-1

Method: 8260C - Volatile Organic Compounds by GC/MS

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)			
		TOL	DCA	BFB	DBFM
Lab Sample ID	Client Sample ID	(80-120)	(77-120)	(73-120)	(75-123)
480-132108-1	TWP-14-180301	95	100	96	99
480-132108-2	FB-180301	91	99	91	100
480-132108-3	TB-180301	93	101	101	103
LCS 480-402605/5	Lab Control Sample	97	106	98	110
MB 480-402605/7	Method Blank	97	104	99	103

Surrogate Legend

TOL = Toluene-d8 (Surr)
DCA = 1,2-Dichloroethane-d4 (Surr)
BFB = 4-Bromofluorobenzene (Surr)
DBFM = Dibromofluoromethane (Surr)

Method: 8260C - Volatile Organic Compounds by GC/MS

Lab Sample ID: MB 480-402605/7
Matrix: Water
Analysis Batch: 402605

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		1.0	0.82	ug/L			03/06/18 11:58	1
1,1,2,2-Tetrachloroethane	ND		1.0	0.21	ug/L			03/06/18 11:58	1
1,1,2-Trichloroethane	ND		1.0	0.23	ug/L			03/06/18 11:58	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		1.0	0.31	ug/L			03/06/18 11:58	1
1,1-Dichloroethane	ND		1.0	0.38	ug/L			03/06/18 11:58	1
1,1-Dichloroethene	ND		1.0	0.29	ug/L			03/06/18 11:58	1
1,2,4-Trichlorobenzene	ND		1.0	0.41	ug/L			03/06/18 11:58	1
1,2-Dibromo-3-Chloropropane	ND		1.0	0.39	ug/L			03/06/18 11:58	1
1,2-Dichlorobenzene	ND		1.0	0.79	ug/L			03/06/18 11:58	1
1,2-Dichloroethane	ND		1.0	0.21	ug/L			03/06/18 11:58	1
1,2-Dichloropropane	ND		1.0	0.72	ug/L			03/06/18 11:58	1
1,3-Dichlorobenzene	ND		1.0	0.78	ug/L			03/06/18 11:58	1
1,4-Dichlorobenzene	ND		1.0	0.84	ug/L			03/06/18 11:58	1
2-Butanone (MEK)	ND		10	1.3	ug/L			03/06/18 11:58	1
2-Hexanone	ND		5.0	1.2	ug/L			03/06/18 11:58	1
4-Methyl-2-pentanone (MIBK)	ND		5.0	2.1	ug/L			03/06/18 11:58	1
Acetone	ND		10	3.0	ug/L			03/06/18 11:58	1
Benzene	ND		1.0	0.41	ug/L			03/06/18 11:58	1
Bromodichloromethane	ND		1.0	0.39	ug/L			03/06/18 11:58	1
Bromoform	ND		1.0	0.26	ug/L			03/06/18 11:58	1
Bromomethane	ND		1.0	0.69	ug/L			03/06/18 11:58	1
Carbon disulfide	ND		1.0	0.19	ug/L			03/06/18 11:58	1
Carbon tetrachloride	ND		1.0	0.27	ug/L			03/06/18 11:58	1
Chlorobenzene	ND		1.0	0.75	ug/L			03/06/18 11:58	1
Dibromochloromethane	ND		1.0	0.32	ug/L			03/06/18 11:58	1
Chloroethane	ND		1.0	0.32	ug/L			03/06/18 11:58	1
Chloroform	ND		1.0	0.34	ug/L			03/06/18 11:58	1
Chloromethane	ND		1.0	0.35	ug/L			03/06/18 11:58	1
1,4-Dioxane	ND		40	9.3	ug/L			03/06/18 11:58	1
cis-1,2-Dichloroethene	ND		1.0	0.81	ug/L			03/06/18 11:58	1
cis-1,3-Dichloropropene	ND		1.0	0.36	ug/L			03/06/18 11:58	1
Cyclohexane	ND		1.0	0.18	ug/L			03/06/18 11:58	1
Dichlorodifluoromethane	ND		1.0	0.68	ug/L			03/06/18 11:58	1
Ethylbenzene	ND		1.0	0.74	ug/L			03/06/18 11:58	1
1,2-Dibromoethane	ND		1.0	0.73	ug/L			03/06/18 11:58	1
Isopropylbenzene	ND		1.0	0.79	ug/L			03/06/18 11:58	1
Methyl acetate	ND		2.5	1.3	ug/L			03/06/18 11:58	1
Methyl tert-butyl ether	ND		1.0	0.16	ug/L			03/06/18 11:58	1
Methylcyclohexane	ND		1.0	0.16	ug/L			03/06/18 11:58	1
Methylene Chloride	ND		1.0	0.44	ug/L			03/06/18 11:58	1
Styrene	ND		1.0	0.73	ug/L			03/06/18 11:58	1
Tetrachloroethene	ND		1.0	0.36	ug/L			03/06/18 11:58	1
Toluene	ND		1.0	0.51	ug/L			03/06/18 11:58	1
trans-1,2-Dichloroethene	ND		1.0	0.90	ug/L			03/06/18 11:58	1
trans-1,3-Dichloropropene	ND		1.0	0.37	ug/L			03/06/18 11:58	1
Trichloroethene	ND		1.0	0.46	ug/L			03/06/18 11:58	1
Trichlorofluoromethane	ND		1.0	0.88	ug/L			03/06/18 11:58	1
Vinyl chloride	ND		1.0	0.90	ug/L			03/06/18 11:58	1

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: MB 480-402605/7
Matrix: Water
Analysis Batch: 402605

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Xylenes, Total	ND		2.0	0.66	ug/L			03/06/18 11:58	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*97*		*80 - 120*		*03/06/18 11:58*	*1*
1,2-Dichloroethane-d4 (Surr)	*104*		*77 - 120*		*03/06/18 11:58*	*1*
4-Bromofluorobenzene (Surr)	*99*		*73 - 120*		*03/06/18 11:58*	*1*
Dibromofluoromethane (Surr)	*103*		*75 - 123*		*03/06/18 11:58*	*1*

Lab Sample ID: LCS 480-402605/5
Matrix: Water
Analysis Batch: 402605

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1,1-Trichloroethane	25.0	28.1		ug/L		112	73 - 126
1,1,2,2-Tetrachloroethane	25.0	27.9		ug/L		112	76 - 120
1,1,2-Trichloroethane	25.0	26.5		ug/L		106	76 - 122
1,1,2-Trichloro-1,2,2-trifluoroethane	25.0	32.7		ug/L		131	61 - 148
1,1-Dichloroethane	25.0	28.2		ug/L		113	77 - 120
1,1-Dichloroethene	25.0	26.8		ug/L		107	66 - 127
1,2,4-Trichlorobenzene	25.0	27.1		ug/L		108	79 - 122
1,2-Dibromo-3-Chloropropane	25.0	29.5		ug/L		118	56 - 134
1,2-Dichlorobenzene	25.0	27.6		ug/L		110	80 - 124
1,2-Dichloroethane	25.0	26.7		ug/L		107	75 - 120
1,2-Dichloropropane	25.0	28.7		ug/L		115	76 - 120
1,3-Dichlorobenzene	25.0	26.8		ug/L		107	77 - 120
1,4-Dichlorobenzene	25.0	27.2		ug/L		109	80 - 120
2-Butanone (MEK)	125	160		ug/L		128	57 - 140
2-Hexanone	125	144		ug/L		115	65 - 127
4-Methyl-2-pentanone (MIBK)	125	137		ug/L		109	71 - 125
Acetone	125	176		ug/L		141	56 - 142
Benzene	25.0	27.6		ug/L		110	71 - 124
Bromodichloromethane	25.0	28.0		ug/L		112	80 - 122
Bromoform	25.0	27.2		ug/L		109	61 - 132
Bromomethane	25.0	23.9		ug/L		96	55 - 144
Carbon disulfide	25.0	28.8		ug/L		115	59 - 134
Carbon tetrachloride	25.0	30.1		ug/L		121	72 - 134
Chlorobenzene	25.0	26.2		ug/L		105	80 - 120
Dibromochloromethane	25.0	26.6		ug/L		106	75 - 125
Chloroethane	25.0	24.4		ug/L		98	69 - 136
Chloroform	25.0	26.9		ug/L		108	73 - 127
Chloromethane	25.0	26.8		ug/L		107	68 - 124
1,4-Dioxane	500	474		ug/L		95	50 - 150
cis-1,2-Dichloroethene	25.0	27.5		ug/L		110	74 - 124
cis-1,3-Dichloropropene	25.0	28.7		ug/L		115	74 - 124
Cyclohexane	25.0	32.2		ug/L		129	59 - 135
Dichlorodifluoromethane	25.0	29.4		ug/L		118	59 - 135
Ethylbenzene	25.0	26.5		ug/L		106	77 - 123

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: LCS 480-402605/5
Matrix: Water
Analysis Batch: 402605

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,2-Dibromoethane	25.0	26.1		ug/L		104	77 - 120
Isopropylbenzene	25.0	27.6		ug/L		110	77 - 122
Methyl acetate	50.0	56.7		ug/L		113	74 - 133
Methyl tert-butyl ether	25.0	27.4		ug/L		109	77 - 120
Methylcyclohexane	25.0	32.3		ug/L		129	68 - 134
Methylene Chloride	25.0	27.6		ug/L		110	75 - 124
Styrene	25.0	26.7		ug/L		107	80 - 120
Tetrachloroethene	25.0	27.1		ug/L		108	74 - 122
Toluene	25.0	25.2		ug/L		101	80 - 122
trans-1,2-Dichloroethene	25.0	28.3		ug/L		113	73 - 127
trans-1,3-Dichloropropene	25.0	25.8		ug/L		103	80 - 120
Trichloroethene	25.0	28.6		ug/L		115	74 - 123
Trichlorofluoromethane	25.0	28.0		ug/L		112	62 - 150
Vinyl chloride	25.0	26.0		ug/L		104	65 - 133

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Toluene-d8 (Surr)	*97*		*80 - 120*
1,2-Dichloroethane-d4 (Surr)	*106*		*77 - 120*
4-Bromofluorobenzene (Surr)	*98*		*73 - 120*
Dibromofluoromethane (Surr)	*110*		*75 - 123*

QC Association Summary

Client: Ramboll US Corporation
Project/Site: ESCO Steel Treaters Troy NY

TestAmerica Job ID: 480-132108-1

GC/MS VOA

Analysis Batch: 402605

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-132108-1	TWP-14-180301	Total/NA	Water	8260C	
480-132108-2	FB-180301	Total/NA	Water	8260C	
480-132108-3	TB-180301	Total/NA	Water	8260C	
MB 480-402605/7	Method Blank	Total/NA	Water	8260C	
LCS 480-402605/5	Lab Control Sample	Total/NA	Water	8260C	

Lab Chronicle

Client: Ramboll US Corporation
Project/Site: ESCO Steel Treaters Troy NY

TestAmerica Job ID: 480-132108-1

Client Sample ID: TWP-14-180301

Lab Sample ID: 480-132108-1

Date Collected: 03/01/18 16:10

Matrix: Water

Date Received: 03/03/18 09:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	402605	03/06/18 15:40	RLB	TAL BUF

Client Sample ID: FB-180301

Lab Sample ID: 480-132108-2

Date Collected: 03/01/18 16:20

Matrix: Water

Date Received: 03/03/18 09:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	402605	03/06/18 16:07	RLB	TAL BUF

Client Sample ID: TB-180301

Lab Sample ID: 480-132108-3

Date Collected: 03/01/18 16:20

Matrix: Water

Date Received: 03/03/18 09:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	402605	03/06/18 16:34	RLB	TAL BUF

Laboratory References:

TAL BUF = TestAmerica Buffalo, 10 Hazelwood Drive, Amherst, NY 14228-2298, TEL (716)691-2600

Accreditation/Certification Summary

Client: Ramboll US Corporation
Project/Site: ESCO Steel Treaters Troy NY

TestAmerica Job ID: 480-132108-1

Laboratory: TestAmerica Buffalo

The accreditations/certifications listed below are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
New York	NELAP	2	10026	03-31-18 *

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Method Summary

Client: Ramboll US Corporation
Project/Site: ESCO Steel Treaters Troy NY

TestAmerica Job ID: 480-132108-1

Method	Method Description	Protocol	Laboratory
8260C	Volatile Organic Compounds by GC/MS	SW846	TAL BUF

Protocol References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL BUF = TestAmerica Buffalo, 10 Hazelwood Drive, Amherst, NY 14228-2298, TEL (716)691-2600

Sample Summary

Client: Ramboll US Corporation
Project/Site: ESCO Steel Treaters Troy NY

TestAmerica Job ID: 480-132108-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
480-132108-1	TWP-14-180301	Water	03/01/18 16:10	03/03/18 09:00
480-132108-2	FB-180301	Water	03/01/18 16:20	03/03/18 09:00
480-132108-3	TB-180301	Water	03/01/18 16:20	03/03/18 09:00

TestAmerica Buffalo
10 Hazelwood Drive
Amherst, NY 14228-2298
Phone (716) 691-2600 Fax (716) 691-7991

480501-Albany

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIR

480-132108 COC

Client Information	Sampler: Alex Pafalian	Lab PM: Mason, Becky C	Carrier Tracking No(s):	COC No: 480-109888-25553
Client Contact: ~~Brian Robinson~~ Alex Pafalian	Phone: 609 243 9887	E-Mail: becky.mason@testamericainc.com		Page: Page 1 of 1
Company: Ramboll US Corporation				Job #:
Address: 101 Carnegie Center Suite 200 ~~100 Pearl Street East Tower, Third Floor~~	Due Date Requested: 3/8-3/9			
City: ~~Hartford~~ Princeton	TAT Requested (days): 5-day			
State, Zip: ~~CT, 06103~~ NJ 08540	PO #: Purchase Order not required			
Phone: ~~203-233-7907(Tel)~~ 609 243	WO #: ~~02-39035A~~ 1690000663			
Email: ~~brobinson@ramboll.com~~ afafalian@ramboll.com	Project #: 48013148			
Project Name: ESCO Steel Treaters Troy NY	SSOW#:			
Site:				

Analysis Requested

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2O3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - pH 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8260C - TCL list	Total Number of containers	Special Instructions/Note:
			Preservation Code:				A		
TWP-14-180301	3/1/18	1610	G	Water			X	3	
FB-180301	3/1/18	1620	QC	Water			X	3	
TB-180301	3/1/18	1620	QC	Water			X	2	
				Water					

3/1/18

3/1/18

Possible Hazard Identification
☑ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☑ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
1		3/2/18 1254	Ramboll		3-2-18 1254	TA
2		3-2-18 1800	TA		3/3/18 0900	TAB
3						

Custody Seals Intact: △ Yes △ No

Custody Seal No.: 036875

Cooler Temperature(s) °C and Other Remarks: #127

Ver: 08/04/2016

Login Sample Receipt Checklist

Client: Ramboll US Corporation

Job Number: 480-132108-1

Login Number: 132108
List Number: 1
Creator: Williams, Christopher S

List Source: TestAmerica Buffalo

Question	Answer	Comment
Radioactivity either was not measured or, if measured, is at or below background	True	
The cooler's custody seal, if present, is intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the sample IDs on the containers and the COC.	True	
Samples are received within Holding Time (Excluding tests with immediate HTs)..	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	True	
If necessary, staff have been informed of any short hold time or quick TAT needs	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Sampling Company provided.	True	RAMBOLL
Samples received within 48 hours of sampling.	True	
Samples requiring field filtration have been filtered in the field.	N/A	
Chlorine Residual checked.	N/A	

ATTACHMENT B
LABORATORY ANALYTICAL REPORTS
506 CAMPBELL AVENUE

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Knoxville
5815 Middlebrook Pike
Knoxville, TN 37921
Tel: (865)291-3000

TestAmerica Job ID: 140-10882-1
Client Project/Site: ESCO Steel Treaters Troy NY

For:
Ramboll US Corporation
101 Carnegie Center
Suite 200
Princeton, New Jersey 08540

Attn: Alex Papalian

Denise L Giglia

Authorized for release by:
3/14/2018 7:57:59 AM
Denise Giglia, Project Management Assistant II
denise.giglia@testamericainc.com

Designee for

Becky Mason, Project Manager II
(413)572-4000
becky.mason@testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

LINKS

Review your project results through TotalAccess

Have a Question? Ask The Expert

Visit us at: www.testamericainc.com

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Definitions/Glossary

Client: Ramboll US Corporation
Project/Site: ESCO Steel Treaters Troy NY

TestAmerica Job ID: 140-10882-1

Qualifiers

Air - GC/MS VOA

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
*	LCS or LCSD is outside acceptance limits.
E	Result exceeded calibration range.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Job ID: 140-10882-1

Laboratory: TestAmerica Knoxville

Narrative

Job Narrative
140-10882-1

Receipt
The samples were received on 3/7/2018 10:00 AM; the samples arrived in good condition, properly preserved and, where required, on ice.

Air - GC/MS VOA
Method TO 15 LL, TO-15: EPA methods TO-14A and TO-15 specify the use of humidified “zero air” as the blank reagent for canister cleaning, instrument calibration and sample analysis. Ultra-high purity humidified nitrogen from a cryogenic reservoir is used in place of “zero air” by TestAmerica Knoxville.

Method TO-15: The following analyte recovered outside control limits for the LCS associated with analytical batch 140-18586: 3-Chloropropene. This is not indicative of a systematic control problem because these were random marginal exceedances. Qualified results have been reported.

Method TO-15: The continuing calibration verification (CCV) associated with batch 140-18586 exhibited % difference of greater than 30% for the following analytes 3-Chloropropene and tert-Butyl alcohol; however, the results were within the LCS acceptance limits. The EPA method requires that all target analytes in the continuing calibration verification standard be within 30% difference from the initial calibration. According to the laboratory standard operating procedure, the continuing calibration is acceptable if it meets the laboratory control sample acceptance criteria.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Detection Summary

Client: Ramboll US Corporation
Project/Site: ESCO Steel Treaters Troy NY

TestAmerica Job ID: 140-10882-1

Client Sample ID: SS-01-180305 — Lab Sample ID: 140-10882-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
2-Methylbutane	1.0	J	5.0	0.31	ppb v/v	1		TO-15	Total/NA
Acetone	24	J	50	14	ppb v/v	1		TO-15	Total/NA
Butane	1.5	J	4.0	0.73	ppb v/v	1		TO-15	Total/NA
Carbon disulfide	0.34	J	5.0	0.31	ppb v/v	1		TO-15	Total/NA
Ethanol	250		20	20	ppb v/v	1		TO-15	Total/NA
Hexane	0.42	J	8.0	0.32	ppb v/v	1		TO-15	Total/NA
Isopropyl alcohol	3.2	J	50	0.94	ppb v/v	1		TO-15	Total/NA
Methylene Chloride	3.8	J	5.0	3.2	ppb v/v	1		TO-15	Total/NA
Trichlorofluoromethane	0.26	J	2.0	0.24	ppb v/v	1		TO-15	Total/NA

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
2-Methylbutane	3.0	J	15	0.91	ug/m3	1		TO-15	Total/NA
Acetone	57	J	120	33	ug/m3	1		TO-15	Total/NA
Butane	3.5	J	9.5	1.7	ug/m3	1		TO-15	Total/NA
Carbon disulfide	1.1	J	16	0.97	ug/m3	1		TO-15	Total/NA
Ethanol	470		38	38	ug/m3	1		TO-15	Total/NA
Hexane	1.5	J	28	1.1	ug/m3	1		TO-15	Total/NA
Isopropyl alcohol	7.7	J	120	2.3	ug/m3	1		TO-15	Total/NA
Methylene Chloride	13	J	17	11	ug/m3	1		TO-15	Total/NA
Trichlorofluoromethane	1.4	J	11	1.3	ug/m3	1		TO-15	Total/NA

Client Sample ID: IA-01-180305 — Lab Sample ID: 140-10882-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,1,2-Trichloro-1,2,2-trifluoroethane	0.076	J	0.20	0.031	ppb v/v	1		TO-15	Total/NA
2,2,4-Trimethylpentane	0.24	J	0.50	0.039	ppb v/v	1		TO-15	Total/NA
2-Butanone (MEK)	0.42	J	1.0	0.20	ppb v/v	1		TO-15	Total/NA
2-Methylbutane	3.0		0.50	0.031	ppb v/v	1		TO-15	Total/NA
Acetone	310	E	5.0	1.4	ppb v/v	1		TO-15	Total/NA
Benzene	0.23		0.20	0.056	ppb v/v	1		TO-15	Total/NA
Butane	3.2		0.40	0.073	ppb v/v	1		TO-15	Total/NA
Carbon disulfide	0.059	J	0.50	0.031	ppb v/v	1		TO-15	Total/NA
Carbon tetrachloride	0.069	J	0.20	0.038	ppb v/v	1		TO-15	Total/NA
Chloroform	0.38		0.20	0.038	ppb v/v	1		TO-15	Total/NA
Chloromethane	0.95		0.50	0.16	ppb v/v	1		TO-15	Total/NA
Cyclohexane	0.085	J	0.50	0.040	ppb v/v	1		TO-15	Total/NA
Decane	0.15	J	1.0	0.056	ppb v/v	1		TO-15	Total/NA
Dichlorodifluoromethane	0.61		0.50	0.068	ppb v/v	1		TO-15	Total/NA
Ethanol	39		2.0	2.0	ppb v/v	1		TO-15	Total/NA
Ethylbenzene	0.094	J	0.20	0.068	ppb v/v	1		TO-15	Total/NA
Heptane	0.16	J	0.50	0.047	ppb v/v	1		TO-15	Total/NA
Hexane	0.39	J	0.80	0.032	ppb v/v	1		TO-15	Total/NA
Isopropyl alcohol	55		5.0	0.094	ppb v/v	1		TO-15	Total/NA
m-Xylene & p-Xylene	0.36	J	0.80	0.12	ppb v/v	1		TO-15	Total/NA
Methylene Chloride	0.75		0.50	0.32	ppb v/v	1		TO-15	Total/NA
Octane	0.075	J	0.40	0.036	ppb v/v	1		TO-15	Total/NA
o-Xylene	0.11	J	0.20	0.061	ppb v/v	1		TO-15	Total/NA
Pentane	1.4		1.0	0.40	ppb v/v	1		TO-15	Total/NA
Toluene	0.57		0.20	0.12	ppb v/v	1		TO-15	Total/NA
Trichlorofluoromethane	0.29		0.20	0.024	ppb v/v	1		TO-15	Total/NA
Acetone - DL	260		33	9.3	ppb v/v	1		TO-15	Total/NA

This Detection Summary does not include radiochemical test results.

Detection Summary

Client: Ramboll US Corporation
Project/Site: ESCO Steel Treaters Troy NY

TestAmerica Job ID: 140-10882-1

Client Sample ID: IA-01-180305 (Continued) — Lab Sample ID: 140-10882-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,1,2-Trichloro-1,2,2-trifluoroethane	0.58	J	1.5	0.24	ug/m3	1		TO-15	Total/NA
2,2,4-Trimethylpentane	1.1	J	2.3	0.18	ug/m3	1		TO-15	Total/NA
2-Butanone (MEK)	1.2	J	2.9	0.59	ug/m3	1		TO-15	Total/NA
2-Methylbutane	9.0		1.5	0.091	ug/m3	1		TO-15	Total/NA
Acetone	730	E	12	3.3	ug/m3	1		TO-15	Total/NA
Benzene	0.73		0.64	0.18	ug/m3	1		TO-15	Total/NA
Butane	7.7		0.95	0.17	ug/m3	1		TO-15	Total/NA
Carbon disulfide	0.18	J	1.6	0.097	ug/m3	1		TO-15	Total/NA
Carbon tetrachloride	0.44	J	1.3	0.24	ug/m3	1		TO-15	Total/NA
Chloroform	1.8		0.98	0.19	ug/m3	1		TO-15	Total/NA
Chloromethane	2.0		1.0	0.33	ug/m3	1		TO-15	Total/NA
Cyclohexane	0.29	J	1.7	0.14	ug/m3	1		TO-15	Total/NA
Decane	0.87	J	5.8	0.33	ug/m3	1		TO-15	Total/NA
Dichlorodifluoromethane	3.0		2.5	0.34	ug/m3	1		TO-15	Total/NA
Ethanol	74		3.8	3.8	ug/m3	1		TO-15	Total/NA
Ethylbenzene	0.41	J	0.87	0.30	ug/m3	1		TO-15	Total/NA
Heptane	0.66	J	2.0	0.19	ug/m3	1		TO-15	Total/NA
Hexane	1.4	J	2.8	0.11	ug/m3	1		TO-15	Total/NA
Isopropyl alcohol	130		12	0.23	ug/m3	1		TO-15	Total/NA
m-Xylene & p-Xylene	1.6	J	3.5	0.52	ug/m3	1		TO-15	Total/NA
Methylene Chloride	2.6		1.7	1.1	ug/m3	1		TO-15	Total/NA
Octane	0.35	J	1.9	0.17	ug/m3	1		TO-15	Total/NA
o-Xylene	0.47	J	0.87	0.26	ug/m3	1		TO-15	Total/NA
Pentane	4.1		3.0	1.2	ug/m3	1		TO-15	Total/NA
Toluene	2.1		0.75	0.45	ug/m3	1		TO-15	Total/NA
Trichlorofluoromethane	1.6		1.1	0.13	ug/m3	1		TO-15	Total/NA
Acetone - DL	630		79	22	ug/m3	1		TO-15	Total/NA

Client Sample ID: AA-01-180305 — Lab Sample ID: 140-10882-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,1,2-Trichloro-1,2,2-trifluoroethane	0.066	J	0.20	0.031	ppb v/v	1		TO-15	Total/NA
2,2,4-Trimethylpentane	0.18	J	0.50	0.039	ppb v/v	1		TO-15	Total/NA
2-Methylbutane	0.85		0.50	0.031	ppb v/v	1		TO-15	Total/NA
Acetone	2.3	J	5.0	1.4	ppb v/v	1		TO-15	Total/NA
Benzene	0.26		0.20	0.056	ppb v/v	1		TO-15	Total/NA
Butane	1.0		0.40	0.073	ppb v/v	1		TO-15	Total/NA
Carbon tetrachloride	0.077	J	0.20	0.038	ppb v/v	1		TO-15	Total/NA
Chloromethane	0.58		0.50	0.16	ppb v/v	1		TO-15	Total/NA
Decane	0.076	J	1.0	0.056	ppb v/v	1		TO-15	Total/NA
Dichlorodifluoromethane	0.49	J	0.50	0.068	ppb v/v	1		TO-15	Total/NA
Ethanol	6.7		2.0	2.0	ppb v/v	1		TO-15	Total/NA
Ethylbenzene	0.070	J	0.20	0.068	ppb v/v	1		TO-15	Total/NA
Heptane	0.10	J	0.50	0.047	ppb v/v	1		TO-15	Total/NA
Hexane	0.55	J	0.80	0.032	ppb v/v	1		TO-15	Total/NA
Isopropyl alcohol	1.5	J	5.0	0.094	ppb v/v	1		TO-15	Total/NA
m-Xylene & p-Xylene	0.24	J	0.80	0.12	ppb v/v	1		TO-15	Total/NA
Methylene Chloride	1.5		0.50	0.32	ppb v/v	1		TO-15	Total/NA
Octane	0.045	J	0.40	0.036	ppb v/v	1		TO-15	Total/NA
o-Xylene	0.078	J	0.20	0.061	ppb v/v	1		TO-15	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: AA-01-180305 (Continued)

Lab Sample ID: 140-10882-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Pentane	0.79	J	1.0	0.40	ppb v/v	1		TO-15	Total/NA
Toluene	0.47		0.20	0.12	ppb v/v	1		TO-15	Total/NA
Trichlorofluoromethane	0.28		0.20	0.024	ppb v/v	1		TO-15	Total/NA

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,1,2-Trichloro-1,2,2-trifluoroethane	0.51	J	1.5	0.24	ug/m3	1		TO-15	Total/NA
2,2,4-Trimethylpentane	0.83	J	2.3	0.18	ug/m3	1		TO-15	Total/NA
2-Methylbutane	2.5		1.5	0.091	ug/m3	1		TO-15	Total/NA
Acetone	5.4	J	12	3.3	ug/m3	1		TO-15	Total/NA
Benzene	0.82		0.64	0.18	ug/m3	1		TO-15	Total/NA
Butane	2.5		0.95	0.17	ug/m3	1		TO-15	Total/NA
Carbon tetrachloride	0.49	J	1.3	0.24	ug/m3	1		TO-15	Total/NA
Chloromethane	1.2		1.0	0.33	ug/m3	1		TO-15	Total/NA
Decane	0.44	J	5.8	0.33	ug/m3	1		TO-15	Total/NA
Dichlorodifluoromethane	2.4	J	2.5	0.34	ug/m3	1		TO-15	Total/NA
Ethanol	13		3.8	3.8	ug/m3	1		TO-15	Total/NA
Ethylbenzene	0.30	J	0.87	0.30	ug/m3	1		TO-15	Total/NA
Heptane	0.41	J	2.0	0.19	ug/m3	1		TO-15	Total/NA
Hexane	2.0	J	2.8	0.11	ug/m3	1		TO-15	Total/NA
Isopropyl alcohol	3.7	J	12	0.23	ug/m3	1		TO-15	Total/NA
m-Xylene & p-Xylene	1.0	J	3.5	0.52	ug/m3	1		TO-15	Total/NA
Methylene Chloride	5.1		1.7	1.1	ug/m3	1		TO-15	Total/NA
Octane	0.21	J	1.9	0.17	ug/m3	1		TO-15	Total/NA
o-Xylene	0.34	J	0.87	0.26	ug/m3	1		TO-15	Total/NA
Pentane	2.3	J	3.0	1.2	ug/m3	1		TO-15	Total/NA
Toluene	1.8		0.75	0.45	ug/m3	1		TO-15	Total/NA
Trichlorofluoromethane	1.6		1.1	0.13	ug/m3	1		TO-15	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: SS-01-180305
Date Collected: 03/05/18 17:23
Date Received: 03/07/18 10:00
Sample Container: Summa Canister 6L

Lab Sample ID: 140-10882-1
Matrix: Air

Method: TO-15 - Volatile Organic Compounds in Ambient Air

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		2.0	0.30	ppb v/v			03/08/18 19:19	1
1,1,2,2-Tetrachloroethane	ND		2.0	0.61	ppb v/v			03/08/18 19:19	1
1,1,2-Trichloroethane	ND		2.0	0.54	ppb v/v			03/08/18 19:19	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		2.0	0.31	ppb v/v			03/08/18 19:19	1
1,1-Dichloroethane	ND		2.0	0.26	ppb v/v			03/08/18 19:19	1
1,1-Dichloroethene	ND		2.0	0.34	ppb v/v			03/08/18 19:19	1
1,2,3-Trimethylbenzene	ND		2.0	2.0	ppb v/v			03/08/18 19:19	1
1,2,4,5-Tetramethylbenzene	ND		2.0	2.0	ppb v/v			03/08/18 19:19	1
1,2,4-Trichlorobenzene	ND		20	0.98	ppb v/v			03/08/18 19:19	1
1,2,4-Trimethylbenzene	ND		2.0	0.63	ppb v/v			03/08/18 19:19	1
1,2-Dibromoethane (EDB)	ND		2.0	0.44	ppb v/v			03/08/18 19:19	1
1,2-Dichlorobenzene	ND		2.0	0.70	ppb v/v			03/08/18 19:19	1
1,2-Dichloroethane	ND		2.0	0.47	ppb v/v			03/08/18 19:19	1
1,2-Dichloropropane	ND		2.0	0.52	ppb v/v			03/08/18 19:19	1
1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND		2.0	0.32	ppb v/v			03/08/18 19:19	1
1,3,5-Trimethylbenzene	ND		2.0	0.65	ppb v/v			03/08/18 19:19	1
1,3-Butadiene	ND		4.0	0.64	ppb v/v			03/08/18 19:19	1
1,3-Dichlorobenzene	ND		2.0	0.65	ppb v/v			03/08/18 19:19	1
1,4-Dichlorobenzene	ND		2.0	0.64	ppb v/v			03/08/18 19:19	1
1,4-Dioxane	ND		50	0.80	ppb v/v			03/08/18 19:19	1
2,2,4-Trimethylpentane	ND		5.0	0.39	ppb v/v			03/08/18 19:19	1
2-Butanone (MEK)	ND		10	2.0	ppb v/v			03/08/18 19:19	1
2-Chlorotoluene	ND		4.0	0.63	ppb v/v			03/08/18 19:19	1
2-Hexanone	ND		5.0	0.58	ppb v/v			03/08/18 19:19	1
2-Methylbutane	**1.0**	**J**	5.0	0.31	ppb v/v			03/08/18 19:19	1
3-Chloropropene	ND	*	2.0	0.48	ppb v/v			03/08/18 19:19	1
4-Ethyltoluene	ND		4.0	0.66	ppb v/v			03/08/18 19:19	1
4-Methyl-2-pentanone (MIBK)	ND		5.0	2.0	ppb v/v			03/08/18 19:19	1
Acetone	**24**	**J**	50	14	ppb v/v			03/08/18 19:19	1
Benzyl chloride	ND		8.0	0.78	ppb v/v			03/08/18 19:19	1
Benzene	ND		2.0	0.56	ppb v/v			03/08/18 19:19	1
Bromodichloromethane	ND		2.0	0.44	ppb v/v			03/08/18 19:19	1
Bromoform	ND		2.0	0.48	ppb v/v			03/08/18 19:19	1
Bromomethane	ND		2.0	0.32	ppb v/v			03/08/18 19:19	1
Butane	**1.5**	**J**	4.0	0.73	ppb v/v			03/08/18 19:19	1
Carbon disulfide	**0.34**	**J**	5.0	0.31	ppb v/v			03/08/18 19:19	1
Carbon tetrachloride	ND		2.0	0.38	ppb v/v			03/08/18 19:19	1
Chlorobenzene	ND		2.0	0.49	ppb v/v			03/08/18 19:19	1
Chloroethane	ND		8.0	0.35	ppb v/v			03/08/18 19:19	1
Chloroform	ND		2.0	0.38	ppb v/v			03/08/18 19:19	1
Chloromethane	ND		5.0	1.6	ppb v/v			03/08/18 19:19	1
cis-1,2-Dichloroethene	ND		2.0	0.60	ppb v/v			03/08/18 19:19	1
cis-1,3-Dichloropropene	ND		2.0	0.74	ppb v/v			03/08/18 19:19	1
Cyclohexane	ND		5.0	0.40	ppb v/v			03/08/18 19:19	1
Decane	ND		10	0.56	ppb v/v			03/08/18 19:19	1
Dibromochloromethane	ND		2.0	0.42	ppb v/v			03/08/18 19:19	1
Dichlorodifluoromethane	ND		5.0	0.68	ppb v/v			03/08/18 19:19	1
Dodecane	ND		10	0.78	ppb v/v			03/08/18 19:19	1

Client: Ramboll US Corporation
Project/Site: ESCO Steel Treaters Troy NY

TestAmerica Job ID: 140-10882-1

Client Sample ID: SS-01-180305
Date Collected: 03/05/18 17:23
Date Received: 03/07/18 10:00
Sample Container: Summa Canister 6L

Lab Sample ID: 140-10882-1
Matrix: Air

Method: TO-15 - Volatile Organic Compounds in Ambient Air (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethanol	**250**		20	20	ppb v/v			03/08/18 19:19	1
Ethylbenzene	ND		2.0	0.68	ppb v/v			03/08/18 19:19	1
Heptane	ND		5.0	0.47	ppb v/v			03/08/18 19:19	1
Hexachlorobutadiene	ND		2.0	0.78	ppb v/v			03/08/18 19:19	1
Hexane	**0.42**	**J**	8.0	0.32	ppb v/v			03/08/18 19:19	1
Indene	ND		4.0	4.0	ppb v/v			03/08/18 19:19	1
Isopropyl alcohol	**3.2**	**J**	50	0.94	ppb v/v			03/08/18 19:19	1
m-Xylene & p-Xylene	ND		8.0	1.2	ppb v/v			03/08/18 19:19	1
Methylene Chloride	**3.8**	**J**	5.0	3.2	ppb v/v			03/08/18 19:19	1
Methyl tert-butyl ether	ND		10	1.7	ppb v/v			03/08/18 19:19	1
Naphthalene	ND		5.0	0.90	ppb v/v			03/08/18 19:19	1
Nonane	ND		5.0	0.43	ppb v/v			03/08/18 19:19	1
Octane	ND		4.0	0.36	ppb v/v			03/08/18 19:19	1
o-Xylene	ND		2.0	0.61	ppb v/v			03/08/18 19:19	1
Pentane	ND		10	4.0	ppb v/v			03/08/18 19:19	1
Styrene	ND		2.0	0.58	ppb v/v			03/08/18 19:19	1
Tetrachloroethene	ND		2.0	0.40	ppb v/v			03/08/18 19:19	1
Toluene	ND		2.0	1.2	ppb v/v			03/08/18 19:19	1
trans-1,2-Dichloroethene	ND		2.0	0.50	ppb v/v			03/08/18 19:19	1
trans-1,3-Dichloropropene	ND		2.0	0.48	ppb v/v			03/08/18 19:19	1
Trichloroethene	ND		2.0	0.36	ppb v/v			03/08/18 19:19	1
Trichlorofluoromethane	**0.26**	**J**	2.0	0.24	ppb v/v			03/08/18 19:19	1
Undecane	ND		10	0.62	ppb v/v			03/08/18 19:19	1
Vinyl bromide	ND		2.0	0.35	ppb v/v			03/08/18 19:19	1
Vinyl chloride	ND		2.0	0.71	ppb v/v			03/08/18 19:19	1
Thiophene	ND		2.0	2.0	ppb v/v			03/08/18 19:19	1
Isopropylbenzene	ND		8.0	0.60	ppb v/v			03/08/18 19:19	1
tert-Butyl alcohol	ND		20	0.38	ppb v/v			03/08/18 19:19	1
Indane	ND		2.0	2.0	ppb v/v			03/08/18 19:19	1

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		11	1.6	ug/m3			03/08/18 19:19	1
1,1,2,2-Tetrachloroethane	ND		14	4.2	ug/m3			03/08/18 19:19	1
1,1,2-Trichloroethane	ND		11	2.9	ug/m3			03/08/18 19:19	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		15	2.4	ug/m3			03/08/18 19:19	1
1,1-Dichloroethane	ND		8.1	1.1	ug/m3			03/08/18 19:19	1
1,1-Dichloroethene	ND		7.9	1.3	ug/m3			03/08/18 19:19	1
1,2,3-Trimethylbenzene	ND		9.8	9.8	ug/m3			03/08/18 19:19	1
1,2,4,5-Tetramethylbenzene	ND		11	11	ug/m3			03/08/18 19:19	1
1,2,4-Trichlorobenzene	ND		150	7.3	ug/m3			03/08/18 19:19	1
1,2,4-Trimethylbenzene	ND		9.8	3.1	ug/m3			03/08/18 19:19	1
1,2-Dibromoethane (EDB)	ND		15	3.4	ug/m3			03/08/18 19:19	1
1,2-Dichlorobenzene	ND		12	4.2	ug/m3			03/08/18 19:19	1
1,2-Dichloroethane	ND		8.1	1.9	ug/m3			03/08/18 19:19	1
1,2-Dichloropropane	ND		9.2	2.4	ug/m3			03/08/18 19:19	1
1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND		14	2.2	ug/m3			03/08/18 19:19	1
1,3,5-Trimethylbenzene	ND		9.8	3.2	ug/m3			03/08/18 19:19	1
1,3-Butadiene	ND		8.8	1.4	ug/m3			03/08/18 19:19	1
1,3-Dichlorobenzene	ND		12	3.9	ug/m3			03/08/18 19:19	1

Client: Ramboll US Corporation
Project/Site: ESCO Steel Treaters Troy NY

TestAmerica Job ID: 140-10882-1

Client Sample ID: SS-01-180305
Date Collected: 03/05/18 17:23
Date Received: 03/07/18 10:00
Sample Container: Summa Canister 6L

Lab Sample ID: 140-10882-1
Matrix: Air

Method: TO-15 - Volatile Organic Compounds in Ambient Air (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dichlorobenzene	ND		12	3.8	ug/m3			03/08/18 19:19	1
1,4-Dioxane	ND		180	2.9	ug/m3			03/08/18 19:19	1
2,2,4-Trimethylpentane	ND		23	1.8	ug/m3			03/08/18 19:19	1
2-Butanone (MEK)	ND		29	5.9	ug/m3			03/08/18 19:19	1
2-Chlorotoluene	ND		21	3.3	ug/m3			03/08/18 19:19	1
2-Hexanone	ND		20	2.4	ug/m3			03/08/18 19:19	1
2-Methylbutane	**3.0**	**J**	15	0.91	ug/m3			03/08/18 19:19	1
3-Chloropropene	ND	*	6.3	1.5	ug/m3			03/08/18 19:19	1
4-Ethyltoluene	ND		20	3.2	ug/m3			03/08/18 19:19	1
4-Methyl-2-pentanone (MIBK)	ND		20	8.0	ug/m3			03/08/18 19:19	1
Acetone	**57**	**J**	120	33	ug/m3			03/08/18 19:19	1
Benzyl chloride	ND		41	4.0	ug/m3			03/08/18 19:19	1
Benzene	ND		6.4	1.8	ug/m3			03/08/18 19:19	1
Bromodichloromethane	ND		13	2.9	ug/m3			03/08/18 19:19	1
Bromoform	ND		21	5.0	ug/m3			03/08/18 19:19	1
Bromomethane	ND		7.8	1.2	ug/m3			03/08/18 19:19	1
Butane	**3.5**	**J**	9.5	1.7	ug/m3			03/08/18 19:19	1
Carbon disulfide	**1.1**	**J**	16	0.97	ug/m3			03/08/18 19:19	1
Carbon tetrachloride	ND		13	2.4	ug/m3			03/08/18 19:19	1
Chlorobenzene	ND		9.2	2.3	ug/m3			03/08/18 19:19	1
Chloroethane	ND		21	0.92	ug/m3			03/08/18 19:19	1
Chloroform	ND		9.8	1.9	ug/m3			03/08/18 19:19	1
Chloromethane	ND		10	3.3	ug/m3			03/08/18 19:19	1
cis-1,2-Dichloroethene	ND		7.9	2.4	ug/m3			03/08/18 19:19	1
cis-1,3-Dichloropropene	ND		9.1	3.4	ug/m3			03/08/18 19:19	1
Cyclohexane	ND		17	1.4	ug/m3			03/08/18 19:19	1
Decane	ND		58	3.3	ug/m3			03/08/18 19:19	1
Dibromochloromethane	ND		17	3.6	ug/m3			03/08/18 19:19	1
Dichlorodifluoromethane	ND		25	3.4	ug/m3			03/08/18 19:19	1
Dodecane	ND		70	5.4	ug/m3			03/08/18 19:19	1
Ethanol	**470**		38	38	ug/m3			03/08/18 19:19	1
Ethylbenzene	ND		8.7	3.0	ug/m3			03/08/18 19:19	1
Heptane	ND		20	1.9	ug/m3			03/08/18 19:19	1
Hexachlorobutadiene	ND		21	8.3	ug/m3			03/08/18 19:19	1
Hexane	**1.5**	**J**	28	1.1	ug/m3			03/08/18 19:19	1
Indene	ND		19	19	ug/m3			03/08/18 19:19	1
Isopropyl alcohol	**7.7**	**J**	120	2.3	ug/m3			03/08/18 19:19	1
m-Xylene & p-Xylene	ND		35	5.2	ug/m3			03/08/18 19:19	1
Methylene Chloride	**13**	**J**	17	11	ug/m3			03/08/18 19:19	1
Methyl tert-butyl ether	ND		36	6.1	ug/m3			03/08/18 19:19	1
Naphthalene	ND		26	4.7	ug/m3			03/08/18 19:19	1
Nonane	ND		26	2.3	ug/m3			03/08/18 19:19	1
Octane	ND		19	1.7	ug/m3			03/08/18 19:19	1
o-Xylene	ND		8.7	2.6	ug/m3			03/08/18 19:19	1
Pentane	ND		30	12	ug/m3			03/08/18 19:19	1
Styrene	ND		8.5	2.5	ug/m3			03/08/18 19:19	1
Tetrachloroethene	ND		14	2.7	ug/m3			03/08/18 19:19	1
Toluene	ND		7.5	4.5	ug/m3			03/08/18 19:19	1

Client Sample ID: SS-01-180305

Lab Sample ID: 140-10882-1

Date Collected: 03/05/18 17:23
Matrix: Air
Date Received: 03/07/18 10:00
Sample Container: Summa Canister 6L

Method: TO-15 - Volatile Organic Compounds in Ambient Air (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
trans-1,2-Dichloroethene	ND		7.9	2.0	ug/m3			03/08/18 19:19	1
trans-1,3-Dichloropropene	ND		9.1	2.2	ug/m3			03/08/18 19:19	1
Trichloroethene	ND		11	1.9	ug/m3			03/08/18 19:19	1
Trichlorofluoromethane	**1.4**	**J**	11	1.3	ug/m3			03/08/18 19:19	1
Undecane	ND		64	4.0	ug/m3			03/08/18 19:19	1
Vinyl bromide	ND		8.7	1.5	ug/m3			03/08/18 19:19	1
Vinyl chloride	ND		5.1	1.8	ug/m3			03/08/18 19:19	1
Thiophene	ND		6.9	6.9	ug/m3			03/08/18 19:19	1
Isopropylbenzene	ND		39	2.9	ug/m3			03/08/18 19:19	1
tert-Butyl alcohol	ND		61	1.2	ug/m3			03/08/18 19:19	1
Indane	ND		9.7	9.7	ug/m3			03/08/18 19:19	1

Tentatively Identified Compound	*Est. Result*	*Qualifier*	*Unit*	*D*	*RT*	*CAS No.*	*Prepared*	*Analyzed*	*Dil Fac*
1,2,3,4-Tetramethylbenzene TIC	*ND*		*ppb v/v*			*488-23-3*		*03/08/18 19:19*	*1*
1,2,3,5-Tetramethylbenzene TIC	*ND*		*ppb v/v*			*527-53-7*		*03/08/18 19:19*	*1*

Client Sample ID: IA-01-180305

Lab Sample ID: 140-10882-2

Date Collected: 03/05/18 17:23
Matrix: Air
Date Received: 03/07/18 10:00
Sample Container: Summa Canister 6L

Method: TO-15 - Volatile Organic Compounds in Ambient Air

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		0.20	0.030	ppb v/v			03/08/18 20:05	1
1,1,2,2-Tetrachloroethane	ND		0.20	0.061	ppb v/v			03/08/18 20:05	1
1,1,2-Trichloroethane	ND		0.20	0.054	ppb v/v			03/08/18 20:05	1
1,1,2-Trichloro-1,2,2-trifluoroethane	**0.076**	**J**	0.20	0.031	ppb v/v			03/08/18 20:05	1
1,1-Dichloroethane	ND		0.20	0.026	ppb v/v			03/08/18 20:05	1
1,1-Dichloroethene	ND		0.20	0.034	ppb v/v			03/08/18 20:05	1
1,2,3-Trimethylbenzene	ND		0.20	0.20	ppb v/v			03/08/18 20:05	1
1,2,4,5-Tetramethylbenzene	ND		0.20	0.20	ppb v/v			03/08/18 20:05	1
1,2,4-Trichlorobenzene	ND		2.0	0.098	ppb v/v			03/08/18 20:05	1
1,2,4-Trimethylbenzene	ND		0.20	0.063	ppb v/v			03/08/18 20:05	1
1,2-Dibromoethane (EDB)	ND		0.20	0.044	ppb v/v			03/08/18 20:05	1
1,2-Dichlorobenzene	ND		0.20	0.070	ppb v/v			03/08/18 20:05	1
1,2-Dichloroethane	ND		0.20	0.047	ppb v/v			03/08/18 20:05	1
1,2-Dichloropropane	ND		0.20	0.052	ppb v/v			03/08/18 20:05	1
1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND		0.20	0.032	ppb v/v			03/08/18 20:05	1
1,3,5-Trimethylbenzene	ND		0.20	0.065	ppb v/v			03/08/18 20:05	1
1,3-Butadiene	ND		0.40	0.064	ppb v/v			03/08/18 20:05	1
1,3-Dichlorobenzene	ND		0.20	0.065	ppb v/v			03/08/18 20:05	1
1,4-Dichlorobenzene	ND		0.20	0.064	ppb v/v			03/08/18 20:05	1
1,4-Dioxane	ND		5.0	0.080	ppb v/v			03/08/18 20:05	1
2,2,4-Trimethylpentane	**0.24**	**J**	0.50	0.039	ppb v/v			03/08/18 20:05	1
2-Butanone (MEK)	**0.42**	**J**	1.0	0.20	ppb v/v			03/08/18 20:05	1
2-Chlorotoluene	ND		0.40	0.063	ppb v/v			03/08/18 20:05	1
2-Hexanone	ND		0.50	0.058	ppb v/v			03/08/18 20:05	1
2-Methylbutane	**3.0**		0.50	0.031	ppb v/v			03/08/18 20:05	1

Client: Ramboll US Corporation
Project/Site: ESCO Steel Treaters Troy NY

TestAmerica Job ID: 140-10882-1

Client Sample ID: IA-01-180305
Date Collected: 03/05/18 17:23
Date Received: 03/07/18 10:00
Sample Container: Summa Canister 6L

Lab Sample ID: 140-10882-2
Matrix: Air

Method: TO-15 - Volatile Organic Compounds in Ambient Air (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
3-Chloropropene	ND	*	0.20	0.048	ppb v/v			03/08/18 20:05	1
4-Ethyltoluene	ND		0.40	0.066	ppb v/v			03/08/18 20:05	1
4-Methyl-2-pentanone (MIBK)	ND		0.50	0.20	ppb v/v			03/08/18 20:05	1
Acetone	**310**	**E**	5.0	1.4	ppb v/v			03/08/18 20:05	1
Benzyl chloride	ND		0.80	0.078	ppb v/v			03/08/18 20:05	1
Benzene	**0.23**		0.20	0.056	ppb v/v			03/08/18 20:05	1
Bromodichloromethane	ND		0.20	0.044	ppb v/v			03/08/18 20:05	1
Bromoform	ND		0.20	0.048	ppb v/v			03/08/18 20:05	1
Bromomethane	ND		0.20	0.032	ppb v/v			03/08/18 20:05	1
Butane	**3.2**		0.40	0.073	ppb v/v			03/08/18 20:05	1
Carbon disulfide	**0.059**	**J**	0.50	0.031	ppb v/v			03/08/18 20:05	1
Carbon tetrachloride	**0.069**	**J**	0.20	0.038	ppb v/v			03/08/18 20:05	1
Chlorobenzene	ND		0.20	0.049	ppb v/v			03/08/18 20:05	1
Chloroethane	ND		0.80	0.035	ppb v/v			03/08/18 20:05	1
Chloroform	**0.38**		0.20	0.038	ppb v/v			03/08/18 20:05	1
Chloromethane	**0.95**		0.50	0.16	ppb v/v			03/08/18 20:05	1
cis-1,2-Dichloroethene	ND		0.20	0.060	ppb v/v			03/08/18 20:05	1
cis-1,3-Dichloropropene	ND		0.20	0.074	ppb v/v			03/08/18 20:05	1
Cyclohexane	**0.085**	**J**	0.50	0.040	ppb v/v			03/08/18 20:05	1
Decane	**0.15**	**J**	1.0	0.056	ppb v/v			03/08/18 20:05	1
Dibromochloromethane	ND		0.20	0.042	ppb v/v			03/08/18 20:05	1
Dichlorodifluoromethane	**0.61**		0.50	0.068	ppb v/v			03/08/18 20:05	1
Dodecane	ND		1.0	0.078	ppb v/v			03/08/18 20:05	1
Ethanol	**39**		2.0	2.0	ppb v/v			03/08/18 20:05	1
Ethylbenzene	**0.094**	**J**	0.20	0.068	ppb v/v			03/08/18 20:05	1
Heptane	**0.16**	**J**	0.50	0.047	ppb v/v			03/08/18 20:05	1
Hexachlorobutadiene	ND		0.20	0.078	ppb v/v			03/08/18 20:05	1
Hexane	**0.39**	**J**	0.80	0.032	ppb v/v			03/08/18 20:05	1
Indene	ND		0.40	0.40	ppb v/v			03/08/18 20:05	1
Isopropyl alcohol	**55**		5.0	0.094	ppb v/v			03/08/18 20:05	1
m-Xylene & p-Xylene	**0.36**	**J**	0.80	0.12	ppb v/v			03/08/18 20:05	1
Methylene Chloride	**0.75**		0.50	0.32	ppb v/v			03/08/18 20:05	1
Methyl tert-butyl ether	ND		1.0	0.17	ppb v/v			03/08/18 20:05	1
Naphthalene	ND		0.50	0.090	ppb v/v			03/08/18 20:05	1
Nonane	ND		0.50	0.043	ppb v/v			03/08/18 20:05	1
Octane	**0.075**	**J**	0.40	0.036	ppb v/v			03/08/18 20:05	1
o-Xylene	**0.11**	**J**	0.20	0.061	ppb v/v			03/08/18 20:05	1
Pentane	**1.4**		1.0	0.40	ppb v/v			03/08/18 20:05	1
Styrene	ND		0.20	0.058	ppb v/v			03/08/18 20:05	1
Tetrachloroethene	ND		0.20	0.040	ppb v/v			03/08/18 20:05	1
Toluene	**0.57**		0.20	0.12	ppb v/v			03/08/18 20:05	1
trans-1,2-Dichloroethene	ND		0.20	0.050	ppb v/v			03/08/18 20:05	1
trans-1,3-Dichloropropene	ND		0.20	0.048	ppb v/v			03/08/18 20:05	1
Trichloroethene	ND		0.20	0.036	ppb v/v			03/08/18 20:05	1
Trichlorofluoromethane	**0.29**		0.20	0.024	ppb v/v			03/08/18 20:05	1
Undecane	ND		1.0	0.062	ppb v/v			03/08/18 20:05	1
Vinyl bromide	ND		0.20	0.035	ppb v/v			03/08/18 20:05	1
Vinyl chloride	ND		0.20	0.071	ppb v/v			03/08/18 20:05	1

Client Sample ID: IA-01-180305
Date Collected: 03/05/18 17:23
Date Received: 03/07/18 10:00
Sample Container: Summa Canister 6L

Lab Sample ID: 140-10882-2
Matrix: Air

Method: TO-15 - Volatile Organic Compounds in Ambient Air (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Thiophene	ND		0.20	0.20	ppb v/v			03/08/18 20:05	1
Isopropylbenzene	ND		0.80	0.060	ppb v/v			03/08/18 20:05	1
tert-Butyl alcohol	ND		2.0	0.038	ppb v/v			03/08/18 20:05	1
Indane	ND		0.20	0.20	ppb v/v			03/08/18 20:05	1

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		1.1	0.16	ug/m3			03/08/18 20:05	1
1,1,2,2-Tetrachloroethane	ND		1.4	0.42	ug/m3			03/08/18 20:05	1
1,1,2-Trichloroethane	ND		1.1	0.29	ug/m3			03/08/18 20:05	1
1,1,2-Trichloro-1,2,2-trifluoroethane	**0.58**	**J**	1.5	0.24	ug/m3			03/08/18 20:05	1
1,1-Dichloroethane	ND		0.81	0.11	ug/m3			03/08/18 20:05	1
1,1-Dichloroethene	ND		0.79	0.13	ug/m3			03/08/18 20:05	1
1,2,3-Trimethylbenzene	ND		0.98	0.98	ug/m3			03/08/18 20:05	1
1,2,4,5-Tetramethylbenzene	ND		1.1	1.1	ug/m3			03/08/18 20:05	1
1,2,4-Trichlorobenzene	ND		15	0.73	ug/m3			03/08/18 20:05	1
1,2,4-Trimethylbenzene	ND		0.98	0.31	ug/m3			03/08/18 20:05	1
1,2-Dibromoethane (EDB)	ND		1.5	0.34	ug/m3			03/08/18 20:05	1
1,2-Dichlorobenzene	ND		1.2	0.42	ug/m3			03/08/18 20:05	1
1,2-Dichloroethane	ND		0.81	0.19	ug/m3			03/08/18 20:05	1
1,2-Dichloropropane	ND		0.92	0.24	ug/m3			03/08/18 20:05	1
1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND		1.4	0.22	ug/m3			03/08/18 20:05	1
1,3,5-Trimethylbenzene	ND		0.98	0.32	ug/m3			03/08/18 20:05	1
1,3-Butadiene	ND		0.88	0.14	ug/m3			03/08/18 20:05	1
1,3-Dichlorobenzene	ND		1.2	0.39	ug/m3			03/08/18 20:05	1
1,4-Dichlorobenzene	ND		1.2	0.38	ug/m3			03/08/18 20:05	1
1,4-Dioxane	ND		18	0.29	ug/m3			03/08/18 20:05	1
2,2,4-Trimethylpentane	**1.1**	**J**	2.3	0.18	ug/m3			03/08/18 20:05	1
2-Butanone (MEK)	**1.2**	**J**	2.9	0.59	ug/m3			03/08/18 20:05	1
2-Chlorotoluene	ND		2.1	0.33	ug/m3			03/08/18 20:05	1
2-Hexanone	ND		2.0	0.24	ug/m3			03/08/18 20:05	1
2-Methylbutane	**9.0**		1.5	0.091	ug/m3			03/08/18 20:05	1
3-Chloropropene	ND	*	0.63	0.15	ug/m3			03/08/18 20:05	1
4-Ethyltoluene	ND		2.0	0.32	ug/m3			03/08/18 20:05	1
4-Methyl-2-pentanone (MIBK)	ND		2.0	0.80	ug/m3			03/08/18 20:05	1
Acetone	**730**	**E**	12	3.3	ug/m3			03/08/18 20:05	1
Benzyl chloride	ND		4.1	0.40	ug/m3			03/08/18 20:05	1
Benzene	**0.73**		0.64	0.18	ug/m3			03/08/18 20:05	1
Bromodichloromethane	ND		1.3	0.29	ug/m3			03/08/18 20:05	1
Bromoform	ND		2.1	0.50	ug/m3			03/08/18 20:05	1
Bromomethane	ND		0.78	0.12	ug/m3			03/08/18 20:05	1
Butane	**7.7**		0.95	0.17	ug/m3			03/08/18 20:05	1
Carbon disulfide	**0.18**	**J**	1.6	0.097	ug/m3			03/08/18 20:05	1
Carbon tetrachloride	**0.44**	**J**	1.3	0.24	ug/m3			03/08/18 20:05	1
Chlorobenzene	ND		0.92	0.23	ug/m3			03/08/18 20:05	1
Chloroethane	ND		2.1	0.092	ug/m3			03/08/18 20:05	1
Chloroform	**1.8**		0.98	0.19	ug/m3			03/08/18 20:05	1
Chloromethane	**2.0**		1.0	0.33	ug/m3			03/08/18 20:05	1
cis-1,2-Dichloroethene	ND		0.79	0.24	ug/m3			03/08/18 20:05	1

Client Sample ID: IA-01-180305
Date Collected: 03/05/18 17:23
Date Received: 03/07/18 10:00
Sample Container: Summa Canister 6L

Lab Sample ID: 140-10882-2
Matrix: Air

Method: TO-15 - Volatile Organic Compounds in Ambient Air (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
cis-1,3-Dichloropropene	ND		0.91	0.34	ug/m3			03/08/18 20:05	1
Cyclohexane	**0.29**	**J**	1.7	0.14	ug/m3			03/08/18 20:05	1
Decane	**0.87**	**J**	5.8	0.33	ug/m3			03/08/18 20:05	1
Dibromochloromethane	ND		1.7	0.36	ug/m3			03/08/18 20:05	1
Dichlorodifluoromethane	**3.0**		2.5	0.34	ug/m3			03/08/18 20:05	1
Dodecane	ND		7.0	0.54	ug/m3			03/08/18 20:05	1
Ethanol	**74**		3.8	3.8	ug/m3			03/08/18 20:05	1
Ethylbenzene	**0.41**	**J**	0.87	0.30	ug/m3			03/08/18 20:05	1
Heptane	**0.66**	**J**	2.0	0.19	ug/m3			03/08/18 20:05	1
Hexachlorobutadiene	ND		2.1	0.83	ug/m3			03/08/18 20:05	1
Hexane	**1.4**	**J**	2.8	0.11	ug/m3			03/08/18 20:05	1
Indene	ND		1.9	1.9	ug/m3			03/08/18 20:05	1
Isopropyl alcohol	**130**		12	0.23	ug/m3			03/08/18 20:05	1
m-Xylene & p-Xylene	**1.6**	**J**	3.5	0.52	ug/m3			03/08/18 20:05	1
Methylene Chloride	**2.6**		1.7	1.1	ug/m3			03/08/18 20:05	1
Methyl tert-butyl ether	ND		3.6	0.61	ug/m3			03/08/18 20:05	1
Naphthalene	ND		2.6	0.47	ug/m3			03/08/18 20:05	1
Nonane	ND		2.6	0.23	ug/m3			03/08/18 20:05	1
Octane	**0.35**	**J**	1.9	0.17	ug/m3			03/08/18 20:05	1
o-Xylene	**0.47**	**J**	0.87	0.26	ug/m3			03/08/18 20:05	1
Pentane	**4.1**		3.0	1.2	ug/m3			03/08/18 20:05	1
Styrene	ND		0.85	0.25	ug/m3			03/08/18 20:05	1
Tetrachloroethene	ND		1.4	0.27	ug/m3			03/08/18 20:05	1
Toluene	**2.1**		0.75	0.45	ug/m3			03/08/18 20:05	1
trans-1,2-Dichloroethene	ND		0.79	0.20	ug/m3			03/08/18 20:05	1
trans-1,3-Dichloropropene	ND		0.91	0.22	ug/m3			03/08/18 20:05	1
Trichloroethene	ND		1.1	0.19	ug/m3			03/08/18 20:05	1
Trichlorofluoromethane	**1.6**		1.1	0.13	ug/m3			03/08/18 20:05	1
Undecane	ND		6.4	0.40	ug/m3			03/08/18 20:05	1
Vinyl bromide	ND		0.87	0.15	ug/m3			03/08/18 20:05	1
Vinyl chloride	ND		0.51	0.18	ug/m3			03/08/18 20:05	1
Thiophene	ND		0.69	0.69	ug/m3			03/08/18 20:05	1
Isopropylbenzene	ND		3.9	0.29	ug/m3			03/08/18 20:05	1
tert-Butyl alcohol	ND		6.1	0.12	ug/m3			03/08/18 20:05	1
Indane	ND		0.97	0.97	ug/m3			03/08/18 20:05	1

Tentatively Identified Compound	*Est. Result*	*Qualifier*	*Unit*	*D*	*RT*	*CAS No.*	*Prepared*	*Analyzed*	*Dil Fac*
1,2,3,4-Tetramethylbenzene TIC	*ND*		*ppb v/v*			*488-23-3*		*03/08/18 20:05*	*1*
1,2,3,5-Tetramethylbenzene TIC	*ND*		*ppb v/v*			*527-53-7*		*03/08/18 20:05*	*1*

Method: TO-15 - Volatile Organic Compounds in Ambient Air - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	**260**		33	9.3	ppb v/v			03/09/18 09:38	1

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	**630**		79	22	ug/m3			03/09/18 09:38	1

Client: Ramboll US Corporation
Project/Site: ESCO Steel Treaters Troy NY

TestAmerica Job ID: 140-10882-1

Client Sample ID: AA-01-180305
Date Collected: 03/05/18 17:23
Date Received: 03/07/18 10:00
Sample Container: Summa Canister 6L

Lab Sample ID: 140-10882-3
Matrix: Air

Method: TO-15 - Volatile Organic Compounds in Ambient Air

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		0.20	0.030	ppb v/v			03/08/18 20:51	1
1,1,2,2-Tetrachloroethane	ND		0.20	0.061	ppb v/v			03/08/18 20:51	1
1,1,2-Trichloroethane	ND		0.20	0.054	ppb v/v			03/08/18 20:51	1
1,1,2-Trichloro-1,2,2-trifluoroethane	**0.066**	**J**	0.20	0.031	ppb v/v			03/08/18 20:51	1
1,1-Dichloroethane	ND		0.20	0.026	ppb v/v			03/08/18 20:51	1
1,1-Dichloroethene	ND		0.20	0.034	ppb v/v			03/08/18 20:51	1
1,2,3-Trimethylbenzene	ND		0.20	0.20	ppb v/v			03/08/18 20:51	1
1,2,4,5-Tetramethylbenzene	ND		0.20	0.20	ppb v/v			03/08/18 20:51	1
1,2,4-Trichlorobenzene	ND		2.0	0.098	ppb v/v			03/08/18 20:51	1
1,2,4-Trimethylbenzene	ND		0.20	0.063	ppb v/v			03/08/18 20:51	1
1,2-Dibromoethane (EDB)	ND		0.20	0.044	ppb v/v			03/08/18 20:51	1
1,2-Dichlorobenzene	ND		0.20	0.070	ppb v/v			03/08/18 20:51	1
1,2-Dichloroethane	ND		0.20	0.047	ppb v/v			03/08/18 20:51	1
1,2-Dichloropropane	ND		0.20	0.052	ppb v/v			03/08/18 20:51	1
1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND		0.20	0.032	ppb v/v			03/08/18 20:51	1
1,3,5-Trimethylbenzene	ND		0.20	0.065	ppb v/v			03/08/18 20:51	1
1,3-Butadiene	ND		0.40	0.064	ppb v/v			03/08/18 20:51	1
1,3-Dichlorobenzene	ND		0.20	0.065	ppb v/v			03/08/18 20:51	1
1,4-Dichlorobenzene	ND		0.20	0.064	ppb v/v			03/08/18 20:51	1
1,4-Dioxane	ND		5.0	0.080	ppb v/v			03/08/18 20:51	1
2,2,4-Trimethylpentane	**0.18**	**J**	0.50	0.039	ppb v/v			03/08/18 20:51	1
2-Butanone (MEK)	ND		1.0	0.20	ppb v/v			03/08/18 20:51	1
2-Chlorotoluene	ND		0.40	0.063	ppb v/v			03/08/18 20:51	1
2-Hexanone	ND		0.50	0.058	ppb v/v			03/08/18 20:51	1
2-Methylbutane	**0.85**		0.50	0.031	ppb v/v			03/08/18 20:51	1
3-Chloropropene	ND	*	0.20	0.048	ppb v/v			03/08/18 20:51	1
4-Ethyltoluene	ND		0.40	0.066	ppb v/v			03/08/18 20:51	1
4-Methyl-2-pentanone (MIBK)	ND		0.50	0.20	ppb v/v			03/08/18 20:51	1
Acetone	**2.3**	**J**	5.0	1.4	ppb v/v			03/08/18 20:51	1
Benzyl chloride	ND		0.80	0.078	ppb v/v			03/08/18 20:51	1
Benzene	**0.26**		0.20	0.056	ppb v/v			03/08/18 20:51	1
Bromodichloromethane	ND		0.20	0.044	ppb v/v			03/08/18 20:51	1
Bromoform	ND		0.20	0.048	ppb v/v			03/08/18 20:51	1
Bromomethane	ND		0.20	0.032	ppb v/v			03/08/18 20:51	1
Butane	**1.0**		0.40	0.073	ppb v/v			03/08/18 20:51	1
Carbon disulfide	ND		0.50	0.031	ppb v/v			03/08/18 20:51	1
Carbon tetrachloride	**0.077**	**J**	0.20	0.038	ppb v/v			03/08/18 20:51	1
Chlorobenzene	ND		0.20	0.049	ppb v/v			03/08/18 20:51	1
Chloroethane	ND		0.80	0.035	ppb v/v			03/08/18 20:51	1
Chloroform	ND		0.20	0.038	ppb v/v			03/08/18 20:51	1
Chloromethane	**0.58**		0.50	0.16	ppb v/v			03/08/18 20:51	1
cis-1,2-Dichloroethene	ND		0.20	0.060	ppb v/v			03/08/18 20:51	1
cis-1,3-Dichloropropene	ND		0.20	0.074	ppb v/v			03/08/18 20:51	1
Cyclohexane	ND		0.50	0.040	ppb v/v			03/08/18 20:51	1
Decane	**0.076**	**J**	1.0	0.056	ppb v/v			03/08/18 20:51	1
Dibromochloromethane	ND		0.20	0.042	ppb v/v			03/08/18 20:51	1
Dichlorodifluoromethane	**0.49**	**J**	0.50	0.068	ppb v/v			03/08/18 20:51	1
Dodecane	ND		1.0	0.078	ppb v/v			03/08/18 20:51	1

Client Sample ID: AA-01-180305
Lab Sample ID: 140-10882-3
Date Collected: 03/05/18 17:23
Matrix: Air
Date Received: 03/07/18 10:00
Sample Container: Summa Canister 6L

Method: TO-15 - Volatile Organic Compounds in Ambient Air (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethanol	**6.7**		2.0	2.0	ppb v/v			03/08/18 20:51	1
Ethylbenzene	**0.070**	**J**	0.20	0.068	ppb v/v			03/08/18 20:51	1
Heptane	**0.10**	**J**	0.50	0.047	ppb v/v			03/08/18 20:51	1
Hexachlorobutadiene	ND		0.20	0.078	ppb v/v			03/08/18 20:51	1
Hexane	**0.55**	**J**	0.80	0.032	ppb v/v			03/08/18 20:51	1
Indene	ND		0.40	0.40	ppb v/v			03/08/18 20:51	1
Isopropyl alcohol	**1.5**	**J**	5.0	0.094	ppb v/v			03/08/18 20:51	1
m-Xylene & p-Xylene	**0.24**	**J**	0.80	0.12	ppb v/v			03/08/18 20:51	1
Methylene Chloride	**1.5**		0.50	0.32	ppb v/v			03/08/18 20:51	1
Methyl tert-butyl ether	ND		1.0	0.17	ppb v/v			03/08/18 20:51	1
Naphthalene	ND		0.50	0.090	ppb v/v			03/08/18 20:51	1
Nonane	ND		0.50	0.043	ppb v/v			03/08/18 20:51	1
Octane	**0.045**	**J**	0.40	0.036	ppb v/v			03/08/18 20:51	1
o-Xylene	**0.078**	**J**	0.20	0.061	ppb v/v			03/08/18 20:51	1
Pentane	**0.79**	**J**	1.0	0.40	ppb v/v			03/08/18 20:51	1
Styrene	ND		0.20	0.058	ppb v/v			03/08/18 20:51	1
Tetrachloroethene	ND		0.20	0.040	ppb v/v			03/08/18 20:51	1
Toluene	**0.47**		0.20	0.12	ppb v/v			03/08/18 20:51	1
trans-1,2-Dichloroethene	ND		0.20	0.050	ppb v/v			03/08/18 20:51	1
trans-1,3-Dichloropropene	ND		0.20	0.048	ppb v/v			03/08/18 20:51	1
Trichloroethene	ND		0.20	0.036	ppb v/v			03/08/18 20:51	1
Trichlorofluoromethane	**0.28**		0.20	0.024	ppb v/v			03/08/18 20:51	1
Undecane	ND		1.0	0.062	ppb v/v			03/08/18 20:51	1
Vinyl bromide	ND		0.20	0.035	ppb v/v			03/08/18 20:51	1
Vinyl chloride	ND		0.20	0.071	ppb v/v			03/08/18 20:51	1
Thiophene	ND		0.20	0.20	ppb v/v			03/08/18 20:51	1
Isopropylbenzene	ND		0.80	0.060	ppb v/v			03/08/18 20:51	1
tert-Butyl alcohol	ND		2.0	0.038	ppb v/v			03/08/18 20:51	1
Indane	ND		0.20	0.20	ppb v/v			03/08/18 20:51	1

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		1.1	0.16	ug/m3			03/08/18 20:51	1
1,1,2,2-Tetrachloroethane	ND		1.4	0.42	ug/m3			03/08/18 20:51	1
1,1,2-Trichloroethane	ND		1.1	0.29	ug/m3			03/08/18 20:51	1
1,1,2-Trichloro-1,2,2-trifluoroethane	**0.51**	**J**	1.5	0.24	ug/m3			03/08/18 20:51	1
1,1-Dichloroethane	ND		0.81	0.11	ug/m3			03/08/18 20:51	1
1,1-Dichloroethene	ND		0.79	0.13	ug/m3			03/08/18 20:51	1
1,2,3-Trimethylbenzene	ND		0.98	0.98	ug/m3			03/08/18 20:51	1
1,2,4,5-Tetramethylbenzene	ND		1.1	1.1	ug/m3			03/08/18 20:51	1
1,2,4-Trichlorobenzene	ND		15	0.73	ug/m3			03/08/18 20:51	1
1,2,4-Trimethylbenzene	ND		0.98	0.31	ug/m3			03/08/18 20:51	1
1,2-Dibromoethane (EDB)	ND		1.5	0.34	ug/m3			03/08/18 20:51	1
1,2-Dichlorobenzene	ND		1.2	0.42	ug/m3			03/08/18 20:51	1
1,2-Dichloroethane	ND		0.81	0.19	ug/m3			03/08/18 20:51	1
1,2-Dichloropropane	ND		0.92	0.24	ug/m3			03/08/18 20:51	1
1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND		1.4	0.22	ug/m3			03/08/18 20:51	1
1,3,5-Trimethylbenzene	ND		0.98	0.32	ug/m3			03/08/18 20:51	1
1,3-Butadiene	ND		0.88	0.14	ug/m3			03/08/18 20:51	1

Client Sample ID: AA-01-180305
Lab Sample ID: 140-10882-3
Date Collected: 03/05/18 17:23
Matrix: Air
Date Received: 03/07/18 10:00
Sample Container: Summa Canister 6L

Method: TO-15 - Volatile Organic Compounds in Ambient Air (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,3-Dichlorobenzene	ND		1.2	0.39	ug/m3			03/08/18 20:51	1
1,4-Dichlorobenzene	ND		1.2	0.38	ug/m3			03/08/18 20:51	1
1,4-Dioxane	ND		18	0.29	ug/m3			03/08/18 20:51	1
2,2,4-Trimethylpentane	**0.83**	**J**	2.3	0.18	ug/m3			03/08/18 20:51	1
2-Butanone (MEK)	ND		2.9	0.59	ug/m3			03/08/18 20:51	1
2-Chlorotoluene	ND		2.1	0.33	ug/m3			03/08/18 20:51	1
2-Hexanone	ND		2.0	0.24	ug/m3			03/08/18 20:51	1
2-Methylbutane	**2.5**		1.5	0.091	ug/m3			03/08/18 20:51	1
3-Chloropropene	ND	*	0.63	0.15	ug/m3			03/08/18 20:51	1
4-Ethyltoluene	ND		2.0	0.32	ug/m3			03/08/18 20:51	1
4-Methyl-2-pentanone (MIBK)	ND		2.0	0.80	ug/m3			03/08/18 20:51	1
Acetone	**5.4**	**J**	12	3.3	ug/m3			03/08/18 20:51	1
Benzyl chloride	ND		4.1	0.40	ug/m3			03/08/18 20:51	1
Benzene	**0.82**		0.64	0.18	ug/m3			03/08/18 20:51	1
Bromodichloromethane	ND		1.3	0.29	ug/m3			03/08/18 20:51	1
Bromoform	ND		2.1	0.50	ug/m3			03/08/18 20:51	1
Bromomethane	ND		0.78	0.12	ug/m3			03/08/18 20:51	1
Butane	**2.5**		0.95	0.17	ug/m3			03/08/18 20:51	1
Carbon disulfide	ND		1.6	0.097	ug/m3			03/08/18 20:51	1
Carbon tetrachloride	**0.49**	**J**	1.3	0.24	ug/m3			03/08/18 20:51	1
Chlorobenzene	ND		0.92	0.23	ug/m3			03/08/18 20:51	1
Chloroethane	ND		2.1	0.092	ug/m3			03/08/18 20:51	1
Chloroform	ND		0.98	0.19	ug/m3			03/08/18 20:51	1
Chloromethane	**1.2**		1.0	0.33	ug/m3			03/08/18 20:51	1
cis-1,2-Dichloroethene	ND		0.79	0.24	ug/m3			03/08/18 20:51	1
cis-1,3-Dichloropropene	ND		0.91	0.34	ug/m3			03/08/18 20:51	1
Cyclohexane	ND		1.7	0.14	ug/m3			03/08/18 20:51	1
Decane	**0.44**	**J**	5.8	0.33	ug/m3			03/08/18 20:51	1
Dibromochloromethane	ND		1.7	0.36	ug/m3			03/08/18 20:51	1
Dichlorodifluoromethane	**2.4**	**J**	2.5	0.34	ug/m3			03/08/18 20:51	1
Dodecane	ND		7.0	0.54	ug/m3			03/08/18 20:51	1
Ethanol	**13**		3.8	3.8	ug/m3			03/08/18 20:51	1
Ethylbenzene	**0.30**	**J**	0.87	0.30	ug/m3			03/08/18 20:51	1
Heptane	**0.41**	**J**	2.0	0.19	ug/m3			03/08/18 20:51	1
Hexachlorobutadiene	ND		2.1	0.83	ug/m3			03/08/18 20:51	1
Hexane	**2.0**	**J**	2.8	0.11	ug/m3			03/08/18 20:51	1
Indene	ND		1.9	1.9	ug/m3			03/08/18 20:51	1
Isopropyl alcohol	**3.7**	**J**	12	0.23	ug/m3			03/08/18 20:51	1
m-Xylene & p-Xylene	**1.0**	**J**	3.5	0.52	ug/m3			03/08/18 20:51	1
Methylene Chloride	**5.1**		1.7	1.1	ug/m3			03/08/18 20:51	1
Methyl tert-butyl ether	ND		3.6	0.61	ug/m3			03/08/18 20:51	1
Naphthalene	ND		2.6	0.47	ug/m3			03/08/18 20:51	1
Nonane	ND		2.6	0.23	ug/m3			03/08/18 20:51	1
Octane	**0.21**	**J**	1.9	0.17	ug/m3			03/08/18 20:51	1
o-Xylene	**0.34**	**J**	0.87	0.26	ug/m3			03/08/18 20:51	1
Pentane	**2.3**	**J**	3.0	1.2	ug/m3			03/08/18 20:51	1
Styrene	ND		0.85	0.25	ug/m3			03/08/18 20:51	1
Tetrachloroethene	ND		1.4	0.27	ug/m3			03/08/18 20:51	1

Client: Ramboll US Corporation
Project/Site: ESCO Steel Treaters Troy NY

TestAmerica Job ID: 140-10882-1

Client Sample ID: AA-01-180305
Date Collected: 03/05/18 17:23
Date Received: 03/07/18 10:00
Sample Container: Summa Canister 6L

Lab Sample ID: 140-10882-3
Matrix: Air

Method: TO-15 - Volatile Organic Compounds in Ambient Air (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Toluene	**1.8**		0.75	0.45	ug/m3			03/08/18 20:51	1
trans-1,2-Dichloroethene	ND		0.79	0.20	ug/m3			03/08/18 20:51	1
trans-1,3-Dichloropropene	ND		0.91	0.22	ug/m3			03/08/18 20:51	1
Trichloroethene	ND		1.1	0.19	ug/m3			03/08/18 20:51	1
Trichlorofluoromethane	**1.6**		1.1	0.13	ug/m3			03/08/18 20:51	1
Undecane	ND		6.4	0.40	ug/m3			03/08/18 20:51	1
Vinyl bromide	ND		0.87	0.15	ug/m3			03/08/18 20:51	1
Vinyl chloride	ND		0.51	0.18	ug/m3			03/08/18 20:51	1
Thiophene	ND		0.69	0.69	ug/m3			03/08/18 20:51	1
Isopropylbenzene	ND		3.9	0.29	ug/m3			03/08/18 20:51	1
tert-Butyl alcohol	ND		6.1	0.12	ug/m3			03/08/18 20:51	1
Indane	ND		0.97	0.97	ug/m3			03/08/18 20:51	1

Tentatively Identified Compound	*Est. Result*	*Qualifier*	*Unit*	*D*	*RT*	*CAS No.*	*Prepared*	*Analyzed*	*Dil Fac*
1,2,3,4-Tetramethylbenzene TIC	*ND*		*ppb v/v*			*488-23-3*		*03/08/18 20:51*	*1*
1,2,3,5-Tetramethylbenzene TIC	*ND*		*ppb v/v*			*527-53-7*		*03/08/18 20:51*	*1*

Default Detection Limits

Client: Ramboll US Corporation
Project/Site: ESCO Steel Treaters Troy NY

TestAmerica Job ID: 140-10882-1

Method: TO-15 - Volatile Organic Compounds in Ambient Air

Analyte	RL	MDL	Units	Method
1,1,1-Trichloroethane	0.20	0.030	ppb v/v	TO-15
1,1,1-Trichloroethane	1.1	0.16	ug/m3	TO-15
1,1,2,2-Tetrachloroethane	0.20	0.061	ppb v/v	TO-15
1,1,2,2-Tetrachloroethane	1.4	0.42	ug/m3	TO-15
1,1,2-Trichloro-1,2,2-trifluoroethane	0.20	0.031	ppb v/v	TO-15
1,1,2-Trichloro-1,2,2-trifluoroethane	1.5	0.24	ug/m3	TO-15
1,1,2-Trichloroethane	0.20	0.054	ppb v/v	TO-15
1,1,2-Trichloroethane	1.1	0.29	ug/m3	TO-15
1,1-Dichloroethane	0.20	0.026	ppb v/v	TO-15
1,1-Dichloroethane	0.81	0.11	ug/m3	TO-15
1,1-Dichloroethene	0.20	0.034	ppb v/v	TO-15
1,1-Dichloroethene	0.79	0.13	ug/m3	TO-15
1,2,3-Trimethylbenzene	0.20	0.20	ppb v/v	TO-15
1,2,3-Trimethylbenzene	0.98	0.98	ug/m3	TO-15
1,2,4,5-Tetramethylbenzene	0.20	0.20	ppb v/v	TO-15
1,2,4,5-Tetramethylbenzene	1.1	1.1	ug/m3	TO-15
1,2,4-Trichlorobenzene	2.0	0.098	ppb v/v	TO-15
1,2,4-Trichlorobenzene	15	0.73	ug/m3	TO-15
1,2,4-Trimethylbenzene	0.20	0.063	ppb v/v	TO-15
1,2,4-Trimethylbenzene	0.98	0.31	ug/m3	TO-15
1,2-Dibromoethane (EDB)	0.20	0.044	ppb v/v	TO-15
1,2-Dibromoethane (EDB)	1.5	0.34	ug/m3	TO-15
1,2-Dichloro-1,1,2,2-tetrafluoroethane	0.20	0.032	ppb v/v	TO-15
1,2-Dichloro-1,1,2,2-tetrafluoroethane	1.4	0.22	ug/m3	TO-15
1,2-Dichlorobenzene	0.20	0.070	ppb v/v	TO-15
1,2-Dichlorobenzene	1.2	0.42	ug/m3	TO-15
1,2-Dichloroethane	0.20	0.047	ppb v/v	TO-15
1,2-Dichloroethane	0.81	0.19	ug/m3	TO-15
1,2-Dichloropropane	0.20	0.052	ppb v/v	TO-15
1,2-Dichloropropane	0.92	0.24	ug/m3	TO-15
1,3,5-Trimethylbenzene	0.20	0.065	ppb v/v	TO-15
1,3,5-Trimethylbenzene	0.98	0.32	ug/m3	TO-15
1,3-Butadiene	0.40	0.064	ppb v/v	TO-15
1,3-Butadiene	0.88	0.14	ug/m3	TO-15
1,3-Dichlorobenzene	0.20	0.065	ppb v/v	TO-15
1,3-Dichlorobenzene	1.2	0.39	ug/m3	TO-15
1,4-Dichlorobenzene	0.20	0.064	ppb v/v	TO-15
1,4-Dichlorobenzene	1.2	0.38	ug/m3	TO-15
1,4-Dioxane	5.0	0.080	ppb v/v	TO-15
1,4-Dioxane	18	0.29	ug/m3	TO-15
2,2,4-Trimethylpentane	0.50	0.039	ppb v/v	TO-15
2,2,4-Trimethylpentane	2.3	0.18	ug/m3	TO-15
2-Butanone (MEK)	1.0	0.20	ppb v/v	TO-15
2-Butanone (MEK)	2.9	0.59	ug/m3	TO-15
2-Chlorotoluene	0.40	0.063	ppb v/v	TO-15
2-Chlorotoluene	2.1	0.33	ug/m3	TO-15
2-Hexanone	0.50	0.058	ppb v/v	TO-15
2-Hexanone	2.0	0.24	ug/m3	TO-15
2-Methylbutane	0.50	0.031	ppb v/v	TO-15
2-Methylbutane	1.5	0.091	ug/m3	TO-15
3-Chloropropene	0.20	0.048	ppb v/v	TO-15
3-Chloropropene	0.63	0.15	ug/m3	TO-15

Method: TO-15 - Volatile Organic Compounds in Ambient Air (Continued)

Analyte	RL	MDL	Units	Method
4-Ethyltoluene	0.40	0.066	ppb v/v	TO-15
4-Ethyltoluene	2.0	0.32	ug/m3	TO-15
4-Methyl-2-pentanone (MIBK)	0.50	0.20	ppb v/v	TO-15
4-Methyl-2-pentanone (MIBK)	2.0	0.80	ug/m3	TO-15
Acetone	5.0	1.4	ppb v/v	TO-15
Acetone	12	3.3	ug/m3	TO-15
Benzene	0.20	0.056	ppb v/v	TO-15
Benzene	0.64	0.18	ug/m3	TO-15
Benzyl chloride	0.80	0.078	ppb v/v	TO-15
Benzyl chloride	4.1	0.40	ug/m3	TO-15
Bromodichloromethane	0.20	0.044	ppb v/v	TO-15
Bromodichloromethane	1.3	0.29	ug/m3	TO-15
Bromoform	0.20	0.048	ppb v/v	TO-15
Bromoform	2.1	0.50	ug/m3	TO-15
Bromomethane	0.20	0.032	ppb v/v	TO-15
Bromomethane	0.78	0.12	ug/m3	TO-15
Butane	0.40	0.073	ppb v/v	TO-15
Butane	0.95	0.17	ug/m3	TO-15
Carbon disulfide	0.50	0.031	ppb v/v	TO-15
Carbon disulfide	1.6	0.097	ug/m3	TO-15
Carbon tetrachloride	0.20	0.038	ppb v/v	TO-15
Carbon tetrachloride	1.3	0.24	ug/m3	TO-15
Chlorobenzene	0.20	0.049	ppb v/v	TO-15
Chlorobenzene	0.92	0.23	ug/m3	TO-15
Chloroethane	0.80	0.035	ppb v/v	TO-15
Chloroethane	2.1	0.092	ug/m3	TO-15
Chloroform	0.20	0.038	ppb v/v	TO-15
Chloroform	0.98	0.19	ug/m3	TO-15
Chloromethane	0.50	0.16	ppb v/v	TO-15
Chloromethane	1.0	0.33	ug/m3	TO-15
cis-1,2-Dichloroethene	0.20	0.060	ppb v/v	TO-15
cis-1,2-Dichloroethene	0.79	0.24	ug/m3	TO-15
cis-1,3-Dichloropropene	0.20	0.074	ppb v/v	TO-15
cis-1,3-Dichloropropene	0.91	0.34	ug/m3	TO-15
Cyclohexane	0.50	0.040	ppb v/v	TO-15
Cyclohexane	1.7	0.14	ug/m3	TO-15
Decane	1.0	0.056	ppb v/v	TO-15
Decane	5.8	0.33	ug/m3	TO-15
Dibromochloromethane	0.20	0.042	ppb v/v	TO-15
Dibromochloromethane	1.7	0.36	ug/m3	TO-15
Dichlorodifluoromethane	0.50	0.068	ppb v/v	TO-15
Dichlorodifluoromethane	2.5	0.34	ug/m3	TO-15
Dodecane	1.0	0.078	ppb v/v	TO-15
Dodecane	7.0	0.54	ug/m3	TO-15
Ethanol	2.0	2.0	ppb v/v	TO-15
Ethanol	3.8	3.8	ug/m3	TO-15
Ethylbenzene	0.20	0.068	ppb v/v	TO-15
Ethylbenzene	0.87	0.30	ug/m3	TO-15
Heptane	0.50	0.047	ppb v/v	TO-15
Heptane	2.0	0.19	ug/m3	TO-15
Hexachlorobutadiene	0.20	0.078	ppb v/v	TO-15
Hexachlorobutadiene	2.1	0.83	ug/m3	TO-15

Method: TO-15 - Volatile Organic Compounds in Ambient Air (Continued)

Analyte	RL	MDL	Units	Method
Hexane	0.80	0.032	ppb v/v	TO-15
Hexane	2.8	0.11	ug/m3	TO-15
Indane	0.20	0.20	ppb v/v	TO-15
Indane	0.97	0.97	ug/m3	TO-15
Indene	0.40	0.40	ppb v/v	TO-15
Indene	1.9	1.9	ug/m3	TO-15
Isopropyl alcohol	5.0	0.094	ppb v/v	TO-15
Isopropyl alcohol	12	0.23	ug/m3	TO-15
Isopropylbenzene	0.80	0.060	ppb v/v	TO-15
Isopropylbenzene	3.9	0.29	ug/m3	TO-15
Methyl tert-butyl ether	1.0	0.17	ppb v/v	TO-15
Methyl tert-butyl ether	3.6	0.61	ug/m3	TO-15
Methylene Chloride	0.50	0.32	ppb v/v	TO-15
Methylene Chloride	1.7	1.1	ug/m3	TO-15
m-Xylene & p-Xylene	0.80	0.12	ppb v/v	TO-15
m-Xylene & p-Xylene	3.5	0.52	ug/m3	TO-15
Naphthalene	0.50	0.090	ppb v/v	TO-15
Naphthalene	2.6	0.47	ug/m3	TO-15
Nonane	0.50	0.043	ppb v/v	TO-15
Nonane	2.6	0.23	ug/m3	TO-15
Octane	0.40	0.036	ppb v/v	TO-15
Octane	1.9	0.17	ug/m3	TO-15
o-Xylene	0.20	0.061	ppb v/v	TO-15
o-Xylene	0.87	0.26	ug/m3	TO-15
Pentane	1.0	0.40	ppb v/v	TO-15
Pentane	3.0	1.2	ug/m3	TO-15
Styrene	0.20	0.058	ppb v/v	TO-15
Styrene	0.85	0.25	ug/m3	TO-15
tert-Butyl alcohol	2.0	0.038	ppb v/v	TO-15
tert-Butyl alcohol	6.1	0.12	ug/m3	TO-15
Tetrachloroethene	0.20	0.040	ppb v/v	TO-15
Tetrachloroethene	1.4	0.27	ug/m3	TO-15
Thiophene	0.20	0.20	ppb v/v	TO-15
Thiophene	0.69	0.69	ug/m3	TO-15
Toluene	0.20	0.12	ppb v/v	TO-15
Toluene	0.75	0.45	ug/m3	TO-15
trans-1,2-Dichloroethene	0.20	0.050	ppb v/v	TO-15
trans-1,2-Dichloroethene	0.79	0.20	ug/m3	TO-15
trans-1,3-Dichloropropene	0.20	0.048	ppb v/v	TO-15
trans-1,3-Dichloropropene	0.91	0.22	ug/m3	TO-15
Trichloroethene	0.20	0.036	ppb v/v	TO-15
Trichloroethene	1.1	0.19	ug/m3	TO-15
Trichlorofluoromethane	0.20	0.024	ppb v/v	TO-15
Trichlorofluoromethane	1.1	0.13	ug/m3	TO-15
Undecane	1.0	0.062	ppb v/v	TO-15
Undecane	6.4	0.40	ug/m3	TO-15
Vinyl bromide	0.20	0.035	ppb v/v	TO-15
Vinyl bromide	0.87	0.15	ug/m3	TO-15
Vinyl chloride	0.20	0.071	ppb v/v	TO-15
Vinyl chloride	0.51	0.18	ug/m3	TO-15

Method: TO-15 - Volatile Organic Compounds in Ambient Air

Lab Sample ID: MB 140-18586/10
Matrix: Air
Analysis Batch: 18586

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		0.20	0.030	ppb v/v			03/08/18 15:30	1
1,1,2,2-Tetrachloroethane	ND		0.20	0.061	ppb v/v			03/08/18 15:30	1
1,1,2-Trichloroethane	ND		0.20	0.054	ppb v/v			03/08/18 15:30	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.20	0.031	ppb v/v			03/08/18 15:30	1
1,1-Dichloroethane	ND		0.20	0.026	ppb v/v			03/08/18 15:30	1
1,1-Dichloroethene	ND		0.20	0.034	ppb v/v			03/08/18 15:30	1
1,2,3-Trimethylbenzene	ND		0.20	0.20	ppb v/v			03/08/18 15:30	1
1,2,4,5-Tetramethylbenzene	ND		0.20	0.20	ppb v/v			03/08/18 15:30	1
1,2,4-Trichlorobenzene	ND		2.0	0.098	ppb v/v			03/08/18 15:30	1
1,2,4-Trimethylbenzene	ND		0.20	0.063	ppb v/v			03/08/18 15:30	1
1,2-Dibromoethane (EDB)	ND		0.20	0.044	ppb v/v			03/08/18 15:30	1
1,2-Dichlorobenzene	ND		0.20	0.070	ppb v/v			03/08/18 15:30	1
1,2-Dichloroethane	ND		0.20	0.047	ppb v/v			03/08/18 15:30	1
1,2-Dichloropropane	ND		0.20	0.052	ppb v/v			03/08/18 15:30	1
1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND		0.20	0.032	ppb v/v			03/08/18 15:30	1
1,3,5-Trimethylbenzene	ND		0.20	0.065	ppb v/v			03/08/18 15:30	1
1,3-Butadiene	ND		0.40	0.064	ppb v/v			03/08/18 15:30	1
1,3-Dichlorobenzene	ND		0.20	0.065	ppb v/v			03/08/18 15:30	1
1,4-Dichlorobenzene	ND		0.20	0.064	ppb v/v			03/08/18 15:30	1
1,4-Dioxane	ND		5.0	0.080	ppb v/v			03/08/18 15:30	1
2,2,4-Trimethylpentane	ND		0.50	0.039	ppb v/v			03/08/18 15:30	1
2-Butanone (MEK)	ND		1.0	0.20	ppb v/v			03/08/18 15:30	1
2-Chlorotoluene	ND		0.40	0.063	ppb v/v			03/08/18 15:30	1
2-Hexanone	ND		0.50	0.058	ppb v/v			03/08/18 15:30	1
2-Methylbutane	ND		0.50	0.031	ppb v/v			03/08/18 15:30	1
3-Chloropropene	ND		0.20	0.048	ppb v/v			03/08/18 15:30	1
4-Ethyltoluene	ND		0.40	0.066	ppb v/v			03/08/18 15:30	1
4-Methyl-2-pentanone (MIBK)	ND		0.50	0.20	ppb v/v			03/08/18 15:30	1
Acetone	ND		5.0	1.4	ppb v/v			03/08/18 15:30	1
Benzyl chloride	ND		0.80	0.078	ppb v/v			03/08/18 15:30	1
Benzene	ND		0.20	0.056	ppb v/v			03/08/18 15:30	1
Bromodichloromethane	ND		0.20	0.044	ppb v/v			03/08/18 15:30	1
Bromoform	ND		0.20	0.048	ppb v/v			03/08/18 15:30	1
Bromomethane	ND		0.20	0.032	ppb v/v			03/08/18 15:30	1
Butane	ND		0.40	0.073	ppb v/v			03/08/18 15:30	1
Carbon disulfide	ND		0.50	0.031	ppb v/v			03/08/18 15:30	1
Carbon tetrachloride	ND		0.20	0.038	ppb v/v			03/08/18 15:30	1
Chlorobenzene	ND		0.20	0.049	ppb v/v			03/08/18 15:30	1
Chloroethane	ND		0.80	0.035	ppb v/v			03/08/18 15:30	1
Chloroform	ND		0.20	0.038	ppb v/v			03/08/18 15:30	1
Chloromethane	ND		0.50	0.16	ppb v/v			03/08/18 15:30	1
cis-1,2-Dichloroethene	ND		0.20	0.060	ppb v/v			03/08/18 15:30	1
cis-1,3-Dichloropropene	ND		0.20	0.074	ppb v/v			03/08/18 15:30	1
Cyclohexane	ND		0.50	0.040	ppb v/v			03/08/18 15:30	1
Decane	ND		1.0	0.056	ppb v/v			03/08/18 15:30	1
Dibromochloromethane	ND		0.20	0.042	ppb v/v			03/08/18 15:30	1
Dichlorodifluoromethane	ND		0.50	0.068	ppb v/v			03/08/18 15:30	1
Dodecane	ND		1.0	0.078	ppb v/v			03/08/18 15:30	1

Method: TO-15 - Volatile Organic Compounds in Ambient Air (Continued)

Lab Sample ID: MB 140-18586/10
Matrix: Air
Analysis Batch: 18586

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethanol	ND		2.0	2.0	ppb v/v			03/08/18 15:30	1
Ethylbenzene	ND		0.20	0.068	ppb v/v			03/08/18 15:30	1
Heptane	ND		0.50	0.047	ppb v/v			03/08/18 15:30	1
Hexachlorobutadiene	ND		0.20	0.078	ppb v/v			03/08/18 15:30	1
Hexane	ND		0.80	0.032	ppb v/v			03/08/18 15:30	1
Indene	ND		0.40	0.40	ppb v/v			03/08/18 15:30	1
Isopropyl alcohol	ND		5.0	0.094	ppb v/v			03/08/18 15:30	1
m-Xylene & p-Xylene	ND		0.80	0.12	ppb v/v			03/08/18 15:30	1
Methylene Chloride	ND		0.50	0.32	ppb v/v			03/08/18 15:30	1
Methyl tert-butyl ether	ND		1.0	0.17	ppb v/v			03/08/18 15:30	1
Naphthalene	ND		0.50	0.090	ppb v/v			03/08/18 15:30	1
Nonane	ND		0.50	0.043	ppb v/v			03/08/18 15:30	1
Octane	ND		0.40	0.036	ppb v/v			03/08/18 15:30	1
o-Xylene	ND		0.20	0.061	ppb v/v			03/08/18 15:30	1
Pentane	ND		1.0	0.40	ppb v/v			03/08/18 15:30	1
Styrene	ND		0.20	0.058	ppb v/v			03/08/18 15:30	1
Tetrachloroethene	ND		0.20	0.040	ppb v/v			03/08/18 15:30	1
Toluene	ND		0.20	0.12	ppb v/v			03/08/18 15:30	1
trans-1,2-Dichloroethene	ND		0.20	0.050	ppb v/v			03/08/18 15:30	1
trans-1,3-Dichloropropene	ND		0.20	0.048	ppb v/v			03/08/18 15:30	1
Trichloroethene	ND		0.20	0.036	ppb v/v			03/08/18 15:30	1
Trichlorofluoromethane	ND		0.20	0.024	ppb v/v			03/08/18 15:30	1
Undecane	ND		1.0	0.062	ppb v/v			03/08/18 15:30	1
Vinyl bromide	ND		0.20	0.035	ppb v/v			03/08/18 15:30	1
Vinyl chloride	ND		0.20	0.071	ppb v/v			03/08/18 15:30	1
Thiophene	ND		0.20	0.20	ppb v/v			03/08/18 15:30	1
Isopropylbenzene	ND		0.80	0.060	ppb v/v			03/08/18 15:30	1
tert-Butyl alcohol	ND		2.0	0.038	ppb v/v			03/08/18 15:30	1
Indane	ND		0.20	0.20	ppb v/v			03/08/18 15:30	1

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		1.1	0.16	ug/m3			03/08/18 15:30	1
1,1,2,2-Tetrachloroethane	ND		1.4	0.42	ug/m3			03/08/18 15:30	1
1,1,2-Trichloroethane	ND		1.1	0.29	ug/m3			03/08/18 15:30	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		1.5	0.24	ug/m3			03/08/18 15:30	1
1,1-Dichloroethane	ND		0.81	0.11	ug/m3			03/08/18 15:30	1
1,1-Dichloroethene	ND		0.79	0.13	ug/m3			03/08/18 15:30	1
1,2,3-Trimethylbenzene	ND		0.98	0.98	ug/m3			03/08/18 15:30	1
1,2,4,5-Tetramethylbenzene	ND		1.1	1.1	ug/m3			03/08/18 15:30	1
1,2,4-Trichlorobenzene	ND		15	0.73	ug/m3			03/08/18 15:30	1
1,2,4-Trimethylbenzene	ND		0.98	0.31	ug/m3			03/08/18 15:30	1
1,2-Dibromoethane (EDB)	ND		1.5	0.34	ug/m3			03/08/18 15:30	1
1,2-Dichlorobenzene	ND		1.2	0.42	ug/m3			03/08/18 15:30	1
1,2-Dichloroethane	ND		0.81	0.19	ug/m3			03/08/18 15:30	1
1,2-Dichloropropane	ND		0.92	0.24	ug/m3			03/08/18 15:30	1
1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND		1.4	0.22	ug/m3			03/08/18 15:30	1
1,3,5-Trimethylbenzene	ND		0.98	0.32	ug/m3			03/08/18 15:30	1
1,3-Butadiene	ND		0.88	0.14	ug/m3			03/08/18 15:30	1

Method: TO-15 - Volatile Organic Compounds in Ambient Air (Continued)

Lab Sample ID: MB 140-18586/10
Matrix: Air
Analysis Batch: 18586

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,3-Dichlorobenzene	ND		1.2	0.39	ug/m3			03/08/18 15:30	1
1,4-Dichlorobenzene	ND		1.2	0.38	ug/m3			03/08/18 15:30	1
1,4-Dioxane	ND		18	0.29	ug/m3			03/08/18 15:30	1
2,2,4-Trimethylpentane	ND		2.3	0.18	ug/m3			03/08/18 15:30	1
2-Butanone (MEK)	ND		2.9	0.59	ug/m3			03/08/18 15:30	1
2-Chlorotoluene	ND		2.1	0.33	ug/m3			03/08/18 15:30	1
2-Hexanone	ND		2.0	0.24	ug/m3			03/08/18 15:30	1
2-Methylbutane	ND		1.5	0.091	ug/m3			03/08/18 15:30	1
3-Chloropropene	ND		0.63	0.15	ug/m3			03/08/18 15:30	1
4-Ethyltoluene	ND		2.0	0.32	ug/m3			03/08/18 15:30	1
4-Methyl-2-pentanone (MIBK)	ND		2.0	0.80	ug/m3			03/08/18 15:30	1
Acetone	ND		12	3.3	ug/m3			03/08/18 15:30	1
Benzyl chloride	ND		4.1	0.40	ug/m3			03/08/18 15:30	1
Benzene	ND		0.64	0.18	ug/m3			03/08/18 15:30	1
Bromodichloromethane	ND		1.3	0.29	ug/m3			03/08/18 15:30	1
Bromoform	ND		2.1	0.50	ug/m3			03/08/18 15:30	1
Bromomethane	ND		0.78	0.12	ug/m3			03/08/18 15:30	1
Butane	ND		0.95	0.17	ug/m3			03/08/18 15:30	1
Carbon disulfide	ND		1.6	0.097	ug/m3			03/08/18 15:30	1
Carbon tetrachloride	ND		1.3	0.24	ug/m3			03/08/18 15:30	1
Chlorobenzene	ND		0.92	0.23	ug/m3			03/08/18 15:30	1
Chloroethane	ND		2.1	0.092	ug/m3			03/08/18 15:30	1
Chloroform	ND		0.98	0.19	ug/m3			03/08/18 15:30	1
Chloromethane	ND		1.0	0.33	ug/m3			03/08/18 15:30	1
cis-1,2-Dichloroethene	ND		0.79	0.24	ug/m3			03/08/18 15:30	1
cis-1,3-Dichloropropene	ND		0.91	0.34	ug/m3			03/08/18 15:30	1
Cyclohexane	ND		1.7	0.14	ug/m3			03/08/18 15:30	1
Decane	ND		5.8	0.33	ug/m3			03/08/18 15:30	1
Dibromochloromethane	ND		1.7	0.36	ug/m3			03/08/18 15:30	1
Dichlorodifluoromethane	ND		2.5	0.34	ug/m3			03/08/18 15:30	1
Dodecane	ND		7.0	0.54	ug/m3			03/08/18 15:30	1
Ethanol	ND		3.8	3.8	ug/m3			03/08/18 15:30	1
Ethylbenzene	ND		0.87	0.30	ug/m3			03/08/18 15:30	1
Heptane	ND		2.0	0.19	ug/m3			03/08/18 15:30	1
Hexachlorobutadiene	ND		2.1	0.83	ug/m3			03/08/18 15:30	1
Hexane	ND		2.8	0.11	ug/m3			03/08/18 15:30	1
Indene	ND		1.9	1.9	ug/m3			03/08/18 15:30	1
Isopropyl alcohol	ND		12	0.23	ug/m3			03/08/18 15:30	1
m-Xylene & p-Xylene	ND		3.5	0.52	ug/m3			03/08/18 15:30	1
Methylene Chloride	ND		1.7	1.1	ug/m3			03/08/18 15:30	1
Methyl tert-butyl ether	ND		3.6	0.61	ug/m3			03/08/18 15:30	1
Naphthalene	ND		2.6	0.47	ug/m3			03/08/18 15:30	1
Nonane	ND		2.6	0.23	ug/m3			03/08/18 15:30	1
Octane	ND		1.9	0.17	ug/m3			03/08/18 15:30	1
o-Xylene	ND		0.87	0.26	ug/m3			03/08/18 15:30	1
Pentane	ND		3.0	1.2	ug/m3			03/08/18 15:30	1
Styrene	ND		0.85	0.25	ug/m3			03/08/18 15:30	1
Tetrachloroethene	ND		1.4	0.27	ug/m3			03/08/18 15:30	1

Method: TO-15 - Volatile Organic Compounds in Ambient Air (Continued)

Lab Sample ID: MB 140-18586/10
Matrix: Air
Analysis Batch: 18586

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Toluene	ND		0.75	0.45	ug/m3			03/08/18 15:30	1
trans-1,2-Dichloroethene	ND		0.79	0.20	ug/m3			03/08/18 15:30	1
trans-1,3-Dichloropropene	ND		0.91	0.22	ug/m3			03/08/18 15:30	1
Trichloroethene	ND		1.1	0.19	ug/m3			03/08/18 15:30	1
Trichlorofluoromethane	ND		1.1	0.13	ug/m3			03/08/18 15:30	1
Undecane	ND		6.4	0.40	ug/m3			03/08/18 15:30	1
Vinyl bromide	ND		0.87	0.15	ug/m3			03/08/18 15:30	1
Vinyl chloride	ND		0.51	0.18	ug/m3			03/08/18 15:30	1
Thiophene	ND		0.69	0.69	ug/m3			03/08/18 15:30	1
Isopropylbenzene	ND		3.9	0.29	ug/m3			03/08/18 15:30	1
tert-Butyl alcohol	ND		6.1	0.12	ug/m3			03/08/18 15:30	1
Indane	ND		0.97	0.97	ug/m3			03/08/18 15:30	1

Tentatively Identified Compound	*MB Est. Result*	*MB Qualifier*	*Unit*	*D*	*RT*	*CAS No.*	*Prepared*	*Analyzed*	*Dil Fac*
1,2,3,4-Tetramethylbenzene TIC	*ND*		*ppb v/v*			*488-23-3*		*03/08/18 15:30*	*1*
1,2,3,5-Tetramethylbenzene TIC	*ND*		*ppb v/v*			*527-53-7*		*03/08/18 15:30*	*1*

Lab Sample ID: LCS 140-18586/1006
Matrix: Air
Analysis Batch: 18586

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1,1-Trichloroethane	2.00	2.14		ppb v/v		107	70 - 130
1,1,2,2-Tetrachloroethane	2.00	1.99		ppb v/v		100	70 - 130
1,1,2-Trichloroethane	2.00	1.89		ppb v/v		94	70 - 130
1,1,2-Trichloro-1,2,2-trifluoroethane	2.00	2.00		ppb v/v		100	70 - 130
1,1-Dichloroethane	2.00	2.02		ppb v/v		101	70 - 130
1,1-Dichloroethene	2.00	1.89		ppb v/v		94	70 - 130
1,2,3-Trimethylbenzene	2.00	1.62		ppb v/v		81	70 - 130
1,2,4,5-Tetramethylbenzene	2.00	2.19		ppb v/v		110	60 - 140
1,2,4-Trichlorobenzene	2.00	2.40		ppb v/v		120	60 - 140
1,2,4-Trimethylbenzene	2.00	2.16		ppb v/v		108	70 - 130
1,2-Dibromoethane (EDB)	2.00	2.01		ppb v/v		101	70 - 130
1,2-Dichlorobenzene	2.00	2.15		ppb v/v		107	70 - 130
1,2-Dichloroethane	2.00	2.18		ppb v/v		109	70 - 130
1,2-Dichloropropane	2.00	1.82		ppb v/v		91	70 - 130
1,2-Dichloro-1,1,2,2-tetrafluoroethane	2.00	2.04		ppb v/v		102	60 - 140
1,3,5-Trimethylbenzene	2.00	2.40		ppb v/v		120	70 - 130
1,3-Butadiene	2.00	1.81		ppb v/v		91	60 - 140
1,3-Dichlorobenzene	2.00	2.12		ppb v/v		106	70 - 130
1,4-Dichlorobenzene	2.00	2.10		ppb v/v		105	70 - 130
1,4-Dioxane	2.00	2.29		ppb v/v		115	60 - 140
2,2,4-Trimethylpentane	2.00	1.88		ppb v/v		94	70 - 130
2-Butanone (MEK)	2.00	2.03		ppb v/v		102	60 - 140
2-Chlorotoluene	2.00	2.08		ppb v/v		104	70 - 130
2-Hexanone	2.00	1.99		ppb v/v		100	60 - 140

Method: TO-15 - Volatile Organic Compounds in Ambient Air (Continued)

Lab Sample ID: LCS 140-18586/1006
Matrix: Air
Analysis Batch: 18586

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
2-Methylbutane	2.00	1.69		ppb v/v		84	70 - 130
3-Chloropropene	2.00	1.08	*	ppb v/v		54	60 - 140
4-Ethyltoluene	2.00	2.05		ppb v/v		102	70 - 130
4-Methyl-2-pentanone (MIBK)	2.00	1.98		ppb v/v		99	60 - 140
Acetone	2.00	1.88	J	ppb v/v		94	60 - 140
Benzyl chloride	2.00	2.16		ppb v/v		108	70 - 130
Benzene	2.00	1.93		ppb v/v		96	70 - 130
Bromodichloromethane	2.00	2.06		ppb v/v		103	70 - 130
Bromoform	2.00	1.89		ppb v/v		94	60 - 140
Bromomethane	2.00	1.87		ppb v/v		93	70 - 130
Butane	2.00	1.77		ppb v/v		89	60 - 140
Carbon disulfide	2.00	1.82		ppb v/v		91	70 - 130
Carbon tetrachloride	2.00	2.18		ppb v/v		109	70 - 130
Chlorobenzene	2.00	1.97		ppb v/v		99	70 - 130
Chloroethane	2.00	1.80		ppb v/v		90	70 - 130
Chloroform	2.00	2.10		ppb v/v		105	70 - 130
Chloromethane	2.00	1.87		ppb v/v		93	60 - 140
cis-1,2-Dichloroethene	2.00	2.03		ppb v/v		101	70 - 130
cis-1,3-Dichloropropene	2.00	1.96		ppb v/v		98	70 - 130
Cyclohexane	2.00	1.78		ppb v/v		89	70 - 130
Decane	2.00	1.93		ppb v/v		96	60 - 140
Dibromochloromethane	2.00	2.14		ppb v/v		107	70 - 130
Dichlorodifluoromethane	2.00	2.12		ppb v/v		106	60 - 140
Dodecane	2.00	2.19		ppb v/v		109	60 - 140
Ethanol	10.0	7.80		ppb v/v		78	60 - 140
Ethylbenzene	2.00	2.00		ppb v/v		100	70 - 130
Heptane	2.00	1.83		ppb v/v		92	70 - 130
Hexachlorobutadiene	2.00	2.23		ppb v/v		112	60 - 140
Hexane	2.00	1.80		ppb v/v		90	70 - 130
Indene	2.00	1.87		ppb v/v		93	60 - 140
Isopropyl alcohol	2.00	2.33		ppb v/v		116	60 - 140
m-Xylene & p-Xylene	4.00	4.10		ppb v/v		102	70 - 130
Methylene Chloride	2.00	1.67		ppb v/v		83	70 - 130
Methyl tert-butyl ether	2.00	2.22		ppb v/v		111	60 - 140
Naphthalene	2.00	2.23		ppb v/v		111	60 - 140
Nonane	2.00	1.86		ppb v/v		93	60 - 140
Octane	2.00	1.92		ppb v/v		96	70 - 130
o-Xylene	2.00	2.01		ppb v/v		101	70 - 130
Pentane	2.00	1.74		ppb v/v		87	70 - 130
Styrene	2.00	1.97		ppb v/v		98	70 - 130
Tetrachloroethene	2.00	2.09		ppb v/v		104	70 - 130
Toluene	2.00	1.93		ppb v/v		97	70 - 130
trans-1,2-Dichloroethene	2.00	1.90		ppb v/v		95	70 - 130
trans-1,3-Dichloropropene	2.00	2.00		ppb v/v		100	70 - 130
Trichloroethene	2.00	2.05		ppb v/v		103	70 - 130
Trichlorofluoromethane	2.00	2.09		ppb v/v		105	60 - 140
Undecane	2.00	1.91		ppb v/v		96	60 - 140
Vinyl bromide	2.00	1.95		ppb v/v		98	60 - 140

Method: TO-15 - Volatile Organic Compounds in Ambient Air (Continued)

Lab Sample ID: LCS 140-18586/1006
Matrix: Air
Analysis Batch: 18586

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Vinyl chloride	2.00	2.02		ppb v/v		101	70 - 130
Thiophene	2.00	1.93		ppb v/v		96	70 - 130
Isopropylbenzene	2.00	2.09		ppb v/v		104	70 - 130
tert-Butyl alcohol	2.00	2.66		ppb v/v		133	60 - 140
Indane	2.00	2.08		ppb v/v		104	70 - 130

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1,1-Trichloroethane	11	11.7		ug/m3		107	70 - 130
1,1,2,2-Tetrachloroethane	14	13.7		ug/m3		100	70 - 130
1,1,2-Trichloroethane	11	10.3		ug/m3		94	70 - 130
1,1,2-Trichloro-1,2,2-trifluoroethane	15	15.3		ug/m3		100	70 - 130
1,1-Dichloroethane	8.1	8.17		ug/m3		101	70 - 130
1,1-Dichloroethene	7.9	7.48		ug/m3		94	70 - 130
1,2,3-Trimethylbenzene	9.8	7.97		ug/m3		81	70 - 130
1,2,4,5-Tetramethylbenzene	11	12.0		ug/m3		110	60 - 140
1,2,4-Trichlorobenzene	15	17.8		ug/m3		120	60 - 140
1,2,4-Trimethylbenzene	9.8	10.6		ug/m3		108	70 - 130
1,2-Dibromoethane (EDB)	15	15.5		ug/m3		101	70 - 130
1,2-Dichlorobenzene	12	12.9		ug/m3		107	70 - 130
1,2-Dichloroethane	8.1	8.82		ug/m3		109	70 - 130
1,2-Dichloropropane	9.2	8.40		ug/m3		91	70 - 130
1,2-Dichloro-1,1,2,2-tetrafluoroethane	14	14.3		ug/m3		102	60 - 140
1,3,5-Trimethylbenzene	9.8	11.8		ug/m3		120	70 - 130
1,3-Butadiene	4.4	4.01		ug/m3		91	60 - 140
1,3-Dichlorobenzene	12	12.8		ug/m3		106	70 - 130
1,4-Dichlorobenzene	12	12.6		ug/m3		105	70 - 130
1,4-Dioxane	7.2	8.26		ug/m3		115	60 - 140
2,2,4-Trimethylpentane	9.3	8.76		ug/m3		94	70 - 130
2-Butanone (MEK)	5.9	5.99		ug/m3		102	60 - 140
2-Chlorotoluene	10	10.7		ug/m3		104	70 - 130
2-Hexanone	8.2	8.16		ug/m3		100	60 - 140
2-Methylbutane	5.9	4.98		ug/m3		84	70 - 130
3-Chloropropene	6.3	3.39	*	ug/m3		54	60 - 140
4-Ethyltoluene	9.8	10.1		ug/m3		102	70 - 130
4-Methyl-2-pentanone (MIBK)	8.2	8.12		ug/m3		99	60 - 140
Acetone	4.8	4.47	J	ug/m3		94	60 - 140
Benzyl chloride	10	11.2		ug/m3		108	70 - 130
Benzene	6.4	6.16		ug/m3		96	70 - 130
Bromodichloromethane	13	13.8		ug/m3		103	70 - 130
Bromoform	21	19.5		ug/m3		94	60 - 140
Bromomethane	7.8	7.26		ug/m3		93	70 - 130
Butane	4.8	4.21		ug/m3		89	60 - 140
Carbon disulfide	6.2	5.66		ug/m3		91	70 - 130
Carbon tetrachloride	13	13.7		ug/m3		109	70 - 130
Chlorobenzene	9.2	9.08		ug/m3		99	70 - 130
Chloroethane	5.3	4.74		ug/m3		90	70 - 130
Chloroform	9.8	10.2		ug/m3		105	70 - 130

Method: TO-15 - Volatile Organic Compounds in Ambient Air (Continued)

Lab Sample ID: LCS 140-18586/1006
Matrix: Air
Analysis Batch: 18586

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloromethane	4.1	3.85		ug/m3		93	60 - 140
cis-1,2-Dichloroethene	7.9	8.05		ug/m3		101	70 - 130
cis-1,3-Dichloropropene	9.1	8.89		ug/m3		98	70 - 130
Cyclohexane	6.9	6.12		ug/m3		89	70 - 130
Decane	12	11.2		ug/m3		96	60 - 140
Dibromochloromethane	17	18.3		ug/m3		107	70 - 130
Dichlorodifluoromethane	9.9	10.5		ug/m3		106	60 - 140
Dodecane	14	15.2		ug/m3		109	60 - 140
Ethanol	19	14.7		ug/m3		78	60 - 140
Ethylbenzene	8.7	8.70		ug/m3		100	70 - 130
Heptane	8.2	7.51		ug/m3		92	70 - 130
Hexachlorobutadiene	21	23.8		ug/m3		112	60 - 140
Hexane	7.0	6.36		ug/m3		90	70 - 130
Indene	9.5	8.88		ug/m3		93	60 - 140
Isopropyl alcohol	4.9	5.72		ug/m3		116	60 - 140
m-Xylene & p-Xylene	17	17.8		ug/m3		102	70 - 130
Methylene Chloride	6.9	5.80		ug/m3		83	70 - 130
Methyl tert-butyl ether	7.2	8.00		ug/m3		111	60 - 140
Naphthalene	10	11.7		ug/m3		111	60 - 140
Nonane	10	9.74		ug/m3		93	60 - 140
Octane	9.3	8.99		ug/m3		96	70 - 130
o-Xylene	8.7	8.74		ug/m3		101	70 - 130
Pentane	5.9	5.13		ug/m3		87	70 - 130
Styrene	8.5	8.37		ug/m3		98	70 - 130
Tetrachloroethene	14	14.2		ug/m3		104	70 - 130
Toluene	7.5	7.28		ug/m3		97	70 - 130
trans-1,2-Dichloroethene	7.9	7.54		ug/m3		95	70 - 130
trans-1,3-Dichloropropene	9.1	9.07		ug/m3		100	70 - 130
Trichloroethene	11	11.0		ug/m3		103	70 - 130
Trichlorofluoromethane	11	11.8		ug/m3		105	60 - 140
Undecane	13	12.2		ug/m3		96	60 - 140
Vinyl bromide	8.7	8.55		ug/m3		98	60 - 140
Vinyl chloride	5.1	5.16		ug/m3		101	70 - 130
Thiophene	6.9	6.63		ug/m3		96	70 - 130
Isopropylbenzene	9.8	10.3		ug/m3		104	70 - 130
tert-Butyl alcohol	6.1	8.06		ug/m3		133	60 - 140
Indane	9.7	10.1		ug/m3		104	70 - 130

QC Association Summary

Client: Ramboll US Corporation
Project/Site: ESCO Steel Treaters Troy NY

TestAmerica Job ID: 140-10882-1

Air - GC/MS VOA

Analysis Batch: 18586

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-10882-1	SS-01-180305	Total/NA	Air	TO-15	
140-10882-2	IA-01-180305	Total/NA	Air	TO-15	
140-10882-2 - DL	IA-01-180305	Total/NA	Air	TO-15	
140-10882-3	AA-01-180305	Total/NA	Air	TO-15	
MB 140-18586/10	Method Blank	Total/NA	Air	TO-15	
LCS 140-18586/1006	Lab Control Sample	Total/NA	Air	TO-15	

Lab Chronicle

Client: Ramboll US Corporation
Project/Site: ESCO Steel Treaters Troy NY

TestAmerica Job ID: 140-10882-1

Client Sample ID: SS-01-180305
Lab Sample ID: 140-10882-1
Date Collected: 03/05/18 17:23
Matrix: Air
Date Received: 03/07/18 10:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	TO-15		1	20 mL	500 mL	18586	03/08/18 19:19	HMT	TAL KNX
	Instrument ID: MJ									

Client Sample ID: IA-01-180305
Lab Sample ID: 140-10882-2
Date Collected: 03/05/18 17:23
Matrix: Air
Date Received: 03/07/18 10:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	TO-15		1	200 mL	500 mL	18586	03/08/18 20:05	HMT	TAL KNX
	Instrument ID: MJ									
Total/NA	Analysis	TO-15	DL	1	30 mL	500 mL	18586	03/09/18 09:38	HMT	TAL KNX
	Instrument ID: MJ									

Client Sample ID: AA-01-180305
Lab Sample ID: 140-10882-3
Date Collected: 03/05/18 17:23
Matrix: Air
Date Received: 03/07/18 10:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	TO-15		1	200 mL	500 mL	18586	03/08/18 20:51	HMT	TAL KNX
	Instrument ID: MJ									

Client Sample ID: Method Blank
Lab Sample ID: MB 140-18586/10
Date Collected: N/A
Matrix: Air
Date Received: N/A

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	TO-15		1	200 mL	500 mL	18586	03/08/18 15:30	HMT	TAL KNX
	Instrument ID: MJ									

Client Sample ID: Lab Control Sample
Lab Sample ID: LCS 140-18586/1006
Date Collected: N/A
Matrix: Air
Date Received: N/A

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	TO-15		1	500 mL	500 mL	18586	03/08/18 12:00	HMT	TAL KNX
	Instrument ID: MJ									

Laboratory References:
TAL KNX = TestAmerica Knoxville, 5815 Middlebrook Pike, Knoxville, TN 37921, TEL (865)291-3000

Accreditation/Certification Summary

Client: Ramboll US Corporation
Project/Site: ESCO Steel Treaters Troy NY

TestAmerica Job ID: 140-10882-1

Laboratory: TestAmerica Knoxville

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
	AFCEE		N/A	
ANAB	DoD ELAP		L2311	02-13-19
Arkansas DEQ	State Program	6	88-0688	06-16-18
California	State Program	9	2423	06-30-18
Colorado	State Program	8	TN00009	02-28-19
Connecticut	State Program	1	PH-0223	09-30-19
Florida	NELAP	4	E87177	06-30-18
Georgia	State Program	4	906	04-13-20
Hawaii	State Program	9	N/A	04-13-18
Kansas	NELAP	7	E-10349	10-31-18
Kentucky (DW)	State Program	4	90101	12-31-18
Louisiana	NELAP	6	83979	06-30-18
Louisiana (DW)	NELAP	6	LA160005	12-31-18
Maryland	State Program	3	277	03-31-19
Michigan	State Program	5	9933	04-13-20
Nevada	State Program	9	TN00009	07-31-18
New Jersey	NELAP	2	TN001	06-30-18
New York	NELAP	2	10781	03-31-18
North Carolina (DW)	State Program	4	21705	07-31-18
North Carolina (WW/SW)	State Program	4	64	12-31-18
Ohio VAP	State Program	5	CL0059	11-22-18
Oklahoma	State Program	6	9415	08-31-18
Oregon	NELAP	10	TNI0189	01-01-19
Pennsylvania	NELAP	3	68-00576	12-31-18
Tennessee	State Program	4	2014	04-13-20
Texas	NELAP	6	T104704380-16-9	08-31-18
US Fish & Wildlife	Federal		LE-058448-0	07-31-18
USDA	Federal		P330-16-00262	08-20-19
Utah	NELAP	8	TN00009	07-31-18
Virginia	NELAP	3	460176	09-14-18
Washington	State Program	10	C593	01-19-19
West Virginia (DW)	State Program	3	9955C	12-31-18
West Virginia DEP	State Program	3	345	04-30-18
Wisconsin	State Program	5	998044300	08-31-18

Laboratory: TestAmerica Buffalo

The accreditations/certifications listed below are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
New York	NELAP	2	10026	03-31-18 *

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Method Summary

Client: Ramboll US Corporation
Project/Site: ESCO Steel Treaters Troy NY

TestAmerica Job ID: 140-10882-1

Method	Method Description	Protocol	Laboratory
TO-15	Volatile Organic Compounds in Ambient Air	EPA	TAL KNX

Protocol References:

EPA = US Environmental Protection Agency

Laboratory References:

TAL KNX = TestAmerica Knoxville, 5815 Middlebrook Pike, Knoxville, TN 37921, TEL (865)291-3000

Sample Summary

Client: Ramboll US Corporation
Project/Site: ESCO Steel Treaters Troy NY

TestAmerica Job ID: 140-10882-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
140-10882-1	SS-01-180305	Air	03/05/18 17:23	03/07/18 10:00
140-10882-2	IA-01-180305	Air	03/05/18 17:23	03/07/18 10:00
140-10882-3	AA-01-180305	Air	03/05/18 17:23	03/07/18 10:00

TAL Knoxville 480501-Albany
5815 Middlebrook Pike
Knoxville, TN 37921
phone 865-291-3000 fax 865-584-4315

Canister Samples Chain of Custody Record

TestAmerica assumes no liability with respect to the collection and shipment of these samples.

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Contact Information	**Project Manager:** Jose Sanares	**Sampled By:** Alex Pabalan
Company: Lawbell US Corporation	Phone: 6092439887	1 of 1 COCs
Address: 101 Carnegie Center Suite 200	Site Contact: Alex Pabalan	
City/State/Zip Princeton, NJ 08540	TAL Contact: Becky	
Phone: 6092439887		
FAX:		
Project Name: ESCO Steel	**Analysis Turnaround Time**	
Site/location: ~~Troy~~ Troy, NY	Standard (Specify) 5 day TAT	
PO # 1690000663	Rush (Specify)	

140-10882 Chain of Custody

Sample Identification	Sample Date(s)	Time Start	Time Stop	Canister Vacuum in Field, "Hg (Start)	Canister Vacuum in Field, "Hg (Stop)	Flow Controller ID	Canister ID	TO-15	TO-14A	EPA 3C	EPA 25C	ASTM D-1946	Other (Please specify in notes section)	Sample Type	Indoor Air	Ambient Air	Soil Gas	Landfill Gas	Other (Please specify in notes section)
SS-01-180305	3/5/18	0955	1723	-30.1	-6	09709	5694	X									X		
IA-01-180305	1	0956	1723	-30.1	-6	5186	4022	X							X				
AA-01-180305	1	0957	1723	-29.5	-6	3954	2730	X								X			

3/5/18

Sampled by : Alex Pabalan

Temperature (Fahrenheit)	Interior	Ambient
Start	68°F	33°F
Stop	68°F	36°F

Pressure (inches of Hg)	Interior	Ambient
Start	30.11	30.11
Stop	30.13	30.13

Received @ ambient, 1 box FedEx SO, Custody seal intact trK#4300 6536 6194
KW 3/7/18

Special Instructions/QC Requirements & Comments:

Canisters Shipped by:	Date/Time: 3/6/18 1400	Canisters Received by: 1400
Samples Relinquished by:	Date/Time: 3-6-18 1800	Received by: 3/7/18 1000
Relinquished by:	Date/Time:	Received by:

3 Can
4 flow

3/14/2018

TESTAMERICA KNOXVILLE SAMPLE RECEIPT/CONDITION UPON RECEIPT ANOMALY CHECKLIST

Log In Number: _____

Review Items	Yes	No	NA	If No, what was the problem?
1. Are the shipping containers intact?	/			☐ **Containers, Broken**
2. Were ambient air containers received intact?			/	☑ Checked in lab
3. The coolers/containers custody seal if present, is it intact?	/			☐ Yes ☐ NA
4. Is the cooler temperature within limits? (> freezing temp. of water to 6 °C, VOST: 10°C) Thermometer ID :_____ Correction factor: _____			/	☐ **Cooler Out of Temp, Client Contacted, Proceed/Cancel** ☐ **Cooler Out of Temp, Same Day Receipt**
5. Were all of the sample containers received intact?	/			☐ **Containers, Broken**
6. Were samples received in appropriate containers?	/			☐ **Containers, Improper; Client Contacted; Proceed/Cancel**
7. Do sample container labels match COC? (IDs, Dates, Times)	/			☐ **COC & Samples Do Not Match** ☐ **COC Incorrect/Incomplete** ☐ **COC Not Received**
8. Were all of the samples listed on the COC received?	/			☐ **Sample Received, Not on COC** ☐ **Sample on COC, Not Received**
9. Is the date/time of sample collection noted?	/			☐ **COC; No Date/Time; Client Contacted**
10. Was the sampler identified on the COC?	/			☐ **Sampler Not Listed on COC**
11. Is the client and project name/# identified?	/			☐ **COC Incorrect/Incomplete**
12. Are tests/parameters listed for each sample?	/			☐ **COC No tests on COC**
13. Is the matrix of the samples noted?	/			☐ **COC Incorrect/Incomplete**
14. Was COC relinquished? (Signed/Dated/Timed)	/			☐ **COC Incorrect/Incomplete**
15. Were samples received within holding time?	/			☐ **Holding Time - Receipt**
16. Were samples received with correct chemical preservative (excluding Encore)?			/	☐ **pH Adjusted, pH Included (See box 16A)** ☐ **Incorrect Preservative**
17. Were VOA samples received without headspace?			/	☐ **Headspace (VOA only)**
18. Did you check for residual chlorine, if necessary? (e.g. 1613B, 1668) Chlorine test strip lot number:_____			/	☐ **Residual Chlorine**
19. For 1613B water samples is pH<9?			/	☐ If no, lab will adjust
20. For rad samples was sample activity info. Provided?			/	☐ Project missing info

Comments/Actions Taken

Labeling Verified by: _____ **Date:** _____

pH test strip lot number: _____

Box 16A: pH Preservation	Box 18A: Residual Chlorine
Preservative: _____	
Lot Number: _____	
Exp Date: _____	
Analyst: _____	
Date: _____	
Time: _____	

Project #: 480-131148 PM Instructions: _____

Sample Receiving Associate: _____ Date: 3/7/18

QA026R30.doc, 080916

Pre-Shipment Clean Canister Certification Report

Canister Cleaning & Pre-Shipment Leak Test

System ID	# Cycles	Cleaning Date	Technician	Canister Size	Certification Type:
Bottom Rack	25	12/15/2017	SML	1L ~~6L~~	Individual ~~Batch~~

Port	Can ID	Initial[1] (psia)	Final (psia)	Diff.[3]	Final ("Hg)	Initial Reading Gauge:	Date:	Time:	Tech:	Temp:	Final Reading Gauge:	Date:	Time:	Tech:	Temp:
1	2740	1.04	1.04	0	-29.5	G25	12/17/17	1045	SML	22	G25	1/5/18	1430	←	22
2	2730	↓	1.04	0	-29.5	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓
3	4162	↓	1.04	0	-29.5	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓
4	5674	↓	1.04	0	-29.5	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓
5	4340	↓	1.04	0	-29.5	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓
6	3551	↓	1.04	0	-29.5	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓
7	4265	↓	1.04	0	-29.5	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓
8	4445	↓	1.04	0	-29.5	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓
9	4348	1.04	1.06	.02	-29.5	G25	12/17/17	1045	SML	22	G25	1/5/18	1430	←	22
10	5631	1.04	1.20	.16	-29.5	G25	12/17/17	1045	SML	22	↓	1/5/18	1430	←	22
11	3210	↓	1.12	.08	-29.5	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓
12	5656	↓	1.16	.12	-29.5	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓

[1] Batch Certification: The reading is taken on the "batch" canister and this value is used as the initial pressure for all canisters in the batch.

[3] Difference = Final Pressure - Initial Pressure . Acceptance Criteria: (1) The difference must be less than or equal to + 0.25psi. (2) Pressure readings must be at least 24 hours apart.

If time frame was not met, the PM must authorize shipment of canister **PM Authorization** **Date:**

Clean Canister Certification Analysis & Authorization of Release to Inventory

Test Method: ≤ TO15 Routine ≤ TO15 LL ≤ NJDEP-LL TO15

Can ID	Date	Sequence	Analyst	Inventory Level 1	2	3	4	Secondary Review Limited	Review Date	Reviewer
4348	12/28/17	28577	AB		XXXX				12/29/17	WD

Inventory Level 1: Individual Canister Certification (TO15LL 0.01).

Inventory Level 2: Individual or Batch Certification (TO15 0.04 ppbv).

Inventory Level 3: Individual or Batch Certification (TO15 0.2 ppbv).

Inventory Level 4: Individual or Batch Certification (TO15LLNJ 0.08 ppbv).

Inventory Level Limited: Canisters may only be used for certain projects.

Comments:

FAI023:04.26.17:10
TestAmerica Burlington

200-41460-A-9
4348
Location: Air-Storage
Bottle: Summa Canister 6L
Sampled: 12/15/2017 12:00 AM 200-1107011
Loc: 200
41460
#9
A

Pre-Shipment Clean Canister Certification Report

Canister Cleaning & Pre-Shipment Leak Test

System ID	# Cycles	Cleaning Date	Technician	Canister Size		Certification Type:	
Bottom Rack	20	2-Feb	EJE	1L	6L	Individual	Batch

						Initial Reading					Final Reading				
Port	Can ID	Initial[1] (psia)	Final (psia)	Diff.[3]	Final ("Hg)	Gauge:	Date:	Time:	Tech:	Temp:	Gauge:	Date:	Time:	Tech:	Temp:
1	3381	.04	.04	0	-30.0	G25	2/3/18	1430	—	22	G25	2/8/18	13:59	CK	23
2	5436		.04	0	-30.1										
3	2945		.06	.02	-30.1										
4	3307		.04	0	-30.1										
5	4814		.04	0	-30.1										
6	5696	.04	.14	.10	-32.1		2/7/18	10:12	CK	22		2/8/18	13:09	CK	23
7	5694	.04	.04	0			2/3/18	1430	—	22					
8	4234		.07	.03											
9	2902		.04	0											
10	5091		.04	0											
11	3279		.04	0											
12	5164		.04	0											

[1] Batch Certification: The reading is taken on the "batch" canister and this value is used as the initial pressure for all canisters in the batch.

[3] Difference = Final Pressure - Initial Pressure . Acceptance Criteria: (1) The difference must be less than or equal to + 0.25psi. (2) Pressure readings must be at least 24 hours apart.

If time frame was not met, the PM must authorize shipment of canister **PM Authorization** **Date:**

Clean Canister Certification Analysis & Authorization of Release to Inventory

Test Method: ≤ TO15 Routine ≤ TO15 LL ≤ NJDEP-LL TO15

				Inventory Level				Secondary Review		
Can ID	Date	Sequence	Analyst	1	2	3	4	Limited	Review Date	Reviewer
5696	02/07/18	29077	KP		XXXX				02/07/18	PAD

Inventory Level 1: Individual Canister Certification (TO15LL 0.01).

Inventory Level 2: Individual or Batch Certification (TO15 0.04 ppbv).

Inventory Level 3: Individual or Batch Certification (TO15 0.2 ppbv).

Inventory Level 4: Individual or Batch Certification (TO15LLNJ 0.08 ppbv).

Inventory Level Limited: Canisters may only be used for certain projects.

Comments:

3/14/2018

FAI023:04.26.17:10
TestAmerica Burlington

200-42124-A-6
5696
Location: Air-Storage
Bottle: Summa Canister 6L
Sampled: 2/2/2018 12:00 AM 200-1120192

Loc: 200
42124
#6
A

Pre-Shipment Clean Canister Certification Report

Canister Cleaning & Pre-Shipment Leak Test

System ID	# Cycles	Cleaning Date	Technician	Canister Size		Certification Type:	
Oven 1/2	25	5-Feb	EJE	1L	6L	Individual	Batch

Port	Can ID	Initial[1] (psia)	Final (psia)	Diff.[3]	Final ("Hg)	Initial Reading Gauge:	Date:	Time:	Tech:	Temp:	Final Reading Gauge:	Date:	Time:	Tech:	Temp:
1	5438	.04	.07	.03	-30.1	G25	2.6.18	9:32	CC	23	G25	2.8.18	13:59	CC	23
2	4008		.04	0	-30.1	G25					G25				
3	4488		.04	0	-30.0	G25					G25				
4	4906		.05	.01	-30.1	G25					G25				
5	4022		.04	0		G25					G25				
6	3271		.04	0		G25					G25				
7	4150		.04	0		G25					G25				
8	3145		.04	0		G25					G25				
9	2968		.04	0		G25					G25				
10	4380		.10	.06		G25					G25				
11	4778		.04	0		G25					G25				
12	3707	.07	.04	0	-30.1	G25	2.7.18	10:15	CC	22	G25	2.8.18	13:59	CC	23

[1] Batch Certification: The reading is taken on the "batch" canister and this value is used as the initial pressure for all canisters in the batch.

[3] Difference = Final Pressure - Initial Pressure . Acceptance Criteria: (1) The difference must be less than or equal to + 0.25psi. (2) Pressure readings must be at least 24 hours apart.

If time frame was not met, the PM must authorize shipment of canister — PM Authorization — Date:

Clean Canister Certification Analysis & Authorization of Release to Inventory

Test Method: ≤ TO15 Routine ≤ TO15 LL ≤ NJDEP-LL TO15

Can ID	Date	Sequence	Analyst	Inventory Level 1	2	3	4	Secondary Review: Limited	Review Date	Reviewer
3707	02/07/18	29077	KP		XXXX				02/07/18	PAD

Inventory Level 1: Individual Canister Certification (TO15LL 0.01).

Inventory Level 2: Individual or Batch Certification (TO15 0.04 ppbv).

Inventory Level 3: Individual or Batch Certification (TO15 0.2 ppbv).

Inventory Level 4: Individual or Batch Certification (TO15LLNJ 0.08 ppbv).

Inventory Level Limited: Canisters may only be used for certain projects.

Comments:

3/14/2018

FAI023:04.26.17:10
TestAmerica Burlington

200-42130-A-12
3707
Location: Air-Storage
Bottle: Summa Canister 6L
Sampled: 2/5/2018 12:00 AM 200-1120370

Loc: 200
42130
#12
A

MARCH 29, 2018 NYSDEC APPROVAL LETTER

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

Division of Environmental Remediation, Remedial Bureau B
625 Broadway, 12th Floor, Albany, NY 12233-7016
P: (518) 402-9768 I F: (518) 402-9773
www.dec.ny.gov

March 29, 2018

ESCO Corporation
2141 NW 25th Avenue
Portland, OR 97210
Attn: Travis Quarles

Re: Additional Soil Vapor Investigation
Site No.: V00578
Site Name: Steel Treaters, Inc.

Dear Mr. Quarles:

The New York State Departments of Environmental Conservation and Health (Departments) have completed their review of the Additional Soil Vapor Investigation Letter Report, dated March 2018 and prepared by ENVIRON Engineers of North Carolina, PC. The report is hereby approved.

Please ensure that copy of the document is placed in the document repositories. Should you have any questions regarding this communication, please call me at (518) 402-9768 or at 1-888-212-9586.

Sincerely,

Javier Perez
Project Manager
Division of Environmental Remediation

Ec: J. Brown
R. Mustico
A. Guglielmi
J. Deming
D. Hettrick
A. Ghosh
R. Tyson
J. Sananes

DATA USABILITY SUMMARY REPORT

March 22, 2018

DATA USABILITY SUMMARY REPORT (DUSR) FOR ANALYTICAL DATA FROM SOIL VAPOR, SUBSLAB GAS, INDOOR AIR, AMBIENT AIR, AND WATER SAMPLES COLLECTED AT 506 AND 530 CAMPBELL AVENUE IN TROY, NEW YORK

ENVIRON has prepared this data validation report to assess the validity and usability of laboratory analytical data generated from soil vapor, subslab gas, indoor air, ambient air, and groundwater samples collected at 506 and 530 Campbell Avenue in Troy, New York. The following samples were evaluated as part of this review:

Field Sample ID	Sample Type	Lab Sample ID	Matrix
TWP-14-180301	FS	480-132108-1	Groundwater
FB-180301	FB	480-132108-2	Water
TB-180301	TB	480-132108-3	Water
SV-12-180301	FS	140-10856-1	Soil vapor
SS-01-180305	FS	140-10882-1	Subslab gas
IA-01-180305	FS	140-10882-2	Indoor air
AA-01-180305	FS	140-10882-3	Ambient air

Notes:
FB = Field Blank
FS = Field Sample
TB = Trip Blank

Groundwater and water matrix samples were analyzed for volatile organic compounds (VOCs) by United States Protection Agency (USEPA) Method 8260C. TestAmerica, Inc. Buffalo (TestAmerica) located in Amherst, New York performed the analysis for the water samples and the results were reported in data package 480-132108-1. Soil vapor, subslab gas, indoor air, and ambient air samples were analyzed for VOCs by USEPA Method TO-15 at TestAmerica located in Knoxville, Tennessee. Results for these samples were reported in data packages 140-10856-1 and 140-10882-1.

ENVIRON's validation was based on procedures published in the National Functional Guidelines for Organic and Inorganic Data Review (USEPA 2017). The guidelines provide the criteria to review laboratory and field quality control information and apply the appropriate data qualifiers to the laboratory data. The Quality Control (QC) information checked by ENVIRON included case narratives, chain-of-custody (COC) forms, sample receipt information, holding times, reporting limits, blanks, surrogates, and laboratory control samples (LCS). Project-specific matrix spike/matrix spike duplicate (MS/MSD) samples and field duplicates were not submitted with this data set.

The following data validation flags were used in the review:

Data Qualifier	Definition
U	The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit.

J	The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
UJ	The analyte was analyzed for, but was not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise.
R	The data are unusable. The sample results are rejected due to serious deficiencies in meeting QC criteria. The analyte may or may not be present in the sample.

A summary of the qualified data is presented in Table 1. The following sections summarize the qualifications applied during data validation based on the data review.

Case Narratives

The laboratory noted in data packages 140-10856-1 and 140-10882-1 that the recovery for 3-chloropropene was outside of the control limits in the LCS associated with the soil vapor, subslab gas, indoor air, and ambient air samples. The recovery and associated qualifications are discussed in the LCS section.

The case narratives also noted that the percent differences for the continuing calibration verification (CCV) exceeded control limits for several parameters. The CCV %Ds for 3-chloropropene and tert-butyl alcohol associated with the soil vapor samples exceeded 30%, but were within the control limits for the LCS. The laboratory's standard operating procedure allows the data to be reported if the percent difference is within the LCS acceptance criteria. The %Ds for 2-butanone and methylcyclohexane were exceeded in CCVs associated with the water-matrix samples; however, the results were non-detected and the data is not affected by a high bias.

Sample Receipt and Technical Holding Times

The samples were received under chain-of custody. All samples were received within the required temperature and pH criteria (for water samples). All technical holding time requirements were met for all analysis, with the following exceptions.

Blanks

Method and field quality control (QC) blanks were reviewed for any detections above the method detection limit (MDL). No detections were reported for method blanks. One field blank, FB-180301, and one trip blank, TB-180301, were submitted with this data set. No detections were reported for the field QC blanks.

LCS

LCS were reviewed for each analytical batch. The LCS recovery for 3-chloropropene was 54%, below the lower control limit of 60% in the LCS associated with the soil vapor samples. The parameter was not detected in associated samples and the results are qualified "UJ" as estimated non-detect for a potential low bias.

Surrogate Recoveries

Surrogate recoveries were reviewed for water samples analyzed for VOCs. The surrogate recoveries were within laboratory control limits.

Reporting Limits

Results were reported to the MDL. Results that were reported for concentrations detected between the MDL and RL were qualified "J" as estimated. Acetone was detected in the initial analysis for IA-01-180305 at a level above the calibration range. The sample re-analyzed the sample at a lower initial volume in order to analyze the sample within the calibration range. The initial result for acetone was reported with an "E" laboratory qualifier and the result is qualified "J" as estimated.

SUMMARY

Based on ENVIRON's evaluation, the analytical data included in this data set are usable as qualified. No data were rejected as a result of the data validation. Data evaluated for this report were qualified for LCS recoveries and when concentrations were detected between the MDL and RL. In the cases where data were qualified, the qualified results are not expected to impact decisions made with respect to comparing the results to the available New York State Department of Occupational Health (NYSDOH) Air Guideline Values.

REFERENCES

USEPA. 2017. National Functional Guidelines for Inorganic Superfund Data Review. OSWER 9355.0-135. EPA-540-R-2017-001. January.

USEPA. 2017. National Functional Guidelines for Organic Superfund Data Review. OSWER 9355.0-136. EPA-540-R-2017-002. January.

TABLE 1
SUMMARY OF QUALIFIED DATA
ESCO Steel, Inc.; Troy, NY
MARCH 2018

Field Sample ID	Lab Sample ID	Sample Date	Matrix	Analytical Method	Parameter	Result	MDL	RL	Units	Validator Qualifier	Reason for Qualification
SV-12-180301	140-10856-1	3/1/2018	Air	TO15	Hexane	3.7	1.1	28	ug/m3	J	Concentration is between MDL and RL
SV-12-180301	140-10856-1	3/1/2018	Air	TO15	Tetrachloroethene	5.4	2.7	14	ug/m3	J	Concentration is between MDL and RL
SV-12-180301	140-10856-1	3/1/2018	Air	TO15	Trichlorofluoromethane	1.5	1.3	11	ug/m3	J	Concentration is between MDL and RL
SV-12-180301	140-10856-1	3/1/2018	Air	TO15	Methylene Chloride	16	11	17	ug/m3	J	Concentration is between MDL and RL
SV-12-180301	140-10856-1	3/1/2018	Air	TO15	Carbon disulfide	1.6	0.97	16	ug/m3	J	Concentration is between MDL and RL
SV-12-180301	140-10856-1	3/1/2018	Air	TO15	3-Chloropropene	ND	1.5	6.3	ug/m3	UJ	LCS revocery was below the lab control limit
SV-12-180301	140-10856-1	3/1/2018	Air	TO15	2-Methylbutane	3.1	0.91	15	ug/m3	J	Concentration is between MDL and RL
SS-01-180305	140-10882-1	3/5/2018	Air	TO15	Isopropyl alcohol	7.7	2.3	120	ug/m3	J	Concentration is between MDL and RL
SS-01-180305	140-10882-1	3/5/2018	Air	TO15	Hexane	1.5	1.1	28	ug/m3	J	Concentration is between MDL and RL
SS-01-180305	140-10882-1	3/5/2018	Air	TO15	Trichlorofluoromethane	1.4	1.3	11	ug/m3	J	Concentration is between MDL and RL
SS-01-180305	140-10882-1	3/5/2018	Air	TO15	Methylene Chloride	13	11	17	ug/m3	J	Concentration is between MDL and RL
SS-01-180305	140-10882-1	3/5/2018	Air	TO15	Acetone	57	33	120	ug/m3	J	Concentration is between MDL and RL
SS-01-180305	140-10882-1	3/5/2018	Air	TO15	Carbon disulfide	1.1	0.97	16	ug/m3	J	Concentration is between MDL and RL
SS-01-180305	140-10882-1	3/5/2018	Air	TO15	Butane	3.5	1.7	9.5	ug/m3	J	Concentration is between MDL and RL
SS-01-180305	140-10882-1	3/5/2018	Air	TO15	3-Chloropropene	ND	1.5	6.3	ug/m3	UJ	LCS revocery was below the lab control limit
SS-01-180305	140-10882-1	3/5/2018	Air	TO15	2-Methylbutane	3.0	0.91	15	ug/m3	J	Concentration is between MDL and RL
IA-01-180305	140-10882-2	3/5/2018	Air	TO15	3-Chloropropene	ND	0.15	0.63	ug/m3	UJ	LCS revocery was below the lab control limit
IA-01-180305	140-10882-2	3/5/2018	Air	TO15	2,2,4-Trimethylpentane	1.1	0.18	2.3	ug/m3	J	Concentration is between MDL and RL
IA-01-180305	140-10882-2	3/5/2018	Air	TO15	2-Butanone (MEK)	1.2	0.59	2.9	ug/m3	J	Concentration is between MDL and RL
IA-01-180305	140-10882-2	3/5/2018	Air	TO15	Acetone	730	3.3	12	ug/m3	J	Concentration exceeds the calibration range, the sample was analyzed at a dilution for this parameter
IA-01-180305	140-10882-2	3/5/2018	Air	TO15	Carbon disulfide	0.18	0.097	1.6	ug/m3	J	Concentration is between MDL and RL
IA-01-180305	140-10882-2	3/5/2018	Air	TO15	Carbon tetrachloride	0.44	0.24	1.3	ug/m3	J	Concentration is between MDL and RL
IA-01-180305	140-10882-2	3/5/2018	Air	TO15	1,1,2-Trichloro-1,2,2-trifluoroethane	0.58	0.24	1.5	ug/m3	J	Concentration is between MDL and RL
IA-01-180305	140-10882-2	3/5/2018	Air	TO15	Octane	0.35	0.17	1.9	ug/m3	J	Concentration is between MDL and RL
IA-01-180305	140-10882-2	3/5/2018	Air	TO15	o-Xylene	0.47	0.26	0.87	ug/m3	J	Concentration is between MDL and RL
IA-01-180305	140-10882-2	3/5/2018	Air	TO15	Decane	0.87	0.33	5.8	ug/m3	J	Concentration is between MDL and RL
IA-01-180305	140-10882-2	3/5/2018	Air	TO15	Cyclohexane	0.29	0.14	1.7	ug/m3	J	Concentration is between MDL and RL
IA-01-180305	140-10882-2	3/5/2018	Air	TO15	m-Xylene & p-Xylene	1.6	0.52	3.5	ug/m3	J	Concentration is between MDL and RL
IA-01-180305	140-10882-2	3/5/2018	Air	TO15	Heptane	0.66	0.19	2.0	ug/m3	J	Concentration is between MDL and RL
IA-01-180305	140-10882-2	3/5/2018	Air	TO15	Ethylbenzene	0.41	0.30	0.87	ug/m3	J	Concentration is between MDL and RL
IA-01-180305	140-10882-2	3/5/2018	Air	TO15	Hexane	1.4	0.11	2.8	ug/m3	J	Concentration is between MDL and RL
AA-01-180305	140-10882-3	3/5/2018	Air	TO15	3-Chloropropene	ND	0.15		ug/m3	UJ	LCS revocery was below the lab control limit
AA-01-180305	140-10882-3	3/5/2018	Air	TO15	Acetone	5.4	3.3	12	ug/m3	J	Concentration is between MDL and RL
AA-01-180305	140-10882-3	3/5/2018	Air	TO15	Carbon tetrachloride	0.49	0.24	1.3	ug/m3	J	Concentration is between MDL and RL
AA-01-180305	140-10882-3	3/5/2018	Air	TO15	1,1,2-Trichloro-1,2,2-trifluoroethane	0.51	0.24	1.5	ug/m3	J	Concentration is between MDL and RL
AA-01-180305	140-10882-3	3/5/2018	Air	TO15	Pentane	2.3	1.2	3.0	ug/m3	J	Concentration is between MDL and RL
AA-01-180305	140-10882-3	3/5/2018	Air	TO15	Octane	0.21	0.17	1.9	ug/m3	J	Concentration is between MDL and RL
AA-01-180305	140-10882-3	3/5/2018	Air	TO15	o-Xylene	0.34	0.26	0.87	ug/m3	J	Concentration is between MDL and RL
AA-01-180305	140-10882-3	3/5/2018	Air	TO15	2,2,4-Trimethylpentane	0.83	0.18	2.3	ug/m3	J	Concentration is between MDL and RL
AA-01-180305	140-10882-3	3/5/2018	Air	TO15	Dichlorodifluoromethane	2.4	0.34	2.5	ug/m3	J	Concentration is between MDL and RL
AA-01-180305	140-10882-3	3/5/2018	Air	TO15	Ethylbenzene	0.30	0.30	0.87	ug/m3	J	Concentration is between MDL and RL
AA-01-180305	140-10882-3	3/5/2018	Air	TO15	Decane	0.44	0.33	5.8	ug/m3	J	Concentration is between MDL and RL
AA-01-180305	140-10882-3	3/5/2018	Air	TO15	Isopropyl alcohol	3.7	0.23	12	ug/m3	J	Concentration is between MDL and RL
AA-01-180305	140-10882-3	3/5/2018	Air	TO15	m-Xylene & p-Xylene	1.0	0.52	3.5	ug/m3	J	Concentration is between MDL and RL

TABLE 1
SUMMARY OF QUALIFIED DATA
ESCO Steel, Inc.; Troy, NY
MARCH 2018

Field Sample ID	Lab Sample ID	Sample Date	Matrix	Analytical Method	Parameter	Result	MDL	RL	Units	Validator Qualifier	Reason for Qualification
AA-01-180305	140-10882-3	3/5/2018	Air	TO15	Heptane	0.41	0.19	2.0	ug/m3	J	Concentration is between MDL and RL
AA-01-180305	140-10882-3	3/5/2018	Air	TO15	Hexane	2.0	0.11	2.8	ug/m3	J	Concentration is between MDL and RL

J = The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
ID = Identification
LCS = Laboratory control sample
µg/m3 = Micrograms per cubic meter
MDL = Method detection limit
ND = Non-detect
RL = Reporting limit
UJ = The analyte was analyzed for, but was not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise.

APPENDIX E
EXCAVATION WORK PLAN

APPENDIX E – EXCAVATION WORK PLAN (EWP)

E-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
Javier Perez-Maldonado, NYSDEC Project Manager	518-402-8172 javier.perez-maldonado@dec.ny.gov
Janet Brown, NYSDEC Section Chief, Bureau B, Section B	518-402-9697 janet.brown@dec.ny.gov
Richard Mustico, NYSDEC Region 4, Hazardous Waste Remediation Engineer	518-357-2273 richard.mustico@dec.ny.gov
Kelly Lewandowski, NYSDEC, Section Chief, Site Control Section	518-402-9553 kelly.lewandowski@dec.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 F 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.

E-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 B-6 of this Appendix.

Visual inspection: Soils will be visually inspected for evidence of potential contamination, such as soil staining or soil discoloration.

Screening with a photo-ionization detector: Soils will be screened with a photo-ionization detector (PID). The excavated soils will be segregated following the collection of in-place soil samples to evaluate the concentrations of VOCs. Soil samples will be collected for TCL VOC analysis from any soils exhibiting PID readings consistently above background concentrations.

Olfactory screening: As a supplement to PID screening and visual inspection, soils will be evaluated for unusual odors, with any such soils staged separately pending confirmatory sampling.

E-3 Soil Staging Methods

All excavated soils will be staged in roll-off boxes or on and under plastic sheeting over asphalt pavement or concrete slabs pending waste classification sampling and transport for off-site disposal. 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. At the end of any soil remediation pursuant to this EWP, the soil erosion control measures will be removed from the site for proper off-site disposal.

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 or in the possession of the remedial contractor and available for inspection by the NYSDEC.

E-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.

E-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.

Truck transport routes are as follows: A traffic route map depicting the route to and from the Site is provided herein as Figure 1 below. Trucks coming in from out of town with deliveries or leaving the site will come from I-787 across the Menands Bridge on Route 378 (High Street), then will take a right onto Mill Street (Route 4), then a left on Campbell Avenue to the site. Trucks destined for the off-site disposal will follow this truck route in reverse.

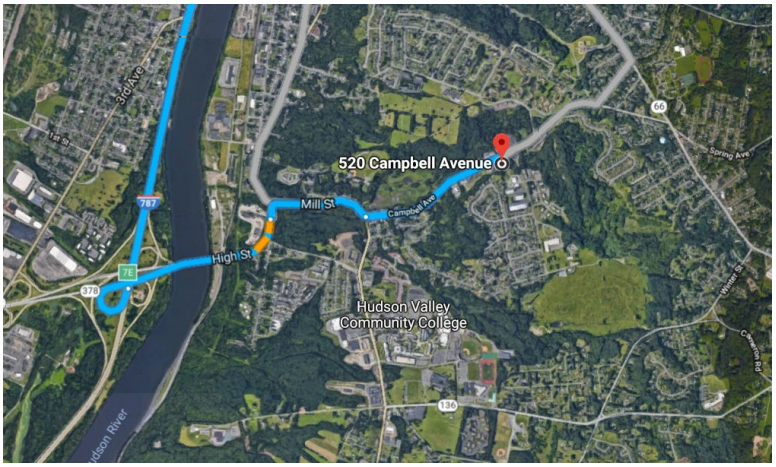


Figure 1: Traffic Route

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.

E-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).

During the 2018 remediation program, characterization of unsaturated and saturated soils from the site indicated that subsurface materials could be managed as contained-in waste. While that determination was specific to the waste generated during remedy implementation, it is expected that a similar contained-in determination could be requested from NYSDEC for site soils generated from the site in the future. Accordingly, waste characterization sampling will be required to support a contained-in determination by NYSDEC. Following procurement of the contained-in determination from NYSDEC, the excavated could be disposed at an approved disposal facility. For reference, during the 2018 remediation program materials were disposed at the facilities listed in Table 1 below.

Waste Material	Disposal Facility	Address
Disposal of Hazardous Soil (Contained-In waste)	ESMI of New York	304 Towpath Road Fort Edward, NY 12828 (860) 649-3344

E-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 on-site soil that is considered for possible on-site reuse will be characterized in accordance with the requirements below to determine if such reuse would be consistent with the RAOs established for the Site remedy. Material reuse on-site will comply with the requirements of NYSDEC DER-10 Section 5.4(e)4. Accordingly, soil appropriate for on-site reuse within the soil cover/cap and the area of restricted use must meet the restricted commercial or industrial SCOs. Soils not meeting these SCOs cannot be reused on-site.

Soils for which on-site reuse is contemplated will be analyzed for the full TCL and TAL group of constituents. These samples will be collected and the analyses performed in accordance with the QAPP included herein as Appendix H. Representative samples will be collected from excavated soils in general accordance with the sampling frequencies of Table 5.4(e) 10 in DER-10. As such, one composite sample, comprising 3-5 discrete samples, will be collected for a soil volume up to 300 cubic yards. Two soil samples will be collected in that manner for larger soil volumes up to 1,000 cubic yards. One additional composite soil sample will be obtained to represent each additional 1,000 cubic yards.

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.

E-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.

During the 2018 remediation program, characterization of fluids from the site indicated that they could be managed as contained-in waste. While that determination was specific to the waste generated during remedy implementation, it is expected that a similar contained-in determination could be requested from NYSDEC for site fluids (e.g., groundwater, decontamination fluids generated from the site in the future. Accordingly waste characterization sampling will be required to support a contained-in determination by NYSDEC. Following procurement of the contained-in determination from NYSDEC, the site fluids could be disposed at an approved disposal facility. For reference, during the 2018 remediation program fluids generated were disposed at the facilities listed in Table 1 below.

Waste Material	Disposal Facility	Address
Disposal of Non-Hazardous Water	Globalcycle, Inc.	700A Richmond Street East Taunton, MA 02718 (617) 592 6200

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.

E-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 minimum of 12 inches of clean coarse aggregate over a demarcation layer in areas immediately around the former building, as well as the concrete slab of the former building and asphalt pavement. The coarse aggregate cover system, concrete slab and asphalt pavement extend over approximately 4,500 SF, 9,000 SF and 8,300 SF, respectively. The demarcation layer, consisting of orange snow fencing material 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.

E-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). Based on an evaluation of the land use, protection of groundwater and protection of ecological resources criteria, the resulting soil quality standards are listed in Table 2 as well as in DER-10 Appendix 5) and include Restricted Commercial or Industrial SCOs. SCOs for the protection of ecological resources are not applicable to this Site.

The following documentation related to any proposed backfill source will be submitted to the qualified environmental professional prior to any importation of backfill from said source. This information is required as part of the Request to Import/Reuse Fill or Soil form, and thus, submission of that form to the qualified environmental professional prior to submission of the form to NYSDEC will satisfy this requirement.

1. The source of the proposed backfill material and the background of the source area (e.g., virgin sand or rock quarry).
2. Chemical sampling, including frequency and analytes. Backfill will be sampled in accordance with DER-10 Section 5.4(e), unless an alternate sampling frequency is approved by NYSDEC through its review and approval of the Request to Import/Reuse Fill or Soil form.
3. Stockpile procedures for imported backfill material, including the size of any stockpiles, staging location and cover procedures.

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.

E-11 Stormwater Pollution Prevention

Since the property is only 1.109 acres, no excavation at the site is expected to exceed one acre since minimum setbacks and site coverage ratios will need to be maintained. Therefore, a storm water pollution prevention plan will not be required. Nonetheless, soil erosion and sediment control measures will be implemented in accordance with the November 2016 NYSDEC New York State Standards and Specifications for Erosion and Sediment Control as part of any future activity that disturbs surface soils. In addition,

consistent with NYSDEC requirements for this SMP, the following stormwater pollution prevention provisions are specified:

1. 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.
2. Accumulated sediments will be removed as required to keep the barrier and hay bale check functional.
3. All undercutting or erosion of the silt fence toe anchor shall be repaired immediately with appropriate backfill materials.
4. Manufacturer's recommendations will be followed for replacing silt fencing damaged due to weathering.
5. 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.
6. Silt fencing or hay bales will be installed around the entire perimeter of the construction area.

E-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. The contractor identifying the previously unknown condition will conduct appropriate response measures to prevent any release of hazardous substances to the environment. If the source is a storage feature, particularly an underground tank, or underground piping, all liquid materials in that feature will be removed via pumping into an appropriate container prior to any attempt to remove the feature. The contractor will also assess the nature of the liquids to the extent necessary to safely and properly remove the storage feature. In particular, any void space in the feature will be evaluated to determine whether the atmosphere is potentially explosive due to residual vapors.

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 polychlorinated biphenyls [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.

E-13 Community Air Monitoring Plan

The Community Air Monitoring Plan (CAMP) provided in Appendix H of the Site Management Plan requires that air monitoring be conducted for particulates (i.e., dust) and organic vapors and defines control requirements. This plan should be followed to conduct air monitoring during any excavation activities. The location of air sampling stations will be based on generally prevailing wind conditions. These locations will be adjusted on a daily or more frequent basis based on actual wind directions to provide an upwind and at least two downwind monitoring stations.

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

E-14 Odor Control Plan

This odor control plan is capable of controlling emissions of nuisance odors off-site. Specific odor control methods to be used on a routine basis will include: (a) spraying the area with a non-toxic odor suppressing foam or surfactant (e.g., Rusmar Foam, BioSolve®); and/or (b) shrouding stockpiles with tarps and other covers at the end of each work day or when not being worked on. If nuisance odors are identified at the site boundary, or if odor complaints are received, work will be halted and the source of odors will be identified and corrected. Work will not resume until all nuisance odors have been abated. NYSDEC and NYSDOH will be notified of all odor events and of any other complaints about the project. Implementation of all odor controls, including the halt of work, is the responsibility of the remedial party's Remediation Engineer, and any measures that are implemented will be discussed in the Periodic Review Report.

All necessary means will be employed to prevent on- and off-site nuisances. At a minimum, these measures will include: (a) limiting the area of open excavations and size of soil stockpiles; (b) shrouding stockpiles with tarps and other covers at the end of each work day or when not being worked on; and/or (c) using non-toxic foams or surfactants to cover exposed odorous soils. If odors develop and cannot be otherwise controlled, additional means to eliminate odor nuisances will include: (a) direct load-out of soils to trucks for off-site disposal; (b) use of chemical odorants in spray or misting systems; and (c) use of staff to monitor odors in surrounding neighborhoods.

If nuisance odors develop during intrusive work that cannot be corrected, or where the control of nuisance odors cannot otherwise be achieved due to on-site conditions or close proximity to sensitive receptors, odor control will be achieved by sheltering the excavation and handling areas in a temporary containment structure equipped with appropriate air venting/filtering systems.

E-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 through 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.

E-16 Other Nuisances

The site is currently vacant, with only the former building concrete slab and surrounding pavement. Therefore, a plan for rodent control will is not necessary. However, should site conditions change a rodent control plan be developed and utilized by the contractor prior to and during site clearing and site grubbing, and during all remedial work.

A plan will be developed and utilized by the contractor for all remedial work to ensure compliance with local noise control ordinances.

APPENDIX F
HEALTH AND SAFETY PLAN AND COMMUNITY AIR MONITORING PROGRAM

Prepared for:
Steel Treaters, Inc.
Troy, NY

Prepared By:
ENVIRON Engineers of North Carolina, PC
Princeton, NJ

Date:
September 2017

Site Number:
V00578-4

Project Number:
02-39035A

HEALTH AND SAFETY PLAN

FORMER STEEL TREATERS, INC. FACILITY
520 CAMPBELL AVENUE
TROY, NEW YORK
NEW YORK STATE VOLUNTARY CLEANUP PROGRAM

EMERGENCY CONTACT INFORMATION

Site Name: **Steel Treaters, Inc.**

Specific Location: **520 Campbell Ave, Troy, NY, 12180**

Table 1: Emergency Response Telephone Roster

Contact	Name	Office Phone #	Mobile Phone #
Local Fire Department	Troy Fire Department	911 (518) 270-4471	[redacted]
Local Hospital	Samaritan Hospital	(518) 271-3300	
Local Police	City of Troy Police Department	911 (518) 270-4411	
EENC Principal	Drew Bonas	(609) 243-9874	(609) 240-5581
EENC Project Manager	Jose Sananes	(609) 243-9882	(732) 841-1218
EENC Designated Site Supervisor	Brian Robinson	(860) 503-1662	(203) 233-7907
Health and Safety Coordinator	Sharon Burkett	(609) 243-9832	(609) 306-8361
Client Contact	Travis Quarles	(503) 228-2141	[redacted]
Contractor: ADT	Rich Donnely	(518) 326-1441	
Contractor: CT Male Associates	Michael Groff	(518) 786-7413	
Poison Control	[redacted]	800-222-1222	

POTENTIAL CHEMICALS OF CONCERN:

Volatile organic compounds – Ethanes (1,1-dichloroethane, 1,2-dichloroethane, 1,1,1-trichloroethane), ethenes (cis-1,2-dichloroethene, tetrachloroethene, trichloroethene, vinyl chloride), and 1,4-dioxane.

ROUTE DESCRIPTION AND MAP TO HOSPITAL

Hospital Information:

Hospital Name: Samaritan Hospital

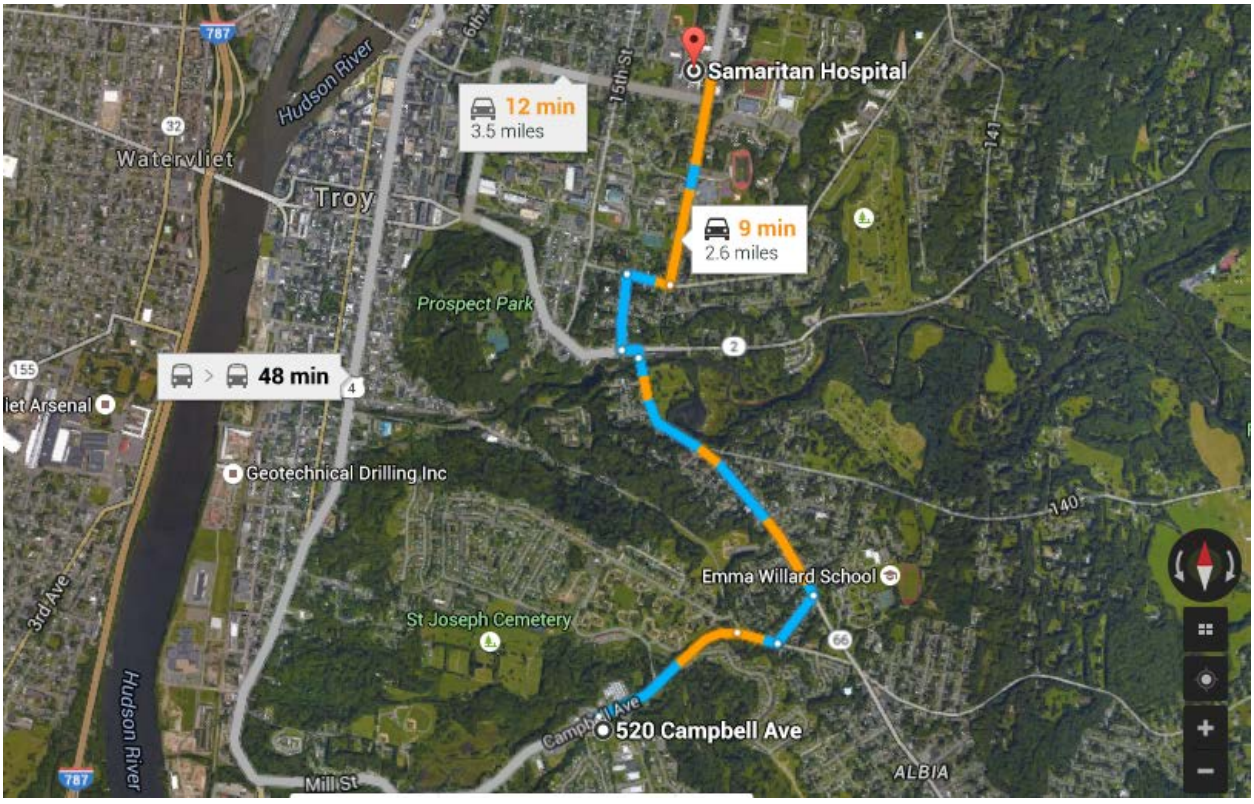
Hospital Address: *2215 Burdett Avenue, Troy, NY*

Hospital Phone Number: *(518) 271-3300*

Directions to Area Hospital:

Head east (turn right) on Campbell Ave toward Colleen Road

- Slight right onto Spring Ave
- Turn left onto Myrtle Ave
- Turn left onto Pawling Ave
- Turn left onto Congress St
- Turn right onto Brunswick Ave
- Turn right onto Tibbits Ave
- Turn left onto Burdett Ave
- End: 2215 Burdett Ave, Troy, NY (Destination will be on the left)



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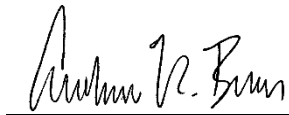
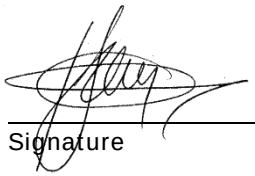
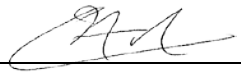
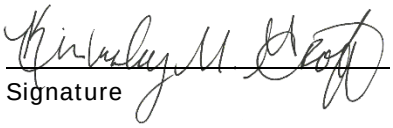
HEALTH & SAFETY PLAN REVIEW AND APPROVAL

By signing below, it is acknowledge that this HASP identifies the activities that are anticipated to be performed in the field. In addition, this HASP identifies the personal protective and monitoring equipment that may be necessary to be on site and be available for use. It is also understood that the provisions of this HASP will be updated if there is a change of a task and/or the addition of tasks and will be approved by the individuals listed below or their designee.

Drew Bonas		9/29/2017
Principal-In-Charge	Signature	Date
Jose Sananes		9/29/2017
Project Manager	Signature	Date
Sharon Burkett		9/29/2017
Health & Safety Coordinator	Signature	Date
Evan Anderson		9/6/2017
Certified Industrial Hygienist	Signature	Date
Brian Robinson		9/29/2017
Designated Site Supervisor	Signature	Date
Kim Groff		8/31/2017
Designated HASP Preparer	Signature	Date

This form MUST be signed prior to starting the on-site work. In addition, a copy of this form should be returned to the office Health and Safety Coordinator prior to leaving for the field. After completion of the project, the original signed HASP must be retained in the project file.

Author's Initials: BTR/KMG Typist's Initials: File Name: 44716v2

1. INTRODUCTION

This HASP was prepared to inform all Environ Engineers of North Carolina (EENC) personnel of known or reasonably anticipated potential hazards and safety concerns at this Site. All personnel participating in field activities must be trained in the general and specific hazards unique to the job they are performing and, if applicable, meet recommended medical examination and/or training requirements. All EENC employees shall follow the guidelines, rules, and procedures contained in this site-specific HASP. EENC personnel shall contact the Project Manager (PM) if unexpected conditions are encountered at the site, including but not limited to new processes; changes in operation, products, services; additional or changes in the chemicals of concern; and/or unsafe conditions are encountered which were not previously addressed in this HASP.

Each contractor, subcontractor, and visitor shall be expected to review and understand the hazards, risks, and control methods (including emergency procedures) as outlined in this HASP, and sign off on the HASP. This can be accomplished either during the project planning stage or during the first safety briefing on site. However, contractors and subcontractors will be required to prepare their own HASP to address site safety and work hazards associated with their proposed site activities prior to mobilization to the site. In addition, each subcontractor will be required to provide EENC with their site-specific HASP, and communicate the types of hazards and control methods associated with their activities to EENC during the first safety briefing on site and as conditions change. Relevant Contractor information regarding the identification of hazards and appropriate control strategies for the hazards for their particular job tasks should also be presented and a site-specific HASP should be available for review by all parties. Each contractor or subcontractor must assume direct responsibility for its own employees' health and safety.

Copies of the HASPs will be kept on site for review and reference during all site activities. Upon completion of the project, the finalized and signed copy of the HASP will be placed in the project file.

1.1 Site Description

Steel Treaters, Inc. (STI) acquired the site, which consisted of vacant land, in 1965 from Charles E. Weber & Son. The site was previously developed with an approximately 8,400-square-foot building, which was located in the northern portion of the site. The single story building was damaged by a fire in 2005 and demolished in April 2017; all that remains currently is the building slab. The southern portion of the site is wooded and undeveloped.

Starting in 1966, STI utilized the facility to heat treat metal machine parts, which were received from various manufacturers. The majority of the work conducted at the site involved tempering and case hardening of metal parts, as well as annealing of metal parts. Air and vacuum furnaces were used at the facility, and some parts were cooled using quench oil. Anhydrous ammonia was also used onsite during the heat treatment process to generate atmosphere for the furnaces.

Past site activities were believed to have included the use of solvents, including 1,1,1 trichloroethane and trichloroethylene, which were stored in 55-gallon drums and used for vapor degreasing of metal parts. The solvents were reportedly reclaimed following use. STI

reportedly believed that usage of these solvents ended in approximately 1991. STI's operations ceased following the 2005 fire and ESCO Portland (ESCO) acquired the site in 2012. The site is currently vacant.

1.2 Specific Work Activities

The field activities currently underway or planned for the immediate future include the following work activities or tasks:

- Task 1 – Groundwater Monitoring Well Installation and Sampling
- Task 2 – Mobilization for Construction
- Task 3 – Soil Erosion and Sediment Control
- Task 4 – Clearing and Grubbing
- Task 5 – PRB/ZVI Treatment Area Construction
- Task 6 – Transportation and Off-Site Disposal of Waste Materials
- Task 7 – Cover System Installation
- Task 8 – Demobilization

Each of these Tasks is further described as follows:

Task 1 - Groundwater Monitoring Well Installation and Sampling

EENC will oversee the installation of groundwater monitoring wells by the Contractor. Groundwater samples will be collected by EENC from the site monitoring wells following USEPA Region 1 low flow groundwater sampling procedures or passive diffusion bags (PDBs) to minimize the generation of excess groundwater that will require off-site management and groundwater sampling efforts.

Task 2 – Mobilization for Construction

This task will include the oversight of mobilizing all necessary equipment, supplies, materials, and personnel by the Contractor to the Site for completion of remedial action implementation.

Task 3 – Soil Erosion and Sediment Control

EENC will oversee the installation and maintenance of soil erosion and sediment control measures (e.g., hay bales, silt fence) by the Contractor.

Task 4 – Clearing and Grubbing

EENC will provide oversight of clearing and grubbing all areas to be excavated or capped and all support zone areas by the Contractor.

Task 5 – PRB/ZVI Treatment Zone Construction

This task will include oversight of the construction of a permeable reactive barrier (PRB) and zero valent iron (ZVI) treatment zone. This will include excavation and disposal of soil and placement of ZVI backfill materials.

Task 6 – Transportation and Off-Site Disposal of Waste Materials

This task includes oversight of the loading and off-site disposal by the Contractor using triaxle truck of materials including, but not limited to: excavated soil; waste generated by the Contractor; and trees and vegetation which have been cleared and grubbed and cannot be reused on-site.

Task 7 –Cover System Installation

EENC will provide oversight of milling and repaving of existing paved areas and installation of aggregate cover material in existing landscaped areas.

Task 8 – Demobilization

EENC will provide oversight for the Contractor's removal of all temporary equipment and facilities, excess supplies, excess materials, any remaining wastes, and personnel from the Site, including office supplies and equipment, small tools, storage trailers, and any other requirements or related miscellaneous items.

1.3 Site Safety Requirements

All work will be conducted during daylight hours. Work will cease in the event of adverse weather conditions including lightning, thunder, ice storm or blizzard conditions which render the work unsafe. While EENC will not perform subsurface work during the execution of this project, the Contractor (to be contracted by the Client) will. While EENC will not subcontract the Contractor, SPI 27 – Subsurface and Overhead Clearance has been attached and will be provided to the Contractor for its reference. The Contractor will follow its own Health and Safety Plan and adhere to its own policies for subsurface utility clearance as well as the requirements of the Technical Specifications.

2. IDENTIFICATION OF KEY HEALTH AND SAFETY PERSONNEL

An efficient on-site operation requires that all key personnel be identified and that their roles and responsibilities be clearly defined. Below is a discussion of the management structure for this project.

2.1 Principal in Charge/Project Manager

Responsibilities include overall coordination of site activities. The Principal in Charge (PIC) and the project manager (PM) have overall accountability and responsibility for the safety of operations and the health and safety of all personnel.

2.2 Health and Safety Coordinator and Director

The local Health and Safety Coordinator (HSC) and Corporate Health & Safety Director are resources for development of the site-specific HASP and will be consulted on all related health and safety issues that arise in the field, including any changes in the scope of work. The Health and Safety Director will make all final decisions regarding questions on the HASP.

2.3 Designated Site Supervisor

The site supervisor is responsible for field-related activities under the direction of the PM and for maintaining field operations in accordance with project requirements. This person is responsible for enforcing daily implementation of the HASP and resolving health and safety issues. In addition, this person will:

- Establish and ensure maintenance of site work zones.
- Monitor the work area and personal breathing zone and ensure compliance of workers relative to pre-established personal protection levels.
- Evaluate site conditions (i.e., weather, chemical, physical) and recommend any modifications to existing levels of protection.
- Ensure that daily safety briefings are conducted and documented in this HASP (see Section 9) or in the field logbook.
- Initiate emergency response procedures with immediate communication to the project manager.
- Exercise stop-work authority in the event of imminent danger to project personnel.
- Notify PM of any noncompliance and/or unsafe conditions.
- Conduct regular inspections to determine effectiveness of the HASP.

2.4 Project Personnel

Project personnel involved in field activities are responsible for:

- Taking all reasonable precautions to prevent injury to themselves and to fellow employees.
- Conducting only those tasks that they believe they can do safely.

- Reporting all occurrences and/or unsafe conditions to the supervisor and/or project manager.

Further, any person working on-site has the authority to **stop work** if any operation threatens the health and safety of on-site workers or the surrounding community. In the event that such a situation occurs, the Site Supervisor shall be notified immediately. EENC's Site Supervisor will update the EENC PIC/PM/MP and on all project-related health and safety issues as they arise.

Table 2: EENC Personnel Contact Information

Personnel Telephone Roster			
Company / Title	**Personnel**	**Office**	**Cell**
EENC Principal in Charge	Drew Bonas	(609) 243-9874	(609) 240-5581
EENC Project Manager	Jose Sananes	(609) 243-9882	(732) 841-1218
EENC Corporate Health and Safety Director	Sharon Burkett	(609) 243-9832	(609) 306-8361
EENC Project Health and Safety Coordinator	Brian Robinson	(860) 503-1662	(203) 233-7907
EENC Designated Site Supervisor	Brian Robinson	(860) 503-1662	(203) 233-7907
Client Contact	Travis Quarles	(503) 228-2141	

Table 3: Contractor / Subcontractor Contact Information

Contractor / Subcontractor Telephone Roster			
Company / Title	**Personnel**	**Office**	**Cell**
EENC will not have any subcontractors. The work will be performed by a Contractor to be contracted by the Client.			

3. HAZARD EVALUATION

The Project Hazard Analysis below identifies the hazards anticipated to be encountered by the project team based on the tasks presented in Section 1.2.

Table 4: Project Hazard Analysis

Chemical Hazards Present: ☐ None	☒ Flammable/combustible ☐ Compressed gas ☐ Explosive ☐ Organic peroxide ☐ Oxidizer ☐ Water reactive ☐ Unstable reactive ☐ Dust/Fumes/Particulates	☐ Corrosive ☐ Toxic ☐ Highly Toxic ☐ Irritant ☐ Sensitizer ☒ Carcinogen (potential) ☐ Mutagen ☐ Other:
Physical Hazards Present: ☐ None	☐ Heat ☒ Cold ☒ Walking/working surfaces ☒ Visible Dust ☒ Traffic/Vehicles ☒ Noise ☒ Other: vibration	☐ Ionizing radiation ☐ Non-ionizing radiation ☐ Electricity ☒ Severe Weather ☒ Poor lighting ☒ Overhead Hazards
Environmental / Mechanical Hazards Present: ☐ None	☒ Heavy machinery/ Drill Rigs ☒ Trenching/excavation ☐ Docks-marine operations ☐ Docks-loading ☒ Drilling ☐ Forklifts ☐ Operations on Water ☐ Elevated heights (includes fall protection) ☒ Overhead/Underground utilities ☐ Confined spaces ☒ Power tools	☒ Cranes/Hoists/Rigging ☐ Ladders ☐ Scaffolding ☐ Manlifts ☐ Gas cylinders ☐ Roadway work ☐ Railroad work ☐ Energized equipment (LO/TO) ☐ Pressurized equipment (LO/TO) ☒ Drums and containers ☐ Others:
Biological Hazards Present: ☐ None	☐ Animal/human fluids or blood ☐ Animal/human tissue(s) ☒ Poisonous/irritating plants ☐ Other:	☐ Contaminated needles ☐ Live bacterial cultures ☐ Insects/rodents/snakes ☐ Other:
Ergonomics Hazards Present: ☐ None	☒ Repetitive motion ☒ Awkward position ☒ Heavy Lifting ☒ Frequent Lifting	☐ Limited movement ☐ Forceful exertions ☒ Vibration ☐ Other:
Personal Safety / Security: ☐ None	☒ Personal safety ☐ Security issue ☐ Project site in isolated area ☒ Employees working alone ☐ Wild/Feral Animals	☐ Employees working early/late ☐ Potentially dangerous wildlife ☐ Guard or stray dogs in area ☐ No/limited cell phone service ☐ Other:

3.1 Specific Chemicals of Concern

The chemicals listed in the table below includes the identification of chemical contaminants known and/or suspected of being present on-site, the affected media, known concentrations (if applicable), the Permissible Exposure Limit (PEL) or Threshold Limit Value (TLV), and the Action Level (i.e., 50% of the PEL/TLV). This information will be inserted into Table 5 below. In addition, Appendix A contains specific hazardous property information for commonly encountered chemicals although a Material Safety Data Sheet (MSDS) (or equivalent) will also be included in Appendix A.

Table 5: Chemicals of Concern

Chemical	Environmental Media [1]	Highest Measured Concentration	PEL/TLV [2]
1,1-dichloroethane	SO, GW	6.8 ppm (SO)	100 ppm
1,2-dichloroethane	SO, GW	0.022 ppm (SO)	1 ppm
1,1,1-trichloroethane	SO, GW	1.8 ppm (SO)	350 ppm (15 min ceiling)
cis-1,2-dichloroethene	SO, GW	10 ppm (SO)	200 ppm
tetrachloroethene	SO, GW	2.2 ppm (SO)	25 ppm
trichloroethene	SO, GW	120 ppm (SO)	25 ppm
vinyl chloride	SO, GW	1.5 ppm (SO)	1 ppm (skin)
1,4-dioxane	SO, GW	2.4 ppm (SO)	100 ppm

Notes:

[1] Codes for environmental media: **SL**=Sludge; **GW**=Ground Water; **SW**=Surface Water; **LW**=Liquid Waste; **SO**=Soil; **A**=Air; **OTH**= Other (Specify)

[2] PEL: Permissible Exposure Limit / TLV: Threshold Limit Value, use appropriate PEL which would be country or state specific or if one is not available may be from a recognized source.

mg/m³: milligrams per cubic meter

mg/kg: milligrams per kilograms

ppm: Parts per million

%: Minimum percent allowed for personal entry into a space

4. HAZARD CONTROLS

A general summary of the hazards and an evaluation of those hazards are presented below. More detailed control procedures are provided in the Appendix B or in other section of this HASP as indicated in Table 6.

Table 6: Summary of Hazards

Task Number(s)	Hazards	Relative Hazard / Risk Rating*	Hazard Controls Appendix and / or HASP Section
1, 5, 6, 7	Chemical	NA☐ Low☒ Medium☐ High☐	B1
1, 2, 3, 4, 5, 6, 7, 8	Physical	NA☐ Low☐ Medium☒ High☐	B2
1, 2, 3, 4, 5, 6, 7, 8	Mechanical	NA☐ Low☐ Medium☒ High☐	B3
1, 2, 3, 4, 5, 6, 7, 8	Traffic/Equipment	NA☐ Low☐ Medium☒ High☐	B4
1, 2, 3, 4, 5, 6, 7, 8	Electrical Hazards	NA☐ Low☒ Medium☐ High☐	B5/B18
1, 2, 3, 4, 5, 6, 7, 8	Fire/Explosion	NA☐ Low☒ Medium☐ High☐	B6
1, 2, 3, 4, 5, 6, 7, 8	Noise (acoustical)	NA☐ Low☒ Medium☐ High☐	B7
	Ventilation / Oxygen Deficiency	NA☒ Low☐ Medium☐ High☐	B8
	Heat Stress	NA☒ Low☐ Medium☐ High☐	B9
1, 2, 3, 4, 5, 6, 7, 8	Cold Stress	NA☐ Low☐ Medium☒ High☐	B10
	Insects, Spiders, Snakes	NA☒ Low☐ Medium☐ High☐	B11
1, 2, 3, 4, 5, 6, 7, 8	Poisonous Plants	NA☐ Low☒ Medium☐ High☐	B12
1	Personal Safety	NA☐ Low☒ Medium☐ High☐	B13
1, 2, 3, 4, 5, 6, 7, 8	Working Alone	NA☐ Low☒ Medium☐ High☐	B14
1, 2, 3, 4, 5, 6, 7, 8	Severe Weather	NA☐ Low☒ Medium☐ High☐	B15
1, 4, 5, 7	Above and Underground Utilities	NA☐ Low☒ Medium☐ High☐	B16 & Sections 4.2 - 4.3
5	Trenching/Excavation	NA☐ Low☐ Medium☒ High☐	Use Comprehensive HASP
	Water Safety	NA☒ Low☐ Medium☐ High☐	Use Comprehensive HASP
1, 3, 4, 5, 6, 7, 8	Ergonomics / Material Handling	NA☐ Low☒ Medium☐ High☐	B17

Table 6: Summary of Hazards

Task Number(s)	Hazards	Relative Hazard / Risk Rating*	Hazard Controls Appendix and / or HASP Section
1	Power Tools	NA☐ Low☐ Medium☒ High☐	B18
1, 2, 3, 4, 5, 6, 7, 8	Vehicle Use	NA☐ Low☐ Medium☒ High☐	B19
	Seasonal Hunting	NA☒ Low☐ Medium☐ High☐	B20
	Demolition	NA☒ Low☐ Medium☐ High☐	Use Comprehensive HASP
	Unexploded Ordinances	NA☒ Low☐ Medium☐ High☐	Use Comprehensive HASP
	Closed/Abandoned Mines	NA☒ Low☐ Medium☐ High☐	Use Comprehensive HASP
	Confined Space	NA☒ Low☐ Medium☐ High☐	Section 9
1, 3, 4, 5, 6, 7, 8	Spills	NA☐ Low☒ Medium☐ High☐	Section 8

Note:

A single hazard may be listed under several Tasks. In this case, use the highest Severity ranking of the tasks evaluated as the overall ranking.

Table 7: * Hazard / Risk Matrix Decision Table

The Hazard…	Has No Severity	Has Minimal Severity	Has Moderate Severity	Has High Severity
Is Not Present (i.e., 0% of your on-site time does not expose you to this Hazard)	NA	NA	NA	NA
Is Rarely Present (i.e., <25% of your on-site time exposes you to this Hazard)	NA	LOW	LOW	MED
Is Sometimes Present (i.e., 25% - <50% of your time exposes you to this Hazard)	NA	LOW	MED	HIGH
Is Frequently to Constantly Present (i.e., 50% to 100% of your time exposes you to this Hazard)	NA	MED	HIGH	HIGH

Table 7: * Hazard/Risk Matrix Decision Table
*Relative Risk Rating Scale takes into account the frequency of the hazard and the severity of injury the hazard can cause to employees without regard to PPE usage. In general, • Minimal Severity requires first aid; • Moderate Severity requires professional medical attention; and • High Severity requires immediate medical attention/life threatening.

4.1 General Subsurface Clearance Requirements

If the tasks presented in this HASP involve subsurface work, Table 8 and the specific procedures outlined in section 4.2 are applicable and must be followed. Table 8 summarizes the steps required to be completed, including justification of any exceptions. This table must be completed in its entirety prior to conducting subsurface work.

Table 8: Subsurface Clearance (SSC) Actions

Subsurface Clearance (SSC) Pre-Project Planning Checklist
Document the steps that must be followed and justify any exceptions.
This checklist MUST be completed in its entirety.

SSC Requirements	Yes	No	NA	Comments
1. Prequalification of Contractor for capability of ground disturbance work performed (See Section 4)	☒	☐	☐	The Contractor (to be contracted directly by the Client) will conduct the SSC per the project specifications included in the contract documents, the requirements of the Contractor's own HASP and the Contractor's own policies for subsurface utility clearance. While not applicable, the Contractor will be provided with a copy of SPI 27 (which is appended to this HASP) for its reference.
2. "Designated Person" for SSC work assigned (must be on-site)	☒	☐	☐	EENC will not perform subsurface work during the execution of this project; the Contractor (to be contracted by the Client) will. The Contractor will follow its own Health and Safety Plan and adhere to its own policies for subsurface utility clearance as well as the requirements of the Technical Specifications.
3. Historical Site Information Review	☒	☐	☐	Site layout map from previous investigations.
4. Development of site-specific plot plan	☒	☐	☐	A site survey is included in the project file and will be available on site. This information is included in the design drawings included in the contract documents.

Table 8: Subsurface Clearance (SSC) Actions

Subsurface Clearance (SSC) Pre-Project Planning Checklist
Document the steps that must be followed and justify any exceptions.
This checklist MUST be completed in its entirety.

SSC Requirements	Yes	No	NA	Comments
5. Ground penetrating location marked prior to locate(s) and alternate locations chosen	☒	☐	☐	Per the requirements of the project specifications included in the contract documents and Contractor HASP, the Contractor will perform a private subsurface utility survey. The EENC site supervisor will verify with contractor that Dig Safely NY was notified and will record the locate ticket number.
6. Service notifications provided to clear/locate **public** utilities	☒	☐	☐	Per the requirements of the project specifications included in the contract documents and Contractor HASP, the Contractor will be contacting Dig Safely NY prior to earthwork. The EENC site supervisor will verify with contractor that Dig Safely NY was notified and will record the locate ticket number. Sewer: City of Troy List One Call #: 811 List locate ticket #:
7. **Private** locate contracted for on-site utilities	☒	☐	☐	Contractor will be performing SSC prior to any groundbreaking per the project specifications included in the contract documents and the requirements of their HASP; EENC site supervisor will verify with contractor that SSC has been completed.
8. Designated Person present during private locating	☒	☐	☐	Designated person is the Contractor HSO. EENC site supervisor will verify with Contractor's Designated Person that SSC has been completed.
9. Underground utilities identified prior to commencement of intrusive activities as reasonably feasible	☒	☐	☐	Site walk will be conducted and plans and survey reviewed onsite with Contractor to ensure locations of utilities are understood prior to any earthwork by Contractor.
10. Site walkover conducted to assess utility locations, visual indicators and complete SSC Field Checklist	☒	☐	☐	Contractor and its Designated Person will conduct the site walkover in accordance with the requirements of their HASP. EENC site supervisor will verify with Contractor's Designated Person that SSC has been completed in advance of any groundbreaking and prior to staging equipment (e.g., for overhead hazards). The SSC Field Checklist included in Appendix C will be used as a guide.

Table 8: Subsurface Clearance (SSC) Actions

Subsurface Clearance (SSC) Pre-Project Planning Checklist Document the steps that must be followed and justify any exceptions. This checklist MUST be completed in its entirety.				
SSC Requirements	**Yes**	**No**	**NA**	**Comments**
11. Ground penetration locations(s)/area(s) and Critical Zones (i.e., the 5ft or 1.5m distance surrounding intrusive activities in every direction) cleared	☒	☐	☐	The Contractor will take appropriate precautions when excavating around or near utilities in accordance with the project specifications included in the contract documents and the requirements of their HASP.

4.2 Specific SSC Procedures

The hazards posed by the presence of underground and overhead services are significant. Where there is a requirement for ground penetrating activity, the work shall be thoroughly vetted prior to commencing subsurface work. No intrusive work is to be conducted until the hazards associated with the possible presence of underground and overhead services have been properly identified, and safe locations for intrusion marked and agreed upon. This applies to any intrusive site work (i.e., any work which will involve the disturbance or penetration of the ground or manmade surface by mechanical or manual means, INCLUDING: trial pit excavations, borehole excavations (shell and auger, rotary, hydraulic, percussive), gas spiking, manual excavations, hand digging, intrusion into vertical, indoor, or below ground surfaces, and/or any other on-site activity where disturbance of the ground surface is required). If conducting intrusive activities, the following tasks must be completed **and documented** prior to initiating ground disturbance activities (each is summarized below):

4.2.1 Historical Site Information Review

Obtain the most recent as-built drawings and/or site plans (including underground storage tank (UST), product and vent lines), as available. Consider requesting any other site plot plans, surveys, photographs, and information that might be instructive from the client or other sources. Site information reviewed shall be specified in Table 8 SSC Actions (below).

4.2.2 Plot Plan

Develop a plot plan the accurately reflects all available information and site conditions as accurately as possible, including the number of facilities/pipelines or utilities, locations and alignments. The plot plan shall be updated as SSC activities commence to properly capture site-conditions or visual indicators. Intrusive activities shall not proceed without an updated plot plan or drawing.

4.2.3 Pre-Marking Ground Disturbance Locations

Whenever feasible, ground disturbance locations and/or areas shall be pre-marked using white stakes, white paint or white flags (or black in cases where snow is on the ground) prior to the public and/or private utility mark-outs. Pre-marking provides the line locators with visual boundaries as guidance in clearing locations and placing marks.

4.2.4 Line Location Services

In areas where public and private resources are available, **EENC will contact both public and private utility locate services for any project that involves intrusive activities.** In order to give line operators sufficient time to respond to a request to locate, a minimum of 72 business hours is required prior to the planned start of work. In the event that the driller/excavator retains these services, EENC will conduct a follow-up to confirm utility locate information.

Meet directly with the private locator and provide them with location plans, if possible. If an on-site meeting with the private locator is not possible, you MUST contact the private locator so that they understand the scope of the proposed subsurface work and the extent of their activities.

4.2.5 Site Walkover-Visual Indicators

The Designated Person MUST conduct site walk-over and complete the SSC Field Checklist (Appendix C) for all projects that involve ground disturbance. The site walk-over and visual inspection is most effective when completed during locating activities, but, at a minimum, must be completed PRIOR to ground disturbance. The main intent of the SSC Field Checklist is to identify above ground indicators which may identify the potential existence of subsurface issue. It will also be used to confirm that common utilities have been accounted for, located and verified. Any potential underground utilities should be marked on a site plot plan and the site walkover should be documented utilizing EENC's Subsurface Clearance Field Checklist.

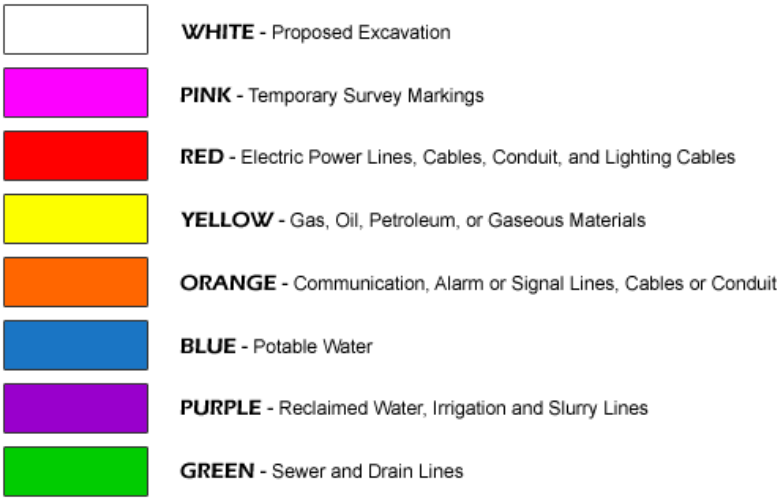
4.2.6 Utility Mark-out

All known pipelines and utilities, as noted on the plot plan, pipeline map or drawing, that pass within the search zone must be located, identified and marked to indicate location and alignment.

A qualified and competent line locator shall conduct line-locating practices utilizing available pipeline maps or plot plans for all areas within the search zone. Direct connection (clamping on) to all possible nearby underground services should be undertaken whenever possible to increase the success rate/reliability in locating. **The specific ground penetration location must be cleared to the edge of the critical zone** (5 feet or 1.5m area surrounding intrusive locations/areas in every direction) using a search and sweep method to verify maximum detection capabilities.

If anticipated services are not identified or located, drilling or ground disturbance will not occur until the service is visually identified.

Commonly used utility mark out colors and identifiers are listed below:



Upon completion of their work (whether you are on-site or not), the private locator MUST contact you to present their results. In addition to providing you with an overall summary of their work, **they must also inform you of any unique circumstance(s) which limited their ability in locating the potential presence of underground utilities (e.g., the existence of overhead electrical lines); if they encountered any abnormalities (e.g., concrete surfaces with reinforced rebar); and/or any other condition which may have diminished the validity of their results and efforts**.

Where doubt exists over the location of a service, request a site visit from the appropriate utility provider or abandon locations in the immediate area and contact the PM and/or PIC.

4.2.7 Clearance of Ground Disturbance Locations & Critical Zones

After anticipated utilities have been located and marked, use the available information along with regulatory requirements and project objectives to select final ground disturbance locations.

Each specific ground penetration location must be cleared to the edge of the critical zone (5 feet or 1.5m area surrounding intrusive locations/areas in every direction) using a search and sweep method to verify maximum detection capabilities. Ensure that all detected services and those featured on location plans are outside of the critical zone of EACH location where intrusive work will occur, using a sweep and search method.

The critical zone takes into account minimum tolerance distances from facility lines (which vary by location) and uncertainties introduced by on-site conditions, human factors, and equipment. **No intrusive activities shall take place within a critical zone with which utilities or visual indicators intersect**. When known utilities intersect ground disturbance critical zones, boring and/or excavation location criteria should be reevaluated by the Designated Person and PM, and if possible, moved to a pre-cleared alternate location.

In the event that work is required to be conducted in a critical zone containing a marked utility or visual indicator, approval MUST be obtained from the PIC, PM and H&S Director prior to ground penetrating activities.

4.2.8 Overhead Lines

Ensure that any ground penetrating activities are located a minimum of 28 feet (9m) horizontally from any overhead electric cable supported wooden poles, or 50 feet (15m) horizontally in the case of those supported on metal poles/towers. Where this cannot be achieved, contact relevant electricity provider for guidance as well as the PIC/PM and Director H&S.

5. PERSONAL PROTECTIVE EQUIPMENT

This section of the Site Health and Safety Plan is a reference of selection for different levels of PPE. The protective equipment will be selected based on the contaminant type(s), concentration(s) in air (if any), standing liquid (if any), or other applicable matrix, and the known route(s) of entry into the human body.

Table 9: Task Specific PPE

Task Description	Level of Protection				
	A	B	C	Mod D	D
Groundwater Monitoring Well Installation and Sampling	☐	☐	☐	☒	☐
Mobilization for Construction	☐	☐	☐	☐	☒
Soil Erosion and Sediment Control	☐	☐	☐	☐	☒
Clearing and Grubbing	☐	☐	☐	☐	☒
PRB/ZVI Treatment Area Construction	☐	☐	☐	☐	☒
Transportation and Off-Site Disposal of Waste Materials	☐	☐	☐	☐	☒
Cover System Installation	☐	☐	☐	☐	☒
Demobilization	☐	☐	☐	☐	☒

Key:

Level D: Long sleeve shirt*; long pants*; hard hat; eye protection; hearing protection; and safety shoes.

Level D Modified: Level D protection plus protective coveralls, as required; and appropriate hand protection.

Level C: Level D (Modified) protection plus negative pressure respiratory protection with appropriate cartridges; chemical protective coveralls in lieu of general coveralls; use of inner and outer sets of hand protection.

Level B: Level C protection plus Pressure-demand supplied air respirator with escape bottle in lieu of negative pressure respirator; chemical resistant coveralls with hood; chemical resistant boots.

Level A: Level B protection plus fully encapsulating (gas tight) chemically resistant suit.

***Clothing made of natural fibers shall be worn when a shock or arc flash hazard exists.

Table 10: Personal Protective Equipment and Supplies

Equipment	Req	Rec	NA	Equipment	Req	Rec	NA
Steel-toe Boots	☒	☐	☐	SCBA	☐	☐	☒
Outer Disposable Boots	☐	☒	☐	Full-face Airline Resp.	☐	☐	☒
Long Sleeve Shirt and Pants	☒	☐	☐	Full Face Negative Pressure Resp.	☐	☐	☒
Flame Retardant Coveralls	☐	☐	☒	Half Face Negative Pressure Resp	☐	☐	☒

Table 10: Personal Protective Equipment and Supplies

Equipment	Req	Rec	NA	Equipment	Req	Rec	NA
Tyvek Suit	☐	☐	☒	Powered Air Purifying Resp	☐	☐	☒
Poly-coated Tyvek / Saranex Suit	☐	☐	☒	First Aid Kit	☒	☐	☐
Fully Encapsulated Chemical Suit	☐	☐	☒	Fire Extinguisher	☒	☐	☐
Hearing Protection (e.g., during sheet piling and well drilling)	☒	☐	☐	Mobile Phones	☒	☐	☐
Leather Gloves	☐	☒	☐	Walkie Talkies	☐	☐	☒
Outer Chemical Gloves (Type): Nitrile	☒	☐	☐	Water or Other Fluid Replenishment	☒	☐	☐
Inner Chemical Gloves (Type):	☐	☐	☒	Eye Wash	☒	☐	☐
Hard Hat	☒	☐	☐	Sunscreen	☐	☒	☐
Safety Glasses with Side Shields	☒	☐	☐	Insect Repellent	☐	☒	☐
Vented (Splash proof) Goggles	☐	☐	☒	Other: High Visibility Vest	☒	☐	☐

Key:

Req = Required;

Rec = Recommended;

NA = Not Applicable

6. AIR MONITORING/SAMPLING PROCEDURES

Conducting an applicable task may necessitate using one or more monitoring devices as listed in Table 11, particularly if gases, vapors, explosion hazards and/or oxygen deficient atmosphere can occur or are expected. If a monitoring device will be utilized, the corresponding device letter should be placed in the column labeled "Monitoring Instrument Required" in Table 12.

Table 11: Monitoring Devices Available

A	PID (10.6 eV)	**H**	Summa Canister
B	PID (11.7 eV)	**I**	Heat Stress Monitor
C	FID	**J**	Air Sampling:
D	OVA	**K**	Air Sampling:
E	CGI/LEL	**L**	Radiation Detector
F	Colorimetric Indicator Tubes	**M**	Gas Multimeter
G	Dust Monitoring	**N**	Other Device:

With respect to Table 12, also insert the task and the applicable Action Level in the appropriate box using 50% of the most restrictive (lowest) PEL or TLV as the Trigger. For example, if the most restrictive PEL for a particular VOC is 50 ppm, use 25 ppm as the "Trigger" value.

Table 12: Required Monitoring

Required Monitoring	Constituent	Task(s)	Trigger (Action Level)	Monitoring Instrument Required
If monitoring is necessary to identify that a risk is at or above tolerable limits and/or is used in controlling a risk on site, document the task and the maximum allowable exposure or trigger, and the monitoring instrument required to be used.	Oxygen		19.5% to 23.5%	
	Carbon Monoxide		25 ppm	
	H_2S		5 ppm	
	C_2S			
	CH_4		0.5% or 5000 ppm	
	VOCs: Total	1	0.5 ppm	B
	Semi-VOCs:			
	Metals			
	Dusts	5	150 ug/m^3 or 100 ug/m^3 above background	G (See CAMP for equipment specifications)
	Others:			
	Others:			

6.1 Action Level Guidance

In general, this HASP must address site-specific chemicals as noted in Table 12. However, there are chemicals commonly encountered in the workplace that may not be a chemical targeted for sampling but nonetheless will have adverse health effects. These chemicals are listed in Table 13 below.

Table 13: Action Levels for Commonly Encountered Compounds

Compound	Action Level
VOC (as Benzene)	0.5 ppm MAXIMUM
CH_4	0.5% MAXIMUM or 5000 ppm
CO_2	0.25% OR 2500 ppm MAXIMUM
CO	25 ppm MAXIMUM
H_2S	5 ppm MAXIMUM
O_2	19% MINIMUM – 23.5% MAXIMUM

6.1.1 Volatile Organic Compound

An action level for each chemical or group of chemicals should be based on 50% of the most restrictive (lowest) relevant PEL or TLV. If a sustained (i.e., 1-minute sampling period) total volatile organic compound (VOC) reading within proximity to the breathing zone as determined by a photo ionization detector (PID) is above the action level, site personnel shall

attempt to mitigate the situation through the use of engineering controls (i.e., move upwind, increase air circulation) as indicated in Table 14. If the action level still cannot be met, personnel shall leave the area and contact the PM and HSC for further instructions.

Table 14: Volatile Organic Compound

Instrument	Calibration Gas Standard	Frequency / Duration of Air Monitoring	Action Level[1] (Breathing Zone)	Action
Photo ionization detector (PID) calibrated daily	100 ppm isobutylene	Every 5-10 minutes, take a 1-minute reading.	>0.5 ppm, sustained in proximity to breathing zone	Stand upwind or Introduce engineering controls (i.e., blower fans) (Level D) Evaluate controls (see below)
After Introduction of Engineering Controls				
PID calibrated daily	100 ppm isobutylene	Every 5-10 minutes, take a 1-minute reading.	< 0.5 ppm	Continue work (Level D)
			0.5-1 ppm, sustained in proximity to breathing zone	Don respirator (Level C); Contact HSC to evaluate; draeger tubes can be used to rule out the presence of vinyl chloride. If vinyl chloride is NOT present, action level can be raised to 12.5 ppm (1/2 TLV STEL limit for TCE)
			> 1 ppm, sustained in proximity to breathing zone	Discontinue work; if draeger tubes rule out presence of vinyl chloride, action level can be raised to 12.5 ppm

Note:

[1] Action Levels for "Known contaminants" should be based upon each contaminant's Permissible Exposure Limit (PEL) or Threshold Limit Value (TLV).

6.1.2 Combustible Gas Indicator (CGI) / Oxygen Meter

Table 15: Combustible Gas Indicator (CGI) / Oxygen Meter

Meter Response	Action / Respiratory Protection
CGI response <10% LEL	Continue normal operations with regular, periodic monitoring
CGI response > 10% LEL	Discontinue operations; evacuate personnel and prohibit entry; allow to vent until readings are <10%.
Oxygen level <19.5% or >23.5%	Retreat from work area; consult with PM and HSC about upgrading to Level B respiratory protection, adding mechanical ventilation, and / or possible changes in work practices.

6.1.3 Odors

If strong odors are encountered or if personnel develop headaches, dizziness or other potential exposure symptoms, the personnel shall leave the work area to a well-ventilated area and contact the PM and HSC for further instructions.

6.1.4 Dusts

The permissible exposure levels for total and respirable dusts are 15 and 5 mg/m ^{3}, respectively. In general, at these concentrations you will not be able to read the face of a wristwatch (with your arm extended) when the total dust concentration reaches 15 mg/m ^{3}. Particles of dust in the respirable size range cannot be seen without the aid of a microscope but in aggregate, may be perceived as a haze. More importantly and with few exceptions, when dust is noticeable in the air, more respirable particles will exist than larger particles.

Typically, controlling dusty investigative activities through the use of a water sprayer will control potential exposures. However, in the event that dusty conditions exist that are not related to investigative/remedial activities (dry, uncovered soils with high winds), personnel shall leave the area and contact the PM and HSC for further instructions.

In accordance with provisions of the project Community Air Monitoring Plan (CAMP), continuous dust monitoring will be conducted upwind and downwind during all ground intrusive work areas. This monitoring will be conducted to determine the concentration of particulate matter (as PM10). These readings will be obtained with real-time monitoring equipment capable of generating data on a 15-minute average basis. Per NYSDOH, additional dust suppression measures will be implemented if the downwind PM10 reading is more than 100 µg/m3 above the upwind concentration. Visible dust conditions must also be prevented.

Should visibly dusty conditions persist despite the measures employed by the contractor, personnel will advise on-site personnel to cease work and institute additional dust control measures or alter its work practices. Until such dust conditions are remediated, no work will be conducted.

7. DECONTAMINATION

7.1 Sampling and Construction Equipment Decontamination

Decontamination involves the orderly controlled removal of contaminants. All undedicated sampling equipment and sampling meters (if applicable) will be cleaned prior to and between each use. All on-site equipment will be decontaminated and allowed to air dry before leaving the site. Decontamination maybe accomplished using an approved cleaner, water, and steam. Subcontractors will be responsible for decontamination of their own equipment used during field operations, as well as disposal of the decontamination fluids. Decontamination fluids and soil cuttings will be temporarily stored in on-site 55-gallon drum and spending offsite disposal.

7.2 Personnel Decontamination

All site personnel should minimize contact with contaminants. All disposable PPE will be disposed of in approved 55-gallon drums (including respirator cartridges). Non-disposal PPE must be decontaminated, particularly the safety boots. Any PPE that cannot be decontaminated should be disposed of along with waste generated from field operations. The drums will be sealed and labeled appropriately, stored at a single secure location on the site, and be disposed of appropriately off-site.

Personnel shall wash and remove PPE prior to leaving the site. At a minimum, gross removal of contaminants from the PPE, removal of the PPE, and washing of hands and face shall be required upon exiting the work area.

During emergencies, the need to quickly respond to an accident or injury must be weighed against the risk to the injured party from chemical exposure. It may be that the time lost or additional handling of an injured person during the decontamination process may cause greater harm to the individual than from the exposure that would be received by undressing that person without proper decontamination. The decision must be made by the HSC.

7.3 Investigation-Derived Material Disposal

1. Drill cuttings/well water: on-site in properly labeled drums.
2. Decontamination solutions: on-site in properly labeled drums.

8. EMERGENCY RESPONSE PLAN (ERP)

NOTE: Specific emergency contact information and applicable directions to the nearest medical facility are contained in Appendix B (i.e., the FIRST AND LAST PAGES of this HASP). In the event that an emergency situation occurs, SECURE the safety of yourself and those working under your direction and then contact appropriate site and EENC representatives that are referenced in Section 2.4 of this HASP.

8.1 Stop Work Authority

All EENC employees have the authority and obligation to stop any task or operation where concerns and/or questions regarding the control of HSE risk exist, are not clearly established, or are not understood. Management is responsible for creating a culture where Stop Work Authority is exercised freely and without fear of retribution or intimidation.

When an unsafe condition is identified, a Stop Work intervention will be initiated and treated as a “near miss”. As such, an incident report will be completed in accordance with Standard Practice Instruction 19 entitled “Incident Reporting” so that the unsafe condition can be documented, reviewed, and corrective actions and preventative measures be implemented as applicable.

These actions will be coordinated by the Site Supervisor, with support from the PM/PIC/MP and the HSC, and all affected personnel will be notified of the Stop Work issue. No work will resume until all Stop Work issues and concerns have been adequately addressed. Most issues can be resolved in a timely manner at the job site, but occasionally additional investigation and corrective actions may be required. Work may resume when it is safe to do so.

8.2 General Emergency Guidelines

8.2.1 First Aid Procedures

Each field project should have a first aid kit available for use. The contents of which should be based the treatment of the following potential injuries: major wounds, minor wounds (cuts and abrasions), minor burns and eye injuries including protective gloves, breathing barrier, eyewash solutions, and bandages. Since each workplace is unique, additional first aid products should be selected to augment required contents based on the particular work environment.

If an employee is injured, general first aid will be administered. If safety concerns or hazardous conditions are still present, the individual shall be moved to avoid further injury or risk. In the event that an employee is injured in a contaminated area, general first aid will be administered and then the employee will be moved to the support zone for decontamination (if applicable), additional first aid, and preparation for transportation, giving due consideration to which risk will be greater; the spread of contamination or the health/safety of the individual.

8.2.2 Fire Procedures

In the event of a fire, the client contact and/or the local fire fighting authorities shall be immediately notified. If safe and feasible, a fire extinguisher may be used to attempt to extinguish the fire. Upon depletion of one fire extinguisher, all personnel shall evacuate the area and await local fire fighters.

8.2.3 Spill Procedures

If warranted, before any work is initiated at the site, applicable local, state, and/or Federal Emergency Response Authorities will be identified by the preparer of this HASP. In the event of a spill, the client contact shall be immediately notified. If possible and feasible, attempts should be made to contain the spill. If it is determined by consultation with the PM and Client contact that there is no apparent threat to the population or environment, arrangements should be made with a commercial cleanup company to mitigate the spill.

8.2.4 Uncovering an Underground Service (Intact)

In the event of any damage or dislocation of any underground facility/pipeline or utility in connection with ground disturbance activity, work activities shall cease in the area of the damaged facility. The Designated Person shall immediately call the applicable emergency phone number. Then, the affected utility and One Call service shall be notified, if applicable. The One Call service may be able to assist with contact numbers for notifying member companies in the event of any damage. NO ONE should attempt to repair, clamp or constrict the damaged utility.

ALWAYS ASSUME THAT ANY UNDERGROUND PIPE OR SUBSURFACE LINE IS LIVE!

- Stop Work; remove tools if safe to do so.
- Clear all persons from the scene.
- Call the emergency number.
- Contact the One Call/utility member for guidance, if applicable.
- Contact the PM and/or PIC so they can contact the Client, MP, Director of H&S and HSC.

8.2.5 Striking an Underground Electrical/Telecom Cable

- Stop work, remove tools ONLY if safe to do so (operator seats in excavators are normally electrically isolated ALTHOUGH OTHER PARTS MAY BE LIVE IF STILL IN CONTACT WITH A LIVE CABLE).
- Evacuate the immediate area.
- In the event of injuries provide first aid and summon medical assistance.
- Contact the site contact.
- Contact the PM/Director and HSC.
- Contact the electricity/telecom provider, as directed by site contact and/or PM.
- Do not allow anyone to enter the area of the excavation until the electricity provider has made the cable safe.

8.2.6 Striking a Pressurized Gas Pipeline

- Stop work, leave tools in-place but shut off any running equipment, including engines.
- Evacuate the immediate area.
- Ensure there are no sources of ignition in the area.
- Contact the site contact.
- Contact the PM/Director and HSC.
- Contact the pipeline owner, as directed by site contact and/or PM.
- Do not re-enter the immediate area until safe to do so.

8.2.7 Striking a Pressurized Water Main

- Stop work, remove tools if safe to do so, and if necessary and safe to do so, confine jetting water, if appropriate.
- Evacuate immediate area and inform site personnel.
- Ensure that water flowing away is not creating potential hazards (e.g., electrical shorting, flooding, contaminant migration etc) and where possible warn those likely to be affected.
- Contact the site contact.
- Contact the PM/Director and HSC.
- Contact the pipeline owner, as directed by site contact and/or PM.
- Do not re-enter the immediate area until safe to do so.

8.3 Incident Reporting

With respect to incidents, the following types of EHS incidents are to be reported:

- All employee injuries and illnesses that include first aid, doctor/hospital visits which may or may not involve restricted work and/or lost time;
- Environmental incidents and exposures, such as spills or other unplanned releases to the environment or nonconformance to operating procedures;
- All evacuations (false or real);
- Any Property damage;
- Near miss incidents which could have resulted in an injury, an accident, environmental impact or significant loss of facilities;
- Public/third party liability - Incidents that involve injury, illness or property damage due to the actions of any non-EENC employee arising out of, or in connection with the Firm's contracted scope of work, operations, products, or premises.

All of the incidents types outlined above MUST be communicated by the affected employee or an EENC employee witnessing the incident to either the local HSC, PM, or PIC immediately following the incident, either in person or via phone, e-mail, or text messaging. This contacted person will then ensure that the other core project members, plus the Director of

H&S, and the Managing Principal are informed either in person or via phone, e-mail, or text messaging, regardless of time of day. The PIC will notify the client of the incident as appropriate in a timely fashion. For incidents involving three or more employees which need in-patient hospitalization and/or the death of any employee, the applicable regulatory agency will be notified by the Director of Health and Safety.

In the event of an incident, an Incident Investigation Report form will be forwarded for completion by the affected employee and sent the core project members (i.e., the local HSC, PM, or PIC), the Director of H&S, and the Managing Principal for preliminary root cause analysis. The root cause analysis will not be deemed complete until input from the Director of H&S and the Managing Principal (and others as necessary) has been obtained. Similarly, the implementation of any corrective/preventive actions will NOT be implemented until input from the Director of H&S and the Managing Principal (and others as necessary) has been obtained.

9. CONFINED SPACE ENTRY

EENC's health and safety policy prohibits unauthorized entry into confined spaces. In the event that entry into a confined space is required, EENC employees (or its subcontractor's employees) will need additional training prior to entering the confined space. Without supplemental Confined Space training, entry into confined spaces is prohibited. In addition, entry authorization will only be given after EENC management has reviewed the nature of the confined space, the hazards present, and the measures needed to ensure safety. Under these circumstances, EENC will work with the host facility/client to determine training requirements, sampling requirements, written program requirements, and equipment needed to safely enter the confined space.

It is not anticipated that confined space entry will be required for this project and/or the jobs listed in this HASP. If confined space entry is required, this HASP will be modified accordingly to adhere to all applicable regulations.

10. HEALTH AND SAFETY PLAN FIELD TEAM SIGNATURES

Sign off sheet attesting that the HASP has been made available and reviewed by the individual prior to entry into the site.

I have read, understood, and agree with the health and safety protocols presented in the Health and Safety Plan (HASP) and the information discussed in the health and safety briefing. I also understand that noncompliance with the HASP may result in dismissal from the site.

Printed Name	Title	Company	Signature

Date: _____ **Time:** _____

Location: _____

Conducted By: _____

Signed By: _____

11. SAFETY MEETING CHECKLIST

The Site Supervisor should consider discussing the following topics with all field personnel conducting work as part of this HASP, as applicable.

Date and Time of Meeting: _____

Conducted By: _____

CHECK TOPIC(S) DISCUSSED:

HASP Content	**HASP Content**
☐ Chemicals of Concern	☐ Personnel On-Site (Introductions)
☐ Tasks to be Performed	☐ Responsibilities
☐ Location of Tasks	☐ Monitoring equipment
☐ Hazards/Risks of Tasks	☐ Other _____
☐ Site Limitations (e.g., cell phone use)	☐ Other _____
First Aid	**Industrial Sanitation and Hygiene**
☐ Facilities	☐ Drinking water
☐ Reporting and Records	☐ Restrooms/Porta toilets
☐ Treatment of _____	☐ Personal Cleanliness
Personal Protective Equipment	**Housekeeping**
☐ Glasses, Goggles, and Shields	☐ Waste Containers
☐ Hard Hats	☐ Waste Materials
☐ Respirators	☐ Other _____
☐ Gloves	
☐ Other _____	
Emergency Procedures	**Fire Prevention**
☐ Communications	☐ Extinguisher Locations
☐ Primary Rally Point:	☐ Designated Smoking Areas
☐ Secondary Rally Point:	☐ Hot Work
☐ Headcount	☐ Flammable Liquids Present
☐ Hospital Location/Route	☐ Explosives Present
☐ PPE/Decon	☐ Other _____
☐ Other _____	
Special Tools / Equipment	**Vehicles/Heavy Equipment**
☐ Chain saws / Chop saws	☐ Transportation of Employees
☐ Other _____	☐ Operation and Inspection
☐ Other _____	☐ Preventative Maintenance
	☐ Other _____

Discussion _____

_____

_____

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APPENDIX A
CHEMICAL INFORMATION AND MATERIAL SAFETY DATA SHEETS

HAZARDOUS PROPERTY INFORMATION

Check if Present	Material (CAS #)	Water Solubility [a]	Specific Gravity	Flash Point (°F)	Vapor Pressure [d]	LEL UEL	Cal/OSHA PEL- TWA [f]	IDLH Level [h]	Odor Threshold Geometric mean [i] (ppm)
Volatile Organic Compounds (VOCs)									
☐	Acetic acid (64-19-7)	Miscible	1.05	103	11 mm	4.0% 19.9%	10 ppm	50 ppm	0.074 (d)
☐	Acetone (67-64-1)	Miscible	0.79	0	180 mm	2.5% 12.8%	250 ppm	2,500 ppm	62 (d) 130 (r)
☐	Acrolein (107-02-8)	40%	0.84	-15	210 mm	2.8% 31%	C 0.1 ppm Skin	2 ppm	1.8 (d)
☐	Acrylonitrile (107-13-1)	7%	0.81	30	83 mm	3% 17%	2 ppm Skin	85 ppm Ca	1.6 (d)
☐	Benzene (71-43-2)	0.07%	0.88	12	75 mm	1.2% 7.8%	1 ppm Skin	500 ppm Ca	61 (d) 97 (r)
☐	Bromodichloro-methane (75-27-4)	4500 mg/l	1.98	--	50 mm	Non-flam	None established	None determined	--
☐	Bromoform (75-25-2)	0.10%	2.89	--	5 mm	Non-flam	0.5 ppm Skin	850 ppm	1.3 [j]
☐	Bromomethane (74-83-9)	2%	1.73	--	1.9 atm	10% 16.0%	1 ppm Skin	250 ppm Ca	80 [j]
☐	Carbon Tetrachloride (56-23-5)	0.05%	1.59	--	91 mm	Non-flam	2 ppm Skin	200 ppm Ca	252 (d)
☐	Chlorobenzene (108-90-7)	0.05%	1.11	82	9 mm	1.3% 9.6%	10 ppm	1000 ppm	1.3 (d)
☐	2-Chloroethyl-vinyl Ether (110-75-8)	0.02%	1.05	61	27 mm	--	None established	None determined	--
☐	Chloroethane (75-00-3)	0.60%	0.92	-58	1000 mm	3.8% 15.4%	100 ppm Skin	3800 ppm	4.2 [j]
☐	Chloroform (67-66-3)	0.50%	1.48	--	160 mm	Non-flam	2 ppm	500 ppm Ca	192 (d)
☐	Chloromethane (74-87-3)	0.50%	0.92	--	5.0 ATM	8.1% 17.4%	50 ppm	2000 ppm Ca	10 [j]
☐	Dibromo-chloromethane (124-48-1)	2700 mg/l	2.5	--	76 mm	--	None established	None Determined	--
☐	Dibutyl phthalate (84-74-2)	0.001% (77°F)	1.05	315	0.00007 mm	0.5% --	5 mg/m^3	4,000 mg/m^3	--

Check if Present	Material (CAS #)	Water Solubility [a]	Specific Gravity	Flash Point (°F)	Vapor Pressure [d]	LEL UEL	Cal/OSHA PEL- TWA [f]	IDLH Level [h]	Odor Threshold Geometric mean [i] (ppm)
☐	1,2-Dichlorobenzene (95-50-1)	0.01%	1.3	151	1 mm	2.2% 9.2%	25 ppm Skin	200 ppm	--
☒	1,1-Dichloroethane (75-34-3)	0.60%	1.18	2	182 mm	5.4% 11.40%	100 ppm	3,000 ppm	--
☐	1,1-Dichloroethylene (DCE) (75-35-4)	0.04%	1.21	-2	500 mm	6.5% 15.5%	1 ppm	None determined	190 [j]
☒	1,2-Dichloroethane (107-06-2)	0.90%	1.24	56	64 mm	6.2% 16%	1 ppm	50 ppm Ca	26 (d) 87 (r)
☒	1,2-Dichloroethylene (540-59-0)	0.40%	1.27	36-39	180-265 mm	5.6% 12.8%	200 ppm	1,000 ppm	17 - 170 [k]
☐	1,2-Dichloropropane (78-87-5)	0.30%	1.16	60	40 mm	3.4% 14.5%	75 ppm	400 ppm Ca	0.26 (d) 0.52 (r)
☐	1,3-Dichloropropene (542-75-6)	0.20%	1.21	77	28 mm	5.3% 14.5%	1 ppm Skin	None Determined Ca	1 [j]
☐	Bis-(2-Ethylhexyl)-phthalate (DEHP) (117-81-7)	0.00%	0.99	420	<0.01 mm	0.3% --	5 mg/m^3	5,000 mg/m^3 Ca	--
☐	Diethyl phthalate (84-66-2)	0.10%	1.12	322	0.002 mm	0.7% --	5 mg/m^3	None Determined	--
☐	Dinitrotoluene (DNT) (25321-14-6)	Insoluble	1.32	404	1 mm	-- --	0.15 mg/m^3 Skin	50 mg/m^3 Ca	--
☐	Endrin (72-20-8)	Insoluble	1.7	--	0.00001 mm Low	--	0.1 mg/m^3 Skin	2 mg/m^3	--
☐	Ethyl benzene (100-41-4)	0.01%	0.87	55	7 mm	0.8% 6.7%	100 ppm	800 ppm	2.3 [j]
☐	Hydrazine (302-01-2)	Miscible	1.01	99	10 mm	2.9% 98%	0.01 ppm Skin	50 ppm Ca	3.7 (d)
☐	Methyl ethyl ketone (MEK) (78-93-3)	28%	0.81	16	78 mm	1.4% 11.4%	200 ppm	3000 ppm	16 (d) 17 (r)
☐	Methyl tert-butyl ether (MTBE) (1634-04-4)	5.1 g/100ml	0.7	-18	245 mm	1.6% 8.4%	40 ppm	None determined	0.32 – 0.47mg/m^3 [l]
☐	Methylene chloride (75-09-2)	2%	1.33	--	350 mm	13% 23%	25 ppm	2,300 ppm Ca	160 (d) 230 (r)

Check if Present	Material (CAS #)	Water Solubility [a]	Specific Gravity	Flash Point (°F)	Vapor Pressure [d]	LEL UEL	Cal/OSHA PEL- TWA [f]	IDLH Level [h]	Odor Threshold Geometric mean [i] (ppm)
☐	Phenol (108-95-2)	9% (77°F)	1.06	175	0.4 mm	1.8% 8.6%	5 ppm Skin	250 ppm	0.06 (d)
☐	1,1,2,2-Tetrachloroethane (79-34-5)	0.30%	1.59	--	5 mm	Non-flam	1 ppm Skin	100 ppm Ca	7.3 (d)
☒	Tetrachloroethylene (PCE) (127-18-4)	0.02%	1.62	--	14 mm	Non-flam	25 ppm	150 ppm Ca	47 (d) 71 (r)
☐	Toluene (108-88-3)	0.07% (74°F)	0.87	40	21 mm	1.1% 7.1%	50 ppm Skin	500 ppm	1.6 (d) 11 (r)
☒	1,1,1-Trichloroethane (71-55-6)	0.40%	1.34	--	100 mm	7.5% 12.5%	350 ppm	700 ppm	390 (d) 710 (r)
☐	1,1,2-Trichloro-ethane (79-00-5)	0.40%	1.44	--	19 mm	6% 15.5%	10 ppm Skin	100 ppm Ca	--
☐	1,2,4-Trichlorobenzene (120-82-1)	0.003%	1.45	222	1 mm	2.5% 6.6% (302 °F)	C 5 ppm	None Determined	3 [j]
☒	Trichloroethylene (TCE) (79-01-6)	0.1% (77°F)	1.46	--	58 mm	8% 10.5%	25 ppm	1,000 ppm Ca	82 (d) 110 (r)
☐	Trichlorofluoromethane (75-69-4)	0.1% (75°F)	1.47	--	690 mm	Non-flam	C 1,000 ppm	2000 ppm	--
☐	1,1,2-Trichloro-1,2,2-trifluoroethane (76-13-1)	0.02%	1.56	--	285 mm	-- --	1,000 ppm	2,000 ppm	--
☐	1,2,4-Trimethylbenzene (95-63-6)	0.006%	0.88	112	1 mm	0.9% 6.4%	25 ppm	None determined	2.4 (d)
☒	Vinyl Chloride (75-01-4)	0.1% (77°F)	0.91	--	3.3 atm	3.6% 33%	1 ppm Skin	None Determined Ca	--
☐	Xylene (o, p, m, mix) (1330-20-7)	Slightly soluble	0.86-0.88	81-90	7-9 mm	0.9% 7%	100 ppm	900 ppm	20 (d) 40 (r)
Metals									
☐	Aluminum metal and oxide (as Al)	b	2.7	--	0 mm	e	10 mg/m^3 (respirable)	None determined	--
☐	Antimony (7440-36-0)	b	6.69	--	0 mm	e	0.5 mg/m^3	50 mg/m^3	--

Check if Present	Material (CAS #)	Water Solubility [a]	Specific Gravity	Flash Point (°F)	Vapor Pressure [d]	LEL UEL	Cal/OSHA PEL- TWA [f]	IDLH Level [h]	Odor Threshold Geometric mean [i] (ppm)
☐	Arsenic (inorganic compounds, as As)	b	5.73	--	0 mm	e	0.010mg/m^3	5 mg/m^3 Ca	--
☐	Arsenic (organic compounds, as As)	Properties vary depending upon the specific organic arsenic compound.					0.2mg/m^3	None determined	--
☐	Barium chloride(as Ba) (10361-37-2)	38%	3.86	--	low	Non-flam	0.5 mg/m^3	50 mg/m^3	--
☐	Barium nitrate (as Ba) (10022-31-8)	9%	3.24	--	Low	e	0.5 mg/m^3	50 mg/m^3	--
☐	Beryllium and compounds (as Be)	b	1.85	--	0 mm	e	0.0002 mg/m^3	4 mg/m^3 Ca	--
☐	Cadmium dust (as Cd)	b	8.65	--	--	e	0.005 mg/m^3	9 mg/m^3 Ca	--
☐	Chromium (III) compounds (as Cr)	b	Properties vary depending upon the specific compound.				0.5 mg/m^3	25 mg/m^3	--
☐	Cobalt metal dust and fume (as Co) (7440-48-4)	Insoluble	8.92	--	0 mm	e	0.02 mg/m^3	20 mg/m^3	--
☐	Copper dust and mist (as Cu)	b	8.94	--	0 mm	e	1 mg/m^3	100 mg/m^3	--
☐	Lead	Insoluble	11.34	--	0 mm	e	0.05 mg/m^3	100 mg/m^3	--
☐	Manganese, Fume and compounds (as Mn) (7439-96-5)	Insoluble	7.2	--	0 mm	Comb-ustible	0.2 mg/m^3	500 mg/m^3	--
☐	Mercury compounds (as Hg) Except alkyl compound	b	13.6	--	0.0012 mm	e	0.025 mg/m^3 Skin	10 mg/m^3	--
☐	Molybdenum (7439-98-7)	Insoluble	10.28	--	0 mm	Comb-ustible	10 mg/m^3 3 mg/m^3 (resp.)	5,000 mg/m^3	--
☐	Nickel and other compounds (as Ni)	Insoluble	8.9	--	0 mm	e	1 mg/m^3	10 mg/m^3 Ca	--
☐	Selenium (7782-49-2)	Insoluble	4.28	--	0 mm	Comb-ustible	0.2 mg/m^3	1 mg/m^3	--
☐	Silver, metal dust, and soluble compounds (as Ag)	b	10.49	--	0 mm	e	0.01 mg/m^3	10 mg/m^3	--
☐	Thallium (soluble compouds, as Ti)	b	Properties vary depending upon the specific compound.				0.1 mg/m^3 Skin	15 mg/m^3	--

Check if Present	Material (CAS #)	Water Solubility [a]	Specific Gravity	Flash Point (°F)	Vapor Pressure [d]	LEL UEL	Cal/OSHA PEL- TWA [f]	IDLH Level [h]	Odor Threshold Geometric mean [i] (ppm)
☐	Vanadium pentoxide dust and Fume (1314-62-1)	0.8%	3.36	--	0 mm	e	0.05 mg/m^3 (Respirable)	35 mg/m^3	--
☐	Zinc oxide (1314-13-2)	b	5.61	--	0 mm	e	5 mg/m^3	500 mg/m^3	--
Miscellaneous									
☐	Ammonia (7664-41-7)	34%	--	--	8.5 atm	15% 28%	25 ppm	300 ppm	17 (d)
☐	Asbestos (1332-21-4)	Insoluble	--	--	0 mm	Non-flam	0.1 fibers/cc	None determined	--
☐	Chromic Acid and chromates (1333-82-0)	63%	2.7	--	Very low	Non-flam	0.005 mg/m^3	15 mg/m^3 Ca	--
☐	Cyanide (as CN)	--	--	--	--	Non-flam	5 mg/m^3 Skin	--	--
☐	DDT (50-29-3)	Insoluble	0.99	162-171	0.0000002 mm	--	1 mg/m^3 Skin	500 mg/m^3 Ca	--
☐	Diesel Fuel #2 (68476-34-6)	Insoluble	0.81-0.90	130	--	0.6-1.3 6-7.5	None established	None determined	--
☐	Fluorides, as F	--	--	--	--	--	2.5 mg/m^3	None determined	--
☐	Gasoline (8006-61-9)	Insoluble	0.72-0.76	-45	38-300 mm	1.4% 7.6%	300 ppm	Ca None determined	--
☐	Kerosene (8008-20-6)	Insoluble	0.81	100-162	5 (100°F)	0.7% 5.0%	200 mg/m^{3}g Skin	None determined	--
☐	Naphthalene (91-20-3)	0.03%	1.15	174	0.08 mm	0.9% 5.9%	10 ppm	250 ppm	0.038 (d)
☐	PCB (42% chlorine) (53469-21-9)	Insoluble	1.39	--	0.001 mm	Non-flam	1 mg/m^3 Skin	5 mg/m^3 Ca	--
☐	PCB (54% chlorine) (11097-69-1)	Insoluble	1.38	--	0.00006 mm	Non-flam	0.5 mg/m^3 Skin	5 mg/m^3 Ca	--
☐	Phosphorus (yellow) (7723-14-0)	0.0003%	1.82	--	0.03 mm	-- --	0.1 mg/m^3	5 mg/m^3	--
☐	Polycyclic Aromatic Hydrocarbons (PAH)	Properties vary depending upon the specific compound. Listed in NIOSH as Coal Tar Pitch Volatiles					0.2 mg/m^3	80 mg/m^3 Ca	--

Check if Present	Material (CAS #)	Water Solubility [a]	Specific Gravity	Flash Point (°F)	Vapor Pressure [d]	LEL UEL	Cal/OSHA PEL- TWA [f]	IDLH Level [h]	Odor Threshold Geometric mean [i] (ppm)
SITE-SPECIFIC SUBSTANCES **(Add hazardous property information on any substances that are of concern at the site but are not listed above.)**									
☒	1,4-Dioxane	soluble	1.030	52	27 mm	1.7% 25.2%	100 ppm	500 ppm	169.2

EXPLANATIONS AND FOOTNOTES:

[a] Water solubility is expressed in different terms in different references. Many references use the term "insoluble" for materials that will not readily mix with water, such as gasoline. However, most of these materials are water soluble at the part per million or part per billion level. Gasoline, for example, is insoluble in the gross sense, and will be found as a discrete layer on top of the ground water. But certain gasoline constituents, such as benzene, toluene, and xylene, will also be found in solution in the ground water at the part per million or part per billion levels.

[b] Solubility of metals depends on the compound in which they are present.

[c] Several chlorinated hydrocarbons exhibit no flash point in a conventional sense, but will burn in the presence of high energy ignition source or will form explosive mixtures at temperatures above 200 °F.

[d] Expressed as mm Hg under standard conditions.

[e] Explosive concentrations of airborne dust can occur in confined areas.

[f] Cal/OSHA Time-weighted Average (TWA) Permissible Exposure Limits (PELs) except where noted in g. The substances designated by "Skin" in the PEL column may be absorbed into the bloodstream through the skin, the mucous membranes and/or the eye, and contribute to the overall exposure. “C” notation indicates the number given is a ceiling value.

[g] TLV-TWA adopted by the American Conference of Governmental Industrial Hygienists (ACGIH). Currently, there is no Cal/OSHA PEL.

[h] The substances with a “Ca” notation in the IDLH column are considered to be potential occupational carcinogens by NIOSH.

[i] Odor thresholds values extracted from “*ODOR THRESHOLDS for Chemicals with established Occupational Health Standards*”, American Industrial Hygiene Association, 1997.
(d) Odor detection threshold: Lowest concentration at which a stimulus is being detected.
(r) Odor recognition threshold: Lowest concentration at which a definite odor character is detected.

[j] Values extracted from the U.S. Environmental Protection Agency Technology Transfer Network, Air Toxics website. URL: www.epa.gov/ttn/atw/, 2006

[k] Value extracted from “*HESIS Guide to Solvent Safety*” California Department of Health Services, 2004. URL: http://www.dhs.ca.gov/ohb/HESIS/solv_cht.htm

[l] Value extracted from “*Chemical Summary For Methyl-Tert-Butyl Ether”,* U.S. Environmental Protection Agency, Office Of Pollution Prevention and Toxics, August 1994. URL: http://www.epa.gov/chemfact/s_mtbe.txt

APPENDIX B
CONTROL MECHANISMS

The following Control Methods should be implemented for the listed Hazards.

B1 Chemical Hazards – EENC personnel, contractors, subcontractors, and visitors shall wear appropriate personal protective equipment (PPE) while performing site activities. At a minimum, equipment shall include safety glasses, steel-toed boots, and hard hats (when overhead work being performed or when overhead hazards exist). EENC personnel shall familiarize themselves with the appropriate health and safety responses for exposure to known on-site chemicals prior to beginning work at the site. See Attachment A for chemical safety data. Consult with your local Health and Safety Coordinator (HSC) for any personal air monitoring requirements.

B2 Physical Hazards – EENC personnel shall minimize the risk of slips, trips, and falls by keeping the work area clear of excess equipment and cleaning up wet surfaces as soon as possible. In addition, the floor of every workroom shall be maintained in a clean and, so far as possible, a dry condition. Employees should avoid walking through/on wet and/or cluttered surfaces and be conscious of the fact the wet surfaces could be slippery and could cause injury. Spilled materials should be cleaned up immediately.

Sufficient illumination should be provided in all areas at all times. Employees should notify the responsible person (e.g., Principal–in-Charge, Project Manager, and/or Health and Safety Coordinator) of conditions where there is an absence of sufficient natural and/or permanent artificial light.

All employees are responsible for maintaining the work area(s) and in a clean and orderly manner, and for notifying the responsible person (e.g., Principal–in-Charge, Project Manager and/or Health and Safety Coordinator) of conditions beyond their control.

B3 Mechanical Hazards –EENC personnel shall not attempt to operate equipment they are not familiar with and/or are not equipped not protection devices (e.g., guards). Personnel shall familiarize themselves with the equipment being utilized on site and shall at a minimum, know how to stop or turn off the equipment.

B4 Traffic/Heavy Equipment Safety – EENC personnel should, under no circumstances, operate or ride on heavy equipment which is being used by a subcontractor. Site personnel will maintain a safe distance of at least 20 feet (6.5 meters) or more, depending on circumstances and directives, from all heavy equipment in operation. If activities warrant closer proximities to operating equipment, personnel will don brightly colored vests and a second person will stand watch to keep him/her out of the path of equipment while performing the required activity. Eye contact with the equipment operator will be maintained.

B5 Electrical Hazards – Electricity may pose a particular hazard to site workers due to the use of portable electrical equipment. If wiring or other electrical work is needed, a qualified electrician must perform it.

Properly ground all electrical equipment. Avoid standing in water when operating electrical equipment. Ground fault outlets or adapters shall be used for any electrical equipment. Apparatus, tools, equipment, and machinery will not be repaired while in operation. Lockout/Tagout (LOTO) procedures will be implemented when necessary. If equipment must be connected by splicing wires, electrical work must be performed by a licensed and competent electrician.

B6 Fire and Explosion Hazards – The presence of petroleum and solvent contaminated material presents a potential fire hazard. Smoking and use of open flame will be prohibited in the Lab. The use of non-sparking tools and equipment will be implemented if conditions warrant. Where the potential of fire exists, EENC will provide portable fire extinguishers. Where applicable, all fire extinguishers shall be mounted no higher and no lower than 4 feet (1.22 m) from the floor and/or shall be readily accessible for use, where applicable. All fire extinguishers shall be maintained as follows:

- Fully charged and in operable condition;
- Clean and free of defects; and
- Readily accessible at all times

B7 Acoustical Hazards – Hearing protection will be worn by all personnel operating or working within the vicinity of equipment when noise is sufficient to interfere with general conversation at a normal speaking volume; when noise levels exceed 85dBA; and/or when manufacturers' requirements indicates that it's usage is mandatory. Personal hearing protectors, such as earplugs or earmuffs, may be used to reduce the amount of noise exposure while the above control measures are being evaluated or if such controls fail to reduce the exposure levels to below the PELs.

B8 Ventilation/Oxygen Deficiency Hazards – EENC personnel shall monitor the work area for oxygen deficiency hazards using monitoring devices that have been appropriately calibrated and are recommended for this specific use, as applicable. If direct air monitoring readings suggest an oxygen deficiency and/or the build-up of harmful substances, leave the area and contact your Project Manager. Implementation of corrective actions may include but not be limited to increasing work zone ventilation or evaluating alternatives (e.g., removing equipment that is generating combustion exhaust or venting the exhaust to the exterior of the building). However, work will not continue until the ventilation/oxygen deficiency hazard has been properly addressed, implemented, and verified.

B9 Heat Stress – Heat stress can be a significant hazard, especially for workers wearing protective clothing. Depending on the ambient conditions and the work being performed, heat stress can occur very rapidly, within as little as 15 minutes. Site personnel will be instructed in the identification of a heat stress victim, the first-aid treatment procedures for the victim and in the prevention of heat stress incidents.

Workers will be encouraged to immediately report any heat-related problems that they experience or observe in fellow workers. Any worker exhibiting signs of heat stress and exhaustion should be made to rest in a cool location and drink plenty of water. Emergency help by a medical professional is required immediately for anyone exhibiting symptoms of heat stroke, such as red, dry skin, confusion, delirium, or unconsciousness. Heat stroke is a life threatening condition that must be treated by competent medical authority.

Heat Stress Prevention

Whenever possible or within the control of EENC, engineering controls should be utilized to protect workers from heat related hazards. For example, isolation from the heat source, ventilation such as open windows, fans or other methods of creating air flow, and heat shielding such as awnings or umbrellas. Appropriate work practices can also lessen the chances of heat related hazards. Some of these include:

- Water intake should be about equal to the amount of sweat produced (i.e., drinking 5-7 ounces of water every 15-20 minutes). Electrolyte fluids may also be necessary.
- Whenever possible, gradual exposure to heat is preferred to allow the body's internal temperature to actuate to the working conditions.
- Whenever possible, adjust the work schedule to reduce risk of heat stress. For example, postpone nonessential or heavier work to the cooler part of the day and perform work in the shade if portable.
- Rotate personnel to reduce the amount of time spent working in direct sun and heat.
- Increase the number and/or duration of rest breaks, and whenever possible, rest break areas should be in a cool area and as close to the work area as is feasible.

Wear appropriate PPE when necessary, such as thermally conditioned clothing, self-contained air conditioning in a backpack, and plastic jackets/vests with pockets that can be filled with dry ice or ice. However, based on the type of work being done, where work is being performed, or other required PPE, these options may be prohibited or make the use of this PPE impossible or impractical.

Allocation of Work in a Work/Rest Cycle	Acclimatized				Action Limit (Unacclimatized)			
	Light	Moderate	Heavy	Very Heavy	Light	Moderate	Heavy	Very Heavy
75-100%	31.0 (87.8F)	28.0 (82.4F)	--	--	28.0 (82.4F)	25.0 (77F)	--	--
50-75%	31.0 (87.8F)	29.0 (84.2F)	27.5 (81.5)	--	28.5 (83.3F)	26.0 (78.8F)	24.0 75.2F)	--
25-50%	32.0 (89.6F)	30.0 (86F)	29.0 (84.2F)	28.0 (82.4F)	29.5 (85.1F)	27.0 (80.6F)	25.5 (77.9)	24.5 (76.1F)
0-25%	32.5 (90.5F)	31.5 (88.7F)	30.5 (86.9F)	30.0 (86F)	30.0 (86F)	29.0 (84.2F)	28.0 (82.4F)	27.0 (80.6F)

B10 Cold Stress – The four environmental conditions that cause cold-related stress are low temperatures, high/cool winds (wind chill), dampness, and cold water. One or any combination of these factors can cause cold-related hazards. Cold stress, including frostbite and hypothermia, can result in severe health effects.

A dangerous situation of rapid heat loss may arise for any individual exposed to high winds and cold temperatures. Major risk factors for cold-related stresses include:

- Wearing inadequate or wet clothing increases the effects of cold on the body.
- Taking certain drugs or medications such as alcohol, nicotine, caffeine, and medication that inhibits the body's response to the cold or impairs judgment.

- Having a cold or certain diseases, such as diabetes, heart, vascular, and thyroid problems, may make a person more susceptible to the winter elements.
- Being male increases a person's risk to cold-related stresses. Men experience far greater death rates due to cold exposure than women, perhaps due to inherent risk-taking activities, body-fat composition, or other physiological differences.
- Becoming exhausted or immobilized, especially due to injury or entrapment, may speed up the effects of cold weather.
- Aging -- the elderly are more vulnerable to the effects of harsh winter weather.

TABLE 2. Cooling Power or Wind on Exposed Flesh Expressed as Equivalent Temperature (under calm conditions)*

Estimated Wind Speed (in mph)	Actual Temperature Reading (°F)											
	50	40	30	20	10	0	−10	−20	−30	−40	−50	−60
	Equivalent Chill Temperature (°F)											
calm	50	40	30	20	10	0	−10	−20	−30	−40	−50	−60
5	48	37	27	16	6	−5	−15	−26	−36	−47	−57	−68
10	40	28	16	4	−9	−24	−33	−46	−58	−70	−83	−95
15	36	22	9	−5	−18	−32	−45	−58	−72	−85	−99	−112
20	32	18	4	−10	−25	−39	−53	−67	−82	−96	−110	−121
25	30	16	0	−15	−29	−44	−59	−74	−88	−104	−118	−133
30	28	13	−2	−18	−33	−48	−63	−79	−94	−109	−125	−140
35	27	11	−4	−20	−35	−51	−67	−82	−98	−113	−129	−145
40	26	10	−6	−21	−37	−53	−69	−85	−100	−116	−132	−148
(Wind speeds greater than 40 mph have little additional effect.)	LITTLE DANGER In < hr with dry skin. Maximum danger of false sense of security				INCREASING DANGER Danger from freezing of exposed flesh within one minute.				GREAT DANGER Flesh may freeze within 30 seconds.			
	Trenchfoot and immersion foot may occur at any point on this chart.											

*Developed by U.S. Army Research Institute of Environmental Medicine, Natick, MA.
Equivalent chilll temperature requiring dry clothing to maintain core body tempearture above 36°C (96.8°F) per cold stress TLV

Cold Stress Prevention

Engineering controls should be utilized whenever possible to protect workers from cold related hazards. For example, on-site heat sources, heated shelters, work areas shielded from drafty or windy conditions, and the use of thermal insulating material on equipment handles.

Effects arising from cold exposure will be minimized by the following control measures:

- Personnel will be trained to recognize cold stress symptoms.
- Field activities will be curtailed or halted if the equivalent chill temperature is below 20 F.
- As much as possible, work that exposes personnel to the cold will be done during the warmest hours of the day.
- Inactivity in cold conditions will be kept to a minimum.
- Frequent short breaks in warm, dry shelters will be taken.
- Vehicles will be equipped with supplies in case the vehicle becomes inoperable (e.g., blanket, dry clothing, water, food, a shovel, etc.

The following PPE will be provided during work in cold environments

- Workers will be provided with insulated dry clothing when the equivalent chill temperature is less the 30 F.
- Feet, hands, the face, and the head should be protected (40% of the body's heat can be lost when the head is exposed).
- Foot and hand wear may also need to be waterproof.
- Clothing should be layered so that adjustments can be made to changing environmental temperatures and conditions. For example, an outer layer to break the wind, a middle layer that will absorb sweat and retain insulation when wet, and an inner layer that allows ventilation.

B11 Insects, Snakes and Spiders – Care will be taken by all site workers to avoid stinging or biting insects such as ticks, spiders, bees, wasps, hornets, and yellow jackets. Workers allergic to any particular insect sting or bite should seek medical attention if stung or bitten and may need to carry emergency medicine prescribed by their doctor.

Care should always be taken to avoid these insects and increased vigilance is necessary during high infestation seasons, when opening protective casings of monitoring wells, and when walking through areas of heavy vegetation or areas known to be infested.

To minimize the chance of bites/stings:

- Wear appropriate PPE such as light colored clothing so you can see insects, long pants tucked into boots, long sleeves when possible, a hat, and gloves if you are cutting brush or need to handle or move vegetation.
- Check your body and clothing for insects, shower after work and wash/dry clothes at as high temperature as possible.
- Don't swat at insects and don't eat in areas where there are insects.
- Avoid sweet smelling personal hygiene products and, unless contraindicated by the work being performed (e.g., sampling, data collection), wear EPA approved repellants such as those containing DEET.

Black Widow Spider

Brown Recluse Spider

Spider bites generally cause only localized reactions such as swelling, pain, and redness. However, bites from a Black Widow or Brown Recluse, or if you are allergic to spiders, can cause symptoms that are more serious.

First Aid for Spider Bites:

- Clean the bite area with soap and water and place a cold pack over the bite area to reduce swelling.
- Monitor for allergic reactions. If victim has more than minor pain, or if nausea, vomiting, difficulty breathing, or swallowing occurs, medical attention should be sought immediately.

Tick

Removing a Tick

Ticks are common, especially in the warmer weather months and may carry diseases such as Rocky Mountain Spotted Fever and Lyme disease.

First Aid for Tick Bites:

- Use a fine tipped tweezers, grasp tick firmly as close to skin as possible and pull the body away from skin. Avoid crushing the body and don't twist.
- If parts of the tick remain in the skin, don't be alarmed as the mouth will dislodge as skin sloughs off.
- Wash area with soap and water and apply antiseptic or antibiotic ointment to prevent infection.
- If unexplained symptoms develop such as severe headaches, fever, or rash within 10 days of the bite, seek medical attention.
- If possible, contain tick in an air tight container for identification purposes in the event of a serious reaction.

Chigger and Chigger Bites

Chiggers are tiny, s-legged wingless organisms that grow up to become a type of mite. They are found in tall grass and weeds and their bites cause severe itching.

First Aid for Chiggers:

- Reduce discomfort and prevent infection
- The affected area should be kept clean by washing with soap and water
- A topical hydrocortisone cream, antihistamine, or local anesthetic may be of value in reducing the itching
- The wounds should not be scratched, if possible
- If signs of infection occur, consult your physician

Wasp

Bee

Bees and wasps belong to the phylum Arthropod family, and they are crucially important to the pollination of plants, specifically flowers, fruits, and vegetables. A sting from a bee or wasp will cause itching, irritation, redness and/or swelling at the sting site.

First Aid for Bee Stings:

- Remove the stinger as quickly as possible - venom continues to enter the skin from the stinger for 45 to 60 seconds following a sting – using a flat dull object, like a credit card. Slid the flat object in the opposite direction of the stinger to remove it from the skin
- Wash the wound using soap and water
- Apply ice for swelling and pain
- A topical hydrocortisone cream, antihistamine, or local anesthetic may be of value in reducing itching
- If the sting occurs on the neck or mouth, seek medical attention immediately, swelling in these areas may cause suffocation

A small percentage of people are allergic to stings and a sting can be fatal, caused by a disruption to breathing and circulatory systems called anaphylactic shock. If the sting is followed by severe symptoms, seek medical attention immediately. Allergic people should never be alone for outdoor activities since help may be needed for prompt emergency treatment. Allergic people should have an identification bracelet as well as carry something like an “EpiPen” for immediate treatment for anaphylactic shock.

Fire Ants

Fire ants are a variety of stinging ants with over 280 species worldwide. Typically, a colony produces large mounds in open areas, and feeds mostly on young plants, seeds, and insects. They nest in the soil, often near moist areas such as river banks and pond edges. Unlike other ants which bite and then spray acid on the wound, fire ants bite only to get a grip and then sting, injecting toxic alkaloid venom. This results in a painful stinging sensation, similar to what a fire burn feels like.

First Aid for fire Ant Bites:

- Move rapidly away from the nest
- Quickly remove or kill ants on skin and clothing to prevent further stings
- Wash the area gently with soap and water to rid the skin of any venom
- Place cool cloth or ice cloth on sites for 15 minutes, and to relieve pain, dab the area with calamine lotion, a topical (cortisone) or oral antihistamine (e.g. benadryl) to help with swelling
- Do not scratch the blister because this can lead to infection
- Allergic response is rare, but symptoms are difficulty breathing, light headedness, and weakness. Immediate medical attention is required

Snakes serve as an important role as predators in the ecosystem, and help maintain populations of rodents and other prey.

First Aid for Venomous Snake Bites:

- Wash and immobilize the injured area, keeping it lower than the heart if possible
- Seek medical attention immediately
- DO NOT apply ice, cut the wound, apply a tourniquet, or suck the bite
- Remain calm and try not to move the bitten body part
- Wash the bite with soap and water
- Remove jewelry or other items that may be affected by rapid swelling of affected body parts
- Try to identify the type of snake: note color, size, patterns, and markings
- The bite will be painful and have two distinct puncture wounds
- If venom is injected there will be burning and swelling

- ONLY FOR CORAL SNAKE BITES: apply a mild wrapping on the wound

Water Moccasin (aka Cotton Mouth)

Rattlesnake

Coral Snake

Copperhead

B12 Poisonous Plants – Plants poison on contact, through ingestion, or by absorption or inhalation. They cause painful skin irritations upon contact and can cause internal poisoning when eaten.

Poison Ivy

Poison Sumac

Giant Hogweed

Poison Oak

First Aid for Poisonous Plants:

- Wash exposed areas with cold running water as soon as you can
- When possible, wash your clothing
- Relieve itching by taking cool showers and applying topical anti-itch medications or hydrocortisone
- The rash is often arranged in streaks or lines where you brushed against the plant
- In a few days, the blisters become crusted and take 10 days or longer to heal
- If the reaction is severe or worsens, seek medical attention

B13 Personal Safety – If it is deemed that a work site is in an area where an employee's personal safety may be at risk from potential criminal acts, wild animals, etc. the risks will be evaluated and implementation of preventative measures will be taken to minimize the risk. Informational resources such as the client, local law enforcement officials, Park or Wildlife Service, and Animal Control could be utilized to assess the risk and to ensure the safest possible work environment. For example, local law enforcement can be made present or make frequent drive-bys while work is being done, outside security can be hired, and work can occur only during certain times of the day or work may not proceed at all. Some general guidelines are provided here, but each situation is different and actions must be taken based on the specifics of each.

In areas of risk, employees will communicate via cell phones or 2-way radios, and will check-in at predetermined times throughout each workday. If employees do not call in to the Project Manager or designated representative, the team will be contacted, and if unsuccessful, local law enforcement will be notified.

If you see wild animals while driving, stay in your vehicle. Never get out for a photo or a closer look. Keep windows up and don't try to keep the animal from crossing a road with your vehicle. If you see a wild animal while on foot, never approach the animal. If the animal has not seen you, go back the way you came. Do NOT turn your back and run which could evoke their natural predator instinct. Instead, keep facing the animal and back away at a steady pace. Let it know you are human by talking in a low voice and waving your hands slowly. If you are near a car or building, get inside. In addition, in areas of higher risk (i.e., contacted officials have indicated that wild animals are a nuisance), employees may want to consider carrying "pepper spray".

If, while on the project site, and despite any precautions set forth, if an employee feels that their personal safety is at risk, they shall cease work, leave the work area and immediately report their concerns so that appropriate steps can be taken.

B14 Working Alone and Working in Isolated Areas – Site and Operations employees will assess the risk of working alone as outlined in section 4 in this HASP. And whenever possible, employees will not work alone in isolated areas. If the isolated area involves hiking/walking into areas that are unmarked or if there is potential to become directionally disoriented (e.g., no trails, unmarked trails, forested or highly vegetated areas), employees will be trained on the use of a compass and trail/topography maps and if necessary, will take wilderness safety training. The employee will work with the Park/Wildlife service on what emergency planning if necessary (e.g., unexpected weather, animal attack, and search/rescue).

Communicating through cell phones or 2-Way Radios will be utilized whenever possible. Employees will check-in at predetermined times throughout each workday and as the risk rating increases, employees will check-in more frequently. If employees do not call in to the Project Manager or designated representative, the team will attempt to be contacted. If contacting the employee is unsuccessful, the appropriate authorities will be notified. In addition, and especially if communication is not possible during the day, the planned start and estimated finish times for the day will be communicated, and employees will check in at the beginning and end of the work day.

If employees will be moving from isolated area to isolated area, there will be established beginning and ending locations, planned start and estimated finish times, and planned routes that will be followed throughout the day. Employees will not deviate from this schedule without first contacting the appropriate personnel. It may also be necessary to notify the client, law enforcement, or Park/Wildlife officials of these schedules.

Local authorities should be contacted about any hunting season that may be in session, and if it is possible that hunters may be present in the area in which EENC personnel will be working. If so, employees will wear brightly colored hardhats/hats and reflective vests, will not work before dusk, and work will end 30 minutes before dusk.

If this is not possible to complete work during day light hours, employees will wear appropriate reflective apparel and have appropriate lighting, such as portable lighting, flashlights, or headlamps as appropriate for the activity being conducted. Personal security will be assessed and measures taken as discussed above if appropriate.

B15 Severe Weather – Severe weather conditions include high winds, electrical storms, and heavy rain. At a minimum, all work outdoors will cease during these events. When lightning is spotted, site personnel should use the following steps to avoid injury:

- Workers should note the flash-boom ratio (i.e., count the seconds after the lightning was seen until the thunder was heard).
- By counting the seconds between seeing lightning and hearing thunder and dividing by 5, you can estimate your distance from the storm (in miles or kilometers). If the storm is 6 miles (9.6 kilometers) away or less (30 seconds between when lightning was seen and thunder was heard) workers must stop work and take shelter.

- If the storm is more than 6 miles (9.6 kilometers) away (greater than 30 seconds between lightning and thunder), the site supervisor should monitor the storm and be prepared to cease work if the storm approaches an unsafe distance. Since storms can travel at varying speeds and the amount of time at takes to cease and secure operations will also vary, so prudent judgment should be exercised when storms are in the vicinity and/or developing (e.g., darkening skies, increasing wind speeds, etc.).
- Workers should not stay in exposed areas (outdoors on the ground, on a roof, in an aerial lift, on a steel truss, on an ungrounded steel structure, in a golf cart, un-sided building, etc.) after lightning has been witnessed. All personnel must move to a safe location.
- Workers should wait 30 minutes from the last sight of lightning or sound of thunder before returning to work.
- Those required to travel from one building to another during the 30 minute wait time should do so only by enclosed vehicle.
- Once the 30 minute wait time period has elapsed and no additional lightning or thunder has been seen or heard, individuals may resume normal work.

B16 Aboveground and Underground Utilities – Various forms of underground and aboveground utility lines or pipes (carrying water, wastewater, gas, and or electricity) may be encountered during work activities. Every effort shall be made to locate and mark underground utilities prior to the start of intrusive work. At a minimum, EENC will conduct a historical site review to develop a plot plan with the most up to date utility information, contact the appropriate One Call service (where available), contract a Private utility locating service (where available), and clear the critical zone around any intrusive location to 5 feet (1.3 m) in every direction. Please reference section 4 of the site-specific HASP and SPI 27 Subsurface Clearance for more information.

Work involving machinery with high extensions (backhoes, etc.) will remain at least 10 feet (3.3 meters) from overhead power lines. As line voltage increases, your safe working distance will also increase. If overhead lines are present, call the utility company and find out what voltage is on the lines so the safe working distance can be calculated, or stay at least 28 feet (9m) from cables supported on wooden poles, and 50 feet (15m) from cables supported on metal poles.

Should any operations cause equipment to come into contact with utility lines, the appropriate authority will be notified immediately and an Incident Report will be completed. Work will be suspended until the appropriate actions for the particular situation can be taken.

B17 Material Handling/Ergonomics – Proper lifting techniques such as keeping the back straight and legs bent, shall be utilized when lifting equipment. If the equipment cannot be lifted in this manner, it is too heavy to lift alone. Call other personnel, or use a mechanical device for lifting.

B18 Power Tools – Power tools can be hazardous when improperly used since these types of tools use an energy source: Electric, liquid fuel, hydraulic, pneumatic, and powder-actuated. The following precautions will be taken by employees to prevent injury:

- Power tools will always be operated within their design limitations.
- Eye protection, gloves and safety footwear are recommended during operation.

- Store tools in an appropriate dry location when not in use.
- Work only in well illuminated locations.
- Tools will not be carried by the cord or hose.
- Cords or hoses will not be yanked to disconnect it from the receptacle.
- Cords and hoses will be kept away from heat, oils, and sharp edges or any other source that could result in damage.
- Tools will be disconnected when not in use, before servicing, and when changing accessories such as blades, bits and cutters.
- Observers will be kept at a safe distance at all times from the work area.
- Tools will be maintained in a clean manner, and properly maintained in accordance with the manufacturers guidelines.
- Ensure that proper shoes are worn and that the work area is kept clean to maintain proper footing and good balance.
- Ensure that proper apparel is worn. Loose clothing, ties, or jewelry can become caught in moving parts.
- Tools that are damaged will be removed from service immediately and tagged "Do Not Use".

B19 Vehicle Use – Work areas and site conditions must be considered when designating and selecting a vehicle for use. The vehicle shall be maintained in safe working order as required by the manufacturer. This would include a routine preventive maintenance schedule for servicing and checking of safety-related equipment. Special consideration should be taken when weather conditions reduce the safety and visibility while driving. Appropriate measures should be taken while driving during inclement weather including snow, icy, and/or wet conditions; high winds; hail, heavy rains; debris or other impairments to safe driving caused by natural weather.

B20 Seasonal Hunting Hazards – During recreational hunting seasons, field personnel will wear appropriate clothing, such as fluorescent orange Hi-Vis vests, so as to be visible to hunters and not blend in with the landscape. Field personnel should also use whistles, air horns and/or other means to make their presence known to hunters and wildlife alike. The schedule of the hunting season, if applicable, will be included as an addendum to this HASP in order to inform personnel of the type of game (e.g., deer, pheasant, duck, etc.) that is being hunted and the type of weapon being used (e.g., bow & arrow, shot gun, single shot rifle, etc.). Be aware that even if “No Trespassing” and/or “No Hunting Allowed” signs are posted, trespassers and/or hunting may still be on site. At no point should field personnel or contractors confront trespassers.

APPENDIX C
SUBSURFACE CLEARANCE FIELD CHECKLIST AND SPI 27

RAMBOLL ENVIRON

SUBSURFACE CLEARANCE (SSC) FIELD CHECK LIST

(Use this form to document & identify field elements of SSC. Retain the completed form with the project file)

Site Name/Project No.: _____ Designated Person: _____

Walkover Date: _____ PIC/PM: _____

Intrusive Locations Surveyed: _____

(EENC MANAGED SUBSURFACE CLEARANCE ACTIVITIES)	Yes	No	N/A	Comments
1. The potential for unexploded ordnance (UXO) has been assessed and a UXO survey performed, if applicable.	☐	☐	☐	
2. Public utility markings are present for all utility companies notified. List the companies with public utilities present on-site and cross check with expected utilities and on-site indicators:	☐	☐	☐	
Natural gas/oil/petroleum lines and associated tanks:	☐	☐	☐	
Electric:	☐	☐	☐	
Potable water pipes, hydrants:	☐	☐	☐	
Sewers (storm/process water/sanitary) and/or Manways/Grates/Culverts:	☐	☐	☐	
Public lighting (street and traffic):	☐	☐	☐	
Telephone and Data Lines:	☐	☐	☐	
Other underground utilities:	☐	☐	☐	
3. Private utilities marked and scope discussed with/provided to locator	☐	☐	☐	Subcontractor Name: Contact #:
Alternate intrusive locations chosen in case of refusal or presence of utilities/indicators in Critical Zone	☐	☐	☐	
Describe nonconformity or unexpected conditions found by locator	☐	☐	☐	
4. Site Walkover performed to confirm utility markouts and assess the presence of Visual Indicators. If visual indicators are present, note location in comments/Plot Plan:	☐	☐	☐	
Indication of underground storage tank/piping and dispense islands	☐	☐	☐	
Non-native soils, surface depressions, new/dead vegetation	☐	☐	☐	
Saw cuts, patched surfaces, warning tape or other surficial indicators of below ground work	☐	☐	☐	
Pumps, pump galleries, piping manifolds and/or racks, process equipment, compressors, etc.	☐	☐	☐	
On or below-grade transformers	☐	☐	☐	
Fuel oil lines, tanks, fill ports, observation wells, vent stacks, hydraulic lift systems	☐	☐	☐	
Adjacent/supplemental buildings with no apparent utility feeds (electricity, water, gas)	☐	☐	☐	
Other:	☐	☐	☐	
5. Plot Plan updated to reflect most accurate site SSC information. Describe any on-site additions/changes	☐	☐	☐	
6. Ground Disturbance location(s) and Critical Zones (5ft/1.5m distance in every horizontal direction surrounding disturbance locations) cleared of utilities and visual indicators	☐	☐	☐	Contact PIC/PM and H&S Director if utilities pass through the Critical Zone of a planned ground disturbance location
A mark has been placed on each intrusive location and radial marks extending to the edge of the Critical Zone	☐	☐	☐	
Intrusive locations and Critical Zones cleared of utilities using sweep and search method or other applicable SSC investigative methods.	☐	☐	☐	
Once evaluated and cleared of utilities, intrusive locations cannot be moved and a Critical Zone must be maintained around the locations	☐	☐	☐	
Alternative intrusive locations used due to obstructions within Critical Zone. Describe abandoned and alternative locations	☐	☐	☐	
7. Pre-start H&S meeting conducted and SSC risk/hazards discussed	☐	☐	☐	
Locate results and intrusive locations/Critical Zones understood by all parties involved	☐	☐	☐	

Form completed by _____ (Name) _____ (Date) _____ (Signature)

Prepared By:
Ramboll Environ US Corporation
333 W. Wacker Drive, Suite 2700
Chicago, Illinois

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STANDARD PRACTICE INSTRUCTION 27

SUBSURFACE AND OVERHEAD CLEARANCE

RAMBOLL ENVIRON

STANDARD PRACTICE INSTRUCTION 27

IMPLEMENTATION DATE: December 2013

REVISION DATE: December 2015

SUBJECT: Subsurface Clearance

BASIS: The hazards posed by the presence of underground and overhead services are significant. When the hazards are correctly identified prior to subsurface work, the risks associated with such hazards can be minimized. As such, no intrusive work is to be conducted by Ramboll Environ US Corporation (Ramboll Environ) personnel or Ramboll Environ subcontractors until the hazards associated with the possible presence of underground and overhead services in and around the work area are identified and safe locations marked and agreed upon by site personnel and project team, as applicable. This Standard Practice Instruction (SPI) applies to intrusive site work including without limitation: test pit or trench excavations; borehole excavations using hand auger, shell and auger, rotary, hydraulic and percussive methods; gas spiking; manual excavations; hand digging; borings into vertical, indoor, or belowground surfaces greater than 6 inches (15 cm;) and/or, any other on-site activity where penetration of a surface is required.

GENERAL: The approach outlined in this SPI is designed to ensure the health, safety and welfare of Ramboll Environ staff, contractors and others potentially affected by Ramboll Environ's work. The aim of this SPI is to manage risk to the lowest practicable level, ensuring compliance with the relevant applicable legislation and Ramboll Environ Policy.

RESPONSIBILITY: This SPI will be implemented when conducting intrusive work and where overhead lines are present, and will be supplemented (or superseded, if necessary) only if additional requirements (e.g., local, regional or country specific regulation, client requirements) do not prevent adequate evaluation of utilities. The Director of Health and Safety ("Director of H&S") is solely responsible for all facets of this program and has full authority to make necessary decisions to ensure success of the program. The Director is the sole person authorized to amend these instructions. Nonetheless, all Ramboll Environ employees are authorized to stop work and have the duty to halt any operation where there is danger of serious personal injury, property damage, and/or harm to the environment.

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EXECUTIVE SUMMARY

The intent of this executive summary is to identify the general tasks that must be performed to reduce the likelihood of encountering subsurface structures during intrusive activities. It is not a substitute for following the requirements identified in the remainder of this document.

It is recognized that country specific procedures may slightly vary (e.g., commercial line location services may not be available in all geographical locations where Ramboll Environ conducts operations). Nonetheless, The minimum SSC requirements that are to be followed are outlined below.

Administration:

☐ Utilize a properly executed subcontract and Proof of Insurance, or its equivalent (See Section 4)

Field Work:

☐ Conduct a historical site information review (See Section 6.2)

☐ Develop a HASP/RA and complete the Pre-Project Planning Checklist (See Sections 6.3)

☐ Develop a Plot Plan that reflect Site utility conditions (See Section 6.4)

☐ Premark intrusive location(s)/area(s) (See Section 6.5)

☐ Contact a public locate (One Call Agency), where available (See Section 6.6)

☐ Contract a private locate, where available (See Section 6.6)

☐ Perform a site walkover-visual inspection (See Section 6.7)

☐ Ensure utilities are adequately marked (See Section 6.8)

☐ Ensure critical zones are identified and cleared (See Section 6.9)

☐ Ensure minimum distances are maintained from overhead lines (See Section 6.10)

☐ Complete the SSC Field Checklist (See Section 8.2 and Attachment B, Table 2)

☐ Conduct and document the daily project/safety meeting (See Section 8.3)

☐ Retain project-related documentation in project file (See Section 10)

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Attachment B: SSC Field Checklist

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Attachment E: Underground Locating Equipment

Attachment F: Common Utility Markings

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ACRONYMS AND ABBREVIATIONS

CAT	Cable Avoidance Tool
GD	Ground Disturbance
HASP	Health and Safety Plan
H&S	Health and Safety
HSC	Health and Safety Coordinator (Ramboll Environ)
IA	Intrusive Activities
JSA	Job Safety Analysis
MP	Managing Principal (Ramboll Environ)
PD	Project Director (Ramboll Environ)
PIC	Principal-in-Charge (Ramboll Environ)
PM	Project Manager (Ramboll Environ)
PPE	Personal Protective Equipment
RA	Risk Assessment
Ramboll Environ	Ramboll Environ US Corporation, formerly ENVIRON International Corporation (ENVIRON)
SSC	Subsurface Clearance
SPI	Standard Practice Instruction

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DEFINITIONS

Critical Zone: The area bounded by a 5 foot (1.5 meter) radius extending horizontally from the intrusion point where subsurface objects may exist that if encountered could result in injuries, damaged equipment or property, or disruption of utility services.

See Figure 1 below for an example of a single intrusive location and the 5 foot (1.5 meter) critical zone around it that must be cleared.

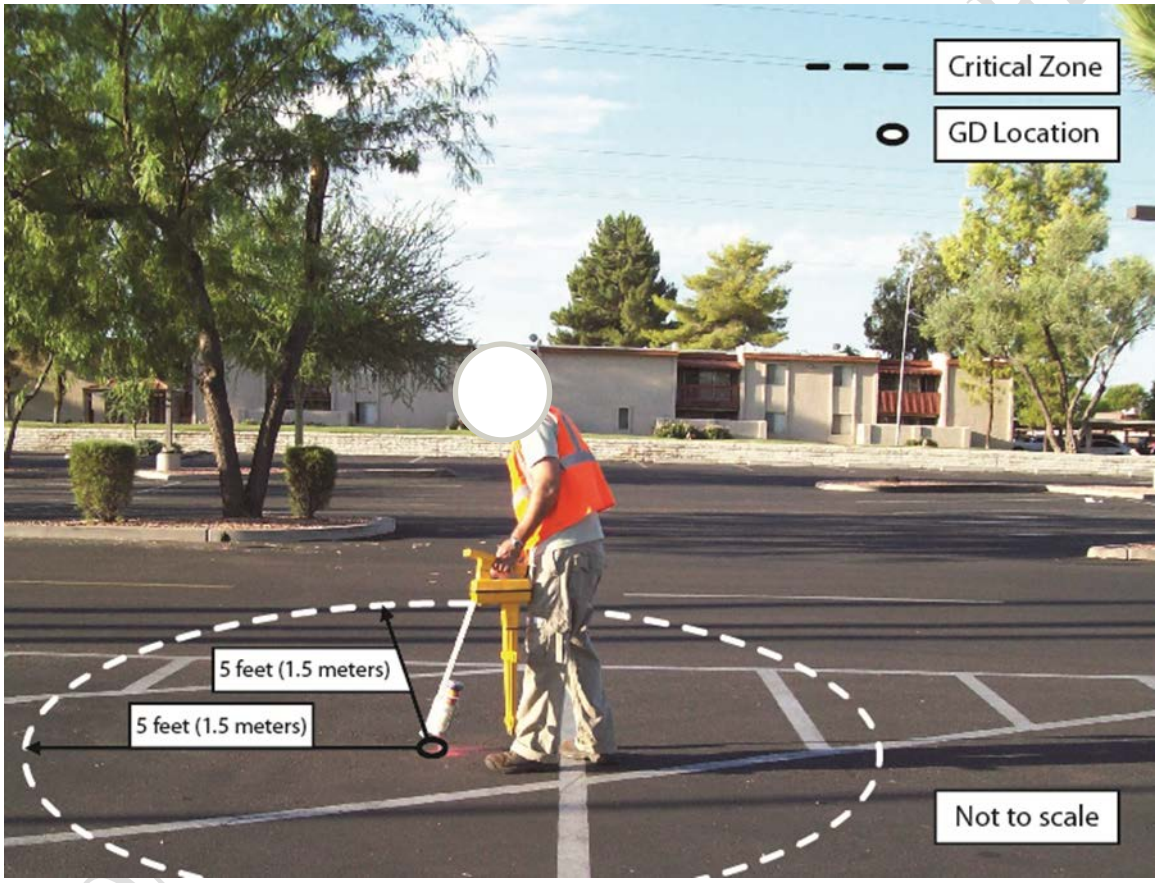

Figure 1:
The white dashed circle represents the critical zone of 5 feet (1.5 meters) radius from the Intrusion Point.

Designated Person: An employee assigned by the PM or PIC/PD that has sufficient professional or technical training, knowledge, experience and authority to implement the requirements in this SPI.

Dig/Drill Zone: The area of ground or surface to be disturbed during drilling or excavating.

Excavation: Any man-made cut, cavity, trench or depression in the earth's or other surface, formed or caused by earth or material removal.

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Director of H&S: When used in this document, this term refers to the Global and European Directors of Health & Safety and/or their designated person.

High Risk Area: Exploration/excavation locations that require a higher level of precaution due to the increased level of danger and/or potential complexity of underground systems/services. Examples include: the edge of any tank/basin, pump islands, and/or pump galleries; areas containing electrical transformers, compressors, production wells, loading racks or other process equipment associated with underground utilities and/or structures, and; areas with the potential for unexploded ordinances.

Ground Disturbance Point: The point on the ground surface where intrusive work will be performed. This may be a single point such as when using a hand augur or a large area where an excavator will remove the surface.

Intrusion Point: The point where intrusive work will be performed; this can include ground surfaces as well as building/structural surfaces.

Intrusive Activities (IA): Any indentation, interruption, intrusion, excavation, construction or other work activity that disturbs the surface of a building/structure material or the earth.

Line Location Organization: Commonly referred to as a "One Call," an organization that coordinates utility locating services with member utility companies. Line Location Organizations may not be located in all geographical regions and/or countries. Refer to your regional / country specific organizations for availability.

One Call: A commonly used term for a service that coordinates utility locating services (e.g., "One Call" system in North America, "Before You Dig" in Australia and UK). These organizations do not perform the locating service themselves but rather contact the affected local utility companies, which will then mark where their utility lines are buried, but only on public property. A summary of contact information for several One Call organizations is provided in Attachment C.

Plot Plan: A map of the site that reflects the known underground facilities, pipelines and/or utilities in the vicinity of the work areas, proposed ground disturbance and/or intrusive areas, and visual indicators of underground utilities present at the site. Map may be hand-drawn, on an existing site or pipeline plan, or computer generated as long as the distances and/or scale are reflected.

Search Zone: The parcel of land or definitive area where intrusive activities may be performed and which can be subject to locating of utilities.

Subsurface Clearance (SSC): Use of specialized equipment to locate subsurface structures and objects and mark them on a map and/or the surface in order to avoid them during intrusive work activities.

Sweep and Search: An electronic sweep of the critical zone or any other critical area using grid patterns and a locator capable of detecting buried objects. Note that some location equipment can only detect metallic objects; locators that can detect both metallic and non-metallic objects are required.

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Ticket: A service or request made to a One Call organization. Ticket life must be valid for the term of the project.

Tolerance Zone: The tolerance zone is the width of an underground utility plus a specified tolerance distance on both sides of that utility; this zone varies based on utility company requirements and/or local, city, county, State, and/or country specific regulations. Under NO circumstances are powered-digging equipment to be used within this zone.

Unobstructed Intrusive Locations: A series of locations in close physical proximity and unobstructed by an edifice(s) so that Designated Person can accurately infer the connectedness of the underground utilities in that area. For example, if ground disturbance points surround a large building on site and public utilities are also present, it would be prudent to perform SSC Checks for each unobstructed group of points.

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1. OVERVIEW

Ramboll Environ will review and evaluate this SPI on a triennial basis or when changes or incidents occur that prompt revision of this document. Effective implementation of this program requires support from all levels of Ramboll Environ management within Ramboll Environ and communication of its requirements to affected personnel.

2. SCOPE

The purpose of this Subsurface Clearance (SSC) SPI is to reduce the likelihood of subcontractors or Ramboll Environ employees encountering subsurface or overhead structures and utilities during intrusive activities being performed on Ramboll Environ projects. The SSC requirements outlined in this SPI are met by:

- Implementing the procedures presented in this SPI
- Developing and implementing a site-specific Health and Safety Plan (HASP) / Risk Assessment (RA)
- Completing the Intrusive Work Pre-Project and Field Checklist
- Training employees
- Complying with applicable regulatory requirements; and
- Following guidance provided by a utility company and/or One Call organization, as applicable.

It is recognized that country-specific procedures may slightly vary (e.g., commercial line location services may not be available). In these instances, the minimum SSC requirements to be followed are presented in Section 7.0 of this SPI, “Manual Verification”.

Intrusive Activities (IA) include but are not necessarily limited to:

- Mechanical excavation (back hoes, drilling augers, probes, etc.);
- Manual ground penetration (other than surficial sampling and hand clearing when preapproved in critical zones);
- Intrusion in manmade surfaces (such as Sheetrock, asphalt, cement, flooring); and
- Mechanical scraping activity (e.g., road grading).

3. RISK ASSESSMENT

Conducting an effective risk assessment prior to commencing any job is an integral part of occupational health and safety management which identifies the potential hazards, assesses the risk and includes implementing control mechanisms. In general, the steps to be completed as part of a risk assessment are as follows:

1. Conduct a thorough review of the tasks that need to be performed to complete each job;

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2. Identify the hazards that may result in undesired events potentially causing injury, damage or environmental impacts;
3. Assess the level of risk based on these hazards that may arise when conducting the identified tasks; and
4. With a complete understanding of the proposed tasks, hazards and risks, implement the appropriate control mechanisms to mitigate the identified hazards.

Although a thorough risk assessment will need to be conducted for the entire proposed scope of work, at a minimum and in general, project personnel will need to include underground and/or overhead hazards as part of the overall risk assessment, as applicable. Some hazards to consider are as follows:

- **Chemical Hazards**: These may include the chemicals of concern on the site which personnel may come into contact with during work activities (e.g., drilling on a landfill, excavation of contaminated soils) and/or chemicals which are brought onto the site for use, if applicable;
- **Site Hazards**: The Site location and surrounding areas may have irritating plants/insects/animals, uneven walking/working surfaces, bodies of water, railroads, etc.;
- **Jobs/Tasks**: Specific jobs/tasks related to working around utilities (e.g., uncovering, striking and/or damaging an underground / overhead utility, heavy machinery/drill rigs, etc.); and
- **Safety Hazards**: Security issues, lone working, seasonal hunting, inclement weather, etc., as applicable.

The greatest risk when working around underground and/or overhead utilities is striking and/or damaging the utility. The risk varies with the type of line service for example, electricity versus water or telecommunication cables, etc.

Using the general hazards that are outlined above, the level of risk and the potential control mechanisms can now be assessed and implemented, respectively, which would complete an effective risk assessment. More importantly, the contents of this SPI should be used and considered as part of the risk assessment in order to understand and identify the specific task/job/project hazards, risks and control mechanisms associated with the type of work activities that is desired to be completed. In addition, other SPIs and/or country specific regulatory requirements (if more stringent than the applicable SPI) should also be considered as part of the overall risk assessment, as applicable.

4. ROLES AND RESPONSIBILITIES

- **Ramboll Environ H&S Director and Designated Representatives:**
  - Approving exceptions to this SPI and intrusive work in High Risk areas in advance, as required by this or HASP policy.

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- **Ramboll Environ Principal in Charge (PIC) / Project Director (PD):**
  - Define contractual and legal responsibilities associated with intrusive activities before site work begins.
  - Ensuring and verifying that intrusive project work activities are consistent with this SPI and any associated practices.
  - Approving exceptions to this SPI or in the site Health and Safety Plan (HASP) / Risk Assessment (RA) in advance and with H&S approval.
  - Assigning responsibilities to trained and experienced Ramboll Environ personnel (i.e., Designated Persons) in a manner consistent with goals and objectives of this SPI.
- **Ramboll Environ Project Manager:**
  - Implement the requirements of this SPI on each project that involves intrusive work activities
  - Approve the site-specific HASP for each project
  - Approve the SSC Field Checklist
  - Retain project-related documentation in project file
- **Ramboll Environ Personnel:**
  - Attend training in Ramboll Environs' SSC procedures by completing the SSC on-line module and must comply with this practice and site-specific procedures, as applicable.
  - If assigned the role of Designated Person, be responsible for implementing the requirements of this SPI as assigned by the PM or PIC/PD
  - Halt work activities that post a serious and imminent danger to persons, property or the environment.
- **SSC Contractor:**
  - Observe, with Ramboll Environ, the intrusive point and critical zone of each intrusive work area.
  - Perform work in accordance with regulatory and contractual requirements.

5. MINIMUM REQUIREMENTS FOR SUBCONTRACTOR ENGAGEMENT

Subcontractors who provide locating services to Ramboll Environ are required to meet the requirements in this SPI through use of their own standards, practices and procedures that meet or exceed those described in this SPI.

Each project that utilizes a locating subcontractor must have a fully executed subcontract agreement in place prior to initiating any field activities. The agreement must:

- Utilize the template subcontract agreement form, or equivalent;
- Be signed by the applicable Ramboll Environ representative;

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- Define the project scope, budget, and general terms and conditions (T&C), at a minimum;
- Be correctly and completely executed by both parties;
- Be retained either in hard copy or electronically; and
- Accompanied by a proof of insurance. For projects completed in North America, the certificate of insurance must be provided, and at a minimum:
  - Comply with our subcontract agreement
  - Name Ramboll Environ as additionally insured, and the client, as applicable;
  - Be valid and in effect for the entire project; and
  - Include the proper types and limits for the work being conducted (e.g., locator vs. driller).

Utility locating services without a fully executed subcontract agreement (or the equivalent) and proof of insurance are prohibited from working on Ramboll Environ projects. Any deviation from this requirement must be pre-approved in writing by the PIC/PD and/or the Director of H&S and described in the HASP/RA.

Locating contractors should be able to or provide evidence of appropriate training and experience in:

- Operating the required equipment for locating underground utilities and interpreting and processing raw data to define the type, location and size of subsurface utility lines, where applicable;
- Maintaining and calibrating locating equipment;
- Serving as a liaison with local asset owners to gain their knowledge/experience of the area; and
- Where applicable, coordinating a public utility mark-out by contacting the designated “One-Call” agency for the area.

6. PRE-JOB PLANNING

The following tasks should be completed and documented prior to initiating intrusive activities (each of which is fully described in the sections referenced below):

- Historical site information review (Section 6.2)
- Development of site-specific HASP/RA (Section 6.3)
- Preparation of a Plot Plan (Section 6.4)
- Pre-marking of intrusive locations (Section 6.5)
- Line location services (Section 6.6)
- Site walkover-visual inspection (Section 6.7)
- Utility mark out (Section 6.8)

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- Clearance of critical zones (Section 6.9)
- Overhead lines (Section 6.10)

6.1 General Requirements

The PM or Designated Person must ensure that where applicable:

- The appropriate Line Location Organization (e.g., One Call, Dial Before You Dig, etc.) and private utility locators are notified a minimum of 72 business hours in advance of planned intrusive activities, or as applicable by the local, state, region or country requirements/regulations;
- Utilities are appropriately marked, and
- The proposed intrusive locations have been cleared to the critical zone.

Where Line Location Organizations and private utility locators are not available in a project area, the PIC/PD is to be notified and guidelines presented in Section 7.0 must be applied.

6.2 Historical Site Information Review

The PM or designated representative will ensure that available historical site records are reviewed and interviews of knowledgeable site personnel are conducted and cross referenced to determine the potential existence and location of underground facilities/pipelines and utilities in the vicinity of the work areas. When sources are reviewed and/or interviewed, this information will be documented (e.g., in the HASP / RA, on the SSC Project Checklist, and/or contained in the logbook / field notes).

The following are examples of information associated with identifying subsurface structures:

6.2.1 Maps and Plans

Plot plans, facility maps or lease drawings, as available, can be one source that can be reviewed and cross referenced with other sources of information to verify accuracy and develop a Plot Plan showing existing utilities and intrusive activities planned at the site as accurately as possible. The Plot Plan can be created onsite by hand in the field log, on an existing site plan, or in electronic format as long as the measurements and/or scale are accurate. Sources of information relevant to underground utility location may include:

- Maps and figures showing under and aboveground equipment, piping, utilities and/or any surface or subsurface hazards;
- Historic site information (maps, photos, files);
- Site as-builts drawings;
- Easement maps and historical Plot Plans;
- Previous site investigations;
- Fire insurance plans;
- Tank dip charts; and

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- Elevations and coordinate maps.

It is important to note that as-builts and historic maps may not accurately reflect existing conditions including proposed utilities that were never built or more recent modifications. Therefore, do not negate the requirement for a public and private utility locate, where available.

6.2.2 Interviews

When available or is reasonable to do so, the names of personnel that are consulted for information about utilities and subsurface structures in the purposed work area will need to be documented (e.g., in the HASP / RA, on the SSC Project Checklist, and/or contained in the logbook / field notes). Potential sources can include but not be limited to the following:

- Client / facility / operator personnel that may be familiar with area operations and/or may have knowledge of facilities/pipelines and/or abandoned and/or recently installed lines not otherwise documented.
- Landowner and/or tenants may also have knowledge of buried utilities and other site information.

6.3 HASP / RA

A site-specific HASP and/or RA must be developed prior to initiating field activities. Concerning SSC, the HASP/RA must:

- Complete the pre-project planning checklist (refer to Attachment A, Table 1) which outlines the SSC tasks to be completed prior to intrusive activities. Proposed dates and activities should be as accurate as possible for planned field activities. When information is not available at the time the HASP is drafted and approved, the Designated Person must ensure the pre-project planning checklist is updated and completed prior to intrusive activities. In addition to planning SSC steps for the project, this checklist should also be used to provide justification for each exemption to the required clearance processes;
- When on Site, and prior to intrusive activities, complete the SSC Field Checklist (refer to Attachment B, Table 2) for each location where intrusive activities are anticipated to occur or for each group of unobstructed intrusive locations. Conservative, professional judgment is to be used in determining whether subsequent intrusion points are unobstructed and if one SSC Field Checklist can be used to clear all locations. As a reminder, the SSC Field Checklist is to be completed prior to intrusive activities being performed and be used as a tool for double checking that all actions that need to be completed;
- Include a Plot Plan indicating the location of known underground and overhead facilities and utilities within the search zone available for reference at the work site;
- In the event intrusive work is required within a high risk area, include approval from PIC/PD and the Director of H&S.
- Include a list of emergency response resources with telephone numbers; and

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- Include a list of client, regulatory, Ramboll Environ, utility, and subcontractor emergency contact information and procedures.

If proposed field activities differ from the scope of work, Plot Plan and/or the Pre-Project Planning Checklist, the Designated Person will ensure that the project-specific HASP and Pre-Project Planning Checklist are updated to reflect these changes and communicate those changes to project personnel. Deviations from specified requirements must be documented and approved prior to the commencement of intrusive activities.

6.4 Plot Plan

Intrusive activities are not to proceed without a Plot Plan clearly indicating the facilities/pipelines or utilities, locations and their alignments in the project area. A Plot Plan is a map of the site that reflects the known underground facilities, pipelines and/or utilities in the vicinity of the work areas, proposed ground disturbance and/or intrusive areas, and visual indicators of underground utilities present at the site. Map may be hand-drawn, on an existing site or pipeline plan, or computer generated as long as the distances and/or scale are reflected.

If the information needed to create a Plot Plan is not available and/or known in the pre-planning stage, at a minimum, the logbook or field notes will include a map to reflect the Site, the proposed intrusive locations, and the critical zone surrounding them. While in the field, existing information can then be added to reflect available information (e.g., above ground visual indicators like a transformer or a gas meter), and site conditions as accurately as possible. If the Plot Plan is a separate, stand-alone document (i.e., not part of the field logbook), this information should also be clearly identified and referenced in the field logbook / notes.

6.5 Pre-Marking of Intrusive Locations

If practical, intrusive points and critical zones should be pre-marked with easily visible, identifiable markings such as brightly colored stakes, white paint or white flags (or black in cases where snow is on the ground) prior to the public and/or private utility mark-outs. Pre-marking provides the utility line locators with visual boundaries as guidance in clearing locations and placing marks.

During subsurface pre-project planning consider additional locations for clearance in the event that refusal is met at specific boring locations. A twenty-five percent (25%) buffer is recommended (i.e., one alternate boring location for every four (4) borings planned). Alternate borings also be located and cleared using the requirements outlined in this SPI.

6.6 Line Location Services

In areas where public <u>and</u> private resources are available, Ramboll Environ or a designated subcontractor will contact both public and private utility locate services for projects that involve intrusive activities.

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In order to give utility line operators sufficient time to respond to a request to locate, a minimum of 3 business days should be provided prior to the planned start of work, or as required by local, state, region or country regulations.

In rare instances, confidentiality agreements may restrict notification of public utilities. In these cases, and when allowed by local regulations, this exception and justification must be noted in the HASP/RA and approved by the PM, PIC/PD and Director of H&S. In the event that a subcontractor performs the location, Ramboll Environ will confirm with the subcontractor the utility locate information (including, but not limited to, the One Call (Attachment C) and /or private locate service contacted, confirmed public utilities on the site, positive responses from utility companies).

6.6.1 Public Utility Locate

Public utility locators may only mark lines on public property, easements or rights-of-way. This means private lines running from the main line may not be marked. To ensure that these lines are also located and marked, a Private Locating Company must be retained (see Section 6.6.2 below) entitled “Private Utility Locate”.

Nonetheless, it is important to provide an accurate location to the One Call service. Address, City, Township, County and other location designations can change and should be confirmed prior to submitting the clearance location to the One Call service. Universal search tools, such as Google, mapping tools, and the most up-to-date area maps, can be used to aid in verifying information where uncertainty exists.

When a One Call service order is made, otherwise known as a “ticket”, the One Call organization contacts each utility company that is a “member” of their service. Then, each member utility then sends out a One Call Utility Locator to mark their services in the area specified. The person who makes the call must confirm which utility companies are and are NOT included in their service and record this information in the Pre-Project Planning Checklist (Attachment A, Table 1).

It is important to provide as accurate a location for locating as possible to the One Call service. In some instances, a location may be annexed or moved from a township/county/location it had previously listed as an address, which can create confusion regarding the locate ticket request sent to the facility company. City, Township, County and other location designations should be confirmed prior to submitting the clearance location to the One Call service to ensure public locators clear the appropriate location(s). Universal search tools, such as Google, mapping tools, and the most up-to-date area maps, can be used to aid in verifying information where uncertainty exists.

It should be noted that in some areas, not all of the utility companies have agreements with the One Call service. This means that not all utility companies are part of the One Call process. For example, a city water or sewer department may not participate whereby their utilities would not be included nor marked by the One Call service. Hence, the Designated Person who places the One Call public locate request should follow-up with the One Call service to identify which utility companies are being dispatched to the location and record this information in the Pre-Project Planning Checklist (Attachment A, Table 1).

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Crosscheck the list of member utilities in the proposed area with the following list of common utilities to ensure potential facilities have been identified on the site. This comparison can be documented on the SSC Field Checklist (Attachment B, Table 2) and/or field logbook:

- Telephone
- Cable television/communications
- Natural gas
- Electricity
- Water
- Sewer/stormwater
- Optical fiber

Before intrusive activities begin, utilities must be marked or an "all clear" received, unless an exemption has been pre-approved. An "all clear" can consist of a mark at the site (such as "no electric" painted on the ground) or direct contact from the utility via fax, email or a phone call indicating the lack of facilities in the project area. If contact is not made by the agencies identified by the public utility locate process, it should **NOT** be assumed that such utilities are not present. Instead, the One Call service should be re-contacted to determine the status.

One Call services often provide a "positive" call back. This may mean that:

- Each member company notified the ticket originator that they do not have any facilities in the proposed dig area, or that they have marked the approximate locations (usually within a 48 hour period).
- The One Call service may have only posted a comment (e.g., they need an extension).

Therefore the nature of the positive call back must be confirmed. Communications regarding utilities for a specific project should be kept with the HASP/RA in the project file and/or written in the field logbook.

If contact is not made by the agencies identified by the public utility locate process, it should **NOT** be assumed that such utilities are not present. Instead, the public utility locate agency should be re-contacted to determine the status. If you arrive at the site and the public utilities have not been marked and /or "all clear" communications have not been received, **INTRUSIVE WORK IS TO BE HALTED** and a follow-up call made to the One Call service. Allow adequate time for the utility companies to respond to the re-mark request. Consider checking the work area for facilities/pipelines or utility markers or meters in order to verify the correct company has been contacted to clear utilities or supply additional information.

Most public "One Call" utility mark-outs have a limited time period for which they remain valid. It is critical that this time period be taken into account to prevent the expiration of clearance prior to the completion of intrusive field activities. Confirm the ticket life is valid for the extent of the project. The applicable ticket life varies from locale to locale. An

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extension can be requested when there are no changes to the jobsite address or extent of work.

Generally, most standard public utility locators will only mark the main line for the utility company to which they are contracted and only mark up to the property line. Water and sewer companies locate main water lines in easements and rights-of-way and lines to a water meter, but may not locate the water facilities from a meter to a home or sewer lateral. Electric companies **usually** locate their lines to homes and businesses, but not those running to swimming pools pumps, irrigation systems or other buildings on the property. **This means private lines running from the main line may not be marked.** To locate and mark these lines, a Private Locating Company (see section 6.6.2 below) must be retained.

6.6.2 Private Utility Locate

When intrusive work occurs on or near private property, a private locator must be retained to locate utilities, as available. Many private locators will only locate from the marked utilities located by the public utility locate service by placing a trace signal on those lines and identifying where the lines are buried. While this is an accurate method for locating those specific lines, it is possible to miss utilities that are not identified by the public utility locate service.

A more comprehensive underground inspection will be conducted by the private locator, with special attention paid to any visual indicators or utilities, high risk areas and **the specific intrusive location(s), and critical zone(s)** using a search and sweep method, as project conditions warrant.

Some of the most common private facilities include:

- Fiber optic telecommunication cables
- Aboveground and underground tanks and delivery systems
- Industrial steam and condensate pipes
- Satellite television cables
- Stadium and security lights
- Lighted commercial signs
- Process water and fire protection systems
- Low voltage electrical wiring
- Electric fence / animal containment systems

Upon completion of their work, the private locator should contact the Designated Person to present their results. In addition to providing an overall summary of their work, the private locator should also identify any unique circumstance(s) that limited their ability in locating the potential presence of underground utilities (e.g., the existence of overhead electrical lines); if they encountered any abnormalities (e.g., concrete surfaces with reinforced rebar); and/or any other condition which may have diminished the validity of their results and efforts (e.g., concrete reinforced with rebar).

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Further, designated Ramboll Environ personnel technically trained and competent in using Cable Avoidance Tools (CATs) are required to clear Intrusive locations and/or areas prior to intrusive activities. This is both in areas where private and public locators are and are not available.

6.7 Site Walk-Visual Inspection

The Designated Person must complete the SSC Field Checklist (Attachment B, Table 2) during a site walk-visual inspection to identify above ground indicators which may identify the potential existence of subsurface issues and to confirm that common and/or expected utilities have been accounted for, located and verified prior to commencing intrusive activities. The site walkover and visual inspection is most effective when done during the private locate, because the extent of locating efforts can be verified and questions regarding visual indicators answered. Where possible, a site representative with knowledge of subsurface utilities/structures should also participate in the site walk/visual inspection.

Visible indicators are evidence of underground utilities within the proposed work area and search zone, examples of which are contained in Attachment D, “Anatomy of Utilities”. These may include:

- Facilities/pipelines
- Power lines
- Natural gas pipelines
- Gas meters
- Aboveground and underground tanks
- Electric service risers
- Utility cables
- Nearby lines and structures
- Patches in concrete or asphalt
- New clearings
- Spoil piles
- Road construction
- Previously disturbed soils
- Service pits
- Buildings with no visible evidence of service
- New vegetation, color changes or growth
- Edge of any tank basin, pump island, pump gallery, manifold, electrical transformer, compressor, production well, explosive magazines, loading rack, or other process equipment with associated underground lines.

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If any visual indicators are discovered during the site walk that are not reflected on the Plot Plan, the field book and the Plot Plan must be accurately marked to reflect these observations. Intrusive work will not commence until identified issues with the indicators have been resolved.

Where doubt exists over the location of a service, request a site visit from the appropriate utility provider or abandon locations in the immediate area and contact the PM and/or PIC/PD.

6.8 Utility Mark-out

Known pipelines and utilities that pass within the search zone will be located, identified and marked to indicate location and alignment and be documented.

If possible, the Designated Person should meet with the private locator to provide him or her with:

- Intrusive plans pre-marked with intrusive locations and critical zones as well as an appropriate number of alternate locations
- A Plot Plan and/or the results of the visual inspection
- Plans depicting proposed exploration / excavation locations.

If an onsite meeting with the private locator is not possible, conduct a phone call with the private locator to ensure they understand the scope of the proposed subsurface work and the extent of activities.

A qualified and competent line locator (as outlined in Section 4) should:

- Conduct private line-locating practices utilizing appropriate equipment (Attachment E provides a brief description of the types and attributes of commonly used locator tools) and Plot Plans for all areas within the search zone.
- Directly connect (clamp on) to possible nearby underground services to increase the success rate/reliability in locating.
- Energize electrical sources within the vicinity (e.g., light poles, signs, pumps, etc.) at the time of locating. This increases the chance of identifying potential underground electrical services.

If anticipated services have not been identified or located, drilling or intrusive work will not occur until the service is visually identified or confirmed to be absent. Examples include: when a visual indicator of a line is present (such as a sewer grate) and no line is traced from it, or if a utility line is indicated on a historical site drawing, but no investigation has occurred in the field to confirm or deny its presence. Potential intrusive locations with suspected subsurface utilities/structures present must be avoided and a new location at least five feet (1.5 meters) away must be cleared.

Using the information obtained during the visual inspection, public One Call mark-out and the private utility mark-out, the proposed exploration/excavation locations will be confirmed

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in the field. The markings of locations should be made in accordance with the generally accepted color code for facilities identification for the region. Attachment F provides examples of commonly used utility mark out colors and identifiers, which may differ by area, region or country. Check local regulations prior to intrusive activities to ensure that markings are clearly understood by the field staff.

Further, where Ramboll Environ personnel are trained and competent in their use, Cable Avoidance Tools (CATs) will be used to clear intrusive locations and/or areas to the critical zone prior to intrusive activities.

6.8.1 Line Location Methods

A variety of remote sensing technologies can be used for detecting underground facilities depending on structural composition of the buried materials, soil composition, and surface access. There is no one procedure or tool that can provide accurate location information for all types of facilities in all types of situations. Attachment E entitled "Underground Locating Equipment" provides a brief description of the types and attributes of commonly used locator tools.

In addition to equipment choice, there are situational variables that affect detection accuracy. For example, the more conductive the soil, the more shallow the conductor can appear. Sandy, loose soil with a high mineral content can give sensitive readings; pipe locations under these conditions may be deeper than the locator equipment readings indicate. Moisture content or water table levels can also affect depth readings. Locating indoors provides additional difficulties, including but not limited to interference from reinforced concrete, canopies, and metallic structures.

For equipment that determines location by sensing an electronic signal introduced into the underground system, the strength of the equipment depends on where the signal was introduced into the system, proximity of structural uprights connected to the underground system, and nearby surface obstructions that dissipate the signal. Selection of radio signal frequency can also affect signal clarity. **Equipment readings cannot be taken as absolute values.** They depend on situational effects associated with locator equipment calibration, field conditions, and the operator's familiarity with the particular operating characteristics.

Plastic and concrete pipe and fiber optic cable are difficult to detect with common locator tools because they do not contain metal. A metal tracer wire or detectable warning tape may be buried with or attached to the pipe/facility when they are first installed to aid in locating these structures at a future date. Varieties of tracer wire and detectable tape are designed to be sturdy enough to be plowed into the trench during backfill operations.

6.9 Clearance of Disturbance Locations within Critical Zones

After anticipated utilities have been located and marked, use the available information along with regulatory requirements and project objectives to select final intrusive locations **that have been cleared to the edge of the critical zone**. Ensure that detected services and those featured on location plans are outside of the critical zone.

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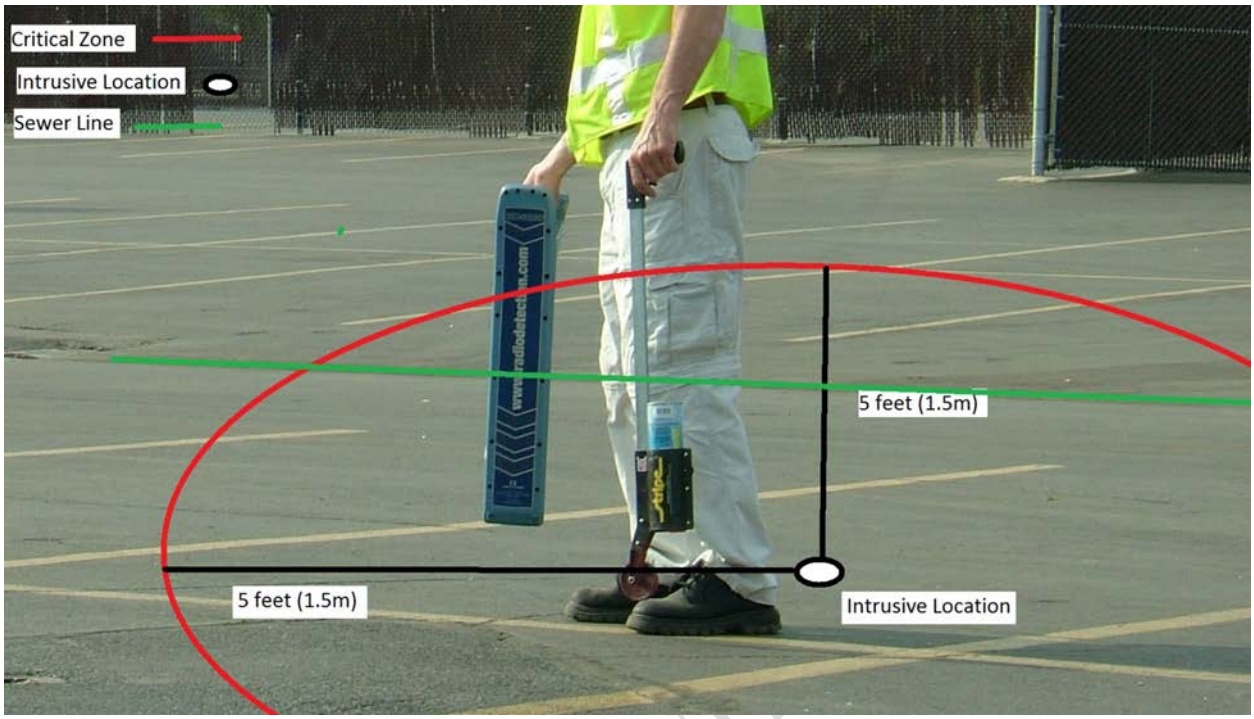

Figure 2:

A private locator clears the critical zone for a boring location. In this figure, the visual indicator of the sewer line is outside the critical zone, but the line has been laterally traced to the edge of the critical zone, therefore a new boring location should be chosen.

The critical zone takes into account minimum tolerance distances from facility lines (which vary by location) and uncertainties introduced by onsite conditions, human factors, and equipment. When known utilities intersect critical zones, the PM must be notified and ideally, the intrusive location would be moved to a pre-cleared alternate location. Intrusive activities will not take place within a critical zone where utilities or visual indicators intersect without the prior approval of the H&S Director.

In the event that work must be conducted in a critical zone containing a marked utility or visual indicator, approval must be obtained from the PIC/PD and Director of H&S prior to conducting intrusive activities. The approval and approved methodology for intrusive work closer than 5 feet (1.5 meters) from utilities will be made on a case-by-case basis once adequate information has been provided and reviewed by the Director of H&S, and PIC/PD. The decision will be made based on:

- Location criteria (the reason a boring/sample is needed in that location);
- Distance from the utility;
- Drilling method;
- Confidence in location methods;
- Geophysical conditions at the site;

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- Pipe construction and contents;
- Regulated tolerance distance at the location; and
- Other influencing factors.

At a minimum, any mechanical intrusive activities that occur within 5 feet (1.5 meters) of a utility or indicator AND have been authorized by the PIC/PD, and Director of H&S, will be hand cleared or vacuum excavated to a depth of 6 feet (1.8 meters). **Hand digging or auguring, manual excavation or soft-dig techniques may not be used in lieu of the SSC requirements presented in this SPI.** Any deviation from these requirements stated must be approved in advance by the PIC/PD and Director of H&S.

6.10 Overhead Lines

Overhead power lines that may pose a hazard during movement of equipment must be clearly documented and minimum clearance distances will be maintained. Regulated minimum distances vary by voltage, area, region, and country. When voltage(s) of nearby power lines have been determined and confirmed by the utility company, Ramboll Environ personnel will maintain the minimum distance required by applicable regulations or requirements.

When the specific voltage and minimum clearance distances are **unknown**, the following clearance distances will be maintained:

- Intrusive activities performed by raised mechanical equipment must be located a minimum clearance distance of:
  - 28 feet (8.5m) horizontally from any overhead electric cable supported on wooden poles; or
  - 50 feet (15.25m) horizontally from any overhead electric cable supported on metal poles/towers.

If clearance distances cannot be achieved, the relevant electricity provider must be contacted for guidance; the PIC/PD and Director H&S will be notified as well.

To apply the clearance distances described above:

1. Estimate the ground position parallel to the power line overhead based on visual observations. Do NOT come in physical contact with the line or use vertical tools to estimate positioning.
2. From that ground position, measure the lateral distance from the line as required above
3. Ensure intrusive locations are further than the required distance from overhead lines. Repeat steps 1 and 2 at different locations, as necessary to address larger intrusive areas.
4. Take strong winds that may cause the lines to move or droop, into consideration and give the drill mast a 3-foot (0.9m) buffer zone.

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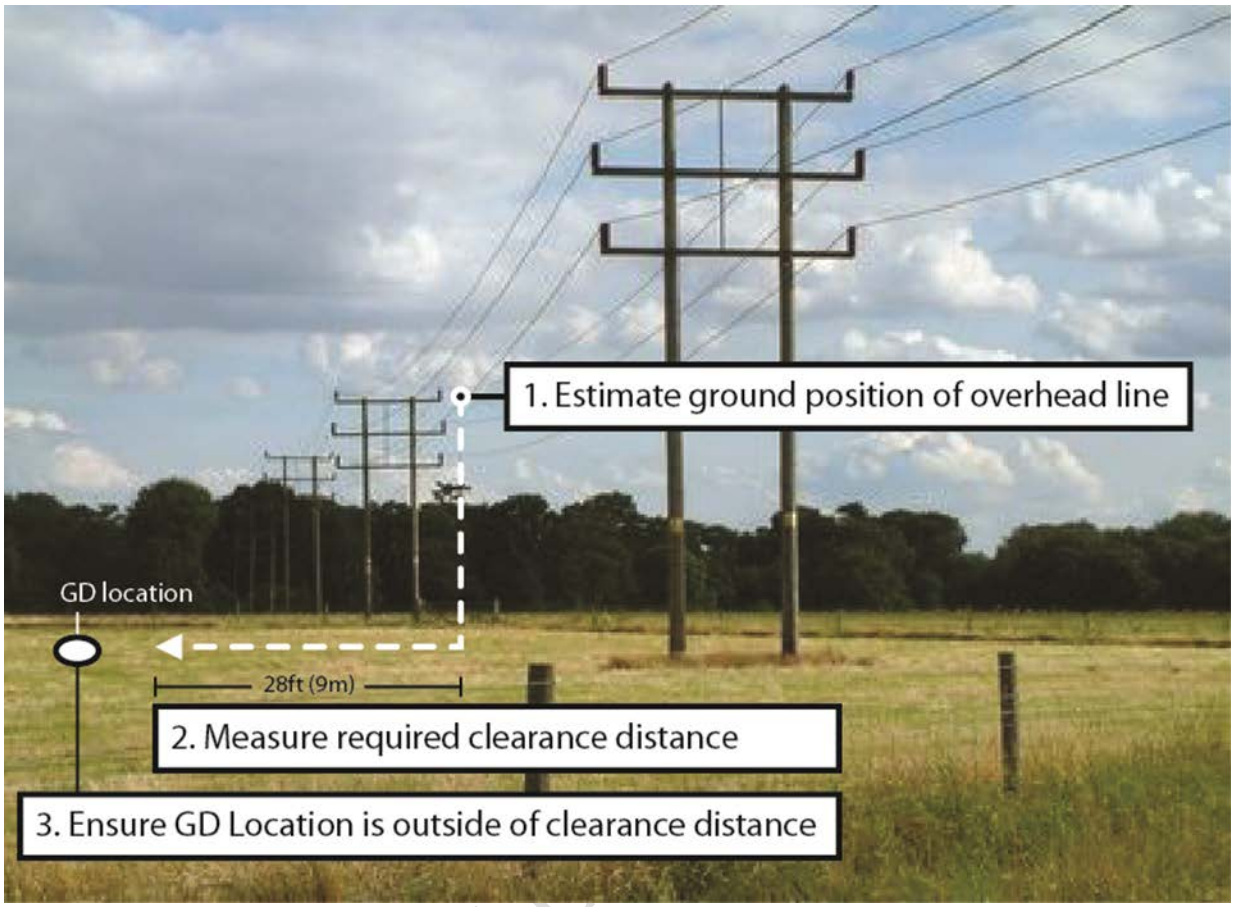

Figure 3:

To measure the ground distance from an overhead utility line, estimate the ground position of the line, measure the lateral distance from that point, and ensure the boring location is outside the clearance area.

A spotter must be used when mechanical equipment is being raised or lowered, to ensure safe distances are maintained. Keep in mind that the angle changes as the mast moves and travels into its vertical position.

7. MANUAL VERIFICATION

In areas where public and private utility locators are **not** available or cannot access the site, in general, the work practices conducted prior to intrusive activities are exactly the same as when private locates are available, with the exception that Ramboll Environ employees have the responsibility of clearing the critical zone surrounding each intrusive location. More specifically, the requirements to be followed for areas where public and private utility locators are **not** available or cannot access the site, verify that:

- A local One Call organization and private utility locators are not available for the area;

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- Due diligence regarding historical site information has been performed and a site-specific Plot Plan has been developed;
- A visual inspection has been performed;
- The proposed intrusive locations are cleared to a minimum of 5 feet (1.5 meter) extending in the horizontal direction where intrusive work is planned, and;.
- Hand digging, hand auguring, or soft-dig methods (i.e., vacuum excavation) will be employed to a depth of 6 feet (1.8 meter) below ground surface (bgs).

7.1 Historical Site Information Review

The PM or designated representative will ensure that available historical site records are reviewed and interviews of knowledgeable site personnel are conducted and cross referenced to determine the potential existence and location of underground facilities/pipelines and utilities in the vicinity of the work areas. When sources are reviewed and/or interviewed, this information will be documented (e.g., in the HASP / RA, on the SSC Project Checklist, and/or contained in the logbook / field notes).

The following are examples of information associated with identifying subsurface structures:

7.1.1 Maps and Plans

Plot plans, facility maps or lease drawings, as available, can be one source that can be reviewed and cross referenced with other sources of information to verify accuracy and develop a Plot Plan showing existing utilities and intrusive activities planned at the site as accurately as possible. The Plot Plan can be created onsite by hand in the field log, on an existing site plan, or in electronic format as long as the measurements and/or scale are accurate. Sources of information relevant to underground utility location may include:

- Maps and figures showing under and aboveground equipment, piping, utilities and/or any surface or subsurface hazards;
- Historic site information (maps, photos, files);
- Site as-builts drawings;
- Easement maps and historical Plot Plans;
- Previous site investigations;
- Fire insurance plans;
- Tank dip charts; and
- Elevations and coordinate maps.

It is important to note that as-builts and historic maps may not accurately reflect existing conditions including proposed utilities that were never built or more recent modifications. Therefore, do not negate the requirement for a public and private utility locate, where available.

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7.1.2 Interviews

When available or is reasonable to do so, the names of personnel that are consulted for information about utilities and subsurface structures in the purposed work area will need to be documented (e.g., in the HASP / RA, on the SSC Project Checklist, and/or contained in the logbook / field notes). Potential sources can include but not be limited to the following:

- Client / facility / operator personnel that may be familiar with area operations and/or may have knowledge of facilities/pipelines and/or abandoned and/or recently installed lines not otherwise documented.
- Landowner and/or tenants may also have knowledge of buried utilities and other site information.

7.2 HASP / RA

A site-specific HASP and/or RA must be developed prior to initiating field activities. Concerning SSC, the HASP/RA must:

- Complete the pre-project planning checklist (refer to Attachment A, Table 1) which outlines the SSC tasks to be completed prior to intrusive activities. Proposed dates and activities should be as accurate as possible for planned field activities. When information is not available at the time the HASP is drafted and approved, the Designated Person must ensure the pre-project planning checklist is updated and completed prior to intrusive activities. In addition to planning SSC steps for the project, this checklist should also be used to provide justification for each exemption to the required clearance processes;
- When on Site, and prior to intrusive activities, complete the SSC Field Checklist (refer to Attachment B, Table 2) for each location where intrusive activities are anticipated to occur or for each group of unobstructed intrusive locations. Conservative, professional judgment is to be used in determining whether subsequent intrusion points are unobstructed and if one SSC Field Checklist can be used to clear all locations. As a reminder, the SSC Field Checklist is to be completed prior to intrusive activities being performed and be used as a tool for double checking that all actions that need to be completed;
- Include a Plot Plan indicating the location of known underground and overhead facilities and utilities within the search zone available for reference at the work site;
- In the event intrusive work is required within a high risk area, include approval from PIC/PD and the Director of H&S.
- Include a list of emergency response resources with telephone numbers; and
- Include a list of client, regulatory, Ramboll Environ, utility, and subcontractor emergency contact information and procedures.

If proposed field activities differ from the scope of work, Plot Plan and/or the Pre-Project Planning Checklist, the Designated Person will ensure that the project-specific HASP and Pre-Project Planning Checklist are updated to reflect these changes and communicate those

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changes to project personnel. Deviations from specified requirements must be documented and approved prior to the commencement of intrusive activities.

7.3 Plot Plan

Intrusive activities are not to proceed without a Plot Plan clearly indicating the facilities/pipelines or utilities, locations and their alignments in the project area. A Plot Plan is a map of the site that reflects the known underground facilities, pipelines and/or utilities in the vicinity of the work areas, proposed ground disturbance and/or intrusive areas, and visual indicators of underground utilities present at the site. Map may be hand-drawn, on an existing site or pipeline plan, or computer generated as long as the distances and/or scale are reflected.

If the information needed to create a Plot Plan is not available and/or known in the pre-planning stage, at a minimum, the logbook or field notes will include a map to reflect the Site, the proposed intrusive locations, and the critical zone surrounding them. While in the field, existing information can then be added to reflect available information (e.g., above ground visual indicators like a transformer or a gas meter), and site conditions as accurately as possible. If the Plot Plan is a separate, stand-alone document (i.e., not part of the field logbook), this information should also be clearly identified and referenced in the field logbook / notes.

7.4 Site Walkover-Visual Inspection

The Designated Person must complete the SSC Field Checklist (Attachment B, Table 2) during a site walk-visual inspection to identify above ground indicators which may identify the potential existence of subsurface issues and to confirm that common and/or expected utilities have been accounted for, located and verified prior to commencing intrusive activities. The site walkover and visual inspection is most effective when done during the private locate, because the extent of locating efforts can be verified and questions regarding visual indicators answered. Where possible, a site representative with knowledge of subsurface utilities/structures should also participate in the site walk/visual inspection.

Visible indicators are evidence of underground utilities within the proposed work area and search zone, examples of which are contained in Attachment D, “Anatomy of Utilities”. These may include:

- Facilities/pipelines
- Power lines
- Natural gas pipelines
- Gas meters
- Aboveground and underground tanks
- Electric service risers
- Utility cables
- Nearby lines and structures
- Patches in concrete or asphalt

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- New clearings
- Spoil piles
- Road construction
- Previously disturbed soils
- Service pits
- Buildings with no visible evidence of service
- New vegetation, color changes or growth
- Edge of any tank basin, pump island, pump gallery, manifold, electrical transformer, compressor, production well, explosive magazines, loading rack, or other process equipment with associated underground lines.

If any visual indicators are discovered during the site walk that are not reflected on the Plot Plan, the field book and the Plot Plan must be accurately marked to reflect these observations. Intrusive work will not commence until identified issues with the indicators have been resolved.

Where doubt exists over the location of a service, request a site visit from the appropriate utility provider or abandon locations in the immediate area and contact the PM and/or PIC/PD.

7.5 Utility Mark-out

Known pipelines and utilities that pass within the search zone will be located, identified and marked to indicate location and alignment and be documented using, but not limited to:

- Intrusive plans pre-marked with intrusive locations and critical zones as well as an appropriate number of alternate locations
- A Plot Plan and/or the results of the visual inspection
- Plans depicting proposed exploration / excavation locations.

If anticipated services are not identified or located, intrusive work is not to occur until the service is visually identified or confirmed to be absent. Where doubt exists over the location of a service, request a site visit from the appropriate utility provider or abandon locations in the immediate area and contact the PM and/or PIC/PD. Examples include: when a visual indicator of a line is present (such as a sewer grate) and no line is traced from it, or if a utility line is indicated on a historical site drawing, but no investigation has occurred in the field to confirm or deny its presence. Potential exploration locations with suspected subsurface utilities/structures present are to be avoided and a new location at least five feet (1.5 meters) away will be similarly cleared.

Further, where Ramboll Environ personnel have been trained and are competent in the use of Cable Avoidance Tools (CATs), in general, the information discussed above should be reviewed and the following first steps taken to locate utilities:

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- Conduct line-locating practices utilizing appropriate equipment and Plot Plans for all areas within the search zone.
- Directly connect (clamp on) to possible nearby underground services to increase the success rate/reliability in locating.
- Energize electrical sources within the vicinity (e.g., light poles, signs, pumps, etc.) at the time of locating. This increases the chance of identifying potential underground electrical services.

7.6 Clearance of Disturbance Locations within Critical Zones

After anticipated utilities have been located and marked, use the available information along with regulatory requirements and project objectives to select final intrusive locations **that have been cleared to the edge of the critical zone**. Ensure that detected services and those featured on location plans are outside of the critical zone.

The critical zone takes into account minimum tolerance distances from facility lines (which vary by location) and uncertainties introduced by onsite conditions, human factors, and equipment. When known utilities intersect critical zones, the PM must be notified and ideally, the intrusive location would be moved to a pre-cleared alternate location. Intrusive activities will not take place within a critical zone where utilities or visual indicators intersect without the prior approval of the H&S Director.

In the event that work must be conducted in a critical zone containing a marked utility or visual indicator, approval must be obtained from the PIC/PD and Director of H&S prior to intrusive activities. The approval and approved methodology for intrusive work closer than 5 feet (1.5 meters) from utilities will be made on a case-by-case basis once adequate information has been provided and reviewed by the Director of H&S, and PIC/PD. The decision will be made based on:

- Location criteria (the reason a boring/sample is needed in that location);
- Distance from the utility;
- Drilling method;
- Confidence in location methods;
- Geophysical conditions at the site;
- Pipe construction and contents;
- Regulated tolerance distance at the location; and
- Other influencing factors.

At a minimum, any mechanical intrusive activities that occur within 5 feet (1.5 meters) of a utility or indicator AND have been authorized by the PIC/PD, and Director of H&S, will be hand cleared or vacuum excavated to a depth of 6 feet (1.8 meters). **Hand digging or auguring, manual excavation or soft-dig techniques may not be used in lieu of the SSC requirements presented in this SPI.** Any deviation from these requirements stated must be approved in advance by the PIC/PD and Director of H&S.

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8. ON-SITE ACTIVITIES

8.1 General

The following requirements will be completed before beginning work:

- Confirm the written approvals and agreements discussed in Section 5 of this SPI, have been obtained;
- Confirm underground and overhead utilities have been located in the general search area, critical zone/proposed intrusive location(s);
- Electrical sources on-site must be de-energized during intrusive activities, where possible;
- Emergency shutoffs should be located and noted on plot plan;
- NEVER allow mechanical equipment to be moved when elements are in the extended position, such as a drill rig with the mast in the raised or partially raised, or a dump truck with a raised bed; and
- Notify landowners and/or tenant, where necessary and practicable.

8.2 SSC Field Checklist

In general, the Checklist serves as an intrusive activity permit. Intrusive activities will only begin once the Checklist has been reviewed, completed and accepted by the Designated Person on-site. Prior to commencing intrusive activities, the Designated Person on-site will review the information contained in Attachment A, Table 1 and complete the Subsurface Clearance (SSC) Field Checklist (Attachment B, Table 2) .

The Subsurface Field Checklist must be completed for each location (e.g., each drilling location) where intrusive activities will occur or each group of unobstructed locations. The completed form must be retained with the HASP in the project file, and acknowledgement that the SSC Field Checklist has been completed will be documented in the field logbook. Alternatively, it is acceptable to note that each item on the Checklist has been reviewed in the field logbook, in lieu of completing the separate form.

8.3 Daily Safety Meeting

A daily safety meeting will be conducted and documented in the HASP / RA or the field log book including the topics discussed and a signed attendance list with the printed name of the attendee, their signature, and company affiliation .

The following topics, at a minimum, will be included in the meeting:

- Review of the HASP/RA including the Hazard Analysis and Control Summary (i.e., potential hazards and safe work practices), Emergency Response Plan, applicable permitting requirements, etc.
- Review of the SSC Checklist.

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- Proposed intrusive locations/areas will be adequately marked and the critical zone cleared. Locations that have been marked on the ground and have been cleared by the private locator are considered **FIXED**. Intrusive operations MAY NOT be conducted at any position within the critical zone, other than that point or area at the center specifically cleared to 5 feet (1.5 meters) unless approval has been granted by the PIC/PD and the Director of H&S.
- Agree that project field staff have the right and responsibility to 'Stop Work' as outlined in Section 7.5.
- Donning proper personal protective equipment (PPE) as outlined in the respective HASP / RA, as required.
- Accidents, injuries, provision of first aid, near misses and unsafe acts or conditions are to be reported in accordance with SPI 19. "Incident Reporting".

8.4 Stop Work Authority

Ramboll Environ personnel have the responsibility and authority to stop work or decline to perform an assigned task without fear of reprisal should they believe such work presents an unacceptable or unmitigated hazard. The Stop Work Authority may include, but is not limited to, discussions with co-workers, supervisors, or safety representatives to resolve work related issues or concerns, address potential unsafe conditions, clarify work instructions, and/or propose additional controls.

Under NO circumstances are work activities to be performed if:

- There is an uncertainty with the results of the public and/or private locate;
- Additional information is provided after the public/private locates have been performed that contradicts/conflicts with existing information;
- Work is required within the critical zone surrounding proposed intrusive location that has not been agreed upon by the PIC/PD and Director of H&S; and/or
- Identified unsafe conditions or safety concerns have not been resolved.

In these instances, the PIC/PD, PM and/or Director of H&S **MUST** be contacted for further input and guidance **PRIOR** to proceeding with work activities.

9. INCIDENT MANAGEMENT

Uncovering, damaging, or dislocating of an underground utility and/or contact with overhead utility lines are considered a reportable incident to Ramboll Environ and will follow the requirements set forth in SPI 19 Incident Reporting.

Nonetheless, in the event of uncovering an underground or overhead utility intact and undamaged:

- Cease work activities in the area of the facility/pipeline or utility.
- Clear all personnel from the area.

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- Immediately call the applicable emergency phone number(s).
- Notify the affected utility and One Call services, if applicable. The One Call service may be able to assist with contact numbers for notifying member companies in the event of any damage.
- DO NOT attempt to repair, clamp or constrict the damaged utility.
- Notify the PM, PIC/PD, HSC and the Director of H&S. The PM or PIC/PD will contact the Client/Property Owner/Tenant and MP.
- ALWAYS ASSUME THAT ANY UNDERGROUND PIPE OR SUBSURFACE LINE IS LIVE!
- Take photographs from a distance that is safe to do so. Take statements from witnesses at the scene.
- Mark the underground structure(s) on the Plot Plan and move to an alternate cleared location, if available, once the Directors of H&S or their designated representatives have given approval for work to continue.

9.1 Damaging an Underground Electrical/Telecom Cable

- Stop work.
- Evacuate all personnel from the immediate area to a safe distance as site conditions warrant, giving consideration to employees which may not be able to safely evacuate (e.g., the excavator that hit the line may now be energized and the operator may not be able to safely exit the vehicle).
- Call the emergency number (e.g., fire, police, site-specific emergency service).
- Provide first aid and summon medical assistance, as needed.
- Contact the One Call/utility member for guidance, if applicable.
- Notify the PM, PIC/PD, HSC and the Director of H&S. The PM or PIC/PD will contact the Client/Property Owner/Tenant and MP.
- Do not allow anyone to enter the area until the electricity/utility provider has made the cable safe.

9.2 Damaging a Pressurized Gas Pipeline

- Stop work.
- Leave tools in-place but shut off any running/energized equipment, and/or potential sources of ignition in the area
- Evacuate the immediate area to a safe distance as site conditions warrant.
- Call the emergency number.
- Contact the pipeline owner and/or One Call, if applicable.
- Notify the PM, PIC/PD, HSC and the Director of H&S. The PM or PIC/PD will contact the Client/Property Owner/Tenant and MP.
- Do not re-enter the immediate area.

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9.3 Damaging a Pressurized Water Main

- Stop work, remove tools and confine jetting water if safe and necessary to do so.
- Evacuate immediate area.
- Call the emergency number.
- Contact the water utility and/or One Call, if applicable.
- Ensure that water is not creating additional potential hazards (e.g., electrical shorting, flooding, contaminant migration etc.) and where possible warn those likely to be affected.
- Notify the PM, PIC/PD, HSC and the Director of H&S. The PM or PIC/PD will contact the Client/Property Owner/Tenant and MP. Do not re-enter the immediate area.

9.4 Mandatory Follow-up Procedures

If a site employee is injured on-site and immediate medical treatment beyond first aid is needed, the designated site supervisor is instructed to call 911 (or other designated emergency phone number) and then report the incident via Ramboll Environ's Incident Reporting System (SPI 19).

If the post-incident investigations and root cause analysis result in amendments to the HASP, they will be approved and implemented by the Project HSC or the Director of H&S. All site personnel will be informed of the revisions to the HASP and the resolution of any outstanding safety concerns prior to returning to their Site functions.

The necessary steps to ensure that operations can safely resume include:

- Receiving an "all-clear" from the impacted utility.
- Ensuring that all emergency equipment (fire extinguisher, communication system, first aid kits and first aid station) is in functional order;
- Clearing all incident-caused debris from the Site, if safe to do so;
- Inspecting area and equipment that may have been impacted by the incident; and
- Approval by the Directors of H&S or their designated representative.

10. RECORDKEEPING

The following records will be maintained in the onsite project files and transferred to the main project file when the project is complete:

- A complete Pre-Project Planning Checklist (Attachment A, Table 1) summarizing SSC methods and providing justification for any exemptions to the required clearance process.
- Field Log Book including:

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  - A detailed summary of the site visual inspection conducted prior to the initiation of intrusive field activities including the names/titles of site representatives interviewed, the areas reviewed for intrusive activities, and the potential presence of subsurface utilities/structures as reported by the site representatives.
  - Potential underground utilities or subsurface structures identified during the public and/or private utility mark-out.
  - Applicable information regarding the public "One Call" mark-out, ticket number, existing utilities, etc..
- Subsurface Clearance Field Checklist included in the site-specific Health and Safety Plan (Attachment B, Table 2) for each drilling location where intrusive activities might occur.
- Plot Plan, including any updates, reflecting the location(s) of known underground and overhead facilities and utilities with the search zone.

11. REFERENCES

American Public Works Association. April 1999. Uniform Color Code (http://www.apwa.net/).

American Society for Testing and Materials. September 1999. Standard Guide for Selecting Surface Geophysical Methods (D 6429-99).

NJUG Guidelines on the Positioning and Colour Coding of Underground Utilities' Apparatus. Volume 1. October 2013.

SPI 19 Incident Reporting

12. REVISION SUMMARY

Version	Author	Description of Change	Date
6.0	KMH, CD	Update to existing language/organization; updated definition/acronyms; updated pictures; added Risk Assessment section; updated tables.	11/2013

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ATTACHMENT A
PRE-PROJECT PLANNING CHECKLIST

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Table 1: Pre-Project Planning Checklist

Pre-Project Planning Checklist for Intrusive Work
Document the steps that must be followed and justify any exceptions.
This checklist MUST be completed in its entirety.

SSC Requirements	Yes	No	NA	Comments
Prequalification of Contractor for capability of locating work (See Section 4)	☐	☐	☐	Name of subcontractor(s)
Historical Site Information Review	☐	☐	☐	Specify what information was reviewed (e.g., maps, figures, photos, as-built drawings)
Interviews Conducted	☐	☐	☐	List personnel interviews conducted
Development of site-specific Plot Plan	☐	☐	☐	Denote where a copy can be found (i.e., Attachment D to project HASP, Specific project file name, will be developed on-site, etc.
Intrusive location(s) will be marked prior to locate(s) and alternate locations chosen	☐	☐	☐	Describe reason for exception if not performed or not applicable
Service notifications provided to clear/locate **public** utilities	☐	☐	☐	List companies notified for public locate (for example): ☐ Electric: Ameren ☐ Telephone: AT&T ☐ Cable: Comcast ☐ Gas: Marathon ☐ Sewer: City of Chicago Who contacted One Call: Driller, Ramboll Environ One Call #: 811, 800-892-0123 Locate ticket #: XCR1234
Private locate contracted for on-site utilities	☐	☐	☐	Name of subcontractor(s)
Designated Person or duly authorized representative will be present during private locating	☐	☐	☐	Name of Designated Person: Describe reason for exception if not performed or not applicable
Pre-Project Checklist for Intrusive Work completed by:				

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ATTACHMENT B
SSC FIELD CHECKLIST

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SUBSURFACE CLEARANCE (SSC) FIELD CHECK LIST

(Use this form to document & identify field elements of SSC. Retain the completed form with the project file)

Site Name/Project No.: _____ Designated Person: _____

Walkover Date: _____ PIC/PM: _____

Intrusive Locations Surveyed: _____

(Ramboll Environ MANAGED SUBSURFACE CLEARANCE ACTIVITIES)	Yes	No	N/A	Comments
1. The potential for unexploded ordnance (UXO) has been assessed and a UXO survey performed, if applicable.	☐	☐	☐	
2. Public utility markings are present for all utility companies notified. List the companies with public utilities present on-site and cross check with expected utilities and on-site indicators:	☐	☐	☐	
Natural gas/oil/petroleum lines and associated tanks:	☐	☐	☐	
Electric:	☐	☐	☐	
Potable water pipes, hydrants:	☐	☐	☐	
Sewers (storm/process water/sanitary) and/or Manways/Grates/Culverts:	☐	☐	☐	
Public lighting (street and traffic):	☐	☐	☐	
Telephone and Data Lines:	☐	☐	☐	
Other underground utilities:	☐	☐	☐	
3. Private utilities marked and scope discussed with/provided to locator	☐	☐	☐	Subcontractor Name: Contact #:
Alternate intrusive locations chosen in case of refusal or presence of utilities/indicators in Critical Zone	☐	☐	☐	
Describe nonconformity or unexpected conditions found by locator	☐	☐	☐	
4. Site Walkover performed to confirm utility markouts and assess the presence of Visual Indicators. If visual indicators are present, note location in comments/Plot Plan:	☐	☐	☐	
Indication of underground storage tank/piping and dispense islands	☐	☐	☐	
Non-native soils, surface depressions, new/dead vegetation	☐	☐	☐	
Saw cuts, patched surfaces, warning tape or other surficial indicators of below ground work	☐	☐	☐	
Pumps, pump galleries, piping manifolds and/or racks, process equipment, compressors, etc.	☐	☐	☐	
On or below-grade transformers	☐	☐	☐	
Fuel oil lines, tanks, fill ports, observation wells, vent stacks, hydraulic lift systems	☐	☐	☐	
Adjacent/supplemental buildings with no apparent utility feeds (electricity, water, gas)	☐	☐	☐	
Other:	☐	☐	☐	
5. Plot Plan updated to reflect most accurate site SSC information. Describe any on-site additions/changes	☐	☐	☐	
6. Ground Disturbance location(s) and Critical Zones (5ft/1.5m distance in every horizontal direction surrounding disturbance locations) cleared of utilities and visual indicators	☐	☐	☐	Contact PIC/PM and H&S Director if utilities pass through the Critical Zone of a planned ground disturbance location
A mark has been placed on each intrusive location and radial marks extending to the edge of the Critical Zone	☐	☐	☐	
Intrusive locations and Critical Zones cleared of utilities using sweep and search method or other applicable SSC investigative methods.	☐	☐	☐	
Once evaluated and cleared of utilities, intrusive locations cannot be moved and a Critical Zone must be maintained around the locations	☐	☐	☐	
Alternative intrusive locations used due to obstructions within Critical Zone. Describe abandoned and alternative locations	☐	☐	☐	
7. Pre-start H&S meeting conducted and SSC risk/hazards discussed	☐	☐	☐	
Locate results and intrusive locations/Critical Zones understood by all parties involved	☐	☐	☐	

Form completed by _____ _____ _____

Name Date Signature

ATTACHMENT C
ONE CALL AGENCY CONTACTS

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One-Call Agency Contacts

Agency	Phone Number
United States	
811 Dig Safe (MA, ME, NH, RI, VT)	811
Alabama Alabama 811 www.al811.com	811 or 1-800-292-8525
Alaska Alaska Digline, Inc. www.akonecal.com	811 or 1-800-748-3121
Arizona Arizona Blue Stake www.azbluestake.com	811 or 1-800-782-5348
Arkansas Arkansas One Call	811 or 1-800-482-8998
California (North) Underground Service Alert of North www.usanorth.org	811 or 1-800-227-2600
California (South) Underground Service Alert Dig Alert www.digalert.org	811 or 1-800-227-2600
Colorado Colorado 811 www.co811.org	811 or 1-800-922-1987
Connecticut Call Before You Dig www.cbyd.com	811 or 1-800-922-4455
Delaware Miss Utility of Delmarva www.missutilitydelmarva.com	811 or 1-800-282-8555
District of Columbia District One Call www.missutility.net	811 or 811 or1-202-265-7177
Florida Sunshine Sate One Call www.callsunshine.com	811 or 1-800-432-4770
Georgia Georgia 811 www.georgia811.com	811 or 1-800-282-7411
Hawaii Hawaii One Call www.callbeforeyoudig.org	811 or 1-866-423-7287

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One-Call Agency Contacts	
Agency	**Phone Number**
United States	
Idaho Pass Word Dig Line, Inc. www.digline.com	811 or 1-800-342-1585
Idaho (Bonner/Boundry) Pass Word www.passwordinc.com	811 or 1-800-626-4950
Idaho (Kootenai County) Pass Word www.passwordinc.com	811 or 1-800-428-4950
Idaho (Shoeshone-Benewah) Pass Word www.passwordinc.com	811 or 1-800-398-3285
Illinois (Outside of Chicago) Julie www.illinois1call.com	811 or 1-800-892-0123
Illinois (Chicago) Digger – Chicago Utility Alert Network egov.cityofchicago.org	811 or 1-312-744-7000
Indiana Indiana 811 www.indiana811.com	811 or 1-800-382-5544
Iowa Iowa One Call www.iowaoncecall.com	811 or 1-800-292-8989
Kansas Kansas One Call www.kansasonecall.com	811 or 1-800-344-7233
Kentucky Kentucky 811 www.kentucky811.org	811 or 1-800-752-6007
Louisiana LA One Call www.laonecall.com	1-800-272-3020
Maine Dig Safe www.digsafe.com	811 or 1-888-344-7233
Maryland (West of Chesapeake Bay) Miss Utility of Maryland www.missutility.net	811 or 1-800-257-7777

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One-Call Agency Contacts

Agency	Phone Number
United States	
Maryland (East of Chesapeake Bay) Miss Utility of Delmarva www.missutilitydelmarva.com	811 or 1-800-282-8555
Massachusetts Dig Safe System, Inc. www.digsafe.com	811 or 1-888-344-7233
Michigan Miss Dig www.missdig.org	811 1-800-482-7171
Mississippi Mississippi 811 www.ms811.org	811 or 1-800-227-6477
Missouri Missouri One Call System www.mo1call.org	811 or 1-800-344-7483
Montana Montana 811 www.montana811.com	811 or 1-800-424-5555
Montana (Flathead and Lincoln Counties) Montana Once Call Center www.udig.org	811 or 1-800-551-8344
Nebraska Diggers Hotline of Nebraska www.ne-diggers.com	811 or 1-800-331-5666
Nevada USA North www.usanorth.org	811 or 1-800-227-2600
New Hampshire Dig Safe System, Inc. www.digsafe.com	811 or 1-800344-7233
New Jersey New Jersey One Call www.nj1-call.org	811 or 1-800-272-1000
New Mexico New Mexico One Call, Inc. www.nmonecall.org	811 or 1-800-321-2537
New York (North of 5 Boroughs) Dig Safely New York www.digsafelynewyork.com	811 or 1-800-962-7962

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One-Call Agency Contacts

Agency	Phone Number
United States	
New York (5 Boroughs and Long Island) New York 811, Inc. www.newyork-811.com	811 or 1-800-272-4480
North Carolina North Carolina 811 www.nc811.org	811 or 1-800-632-4949
North Dakota North Dakota One Call www.ndonecall.com	811 or 1-800-795-0555
Ohio Ohio Utilities Protection Service www.oups.org	811 or 1-800-362-2764
Oklahoma Call Okie www.callokie.com	811 or 1-800-522-6543
Oregon Oregon Utility Notification Center www.digsafelyoregon.com	811 or 1-800-332-2344
Pennsylvania Pennsylvania One Call System, Inc, www.paonecall.org	811 or 1-800-242-1776
Rhode Island Dig Safe System, Inc. www.digsafe.com	811 or 1-888-344-7233
South Carolina South Carolina 811 www.sc811.org	811 or 1-888-721-7877
South Dakota South Dakota One Call www.sdonecall.com	811 or 1-800-781-7474
Tennessee Tennessee 811 www.tennessee811.com	811 or 1-800-351-1111
Texas Texas811 www.texas811.org	811
Utah Blue Stakes of Utah www.bluestakes.org	811 or 1-800-662-4111

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One-Call Agency Contacts

Agency	Phone Number
United States	
Vermont Dig Safe System, Inc. www.digsafe.com	811 or 1-888-344-7233
Virginia Virginia 811 www.va811.com	811 or 1-800-552-7001
Washington Utility Notification Center www.callbeforeyoudig.org	811 or 1-800-424-5555
West Virginia Miss Utility of West Virginia www.muwv.org	811 or 1-800-245-4848
Wisconsin Diggers Hotline www.diggershotline.com	811 1-800-242-8511
Wyoming One-Call of Wyoming www.onecallof wyomng.com	811 or 1-800-849-2476
Australia	
Dial Before You Dig (Australia)	1100
Canada	
Alberta Alberta One Call www.alberta1call.com	1-800-242-3447
British Columbia BC One Call www.bconecall.bc.ca	1-800-474-6886
Manitoba Call Before You Dig www.callb4udig.mb.ca Does not complete locate requests, but provides a list of utility companies	Various
Ontario Ontario One Call www.on1call.com	1-800-400-2255
Quebec Info Excavation www.info-ex.com	1-800-663-9228
Saskatchewan Sask 1st Cal www.sask1stcall.com	1-866-828-4888

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One-Call Agency Contacts	
Agency	**Phone Number**
United Kingdom	
National One-Call (United Kingdom)	0844 800 9957

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ATTACHMENT D
ANATOMY OF UTILITIES

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ATTACHMENT D
ANATOMY OF UTILITIES

UNCONTROLLED WHEN PRINTED

ATTACHMENT E
UNDERGROUND LOCATING EQUIPMENT

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ATTACHMENT E
UNDERGROUND LOCATING EQUIPMENT

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ATTACHMENT F
COMMON UTILITY MARKINGS

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ATTACHMENT F
COMMON UTILITY MARKINGS

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APPENDIX D
FIRST AID GUIDANCE

Prepared for:
Ramboll Environ US Corporation
Chicago, Illinois

Date
July 2011

SUPPLEMENTAL FIRST AID GUIDANCE

JULY 2011

RAMBOLL ENVIRON

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1. INSECT BITES AND STINGS

Care will be taken by all site workers to avoid stinging or biting insects such as ticks, spiders, bees, wasps, hornets, and yellow jackets. Workers allergic to any particular insect sting or bite should seek medical attention if stung or bitten and may need to carry emergency medicine prescribed by their doctor.

Care should always be taken to avoid these insects and increased vigilance is necessary during high infestation seasons, when opening protective casings of monitoring wells, and when walking through areas of heavy vegetation or areas known to be infested.

To minimize the chance of bites/stings:

- Wear appropriate PPE such as light colored clothing so you can see insects, long pants tucked into boots, long sleeves when possible, a hat, and gloves if you are cutting brush or need to handle or move vegetation.
- Check your body and clothing for insects, shower after work and wash/dry clothes at as high a temperature as possible.
- Don't swat at insects and don't eat in areas where there are insects.
- Avoid sweet smelling personal hygiene products and, unless contraindicated by the work being performed (e.g., sampling, data collection), wear EPA approved repellants such as those containing DEET.

1.1 Spider Bites

Spider bites generally cause only localized reactions such as swelling, pain, and redness. However, bites from a Black Widow or Brown Recluse, or if you are allergic to spiders, can cause symptoms that are more serious.

Black Widow Spider

Brown Recluse Spider

1.1.1 First Aid for Spider and Scorpion Bites and Stings

- Clean the bite area with soap and water and place a cold pack over the bite area to reduce swelling.

- Monitor for allergic reactions. If the victim has more than minor pain or if nausea, vomiting, difficulty breathing, or swallowing occurs: medical attention should be sought immediately. CALL 911.

1.2 Ticks

Ticks are common, especially in the warmer weather months and may carry diseases such as Rocky Mountain Spotted Fever and Lyme disease.

Tick

Removing a Tick

1.2.1 First Aid for Tick Bites

- Use a fine tipped tweezers, grasp tick firmly as close to skin as possible and pull the body away from skin. Avoid crushing the body and don't twist.
- If parts of the tick remain in the skin, don't be alarmed as the mouth will dislodge as skin sloughs off.
- Wash area with soap and water and apply antiseptic or antibiotic ointment to prevent infection.
- If unexplained symptoms develop such as severe headaches, fever, or rash within 10 days of the bite, seek medical attention.
- If possible, contain tick in an air tight container for identification purposes, in the event that a serious illness results

1.3 Chiggers

Chiggers are tiny, s-legged wingless organisms that grow up to become a type of mite. They are found in tall grass and weeds and their bites cause severe itching.

Chigger and Chigger Bites

1.3.1 First Aid for Chiggers

- Reduce discomfort and prevent infection
- The affected area should be kept clean by washing with soap and water
- A topical hydrocortisone cream, antihistamine, or local anesthetic may be of value in reducing the itching
- The wounds should not be scratched, if possible
- If signs of infection occur, consult your physician

1.4 Bees and Wasps

Bees and wasps belong to the phylum Arthropod family, and they are crucially important to the pollination of plants, specifically flowers, fruits, and vegetables. A sting from a bee or wasp will cause itching, irritation, redness and/or swelling at the sting site.

Wasp

Bee

A small percentage of people are allergic to stings and a sting can be fatal, caused by a disruption to breathing and circulatory systems called anaphylactic shock. If the sting is followed by severe symptoms, seek medical attention immediately. Allergic people should never be alone for outdoor activities since help may be needed for prompt emergency treatment. Allergic people should have an identification bracelet as well as carry something like an “EpiPen” for immediate treatment for anaphylactic shock.

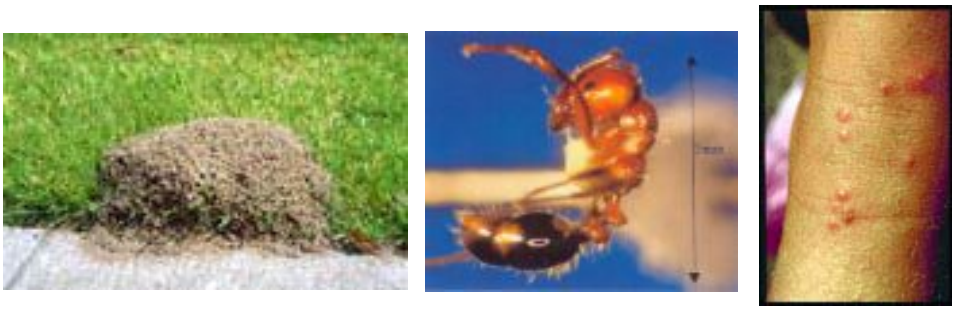
1.4.1 First Aid for Bee Stings

- Remove the stinger as quickly as possible - venom continues to enter the skin from the stinger for 45 to 60 seconds following a sting – using a flat dull object, like a credit card. Slid the flat object in the opposite direction of the stinger to remove it from the skin.
- Wash the wound using soap and water
- Apply ice for swelling and pain
- A topical hydrocortisone cream, antihistamine, or local anesthetic may be of value in reducing the itching
- If the sting occurs on the neck or mouth, seek medical attention immediately, swelling in these areas may cause suffocation

1.5 Fire Ants

Fire ants are a variety of stinging ants with over 280 species worldwide. Typically, a colony produces large mounds in open areas, and feeds mostly on young plants, seeds, and insects.

They nest in the soil, often near moist areas such as river banks and pond edges. Unlike other ants which bite and then spray acid on the wound, fire ants bite only to get a grip and then sting, injecting toxic alkaloid venom. This results in a painful stinging sensation, similar to what a fire burn feels like.



Fire Ants

1.5.1 First Aid for Fire Ant Bites

- Move rapidly away from the nest
- Quickly remove or kill ants on skin and clothing to prevent further stings
- Wash the area gently with soap and water to rid the skin of any venom.
- Place cool cloth or ice cloth on sites for 15 minutes, and to relieve pain, dab the area with calamine lotion, a topical (cortisone) or oral antihistamine (e.g., Benadryl) to help with swelling
- Do not scratch the blister because this can lead to infection
- Allergic response is rare, but symptoms are difficulty breathing, light headedness, and weakness. Immediate medical attention is required.

2. SNAKES

Snakes serve as an important role as predators in the ecosystem, and help maintain populations of rodents and other prey.

2.1 First Aid for Venomous Snake Bites:

- Wash and immobilize the injured area, keeping it lower than the heart if possible
- Seek medical attention immediately
- DO NOT apply ice, cut the wound, or apply a tourniquet
- Do not cut or suck the bite
- Remain calm and try not to move the bitten body part
- Remove jewelry or other items that may be affected by rapid swelling of affected body parts
- Try to identify the type of snake: note color, size, patterns, and markings
- The bite will be painful and have two distinct puncture wounds
- If venom is injected there will be burning and swelling
- ONLY FOR CORAL SNAKE BITES: apply a mild wrapping on the bite wound

Water Moccasin (aka Cotton Mouth)

Rattlesnake

Coral Snake

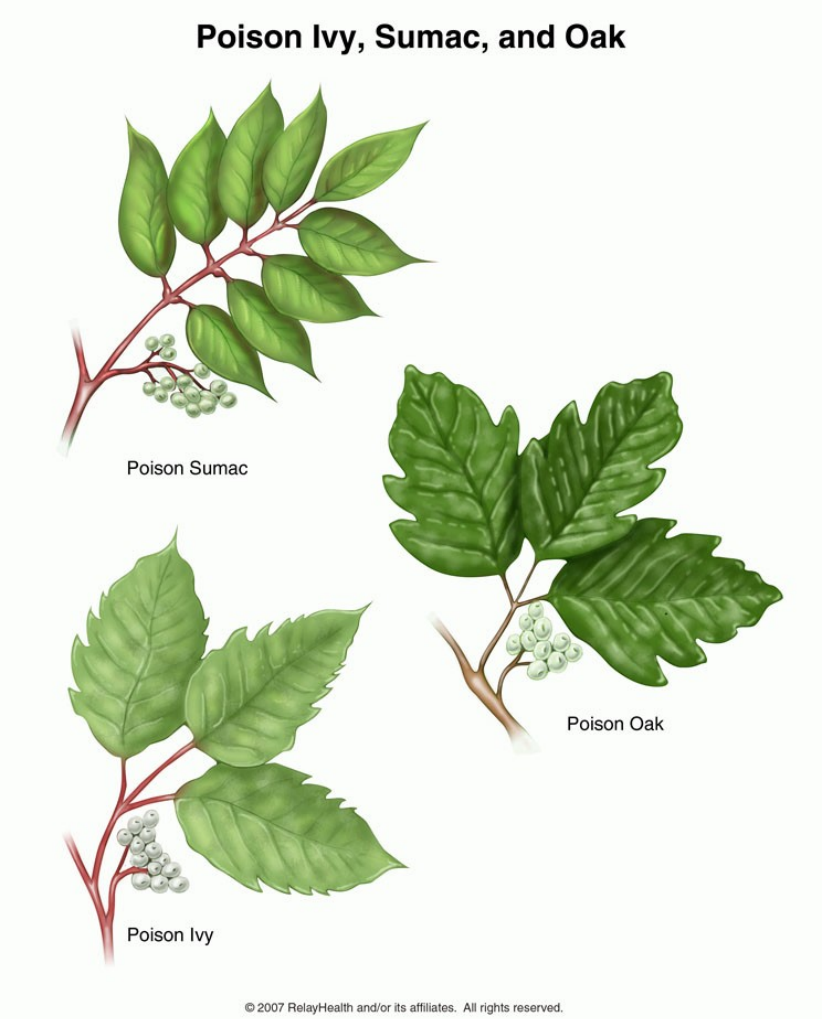
Copperhead

3. POISONOUS PLANTS

Poisonous Plants – Plants poison on contact, through ingestion, or by absorption or inhalation. They cause painful skin irritations upon contact and can cause internal poisoning when eaten.

3.1 First Aid for Poisonous Plants

- Wash exposed areas with cold running water as soon as you can
- When possible, wash your clothing
- Relieve itching by taking cool showers and applying topical anti-itch medications or hydrocortisone
- The rash is often arranged in streaks or lines where you brushed against the plant
- In a few days, the blisters become crusted and take 10 days or longer to heal
- If the reaction is severe or worsens, seek medical attention



Poison Ivy

Poison Sumac

Poison Oak

Giant Hogweed

4. HEAT STRESS

Heat stress can be a significant hazard, especially for workers wearing protective clothing.

Depending on the ambient conditions and the work being performed, heat stress can occur very rapidly, within as little as 15 minutes. Site personnel will be instructed in the identification of a heat stress victim, the first-aid treatment procedures for the victim and in the prevention of heat stress incidents.

Workers will be encouraged to immediately report any heat-related problems that they experience or observe in fellow workers. Any worker exhibiting signs of heat stress and exhaustion should be made to rest in a cool location and drink plenty of water. Emergency help by a medical professional is required immediately for anyone exhibiting symptoms of heat stroke, such as red, dry skin, confusion, delirium, or unconsciousness. Heat stroke is a life threatening condition that must be treated by competent medical authority.

ACGIH screening criteria for heat stress exposure in degrees Celsius for an 8 hour work day 5 days per week with conventional breaks will be used in determining safe exposure for acclimatized and unacclimatized employees.

Allocation of Work in a Work/Rest Cycle	Acclimatized				Action Limit (Unacclimatized)			
	Light	Moderate	Heavy	Very Heavy	Light	Moderate	Heavy	Very Heavy
75-100%	31.0 (87.8F)	28.0 (82.4F)	--	--	28.0 (82.4F)	25.0 (77F)	--	--
50-75%	31.0 (87.8F)	29.0 (84.2F)	27.5 (81.5)	--	28.5 (83.3F)	26.0 (78.8F)	24.0 75.2F)	--
25-50%	32.0 (89.6F)	30.0 (86F)	29.0 (84.2F)	28.0 (82.4F)	29.5 (85.1F)	27.0 (80.6F)	25.5 (77.9)	24.5 (76.1F)
0-25%	32.5 (90.5F)	31.5 (88.7F)	30.5 (86.9F)	30.0 (86F)	30.0 (86F)	29.0 (84.2F)	28.0 (82.4F)	27.0 (80.6F)

4.1 Heat Stress Prevention

Whenever possible or within the control of Ramboll Environ, engineering controls should be utilized to protect workers from heat related hazards (e.g., heat shielding such as using awnings or umbrellas). Appropriate work practices can also lessen the chances of heat related hazards. Some of these include:

- Water and/or electrolyte fluids should be about equal to the amount of sweat produced (i.e., drinking 5-7 ounces (150 -200 mL) of water every 15-20 minutes). Ideally, fluids should be at room temperature to allow for quicker absorption. Consider keeping water at room temperature and electrolyte fluids chilled. Do NOT chill both.

- Whenever possible, gradual exposure to heat is preferred to allow the body's internal temperature to actuate to the working conditions.
- Whenever possible, adjust the work schedule to reduce risk of heat stress. For example, postpone nonessential or heavier work to the cooler part of the day and perform work in the shade if portable.
- Rotate personnel to reduce the amount of time spent working in direct sun and heat.
- Increase the number and/or duration of rest breaks, and whenever possible, rest break areas should be in a cool area and as close to the work area as is feasible.

Wear appropriate PPE when necessary, such as thermally conditioned clothing, self-contained air conditioning in a backpack, and plastic jackets/vests with pockets that can be filled with dry ice or ice. However, based on the type of work being done, where work is being performed, or other required PPE, these options may be prohibited or make the use of this PPE impossible or impractical.

4.2 Heat Related Illnesses

4.2.1 Heat Stress

This is the mildest heat-related illness, but prompt action may prevent it from turning into a more severe heat-related illness. Symptoms include irritability, lethargy, significant sweating, headache, or nausea. The following guidance can be used in the identification and treatment of heat related illness.

4.2.2 Heat Stress First Aid

- Take victim to a protected (e.g., shaded, cool) area, remove any excess protective clothing, and provide cool fluids.
- If an air-conditioned spot is available, this is an ideal break location.
- Once the victim shows improvement he/she may resume working, however the work pace and practices (e.g., does fluid intake need to be increased) should be moderated to prevent recurrence of the symptoms.

4.2.3 Heat Exhaustion

Usually begins with muscular weakness, dizziness, nausea, and a staggering gait. Symptoms include pale, clammy skin, and profuse sweating, vomiting, and the bowels may move involuntarily. The pulse is weak and fast, breathing is shallow. Fainting can occur.

4.2.4 Heat Exhaustion First Aid

Immediately remove the victim from the work area to a shady or cool area with good air circulation (avoid drafts or sudden chilling – you do not want the victim to shiver).

- Call a physician or emergency service, or transport the victim to medical care.
- Remove all protective outerwear.
- If the victim is conscious, it may be helpful to give him/her sips of water.

4.2.5 Heat Stroke

Heat stroke is a severe medical condition requiring first aid and emergency treatment by a medical professional as death can occur without appropriate care. Heat Stroke represents the collapse of the body's cooling mechanisms. As a result, body temperatures often rise to between 105° – 110° F (40.5° – 43.3° C). As the victim progresses toward heat stroke symptoms include hot and usually dry, red and spotted skin, headache, dizziness, nausea, mental confusion, delirium, possible convulsions and loss of consciousness.

4.2.6 Heat Stroke First Aid

- Immediately remove the victim from the work area to a shady or cool area with good air circulation (avoid drafts or sudden chilling – you do not want the victim to shiver).
- Summon emergency medical help to provide on-site treatment and transportation to a medical facility.
- Remove all protective outerwear and loosen personal clothing.
- Apply cool wet towels, ice bags, etc. to the head, armpits, and thighs. Sponge off the bare skin with cool water or even place the victim in a tub of cool water.

4.2.7 Skin Hazards

Sunburn and prickly heat are both symptoms of skin irritation/damage produced through exposure to sunlight and operating in hot work environments.

- Protect exposed skin with an appropriate sunscreen. A sunscreen with a sun protection factor (SPF) of 15 or greater is required for work in the sun with reapplication at breaks and lunch.
- Heat rash, also known as prickly heat, can be prevented by the application of a hydrophobic, water repellent barrier cream such as Kerodex 71.

5. COLD STRESS

The four environmental conditions that cause cold-related stress are low temperatures, high/cool winds (wind chill), dampness, and cold water. One or any combination of these factors can cause cold-related hazards. Cold stress, including frostbite and hypothermia, can result in severe health effects.

A dangerous situation of rapid heat loss may arise for any individual exposed to high winds and cold temperatures. Major risk factors for cold-related stresses include:

- Wearing inadequate or wet clothing increases the effects of cold on the body.
- Taking certain drugs or medications such as alcohol, nicotine, caffeine, and medication that inhibits the body's response to the cold or impairs judgment.
- Having a cold or certain diseases, such as diabetes, heart, vascular, and thyroid problems, may make a person more susceptible to the winter elements.
- Being male increases a person's risk to cold-related stresses. Men experience far greater death rates due to cold exposure than women, perhaps due to inherent risk-taking activities, body-fat composition, or other physiological differences.
- Becoming exhausted or immobilized, especially due to injury or entrapment, may speed up the effects of cold weather.
- Aging -- the elderly are more vulnerable to the effects of harsh winter weather.

TABLE 2. Cooling Power or Wind on Exposed Flesh Expressed as Equivalent Temperature (under calm conditions)*

Estimated Wind Speed (in mph)	Actual Temperature Reading (°F)											
	50	40	30	20	10	0	−10	−20	−30	−40	−50	−60
	Equivalent Chill Temperature (°F)											
calm	50	40	30	20	10	0	−10	−20	−30	−40	−50	−60
5	48	37	27	16	6	−5	−15	−26	−36	−47	−57	−68
10	40	28	16	4	−9	−24	−33	−46	−58	−70	−83	−95
15	36	22	9	−5	−18	−32	−45	−58	−72	−85	−99	−112
20	32	18	4	−10	−25	−39	−53	−67	−82	−96	−110	−121
25	30	16	0	−15	−29	−44	−59	−74	−88	−104	−118	−133
30	28	13	−2	−18	−33	−48	−63	−79	−94	−109	−125	−140
35	27	11	−4	−20	−35	−51	−67	−82	−98	−113	−129	−145
40	26	10	−6	−21	−37	−53	−69	−85	−100	−116	−132	−148
(Wind speeds greater than 40 mph have little additional effect.)	LITTLE DANGER In < hr with dry skin. Maximum danger of false sense of security				INCREASING DANGER Danger from freezing of exposed flesh within one minute.				GREAT DANGER Flesh may freeze within 30 seconds.			
	Trenchfoot and immersion foot may occur at any point on this chart.											

*Developed by U.S. Army Research Institute of Environmental Medicine, Natick, MA.
Equivalent chilll temperature requiring dry clothing to maintain core body tempearture above 36°C (96.8°F) per cold stress TLV

5.1 Cold Stress Prevention

Engineering controls should be utilized whenever possible to protect workers from cold related hazards. For example, on-site heat sources, heated shelters, work areas shielded

from drafty or windy conditions, and the use of thermal insulating material on equipment handles. Effects arising from cold exposure will be minimized by the following control measures:

- Personnel will be trained to recognize cold stress symptoms.
- Field activities will be curtailed or halted if the equivalent chill temperature is below 20 F (7C).
- As much as possible, work that exposes personnel to the cold will be done during the warmest hours of the day.
- Inactivity in cold conditions will be kept to a minimum.
- Frequent short breaks in warm, dry shelters will be taken.
- Vehicles will be equipped with supplies in case the vehicle becomes inoperable (e.g., blanket, dry clothing, water, food, a shovel, etc.

TABLE 3. Threshold Limit Values Work/Warm-up Schedule for Four-Hour Shift*

Air Temperature—Sunny Sky		No Noticeable Wind		5 mph Wind		10 mph Wind		15 mph Wind		20 mph Wind	
°C (approx.)	°F (approx.)	Max. Work Period	No. of Breaks	Max. Work Period	No. of Breaks	Max. Work Period	No. of Breaks	Max. Work Period	No. of Breaks	Max. Work Period	No. of Breaks
–26° to –28°	–15° to –19°	(Norm. Breaks)	1	(Norm. Breaks)		75 min	2	55 min	3	40 min	4
–29° to –31°	–20° to –24°	(Norm. Breaks)	1	75 min	2	55 min	3	40 min	4	30 min	5
–32° to –34°	–25° to –29°	75 min	2	55 min	3	40 min	4	30 min	5	Non-emergency work should cease	
–35° to –37°	–30° to –34°	55 min	3	40 min	4	30 min	5	Non-emergency work should cease			
–38° to –39°	–35° to –39°	40 min	4	30 min	5	Non-emergency work should cease					
–40° to –42°	–40° to –44°	30 min	5	Non-emergency work should cease							
–43° & below	–45° & below	Non-emergency work should cease									

Notes for Table 3

1. Schedule applies to moderate to heavy work activity with warm-up breaks of ten (10) minutes in a warm location. For Light-to-Moderate Work (limited physical movement): apply the schedule one step lower. For example, at –35°C (–30°F) with no noticeable wind (Step 4), a worker at a job with little physical movement should have a maximum work period of 40 minutes with 4 breaks in a 4-hour period (Step 5).
2. The following is suggested as a guide for estimating wind velocity if accurate information is not available:
   5 mph: light flag moves; 10 mph: light flag fully extended; 15 mph: raises newspaper sheet; 20 mph: blowing and drifting snow.
3. If only the wind chill cooling rate is available, a rough rule of thumb for applying it rather than the temperature and wind velocity factors given above would be: 1) special warm-up breaks should be initiated at a wind chill cooling rate of about 1750 W/m^2; 2) all non-emergency work should have ceased at or before a wind chill of 2250 W/m^2. In general the warm-up schedule provided above slightly under-compensates for the wind at the warmer temperatures, assuming acclimatization and clothing appropriate for winter work. On the other hand, the chart slightly over-compensates for the actual temperatures in the colder ranges, since windy conditions rarely prevail at extremely low temperatures.
4. TLVs apply only for workers in dry clothing.

*Adapted from Occupational Health & Safety Division, Saskatchewan Department of Labour.

5.2 Cold-Related Illness

5.2.1 Hypothermia

Hypothermia occurs when the body temperature falls to a level where normal muscular and cerebral functions are impaired. Although it usually occurs in freezing air and water temperatures, it can occur in any climate if a person's internal body temperature falls below normal. Symptoms should not be ignored, and a supervisor should be notified as soon as hypothermia is suspected.

Initially, symptoms may include shivering, an inability to do complex motor functions, sluggishness and mild confusion as the body temperature drops to around 95 F. As the body temperature falls, speech may become slurred, and behavior may be irrational, simple motor functions may be difficult to do and a state of "dazed consciousness" may exist. In severe state (below 90 F or 32 C), heart rate, blood flow, and breathing will slow. Unconsciousness and full heart failure can occur.

5.2.2 Hypothermia First Aid

5.2.2.1 On Land

- Call for emergency, and then help move the victim (unless other injuries prohibit their being moved) to a warm, dry area and replace wet clothing with warm, dry clothing or a blanket. Move the person carefully because movement can increase the irritability of the heart.
- If the person is conscious and lucid, warm liquids can be provided, but never alcohol or caffeinated drinks. If possible, have them to move their arms and legs to create muscle heat.
- If the person is unconscious or unable to assist, place warm bottles/packs in the person's arm pits, groin, neck and head areas.
- Do not rub the person's body or place them in warm water.

5.2.2.2 In Water

- Call for emergency help and get the victim out of the water. Move them carefully because movement can increase the irritability of the heart.
- If it is you in the water, do not swim unless a floating object or person can be reached quickly as swimming uses the body's heat and reduces survival time by about 50%.
- If you are in the water, conserve body heat by folding arms across the chest, keeping thighs together, bending knees and crossing ankles, if another person is in the water with you, huddle together.
- If you are in the water, do not remove clothing-button, buckle, zip, and tighten collars, cuffs, shoes, and hoods as the water trapped next to the body provides a layer of insulation that may slow the loss of heat.

5.2.3 Frostbite

Frostbite occurs when the skin literally freezes, and deep frostbite can affect deeper tissues such as tendons and muscles. Frostbite usually occurs when temperatures drop below 30 °F (1°C), but wind chill effects can cause frostbite at above-freezing temperatures. The ears,

fingers, toes, cheeks, and nose are the most commonly affected body parts. Initially, symptoms include an uncomfortable sensation of coldness. Tingling, stinging or an aching feeling of the exposed area is followed by numbness. Frostbitten areas appear white and cold to the touch and with deeper frostbite, the area becomes numb, painless, and hard, and can turn black.

5.2.4 Frostbite First Aid

- Seek medical attention as soon as possible and treat any existing hypothermia first.
- Warm liquid can be provided, but not alcohol or caffeinated drinks such as tea and coffee.
- Do not rub the affected areas, but cover them with dry, sterile gauze or soft, clean bandages.
- Do not try rewarming the affected area if you have not been specifically trained to do so and/or if there is a chance the affected area will get cold again

6. SMALL CHEMICAL SPILLS

Chemical hazards present in environmental samples or in the environment being sampled are NOT the only “chemicals of concern”. Toxic chemicals may also be brought onto a site as part of the sampling event in the form of sample preservatives. In general, sample preservation is required for most water samples. Two practices exist for adding a preservative: 1) addition of the preservative to the samples in the field; and 2) addition of the preservative to the sampling containers prior to sending the samplers into the field. In either case, EXTREME caution MUST be exercised when adding a preservative to a sample vial or using vials which already contain a preservative since these preservatives will vary in concentration and type. Some examples of the type of preservatives which may be encountered include sodium thiosulfate to remove chlorine; hydrochloric acid or ammonium chloride to stabilize pH and reduce biological activity; or sodium bisulfate.

6.1 Chemical First Aid (Body)

In the event that you suspect that you have been exposed to a chemical, whether or not you were wearing PPE, you should:

- Remove yourself or the victim from the accident area.
- Remove any contaminated clothing.
- Wash the injured area to dilute or remove the substance, using large volumes of water.
- Wash for at least 20 minutes, taking care not to allow runoff to contact unaffected parts of your body.
- Gently brush away any solid materials, again avoiding unaffected body surfaces.
- Especially wash away any chemical in your eye. Sometimes the best way to get large amounts of water to your eye is to step into the shower.

6.2 Chemical First Aid (Eye)

For all chemical injuries to the eye, the first thing you should do is immediately irrigate the eye copiously. Ideally, specific eye irrigating solutions should be used for this, but if none are available regular tap water will do just fine.

- Begin washing your eye before taking any other action and continue for at least 10 minutes. The longer a chemical is in your eye, the more damage will occur. Diluting the substance and washing away any particles that may have been in the chemical are extremely important.
- Ideally, in a work setting, you would be placed in an emergency eyewash or shower station and your eye washed with sterile isotonic saline solution. If sterile saline is not available, use cold tap water.
- All acid or alkali eye burns require immediate treatment and evaluation by a doctor. You should be taken immediately to the closest emergency department. If you suspect a serious injury may have occurred or are otherwise not able to make the trip to the emergency room quickly, then you should call an ambulance to shorten transport time.

Take the Materials Safety Data Sheet (MSDS) on the chemical you were exposed to with you to the hospital. Further Reading:

- Chemical Eye Burns
- Corneal Flash Burns
- Wilderness: Eye Injuries Treatment
- Chemical Burns Treatment
- Corneal Flash Burns Treatment
- Chemical Eye Burn Treatment
- Burns to the Eye-Emergencies
- See All Eye Burns Topics
- Top Picks
- See Pinkeye and Learn to Treat It
- Symptoms of Styes in the Eyes
- Choosing an Eye Doctor
- Men's Super Foods Including Eye Health Boosters
- Learning to Live With Blindness
- Correcting Double Vision After Brain Injury

Any time you experience pain, tearing, redness, irritation, or vision loss, go to a hospital's emergency department for immediate evaluation, even if you believe the chemical is only a mild irritant.

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APPENDIX E
EMERGENCY INFORMATION

EMERGENCY CONTACT INFORMATION

Site Name: **Steel Treaters, Inc.**

Specific Location: 520 Campbell Ave, Troy, NY, 12180

Table 1: Emergency Response Telephone Roster

Contact	Name	Office Phone #	Mobile Phone #
Local Fire Department	Troy Fire Department	911 (518) 270-4471	[redacted]
Local Hospital	Samaritan Hospital	(518) 271-3300	
Local Police	City of Troy Police Department	911 (518) 270-4411	
EENC Principal	Drew Bonas	(609) 243-9874	(609) 240-5581
EENC Project Manager	Jose Sananes	(609) 243-9882	(732) 841-1218
EENC Designated Site Supervisor	Brian Robinson	(860) 503-1662	(203) 233-7907
Health and Safety Coordinator	Sharon Burkett	(609) 243-9832	(609) 306-8361
Client Contact	Travis Quarles	(503) 228-2141	[redacted]
Contractor: ADT	Rich Donnely	(518) 326-1441	
Contractor: CT Male Associates	Michael Groff	(518) 786-7413	
Poison Control	[redacted]	800-222-1222	

POTENTIAL CHEMICALS OF CONCERN:

Volatile organic compounds – Ethanes (1,1-dichloroethane, 1,2-dichloroethane, 1,1,1-trichloroethane), ethenes (cis-1,2-dichloroethene, tetrachloroethene, trichloroethene, vinyl chloride), and 1,4-dioxane.

ROUTE DESCRIPTION AND MAP TO HOSPITAL

Hospital Information:

Hospital Name: Samaritan Hospital

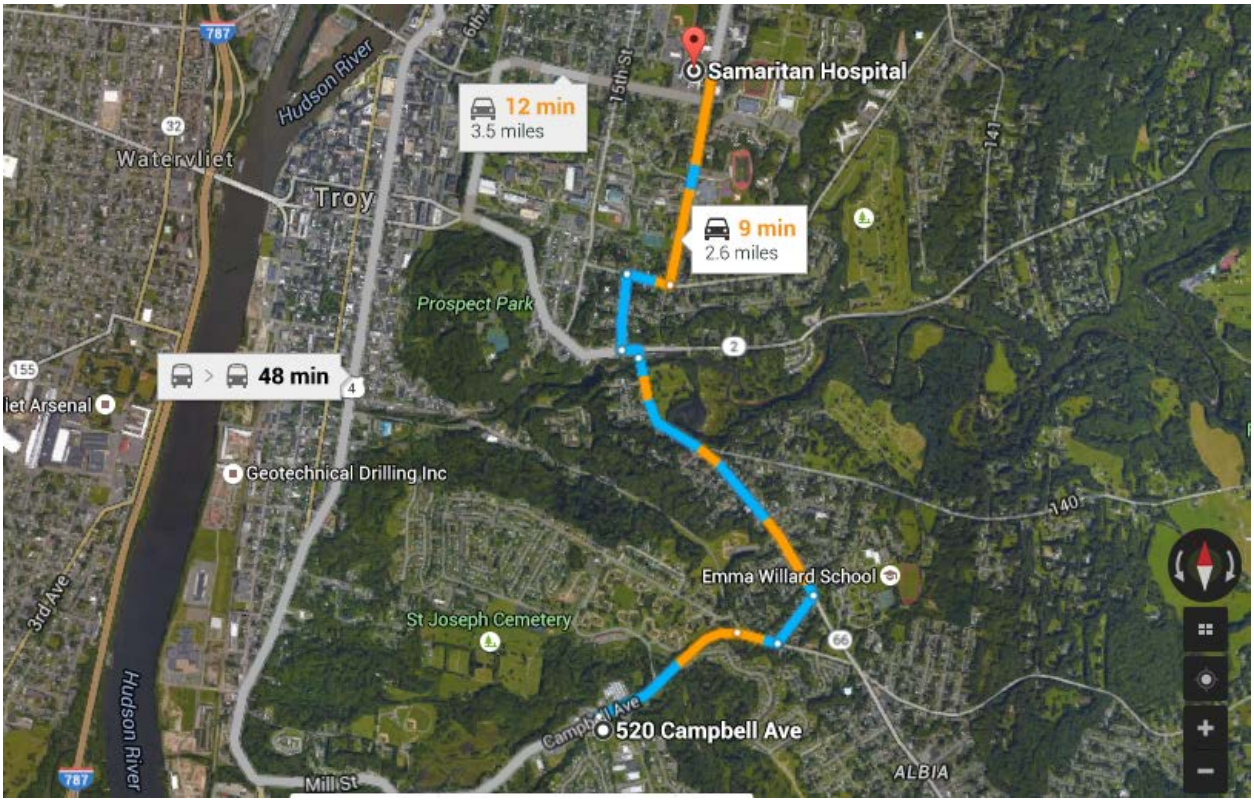
Hospital Address: *2215 Burdett Avenue, Troy, NY*

Hospital Phone Number: *(518) 271-3300*

Directions to Area Hospital:

Head east (turn right) on Campbell Ave toward Colleen Road

- Slight right onto Spring Ave
- Turn left onto Myrtle Ave
- Turn left onto Pawling Ave
- Turn left onto Congress St
- Turn right onto Brunswick Ave
- Turn right onto Tibbits Ave
- Turn left onto Burdett Ave
- End: 2215 Burdett Ave, Troy, NY (Destination will be on the left)



Prepared for:
Steel Treaters, Inc.
Troy, NY

Prepared By:
ENVIRON Engineers of North Carolina, PC
Princeton, NJ

Date
October 2017

Project Number
02-39035A

COMMUNITY AIR MONITORING PLAN

FORMER STEEL TREATERS, INC FACILITY
520 CAMPBELL AVENUE
TROY, NEW YORK
NEW YORK STATE VOLUNTARY CLEANUP PROGRAM

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1. INTRODUCTION

This Community Air Monitoring Plan (CAMP) was prepared to identify the real-time monitoring for volatile organic compounds (VOCs) and particulates that are required at the downwind perimeter of the site to provide a measure of protection for the downwind community from potential airborne contaminant releases as a direct result of remedial work activities. This CAMP was prepared based on the guidance provided in DER-10 / Technical Guidance for Site Investigation and Remediation (NYSDEC, 2010), including the generic CAMP presented in Appendix 1A. The monitoring requirements listed below will be in effect during all ground intrusive activities.

Copies of the CAMP will be kept on site for review and reference during all site activities.

1.1 Site Description

Steel Treaters, Inc. (STI) acquired the site, which consisted of vacant land, in 1965 from Charles E. Weber & Son. The site was previously developed with an approximately 8,400-square-foot building, which was located in the northern portion of the site. The single story building was damaged by a fire in 2005 and, as required by the City of Troy Bureau of Code Enforcement, was demolished in April 2017; all that remains currently is the building slab. The southern portion of the site is wooded and undeveloped.

Starting in 1966, STI utilized the facility to heat treat metal machine parts, which were received from various manufacturers. The majority of the work conducted at the site involved tempering and case hardening of metal parts, as well as annealing of metal parts. Air and vacuum furnaces were used at the facility, and some parts were cooled using quench oil. Anhydrous ammonia was also used onsite during the heat treatment process to generate atmosphere for the furnaces.

Past site activities were believed to have included the use of solvents, including 1,1,1-trichloroethane and trichloroethylene, which were stored in 55-gallon drums and used for vapor degreasing of metal parts. The solvents were reportedly reclaimed following use. STI reported that usage of these solvents ended in approximately 1991. STI's operations ceased following the 2005 fire and ESCO Portland (ESCO) acquired the site in 2012. The site is currently vacant.

1.2 Remedial Activities

The planned remedial activities include ground intrusive activities in the approximate areas shown on **Figure 1**. The intrusive activities are reasonably expected to be more than 20 feet from any downwind receptors, as only parking areas, roads, or similar areas are within 20 feet of the site boundary (i.e., areas where individuals are not expected to spend extended periods of time). The work area is approximately 160 feet from the closest residential property boundary and approximately 95 feet from the closest commercial structure.

2. MONITORING REQUIREMENTS

2.1 VOC Monitoring

VOCs will be monitored at the downwind perimeter of the immediate work area (i.e., the exclusion zone) on a continuous basis. Upwind concentrations will be measured at the start of each workday and periodically thereafter to establish background conditions, particularly if wind direction changes. The monitoring work will be performed using equipment appropriate to measure the types of contaminants known or suspected to be present. The equipment will be calibrated at least daily for the contaminant(s) of concern or for an appropriate surrogate. The equipment will be capable of calculating 15-minute running average concentrations, which will be compared to the levels specified below.

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

If total organic vapor levels at the downwind perimeter of the work area or exclusion zone persist at levels in excess of 5 ppm over background but less than 25 ppm, work activities will be halted, the source of vapors identified, corrective actions taken to abate emissions, and monitoring continued. After these steps, work activities will resume provided that the total organic vapor level 200 feet downwind of the exclusion zone or half the distance to the nearest potential receptor or residential/commercial structure, whichever is less - but in no case less than 20 feet, is below 5 ppm over background for the 15-minute average.

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

All 15-minute readings will be recorded and be available for State (New York State Department of Environmental Conservation (NYSDEC) and New York State Department of Health (NYSDOH)) personnel to review. Instantaneous readings, if any, used for decision purposes will also be recorded. Any exceedances of the above limits, including the duration and response actions will be included in a CAMP report to be submitted to NYSDEC. Any exceedances of the above limits, including the duration and response actions will be included in a CAMP report to be submitted to NYSDEC.

2.2 Particulate Monitoring

Particulate concentrations will be monitored continuously at the upwind and downwind perimeters of the exclusion zone at temporary particulate monitoring stations during the handling of waste or contaminated soil, or when activities on site may generate fugitive dust from exposed waste or contaminated soil. Particulate monitoring is not necessary during the handling of uncontaminated materials (e.g., clean fill).

The particulate monitoring will be performed using real-time monitoring equipment capable of measuring particulate matter less than 10 micrometers in size (PM-10) and capable of integrating over a period of 15 minutes (or less) for comparison to the airborne particulate action level. The equipment will be equipped with an audible alarm to indicate exceedance of

the action level. The minimum performance standards are as specified in Appendix 1B of DER-10. In addition, fugitive dust migration will be visually assessed during all work activities.

If the downwind PM-10 particulate level is in excess of 150 ug/m^3 or is 100 micrograms per cubic meter (ug/m^3) greater than background (upwind perimeter) for a 15-minute period, or if airborne dust is observed leaving the work area, then the upwind background level will be confirmed immediately and dust suppression techniques will be employed. Work will continue with dust suppression techniques provided that downwind PM-10 particulate levels do not exceed 100 ug/m^3 above the upwind level and provided that no visible dust is migrating from the work area.

If, after implementation of dust suppression techniques, downwind PM-10 particulate levels are greater than 150 ug/m^3 or greater than 100 ug/m^3 above the upwind level, work will be stopped and a re-evaluation of activities initiated. Work will resume provided that dust suppression measures and other controls are successful in reducing the downwind PM-10 particulate concentration to 150 ug/m^3 or less, within 100 ug/m^3 of the upwind level, and in preventing visible dust migration.

Should the action level of 150 ug/m^3 continue to be exceeded, work will stop and NYSDEC will be notified. The notification will include a description of the control measures implemented to prevent further exceedances.

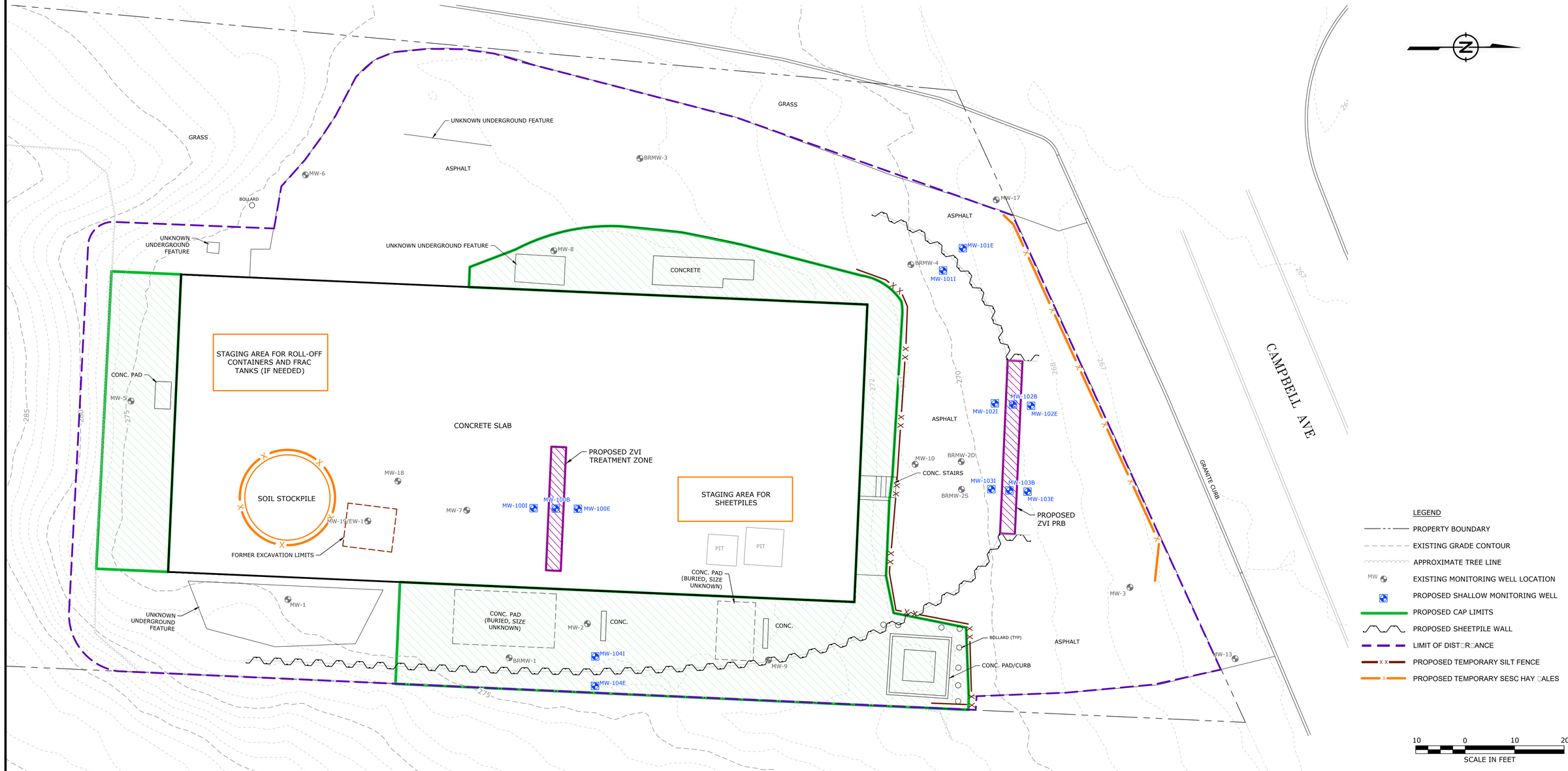
All readings will be recorded and be available for State (NYSDEC and NYSDOH) and County Health personnel to review.

3. QUALITY ASSURANCE/QUALITY CONTROL

In order to ensure the validity of the fugitive dust measurements performed, there must be appropriate Quality Assurance/Quality Control (QA/QC).

To ensure the quality of the air monitoring data, operators will follow operating instructions provided by the manufacturer and/or equipment provider. The instrument will be calibrated and the performance (span) will be checked daily. Calibration and span checks will be recorded in the field notes and all measurements will be recorded and saved in electronic form with backup copies.

FIGURE 1



LEGEND

- PROPERTY BOUNDARY
- EXISTING GRADE CONTOUR
- APPROXIMATE TREE LINE
- EXISTING MONITORING WELL LOCATION
- PROPOSED SHALLOW MONITORING WELL
- PROPOSED CAP LIMITS
- PROPOSED SHEETPILE WALL
- LIMIT OF DISTURBANCE
- PROPOSED TEMPORARY SILT FENCE
- PROPOSED TEMPORARY SESC HAY BALES

10 0 10 20
SCALE IN FEET

SOURCE:

1. MAP ENTITLED "STEEL TREATERS, 520 CAMPBELL AVENUE, SAMPLE LOCATIONS" PREPARED BY BARTON AND LOGUIDICE, P.C., PROJECT NO. 1047.001, AND INCLUDED AS FIGURE 3 OF THE NOVEMBER 2013 REMEDIAL INVESTIGATION REPORT.
2. RENSSELAER COUNTY, CITY OF TROY TAX MAP 112
3. "LANDS OF ESCO CORPORATION", NMB SURVEY: NB16-001 520 Campbells Ave 020416.dwg DATED FEB. 4, 2016.
4. ALL SAMPLE LOCATIONS SHOWN IN LIGHT GRAY ARE APPROXIMATE. LOCATIONS BASED ON "SITE MAP SHOWING SOIL AND GROUNDWATER SAMPLING LOCATIONS" PREPARED BY BARTON & LOGUIDICE, P.C. AND INCLUDED AS FIGURE 3 OF THE NOVEMBER 2013 REMEDIAL INVESTIGATION REPORT.
5. "UNKNOWN UNDERGROUND FEATURE" REFERS TO SUBSURFACE METALLIC ANOMALIES IDENTIFIED DURING THE GEOPHYSICAL SURVEY COMPLETED BY NAEVA GEOPHYSICS ON NOVEMBER 24, 2015.
6. EXISTING CONTOURS: 1-METER DEM, NYS ORTHO ONLINE, WWW.ORTHOS.DHSES.NY.GOV, 2016.

REV.	DATE	DR.	CH.	REVISION

SOIL EROSION AND SEDIMENT CONTROL PLAN

ESCO STEEL
520 CAMPBELL AVENUE
CITY OF TROY, NEW YORK

ENVIRON
ENVIRON Engineers of North Carolina, PC
CERTIFICATE NUMBER: 0012568

PREPARED BY: JS/TA	DATE: 11/06/2017	FIGURE 1
DRAFTED BY: MSB	SCALE: AS SHOWN	
APPROVED BY: JS	PROJECT: 0239035A	

DBLANCHARD 11/6/17
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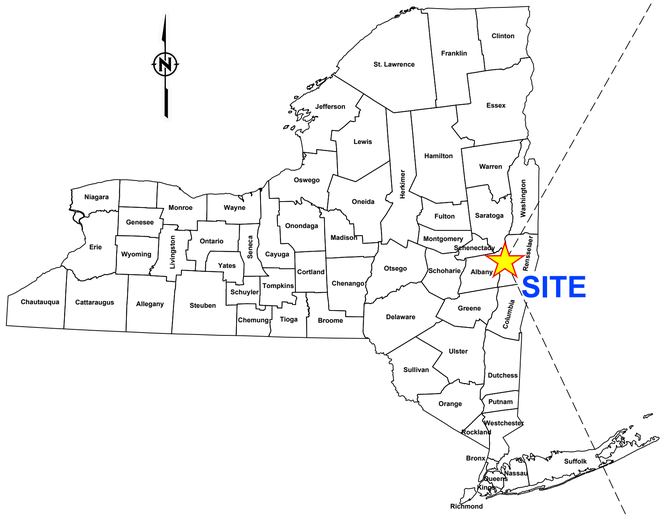
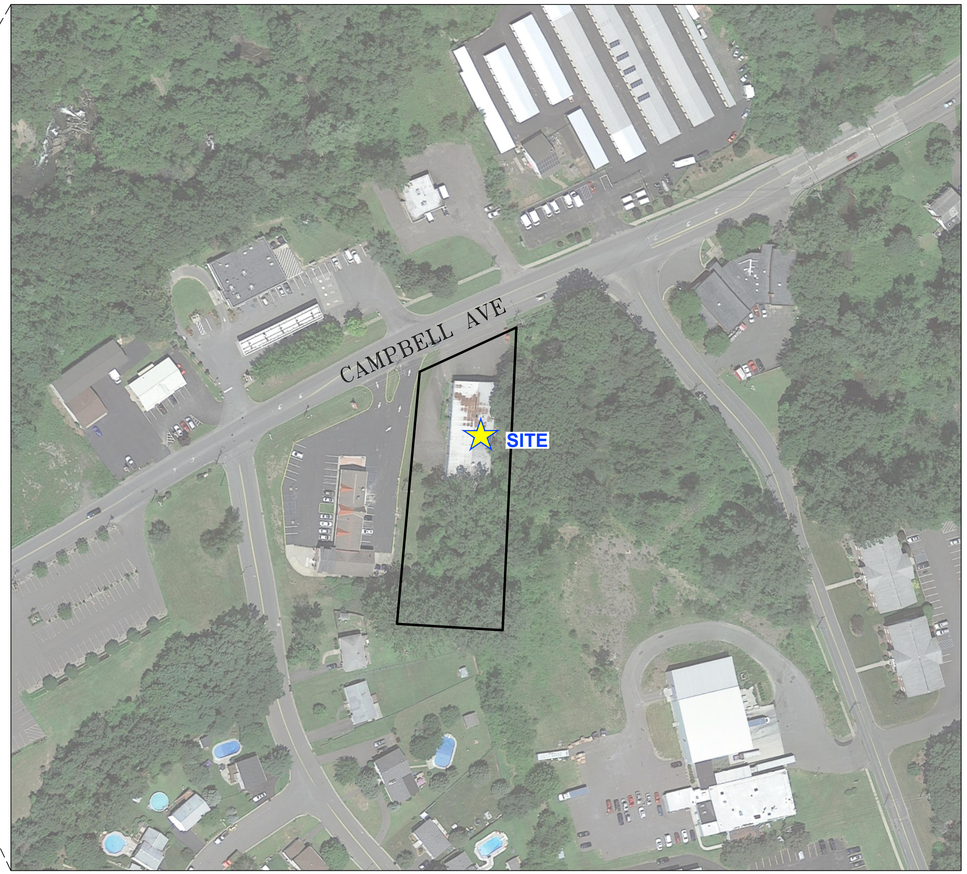
APPENDIX G
ASBUILT DRAWINGS

AS□□ILT DRAWINGS

ESCO STEEL
520 CAMPBELL AVENUE
CITY OF TROY, NEW YORK





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Google Earth™ Pro. MAPPING SERVICE. IMAGE DATE: 07/15/2015.

LOCATION MAP

0 100 200

Scale in Feet

INDE□ TO DRAWINGS

DRAWING 1	E□ISTING SITE CONDITIONS
DRAWING 2	POST□REMEDIAL ACTION SITE CONDITIONS
DRAWING □	PROFILES
DRAWING □	DETAILS

PREPARED BY

ENVIRON

ENVIRON Engineers of North Carolina, PC
CERTIFICATE NUMBER: 0012568

PREPARED FOR:
ESCO STEEL
520 CAMPBELL AVENUE
CITY OF TROY, NEW YORK

MBLEI 6/8/18
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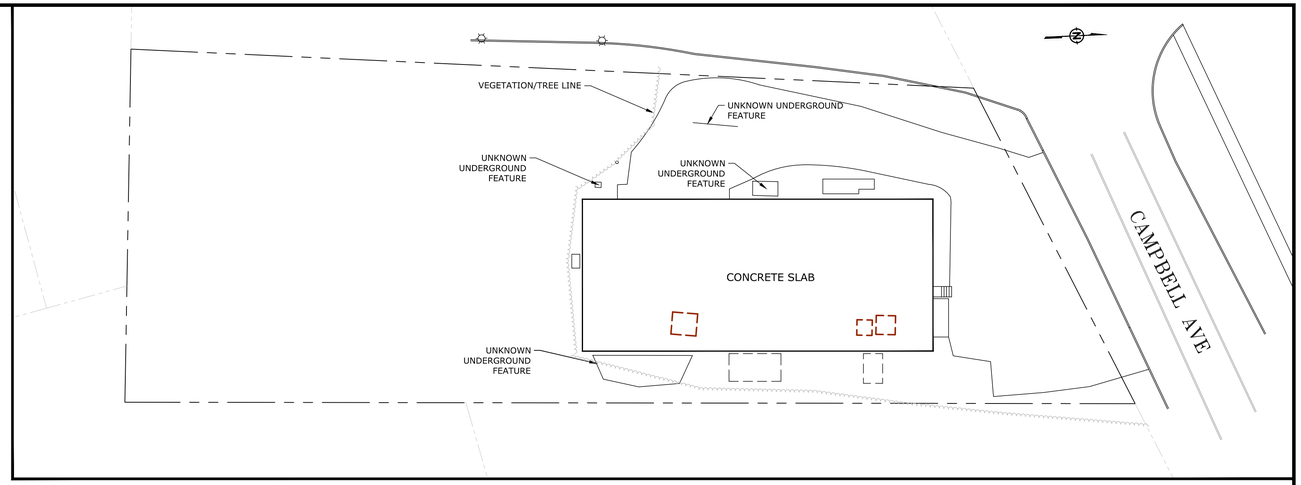
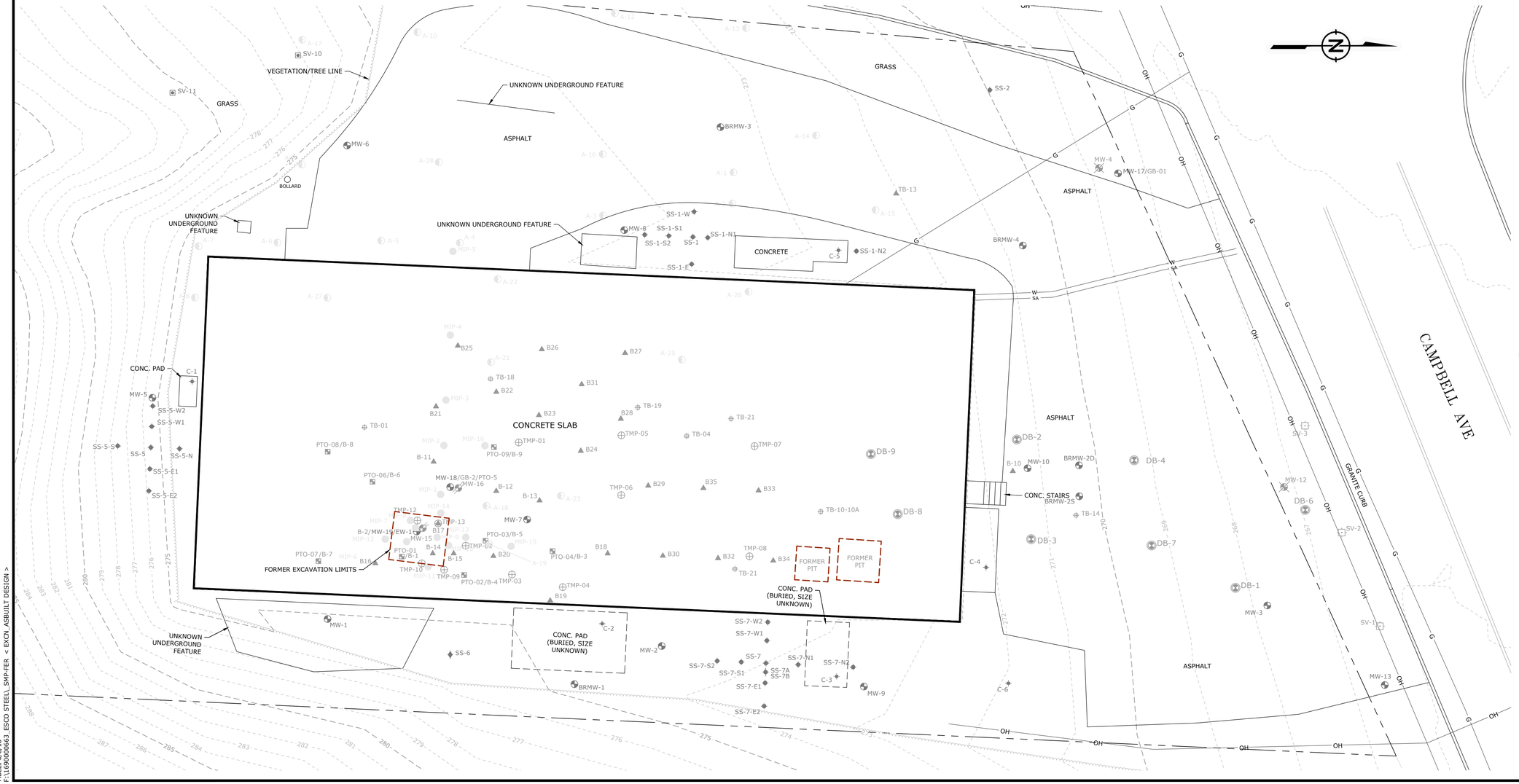
SOURCE:

1. SITE TOPOGRAPHY AND PLANIMETRY "EXISTING CONDITIONS SURVEY" PREPARED BY NMB LAND SURVEYING PLLC, FEBRUARY 26, 2018.
2. SAMPLE LOCATIONS: "STEEL TREATERS, 520 CAMPBELL AVENUE, SAMPLE LOCATIONS" PREPARED BY BARTON AND LOGUIDICE, P.C., PROJECT NO. 1047.001, AND INCLUDED AS FIGURE 3 OF THE NOVEMBER 2013 REMEDIAL INVESTIGATION REPORT.
3. ALL SAMPLE LOCATIONS SHOWN IN LIGHT GRAY ARE APPROXIMATE. LOCATIONS BASED ON "SITE MAP SHOWING SOIL AND GROUNDWATER SAMPLING LOCATIONS" PREPARED BY BARTON & LOGUIDICE, P.C. AND INCLUDED AS FIGURE 3 OF THE NOVEMBER 2013 REMEDIAL INVESTIGATION REPORT.
4. "UNKNOWN UNDERGROUND FEATURE" REFERS TO SUBSURFACE METALLIC ANOMALIES IDENTIFIED DURING THE GEOPHYSICAL SURVEY COMPLETED BY NAEVA GEOPHYSICS ON NOVEMBER 24, 2015.



OVERALL SITE
1" = 20'



LEGEND

- PROPERTY BOUNDARY
- EXISTING GRADE CONTOUR
- APPROXIMATE TREE LINE
- SA — 6"Ø CLAY SANITARY SEWER LINE
- G — 2"Ø GAS LINE
- OH — OVERHEAD WIRES
- W — 1"Ø COPPER WATER LINE
- DB-2 — BORING LOCATION
- MW — MONITORING WELL LOCATION
- SV-5 — SOIL VAPOR SAMPLING POINTS
- B-10 — BORING LOCATION (ENVIRON 2015 & 2016)
- PTO-04 — PUMP TEST OBSERVATION POINT (ENVIRON 2015)
- TMP-06 — TEMPORARY MONITORING POINT
- TB-21 — TEST BORING LOCATION
- MIP-4 — MEMBRANE INTERFACE PROBE (08/10)
- A-3 — MEMBRANE INTERFACE PROBE (09/12)
- MW-4 — WELL NO LONGER SUITABLE FOR SAMPLING
- MW-15 — WELL REMOVED DURING DEC. 2010 EXCAVATION IRM
- SS-7A — SURFACE SOIL SAMPLE (0 TO 2 INCHES) (REH 2016 & 2017)
- SS-7 — SOIL COVER SAMPLE (REH 2016 & 2017)
- SV-10 — SOIL GAS SAMPLE (REH 2016 & 2017)

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SCALE IN FEET

REV.	DATE	DR.	CH.	REVISION

EXISTING CONDITIONS

ESCO STEEL
520 CAMPBELL AVENUE
CITY OF TROY, NEW YORK

ENVIRON
ENVIRON Engineers of North Carolina, PC
CERTIFICATE NUMBER: 0012568

PREPARED BY: JS/TA	DATE: 06/08/2018	DRAWING 1
DRAFTED BY: MSB	SCALE: AS SHOWN	
APPROVED BY: JS	PROJECT: 0239035A	

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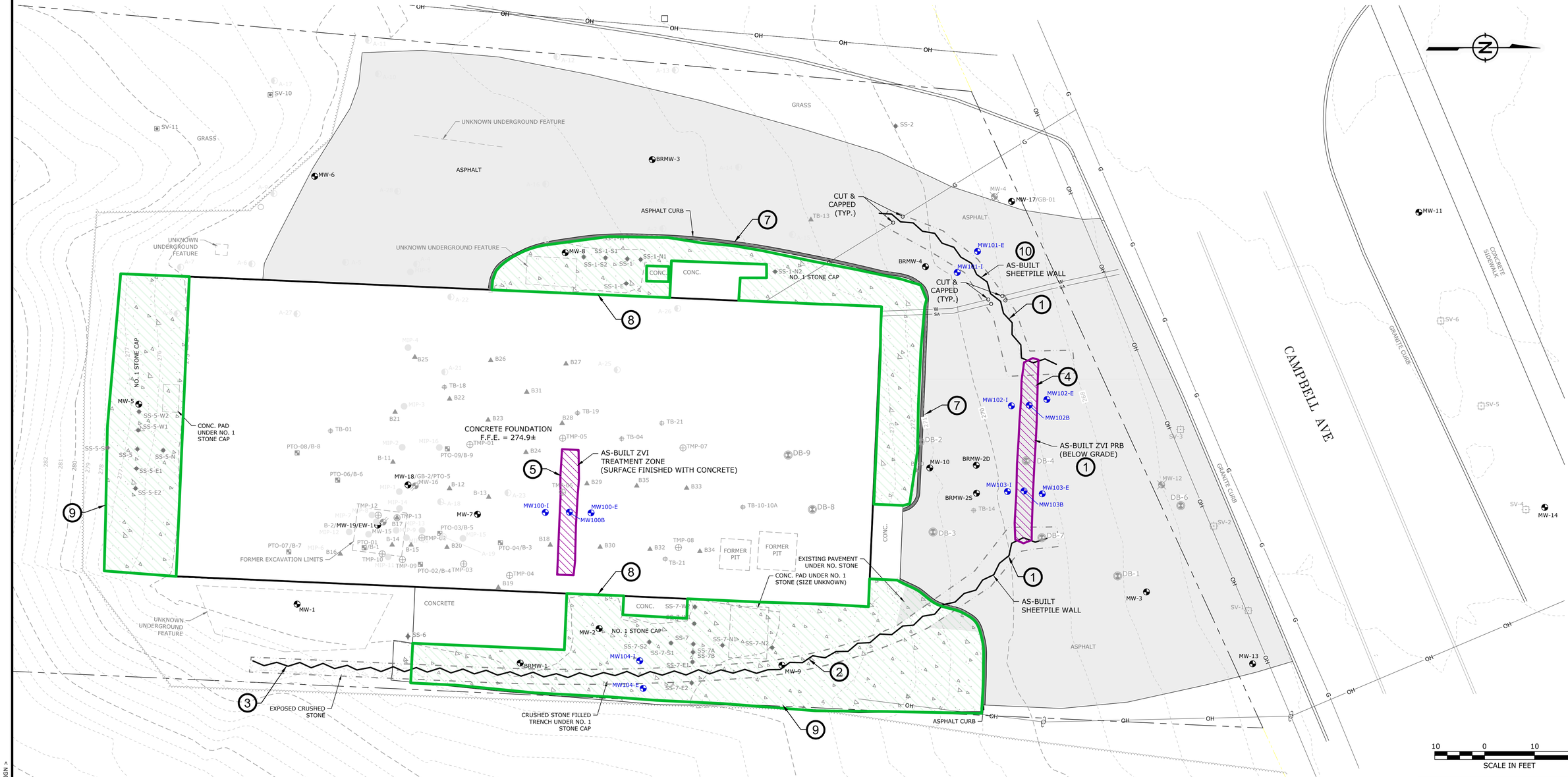

LEGEND

- PROPERTY BOUNDARY
- EXISTING GRADE CONTOUR
- APPROXIMATE TREE LINE
- SA — 6"Ø CLAY SANITARY SEWER LINE
- G — 2"Ø GAS LINE
- OH — OVERHEAD WIRES
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- B-10 — BORING LOCATION (ENVIRON 2015 & 2016)
- PTO-04 — PUMP TEST OBSERVATION POINT (ENVIRON 2015)
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- TB-21 — TEST BORING LOCATION
- MIP-4 — MEMBRANE INTERFACE PROBE (08/10)
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- MW-4 — WELL NO LONGER SUITABLE FOR SAMPLING
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- SS-7A — SURFACE SOIL SAMPLE (0 TO 2 INCHES) (REH 2016 & 2017)
- SS-7 — SOIL COVER SAMPLE (REH 2016 & 2017)
- SV-10 — SOIL GAS SAMPLE (REH 2016 & 2017)
- MW100-I — MONITORING WELL (REH 2018)
- AS-BUILT CAP LIMITS

SOURCE:

1. SITE TOPOGRAPHY AND PLANIMETRY "POST CONSTRUCTION SURVEY" PREPARED BY NMB LAND SURVEYING PLLC, JUNE 6, 2018.
2. SAMPLE LOCATIONS: "STEEL TREATERS, 520 CAMPBELL AVENUE, SAMPLE LOCATIONS" PREPARED BY BARTON AND LOGUIDICE, P.C., PROJECT NO. 1047.001, AND INCLUDED AS FIGURE 3 OF THE NOVEMBER 2013 REMEDIAL INVESTIGATION REPORT.
3. ALL SAMPLE LOCATIONS SHOWN IN LIGHT GRAY ARE APPROXIMATE. LOCATIONS BASED ON "SITE MAP SHOWING SOIL AND GROUNDWATER SAMPLING LOCATIONS" PREPARED BY BARTON & LOGUIDICE, P.C. AND INCLUDED AS FIGURE 3 OF THE NOVEMBER 2013 REMEDIAL INVESTIGATION REPORT.
4. "UNKNOWN UNDERGROUND FEATURE" REFERS TO SUBSURFACE METALLIC ANOMALIES IDENTIFIED DURING THE GEOPHYSICAL SURVEY COMPLETED BY NAEVA GEOPHYSICS ON NOVEMBER 24, 2015.

REV.	DATE	DR.	CH.	REVISION

POST-REMEDIAL ACTION SITE CONDITIONS

ESCO STEEL
520 CAMPBELL AVENUE
CITY OF TROY, NEW YORK

ENVIRON
ENVIRON Engineers of North Carolina, PC
CERTIFICATE NUMBER: 0012568

PREPARED BY: JS/TA	DATE: 06/11/2018	DRAWING 2
DRAFTED BY: MSB	SCALE: AS SHOWN	
APPROVED BY: JS	PROJECT: 0239035A	

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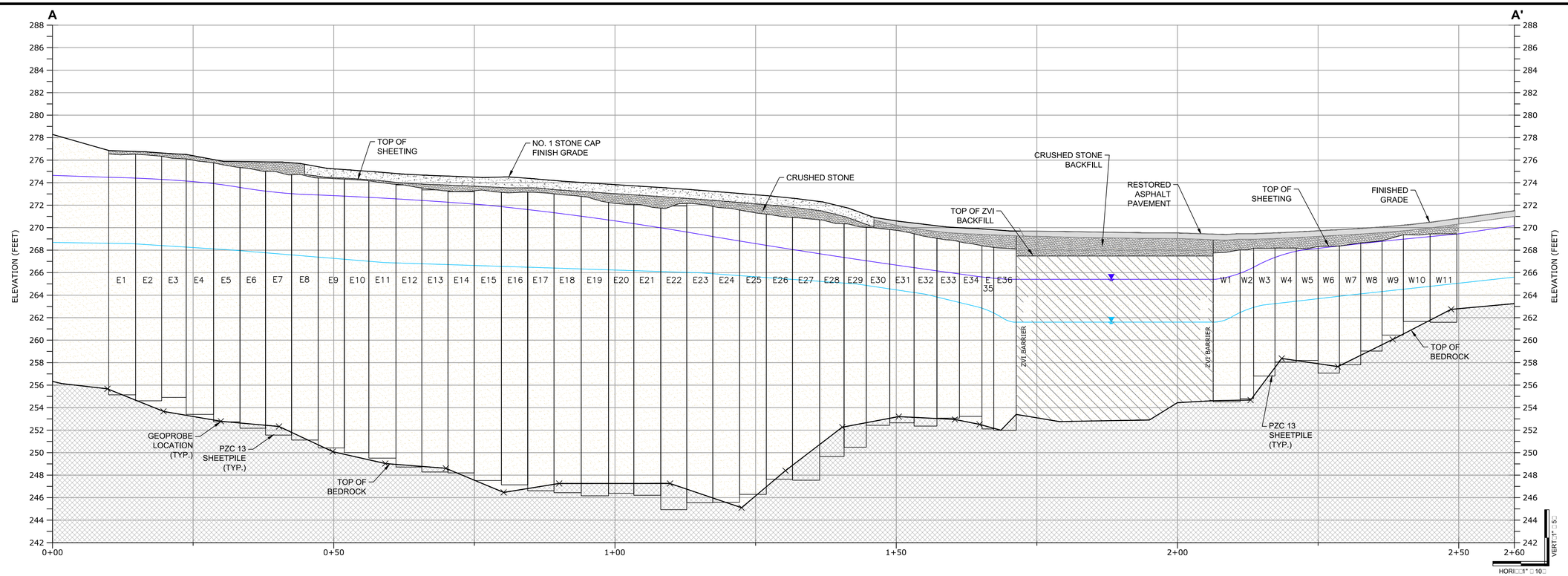
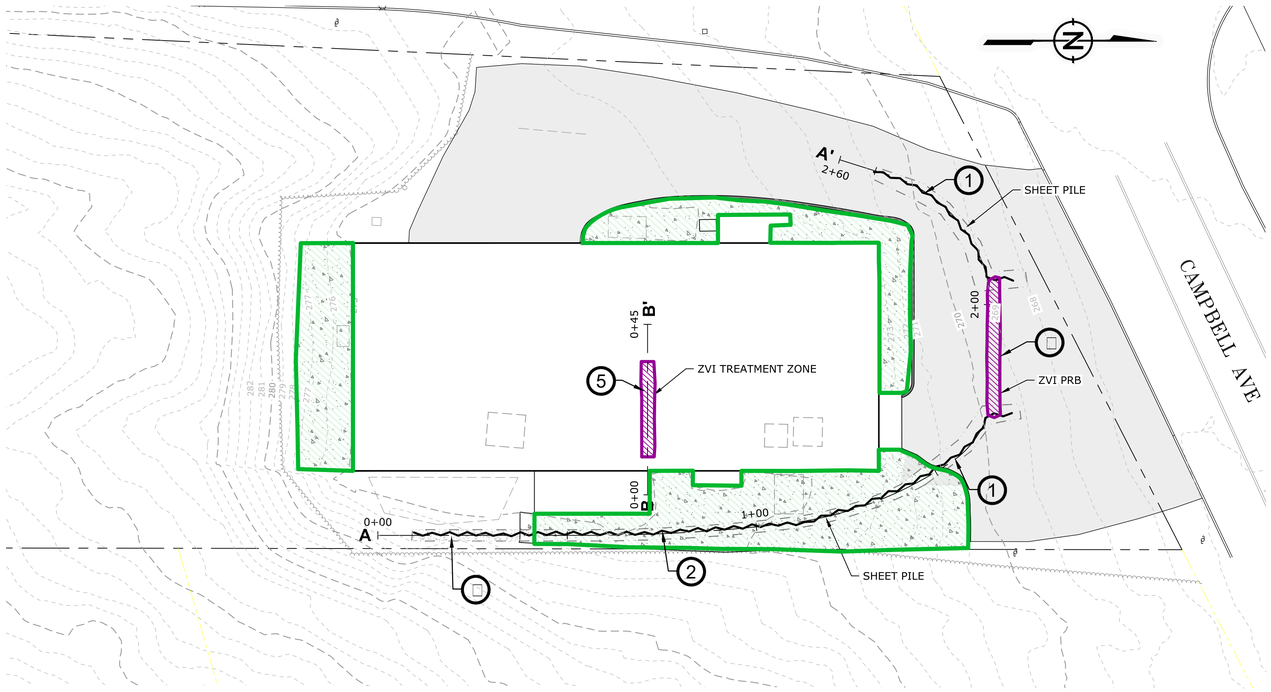
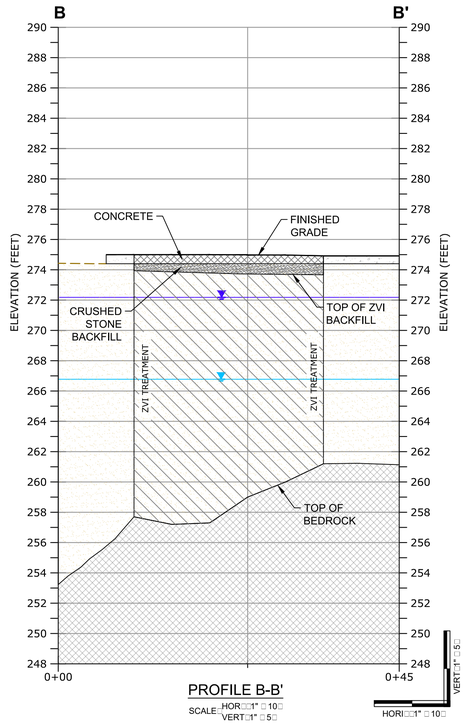


PROFILE A-A'
SCALE: HOR: 1" = 10'
VERT: 1" = 5'



PLAN
1" = 20'



PROFILE B-B'
SCALE: HOR: 1" = 10'
VERT: 1" = 5'

LEGEND

- CONCRETE
- ASPHALT
- SAND AND SILT
- BEDROCK
- HIGH WATER LEVEL
- LOW WATER LEVEL

SOURCE:

1. SITE TOPOGRAPHY AND PLANIMETRY "POST CONSTRUCTION SURVEY" PREPARED BY NMB LAND SURVEYING PLLC, MAY 22, 2018.
2. PROFILE: "SHEETPING PROFILE" PREPARED BY NMB LAND SURVEYING PLLC, MAY 22, 2018.
3. SAMPLE LOCATIONS: "STEEL TREATERS, 520 CAMPBELL AVENUE, SAMPLE LOCATIONS" PREPARED BY BARTON AND LOGUIDICE, P.C., PROJECT NO. 1047.001, AND INCLUDED AS FIGURE 3 OF THE NOVEMBER 2013 REMEDIAL INVESTIGATION REPORT.
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10 0 10 20
SCALE IN FEET

REV.	DATE	DR.	CH.	REVISION

PROFILES

ESCO STEEL
520 CAMPBELL AVENUE
CITY OF TROY, NEW YORK

ENVIRON
ENVIRON Engineers of North Carolina, PC
CERTIFICATE NUMBER: 0012568

PREPARED BY: JS/TA	DATE: 06/11/2018	DRAWING 3
DRAFTED BY: MSB	SCALE: AS SHOWN	
APPROVED BY: JS	PROJECT: 0239035A	

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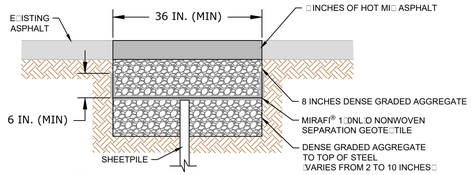

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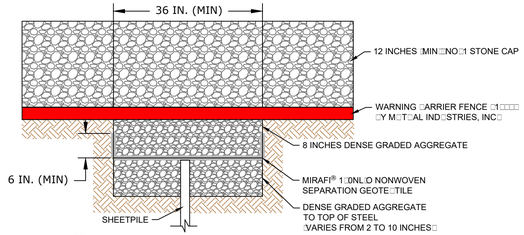

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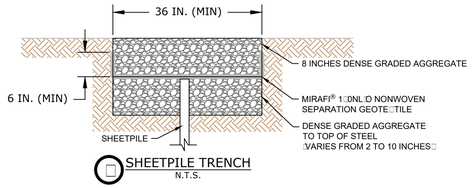

□ SHEETPILE TRENCH
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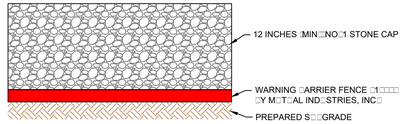

6 SOIL CAP DETAIL
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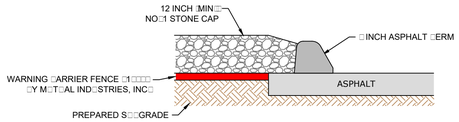

□ SOIL CAP TRANSITION TO PAVEMENT DETAIL
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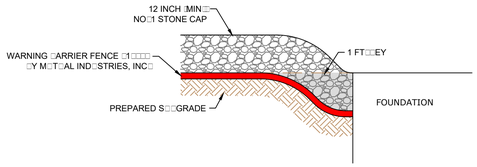

8 SOIL CAP TRANSITION TO FO□NDATION DETAIL
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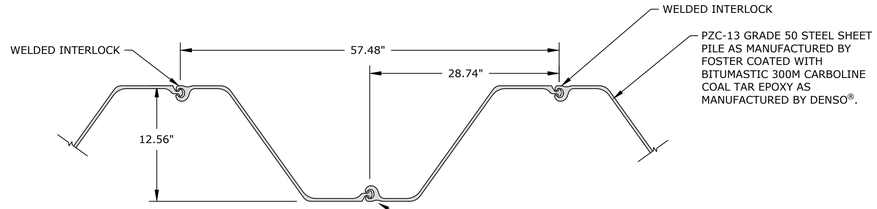

10 SHEET PILE DETAIL
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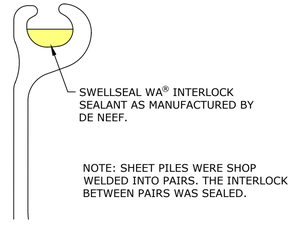

11 INTERLOCK SEALANT INSTALLATION DETAILS
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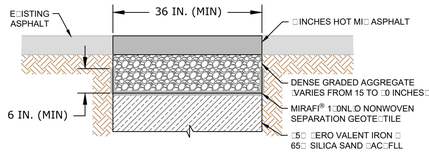

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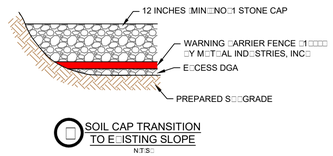

□ SOIL CAP TRANSITION TO E□ISTING SLOPE
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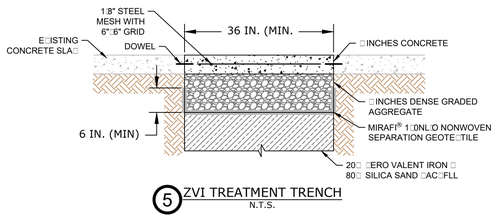

5 ZVI TREATMENT TRENCH
N.T.S.

REV.	DATE	DR.	CH.	REVISION

DETAILS

ESCO STEEL
520 CAMPBELL AVENUE
CITY OF TROY, NEW YORK

ENVIRON
ENVIRON Engineers of North Carolina, PC
CERTIFICATE NUMBER: 0012568

PREPARED BY: JS/TA	DATE: 06/08/2018	DRAWING 4
DRAFTED BY: MSB	SCALE: AS SHOWN	
APPROVED BY: JS	PROJECT: 0239035A	

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APPENDIX H
QUALITY ASSURANCE PROJECT PLAN

APPENDIX H – Quality Assurance Project Plan

H.1 Introduction

This Quality Assurance Project Plan (QAPP) is prepared to support potential future investigations and remedial activities conducted at the former Steel Treaters site located at 520 Campbell Avenue, Troy, New York. Such work will be conducted in accordance with New York State Department of Environmental Conservation (NYSDEC) regulations and guidance documents in effect at the time of work is conducted, including but not limited to:

- Technical Guidance for Site Investigation and Remediation (DER-10); and
- 6 NYCRR Part 375 (Environmental Remediation Programs regulations).

In accordance with DER-10, this QAPP has been designed to ensure that samples obtained in the field are representative of the actual environment from which they were collected, and are of sufficient quality and quantity to meet the project objectives. All sampling and analyses will be performed in accordance with the requirements of this site-specific QAPP.

H.2 Project Scope and Complexity

Soil sampling might be required in the future, as part of site redevelopment and/or during maintenance activities following such redevelopment, to assess the quality of excavated soil intended for on-site reuse or for potential off-site disposal. If soil contamination is identified above applicable Soil Cleanup Objectives, including restricted commercial or industrial SCOs, soil remediation could be required to comply with NYSDEC requirements and the SMP. The QAPP provides information regarding the analysis of pre-remedial and post-remediation soil sampling.

In addition, groundwater monitoring for the engineering control will be completed at the site on as detailed in Section 4 of this SMP. Groundwater samples collected from on-site monitoring wells will be analyzed as detailed in Section 4 and Appendix J (Field Activities Plan) of this SMP.

The planned groundwater monitoring activities, as well as the potential soil sampling actions, are considered to be of low complexity.

H.3 Data Quality Objectives

The data quality objectives (DQOs) for this work are:

- For all samples, ensure that collection techniques and analyses generate results that are precise, accurate, representative of site conditions, and sufficiently sensitive to meet the most stringent applicable standards. To further this objective, samplers will use NYSDEC-certified laboratories to perform all analyses in conformance with New York quality assurance protocols and industry standards.

Specific sampling to be conducted at the site under this QAPP includes:

- Soil sampling, if needed, to support redevelopment, on-site soil reuse, soil remediation, post-remedial soil sampling, and waste characterization for off-site soil disposal; and
- Generation of groundwater data to fully characterize site conditions to support performance of the engineering control for groundwater.

H.4 Laboratory

Any laboratory to be retained for sample analysis must be a NYSDOH Environmental Laboratory Accreditation Program (ELAP)-certified laboratory. An example of certified laboratories includes TestAmerica, Inc. Buffalo located in Amherst, New York (NYSDOH ELAP Certification No 10026). It is possible that additional laboratories may be retained as subcontractors by the above. Information regarding contract laboratories, if utilized, will be provided within the laboratory data deliverables generated for the analytical work.

H.5 Analytical Methods / Quality Assurance

All soil and groundwater samples will be analyzed in accordance with analytical methodologies listed below. Sample holding times will be in accordance with the NYSDEC ASP requirements. For completeness, this table shows analytical methodologies for all constituents present above SCOs prior to remedial action.

Table 1: Analytical Methodologies

Parameter	Analytical Methodology by Matrix	Holding Times	Preservative
TAL Metals	SW-846 Series 7000 Series / 6010 / 6020 (soil)	180 days (except Hg, which has a 28-day holding time)	None
TCL VOCs	SW-846 8260B (soils)	7 days	HCl
TCL VOCs	SW-846 624 (water)	7 days	HCl

Notes:

1. Holding times and preservatives are consistent with both SW-846 and NYSDEC ASP requirements.
2. To monitor the reactive media in the engineering control groundwater samples will also be subjected to cation, anions, dissolved iron and hydrogen analysis. Details on these monitoring requirements are provided in Section 4 and Appendix J (Field Activities Plan) of this SMP

To evaluate the quality of collection and analysis of environmental samples, appropriate field blanks and trip blanks will be collected during groundwater sampling events. Frequency, collection, and handling of blanks will be performed in accordance with applicable provisions of DER-10.

All field blanks and trip blanks will be shipped with the sample containers and arrive on-site within one day of laboratory preparation. Blanks and the associated samples will be held onsite for no longer than two calendar days and will arrive at the laboratory within one day of shipment from the field. All blanks and samples will be maintained at 4^{o}C while stored onsite and during shipment. Sample bottles and blanks will be handled in the same manner prior to their return to the laboratory.

Trip blanks will be analyzed for VOCs to evaluate the potential occurrence of contamination of samples during sample shipment or as a result of laboratory handling. Trip blanks will be prepared for aqueous samples preserved with hydrochloric acid at a rate of one per sample shipment (not to exceed 2 consecutive field days). These samples consist of laboratory- prepared glass bottles (40 or 60 mL)

with an open-top screw cap and a Teflon septa or other similar sample container. The trip blanks will accompany sample containers to the field and back to the laboratory with the collected samples for analysis, remaining sealed until this time, thus ensuring similar exposure as the collected samples.

Field blanks prepared in association with groundwater sampling will be collected at a rate of 10% of the total number of the samples, or one per sampling event, whichever is greater. The samples will be prepared in the field by passing laboratory-provided, analyte-free water through clean sampling equipment and placed in empty, clean sample containers for analysis ("bottle to bottle" transfer). These blanks shall be analyzed for the same parameters as the samples collected that day.

Additionally, per DER-10, the following quality assurance/quality control sampling will also be completed as part of the proposed activities:

- Duplicate and MS/MSD samples will be collected at a rate of 1 per 20 samples for each analytical parameter, with a minimum of one duplicate sample for each parameter.
- Equipment blanks and trip blanks will be collected as part of the groundwater sampling program, but are not required as part of the proposed soil sampling.

H.6 Sampling Methods

Clean sample containers will be obtained from the laboratory performing the analyses. The container type will depend upon the sample matrix, potential contaminants to be encountered, analytical methods requested, and the laboratory's quality assurance protocols. In selecting the proper container, the following will also be considered: (a) reactivity of container material with sample; (b) volume of container; (c) color of container, and (d) container closure. New sample containers will be provided by the laboratory for each sampling event and, where applicable, the analytical laboratory will add the appropriate preservative to the container.

An adhesive label will be attached to each bottle. Each label will have the following information written with a waterproof, non-volatile marker: (a) date of sample; (b) time of sample; (c) sample identification; (d) sampler initials; (e) analytical parameters; and (f) preservatives, if any.

Decontamination of Sampling Equipment

All non-disposable sampling equipment will be decontaminated after each sample is collected. Equipment will be scrubbed with laboratory grade glassware detergent and rinsed with deionized water. Dedicated sampling equipment (e.g., tubing for pumps) will be properly discarded upon completion of obtaining the sample. Disposable gloves will be worn during sample collection and will be discarded following collection of each sample. When possible, single-use, dedicated sampling equipment (e.g., tubing used to collect groundwater samples) will be used to minimize the need for decontamination procedures.

Sampling Methods

For this work, groundwater samples will be collected from finished monitoring wells. Samples will be obtained via USEPA's low-flow (minimal drawdown) sampling procedures or using passive diffusion bags (for groundwater samples to be analyzed only for VOCs), with appropriate field parameters measured to confirm that conditions within each well have stabilized. Details on these groundwater sampling methods are provided in Appendix J (Field Activities Plan) of this SMP.

While soil sampling is not currently contemplated, should it be necessary in support of site redevelopment (e.g., on-site soil reuse, soil remediation, post-remedial soil sampling, and waste characterization for off-site soil disposal), soil samples will be collected with properly decontaminated stainless steel hand tools (e.g., spade, hand auger, spoon) or dedicated sampling devices (e.g., Geoprobe liners).

Sample delivery to laboratories will be conducted as soon as possible following collection (e.g., at the end of the day) but in no case would exceed 48 hours. All samples will be placed into coolers with ice, to bring the temperature of the samples to 4 degrees Celsius.

Calibration and Maintenance for Field Analytical Equipment

All monitoring instruments will be calibrated daily according to instrument manufacturer instructions. Records of the time, results, and ambient conditions (i.e., weather, temperature) of calibration are to be kept by the sampling personnel for each instrument.

Monitoring equipment is generally delicate and once it becomes contaminated is difficult to clean without causing damage. Therefore, wherever the potential for contamination of monitoring instruments exists, the instrument will be placed in a sealed plastic bag.

It is anticipated that field staff will use a MiniRAE2000 photoionization detector (PID) or equivalent for measuring organic vapors, and a Horiba U-22 Water Quality Meter for measuring groundwater parameters.

Duplicate Sample Collection

Duplicate samples will be collected by alternately filling sample containers from the same sampling device.

Field Blanks

Field blank samples will be collected by running distilled water over the decontaminated sampling equipment, when such equipment is used.

H.7 Documentation

Proper documentation of all site activities will be maintained to track the possession and handling of samples from the time of collection through analysis and disposition. The following procedures will be used for documentation purpose.

Field Log Books

Rainproof field logbooks will be used to record all pertinent information regarding the site and sampling procedures. Information recorded in the log books will include, but is not limited to: name and site location; date and time of arrival and departure; name of person keeping log; names of all persons on site; description of sampling or site activities; field instrument calibration information; number of samples taken; volume of samples taken; date, time and methods of sample collection and any factors that may affect sample quality; all sample identification numbers; and weather conditions on the day of sampling. Summary worksheets may also be used to confirm that all pertinent information is recorded.

Sampling Locations

All monitoring wells have been surveyed by a licensed professional surveyor. Future soil sampling points or monitoring wells (if any) will be documented as to their exact location.

Chain of Custody

The custody record for each sample will be documented using a Chain of Custody Form ("COC"). This form will be accompanying the sample containers to the site and will remain with the samples at all times, including during sample collection, transport, and analysis. The COC bears the name of the person(s) assuming responsibility for the samples and the person who collected the sample. The COC will also specify the following information: project name; project client; laboratory conducting analyses; sample matrix; sample identification number; sample time and date; number of containers; analyses to be performed; sampler's name; dates, name, and times of personnel relinquishing samples; dates, name, and times of personnel receiving samples.

When collecting a sample, if applicable, personnel will record the seal number associated with each sample cooler and record whether the seal was intact upon arrival in the field. This assures that the sample containers were not tampered with in the time between their preparation and their arrival on-site. After sample collection, the bottles will again be placed in the cooler. The cooler will be sealed on-site (if such seal is provided by the laboratory) and the number will be recorded in the field book.

H.8 Laboratory Sample Storage Procedures

Sample containers and sample collection syringes will be laboratory-cleaned and provided by the laboratory performing the analysis. Samples will be collected directly into the bottles supplied by the laboratory. Samples will be stored in the laboratory in a manner consistent with the required preservation requirements for each sample matrix and analytical methodology.

The laboratory selected to perform analyses of the samples will be NYSDOH ELAP-certified and thereafter is expected to follow USEPA and NYSDEC/NYSDOH sample storage requirements. The laboratory will also be expected to follow all calibration procedures and schedules as specified in USEPA SW-846 and subsequent updates that apply to the instruments used for the analytical methods.

H.9 Laboratory Data Deliverables

Data generated from the analysis of samples will be provided in Category B deliverable format for non-USEPA/CLP methods. In addition, electronic data deliverables will be provided by the laboratory in a format that will allow subsequent submittal in accordance with the NYSDEC's "Electronic Data Deliverable Manual," including submitting the data in the appropriate Electronic Data Deliverable (EDD) for EQuIS format (NYSDEC's Environmental Information Management System) pursuant to DER-10. See http://www.dec.ny.gov/chemical/62440.html for details.

H.10 Data Usability Summary Report

A Data Usability Summary Report (DUSR) will be prepared in accordance with Appendix 2B of DER-10 to present the results of data validation, including a summary assessment of laboratory data packages, sample preservation and chain of custody procedures, and a summary assessment of precision, accuracy, representativeness, comparability, and completeness for each analytical method.

APPENDIX I
SITE MANAGEMENT FORMS

APPENDIX I – SITE MANAGEMENT FORMS

This Appendix includes all site-specific site management forms considered necessary for the planned operation and maintenance of remediation components, including the site inspection form for the engineering controls and the monitoring wells. Based on the nature of the remedy, no non-routine operations and maintenance forms are needed for the site.

The forms will be completed during site inspection and maintenance activities and provided to the NYSDEC in electronic format in accordance with the reporting requirements specified in Section 7.0 of the SMP.

Monitoring Well Inspection Form
Former Steel Treaters, Inc. (Site No. V00578)
520 Campbell Avenue, Troy, New York

Inspection Date:			
Inspected By:			
Monitoring Well	**Well Cover Condition**	**Locking Well Cap Condition**	**Comments and Maintenance Needs/Actions**
MW-1			
MW-5			
MW-8			
MW-11			
MW-13			
MW-14			
MW-17			
MW-18			
MW-19			
MW-100I			
MW-100B			
MW-100E			
MW-101I			
MW-101E			
MW-102IR			
MW-102B			
MW-102ER			
MW-103I			
MW-103B			

Monitoring Well Inspection Form
Former Steel Treaters, Inc. (Site No. V00578)
520 Campbell Avenue, Troy, New York

Inspection Date:			
Inspected By:			
Monitoring Well	**Well Cover Condition**	**Locking Well Cap Condition**	**Comments and Maintenance Needs/Actions**
MW-103ER			
MW-104I			
MW-104E			
MW-2			
MW-3			
MW-6			
MW-7			
MW-10			
BRMW-1			
BRMW-2S			
BRMW-2D			
BRMW-3			
BRMW-4			
MW-4			
MW-9			
MW-12			
MW-15			
MW-16			

Engineering Control Monitoring Checklist
Former Steel Treaters, Inc. (Site No. V00578)
520 Campbell Avenue, Troy, New York

Inspection Date:				
Inspected By:				
Consolidation and Capping Area Designation	**Type of Final Cap Material**	**Restricted Area Map**	**Observations**	
			Satisfactory Cap Condition	**Comments**

Click Here

Drag and Drop Image File

Click Photo > Format Tab > Size Group
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Photo 1: Concrete cap condition (facing DIRECTION).

Click Here

Drag and Drop Image File

Click Photo > Format Tab > Size Group
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Photo 2: Asphalt cap condition (facing DIRECTION).

Click Here

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Click Photo > Format Tab > Size Group
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Photo 3: Stone cap condition (facing DIRECTION).

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Drag and Drop Image File

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Photo 4: Monitoring well condition (facing northeast).

APPENDIX J
FIELD ACTIVITIES PLAN

APPENDIX J – FIELD ACTIVITIES PLAN

This Field Activities Plan is prepared to support potential future investigations and remedial activities conducted at the former Steel Treaters site located at 520 Campbell Avenue, Troy, New York. Such work will be conducted in accordance with New York State Department of Environmental Conservation (NYSDEC) regulations and guidance documents in effect at the time of work is conducted, including but not limited to:

- Technical Guidance for Site Investigation and Remediation (DER-10); and
- 6 NYCRR Part 375 (Environmental Remediation Programs regulations).

This Field Activities Plan is consistent with the protocols developed during the investigation phase of the project.

J.1 Groundwater Level Measurements

Groundwater levels will be determined by measuring the depth to water using a water level indicator. The groundwater elevations will be established from the top-of-casing elevations on the following table.

Monitoring Well ID	Coordinates (state plane coordinates)	Top of Casing (ft MS)
MW-1	X: 713169.9 Y: 1412258.5	277.26
MW-5	X: 713161.6 Y: 1412429.6	276.94
MW-8	X: 713252.2 Y: 1412396.2	273.65
MW-11	X: 713221.1 Y: 1412454.7	266.89
MW-13	X: 713159.4 Y: 1412347.9	266.17
MW-14	X: 713216.4 Y: 1412227.0	266.34
MW-17	X: 713244.4 Y: 1412221.5	267.71
MW-18	X: 713221.9 Y: 1412254.6	274.30
MW-19	X: 713221.7 Y: 1412259.1	274.53
MW-100I	X: 713221.9 Y: 1412263.6	274.26
MW-100B	X: 713173.7 Y: 1412337.1	274.38

Monitoring Well ID	Coordinates (state plane coordinates)	Top of Casing (ft MS)
MW-100E	X: 713169.5 Y: 1412341.1	274.26
MW-101I	X: 713200.2 Y: 1412347.8	269.24
MW-101E	X: 713200.4 Y: 1412351.4	268.70
MW-102IR	X: 713199.3 Y: 1412354.8	268.85
MW-102B	X: 713218.1 Y: 1412347.1	268.61
MW-102ER	X: 713217.6 Y: 1412350.4	268.01
MW-103I	X: 713218.2 Y: 1412354.2	269.35
MW-103B	X: 713251.5 Y: 1412273.2	269.02
MW-103ER	X: 713257.4 Y: 1412274.3	268.46
MW-104I	X: 713169.9 Y: 1412258.5	275.97
MW-104E	X: 713161.6 Y: 1412429.6	274.90

J.2 Groundwater Sampling Methodologies

Groundwater samples will be collected following the USEPA's low-flow (minimal drawdown) sampling procedure or passive diffusion bags (PDBs). Where samples are to be subjected to chemical analyses other than VOCs, the groundwater samples will be collected using the USEPA's low-flow sampling procedure.

As part of that the low-flow sampling protocol, water levels will be measured before and after insertion of the peristaltic or submersible pump into the well. After pump startup, the water level drawdown will be monitored and the flowrate adjusted as necessary to stabilize drawdown. Once drawdown measurements indicate a relatively constant flow rate has been achieved (between 100 and 500 mL/minute), water quality parameters (e.g., pH, DO, ORP, temperature, specific conductance, and turbidity) will be monitored every 5 minutes using a Horiba -22 (or equivalent) and a flow through cell. Once the parameters have stabilized, groundwater quality monitoring will cease and samples will be placed into the appropriate laboratory supplied containers. Samples for VOC analysis will be placed in VOC vials with zero head space

Where PDBs are used for groundwater sampling, water levels will be measured prior to deployment of the PDBs to the target depth. The PDBs will allowed to equilibrate a minimum of two weeks prior to retrieval. Samples will be transferred from the PDBs to VOC vials within 30 minutes of retrieval. The

vials will be filled such that there is zero head space. Following sample collection, conductivity, pH, turbidity, dissolved oxygen, temperature and oxidation/reduction potential will be monitored using a Horiba U-22 (or equivalent).

For quality assurance/quality control purposes duplicate samples will be collected in accordance with the QAPP (Appendix H of this SMP).

J.3 Sample Management and Analytical Methodologies

All samples will be placed in laboratory-sample containers and stored on ice to maintain a maximum sample temperature of 4°C until sample delivery at the laboratory following appropriate chain of custody procedures.

Any laboratory to be retained for sample analysis must be a NYSDOH Environmental Laboratory Accreditation Program (ELAP)-certified laboratory. An example of certified laboratories includes TestAmerica, Inc. Buffalo located in Amherst, New York (NYSDOH ELAP Certification No 10026). It is possible that additional laboratories may be retained as subcontractors by the above. Information regarding contract laboratories, if utilized, will be provided within the laboratory data deliverables generated for the analytical work.

Chemical will be conducted using the methodologies listed in the Table 1 below, which are in accordance with the NYSDEC's July 2005 Analytical Services Protocol (ASP).

Table 1 – Groundwater Sample Analytical Methodologies

Parameter	Analytical Method
VOCs (other than 1,4-dioxane)	EPA Method 8260C
1,4-dioxane	EPA Method 8270 SIM
Cations (calcium, magnesium, sodium, and potassium)	EPA Method 200.7
Alkalinity	Method SM 2320B
Chloride	USEPA Method 9251
Nitrate/Nitrite	EPA Method 353.2
Sulfate	USEPA Method 9038
Hydrogen	
Dissolved Ferrous Iron	SM 3500

APPENDIX K
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REMEDIAL SYSTEM OPTIMIZATION FOR STI, TROY NY

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APPENDIX L
RESPONSIBILITIES OF OWNER AND REMEDIAL PARTY

Responsibilities

The responsibilities for implementing the Site Management Plan ("SMP") for the Former Steel Treaters, Inc. site (the "site"), number V00578 are currently not divided because the site owner(s) and a Remedial Party, as defined below, are the same party. The owner(s) is/are currently listed as: ESCO Corporation, 2141 NW 25th Avenue, Portland, Oregon 97201 (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 ESCO Corporation, 2141 NW 25th Avenue, Portland, Oregon 97201.

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 property. 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.

8) In accordance with the tenant notification law, within 15 days of receipt, the owner must supply a copy of any vapor intrusion data, that is produced with respect to structures and that exceeds NYSDOH or OSHA guidelines on the site, whether produced by the NYSDEC, RP, or owner, to the tenants on the property. The owner must otherwise comply with the tenant and occupant notification provisions of Environmental Conservation Law Article 27, Title 24.

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) 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.

8) 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.