

Prepared for:  
**Steel Treathers, Inc.**  
**Troy, New York**

Prepared By:  
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**1690000663**

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

## CERTIFICATION STATEMENT

I, Russell Kemp, certify that I am currently a NYS registered professional engineer and that this Periodic Review Report 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).

*Russell A. Kemp*

Signature



*21 November 2019*

Date

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## 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
AWQS:	Ambient Water Quality Standards
bgs:	below grade surface
cVOC:	chlorinated volatile organic compound
DER:	Division of Environmental Remediation
DO:	dissolved oxygen
DUSR:	Data Usability Summary Report
EC:	Engineering Control
ENVIRON:	ENVIRON Engineers of North Carolina, PC
EPA:	United States Environmental Protection Agency
ESCO:	ESCO Corporation
IC:	Institutional Control
NELAP:	National Environmental Laboratory Accreditation Program
NYSDEC:	New York State Department of Environmental Conservation
NYSDOH:	New York State Department of Health
ORP:	oxidation-reduction potential
PCE:	tetrachloroethene
PRB:	permeable reactive barrier
PRR:	Periodic Review Report
RAO:	Remedial Action Objective
SCO:	soil cleanup objective
SF:	square feet
SMP:	Site Management Plan
STI:	Steel Treaters, Inc.
TCA:	1,1,1-trichloroethane
TCE:	trichloroethene
VCA:	Voluntary Cleanup Agreement
VCP:	Voluntary Cleanup Program



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VOC: volatile organic compound

ZVI: zero-valent iron

## EXECUTIVE SUMMARY

ENVIRON Engineers of North Carolina, PC (ENVIRON) has prepared this Periodic Review Report (PRR) for the Former Steel Treaters, Inc. Facility (the Site) located in Troy, New York (see **Figure 1**). The period of review for this report is June 26, 2018 and October 26, 2019.

Between 1966 and 2005, the Site was used to heat treat metal machine parts received from various manufacturers. These activities included the use of solvents, including 1,1,1-trichloroethane (TCA) and trichloroethene (TCE), which were stored in 55-gallon drums and used for degreasing of metal parts. The solvents were reportedly used until 1991 and were reclaimed following use. Operations at the Site ceased following a fire on February 24, 2005, which damaged the single-story building. The Site is currently vacant and consists of the concrete slab of the former building (demolished in 2017), surrounding asphalt parking lot, and wooded areas.

Prior to site remediation, 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 was identified as a former parts degreaser pit located in the southeast portion of the former building (see **Figure 2**). Between 2007 and 2010, several interim remedial measures were completed at the Site (i.e., in-situ chemical oxidation in 2007, soil vapor extraction from 2008 to 2010, and soil excavation in December 2010) primarily to address contamination identified near the former degreaser pit. These remedial actions resulted in soil concentrations meeting the NYSDEC restricted commercial or industrial SCOs; therefore, no further remedial action of soil was warranted other than establishing institutional controls (ICs) restricting land use to commercial or industrial purposes. However, the detection of chlorinated ethenes and ethanes in groundwater above New York's Ambient Water Quality Standards (AWQS) for Class GA water indicated that remedial action of groundwater was warranted.

In accordance with NYSDEC's Decision Document on October 13, 2017, between January 9, 2018 and March 29, 2018 a passive groundwater remedy was implemented that included (1) construction of a permeable reactive barrier (PRB); (2) construction of a ZVI treatment zone immediately downgradient of the former degreasing pit, where TCA and TCE concentrations are highest; and (3) installation of engineering controls (ECs; i.e., a permanent cover system). In addition, ICs were established in the form of an environmental easement.

All requirements of the IC/EC plan were met during the current review period. The results of site-wide inspections and groundwater sampling show that the IC/ECs are in place, effective, and performing as designed. In addition, all requirements of the monitoring plan were met with the exception of a few wells that could not be sampled during the first two sampling events (July/August 2018 and November 2018) due to insufficient water column and/or an obstruction present in the well casing at the time of sampling. As a result, two monitoring wells (MW-102I and MW-103E) were replaced in January 2019. The groundwater monitoring results show that the PRB system is effectively reducing VOC concentrations as groundwater flows through the barriers.

The Site Management Plan (SMP) will be revised and submitted to NYSDEC under separate cover to reflect the resurvey of all Site groundwater monitoring wells and a change in the analytical method for 1,4-dioxane requested by NYSDEC. There are no other recommended changes to the groundwater monitoring program at this time and groundwater monitoring will continue in accordance with the

revised SMP. The next PRR will be submitted to NYSDEC by November 25, 2020 and will cover monitoring activities completed between October 27, 2019 and October 26, 2020.

## 1. INTRODUCTION

This Periodic Review Report (PRR) is a required element of the Site Management Plan (SMP; ENVIRON Engineers of North Carolina, PC [ENVIRON], 2018) for the remedial action at the Former Steel Treaters, Inc. Facility located in Troy, New York (hereinafter referred to as the "Site"; see **Figure 1**). Steel Treaters, Inc. (STI) entered into a Voluntary Cleanup Agreement (VCA) with the New York State Department of Environmental Conservation (NYSDEC) on September 19, 2003 to remediate the Site. The property ownership was transferred to ESCO Corporation (ESCO), STI's parent company and current property owner, in 2012. The Site is currently in the NYSDEC's Voluntary Cleanup Program (VCP) as Site No. V00578-4. The SMP for the Site (dated June 14, 2018) was approved by NYSDEC on June 26, 2018.

This PRR is the first review report for the Site and covers monitoring activities for the period following NYSDEC's issuance of the Certificate of Completion (June 26, 2018) and October 26, 2019. This document was prepared in accordance with the requirements of NYSDEC's DER-10 ("Technical Guidance for Site Investigation and Remediation"), dated May 2010 and the guidelines provided by NYSDEC.

### 1.1 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. The Site encompasses an approximately 1.109-acre area and is bounded by Campbell Avenue to the north, a butcher shop and a few residences 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 the metes and bounds site description that is part of the Environmental Easement provided in **Appendix A**. The currently vacant Site, which is zoned industrial, consists of the concrete slab of a former building that was demolished in 2017, surrounding asphalt parking lot, and wooded areas.

The Site was acquired by STI in 1965 and used to heat treat metal machine parts received from various manufacturers starting in 1966. Past site activities included the use of solvents, including 1,1,1-trichloroethane (TCA) and trichloroethene (TCE), which were stored in 55-gallon drums and used for degreasing of metal parts. The solvents were reportedly used until 1991 and were reclaimed following use. Operations at the Site 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.

Prior to site remediation, 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 was identified as a former parts degreaser pit located in the southeast portion of the former building (see **Figure 2**). Soil sampling indicated that ethenes (1,1-dichloroethene [1,1-DCE], cis-1,2-dichloroethene [1,2-DCE], tetrachloroethene [PCE], TCE, and vinyl chloride), ethanes (1,1-dichloroethane [1,1-DCA], 1,2-dichloroethane [1,2-DCA], and TCA), and 1,4-dioxane were present in site soils in excess of the NYSDEC unrestricted soil cleanup objective (SCO). In addition, some metals (barium, cadmium, total chromium, copper, nickel, and zinc) were detected in surficial soils (less than 12 inches deep) in excess of the NYSDEC unrestricted SCO. Groundwater sampling indicated 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 extended to monitoring wells located on the north side of Campbell Avenue.

## 1.2 Remedial History

A summary of the investigation and remedial history of the Site is provided in Section 2.3 of the SMP. As discussed above, several phases of remedial investigation were completed at the Site between 2001 and 2013. In addition, between 2007 and 2010, several interim remedial measures were completed at the Site (i.e., in-situ chemical oxidation in 2007, soil vapor extraction from 2008 to 2010, and soil excavation in December 2010) primarily to address contamination identified in the source area, near the former degreaser pit. These remedial actions resulted in soil concentrations meeting the NYSDEC restricted commercial or industrial SCOs; therefore, no further remedial action of soil was warranted other than establishing institutional controls (ICs) restricting land use to commercial or industrial purposes. However, the detection of chlorinated ethenes and ethanes in groundwater above the AWQS for Class GA water indicated that remedial action of groundwater was warranted.

As described in the SMP, additional investigatory activities were conducted between December 2015 and March 2016 and the results presented in ENVIRON's Pre-Design Investigation Report and Remedial Action Workplan dated July 19, 2017. Following the NYSDEC issuance of a Decision Document on October 13, 2017, ENVIRON prepared the Remedial Design Report for the selected remedy, which was approved by NYSDEC on December 19, 2017. As documented in ENVIRON's Final Engineering Report dated June 15, 2018, the remedy was implemented between January 9, 2018 and March 29, 2018 and included the following components:

1. Construction of a permeable reactive barrier (PRB);
2. Construction of a ZVI treatment zone immediately downgradient of the former degreasing pit, where TCA and TCE concentrations are highest; and
3. Installation of engineering controls (ECs; i.e., a permanent cover system).

In addition, ICs were established in the form of an environmental easement which: (a) defines inspection and reporting requirements in accordance with Part 375-1.8(h)(3); (b) limits use and redevelopment of the Site to commercial and industrial purposes as defined by Part 375-1.8(g) and the City of Troy's zoning determination; (c) restricts groundwater as a source of potable or process water without pre-treatment as determined by the New York State Department of Health (NYSDOH) or County DOH; and (d) requires compliance with the SMP developed for the Site. Further and as required by the Environmental Easement, an SMP for long term management of remaining contamination, which includes plans for (1) IC/ECs, (2) monitoring, (3) operation and maintenance, and (4) reporting, was developed and implemented. The long term monitoring defined in the SMP consists of quarterly groundwater sampling from wells upgradient, within, and downgradient of the PRB for the first year (completed), semi-annually for the next two years (partially completed), and annually thereafter to ensure that the treated groundwater complies with the AWQS for Class GA water and restoration of the ground water aquifer to pre-disposal/pre-release conditions has been achieved to the extent practicable.

No changes to the selected remedy have been made since remedy selection.

## 1.3 Objectives of the Periodic Review

In accordance with the SMP, this PRR will:

- Evaluate the overall performance and effectiveness of the remedy;

- Evaluate the compliance of the remedy with the requirements of the October 13, 2017 NYSDEC Decision Document and the SMP;
- Evaluate the operation and effectiveness of all treatment units, including identification of any needed repairs or modifications;
- Evaluate trends in contaminant levels in the affected media to determine if the remedy continues to be effective in achieving the remedial goals as specified by the Decision Document;
- Provide any new conclusions or observations regarding site contamination based on inspections or data generated by the NYSDEC-approved Monitoring and Sampling Plan for the media being monitored; and
- Provide recommendations regarding any necessary changes to the remedy and/or Monitoring and Sampling Plan.

This report includes:

- Identification, assessment, and certification of all IC/ECs required by the remedy for the Site.
- Results of the required annual site inspections completed during the reporting period.
- All site management forms and other records generated for the Site during the reporting period, if not previously submitted.
- A summary of monitoring data generated during the reporting period, with comments and conclusions.
- Data summary tables and graphical representation of contaminants of concern by media, which include a listing of all compounds analyzed, along with the applicable standards, with all exceedances highlighted. These include a presentation of past data as part of an evaluation of contaminant concentration trends.

## 2. REMEDY PERFORMANCE, EFFECTIVENESS, AND PROTECTIVENESS

### 2.1 IC/EC Plan Compliance Report

As discussed in **Section 1.2**, ECs at the Site currently consist of (1) the Site cover system and (2) the PRB and ZVI treatment zone. Currently, there are no structures on-site and there is no sub-slab depressurization system in place. ICs have been established for the Site in the form of an Environmental Easement (**Appendix A**). **Figures 3** and **4** show the EC locations and IC boundaries, respectively.

The following subsections describe each control, its objective, performance evaluation completed during the current review period, and status.

#### 2.1.1 Cover System Compliance

As described in the SMP, the 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 4 inches of asphalt and concrete, respectively. The coarse aggregate cover system, concrete slab, and asphalt pavement extend over approximately 4,500 square feet (SF), 9,000 SF, and 8,300 SF, respectively (refer to **Figure 3**). The objective of the cover system is to address soil exceedances of the SCOs and prevent direct contact with underlying soils.

In accordance with the SMP, performance of the cover system is visually inspected during biannual site-wide inspections, which for the current review period were performed on July 30, 2018, January 23, 2019, and July 29, 2019. The inspection forms completed during these site-wide inspections are provided in **Appendix B**. Based on the inspections, the cover system is in place, there is no visible damage since its implementation, and it complies with the SMP.

#### 2.1.2 PRB and ZVI Treatment Zone Compliance

The PRB was installed around the northern side of the former building and includes an approximately 30-foot long pervious ZVI treatment barrier (20% ZVI and 80% washed sand) and impermeable hydraulic barriers (steel sheetpile sections) on either side of the PRB with a total combined length of 220 linear feet. The PRB is approximately 3 feet wide and installed to a depth between approximately 15.2 and 16.2 feet bgs, extending to the top of the underlying bedrock. The objective of the PRB is to passively reduce concentrations of contaminants in groundwater in-situ and mitigate, to the extent practicable, offsite migrations of impacted groundwater.

The ZVI treatment zone consists of an approximately 3-foot wide and 25-foot long barrier (35% ZVI and 65% washed sand) installed to a depth of approximately 13.7 and 17.7 feet bgs, extending to the top of the underlying bedrock. The objective of the ZVI treatment zone is to passively reduce concentrations in groundwater, improve the effectiveness of the PRB, and reduce remedial timeframes.

Since the PRB and ZVI treatment zone are passive groundwater treatment systems, there are no operational and maintenance requirements for these systems. The performance of the reactive media in both barriers is monitored via monitoring well pairs installed upgradient and downgradient of each

barrier. Monitoring wells are also installed within the reactive media. Based on the monitoring completed to date (refer to Section 2.2.2), the PRB and ZVI treatment zone are performing as designed and comply with the SMP.

### 2.1.3 Institutional Controls Compliance

The ICs required by the Environmental Easement<sup>1</sup> (**Appendix A**) and implemented under the SMP are:

- The property use is limited to commercial and/or industrial land uses;
- All ECs must be operated and maintained as specified in the 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 the SMP;
- Data and information pertinent to site management must be reported at the frequency and in a manner as defined in the SMP;
- All future activities that will disturb remaining contaminated material must be conducted in accordance with the SMP;
- Monitoring to assess the performance and effectiveness of the remedy must be performed as defined in the 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 4**, and any potential impacts that are identified must be monitored or mitigated; and
- Vegetable gardens and farming on the site are prohibited.

These ICs exist to: (1) implement, maintain and monitor the EC systems; (2) prevent future exposure to remaining contamination; and (3) limit the use and development of the site to commercial or industrial uses only. As stated in the Environmental Easement, the ICs may not be discontinued without an amendment to or extinguishment of the Environmental Easement.

The ICs are in place and unchanged since their implementation.

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<sup>1</sup> The Environmental Easement also requires that "operation, maintenance, monitoring, inspection, and reporting of any mechanical or physical component of the remedy shall be performed as defined in the SMP." However, the remedy at the Site does not include any mechanical or physical components.



### **2.1.4 IC/EC Compliance Conclusions and Recommendations**

The completed NYSDEC Institutional and Engineering Controls (IC/ECs) Certification Form for this review period is included as **Appendix C**. The IC/ECs are in place, are performing as designed, and comply with the SMP. No changes to the IC/ECs are recommended at this time.

## **2.2 Monitoring Plan Compliance Report**

The monitoring plan for the Site currently includes biannual sitewide inspections. Although not required during the current review period, the monitoring plan also includes sitewide inspections after all severe weather conditions that may affect the ECs or monitoring devices. As discussed in Section 4.2 of the SMP, the purpose of the inspections is to 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.

During each inspection, the inspection form provided in the SMP (Appendix I – Site Management Forms) is completed 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 are conducted of all remedial components installed at the site, with the exception of the PRB and ZVI treatment zone which are below ground surface. There are no active systems (i.e., systems requiring energy, pumping, or moving parts) requiring monitoring or operation and maintenance. Instead, standard groundwater monitoring is used to assess the performance of the PRB and ZVI treatment zone. Sampling locations, required analytical parameters, and schedule are provided in Table 6 – Post Remediation Sampling Requirements and Schedule of the SMP, reproduced below:

**Table 6 – Post Remediation Sampling Requirements and Schedule**

Sampling Location <sup>(1)</sup>	VOC Analysis (EPA Method 624)	Cations, Anions, Dissolved Fe, and Dissolved H <sub>2</sub> <sup>(3)</sup>	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 <sup>(2)</sup>		X	Annually
Groundwater monitoring for PRB effectiveness (monitoring wells MW-100I, MW-100B, MW-100E, MW-102I, MW-102B, MW-102ER, MW-103I, MW-103B, and MW-103E)	X <sup>(2)</sup>	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: 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 monitoring program is designed to monitor changes in the groundwater plume characteristics, including contaminant concentrations and the horizontal extent of the plume. Documentation of continued decreasing trends in cVOC concentrations and monitoring groundwater geochemistry across each treatment zone (i.e., ZVI treatment zone and PRB) is considered sufficient to demonstrate the continued effectiveness of the remedy.

**2.2.1 Summary of Site Inspections**

As discussed in Section 2.1.1, sitewide inspections during the current review period were conducted on July 30, 2018, January 23, 2019, and July 29, 2019. The inspection forms completed during these site-wide inspections are provided in **Appendix B**.

During all three inspections, the monitoring well covers were observed to be in generally good condition. A few wells were observed to be missing a lock on their protective casing during the July 2018 inspection, but replacement locks were installed immediately and no other issues were identified during the following two inspections.

The cover system (i.e., the asphalt, stone, and concrete caps) was also observed to be in generally good condition during all three inspections. Following both the July 2018 and 2019 inspections, vegetation growing within and around the northern and western sides of the concrete slab was sprayed with herbicide and/or clipped. In addition, during the January and July 2019 inspections, the concrete pads for MW-102B and MW-103B were observed to be a few inches above the surrounding surface. This condition will continue to be monitored during future site inspections; however, no repairs are required at this time.

### 2.2.2 Summary of Groundwater Monitoring

To date, five post-remedy implementation groundwater sampling events have been conducted at the Site. In accordance with the sampling schedule defined in the SMP (refer to **Section 2.2** above), four quarterly events were conducted in the first year following remedy implementation (July/August 2018, November 2018, February 2019, and May 2019) and the first of two semi-annual events has been conducted for the second year (July/August 2019). The results of each groundwater sampling event were provided to NYSDEC in interim monitoring letter reports dated January 10, 2019 (Events 1 and 2), April 17, 2019 (Event 3), June 21, 2019 (Event 4), and September 20, 2019 (Event 5).

Groundwater samples were collected from the following monitoring wells during the current review period:

- PRB system monitoring wells (monitored in July/August 2018, November 2018, February 2019, May 2019, and July/August 2019): MW-100I, MW-100B, MW-100E, MW-102IR<sup>2</sup>, MW-102B, MW-102ER, MW-103I, MW-103B, and MW-103ER<sup>3</sup>.
- Overburden monitoring wells (monitored in July/August 2018 and July/August 2019): MW-11<sup>4</sup>, MW-13<sup>5</sup>, MW-14, MW-17, MW-18, MW-19, MW-101I, MW-104I, and MW-104E.

As indicated in the interim monitoring letter reports previously submitted to NYSDEC, all groundwater samples were collected in accordance with the United States Environmental Protection Agency's (EPA) low-flow sampling procedure. Static water levels within each well were measured before and after insertion of the peristaltic pump into the well. After pump startup, the water level drawdown and water quality parameters (i.e., pH, specific conductance, turbidity, temperature, oxidation-reduction potential [ORP], and dissolved oxygen [DO]) were monitored every five minutes using a Horiba U-52 and a flow through cell until the parameters stabilized, at which point samples were collected in the appropriate laboratory supplied containers.

The groundwater samples collected from both the PRB system monitoring wells and other overburden monitoring wells were analyzed for volatile organic compounds (VOCs) by TestAmerica, a National Environmental Laboratory Accreditation Program (NELAP) certified laboratory approved by NYSDOH, using EPA Method 8260C. In addition, the groundwater samples collected from the PRB system monitoring wells were analyzed for cations, anions, dissolved iron, and dissolved hydrogen.<sup>6 7</sup>

The groundwater sampling results for the first five groundwater monitoring events are summarized in **Figure 5** and **Table 1**. The data from the wells upgradient of the PRB system (i.e., MW-18 and MW-19) indicate that contaminant levels post-remedy implementation are comparable to contaminant

<sup>2</sup> MW-102I could not be sampled in July/August 2018 or November 2018 due to insufficient water column in the well. MW-102I was replaced with MW-102IR on January 23, 2019.

<sup>3</sup> MW-103E could not be sampled in November 2018 due to an obstruction present in the well casing. MW-103E was replaced with MW-103ER on January 23, 2019.

<sup>4</sup> MW-11 could not be sampled in July/August 2018 due to insufficient water column in the well.

<sup>5</sup> MW-13 could not be sampled in July/August 2018 due to insufficient water column in the well.

<sup>6</sup> 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 were analyzed for dissolved iron using EPA Method 200.7, and for dissolved hydrogen using AM20GAX.

<sup>7</sup> TestAmerica subcontracted Pace Analytical Energy Services LLC, another NELAP-certified laboratory approved by the New York State Department of Health (NYSDOH), to perform the dissolved hydrogen analysis.

levels pre-remedy implementation, which is expected given that the remedy relies on passive treatment of the impacted groundwater as it flows through the reactive media barriers. VOC concentrations in MW-11, located downgradient of the PRB system, were below the AWQS for Class GA water. In other wells downgradient of the PRB system (i.e., MW-13, MW-14, and MW-17), some key VOCs were detected above the AWQS; these concentrations are generally comparable to those prior to remedy implementation and are most likely due to residual VOCs present in groundwater.

The data from the PRB system monitoring wells for the first five monitoring events indicate that the PRB system is functioning as designed. During all five monitoring events, measured values of pH generally increased along the flow direction while values of ORP generally were low within the PRB wells. Similarly, a decrease in the concentration of key cations (calcium and magnesium) and alkalinity in samples of groundwater was also generally observed across each barrier, again with some increase toward ambient conditions downgradient from the PRB. These observations are consistent with expectations for functioning PRBs.

VOC concentrations in the monitoring wells immediately upgradient of the PRBs (MW-100I, MW-102IR, and MW-103I) measured during the five monitoring events completed during the current review period were generally higher than in the monitoring wells within the PRBs (MW-100B, MW-102B, and MW-103B), which indicates that the VOC concentrations are being reduced as the groundwater flows through the barriers. The concentrations observed in groundwater samples from MW-100E and MW-102ER (monitoring wells immediately downgradient of the PRBs) are most likely due to residual VOCs present in groundwater prior to remedial action implementation. However, the concentrations of key VOCs in samples from these downgradient wells have generally decreased over time, as anticipated and signaling significant progress in the remedial approach. Notably, the concentrations in the groundwater sample from MW-103ER (immediately downgradient of the PRB) decreased to levels below the AWQS between the fourth and fifth monitoring events. Natural attenuation processes may also contribute to reduction of the contaminant mass over time.

In accordance with Appendix 2B of NYSDEC DER-10, a Data Usability Summary Report (DUSR) evaluating the analytical data collected during each event was provided with each interim monitoring letter report submitted during the current review period. Data evaluated for the first five monitoring events were qualified for hold time exceedance, ICV and CCV recoveries, LCS/LCSD recoveries, MS/MSD recoveries, field blank contamination, field duplicate precision, and when concentrations were detected between the MDL and RL. However, these qualifications did not change the conclusions made from evaluation of the data; therefore, the overall conclusion of the DUSRs is that the analytical data are usable as qualified.

### **2.2.3 Monitoring Conclusions and Recommendations**

The results of the sitewide inspections completed during the current review period show that the monitoring well covers and the cover system are in generally good condition. The cover system is effectively preventing direct contact with underlying soils with exceedances of the SCOs.

The results of the groundwater monitoring completed during the current review period show that the PRB system is effectively reducing VOC concentrations in groundwater in-situ and mitigating offsite migration of impacted groundwater. While concentrations of some VOCs remain above the AWQS for Class GA water in two of the three monitoring wells immediately downgradient of the PRBs, evaluation of the monitoring results shows that VOC concentrations are being reduced as groundwater flows

through the barriers. Residual concentrations are expected to continue decreasing over time as groundwater from the Site continues to flow through the PRB system.

## 3. CONCLUSIONS AND RECOMMENDATIONS

### 3.1 Conclusions

All requirements of the IC/EC plan were met during the current review period. Site-wide inspections and groundwater sampling were performed in accordance with the schedule provided in the SMP. The results of these activities show that the IC/ECs are in place, effective, and performing as designed.

In addition, all requirements of the monitoring plan were met with the exception of the few wells that could not be sampled during the first two sampling events (July/August 2018 and November 2018) due to insufficient water column and/or an obstruction present in the well casing at the time of sampling. As a result, two monitoring wells (MW-102I and MW-103E) were replaced in January 2019. There was sufficient water in all designated PRB and overburden monitoring wells during the third, fourth, and fifth sampling events (February 2019, May 2019, and July/August 2019) completed during the current review period. The results show that the PRB system is effectively reducing VOC concentrations as groundwater flows through the barriers.

### 3.2 Recommendations and Future Submittals

A revised SMP will be submitted to NYSDEC under separate cover to reflect the following:

- On February 20, 2019, all Site groundwater monitoring wells were resurveyed following replacement of MW-102I and MW-103E. The SMP will be revised with the updated coordinates and elevations and well construction records for the two replacement wells.
- On July 31, 2019, NYSDEC requested that future groundwater monitoring include 1,4-dioxane analysis by EPA Method 8270 SIM, instead of Method 8260C. The SMP will be revised to reflect this change.

There are no other recommended changes to the groundwater monitoring program at this time and groundwater monitoring will continue in accordance with the revised SMP. The next groundwater monitoring event will be completed in February 2020, and the results will be provided to NYSDEC in a subsequent report.

In accordance with the SMP, the next PRR will be submitted to NYSDEC by November 25, 2020 and will cover monitoring activities completed between October 27, 2019 and October 26, 2020.

## 4. REFERENCES

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ENVIRON. September 2019. Letter Report – Post-Remedy Groundwater Monitoring Results – Fifth Monitoring Event.

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NYSDEC. October 2017. Decision Document – Steel Treaters, Inc., Voluntary Cleanup Program, Troy, Rensselaer County, Site No. V00578.

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**TABLES**



**TABLE 1**  
**Summary of Groundwater Sampling Results**  
**Monitoring Events 1-5**  
**ESCO Steel Treaters; Troy, NY**

Location	MW100I	MW100I	MW100I	MW100I	MW100I	MW100I	MW100I	MW100I	MW100B	MW100B	MW100B
Field Sample ID	MW-100I-180801	MW-100I-181113	DUP-181113	MW-100I-190220	DUP-190220	MW100I-190506	MW100I-190729	MW-100B-180801	DUP-180801	MW-100B-181113	
Lab Sample ID	276600004 / 460-161828-4	460-169286-1 / MW-100I-181113	460-169286-2 / DUP-181113	295620002 / 460-175850-2	295620004 / 460-175850-6	302580004 / 460-181383-7	310520001 / 460-187743-1	276600001 / 460-161828-1	276600005 / 460-161828-5	460-169286-4 / MW-100B-181113	
Sample Method	Peristaltic Pump	BLADDER PUMP	BLADDER PUMP	BLADDER PUMP	BLADDER PUMP	BLADDER PUMP	BLADDER PUMP	Peristaltic Pump	Peristaltic Pump	BLADDER PUMP	
Sample Date	8/1/2018	11/13/2018	11/13/2018	2/20/2019	2/20/2019	5/6/2019	7/29/2019	8/1/2018	8/1/2018	11/13/2018	
Comments			Field Duplicate		Field Duplicate				Field Duplicate		
<b>WQ</b>											
Alkalinity	252000 (5000)	393000 (5000)	379000 (5000)	315000 (5000)	315000 (5000)	266000 (5000)	317000 (5000)	155000 (5000)	154000 (5000)	94800 (5000)	
Bicarbonate Alkalinity	252000 (5000)	393000 (5000)	379000 (5000)	315000 (5000)	315000 (5000)	266000 (5000)	317000 (5000)	155000 (5000)	154000 (5000)	71600 (5000)	
Carbonate Alkalinity	U (5000)	U (5000)	U (5000)	U (5000)	U (5000)	U (5000)	U (5000)	U (5000)	U (5000)	23200 (5000)	
Chloride	250000 <b>406000 (12000)</b>	226000 (9480)	232000 (9480)	119000 (6000)	113000 (6000)	114000 (6000)	101000 (3600)	126000 (5520)	130000 (5640)	163000 (6600)	
Nitrate	10000 U (100)	U (100)	U (100)	43 J (100)	83 J (100)	62 J (100)	U (100)	100 J (100)	140 J (100)	U (100)	
Sulfate	250000 27700 (600)	27200 (6000)	27100 (6000)	27900 (600)	27500 (600)	26900 (600)	23500 (18000)	75900 (27600)	70100 (28200)	590 J (600)	
<b>VOC</b>											
Acetone	50 U (50)	U (25)	U (25)	U (10)	U (10)	U (25)	U (25)	<b>330 (5)</b>	NA	34 J+ (5)	
Benzene	1 U (10)	U (5)	U (5)	U (2)	U (2)	U (5)	U (5)	0.93 J (1)	NA	0.55 J (1)	
2-Butanone	50 U (50)	U (25)	U (25)	U (10)	U (10)	U (25)	U (25)	33 (5)	NA	26 (5)	
Chloroethane	5 U (10)	U (5)	U (5)	U (2)	U (2)	U (5)	U (5)	1.5 (1)	NA	1.1 (1)	
1,1-Dichloroethane	5 <b>98 (10)</b>	<b>56 (5)</b>	<b>58 (5)</b>	<b>66 (2)</b>	<b>67 (2)</b>	<b>57 (5)</b>	<b>29 (5)</b>	0.49 J (1)	NA	0.33 J (1)	
1,2-Dichloroethane	0.6 <b>10 (10)</b>	<b>5.1 (5)</b>	<b>4.3 J (5)</b>	<b>2.7 (2)</b>	<b>2.7 (2)</b>	<b>2.9 J (5)</b>	U (5)	U (1)	NA	U (1)	
1,1-Dichloroethene	5 <b>26 (10)</b>	<b>15 (5)</b>	<b>19 (5)</b>	<b>12 (2)</b>	<b>11 (2)</b>	<b>12 (5)</b>	<b>6.2 J- (5)</b>	U (1)	NA	U (1)	
cis-1,2-Dichloroethene	5 <b>3400 (10)</b>	<b>740 (5)</b>	<b>790 (5)</b>	<b>360 (2)</b>	<b>350 (2)</b>	<b>280 (5)</b>	<b>230 (5)</b>	0.46 J (1)	NA	0.88 J (1)	
trans-1,2-Dichloroethene	5 3 J (10)	2.8 J (5)	2.1 J (5)	1.4 J (2)	1.3 J (2)	1.7 J (5)	1.2 J (5)	U (1)	NA	U (1)	
1,4-Dioxane	360 J (500)	UJ (250)	UJ (250)	64 J (100)	77 J (100)	U (250)	U (250)	120 (50)	NA	71 J- (50)	
Ethyl Benzene	5 U (10)	U (5)	U (5)	U (2)	U (2)	U (5)	U (5)	U (1)	NA	U (1)	
Methylene Chloride	5 U (10)	U (5)	U (5)	U (2)	U (2)	U (5)	U (5)	0.64 J (1)	NA	U (1)	
Tetrachloroethene	5 U (10)	<b>5.2 (5)</b>	<b>5.6 (5)</b>	4.2 (2)	4.1 (2)	<b>8.1 (5)</b>	<b>5.7 (5)</b>	U (1)	NA	U (1)	
1,1,1-Trichloroethane	5 <b>41 (10)</b>	<b>37 (5)</b>	<b>42 (5)</b>	<b>16 (2)</b>	<b>15 (2)</b>	<b>18 (5)</b>	<b>14 (5)</b>	U (1)	NA	U (1)	
1,1,2-Trichloroethane	1 U (10)	<b>3.2 J (5)</b>	<b>3.1 J (5)</b>	<b>1.5 J (2)</b>	<b>1.6 J (2)</b>	U (5)	U (5)	U (1)	NA	U (1)	
Trichloroethene	5 <b>410 (10)</b>	<b>870 (5)</b>	<b>970 (5)</b>	<b>880 (2)</b>	<b>850 (2)</b>	<b>1300 (5)</b>	<b>1100 (5)</b>	2 (1)	NA	0.78 J (1)	
Vinyl Chloride	2 <b>250 (10)</b>	<b>260 (5)</b>	<b>310 (5)</b>	<b>180 (2)</b>	<b>180 (2)</b>	<b>100 (5)</b>	<b>76 (5)</b>	U (1)	NA	U (1)	
m,p-xylene	U (10)	U (5)	U (5)	U (2)	U (2)	U (5)	U (5)	U (1)	NA	U (1)	
ortho-xylene	5 U (10)	U (5)	U (5)	U (2)	U (2)	U (5)	U (5)	U (1)	NA	U (1)	
Xylenes (total)	5 U (10)	U (5)	U (5)	U (2)	U (2)	U (5)	U (5)	U (1)	NA	U (1)	
<b>INORG</b>											
Calcium	94700 (5000)	70300 (5000)	72400 (5000)	46500 (5000)	46500 (5000)	37400 (5000)	47000 (5000)	29700 (5000)	29500 (5000)	10500 (5000)	
Magnesium	35000 30500 (5000)	23600 (5000)	24300 (5000)	15600 (5000)	15600 (5000)	12800 (5000)	14800 (5000)	1670 J (5000)	1640 J (5000)	U (5000)	
Potassium	1160 J (5000)	829 J (5000)	849 J (5000)	527 J (5000)	530 J (5000)	579 J (5000)	581 J (5000)	10500 (5000)	10400 (5000)	11500 (5000)	
Sodium	20000 <b>250000 (5000)</b>	<b>199000 (5000)</b>	<b>203000 (5000)</b>	<b>155000 (5000)</b>	<b>158000 (5000)</b>	<b>136000 (5000)</b>	<b>150000 (5000)</b>	<b>184000 (5000)</b>	<b>183000 (5000)</b>	<b>153000 (5000)</b>	
Iron	U (150)	U (150)	U (150)	U (150)	U (150)	U (150)	U (150)	3150 (150)	3300 (150)	U (150)	
<b>GEOCHEMICAL</b>											
Hydrogen [NM]	87000 n (10000)	140 J (20)	20 J (4)	58 J (2)	17 J (1)	5.5 n (1)	18 n (1)	130000 n (5000)	100000 n (10000)	7600 J (500)	

**Notes:**  
1 All concentrations are presented in ug/L (ppb) unless otherwise noted.  
2 Only compounds with at least one detection are shown.  
3 Concentrations that exceed the NY Fresh Groundwater (GA) Standards are **boldfaced**.

**Abbreviations:**  
U -- Not Detected.  
UJ -- Non-detect Limit is Estimated.  
n -- The lab does not hold NELAP/TNI accreditation for this method or analyte.  
J -- Estimated Concentration.  
+ -- Biased high.  
- -- Biased low.  
( ) -- Detection Limit.  
NA -- Not Analyzed.

**TABLE 1**  
**Summary of Groundwater Sampling Results**  
**Monitoring Events 1-5**  
**ESCO Steel Treaters; Troy, NY**

Location	MW100B	MW100B	MW100B	MW100B	MW100B	MW100E	MW100E	MW100E	MW100E	MW100E
Field Sample ID	MW-100B-190220	MW100B-190506	DUP-190506	MW100B-190729	DUP-190729	MW-100E-180801	MW-100E-181113	MW-100E-190220	MW100E-190506	MW100E-190729
Lab Sample ID	295620001 / 460-175850-1	302370002 / 460-181278-2	302370004 / 460-181278-4	310520002 / 460-187743-2	310520003 / 460-187743-3	276600002 / 460-161828-2	460-169286-3 / MW-100E-181113	295620003 / 460-175850-3	302370001 / 460-181278-1	310540002 / 460-187853-2
Sample Method	BLADDER PUMP	BLADDER PUMP	BLADDER PUMP	BLADDER PUMP	BLADDER PUMP	Peristaltic Pump	BLADDER PUMP	BLADDER PUMP	BLADDER PUMP	BLADDER PUMP
Sample Date	2/20/2019	5/6/2019	5/6/2019	7/29/2019	7/29/2019	8/1/2018	11/13/2018	2/20/2019	5/6/2019	7/29/2019
Comments			Field Duplicate		Field Duplicate					
<b>WQ</b>										
Alkalinity	80400 (5000)	69700 (5000)	69700 (5000)	68200 (5000)	67000 (5000)	160000 (5000)	107000 (5000)	62400 (5000)	47500 (5000)	61300 (5000)
Bicarbonate Alkalinity	65300 (5000)	38000 (5000)	40500 (5000)	39600 (5000)	38100 (5000)	160000 (5000)	102000 (5000)	45000 (5000)	28500 (5000)	48500 (5000)
Carbonate Alkalinity	15100 (5000)	31700 (5000)	29200 (5000)	28600 (5000)	28900 (5000)	U (5000)	U (5000)	17400 (5000)	19000 (5000)	12800 (5000)
Chloride	250000	73500 (3000)	78600 (3000)	77300 (3000)	57900 (2400)	57700 (2400)	104000 (4560)	82800 (3480)	140000 (6000)	143000 (6000)
Nitrate	10000	U (100)	59 J (100)	57 J (100)	U (100)	U (100)	U (100)	U (100)	57 J (100)	U (100)
Sulfate	250000	3160 (600)	1060 (600)	1040 (600)	670 (600)	690 (600)	25100 (600)	15100 (600)	1450 (600)	930 (600)
<b>VOC</b>										
Acetone	50	6.3 J (5)	5.7 (5)	5.8 (5)	U (5)	U (5)	<b>120 (5)</b>	43 J (5)	6.1 J (5)	U (5)
Benzene	1	U (1)	U (1)	U (1)	U (1)	U (1)	0.95 J (1)	0.47 J (1)	U (1)	U (1)
2-Butanone	50	13 (5)	3.6 J (5)	5.9 (5)	4.9 J (5)	U (5)	39 (5)	<b>66 (5)</b>	14 (5)	2.6 J (5)
Chloroethane	5	0.51 J (1)	0.92 J (1)	U (1)	U (1)	0.84 J (1)	1.1 (1)	0.45 J (1)	U (1)	UJ (1)
1,1-Dichloroethane	5	0.28 J (1)	U (1)	U (1)	U (1)	U (1)	4.9 (1)	0.67 J (1)	U (1)	0.27 J (1)
1,2-Dichloroethane	0.6	U (1)	U (1)	U (1)	U (1)	U (1)	0.46 J (1)	U (1)	U (1)	U (1)
1,1-Dichloroethene	5	UJ (1)	U (1)	U (1)	UJ (1)	U (1)	1 (1)	U (1)	UJ (1)	U (1)
cis-1,2-Dichloroethene	5	0.9 J (1)	0.28 J (1)	U (1)	0.33 J (1)	0.31 J (1)	<b>290 (1)</b>	<b>43 (1)</b>	<b>20 (1)</b>	<b>19 (1)</b>
trans-1,2-Dichloroethene	5	UJ (1)	U (1)	U (1)	U (1)	U (1)	0.31 J (1)	U (1)	UJ (1)	U (1)
1,4-Dioxane		U (50)	U (50)	U (50)	U (50)	U (50)	U (50)	UJ (50)	U (50)	U (50)
Ethyl Benzene	5	U (1)	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)	U (1)
Tetrachloroethene	5	U (1)	U (1)	U (1)	U (1)	U (1)	U (1)	U (1)	U (1)	U (1)
1,1,1-Trichloroethane	5	U (1)	U (1)	U (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)	U (1)
Trichloroethene	5	3.2 (1)	U (1)	U (1)	0.45 J (1)	0.38 J (1)	<b>5.3 (1)</b>	2 (1)	2.2 (1)	3 (1)
Vinyl Chloride	2	0.28 J (1)	U (1)	U (1)	U (1)	U (1)	<b>220 (1)</b>	<b>8.1 (1)</b>	<b>5.4 (1)</b>	<b>4.4 (1)</b>
m,p-xylene		U (1)	U (1)	U (1)	U (1)	U (1)	U (1)	U (1)	U (1)	U (1)
ortho-xylene	5	U (1)	U (1)	U (1)	U (1)	U (1)	U (1)	U (1)	U (1)	U (1)
Xylenes (total)	5	U (1)	U (1)	U (1)	U (1)	U (1)	U (1)	U (1)	U (1)	U (1)
<b>INORG</b>										
Calcium		6000 (5000)	6260 (5000)	6030 (5000)	6840 (5000)	6870 (5000)	42600 (5000)	8500 (5000)	5980 (5000)	18900 (5000)
Magnesium	35000	U (5000)	U (5000)	U (5000)	U (5000)	U (5000)	3310 J (5000)	U (5000)	U (5000)	U (5000)
Potassium		6890 (5000)	4800 J (5000)	4640 J (5000)	4670 J (5000)	4600 J (5000)	14700 (5000)	10600 (5000)	9580 (5000)	6120 (5000)
Sodium	20000	<b>78400 (5000)</b>	<b>78000 (5000)</b>	<b>76700 (5000)</b>	<b>66700 (5000)</b>	<b>66600 (5000)</b>	<b>125000 (5000)</b>	<b>117000 (5000)</b>	<b>111000 (5000)</b>	<b>93700 (5000)</b>
Iron		U (150)	U (150)	U (150)	U (150)	U (150)	1400 (150)	U (150)	U (150)	NA
<b>GEOCHEMICAL</b>										
Hydrogen [NM]		170 n (10)	620 J (50)	380 J (20)	1300 n (100)	1500 n (50)	5300 n (1000)	1900 J (100)	390 n (20)	270 n (20)

**Notes:**  
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3 Concentrations that exceed the NY Fresh Groundwater (GA) Standards are **boldfaced**.

**Abbreviations:**  
U -- Not Detected.  
UJ -- Non-detect Limit is Estimated.  
n -- The lab does not hold NELAP/TNI accreditation for this method or analyte.  
J -- Estimated Concentration.  
+ -- Biased high.  
- -- Biased low.  
( ) -- Detection Limit.  
NA -- Not Analyzed.

**TABLE 1**  
**Summary of Groundwater Sampling Results**  
**Monitoring Events 1-5**  
**ESCO Steel Treaters; Troy, NY**

Location	MW101I	MW101I	MW102I	MW102I	MW102I	MW102B	MW102B	MW102B	MW102B	MW102B	MW102B
Field Sample ID	MW-101I-180731	MW101I-190731	MW-102IR-190221	MW102IR-190506	MW102IR-190730	MW-102B-180731	MW-102B-181114	MW-102B-190225	MW102B-190506	MW102B-190729	
Lab Sample ID	460-161718-3	460-188165-6	295620005 / 460-175850-7	302370003 / 460-181278-3	310730001 / 460-187853-8	460-161718-1 / 276320001	460-169286-7 / MW-102B-181114	295750001 / 460-176031-1	302580005 / 460-181383-8	310540004 / 460-187853-4	
Sample Method	Peristaltic Pump	BLADDER PUMP	BLADDER PUMP	BLADDER PUMP	BLADDER PUMP	Peristaltic Pump	BLADDER PUMP	BLADDER PUMP	BLADDER PUMP	BLADDER PUMP	
Sample Date	7/31/2018	7/31/2019	2/21/2019	5/6/2019	7/30/2019	7/31/2018	11/14/2018	2/25/2019	5/6/2019	7/29/2019	
Comments											
<b>WQ</b>											
Alkalinity		NA	NA	352000 (5000)	295000 (5000)	358000 (5000)	147000 (5000)	143000 (5000)	102000 (5000)	101000 (5000)	133000 (5000)
Bicarbonate Alkalinity		NA	NA	352000 (5000)	295000 (5000)	358000 (5000)	92500 (5000)	96900 (5000)	59600 (5000)	58200 (5000)	82800 (5000)
Carbonate Alkalinity		NA	NA	U (5000)	U (5000)	U (5000)	54100 (5000)	46200 (5000)	42600 (5000)	42300 (5000)	50400 (5000)
Chloride	250000	NA	NA	67800 J+ (3000)	58900 J+ (3000)	63800 (2640)	36900 (1680)	64000 J (2400)	75600 (2400)	65300 (2400)	58100 (2280)
Nitrate	10000	NA	NA	6470 J+ (500)	5150 J- (2500)	3500 (100)	U (100)	U (100)	33 J (100)	62 J (100)	U (100)
Sulfate	250000	NA	NA	79400 J+ (15000)	70800 J+ (15000)	58300 (13200)	1990 (600)	29200 J (12000)	36600 (12000)	49400 (12000)	8210 (600)
<b>VOC</b>											
Acetone	50	U (5)	U (5)	U (25)	U (10)	U (25)	U (5)	UJ (5)	U (5)	U (5)	U (5)
Benzene	1	U (1)	U (1)	U (5)	U (2)	U (5)	0.73 J (1)	0.65 J (1)	0.49 J (1)	0.59 J (1)	0.8 J (1)
2-Butanone	50	U (5)	U (5)	U (25)	U (10)	U (25)	U (5)	U (5)	U (5)	U (5)	U (5)
Chloroethane	5	U (1)	UJ (1)	U (5)	U (2)	UJ (5)	U (1)	U (1)	U (1)	U (1)	2.6 J- (1)
1,1-Dichloroethane	5	U (1)	U (1)	<b>5.8 (5)</b>	3.8 (2)	5 (5)	3.6 (1)	2.8 (1)	1.6 (1)	<b>5.1 (1)</b>	2.9 (1)
1,2-Dichloroethane	0.6	U (1)	U (1)	U (5)	U (2)	U (5)	U (1)	U (1)	U (1)	U (1)	U (1)
1,1-Dichloroethene	5	U (1)	U (1)	<b>7.8 (5)</b>	<b>5.6 (2)</b>	<b>8.2 (5)</b>	0.48 J (1)	0.63 J (1)	0.38 J (1)	U (1)	0.69 J (1)
cis-1,2-Dichloroethene	5	3.1 (1)	1.9 (1)	<b>180 (5)</b>	<b>150 (2)</b>	<b>340 (5)</b>	<b>290 (1)</b>	<b>220 (1)</b>	<b>15 (1)</b>	<b>8.2 (1)</b>	<b>86 (1)</b>
trans-1,2-Dichloroethene	5	0.64 J (1)	0.34 J (1)	<b>5.2 (5)</b>	3.3 (2)	<b>6.2 (5)</b>	U (1)	0.26 J (1)	U (1)	U (1)	0.25 J (1)
1,4-Dioxane		U (50)	U (50)	U (250)	U (100)	U (250)	U (50)	UJ (50)	U (50)	U (50)	U (50)
Ethyl Benzene	5	U (1)	U (1)	U (5)	U (2)	U (5)	U (1)	U (1)	U (1)	U (1)	U (1)
Methylene Chloride	5	U (1)	U (1)	U (5)	U (2)	U (5)	U (1)	U (1)	U (1)	U (1)	U (1)
Tetrachloroethene	5	U (1)	U (1)	U (5)	U (2)	U (5)	U (1)	U (1)	U (1)	U (1)	U (1)
1,1,1-Trichloroethane	5	U (1)	U (1)	2.7 J (5)	2.5 (2)	3 J (5)	U (1)	U (1)	U (1)	U (1)	U (1)
1,1,2-Trichloroethane	1	U (1)	U (1)	U (5)	U (2)	U (5)	U (1)	U (1)	U (1)	U (1)	U (1)
Trichloroethene	5	<b>110 (1)</b>	<b>59 (1)</b>	<b>960 (5)</b>	<b>640 (2)</b>	<b>950 (5)</b>	1.4 (1)	0.36 J (1)	U (1)	U (1)	1 (1)
Vinyl Chloride	2	U (1)	U (1)	<b>12 (5)</b>	<b>23 (2)</b>	<b>27 (5)</b>	<b>5.3 (1)</b>	<b>4.2 (1)</b>	1.8 (1)	1.5 (1)	<b>7.7 (1)</b>
m,p-xylene		U (1)	U (1)	U (5)	U (2)	U (5)	U (1)	U (1)	U (1)	U (1)	U (1)
ortho-xylene	5	U (1)	U (1)	U (5)	U (2)	U (5)	U (1)	U (1)	U (1)	U (1)	U (1)
Xylenes (total)	5	U (1)	U (1)	U (5)	U (2)	U (5)	U (1)	U (1)	U (1)	U (1)	U (1)
<b>INORG</b>											
Calcium		NA	NA	98700 (5000)	88600 (5000)	98200 (5000)	5840 (5000)	6220 (5000)	8000 (5000)	10800 (5000)	3310 J (5000)
Magnesium	35000	NA	NA	23000 (5000)	18600 (5000)	22000 (5000)	8330 (5000)	18400 (5000)	13600 (5000)	13100 (5000)	7830 (5000)
Potassium		NA	NA	1320 J (5000)	1370 J (5000)	1690 J (5000)	1390 J (5000)	1350 J (5000)	2390 J (5000)	2430 J (5000)	1370 J (5000)
Sodium	20000	NA	NA	<b>99300 (5000)</b>	<b>89800 (5000)</b>	<b>110000 (5000)</b>	<b>63600 (5000)</b>	<b>79700 (5000)</b>	<b>76600 (5000)</b>	<b>65900 (5000)</b>	<b>83700 (5000)</b>
Iron		NA	NA	U (150)	U (150)	NA	U (150)	U (150)	U (150)	U (150)	NA
<b>GEOCHEMICAL</b>											
Hydrogen [NM]		NA	NA	3.5 n (1)	1.7 n (1)	2.8 n (1)	3700 n (120)	250 J (20)	130 n (10)	3.7 n (1)	22 n (1)

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**Abbreviations:**  
U -- Not Detected.  
UJ -- Non-detect Limit is Estimated.  
n -- The lab does not hold NELAP/TNI accreditation for this method or analyte.  
J -- Estimated Concentration.  
+ -- Biased high.  
- -- Biased low.  
( ) -- Detection Limit.  
NA -- Not Analyzed.

**TABLE 1**  
**Summary of Groundwater Sampling Results**  
**Monitoring Events 1-5**  
**ESCO Steel Treaters; Troy, NY**

Location	MW102ER	MW102ER	MW102ER	MW102ER	MW102ER	MW103I	MW103I	MW103I	MW103I	MW103I
Field Sample ID	MW-102ER-180802	MW-102ER-181114	MW-102ER-190225	MW102ER-190507	MW102ER-190730	MW-103I-180801	MW-103I-181114	MW-103I-190225	MW103I-190507	MW103I-190730
Lab Sample ID	276650001 / 460-161923-1	460-169286-8 / MW-102ER-181114	295750002 / 460-176031-2	302580001 / 460-181383-1	310540005 / 460-187853-9	276600003 / 460-161828-3	460-169286-9 / MW-103I-181114	295750003 / 460-176031-3	302580002 / 460-181383-2	310730002 / 460-187954-1
Sample Method	Peristaltic Pump	BLADDER PUMP	BLADDER PUMP	BLADDER PUMP	BLADDER PUMP	Peristaltic Pump	BLADDER PUMP	BLADDER PUMP	BLADDER PUMP	BLADDER PUMP
Sample Date	8/2/2018	11/14/2018	2/25/2019	5/7/2019	7/30/2019	8/1/2018	11/14/2018	2/25/2019	5/7/2019	7/30/2019
Comments										
<b>WQ</b>										
Alkalinity	64900 (5000)	99200 (5000)	93600 (5000)	55700 (5000)	65400 (5000)	360000 (5000)	248000 (5000)	327000 (5000)	215000 (5000)	262000 (5000)
Bicarbonate Alkalinity	63700 (5000)	93500 (5000)	70800 (5000)	17500 (5000)	48800 (5000)	360000 (5000)	248000 (5000)	327000 (5000)	215000 (5000)	262000 (5000)
Carbonate Alkalinity	U (5000)	5700 (5000)	22700 (5000)	38200 (5000)	16600 (5000)	U (5000)	U (5000)	U (5000)	U (5000)	U (5000)
Chloride	250000	94800 (3000)	81800 (3360)	53000 (2400)	39100 (2400)	77400 (3240)	16800 (720)	82600 (3360)	89800 (3000)	75400 (2400)
Nitrate	10000	UJ (100)	U (100)	32 J (100)	58 J (100)	U (100)	UJ (100)	3110 (100)	780 (100)	7880 (200)
Sulfate	250000	U (600)	7460 (600)	9080 (600)	9530 (600)	710 (600)	31100 (3600)	33300 (16800)	23400 (15000)	49900 (12000)
<b>VOC</b>										
Acetone	50	16 (10)	U (5)	7 (5)	U (5)	U (5)	U (5)	UJ (5)	U (10)	U (5)
Benzene	1	U (2)	0.49 J (1)	0.48 J (1)	0.68 J (1)	0.8 J (1)	U (1)	U (1)	U (2)	U (1)
2-Butanone	50	U (10)	U (5)	U (5)	U (5)	U (5)	U (5)	U (10)	U (5)	U (5)
Chloroethane	5	U (2)	U (1)	U (1)	U (1)	UJ (1)	U (1)	0.76 J (1)	U (2)	U (1)
1,1-Dichloroethane	5	1.8 J (2)	1.5 (1)	4 (1)	0.33 J (1)	0.65 J (1)	<b>100 (1)</b>	<b>99 (1)</b>	<b>110 (2)</b>	<b>7.9 (1)</b>
1,2-Dichloroethane	0.6	U (2)	U (1)	U (1)	U (1)	U (1)	U (1)	U (1)	U (2)	U (1)
1,1-Dichloroethene	5	U (2)	0.74 J (1)	1.3 (1)	U (1)	U (1)	3.8 (1)	<b>8.9 (1)</b>	<b>16 (2)</b>	2.4 (1)
cis-1,2-Dichloroethene	5	<b>530 (2)</b>	<b>220 (1)</b>	<b>240 (1)</b>	<b>34 (1)</b>	<b>60 (1)</b>	<b>450 (1)</b>	<b>490 (1)</b>	<b>720 (2)</b>	<b>60 (1)</b>
trans-1,2-Dichloroethene	5	U (2)	0.32 J (1)	U (1)	U (1)	U (1)	0.37 J (1)	0.95 J (1)	U (2)	0.48 J (1)
1,4-Dioxane		U (100)	UJ (50)	U (50)	U (50)	U (50)	130 (50)	63 J- (50)	120 (100)	U (50)
Ethyl Benzene	5	U (2)	U (1)	U (1)	U (1)	U (1)	U (1)	U (1)	U (2)	U (1)
Methylene Chloride	5	U (2)	U (1)	U (1)	U (1)	U (1)	0.32 J (1)	U (1)	U (2)	U (1)
Tetrachloroethene	5	U (2)	U (1)	U (1)	U (1)	U (1)	U (1)	0.26 J (1)	U (2)	1.2 (1)
1,1,1-Trichloroethane	5	U (2)	U (1)	U (1)	U (1)	U (1)	U (1)	U (1)	U (2)	0.24 J (1)
1,1,2-Trichloroethane	1	U (2)	U (1)	U (1)	U (1)	U (1)	U (1)	U (1)	U (2)	U (1)
Trichloroethene	5	1.6 J (2)	1.4 (1)	<b>7.2 (1)</b>	0.86 J (1)	0.88 J (1)	4.3 (1)	<b>40 (1)</b>	<b>26 (2)</b>	<b>99 (1)</b>
Vinyl Chloride	2	<b>5.2 (2)</b>	<b>8.9 (1)</b>	<b>7 (1)</b>	0.76 J (1)	<b>2.2 (1)</b>	<b>110 (1)</b>	<b>44 (1)</b>	<b>47 (2)</b>	1.8 (1)
m,p-xylene		U (2)	U (1)	U (1)	U (1)	U (1)	U (1)	U (1)	U (2)	U (1)
ortho-xylene	5	U (2)	U (1)	U (1)	U (1)	U (1)	U (1)	U (1)	U (2)	U (1)
Xylenes (total)	5	U (2)	U (1)	U (1)	U (1)	U (1)	U (1)	U (1)	U (2)	U (1)
<b>INORG</b>										
Calcium		25800 (5000)	14600 (5000)	12700 (5000)	5780 (5000)	11000 (5000)	63500 (5000)	73400 (5000)	74400 (5000)	76000 (5000)
Magnesium	35000	10600 (5000)	12400 (5000)	11600 (5000)	938 J (5000)	9890 (5000)	16900 (5000)	14500 (5000)	17700 (5000)	14600 (5000)
Potassium		2210 J (5000)	1970 J (5000)	2060 J (5000)	4890 J (5000)	1550 J (5000)	2120 J (5000)	3380 J (5000)	1990 J (5000)	3970 J (5000)
Sodium	20000	<b>55000 (5000)</b>	<b>57400 (5000)</b>	<b>46200 (5000)</b>	<b>43300 (5000)</b>	<b>47800 (5000)</b>	<b>80700 (5000)</b>	<b>81300 (5000)</b>	<b>99000 (5000)</b>	<b>69300 (5000)</b>
Iron		U (150)	U (150)	U (150)	U (150)	NA	U (150)	U (150)	U (150)	U (150)
<b>GEOCHEMICAL</b>										
Hydrogen [NM]		540 n (100)	1800 J (100)	520 n (20)	880 n (50)	42 n (1)	7.7 n (2)	250 J (20)	340 n (20)	1.3 n (1)

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J -- Estimated Concentration.  
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- -- Biased low.  
( ) -- Detection Limit.  
NA -- Not Analyzed.

**TABLE 1**  
**Summary of Groundwater Sampling Results**  
**Monitoring Events 1-5**  
**ESCO Steel Treaters; Troy, NY**

Location	MW103B	MW103B	MW103B	MW103B	MW103B	MW103E	MW103E	MW103E	MW103E	MW104I
Field Sample ID	MW-103B-180731	MW-103B-181114	MW-103B-190225	MW103B-190507	MW103B-190729	MW-103E-180731	MW-103ER-190225	MW103ER-190507	MW103ER-190729	MW-104I-180802
Lab Sample ID	460-161718-2 / 276320002	460-169346-1 / MW-103B-181114	295750005 / 460-176031-5	460-181383-4	310540003 / 460-187853-3	460-161627-5 / 276310001	295750004 / 460-176031-4	302580003 / 460-181383-3	310540001 / 460-187853-1	460-161923-5
Sample Method	Peristaltic Pump	BLADDER PUMP	BLADDER PUMP	BLADDER PUMP	BLADDER PUMP	Peristaltic Pump	BLADDER PUMP	BLADDER PUMP	BLADDER PUMP	Peristaltic Pump
Sample Date	7/31/2018	11/14/2018	2/25/2019	5/7/2019	7/29/2019	7/31/2018	2/25/2019	5/7/2019	7/29/2019	8/2/2018
Comments										
<b>WQ</b>										
Alkalinity	92900 (5000)	46500 (5000)	55000 (5000)	42800 (5000)	100000 (5000)	119000 (5000)	87500 (5000)	139000 (5000)	52800 (5000)	NA
Bicarbonate Alkalinity	47200 (5000)	28300 (5000)	41700 (5000)	26300 (5000)	74000 (5000)	119000 (5000)	84100 (5000)	139000 (5000)	52800 (5000)	NA
Carbonate Alkalinity	45700 (5000)	18200 (5000)	13300 (5000)	16500 (5000)	26400 (5000)	U (5000)	U (5000)	U (5000)	U (5000)	NA
Chloride	250000	40200 (1800)	51000 J+ (2040)	37500 (2400)	35800 (2400)	48400 (1920)	83200 (3720)	8720 (600)	9660 (600)	10600 (480)
Nitrate	10000	U (100)	U (100)	34 J (100)	78 J (100)	U (100)	U (100)	36 J (100)	180 (100)	U (100)
Sulfate	250000	3840 (600)	U (600)	330 J (600)	3310 (600)	660 (600)	U (600)	610 (600)	11700 (600)	810 (600)
<b>VOC</b>										
Acetone	50	U (5)	14 (5)	5.6 (5)	U (5)	U (5)	<b>170 (5)</b>	U (5)	U (5)	U (5)
Benzene	1	0.62 J (1)	0.56 J (1)	U (1)	0.48 J (1)	0.52 J (1)	U (1)	U (1)	U (1)	U (1)
2-Butanone	50	6.4 (5)	U (5)	U (5)	2.5 J (5)	U (5)	U (5)	U (5)	U (5)	U (5)
Chloroethane	5	<b>5.7 (1)</b>	U (1)	U (1)	U (1)	0.85 J (1)	<b>5.9 (1)</b>	U (1)	U (1)	UJ (1)
1,1-Dichloroethane	5	<b>45 (1)</b>	0.78 J (1)	0.29 J (1)	U (1)	<b>9.3 (1)</b>	<b>14 (1)</b>	0.58 J (1)	U (1)	0.66 J (1)
1,2-Dichloroethane	0.6	U (1)	U (1)	U (1)	U (1)	U (1)	U (1)	U (1)	U (1)	U (1)
1,1-Dichloroethene	5	U (1)	UJ (1)	U (1)	U (1)	U (1)	0.42 J (1)	U (1)	U (1)	4.4 (1)
cis-1,2-Dichloroethene	5	<b>32 (1)</b>	1 (1)	0.89 J (1)	0.4 J (1)	<b>19 (1)</b>	<b>88 (1)</b>	3.2 (1)	2.8 (1)	3.7 (1)
trans-1,2-Dichloroethene	5	U (1)	UJ (1)	U (1)	U (1)	U (1)	U (1)	U (1)	U (1)	0.45 J (1)
1,4-Dioxane		36 J (50)	U (50)	U (50)	U (50)	U (50)	NA	U (50)	U (50)	U (50)
Ethyl Benzene	5	U (1)	U (1)	U (1)	U (1)	U (1)	U (1)	U (1)	U (1)	0.45 J (1)
Methylene Chloride	5	U (1)	UJ (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)	2.8 (1)	U (1)
1,1,1-Trichloroethane	5	U (1)	U (1)	U (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)	U (1)
Trichloroethene	5	0.57 J (1)	U (1)	U (1)	U (1)	U (1)	1.6 (1)	0.42 J (1)	<b>17 (1)</b>	0.78 J (1)
Vinyl Chloride	2	<b>3.1 (1)</b>	U (1)	U (1)	U (1)	0.83 J (1)	<b>4.8 (1)</b>	0.62 J (1)	U (1)	1.1 (1)
m,p-xylene		U (1)	U (1)	U (1)	U (1)	U (1)	U (1)	U (1)	U (1)	U (1)
ortho-xylene	5	U (1)	U (1)	U (1)	U (1)	U (1)	U (1)	U (1)	U (1)	0.81 J (1)
Xylenes (total)	5	U (1)	U (1)	U (1)	U (1)	U (1)	U (1)	U (1)	U (1)	2.41 (1)
<b>INORG</b>										
Calcium		7400 (5000)	8330 (5000)	9960 (5000)	9030 (5000)	7660 (5000)	58600 (5000)	18600 (5000)	51300 (5000)	19300 (5000)
Magnesium	35000	2840 J (5000)	4370 J (5000)	7380 (5000)	4780 J (5000)	12400 (5000)	8490 (5000)	6360 (5000)	6330 (5000)	5160 (5000)
Potassium		2040 J (5000)	3870 J (5000)	2880 J (5000)	3570 J (5000)	2980 J (5000)	4440 J (5000)	2210 J (5000)	2160 J (5000)	3670 J (5000)
Sodium	20000	<b>53900 (5000)</b>	<b>36100 (5000)</b>	<b>25900 (5000)</b>	<b>23200 (5000)</b>	<b>47900 (5000)</b>	<b>40800 (5000)</b>	11700 (5000)	11600 (5000)	16000 (5000)
Iron		U (150)	U (150)	U (150)	U (150)	NA	U (150)	U (150)	U (150)	NA
<b>GEOCHEMICAL</b>										
Hydrogen [NM]		1600 n (120)	170 J (20)	34 n (1)	NA	7.2 n (1)	470 n (24)	5.4 n (1)	46 n (1)	40 n (1)

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**Abbreviations:**

- U -- Not Detected.
- UJ -- Non-detect Limit is Estimated.
- n -- The lab does not hold NELAP/TNI accreditation for this method or analyte.
- J -- Estimated Concentration.
- + -- Biased high.
- -- Biased low.
- ( ) -- Detection Limit.
- NA -- Not Analyzed.

**TABLE 1**  
**Summary of Groundwater Sampling Results**  
**Monitoring Events 1-5**  
**ESCO Steel Treaters; Troy, NY**

Location		MW104I	MW104E	MW104E	MW11	MW13	MW14	MW14	MW17	MW17	MW18
Field Sample ID		MW104I-190730	MW-104E-180802	MW104E-190731	MW11-190731	MW13-190731	MW-14-180731	MW14-190731	MW-17-180802	MW17-190730	MW-18-180730
Lab Sample ID	NY Fresh Groundwater (GA)	460-187954-4	460-161923-3	460-188165-1	460-188165-2	460-188165-3	200-44580-4 / 460-161627-4	460-188165-4	460-161923-2	460-187954-3	200-44580-1 / 460-161627-1
Sample Method	Standards	BLADDER PUMP	Peristaltic Pump	BLADDER PUMP	BLADDER PUMP	BLADDER PUMP	Peristaltic Pump	BLADDER PUMP	Peristaltic Pump	BLADDER PUMP	Peristaltic Pump
Sample Date		7/30/2019	8/2/2018	7/31/2019	7/31/2019	7/31/2019	7/31/2018	7/31/2019	8/2/2018	7/30/2019	7/30/2018
Comments											
<b>WQ</b>											
Alkalinity		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bicarbonate Alkalinity		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbonate Alkalinity		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloride	250000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nitrate	10000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sulfate	250000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
<b>VOC</b>											
Acetone	50	U (5)	U (5)	U (5)	U (5)	U (5)	U (5)	U (5)	U (5)	U (5)	U (50)
Benzene	1	U (1)	U (1)	U (1)	U (1)	U (1)	U (1)	U (1)	U (1)	U (1)	U (10)
2-Butanone	50	U (5)	U (5)	U (5)	U (5)	U (5)	U (5)	U (5)	U (5)	U (5)	U (50)
Chloroethane	5	U (1)	U (1)	UJ (1)	UJ (1)	UJ (1)	U (1)	UJ (1)	U (1)	U (1)	U (10)
1,1-Dichloroethane	5	<b>20 (1)</b>	4.7 (1)	<b>6.2 (1)</b>	U (1)	U (1)	4.8 (1)	<b>6.3 (1)</b>	U (1)	U (1)	<b>38 J (10)</b>
1,2-Dichloroethane	0.6	U (1)	U (1)	U (1)	U (1)	U (1)	U (1)	U (1)	U (1)	U (1)	U (10)
1,1-Dichloroethene	5	<b>5.2 (1)</b>	1.5 (1)	1.4 (1)	U (1)	U (1)	1.8 (1)	1.6 (1)	0.39 J (1)	1.2 (1)	<b>18 J (10)</b>
cis-1,2-Dichloroethene	5	<b>460 (1)</b>	<b>32 (1)</b>	<b>22 (1)</b>	U (1)	0.8 J (1)	<b>66 (1)</b>	<b>52 (1)</b>	<b>7.3 (1)</b>	<b>28 (1)</b>	<b>25 J (10)</b>
trans-1,2-Dichloroethene	5	0.75 J (1)	U (1)	U (1)	U (1)	U (1)	0.33 J (1)	0.36 J (1)	0.57 J (1)	1.8 (1)	U (10)
1,4-Dioxane		U (50)	U (50)	U (50)	U (50)	U (50)	NA	U (50)	U (50)	U (50)	NA
Ethyl Benzene	5	U (1)	<b>16 (1)</b>	<b>9.9 (1)</b>	U (1)	U (1)	U (1)	U (1)	U (1)	U (1)	U (10)
Methylene Chloride	5	U (1)	U (1)	U (1)	U (1)	U (1)	U (1)	U (1)	U (1)	U (1)	U (10)
Tetrachloroethene	5	U (1)	U (1)	U (1)	U (1)	1.1 (1)	U (1)	U (1)	U (1)	U (1)	<b>13 (10)</b>
1,1,1-Trichloroethane	5	U (1)	1.1 (1)	3 (1)	U (1)	U (1)	1 (1)	2.8 (1)	U (1)	U (1)	<b>380 J (10)</b>
1,1,2-Trichloroethane	1	U (1)	U (1)	U (1)	U (1)	U (1)	U (1)	U (1)	U (1)	U (1)	U (10)
Trichloroethene	5	<b>38 (1)</b>	<b>12 (1)</b>	3.7 (1)	U (1)	<b>20 (1)</b>	<b>9.4 (1)</b>	<b>16 (1)</b>	<b>100 (1)</b>	<b>350 (1)</b>	<b>2600 J (10)</b>
Vinyl Chloride	2	<b>81 (1)</b>	<b>9.9 (1)</b>	<b>20 (1)</b>	U (1)	U (1)	<b>9.1 (1)</b>	<b>13 (1)</b>	U (1)	<b>2.4 (1)</b>	U (10)
m,p-xylene		U (1)	65 (1)	10 (1)	U (1)	U (1)	U (1)	U (1)	U (1)	U (1)	U (10)
ortho-xylene	5	U (1)	<b>45 (1)</b>	1.5 (1)	U (1)	U (1)	U (1)	U (1)	0.83 J (1)	U (1)	U (10)
Xylenes (total)	5	U (1)	<b>110 (1)</b>	<b>11.5 (1)</b>	U (1)	U (1)	U (1)	U (1)	0.83 J (1)	U (1)	U (10)
<b>INORG</b>											
Calcium		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Magnesium	35000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Potassium		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sodium	20000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Iron		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
<b>GEOCHEMICAL</b>											
Hydrogen [NM]		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

**Notes:**

- All concentrations are presented in ug/L (ppb) unless otherwise noted.
- Only compounds with at least one detection are shown.
- Concentrations that exceed the NY Fresh Groundwater (GA) Standards are **boldfaced**.

**Abbreviations:**

- U -- Not Detected.
- UJ -- Non-detect Limit is Estimated.
- n -- The lab does not hold NELAP/TNI accreditation for this method or analyte.
- J -- Estimated Concentration.
- + -- Biased high.
- -- Biased low.
- ( ) -- Detection Limit.
- NA -- Not Analyzed.

**TABLE 1**  
**Summary of Groundwater Sampling Results**  
**Monitoring Events 1-5**  
**ESCO Steel Treaters; Troy, NY**

Location		MW18	MW18	MW19	MW19
Field Sample ID		DUP-180730	MW18-190731	MW-19-180802	MW19-190730
Lab Sample ID	NY Fresh Groundwater (GA)	200-44580-2 / 460-161627-2	460-187954-7	460-161923-4	460-187954-2
Sample Method	Standards	Peristaltic Pump	BLADDER PUMP	Peristaltic Pump	BLADDER PUMP
Sample Date		7/30/2018	7/31/2019	8/2/2018	7/30/2019
Comments		Field Duplicate			
<b>WQ</b>					
Alkalinity		NA	NA	NA	NA
Bicarbonate Alkalinity		NA	NA	NA	NA
Carbonate Alkalinity		NA	NA	NA	NA
Chloride	250000	NA	NA	NA	NA
Nitrate	10000	NA	NA	NA	NA
Sulfate	250000	NA	NA	NA	NA
<b>VOC</b>					
Acetone	50	U (130)	U (50)	U (10)	U (25)
Benzene	1	U (25)	U (10)	U (2)	U (5)
2-Butanone	50	U (130)	U (50)	U (10)	U (25)
Chloroethane	5	U (25)	U (10)	U (2)	U (5)
1,1-Dichloroethane	5	<b>83 J (25)</b>	<b>21 (10)</b>	<b>20 (2)</b>	<b>16 J+ (5)</b>
1,2-Dichloroethane	0.6	U (25)	U (10)	U (2)	U (5)
1,1-Dichloroethene	5	<b>34 J (25)</b>	<b>21 (10)</b>	3.4 (2)	<b>7 J+ (5)</b>
cis-1,2-Dichloroethene	5	<b>45 J (25)</b>	<b>180 (10)</b>	<b>240 (2)</b>	<b>1000 (5)</b>
trans-1,2-Dichloroethene	5	U (25)	U (10)	0.71 J (2)	2.1 J (5)
1,4-Dioxane		NA	U (500)	U (100)	U (250)
Ethyl Benzene	5	U (25)	U (10)	U (2)	U (5)
Methylene Chloride	5	U (25)	U (10)	U (2)	U (5)
Tetrachloroethene	5	<b>20 J (25)</b>	<b>32 (10)</b>	<b>14 (2)</b>	4.7 J (5)
1,1,1-Trichloroethane	5	<b>610 J (25)</b>	<b>430 (10)</b>	<b>150 (2)</b>	<b>120 J+ (5)</b>
1,1,2-Trichloroethane	1	U (25)	U (10)	U (2)	U (5)
Trichloroethene	5	<b>4300 J (25)</b>	<b>3900 (10)</b>	<b>570 (2)</b>	<b>130 (5)</b>
Vinyl Chloride	2	U (25)	<b>2.8 J (10)</b>	U (2)	U (5)
m,p-xylene		U (25)	U (10)	U (2)	U (5)
ortho-xylene	5	U (25)	U (10)	U (2)	U (5)
Xylenes (total)	5	U (25)	U (10)	U (2)	U (5)
<b>INORG</b>					
Calcium		NA	NA	NA	NA
Magnesium	35000	NA	NA	NA	NA
Potassium		NA	NA	NA	NA
Sodium	20000	NA	NA	NA	NA
Iron		NA	NA	NA	NA
<b>GEOCHEMICAL</b>					
Hydrogen [NM]		NA	NA	NA	NA

**Notes:**

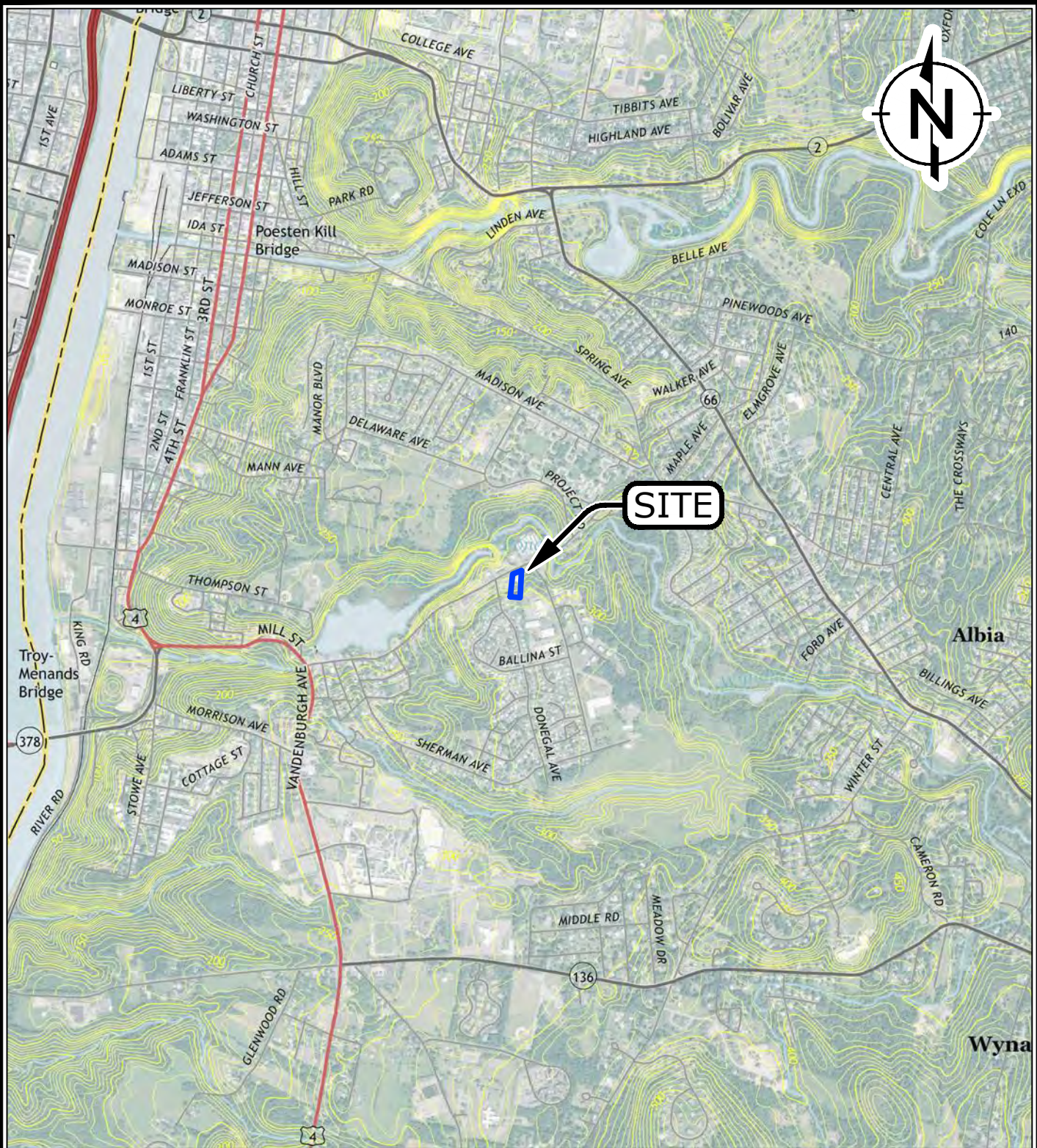
- All concentrations are presented in ug/L (ppb) unless otherwise noted.
- Only compounds with at least one detection are shown.
- Concentrations that exceed the NY Fresh Groundwater (GA) Standards are **boldfaced**.

**Abbreviations:**


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- J -- Estimated Concentration.
- + -- Biased high.
- -- Biased low.
- ( ) -- Detection Limit.
- NA -- Not Analyzed.

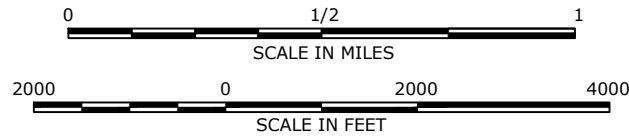
## FIGURES



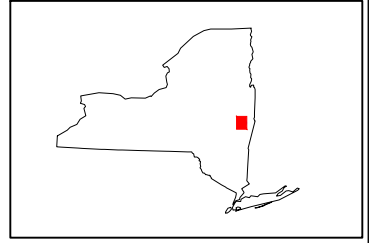


**LEGEND:**

 PROPERTY BOUNDARY (APPROXIMATE)



**SOURCE:**  
USGS 2016 TROY SOUTH, NY 7.5 MINUTE SERIES TOPOGRAPHIC QUADRANGLE.  
MAP SCALE: 1:24,000. SITE LOCATION: N: 42.706999° W: 73.677401° WGS84.



QUADRANGLE KEY MAP



**SITE LOCATION MAP**  
520 CAMPBELL AVENUE  
CITY OF TROY, NEW YORK

**FIGURE 1**

DRAFTED BY: KPM

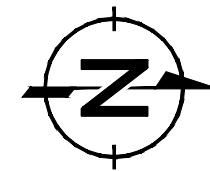
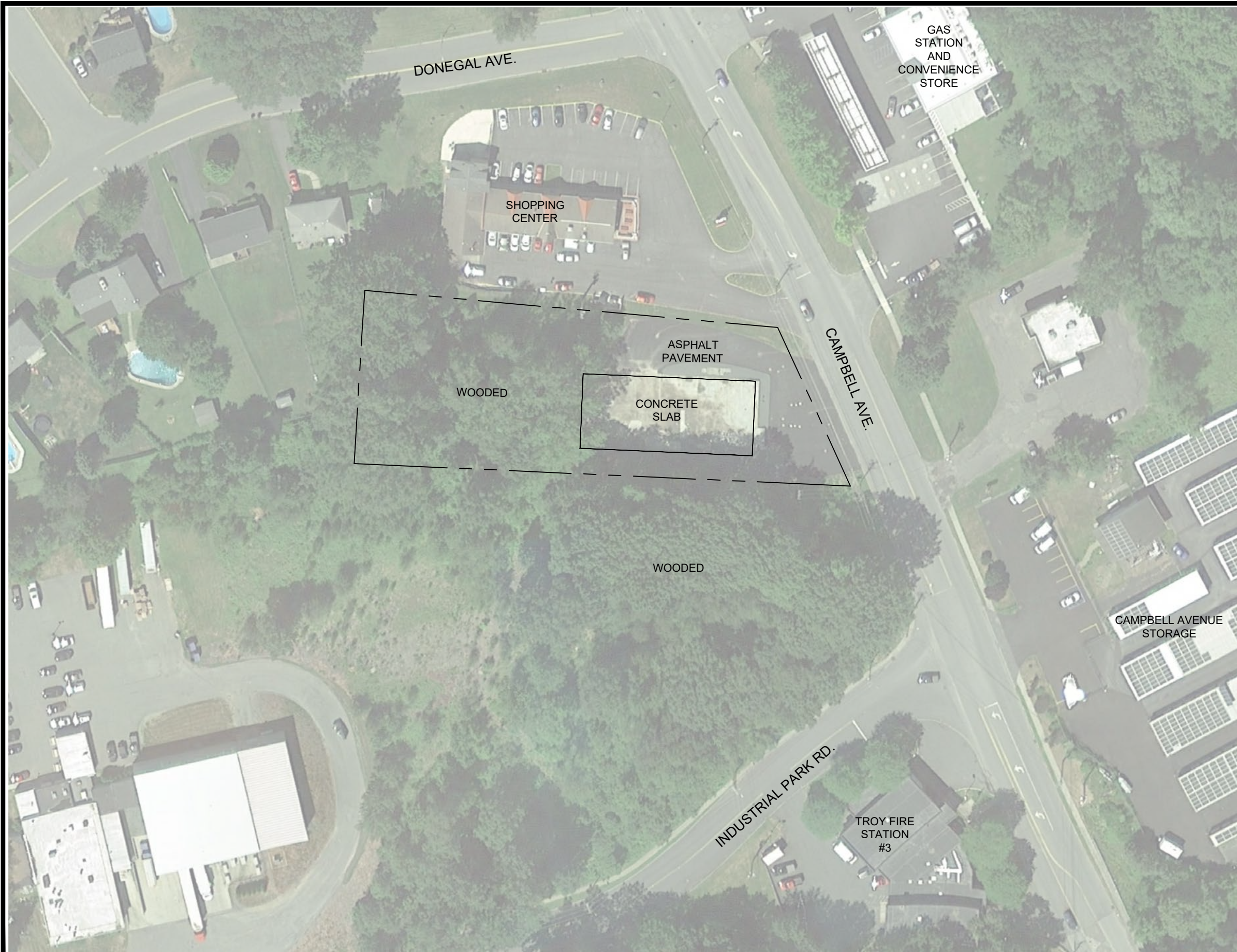
DATE: 10/24/2019

PROJECT: 1690000663

KMAUGHAN 10/24/19 F:\1690000663\_ESCO STEEL\_NYSDEC\_PRR < SITE LOCATION\_PRR >



KMAUGHAN 10/24/19 F:\1690000663\_ESCO STEEL\NYSDEC\_PRR < SITE LAYOUT\_PRR >



**LEGEND**

----- PROPERTY BOUNDARY

**SOURCE:**

1. GOOGLE EARTH AERIAL IMAGERY DATED 6/25/2018.



DRAFTED BY: KPM DATE: 10/24/2019

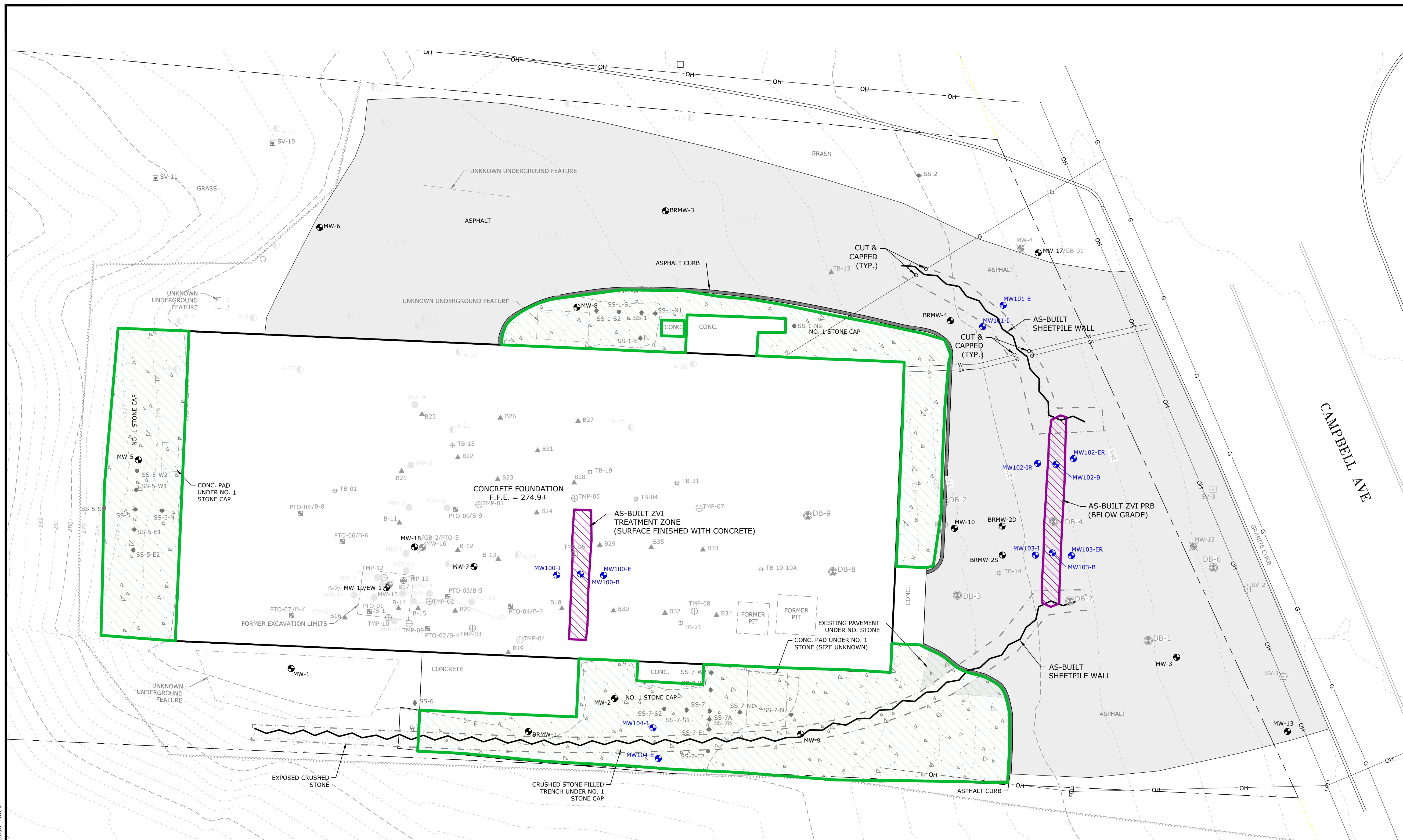
**SITE LAYOUT MAP**

520 CAMPBELL AVENUE  
CITY OF TROY, NEW YORK

**FIGURE  
2**

PROJECT:1690000663





- 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 (circle with dot) BORING LOCATION
  - MW (circle with dot) MONITORING WELL LOCATION
  - SV-5 (square with dot) SOIL VAPOR SAMPLING POINTS
  - B-10 (triangle) BORING LOCATION (ENVIRON 2015 & 2016)
  - PTO-04 (square with dot) PUMP TEST OBSERVATION POINT (ENVIRON 2015)
  - TMP-05 (circle with cross) TEMPORARY MONITORING POINT
  - TB-21 (square with dot) TEST BORING LOCATION
  - MIP-4 (circle with dot) MEMBRANE INTERFACE PROBE (08/10)
  - A-3 (circle with dot) MEMBRANE INTERFACE PROBE (09/12)
  - MW-4 (circle with dot) WELL NO LONGER SUITABLE FOR SAMPLING
  - MW-15 (circle with dot) WELL REMOVED DURING DEC. 2010 EXCAVATION IRM
  - SS-7A (diamond) SURFACE SOIL SAMPLE (0 TO 2 INCHES) (REH 2016 & 2017)
  - SS-7 (circle with dot) SOIL COVER SAMPLE (REH 2016 & 2017)
  - SV-10 (square with dot) SOIL GAS SAMPLE (REH 2016 & 2017)
  - MW100-1 (circle with dot) MONITORING WELL (REH 2018)
  - AS-BUILT CAP LIMITS



REV.	DATE	DR.	CH.	REVISION

**ENGINEERING CONTROLS LOCATION**

ESCO STEEL  
520 CAMPBELL AVENUE  
CITY OF TROY, NEW YORK



PREPARED BY: JS/TA	DATE: 10/24/2019	FIGURE
DRAFTED BY: MSB	SCALE: AS SHOWN	3
APPROVED BY: JS	PROJECT: 0239035A	

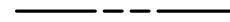

- SOURCE:**
- SITE TOPOGRAPHY AND PLANIMETRY "POST CONSTRUCTION SURVEY" PREPARED BY NMB LAND SURVEYING PLLC, JUNE 6, 2018.
  - SAMPLE LOCATIONS, "STEEL TREATERS, 520 CAMPBELL AVENUE. SAMPLE LOCATIONS" PREPARED BY BARTON AND LOGUIDICE, P.C., PROJECT NO. 1047.001, AND INCLUDED AS FIGURE 3 OF THE NOVEMBER 2013 REMEDIAL INVESTIGATION REPORT.
  - 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.
  - "UNKNOWN UNDERGROUND FEATURE" REFERS TO SUBSURFACE METALLIC ANOMALIES IDENTIFIED DURING THE GEOPHYSICAL SURVEY COMPLETED BY NAEVA GEOPHYSICS ON NOVEMBER 24, 2015.

KMAUGHAN 10/24/19 F:\1690000663\_ESCO STEEL\_NYSDEC\_PRR < POST-REMEDIAL ACTION\_AS-BUILT DESIGN\_PRR >





**LEGEND**

	PROPERTY BOUNDARY
	INSTITUTIONAL CONTROL BOUNDARY



**SOURCE:**

1. SITE TOPOGRAPHY AND PLANIMETRY: "POST CONSTRUCTION SURVEY" PREPARED BY NMB LAND SURVEYING PLLC, JUNE 6, 2018.
2. GOOGLE EARTH AERIAL IMAGERY DATED JUNE 25, 2019.

KMAUGHAN 10/24/19 F:\1690000663\_ESCO STEEL\NYSDEC\_PRR < INSTITUTIONAL CONTROL BOUNDARY\_PRR >



**INSTITUTIONAL CONTROL BOUNDARIES**

520 CAMPBELL AVENUE  
CITY OF TROY, NEW YORK

**FIGURE 4**





- 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)
  - MW100-1 MONITORING WELL (REH 2018)

MW100I	08/01/2018	11/13/2018	02/20/2019	05/06/2019	07/29/2019
VOC					
Acetone	50 U	25 U	10 U	10 U	25 U
Benzene	10 U	5 U	2 U	2 U	5 U
2-Butanone	50 U	25 U	10 U	10 U	25 U
Chloroethane	10 U	5 U	2 U	2 U	5 U
1,1-Dichloroethane	98 (A)	56 (A)	58 (A)	66 (A)	67 (A)
1,2-Dichloroethane	10 (A)	51 (A)	43 (A)	27 (A)	29 (A)
1,1,1-Trichloroethane	26 (A)	15 (A)	19 (A)	12 (A)	12 (A)
cis-1,2-Dichloroethane	3400 (A)	740 (A)	790 (A)	360 (A)	350 (A)
trans-1,2-Dichloroethane	3 J	2.8 J	2.1 J	1.4 J	1.3 J
1,4-Dioxane	360 J	250 UJ	250 UJ	64 J	77 J
Ethyl Benzene	10 U	5 U	2 U	2 U	5 U
Methylene Chloride	10 U	5 U	2 U	2 U	5 U
Tetrachloroethane	10 U	5 U	2 U	2 U	5 U
1,1,1-Trichloroethane	41 (A)	37 (A)	42 (A)	16 (A)	15 (A)
1,1,2-Trichloroethane	10 U	3.2 J (A)	3.1 J (A)	1.5 J (A)	1.6 J (A)
Trichloroethene	410 (A)	870 (A)	970 (A)	880 (A)	850 (A)
Vinyl Chloride	250 (A)	260 (A)	310 (A)	180 (A)	100 (A)
Xylenes (total)	10 U	5 U	2 U	2 U	5 U

MW100B	08/01/2018	11/13/2018	02/20/2019	05/06/2019	07/29/2019
VOC					
Acetone	330 (A)	NA	34 J	6.3 J	5.7 J
Benzene	0.93 J	NA	0.55 J	1.3 J	1.1 J
2-Butanone	32 NA	26 NA	13 NA	3.6 J	5.9 J
Chloroethane	1.5 NA	1.1 NA	0.51 J	0.92 J	1.1 J
1,1-Dichloroethane	0.49 J	NA	0.33 J	1.1 J	1.1 J
1,2-Dichloroethane	1 U	NA	1 U	1 U	1 U
1,1,1-Trichloroethane	1 U	NA	1 U	1 U	1 U
cis-1,2-Dichloroethane	0.46 J	NA	0.88 J	0.9 J	0.28 J
trans-1,2-Dichloroethane	1 U	NA	1 U	1 U	1 U
1,4-Dioxane	120 NA	71 J	50 U	50 U	50 U
Ethyl Benzene	1 U	NA	1 U	1 U	1 U
Methylene Chloride	0.64 J	NA	1 U	1 U	1 U
Tetrachloroethane	1 U	NA	1 U	1 U	1 U
1,1,1-Trichloroethane	1 U	NA	1 U	1 U	1 U
1,1,2-Trichloroethane	1 U	NA	1 U	1 U	1 U
Trichloroethene	1 U	NA	0.78 J	3.2 J	1 U
Vinyl Chloride	1 U	NA	0.28 J	1 U	1 U
Xylenes (total)	1 U	NA	1 U	1 U	1 U

MW100E	08/01/2018	11/13/2018	02/20/2019	05/06/2019	07/29/2019
VOC					
Acetone	120 (A)	43 J	6.1 J	5 U	5 U
Benzene	0.95 J	0.47 J	1 U	1 U	1 U
2-Butanone	39 NA	14 NA	2.6 J	3.9 J	3.9 J
Chloroethane	1.1 NA	0.45 J	1 U	1 U	1 U
1,1-Dichloroethane	4.9 NA	0.67 J	1 U	0.27 J	0.28 J
1,2-Dichloroethane	0.46 J	1 U	1 U	1 U	1 U
1,1,1-Trichloroethane	1 U	1 U	1 U	1 U	1 U
cis-1,2-Dichloroethane	290 (A)	43 (A)	20 (A)	19 (A)	20 (A)
trans-1,2-Dichloroethane	0.31 J	1 U	1 U	1 U	1 U
1,4-Dioxane	50 U	50 UJ	50 U	50 U	50 U
Ethyl Benzene	1 U	1 U	1 U	1 U	1 U
Methylene Chloride	1 U	1 U	1 U	1 U	1 U
Tetrachloroethane	1 U	1 U	1 U	1 U	1 U
1,1,1-Trichloroethane	1 U	1 U	1 U	1 U	1 U
1,1,2-Trichloroethane	1 U	1 U	1 U	1 U	1 U
Trichloroethene	5.3 (A)	7.2 (A)	3.7 (A)	4.4 (A)	4.7 (A)
Vinyl Chloride	220 (A)	81 (A)	5.4 (A)	4.4 (A)	4.7 (A)
Xylenes (total)	1 U	1 U	1 U	1 U	1 U

MW17	08/02/2018	07/30/2019
VOC		
Acetone	5 U	5 U
Benzene	5 U	5 U
2-Butanone	5 U	5 U
Chloroethane	1 U	1 U
1,1-Dichloroethane	1 U	1 U
1,2-Dichloroethane	1 U	1 U
1,1,1-Trichloroethane	1 U	1 U
cis-1,2-Dichloroethane	0.39 J	1.2 (A)
trans-1,2-Dichloroethane	0.57 J	1.8 (A)
1,4-Dioxane	50 U	50 U
Ethyl Benzene	1 U	1 U
Methylene Chloride	1 U	1 U
Tetrachloroethane	1 U	1 U
1,1,1-Trichloroethane	1 U	1 U
1,1,2-Trichloroethane	1 U	1 U
Trichloroethene	100 (A)	350 (A)
Vinyl Chloride	1 U	2.4 (A)
Xylenes (total)	0.83 J	1 U

MW102I/MW102IR	02/21/2019	05/06/2019	07/30/2019
VOC			
Acetone	25 U	10 U	25 U
Benzene	5 U	2 U	5 U
2-Butanone	25 U	10 U	25 U
Chloroethane	5 U	2 U	5 U
1,1-Dichloroethane	5.8 (A)	3.8 J	5 J
1,2-Dichloroethane	5 U	2 U	5 U
1,1,1-Trichloroethane	7.8 (A)	5.6 (A)	8.2 (A)
cis-1,2-Dichloroethane	180 (A)	150 (A)	340 (A)
trans-1,2-Dichloroethane	5.2 (A)	3.3 J	6.2 (A)
1,4-Dioxane	250 U	100 U	250 U
Ethyl Benzene	5 U	2 U	5 U
Methylene Chloride	5 U	2 U	5 U
Tetrachloroethane	5 U	2 U	5 U
1,1,1-Trichloroethane	5 U	2 U	5 U
1,1,2-Trichloroethane	5 U	2 U	5 U
Trichloroethene	960 (A)	640 (A)	950 (A)
Vinyl Chloride	12 (A)	23 (A)	27 (A)
Xylenes (total)	5 U	2 U	5 U

(1) MW102I could not be sampled in July/August 2018 or November 2018 due to insufficient water column in the well.  
 (2) MW102-I was replaced with MW102-IR on January 23, 2019.

MW18	07/30/2018	07/31/2019
VOC		
Acetone	50 U	130 U
Benzene	10 U	25 U
2-Butanone	50 U	130 U
Chloroethane	10 U	25 U
1,1-Dichloroethane	38 J (A)	83 J (A)
1,2-Dichloroethane	10 U	25 U
1,1,1-Trichloroethane	18 J (A)	34 J (A)
cis-1,2-Dichloroethane	25 J (A)	45 J (A)
trans-1,2-Dichloroethane	10 U	25 U
1,4-Dioxane	7.8 J	9.1 J
Ethyl Benzene	10 U	25 U
Methylene Chloride	13 (A)	20 J (A)
Tetrachloroethane	10 U	25 U
1,1,1-Trichloroethane	380 J (A)	610 J (A)
1,1,2-Trichloroethane	10 U	25 U
Trichloroethene	2600 J (A)	4300 J (A)
Vinyl Chloride	10 U	25 U
Xylenes (total)	10 U	25 U

MW101I	07/31/2018	07/31/2019
VOC		
Acetone	5 U	5 U
Benzene	1 U	1 U
2-Butanone	5 U	5 U
Chloroethane	1 U	1 U
1,1-Dichloroethane	1 U	1 U
1,2-Dichloroethane	1 U	1 U
1,1,1-Trichloroethane	1 U	1 U
cis-1,2-Dichloroethane	0.64 J	0.34 J
trans-1,2-Dichloroethane	1 U	1 U
1,4-Dioxane	50 U	50 U
Ethyl Benzene	1 U	1 U
Methylene Chloride	1 U	1 U
Tetrachloroethane	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)	1 U	1 U

MW101E	07/31/2018	07/31/2019
VOC		
Acetone	5 U	5 U
Benzene	1 U	1 U
2-Butanone	5 U	5 U
Chloroethane	1 U	1 U
1,1-Dichloroethane	1 U	1 U
1,2-Dichloroethane	1 U	1 U
1,1,1-Trichloroethane	1 U	1 U
cis-1,2-Dichloroethane	0.64 J	0.34 J
trans-1,2-Dichloroethane	1 U	1 U
1,4-Dioxane	50 U	50 U
Ethyl Benzene	1 U	1 U
Methylene Chloride	1 U	1 U
Tetrachloroethane	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)	1 U	1 U

MW102B	07/31/2018	11/14/2018	02/25/2019	05/06/2019	07/29/2019
VOC					
Acetone	5 U	5 UJ	5 U	5 U	5 U
Benzene	0.73 J	0.65 J	0.49 J	0.59 J	0.8 J
2-Butanone	5 U	5 U	5 U	5 U	5 U
Chloroethane	1 U	1 U	1 U	1 U	2.6 J
1,1-Dichloroethane	1 U	1 U	1 U	1 U	2.9 J
1,2-Dichloroethane	1 U	1 U	1 U	1 U	1 U
1,1,1-Trichloroethane	0.48 J	0.63 J	0.38 J	0.63 J	0.69 J
cis-1,2-Dichloroethane	290 (A)	220 (A)	130 (A)	82 (A)	86 (A)
trans-1,2-Dichloroethane	1 U	0.26 J	1 U	1 U	0.25 J
1,4-Dioxane	50 U	50 UJ	50 U	50 U	50 U
Ethyl Benzene	1 U	1 U	1 U	1 U	1 U
Methylene Chloride	1 U	1 U	1 U	1 U	1 U
Tetrachloroethane	1 U	1 U	1 U	1 U	1 U
1,1,1-Trichloroethane	1 U	1 U	1 U	1 U	1 U
1,1,2-Trichloroethane	1 U	1 U	1 U	1 U	1 U
Trichloroethene	1.4 J	0.36 J	1 U	1 U	1 U
Vinyl Chloride	5.3 (A)	4.2 (A)	1.8 J	1.5 J	7.7 (A)
Xylenes (total)	1 U	1 U	1 U	1 U	1 U

MW11	07/31/2019
VOC	
Acetone	5 U
Benzene	1 U
2-Butanone	5 U
Chloroethane	1 U
1,1-Dichloroethane	1 U
1,2-Dichloroethane	1 U
1,1,1-Trichloroethane	1 U
cis-1,2-Dichloroethane	1 U
trans-1,2-Dichloroethane	1 U
1,4-Dioxane	50 U
Ethyl Benzene	1 U
Methylene Chloride	1 U
Tetrachloroethane	1 U
1,1,1-Trichloroethane	1 U
1,1,2-Trichloroethane	1 U
Trichloroethene	1 U
Vinyl Chloride	1 U
Xylenes (total)	1 U

(1) MW-11 could not be sampled in July/August 2018 due to insufficient water column in the well.

MW102ER	08/02/2018	11/14/2018	02/25/2019	05/07/2019	07/30/2019
VOC					
Acetone	16 U	5 U	7 U	5 U	5 U
Benzene	2 U	0.49 J	0.48 J	0.68 J	0.8 J
2-Butanone	10 U	5 U	5 U	5 U	5 U
Chloroethane	2 U	1 U	1 U	1 U	1 U
1,1-Dichloroethane	2 U	1.5 J	4 J	0.33 J	0.65 J
1,2-Dichloroethane	2 U	0.74 J	1.3 J	1 U	1 U
1,1,1-Trichloroethane	2 U	1 U	1 U	1 U	1 U
cis-1,2-Dichloroethane	530 (A)	220 (A)	200 (A)	380 (A)	50 (A)
trans-1,2-Dichloroethane	2 U	0.32 J	1 U	1 U	1 U
1,4-Dioxane	100 U	50 UJ	50 U	50 U	50 U
Ethyl Benzene	2 U	1 U	1 U	1 U	1 U
Methylene Chloride	2 U	1 U	1 U	1 U	1 U
Tetrachloroethane	2 U	1 U	1 U	1 U	1 U
1,1,1-Trichloroethane	2 U	1 U	1 U	1 U	1 U
1,1,2-Trichloroethane	2 U	1 U	1 U	1 U	1 U
Trichloroethene	1.6 J	1.4 J	7.2 (A)	0.86 J	0.88 J
Vinyl Chloride	5.2 (A)	4.9 (A)	7 (A)	0.76 J	2.2 (A)
Xylenes (total)	1 U	1 U	1 U	1 U	1 U

MW14	07/31/2018	07/31/2019
VOC		
Acetone	5 U	5 U
Benzene	1 U	1 U
2-Butanone	5 U	5 U
Chloroethane	1 U	1 U
1,1-Dichloroethane	4.8 U	6.3 (A)
1,2-Dichloroethane	1 U	1 U
1,1,1-Trichloroethane	1.8 U	1.8 U
cis-1,2-Dichloroethane	66 (A)	52 (A)
trans-1,2-Dichloroethane	0.33 J	0.36 J
1,4-Dioxane	50 U	50 U
Ethyl Benzene	1 U	1 U
Methylene Chloride	1 U	1 U
Tetrachloroethane	1 U	1 U
1,1,1-Trichloroethane	1 U	1 U
1,1,2-Trichloroethane	1 U	1 U
Trichloroethene	9.4 (A)	16 (A)
Vinyl Chloride	9.1 (A)	13 (A)
Xylenes (total)	1 U	1 U

(1) MW-13 could not be sampled in July/August 2018 due to insufficient water column in the well.

MW19	08/02/2018	07/30/2019
VOC		
Acetone	10 U	25 U
Benzene	2 U	5 U
2-Butanone	10 U	25 U
Chloroethane	2 U	5 U
1,1-Dichloroethane	20 (A)	16 J (A)
1,2-Dichloroethane	2 U	5 U
1,1,1-Trichloroethane	3.4 J	7.3 (A)
cis-1,2-Dichloroethane	240 (A)	1000 (A)
trans-1,2-Dichloroethane	0.71 J	2.1 J
1,4-Dioxane	100 U	250 U
Ethyl Benzene	2 U	5 U
Methylene Chloride	14 (A)	4.7 J
Tetrachloroethane	2 U	5 U
1,1,1-Trichloroethane	150 (A)	120 J (A)
1,1,2-Trichloroethane	2 U	5 U
Trichloroethene	570 (A)	130 (A)
Vinyl Chloride	2 U	5 U
Xylenes (total)	2 U	5 U



**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

Record and Return To:

SNEERINGER PROVOST & REDGRAVE  
50 CHAPEL STREET  
ALBANY NY 12207

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

10  
7/14

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

**THIS INDENTURE** made this 21<sup>st</sup> day of February, 2018 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 5MPR - Courtesy Recording

Bond, Schoenack & 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.

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**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**  
**SITE MANAGEMENT FORMS**

**Monitoring Well Inspection Form**  
**Former Steel Treaters, Inc. (Site No. V00578)**  
**520 Campbell Avenue, Troy, New York**

<b>Inspection Date:</b> July 30, 2018			
<b>Inspected By:</b> Miles Ingraham; Alex Papalian			
<b>Monitoring Well</b>	<b>Well Cover Condition</b>	<b>Locking Well Cap Condition</b>	<b>Comments and Maintenance Needs/Actions</b>
MW-1	Good	Good	
MW-5	Good	No lock on protective casing.	Installed lock.
MW-8	Good	Good	Flushmount well is located in the western stone cap area. To improve future accessibility, placed a small bucket over well.
MW-11	Good	Good	
MW-13	Good	Good	
MW-14	Good	Good	
MW-17	Good	Good	
MW-18	Good	Good	
MW-19	Good	Good	
MW-100I	Good	Good	
MW-100B	Good	Good	
MW-100E	Good	Good	
MW-101I	Good	Good	
MW-101E	Good	Good	
MW-102I	Good	Good	
MW-102B	Good	Good	
MW-102ER	Good	Good	
MW-103I	Good	Good	

**Monitoring Well Inspection Form**  
**Former Steel Treathers, Inc. (Site No. V00578)**  
**520 Campbell Avenue, Troy, New York**

<b>Inspection Date:</b> July 30, 2018			
<b>Inspected By:</b> Miles Ingraham; Alex Papalian			
<b>Monitoring Well</b>	<b>Well Cover Condition</b>	<b>Locking Well Cap Condition</b>	<b>Comments and Maintenance Needs/Actions</b>
MW-103B	Good	Good	
MW-103E	Good	Good	
MW-104I	Good	No lock on protective casing.	Installed lock.
MW-104E	Good	No lock on protective casing.	Installed lock.
MW-2	Good	No lock on protective casing.	Installed lock.
MW-3	Good	Good	
MW-6	Good	Good	
MW-7	Good	Good	
MW-10	Good	Good	
BRMW-1	Good	No lock on protective casing.	Installed lock.
BRMW-2S	Good	Good	
BRMW-2D	Good	Good	
BRMW-3	Good	Good	
BRMW-4	Good	Good	
MW-4	Good	Good	
MW-9	Good	No lock on protective casing.	Installed lock.
MW-12	Good	Good	
MW-15	Good	Good	
MW-16	Good	Good	

**Engineering Control Monitoring Checklist  
Former Steel Treaters, Inc. (Site No. V00578)  
520 Campbell Avenue, Troy, New York**

<b>Inspection Date:</b> July 30, 2018			
<b>Inspected By:</b> Miles Ingraham; Alex Papalian			
<b>Consolidation and Capping Area Designation</b>	<b>Type of Final Cap Material</b>	<b>Observations</b>	
		<b>Satisfactory Cap Condition</b>	<b>Comments</b>
Northern cap area	Asphalt cap	Yes	
Northern cap area	Stone cap	Yes	
Western cap area	Asphalt cap	Yes	
Western cap area	Stone cap	Yes	
Southern cap area	Stone cap	Yes	
Eastern cap area	Stone cap	Yes	
Foundation area	Concrete cap	Yes	Vegetation growing within and around the northern and western sides of the cap was sprayed with herbicide and/or clipped.

**Monitoring Well Inspection Form**  
**Former Steel Treaters, Inc. (Site No. V00578)**  
**520 Campbell Avenue, Troy, New York**

<b>Inspection Date:</b> January 23, 2019			
<b>Inspected By:</b> Miles Ingraham; Alex Papalian			
<b>Monitoring Well</b>	<b>Well Cover Condition</b>	<b>Locking Well Cap Condition</b>	<b>Comments and Maintenance Needs/Actions</b>
MW-1	Good	Good	
MW-5	Good	Good	
MW-8	Good	Good	
MW-11	Good	Good	
MW-13	Good	Good	
MW-14	Good	Good	
MW-17	Good	Good	
MW-18	Good	Good	
MW-19	Good	Good	
MW-100I	Good	Good	
MW-100B	Good	Good	
MW-100E	Good	Good	
MW-101I	Good	Good	
MW-101E	Good	Good	
MW-102IR	Good	Good	MW-102I replaced with MW-102IR.
MW-102B	Good	Good	
MW-102ER	Good	Good	
MW-103I	Good	Good	
MW-103B	Good	Good	

**Monitoring Well Inspection Form**  
**Former Steel Treaters, Inc. (Site No. V00578)**  
**520 Campbell Avenue, Troy, New York**

<b>Inspection Date:</b> January 23, 2019			
<b>Inspected By:</b> Miles Ingraham; Alex Papalian			
<b>Monitoring Well</b>	<b>Well Cover Condition</b>	<b>Locking Well Cap Condition</b>	<b>Comments and Maintenance Needs/Actions</b>
MW-103ER	Good	Good	MW-103E replaced with MW-103ER.
MW-104I	Good	Good	
MW-104E	Good	Good	
MW-2	Good	Good	
MW-3	Good	Good	
MW-6	Good	Good	
MW-7	Good	Good	
MW-10	Good	Good	
BRMW-1	Good	Good	
BRMW-2S	Good	Good	
BRMW-2D	Good	Good	
BRMW-3	Good	Good	
BRMW-4	Good	Good	
MW-4	Good	Good	
MW-9	Good	Good	
MW-12	Good	Good	
MW-15	Good	Good	
MW-16	Good	Good	

**Engineering Control Monitoring Checklist  
Former Steel Treaters, Inc. (Site No. V00578)  
520 Campbell Avenue, Troy, New York**

<b>Inspection Date:</b> January 23, 2019			
<b>Inspected By:</b> Miles Ingraham; Alex Papalian			
<b>Consolidation and Capping Area Designation</b>	<b>Type of Final Cap Material</b>	<b>Observations</b>	
		<b>Satisfactory Cap Condition</b>	<b>Comments</b>
Northern cap area	Asphalt cap	Yes	MW-102B and MW-103B concrete pads are about 2 inches above the surrounding surface.
Northern cap area	Stone cap	Yes	
Western cap area	Asphalt cap	Yes	
Western cap area	Stone cap	Yes	
Southern cap area	Stone cap	Yes	
Eastern cap area	Stone cap	Yes	
Foundation area	Concrete cap	Yes	

**Monitoring Well Inspection Form**  
**Former Steel Treaters, Inc. (Site No. V00578)**  
**520 Campbell Avenue, Troy, New York**

<b>Inspection Date:</b> July 29, 2019			
<b>Inspected By:</b> Miles Ingraham; Lauren Iacobucci			
<b>Monitoring Well</b>	<b>Well Cover Condition</b>	<b>Locking Well Cap Condition</b>	<b>Comments and Maintenance Needs/Actions</b>
MW-1	Good	Good	
MW-5	Good	Good	
MW-8	Good	Good	
MW-11	Good	Good	
MW-13	Good	Good	
MW-14	Good	Good	
MW-17	Good	Good	
MW-18	Good	Good	
MW-19	Good	Good	
MW-100I	Good	Good	
MW-100B	Good	Good	
MW-100E	Good	Good	
MW-101I	Good	Good	
MW-101E	Good	Good	
MW-102IR	Good	Good	
MW-102B	Good	Good	
MW-102ER	Good	Good	
MW-103I	Good	Good	
MW-103B	Good	Good	



**Monitoring Well Inspection Form**  
**Former Steel Treaters, Inc. (Site No. V00578)**  
**520 Campbell Avenue, Troy, New York**

<b>Inspection Date:</b> July 29, 2019			
<b>Inspected By:</b> Miles Ingraham; Lauren Iacobucci			
<b>Monitoring Well</b>	<b>Well Cover Condition</b>	<b>Locking Well Cap Condition</b>	<b>Comments and Maintenance Needs/Actions</b>
MW-103ER	Good	Good	
MW-104I	Good	Good	
MW-104E	Good	Good	
MW-2	Good	Good	
MW-3	Good	Good	
MW-6	Good	Good	
MW-7	Good	Good	
MW-10	Good	Good	
BRMW-1	Good	Good	
BRMW-2S	Good	Good	
BRMW-2D	Good	Good	
BRMW-3	Good	Good	
BRMW-4	Good	Good	
MW-4	Good	Good	
MW-9	Good	Good	
MW-12	Good	Good	
MW-15	Good	Good	
MW-16	Good	Good	

**Engineering Control Monitoring Checklist  
Former Steel Treaters, Inc. (Site No. V00578)  
520 Campbell Avenue, Troy, New York**

<b>Inspection Date:</b> July 29, 2019			
<b>Inspected By:</b> Miles Ingraham; Lauren Iacobucci			
<b>Consolidation and Capping Area Designation</b>	<b>Type of Final Cap Material</b>	<b>Observations</b>	
		<b>Satisfactory Cap Condition</b>	<b>Comments</b>
Northern cap area	Asphalt cap	Yes	MW-102B and MW-103B concrete pads are about 3 inches above the surrounding surface.
Northern cap area	Stone cap	Yes	
Western cap area	Asphalt cap	Yes	
Western cap area	Stone cap	Yes	
Southern cap area	Stone cap	Yes	
Eastern cap area	Stone cap	Yes	
Foundation area	Concrete cap	Yes	Vegetation growing within and around the northern and western sides of the cap was sprayed with herbicide and/or clipped.



Photo 1: Concrete cap condition before vegetation removal (facing southwest).



Photo 2: Concrete cap condition after vegetation removal (facing northwest).





Photo 3: Concrete and stone cap before vegetation removal (facing north).



Photo 4: Concrete and stone cap after vegetation removal (facing north).





Photo 5: Stone cap condition before vegetation removal (facing south).



Photo 6: Stone cap condition after vegetation removal (facing south).





Photo 7: Stone cap condition before vegetation removal (facing south).



Photo 8: Stone cap condition after vegetation removal (facing southeast).





Photo 9: Asphalt cap condition (facing east).



Photo 10: Asphalt cap condition (facing south).





Photo 11: Asphalt cap condition (facing east).



Photo 12: Asphalt cap condition (facing southeast).



**APPENDIX C  
INSTITUTIONAL AND ENGINEERING  
CONTROLS CERTIFICATION FORM**



Enclosure 2  
**NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION**  
**Site Management Periodic Review Report Notice**  
**Institutional and Engineering Controls Certification Form**



	Site Details	Box 1	
<b>Site No.</b>	<b>V00578</b>		
<b>Site Name</b> Steel Treaters, Inc.			
Site Address: 520 Campbell Avenue    Zip Code: 12180-			
City/Town: Troy			
County: Rensselaer			
Site Acreage: 1.109			
Reporting Period: June 26, 2018 to October 26, 2019			
		YES	NO
1. Is the information above correct?		<input checked="" type="checkbox"/>	<input type="checkbox"/>
If NO, include handwritten above or on a separate sheet.			
2. Has some or all of the site property been sold, subdivided, merged, or undergone a tax map amendment during this Reporting Period?		<input type="checkbox"/>	<input checked="" type="checkbox"/>
3. Has there been any change of use at the site during this Reporting Period (see 6NYCRR 375-1.11(d))?		<input type="checkbox"/>	<input checked="" type="checkbox"/>
4. Have any federal, state, and/or local permits (e.g., building, discharge) been issued for or at the property during this Reporting Period?		<input type="checkbox"/>	<input checked="" type="checkbox"/>
<b>If you answered YES to questions 2 thru 4, include documentation or evidence that documentation has been previously submitted with this certification form.</b>			
5. Is the site currently undergoing development?		<input type="checkbox"/>	<input checked="" type="checkbox"/>
		<b>Box 2</b>	
		YES	NO
6. Is the current site use consistent with the use(s) listed below? Commercial and Industrial		<input checked="" type="checkbox"/>	<input type="checkbox"/>
7. Are all ICs/ECs in place and functioning as designed?		<input checked="" type="checkbox"/>	<input type="checkbox"/>
<b>IF THE ANSWER TO EITHER QUESTION 6 OR 7 IS NO, sign and date below and DO NOT COMPLETE THE REST OF THIS FORM. Otherwise continue.</b>			
<b>A Corrective Measures Work Plan must be submitted along with this form to address these issues.</b>			
_____ Signature of Owner, Remedial Party or Designated Representative		_____ Date	

**Description of Institutional Controls**

<u>Parcel</u>	<u>Owner</u>	<u>Institutional Control</u>
1120000004025000000	ESCO Corporation	Ground Water Use Restriction Soil Management Plan Landuse Restriction Monitoring Plan Site Management Plan Building Use Restriction IC/EC Plan

Institutional controls required at the site by the environmental easement include a periodic certification of institutional and engineering controls in accordance with Part 375-1.8 (h)(3), groundwater restrictions, land use restrictions (commercial and industrial) and the requirement that the site adheres to the approved SMP. Future buildings erected at the site must evaluate the potential for soil vapor intrusion.

**Description of Engineering Controls**

<u>Parcel</u>	<u>Engineering Control</u>
1120000004025000000	Cover System Subsurface Barriers Monitoring Wells

Engineering controls consist of operation and maintenance of the site cover, two Permeable Reactive Barriers (zero-valent-iron walls), and periodic groundwater monitoring.

**Periodic Review Report (PRR) Certification Statements**

1. I certify by checking "YES" below that:

a) the Periodic Review report and all attachments were prepared under the direction of, and reviewed by, the party making the certification;

b) 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 is accurate and complete.

YES NO  
X

2. If this site has an IC/EC Plan (or equivalent as required in the Decision Document), for each Institutional or Engineering control listed in Boxes 3 and/or 4, I certify by checking "YES" below that all of the following statements are true:

(a) the Institutional Control and/or Engineering Control(s) employed at this site is unchanged since the date that the Control was put in-place, or was last approved by the Department;

(b) nothing has occurred that would impair the ability of such Control, to protect public health and the environment;

(c) 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;

(d) nothing has occurred that would constitute a violation or failure to comply with the Site Management Plan for this Control; and

(e) if a financial assurance mechanism is required by the oversight document for the site, the mechanism remains valid and sufficient for its intended purpose established in the document.

YES NO  
X

**IF THE ANSWER TO QUESTION 2 IS NO, sign and date below and DO NOT COMPLETE THE REST OF THIS FORM. Otherwise continue.**

**A Corrective Measures Work Plan must be submitted along with this form to address these issues.**

\_\_\_\_\_  
Signature of Owner, Remedial Party or Designated Representative

\_\_\_\_\_  
Date

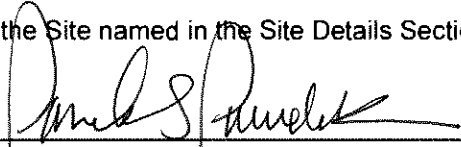
**SITE OWNER OR DESIGNATED REPRESENTATIVE SIGNATURE**

I certify that all information and statements in Boxes 1, 2, and 3 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, Pamela S. Pawelek at 2141 NW 25 AVE PORTLAND, OR 97201  
print name print business address

am certifying as Owner (on behalf of ESCO Group) (Owner or Remedial Party)

for the Site named in the Site Details Section of this form.

  
Signature of Owner, Remedial Party, or Designated Representative  
Rendering Certification

11/19/2019  
Date

IC/EC CERTIFICATIONS

Box 7

Professional Engineer Signature

I certify that all information in Boxes 4 and 5 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 RUSSELL KEMP at 1600 PARKWOOD CIRCLE, SUITE 310  
ATLANTA, GA 30339  
print name print business address

am certifying as a Professional Engineer for the OWNER  
(Owner Remedial Party)



*Russ Kemp*

Signature of Professional Engineer, for the Owner or Remedial Party, Rendering Certification

Stamp  
(Required for PE)

21 Nov 2019  
Date