



*Proactive by Design*



## **Air Sparging/Soil Vapor Extraction (AS/SVE) Evaluation Study**

**Standard Motor Products, Inc. Site  
Long Island City, Queens, New York  
NYSDEC SITE NO. 2-41-016**

July 14, 2020  
12.0076761.10

### **PREPARED FOR:**

Standard Motor Products, Inc.  
37-18 Northern Boulevard  
Long Island City, New York 11101

### **PREPARED BY:**

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## Certifications

I, Ernest Hanna, certify that I am currently a NYS registered professional engineer and that this Report (AS/SVE Evaluation Study) 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).

Ernest Hanna, P.E.

July 14, 2020

A handwritten signature of Ernest Hanna in blue ink.

NYS Professional Engineer No. 065440

Date

Signature





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# Acronyms

|           |                                                         |
|-----------|---------------------------------------------------------|
| AS        | air sparging                                            |
| AWS       | air/water separator                                     |
| bgs       | below ground surface                                    |
| BTEX      | benzene, toluene, ethylbenzene, and xylenes             |
| CDM Smith | CDM Smith, Inc.                                         |
| COC       | contaminants of concern                                 |
| cfm       | cubic feet per minute                                   |
| CVOC      | chlorinated volatile organic compound                   |
| DCA       | dichloroethane                                          |
| DCE       | dichloroethene                                          |
| ELAP      | Environmental Laboratory Approval Program               |
| EC        | Engineering Control                                     |
| FSP       | Field Sampling Plan                                     |
| GAC       | granulated activated carbon                             |
| IC        | Institutional Control                                   |
| Intex     | Intex Environmental Group, Inc.                         |
| IRM       | interim remedial measure                                |
| IWC       | inches water column                                     |
| LPGAC     | liquid-phase granular activated carbon                  |
| MS/MSD    | matrix spike/matrix spike duplicate                     |
| NYSDEC    | New York State Department of Environmental Conservation |
| NYSDOH    | New York State Department of Health                     |
| O&M       | operations and maintenance                              |
| OM&M      | operations, maintenance, and monitoring                 |
| PCE       | tetrachloroethene                                       |
| PDB       | passive diffusion bag                                   |
| PID       | photoionization detector                                |
| PLC       | programmable logic controller                           |
| PRR       | Periodic Review Report                                  |
| QA/QC     | Quality Assurance/Quality Control                       |
| QAPP      | Quality Assurance Project Plan                          |
| RI        | remedial investigation                                  |



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### Acronyms (continued)

|                   |                                               |
|-------------------|-----------------------------------------------|
| ROD               | Record of Decision                            |
| ROI               | radius of influence                           |
| SMP               | Standard Motor Products, Inc.                 |
| SSDS              | sub-slab depressurization system              |
| SVE               | soil vapor extraction                         |
| TCA               | trichloroethane                               |
| TCE               | trichloroethene                               |
| µg/L              | micrograms per liter                          |
| µg/m <sup>3</sup> | micrograms per cubic meter                    |
| USEPA             | United States Environmental Protection Agency |
| VC                | vinyl chloride                                |
| VOC               | volatile organic compound                     |
| VPAC              | vapor-phase granular activated carbon         |



## SECTION 1 INTRODUCTION

On behalf of Standard Motor Products, Inc. (SMP), Goldberg-Zoino Associates of New York P.C. d/b/a GZA GeoEnvironmental of New York (GZA) is submitting this revised AS/SVE Evaluation Study for the property located at 37-18 Northern Boulevard in Long Island City, New York (herein referred to as the “site”). The original AS/SVE Evaluation Study report was drafted by CDM Smith of Edison NJ and submitted to the New York State Department of Environmental Conservation (NYSDEC) on February 6, 2019. This evaluation study has been developed in accordance with the Order on Consent and Administrative Settlement (Index No. R2-0637-04-10) between the NYSDEC and SMP, which was executed on March 12, 2010 and the letter from Ms. Sondra Martinkat of NYSDEC dated August 10, 2018, which outlines items that need to be included in the evaluation study. The items requested from NYSDEC include:

- A flow chart showing the system (contained in **Appendix A and Appendix B**)
- The rationale for shutting down the AS/SVE system (Section 2.0)
- An explanation of how the operation of the SSDS would not be affected (Section 2.2)
- Specific concentrations on what is being presented as asymptotic conditions, with charts and graphs of past data (**Appendix D**)
- The frequency of monitoring events and sampling procedures (Section 2.2)

An Interim Remedial Measure (IRM) was implemented at the site due to vapor concentrations under the building slab exceeding New York State Department of Health (NYSDOH) screening criteria. The IRM consists of a sub-slab depressurization system (SSDS), which was completed in September of 2009, with continuous operation initiated on December 7, 2009. The system is currently operating as specified in the Final Interim Remedial Measure Work Plan (CDM 2009b). In March 2009, the NYSDEC issued a Record of Decision (ROD) selecting to continue the operation, maintenance, and monitoring of the IRM (NYSDEC 2009). This measure was supplemented with the installation of an air sparge/soil vapor extraction (AS/SVE) system designed to treat the contaminated groundwater and capture the associated contaminant vapors from groundwater sparging. The AS/SVE system installation was completed in August 2013, with continuous operation initiated on August 23, 2013.

Performance monitoring of the AS/SVE indicates that chemical of concern (COC) concentrations from all wells within the AS/SVE treatment footprint from 2015 to 2018 have been below the state groundwater standard. Based on these results, a groundwater and soil vapor rebound study is proposed to determine if continued operation of the AS/SVE is necessary to protect receptors.

The purpose of this AS/SVE Evaluation Study is to develop the specific decision framework to transition from the current active remedial treatment approach to a more passive monitored natural attenuation approach including long-term monitoring as part of the site closure strategy. Long-term monitoring will be conducted until Remedial Action Objectives (RAOs) have been achieved and the site is closed. Currently, an active AS/SVE treatment system is operating within the historical source area of groundwater contamination. The source area is defined in the Feasibility Study (CDM 2009c) as that area of the site which encompasses 20 times the groundwater standard for TCE (5 µg/L), which is presented on Figure 1-6 as a 100 µg/L contour. The overall objective of the AS/SVE system is to remediate subsurface contamination impacting the onsite soils and groundwater, and to prevent migration of contaminated subsurface vapors onsite and offsite. The



rebound evaluation strategy decision framework includes a step-wise process to first evaluate the AS/SVE and determine if sufficient treatment has been achieved to maintain the low-levels of COCs currently observed in the groundwater, which meet the NYDEC Standards and Guidance Values for Class GA Groundwater. In addition, soil vapor will be monitored/evaluated as part of the rebound study.

## 1.1 SITE BACKGROUND

The SMP property is located in the northwestern section of Queens County, New York, with an address of 37-18 Northern Boulevard in Long Island City, New York (**Figures 1-1 and 1-2**). The property was owned and operated by SMP until March 2008 and is located in an urban and industrial area. The property is rectangular in shape and occupies approximately one acre of land. The property contains a large, six-story, industrial building with approximately 42,000 square feet per floor. The building occupies most of the property and houses commercial tenants on all six floors as well as in the basement. A narrow strip of land on the south side of the property contains a concrete loading dock and access for service and emergency vehicles. A fence separates the south yard area from a rail yard south of the site. The site layout is shown in **Figure 1-3**.

According to historical Sanborn fire insurance rate maps, the subject building was constructed between 1919 and 1925, and has been utilized for industrial and manufacturing purposes since it was built. Starting in the mid-1900s, SMP has occupied the on-site building. Until March 2008, SMP produced automobile parts and components in the basement of the Long Island City facility. The manufacturing operations included metal fabrication and machining, plastic injection molding, and assembly.

Previous site investigation activities were performed in four stages, Phase I through IV. These investigation phases evaluated soil, groundwater, soil vapor, indoor air, and sub-slab vapor. Results from the investigations identified chlorinated volatile organic compound (CVOC) contamination in the groundwater beneath the site. Benzene, toluene, ethylbenzene, and xylene (BTEX) contamination were also identified in the groundwater. The BTEX contamination is not believed to be related to operations at the site and is likely part of a plume originating from the gasoline service station immediately to the east of the site (NYSDEC Spill #95-00846). The location of site groundwater contamination in excess of remedial objectives in 2010 is depicted in **Figure 1-4**, which identified groundwater CVOC exceedances found in direct push samples collected during the Remedial Investigation (RI), Phase IV sampling event. Groundwater elevation contours in 2017 are depicted in **Figure 1-5**, and 2011 groundwater elevation and trichloroethene (TCE) plume isoconcentration contours in 2011 are depicted in **Figure 1-6**. The groundwater flow direction determined during the RI Phase IV sampling event and in 2017 are consistent with regional groundwater flow to the west. The location of soil vapor contamination on site in 2011 is depicted in **Figure 1-7**, which identifies soil vapor VOC concentrations in soil gas, sub-slab, and indoor air sampled during the RI Phase IV sampling event.

Detailed descriptions of the site history and previous investigations are included in the RI Report for SMP, *Final Comprehensive Remedial Investigation Report, Standard Motor Products, Inc. Site (Site No. 2-41-016)*, dated February 6, 2009 (CDM 2009a).



## 1.2 CONCEPTUAL SITE MODEL

Based upon an extensive amount of data, it has been determined that the chlorinated groundwater “hot spot” is located external to the building, along the loading dock northeast of MW11, approximately 120 feet west of the southeast corner of the building. Based upon this same extensive database, it has been determined that the non-chlorinated groundwater contamination originates from an upgradient source, the Hess station (east of the site). Unsaturated soil contamination is minimal and previously detected soil contamination has been flushed into the saturated zone. As discussed in the Remedial Investigation Report (RIR) and presented on **Figure 1-8**, the groundwater contamination is primarily found in the eastern portion of the building, whereas the groundwater in the western portion of the building remains relatively uncontaminated even though groundwater flow is from east to west. The soil sampling results indicates that the contamination is primarily found in the saturated zone and on the eastern side of the building. The Subway tunnel located along Northern Boulevard acts as a hydraulic barrier to groundwater transport flowing north. Based upon the groundwater and soil contamination data as discussed above it can be concluded that the groundwater contamination is relatively stable and not migrating west or north beyond the sub-basement and the subway tunnel.

The groundwater analytical results indicate the contaminant levels has biodegraded over time. In addition to groundwater transport and biodegradation, vapor migration is currently occurring at the site. Vapors from the “hot spot” are being transported from the water table interface and are being drawn upward during the heating season due to stack effects and effects of the adjacent subway tunnel. However, even though sub-slab concentrations are elevated, primarily along the south east perimeter of the building, current indoor air concentrations do not exceed guidance values.

## 1.3 REMEDIAL PROGRAM

An IRM was implemented to mitigate the transport of vapor concentrations exceeding NYSDOH screening criteria detected under the basement floor slab into the indoor air. The IRM consists of a SSDS to create a negative pressure differential across the building slab. Vapors migrate toward the low-pressure areas created by SSDS operation, thus eliminating vapor intrusion pathways. Construction of the SSDS was completed in September of 2009, and continuous operation was initiated on December 7, 2009. The system is currently operating as specified in the *Final Interim Remedial Measure Work Plan* (CDM 2009b). A figure showing the as-built layout of the SSDS treatment system is provided in **Appendix A**.

In March 2009, the NYSDEC issued a ROD electing to continue the operation, maintenance, and monitoring of the IRM. The remedial goals as specified in the March 2009 ROD are to eliminate or reduce to the extent practicable:

- Exposures of persons at or around the site to CVOCs in groundwater, soil vapor and indoor air; and,
- The release of contaminants from groundwater into indoor air through sub-slab vapor intrusion.

Further, the remediation goals for the site include attaining to the extent practicable:

- NYDEC Standards and Guidance Values for Class GA Groundwater.

Remedial activities were implemented in accordance with the NYSDEC-approved *Interim Remedial Measure Work Plan* dated February 6, 2009, and the *Final Design Report* dated October 12, 2011. AS/SVE and SSDS treatment systems were installed to remediate contamination at the site.



The following is a summary of the remedial activities performed at the site:

1. Implemented a remedial design program to provide the details necessary for the construction, operation, maintenance, and monitoring of the remedial treatment system.
2. Installed and implemented operation, maintenance, and monitoring (OM&M) of the on-site IRM which consists of a SSDS to control vapor intrusion into the on-site building.
3. Installed and implemented OM&M of an AS/SVE system to treat the contaminated groundwater *in situ*. Two figures showing the as-built layout of the AS/SVE treatment system are provided in **Appendix B**.

Developed an institutional control (IC) in the form of environmental easements that require: (a) limiting the use and development of the property to commercial use, which will also permit industrial use; (b) compliance with the site management plan; (c) restricting the use of groundwater as a source of potable or process water, without necessary water quality treatment as determined by the NYSDOH; and (d) completing and

1. Submitting to the NYSDEC a periodic certification of institutional and engineering controls.
2. Developed a site management plan (submitted to NYSDEC in February 2017) that includes the following institutional and engineering controls: (a) periodic groundwater sampling and analysis as part of the long-term monitoring of the remedial action; (b) identification of any use restrictions on the site; (c) fencing to control site access; and (d) provisions for the continued proper operations and maintenance (OM&M) of the SSDS and AS/SVE systems.
3. A periodic certification of institutional and engineering controls was prepared (most recently in January 2018) and submitted by a professional engineer, until the NYSDEC notifies the property owner in writing that this certification is no longer needed. The submittal: (a) contains certification that the ICs and engineering controls put in place are either unchanged from the previous certification or are compliant with the NYSDEC-approved modifications; (b) allows the NYSDEC to access the site; and (c) states that nothing has occurred that will impair the ability of the control to protect public health or the environment, or constitute a violation or failure to comply with the site management plan unless otherwise approved by the NYSDEC.

Long-term monitoring consists of periodic sampling (once a year from 2013 to 2016, and twice a year in 2017 and 2018) and analysis of the groundwater to determine the efficacy of the remedy in terms of reduction in the COC concentrations and mass. The influent to the SVE treatment system is also sampled to estimate the quantity of COCs being captured and to confirm that the treatment system continues to be effective. Detailed descriptions of the long-term monitoring scope are presented in the *Site Management Plan* submitted to NYSDEC on January 25, 2016 and subsequently resubmitted in February 2017. The latest summary tables for groundwater and air testing analytical results are presented in **Appendix C**.

## **SECTION 2 AS/SVE EVALUATION STUDY**

As described in Section 1, performance monitoring at the site suggest the AS/SVE system when operating has reduced concentration levels of contaminants of concern to asymptotic levels. As such, an AS/SVE Evaluation Study has been



developed to establish a step-wise process to evaluate if a transition from active groundwater treatment to a passive monitored natural attenuation approach can be achieved. The AS/SVE system would be shut down prior to any change in the SSDS operation to evaluate any rebound in groundwater COC concentrations. A discussion of this shutdown is presented below.

## 2.1 EXISTING CONDITIONS

The source area requiring treatment by the AS/SVE system was defined in the 2009 Final Feasibility Report which was approved by NYSDEC. This source area was defined as encompassing groundwater that contained chlorinated COCs with concentrations up to 20 times the groundwater standard for TCE of 5 µg/L.

The most recent groundwater sampling/analysis event occurred in September 2018. Analytical results for this event plus past events back to 2013 are provided in tables in **Appendix C**. Results for sample concentrations greater than their state groundwater standard are highlighted in the table. In addition, plots for the COCs in each well over time are provided in **Appendix D** along with statistical calculations using Mann-Kendall analysis. The plots and statistical analysis in **Appendix D** show that the chlorinated COCs have reached asymptotic levels while the system is operating except in MW-16, which is not located in the footprint of the AS/SVE treatment area presented in the FS report. For MW-16 only, cis-1,2-dichloroethene and vinyl chloride exceed their respective groundwater standard. It is expected that once the AS/SVE system is shut down, these concentrations will continue to attenuate due to natural degradation processes until remedial action objectives (RAOs) are achieved.

In 2018, NYSDEC requested 1,4-dioxane testing be added to the groundwater monitoring program. Similar to the chlorinated COCs, an exceedance of the NYSDEC guidance value for 1,4-dioxane (0.35 µg/l) was found only in MW-16 in both the April and September 2018 sampling events at approximately 1 µg/l.

The historical annual and current semi-annual vapor monitoring obtains 30-minute air samples, using summa canisters, from the three SVE influent lines, the overall SSDS influent line, the combined SSDS/SVE influent to the carbon treatment unit and the effluent from the carbon treatment unit. All samples are analyzed for TO-15 VOC compounds.

## 2.2 AS/SVE TREATMENT SYSTEM EVALUATION AND GROUNDWATER REBOUND STUDY

The AS/SVE system was installed several years after the SSDS system. However, both systems utilize the same blowers and vapor phase carbon treatment system. The systems were designed to be flexible and can be operated independently. Therefore, shutting down of the AS/SVE system has no effect on the operation of the SSDS system. **Figure 1-9** and **Appendix E** present the SSDS vacuum monitoring readings from the last three semi-annual events. The vacuum readings from the last three semi-annual events suggest that the SSDS system is working effectively to prevent exposure to potential vapor intrusion during the AS/SVE shutdown and rebound study. **Appendix A** and **Appendix B** contain the record (as built) drawings of the AS/SVE and SSDS systems.



Several years of groundwater analytical data for monitoring wells within the target treatment zone (i.e. not including MW-16) indicate that the concentrations for COCs are below the groundwater standard. Based on the groundwater results provided in Appendix C and Appendix D, it is proposed to shut down the AS/SVE system to begin rebound testing to evaluate if concentrations of the COCs in the groundwater source area have been reduced sufficiently to no longer pose a threat to indoor air and environment.

GZA will collect groundwater and soil vapor samples on a quarterly basis for a total of four quarters to assess rebound of contamination. The groundwater samples will be collected using low flow sampling techniques from the same monitoring wells (MW-10, MW-11S, and MW-16 through MW-20) and each groundwater sample will be analyzed for VOC compounds (method EPA 8260C) and 1,4-dioxane (method 8270DSIM) and the following monitored natural attenuation compounds; anions (chloride, sulfate, nitrate, method 300.0), sulfide (method SM4500 S or F), TOC (method 9060), gases (methane, ethane, ethene, method RFK175), total metals (As, Fe, Mn, method 6010D) and dissolved metals (As, Fe, Mn, method 6010D). In addition, GZA will install eight soil vapor gas sample points in the treatment area to evaluate the soil vapor conditions during the rebound testing period. The proposed locations are indicated on **Figure 1-10**. The soil vapor gas samples will be collected in conjunction with the groundwater samples on a quarterly basis for a period of four quarters. The soil vapor samples will be collected using 6-liter summa canisters with a flow rate not to exceed 0.2 L/min, and will be analyzed for VOCs by TO-15 method as per the October 2006 "Guidance for Evaluating Soil Vapor Intrusion in the State of New York". Details of the proposed sampling are provided in Table 2-2a and a tentative sampling schedule is indicated in Table 2-2b.

If there is no significant rebound in concentration after four quarters of groundwater monitoring data, then the AS/SVE system will remain off for four more quarters of groundwater and soil vapor sampling. If no significant rebound occurs in the groundwater concentrations after a total of eight quarters of groundwater sampling, then the AS/SVE will be shut down permanently. A long-term monitoring plan will be proposed in the groundwater rebound report. The Site Management Plan will also be revised to document the long-term monitoring plan.

### SECTION 3 REFERENCES

Camp Dresser and McKee, Inc. (CDM). 2009a. *Final Comprehensive Remedial Investigation Report, Standard Motor Products, Inc. Site*. February 6.

CDM. 2009b. *Final Interim Remedial Measure Work Plan, Standard Motor Products, Inc. Site*. February 6.

CDM. 2009c. *Final Feasibility Study Report, Standard Motor Products, Inc. Site*. February 6.

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CDM Smith. 2016. *Final Site Management Plan, Standard Motor Products, Inc. Site*. July 18.



New York State Department of Environmental Conservation (NYSDEC). 2009. *Record of Decision: Standard Motor Products, Inc. Site. Long Island City, Queens County, New York. Site Number 241016.* March.

NYSDEC. 2010. *DER-10 Draft: Technical Guidance for Site Investigation and Remediation.* May 3.

New York State Department of Health (NYSDOH). 2006. *Soil Vapor Intrusion Guidance.* October. Updates May 2017.



**Tables**

**Table 2-2 a**  
**Groundwater and Soil Vapor Sampling Method**  
**Standard Motor Products, Inc.**  
**37-18 Northern Boulevard**  
**Long Island City, New York 11101**

|                          | Analytical Parameters |                              |                                                   |                                 |                   |                                                |                                                                                         |                                | Schedule  |
|--------------------------|-----------------------|------------------------------|---------------------------------------------------|---------------------------------|-------------------|------------------------------------------------|-----------------------------------------------------------------------------------------|--------------------------------|-----------|
| Sampling Location        | VOCs (Method 8260C)   | 1,4-Dioxane via EPA 8270DSIM | Monitored natural attenuation (MNA) compounds     |                                 |                   |                                                |                                                                                         | VOCs compounds by method TO-15 |           |
|                          |                       |                              | anions (chloride, sulfate, nitrate, method 300.0) | sulfide (method SM4500 S or F), | TOC (method 9060) | Gases (methane, ethane, ethene, method RFK175) | Total metals (As, Fe, Mn, method 6010D) and dissolved metals (As, Fe, Mn, method 6010D) |                                |           |
| Monitoring Well # MW-10  | X                     | X                            | X                                                 | X                               | X                 | X                                              | X                                                                                       |                                | Quarterly |
| Monitoring Well # MW-11S | X                     | X                            | X                                                 | X                               | X                 | X                                              | X                                                                                       |                                | Quarterly |
| Monitoring Well # MW-16  | X                     | X                            | X                                                 | X                               | X                 | X                                              | X                                                                                       |                                | Quarterly |
| Monitoring Well # MW-17  | X                     | X                            | X                                                 | X                               | X                 | X                                              | X                                                                                       |                                | Quarterly |
| Monitoring Well # MW-18  | X                     | X                            | X                                                 | X                               | X                 | X                                              | X                                                                                       |                                | Quarterly |
| Monitoring Well # MW-19  | X                     | X                            | X                                                 | X                               | X                 | X                                              | X                                                                                       |                                | Quarterly |
| Monitoring Well # MW-20  | X                     | X                            | X                                                 | X                               | X                 | X                                              | X                                                                                       |                                | Quarterly |
| SV-1 through SV-8        |                       |                              |                                                   |                                 |                   |                                                |                                                                                         | X                              | Quarterly |

**Notes :**

|      |                            |
|------|----------------------------|
| VOCs | Volatile Organic Compounds |
| TOC  | Total Organic Carbon       |
| As   | Arsenic                    |
| Fe   | Iron                       |
| Mn   | Manganese                  |

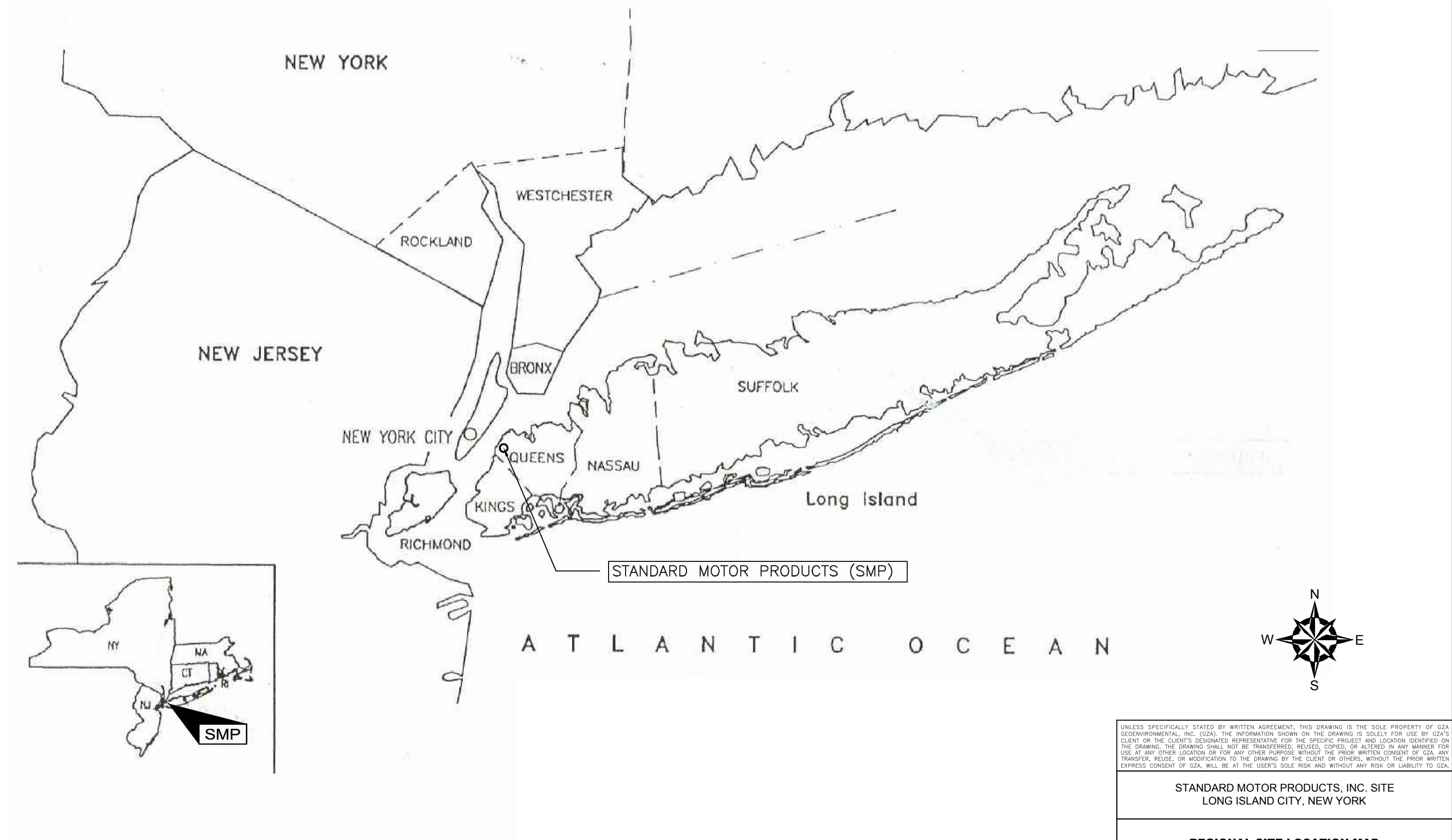
Table 2-2 b  
Groundwater and Soil Vapor Sampling Schedule/Timeline  
Standard Motor Products, Inc.  
37-18 Northern Boulevard  
Long Island City, New York 11101

| Timeline                                                                                                                                                                   | Action Date |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|
| DEC Approval on the the AS/SVE Evaluation Study Workplan                                                                                                                   | 7/16/2020   |
| Shut down the AS/SVE                                                                                                                                                       | 7/31/2020   |
| Q1                                                                                                                                                                         | 8/15/2020   |
| Q2                                                                                                                                                                         | 11/15/2020  |
| Q3                                                                                                                                                                         | 2/15/2021   |
| Q4                                                                                                                                                                         | 5/16/2021   |
| If there is no significant rebound in concentration after four quarters of groundwater monitoring data, then the AS/SVE system will remain off                             |             |
| Q5                                                                                                                                                                         | 8/15/2021   |
| Q6                                                                                                                                                                         | 11/15/2021  |
| Q7                                                                                                                                                                         | 2/15/2022   |
| Q8                                                                                                                                                                         | 5/16/2022   |
| If no significant rebound occurs in the groundwater concentrations after a total of eight quarters of groundwater sampling, then the AS/SVE will be shut down permanently. |             |

Note: The proposed schedule is contingent upon DEC's approval on the AS/SVE Evaluation Study Workplan



## Figures

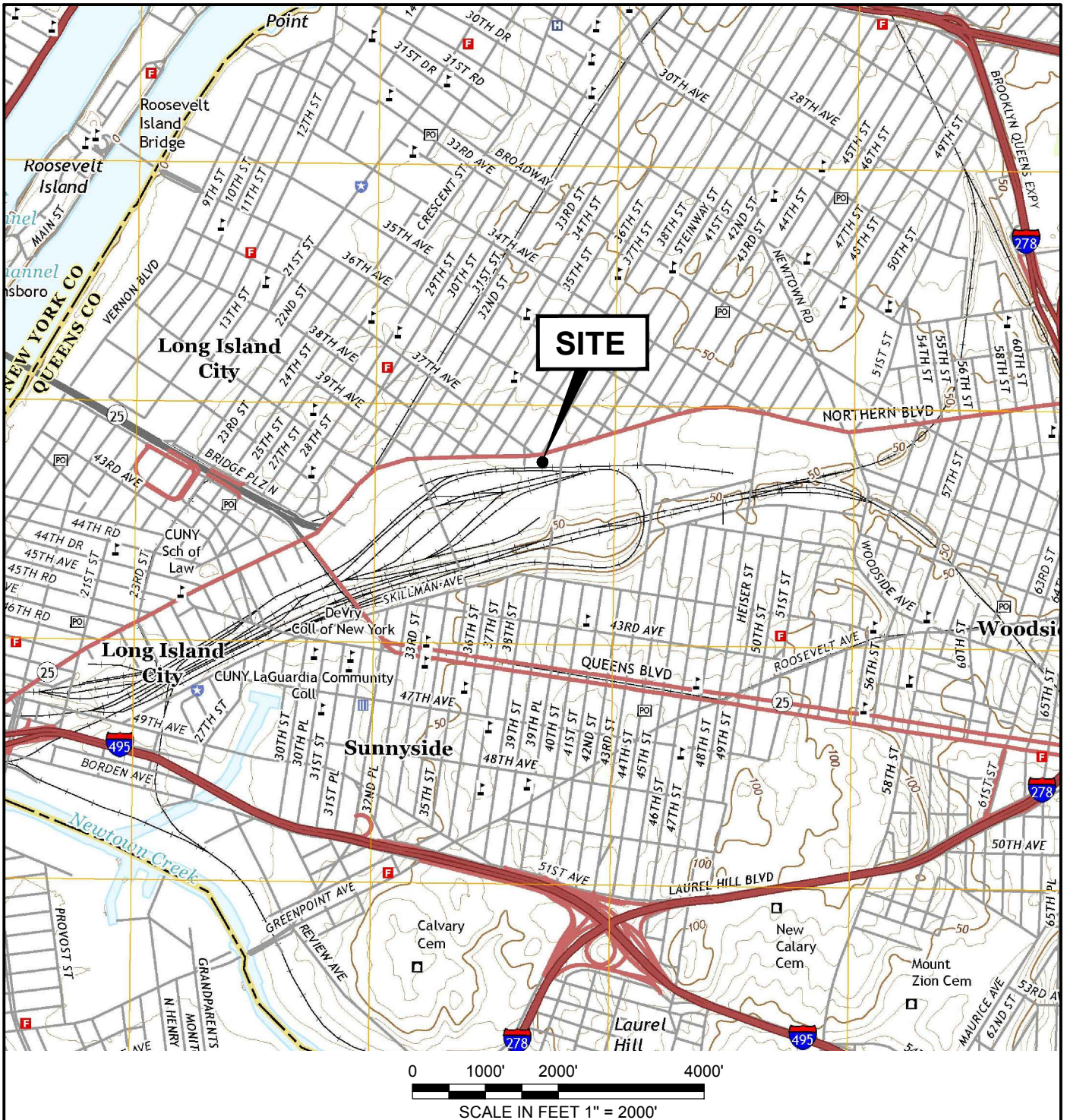


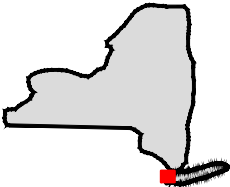
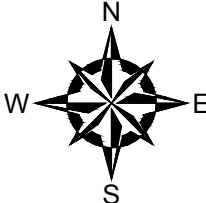
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STANDARD MOTOR PRODUCTS, INC. SITE  
LONG ISLAND CITY, NEW YORK

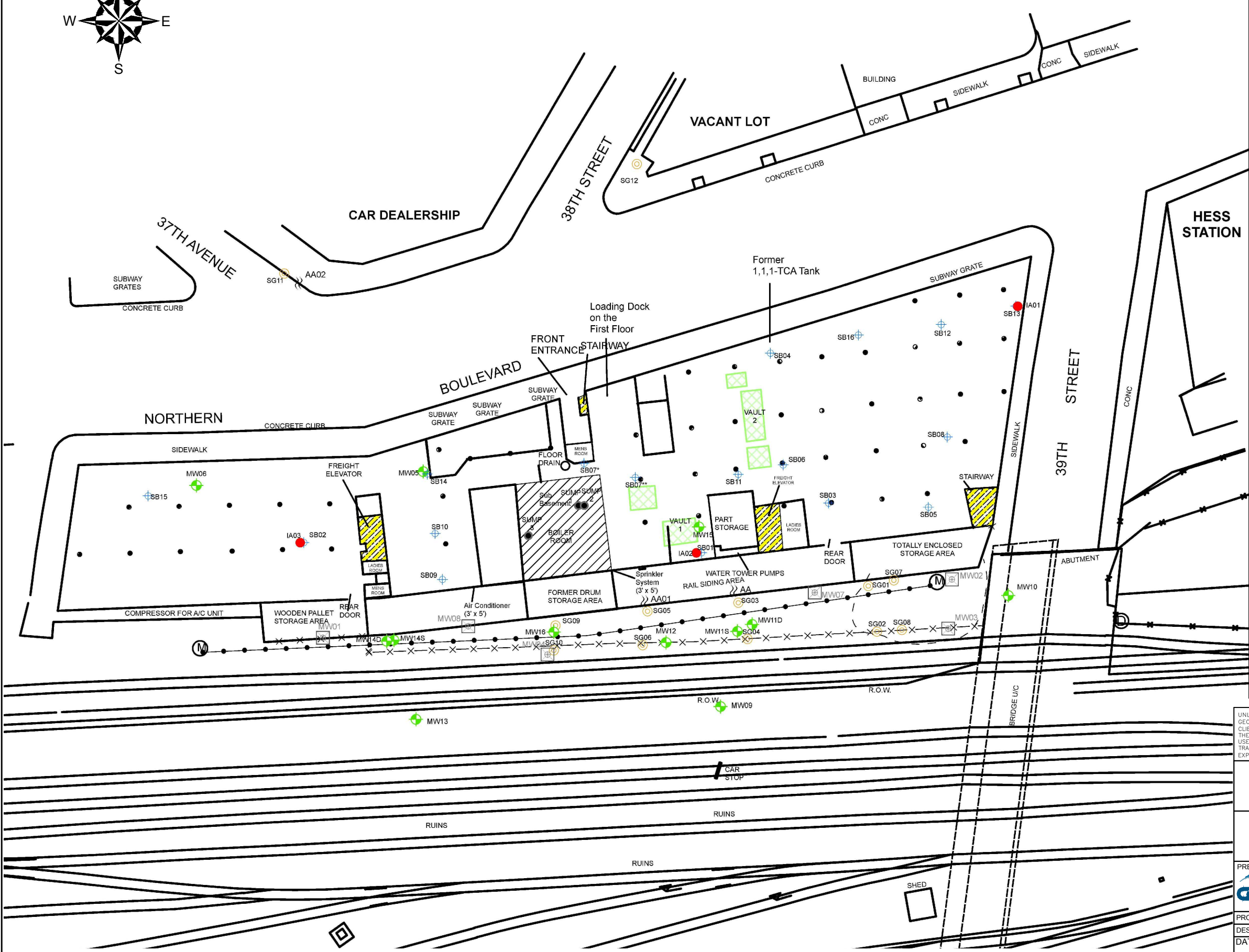
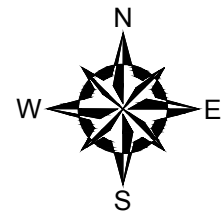
REGIONAL SITE LOCATION MAP

|                                                                                                                                                                                    |                              |                                                          |                                   |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------|----------------------------------------------------------|-----------------------------------|
| PREPARED BY:<br> <b>GZA</b> GeoEnvironmental, Inc.<br>Engineers and Scientists<br>www.gza.com |                              | PREPARED FOR:<br>FORMER STANDARD MOTOR<br>PRODUCTS, INC. |                                   |
| PROJ MGR: BMP                                                                                                                                                                      | REVIEWED BY: ZS              | CHECKED BY: BMP                                          | FIGURE<br><b>1-1</b><br>SHEET NO. |
| DESIGNED BY: ZS                                                                                                                                                                    | DRAWN BY: MT                 | SCALE: NOT TO SCALE                                      |                                   |
| DATE:<br>JUNE 2019                                                                                                                                                                 | PROJECT NO.<br>12.0076761.10 | REVISION NO.                                             |                                   |



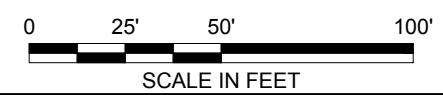
|                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                 |
|---------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------|
| <div>NEW YORK</div> <div></div> <div>QUADRANGLE LOCATION</div> | <div>SOURCE:</div> <div><div>BASE MAP FROM THE FOLLOWING USGS QUADRANGLE MAPS:</div><div>CENTRAL PARK, NY-NJ (2016) &amp; BROOKLYN, NY (2016)</div></div> <div>DIGITAL TOPOGRAPHIC MAPS PROVIDED BY USGSSTORE.GOV.</div> <div><div>CONTOUR ELEVATIONS REFERENCE NAVD 88,</div><div>CONTOURS ARE SHOWN IN FEET AT 10' INTERVALS</div></div> <div><div>UNLESS SPECIFICALLY STATED BY WRITTEN AGREEMENT, THIS DRAWING IS THE SOLE PROPERTY OF GZA GEOENVIRONMENTAL, INC. (GZA). THE INFORMATION SHOWN ON THE DRAWING IS SOLELY FOR USE BY GZA'S CLIENT OR THE CLIENT'S DESIGNATED REPRESENTATIVE FOR THE SPECIFIC PROJECT AND LOCATION IDENTIFIED ON THE DRAWING. THE DRAWING SHALL NOT BE TRANSFERRED, REUSED, COPIED, OR ALTERED IN ANY MANNER FOR USE AT ANY OTHER LOCATION OR FOR ANY OTHER PURPOSE WITHOUT THE PRIOR WRITTEN CONSENT OF GZA. ANY TRANSFER, REUSE, OR MODIFICATION TO THE DRAWING BY THE CLIENT OR OTHERS, WITHOUT THE PRIOR WRITTEN EXPRESS CONSENT OF GZA, WILL BE AT THE USER'S SOLE RISK AND WITHOUT ANY RISK OR LIABILITY TO GZA.</div></div> | <div></div>                                                |
| <div>STANDARD MOTOR PRODUCTS, INC. SITE</div> <div>LONG ISLAND CITY, NEW YORK</div>                                                               | <div>PREPARED BY:</div> <div><div><div>GZAGeoEnvironmental, Inc.</div><div>Engineers and Scientists</div><div>www.gza.com</div></div></div>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | <div>PREPARED FOR:</div> <div>FORMER STANDARD MOTOR PRODUCTS, INC.</div>                                                                        |
| <div>SITE LOCATION MAP</div>                                                                                                                      | <div>PROJ MGR: BMP</div> <div>REVIEWED BY: ZS</div> <div>DESIGNED BY: ZS</div> <div>DRAWN BY: MT</div> <div>DATE: JUNE 2019</div> <div>PROJECT NO. 12.0076761.10</div>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | <div>CHECKED BY: BMP</div> <div>SCALE: 1" = 2,000'</div> <div>REVISION NO.</div> <div><div>FIGURE</div><div>1-2</div><div>SHEET NO.</div></div> |

©2019 - GZA GeoEnvironmental, Inc. GZA-J:\76700\S\12.0076761.00\FIGURES\CAD\76761.00.F1-3.DWG 2 JUNE 21, 2019 MIGUEL TORRES



- INDOOR AIR (IA) SAMPLE LOCATION
- » AMBIENT AIR (AA) SAMPLE LOCATION
- ☒ DESTROYED MONITORING WELLS (MW)
- ◆ MONITORING WELL (MW)
- ⊕ SUB-SLAB (SB) SAMPLE LOCATION
- SOIL GAS (SG) SAMPLE LOCATION
- Ⓜ SEWER MANHOLE (APPROX 12' DEEP)
- ⓓ APPROX LOCATION OF DRAIN SPOUT
- R.O.W. RIGHT OF WAY
- SUPPORT COLUMN
- ×-×-× FENCE LINE
- UNDERGROUND STORM SEWER
- - - APPROX. VICINITY OF PREVIOUSLY EXCAVATED SOILS
- ▨ RECESS EQUIPMENT PAD/VAULT

NOTES:  
SB07\* - AIR SAMPLE  
SB07\*\* - SOIL/GW SAMPLE

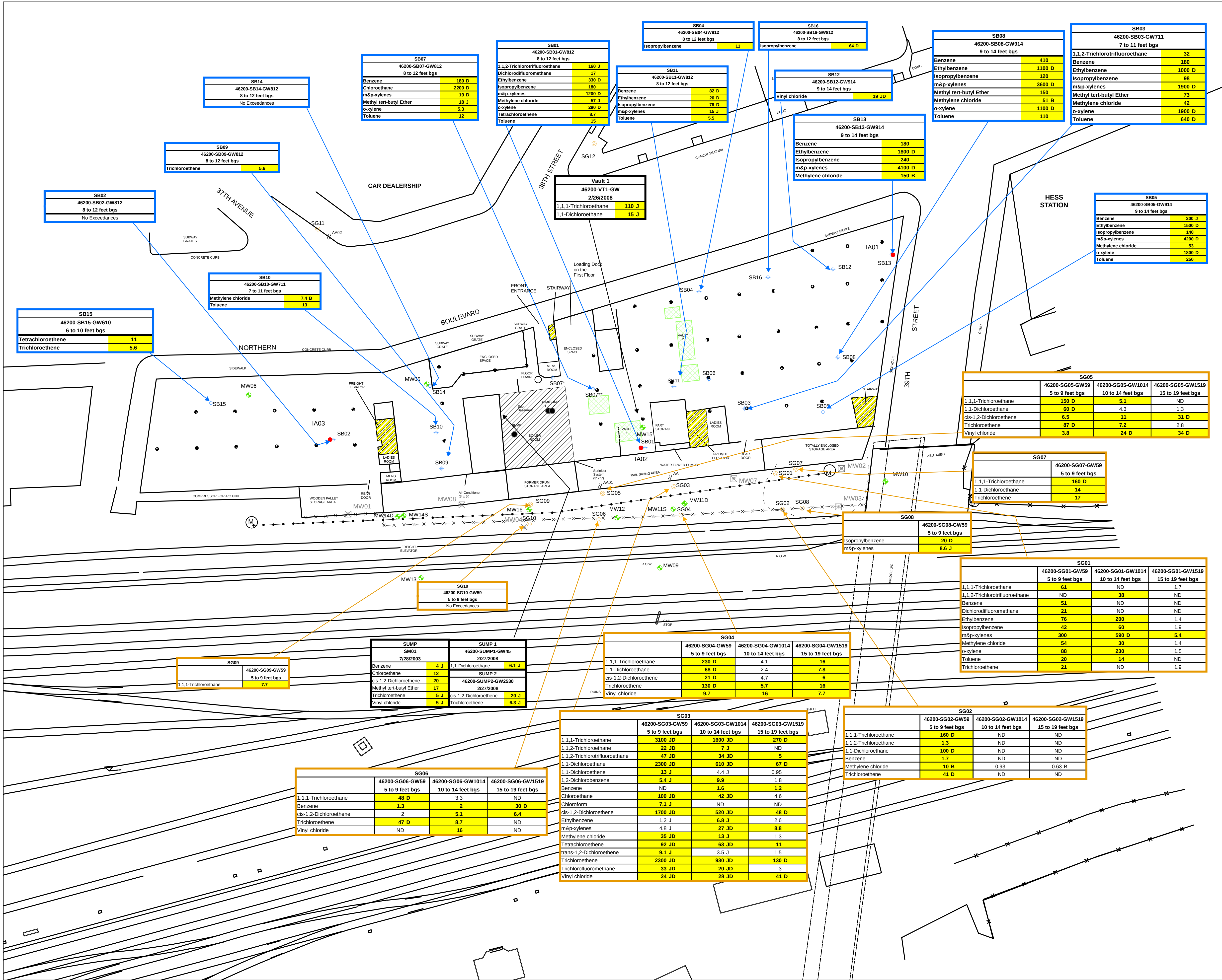


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STANDARD MOTOR PRODUCTS, INC. SITE  
LONG ISLAND CITY, NEW YORK

**SITE LAYOUT**

|                                                                                              |                              |                                                          |                                   |
|----------------------------------------------------------------------------------------------|------------------------------|----------------------------------------------------------|-----------------------------------|
| PREPARED BY:<br><b>GZA</b> GeoEnvironmental, Inc.<br>Engineers and Scientists<br>www.gza.com |                              | PREPARED FOR:<br>FORMER STANDARD MOTOR<br>PRODUCTS, INC. |                                   |
| PROJ MGR: BMP                                                                                | REVIEWED BY: ZS              | CHECKED BY: BMP                                          | FIGURE<br><b>1-3</b><br>SHEET NO. |
| DESIGNED BY: ZS                                                                              | DRAWN BY: MT                 | SCALE: 1" = 50'                                          |                                   |
| DATE:<br>JUNE 2019                                                                           | PROJECT NO.<br>12.0076761.10 | REVISION NO.                                             |                                   |



- INDOOR AIR (IA) LOCATION
- » AMBIENT AIR (AA) LOCATION
- ☒ DESTROYED MONITORING WELL (MW)
- 📍 MONITORING WELL (MW)
- ⊕ SUB-SLAB (SB) LOCATION
- ⊙ SOIL GAS (SG) LOCATION
- Ⓜ SEWER MANHOLE (APPROX 12' DEEP)
- ⓓ APPROX LOCATION OF DRAIN SPOUT
- ⦿ SUPPORT COLUMN
- R.O.W. RIGHT OF WAY
- X—X—X—X— FENCE LINE
- UNDERGROUND STORM SEWER
- ▨ RECESS EQUIPMENT PAD/VAULT
- - - - - APPROX. VICINITY OF PREVIOUSLY EXCAVATED SOIL

NOTES:  
SB07\* - AIR SAMPLE  
SB07\*\* - SOIL/GW SAMPLE

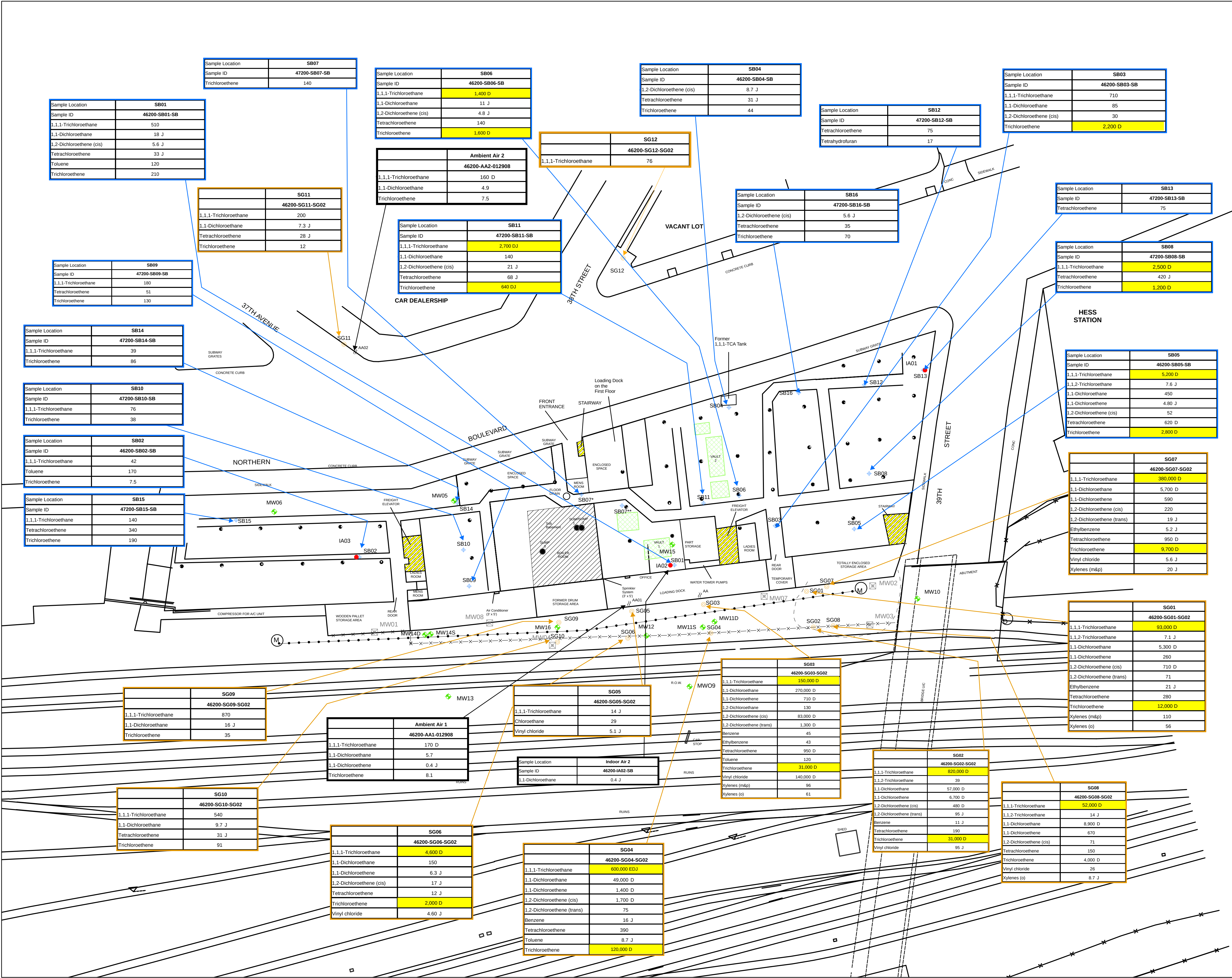
| Site Specific Groundwater Delineation Criteria |    |
|------------------------------------------------|----|
| 1,1,1-Trichloroethane                          | 5  |
| 1,1,2-Trichloroethane                          | 1  |
| 1,1,2-Trichlorotrifluoroethane                 | 5  |
| 1,1-Dichloroethane                             | 5  |
| 1,1-Dichloroethene                             | 5  |
| 1,2-Dichlorobenzene                            | 3  |
| 1,2-Dichloropropane                            | 1  |
| Benzene                                        | 1  |
| Bromochloromethane                             | 5  |
| Chloroethane                                   | 5  |
| Chloroform                                     | 7  |
| cis-1,2-Dichloroethene                         | 5  |
| Dichlorodifluoromethane                        | 5  |
| Ethylbenzene                                   | 5  |
| Isopropylbenzene                               | 5  |
| m&p-xylenes                                    | 5  |
| Methyl tert-butyl Ether                        | 10 |
| Methylene chloride                             | 5  |
| o-xylene                                       | 5  |
| Tetrachloroethene                              | 5  |
| Toluene                                        | 5  |
| trans-1,2-Dichloroethene                       | 5  |
| Trichloroethene                                | 5  |
| Trichlorofluoromethane                         | 5  |
| Vinyl chloride                                 | 2  |

RESULTS ARE IN µg/L.  
**BOLD** EXCEED SITE SPECIFIC CRITERIA

|              |                                                                                          |                |               |  |
|--------------|------------------------------------------------------------------------------------------|----------------|---------------|--|
| DRAFTED BY:  | PHASE IV<br>DIRECT PUSH GROUNDWATER<br>VOC EXCEEDANCES                                   |                |               |  |
| BK           |                                                                                          |                |               |  |
| CHECKED BY:  | SITE MANAGEMENT PLAN<br>STANDARD MOTOR PRODUCTS, INC. SITE<br>LONG ISLAND CITY, NEW YORK |                |               |  |
| DP           |                                                                                          |                |               |  |
| REVIEWED BY: | CDM<br>Smith                                                                             |                |               |  |
| JVB          |                                                                                          |                |               |  |
| NORTH        | SCALE IN FEET<br>0 50                                                                    | DATE<br>7/2011 | FIGURE<br>1-4 |  |

- |                                                                                                       |                                                                                                                       |                            |                          |
|-------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------|----------------------------|--------------------------|
| DRAFTED BY:<br><br>TT                                                                                 | <b>POTENTIOMETRIC<br/>SURFACE MAP<br/>SHALLOW MONITORING WELLS<br/>MARCH 2017</b>                                     |                            |                          |
| CHECKED BY:<br><br>DB                                                                                 | <b>PERIODIC REVIEW REPORT<br/>STANDARD MOTOR PRODUCTS, INC. SITE<br/>LONG ISLAND CITY, NEW YORK</b>                   |                            |                          |
| REVIEWED BY:<br><br>DB                                                                                |                                  |                            |                          |
| <b>NORTH</b><br> | <b>SCALE IN FEET</b><br><br>0 50 | <b>DATE</b><br><br>10/2017 | <b>FIGURE</b><br><br>1-5 |





●

INDOOR AIR (IA) SAMPLE LOCATION

»

AMBIENT AIR (AA) SAMPLE LOCATION

☒

DESTROYED MONITORING WELLS (MW)

+

MONITORING WELL (MW)

+

SUB-SLAB (SB) SAMPLE LOCATION

○

SOIL GAS (SG) SAMPLE LOCATION

M

SEWER MANHOLE (APPROX 12' DEEP)

D

APPROX LOCATION OF DRAIN SPOUT

R.O.W.

RIGHT OF WAY

●

SUPPORT COLUMN

×-×-×-×-×

FENCE LINE

—•—•—•—

UNDERGROUND STORM SEWER

- - - - -

APPROX. VICINITY OF PREVIOUSLY EXCAVATED SOIL

▨

RECESS EQUIPMENT PAD/VAULT

■

RECOMMEND MITIGATION

NOTES:  
SB07\* - AIR SAMPLE  
SB07\*\* - SOIL/GW SAMPLE  
  
ALL RESULTS IN µg/m3

DRAFTED BY:  
BK

CHECKED BY:  
CJ

REVIEWED BY:  
MW

NORTH

SCALE IN FEET  
0 50

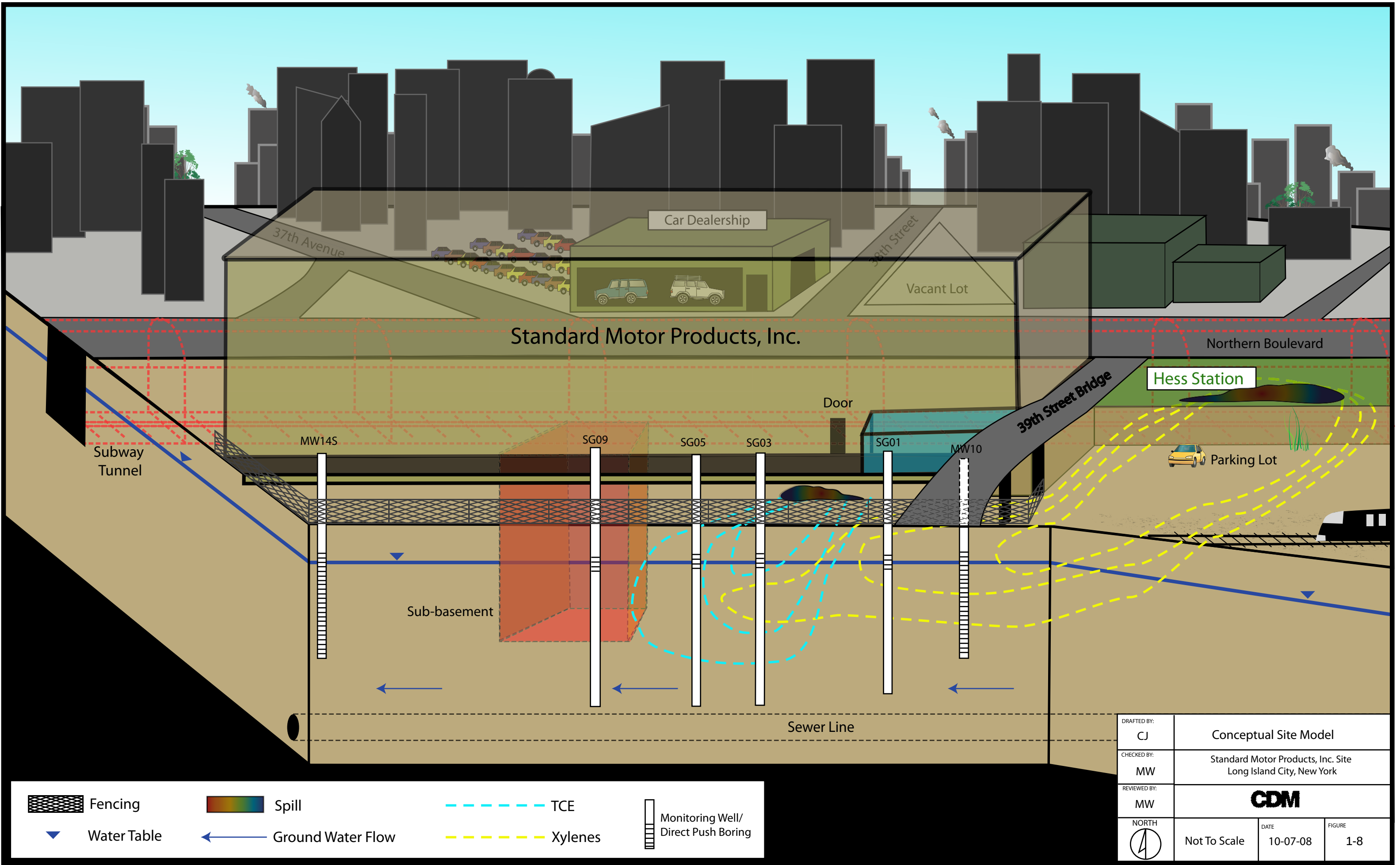
DATE  
7/2011

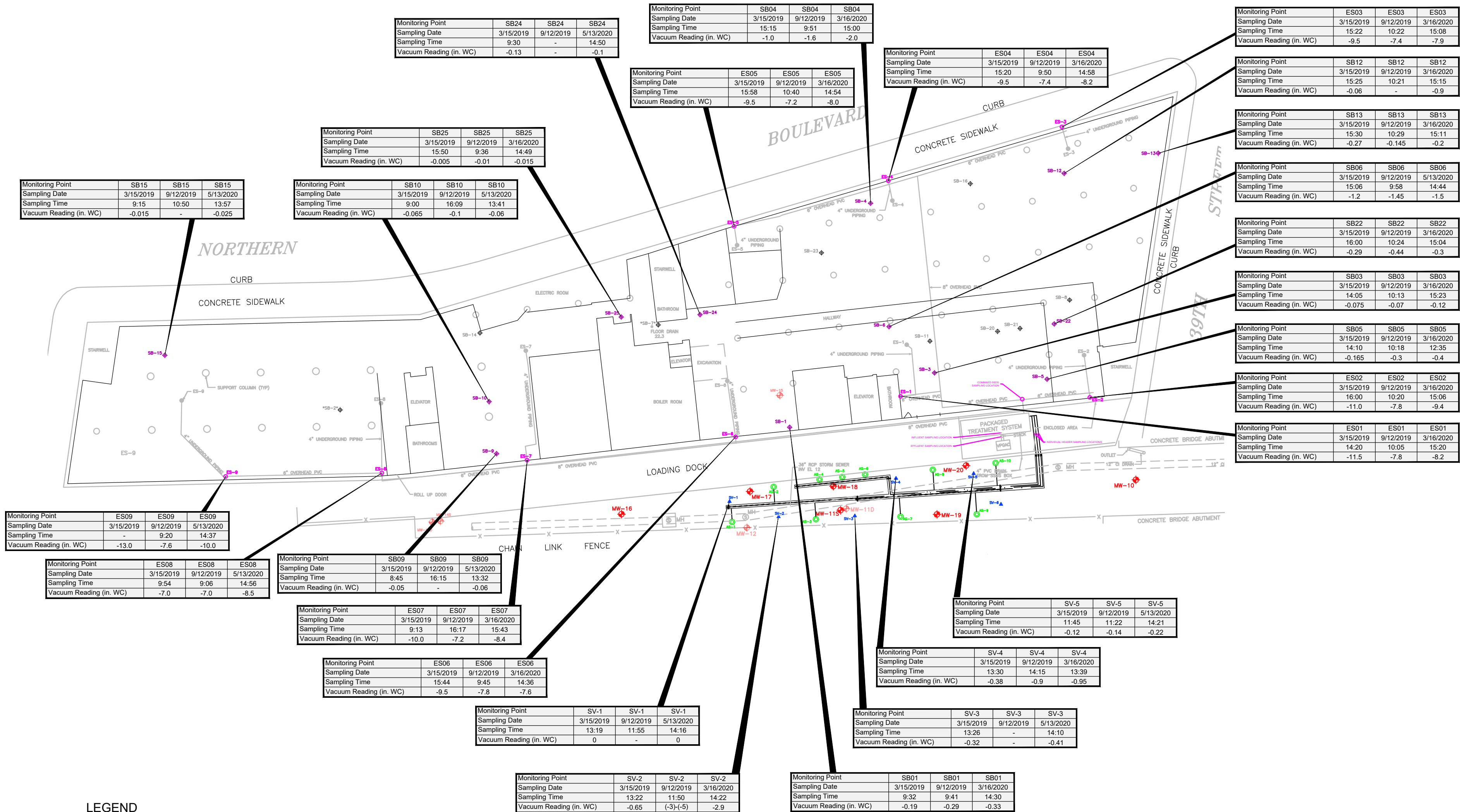
FIGURE  
1-7

PHASE IV  
SOIL GAS, SUB-SLAB, AND  
INDOOR AIR VOC DETECTIONS

SITE MANAGEMENT PLAN  
STANDARD MOTOR PRODUCTS, INC. SITE  
LONG ISLAND CITY, NEW YORK

CDM  
Smith



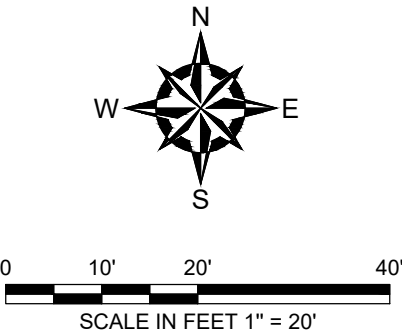


LEGEND

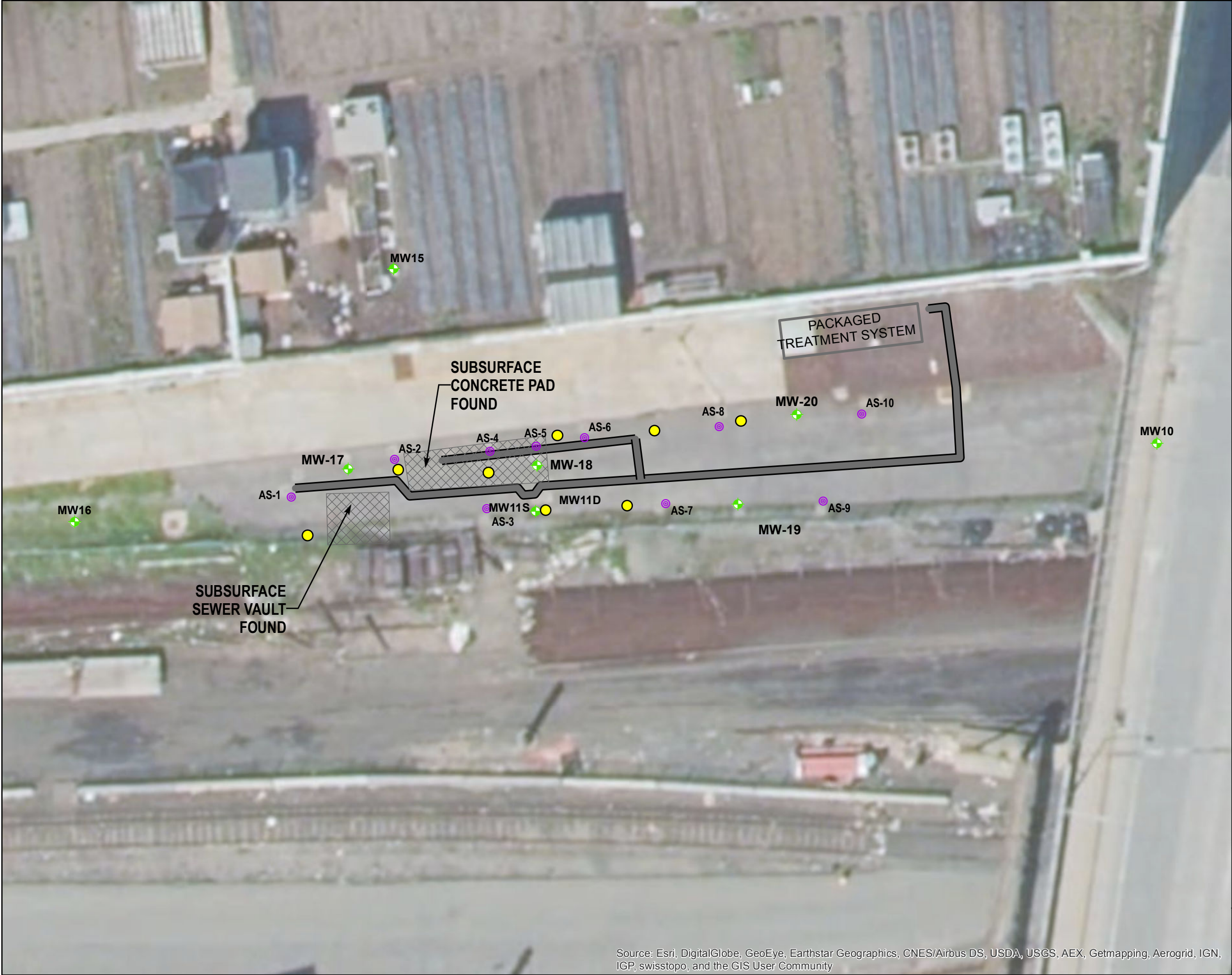
- MW-10 GROUNDWATER MONITORING WELL
- MW-12 GROUNDWATER MONITORING WELL NOT FOUND
- ES-2 EXTRACTION SUMP NOT IN USE
- ES-6 EXTRACTION SUMP
- AS-1 AIR SPARGE WELL
- SV-1 VAPOR MONITORING POINT
- SB-22 SUBSLAB MONITORING POINT
- SB-2 SUBSLAB MONITORING POINT DAMAGED OR DESTROYED
- \*SB-2\* SUBSLAB MONITORING POINT COULD NOT BE LOCATED BY GZA, BELIEVED TO BE DAMAGED

GENERAL NOTES

- BASE MAP BASED ON FIGURE OBTAINED FROM CDM
- WHEN MONITORING POINTS WERE NOT ACCESSIBLE, NO READINGS WERE RECORDED AND ARE INDICATED BY "-"



| NO.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | ISSUE/DESCRIPTION         | BY                                                                                                                                | DATE             |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------|-----------------------------------------------------------------------------------------------------------------------------------|------------------|
| UNLESS SPECIFICALLY STATED BY WRITTEN AGREEMENT, THIS DRAWING IS THE SOLE PROPERTY OF GZA GEOENVIRONMENTAL, INC. (GZA). THE INFORMATION SHOWN ON THE DRAWING IS SOLELY FOR USE BY GZA'S CLIENT OR THE CLIENT'S DESIGNATED REPRESENTATIVE FOR THE SPECIFIC PROJECT AND LOCATION IDENTIFIED ON THE DRAWING. THE DRAWING SHALL NOT BE TRANSFERRED, REUSED, COPIED, OR ALTERED IN ANY MANNER FOR USE AT ANY OTHER LOCATION OR FOR ANY OTHER PURPOSE WITHOUT THE PRIOR WRITTEN CONSENT OF GZA. ANY TRANSFER, REUSE, OR MODIFICATION TO THE DRAWING BY THE CLIENT OR OTHERS, WITHOUT THE PRIOR WRITTEN EXPRESS CONSENT OF GZA, WILL BE AT THE USER'S SOLE RISK AND WITHOUT ANY RISK OR LIABILITY TO GZA. |                           |                                                                                                                                   |                  |
| FORMER STANDARD MOTOR PRODUCTS<br>AIR SPARGE/SOIL VAPOR EXTRACTION SYSTEM<br>37-18 NORTHERN BOULEVARD, LONG ISLAND CITY, NY                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                           |                                                                                                                                   |                  |
| SUB-SLAB DEPRESSURIZATION<br>MONITORING VACUUM READINGS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                           |                                                                                                                                   |                  |
| PREPARED BY:<br>GZA GeoEnvironmental, Inc.<br>Engineers and Scientists<br>www.gza.com                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                           | PREPARED FOR:<br>STANDARD MOTOR PRODUCTS<br>C/O KELLEY DRYE AND WARREN, LLP<br>ONE JEFFERSON ROAD<br>PARSIPPANY, NEW JERSEY 07054 |                  |
| PROJ MGR: ZS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | REVIEWED BY: BP           | CHECKED BY: DW                                                                                                                    | FIGURE           |
| DESIGNED BY: BR                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | DRAWN BY: MT              | SCALE: 1" = 20'                                                                                                                   | 1-9              |
| DATE: MAY 2020                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | PROJECT NO. 12.0076761.10 | REVISION NO. 0                                                                                                                    |                  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                           |                                                                                                                                   | SHEET NO. 1 OF 1 |



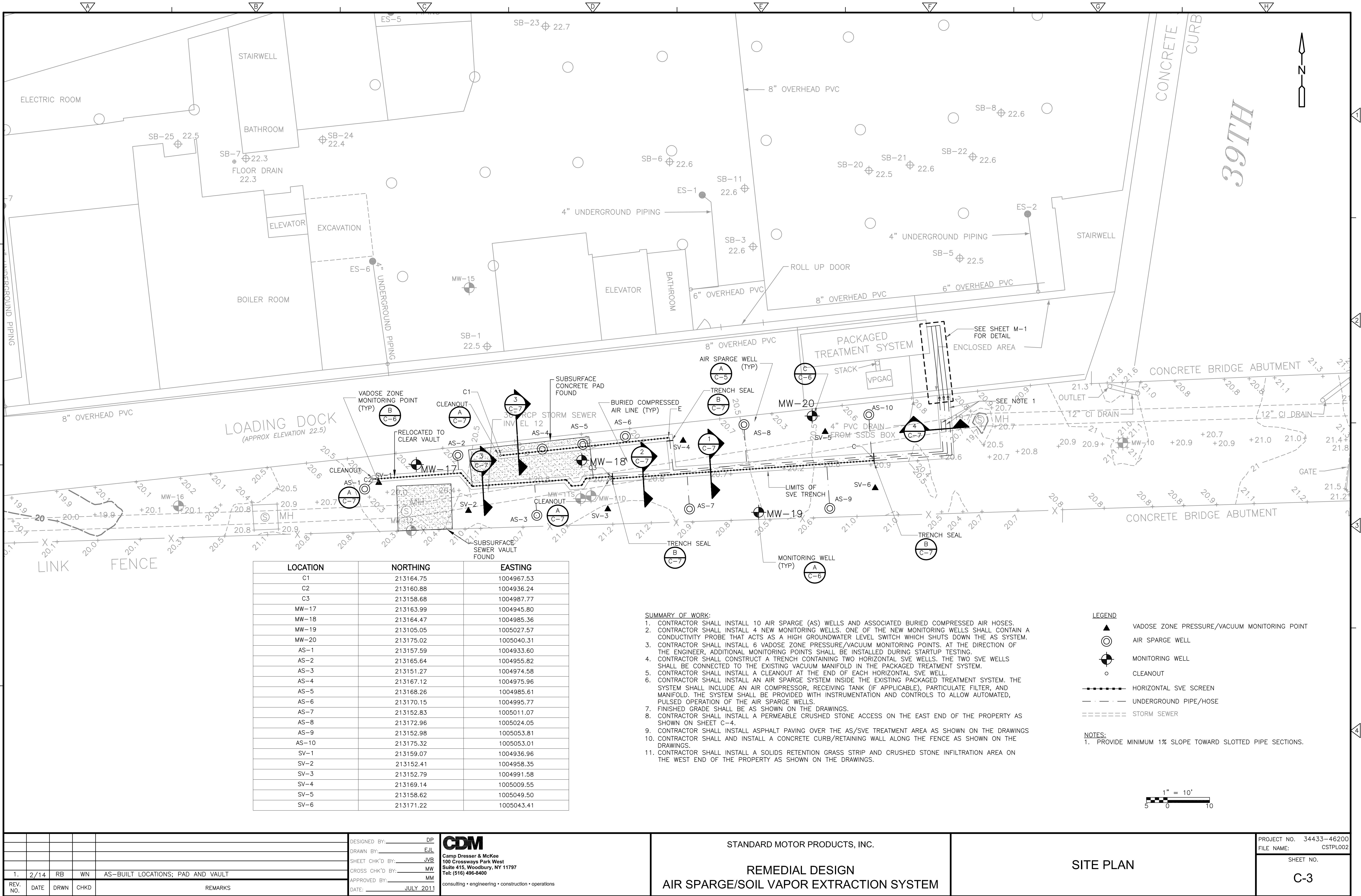
- PROPOSED SOIL GAS SAMPLING LOCATION
- AIR SPARGE WELL
- MONITORING WELL
- CONCRETE SUBSURFACE STRUCTURE
- TREATMENT SYSTEM

|                   |                                                                                          |                |                |
|-------------------|------------------------------------------------------------------------------------------|----------------|----------------|
| DRAFTED BY:<br>JA | FIGURE 1-9<br>SOIL GAS SAMPLING LOCATION<br>AS/SVE CLOSURE MONITORING                    |                |                |
| CHECKED BY:<br>DB | SITE MANAGEMENT PLAN<br>STANDARD MOTOR PRODUCTS, INC. SITE<br>LONG ISLAND CITY, NEW YORK |                |                |
| REVIEWED BY:      | CDM<br>Smith                                                                             |                |                |
| NORTH<br>         | SCALE IN FEET<br>                                                                        | DATE<br>1/2019 | FIGURE<br>1-10 |



## **Appendix A – As-Built Layout for AS/SVE Collection and Treatment System**

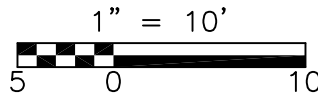
C:\cdm\larsone\40257306\ CSTPL002 12/20/10 14:52 larsonej XREFS: XSTPL001, SMPBRDR, CASWP001



| LOCATION | NORTHING  | EASTING    |
|----------|-----------|------------|
| C1       | 213164.75 | 1004967.53 |
| C2       | 213160.88 | 1004936.24 |
| C3       | 213158.68 | 1004987.77 |
| MW-17    | 213163.99 | 1004945.80 |
| MW-18    | 213164.47 | 1004985.36 |
| MW-19    | 213105.05 | 1005027.57 |
| MW-20    | 213175.02 | 1005040.31 |
| AS-1     | 213157.59 | 1004933.60 |
| AS-2     | 213165.64 | 1004955.82 |
| AS-3     | 213151.27 | 1004974.58 |
| AS-4     | 213167.12 | 1004975.96 |
| AS-5     | 213168.26 | 1004985.61 |
| AS-6     | 213170.15 | 1004995.77 |
| AS-7     | 213152.83 | 1005011.07 |
| AS-8     | 213172.96 | 1005024.05 |
| AS-9     | 213152.98 | 1005053.81 |
| AS-10    | 213175.32 | 1005053.01 |
| SV-1     | 213159.07 | 1004936.96 |
| SV-2     | 213152.41 | 1004958.35 |
| SV-3     | 213152.79 | 1004991.58 |
| SV-4     | 213169.14 | 1005009.55 |
| SV-5     | 213158.62 | 1005049.50 |
| SV-6     | 213171.22 | 1005043.41 |

- SUMMARY OF WORK:
- CONTRACTOR SHALL INSTALL 10 AIR SPARGE (AS) WELLS AND ASSOCIATED BURIED COMPRESSED AIR HOSES.
  - CONTRACTOR SHALL INSTALL 4 NEW MONITORING WELLS. ONE OF THE NEW MONITORING WELLS SHALL CONTAIN A CONDUCTIVITY PROBE THAT ACTS AS A HIGH GROUNDWATER LEVEL SWITCH WHICH SHUTS DOWN THE AS SYSTEM.
  - CONTRACTOR SHALL INSTALL 6 VADOSE ZONE PRESSURE/VACUUM MONITORING POINTS. AT THE DIRECTION OF THE ENGINEER, ADDITIONAL MONITORING POINTS SHALL BE INSTALLED DURING STARTUP TESTING.
  - CONTRACTOR SHALL CONSTRUCT A TRENCH CONTAINING TWO HORIZONTAL SVE WELLS. THE TWO SVE WELLS SHALL BE CONNECTED TO THE EXISTING VACUUM MANIFOLD IN THE PACKAGED TREATMENT SYSTEM.
  - CONTRACTOR SHALL INSTALL A CLEANOUT AT THE END OF EACH HORIZONTAL SVE WELL.
  - CONTRACTOR SHALL INSTALL AN AIR SPARGE SYSTEM INSIDE THE EXISTING PACKAGED TREATMENT SYSTEM. THE SYSTEM SHALL INCLUDE AN AIR COMPRESSOR, RECEIVING TANK (IF APPLICABLE), PARTICULATE FILTER, AND MANIFOLD. THE SYSTEM SHALL BE PROVIDED WITH INSTRUMENTATION AND CONTROLS TO ALLOW AUTOMATED, PULSED OPERATION OF THE AIR SPARGE WELLS.
  - FINISHED GRADE SHALL BE AS SHOWN ON THE DRAWINGS.
  - CONTRACTOR SHALL INSTALL A PERMEABLE CRUSHED STONE ACCESS ON THE EAST END OF THE PROPERTY AS SHOWN ON SHEET C-4.
  - CONTRACTOR SHALL INSTALL ASPHALT PAVING OVER THE AS/SVE TREATMENT AREA AS SHOWN ON THE DRAWINGS.
  - CONTRACTOR SHALL AND INSTALL A CONCRETE CURB/RETAINING WALL ALONG THE FENCE AS SHOWN ON THE DRAWINGS.
  - CONTRACTOR SHALL INSTALL A SOLIDS RETENTION GRASS STRIP AND CRUSHED STONE INFILTRATION AREA ON THE WEST END OF THE PROPERTY AS SHOWN ON THE DRAWINGS.

- LEGEND
- VADOSE ZONE PRESSURE/VACUUM MONITORING POINT
  - AIR SPARGE WELL
  - MONITORING WELL
  - CLEANOUT
  - HORIZONTAL SVE SCREEN
  - UNDERGROUND PIPE/HOSE
  - STORM SEWER
- NOTES:
- PROVIDE MINIMUM 1% SLOPE TOWARD SLOTTED PIPE SECTIONS.



|                 |           |
|-----------------|-----------|
| DESIGNED BY:    | DP        |
| DRAWN BY:       | EJL       |
| SHEET CHK'D BY: | JVB       |
| CROSS CHK'D BY: | MW        |
| APPROVED BY:    | MM        |
| DATE:           | JULY 2011 |

| REV. NO. | DATE | DRWN | CHKD | REMARKS                           |
|----------|------|------|------|-----------------------------------|
| 1.       | 2/14 | RB   | WN   | AS-BUILT LOCATIONS; PAD AND VAULT |

**Camp Dresser & McKee**  
100 Crossways Park West  
Suite 415, Woodbury, NY 11797  
Tel: (516) 496-8400

consulting • engineering • construction • operations

STANDARD MOTOR PRODUCTS, INC.

REMEDIAL DESIGN  
AIR SPARGE/SOIL VAPOR EXTRACTION SYSTEM

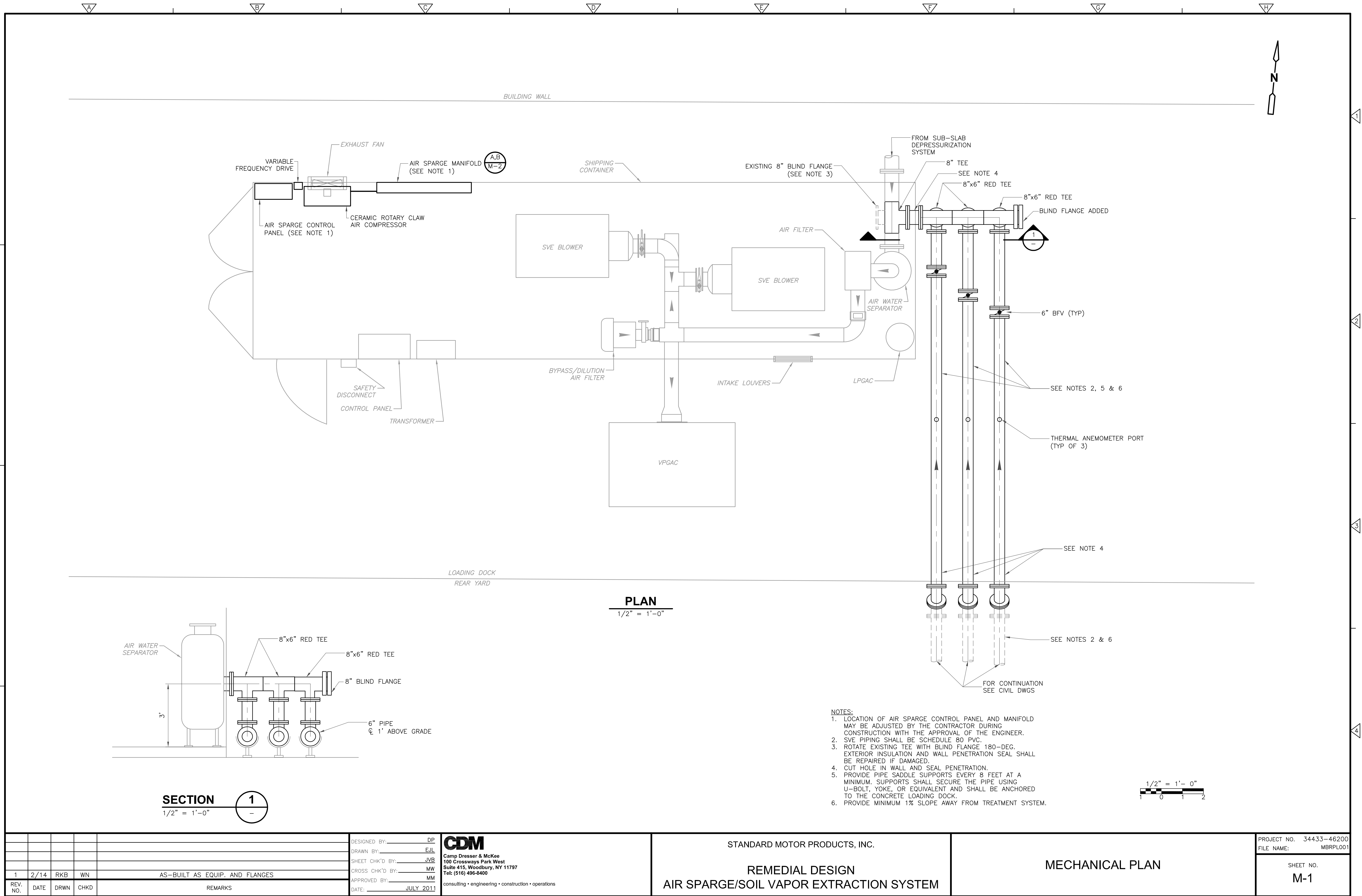
SITE PLAN

C-3

PROJECT NO. 34433-46200  
FILE NAME: CSTPL002

SHEET NO.  
C-3

C:\cdm\m\larsonej\40257326\ MBRPL001 12/08/10 08:41 Larsonej XREFS: SMFIBRD, MBRWPD01, XSTPL001



|          |      |      |      |                                |  |
|----------|------|------|------|--------------------------------|--|
|          |      |      |      |                                |  |
|          |      |      |      |                                |  |
|          |      |      |      |                                |  |
| 1        | 2/14 | RKB  | WN   | AS-BUILT AS EQUIP. AND FLANGES |  |
| REV. NO. | DATE | DRWN | CHKD | REMARKS                        |  |

|                 |           |
|-----------------|-----------|
| DESIGNED BY:    | DP        |
| DRAWN BY:       | EJL       |
| SHEET CHK'D BY: | JVB       |
| CROSS CHK'D BY: | MW        |
| APPROVED BY:    | MM        |
| DATE:           | JULY 2011 |

**CDM**  
Camp Dresser & McKee  
100 Crossways Park West  
Suite 415, Woodbury, NY 11797  
Tel: (516) 496-8400  
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STANDARD MOTOR PRODUCTS, INC.

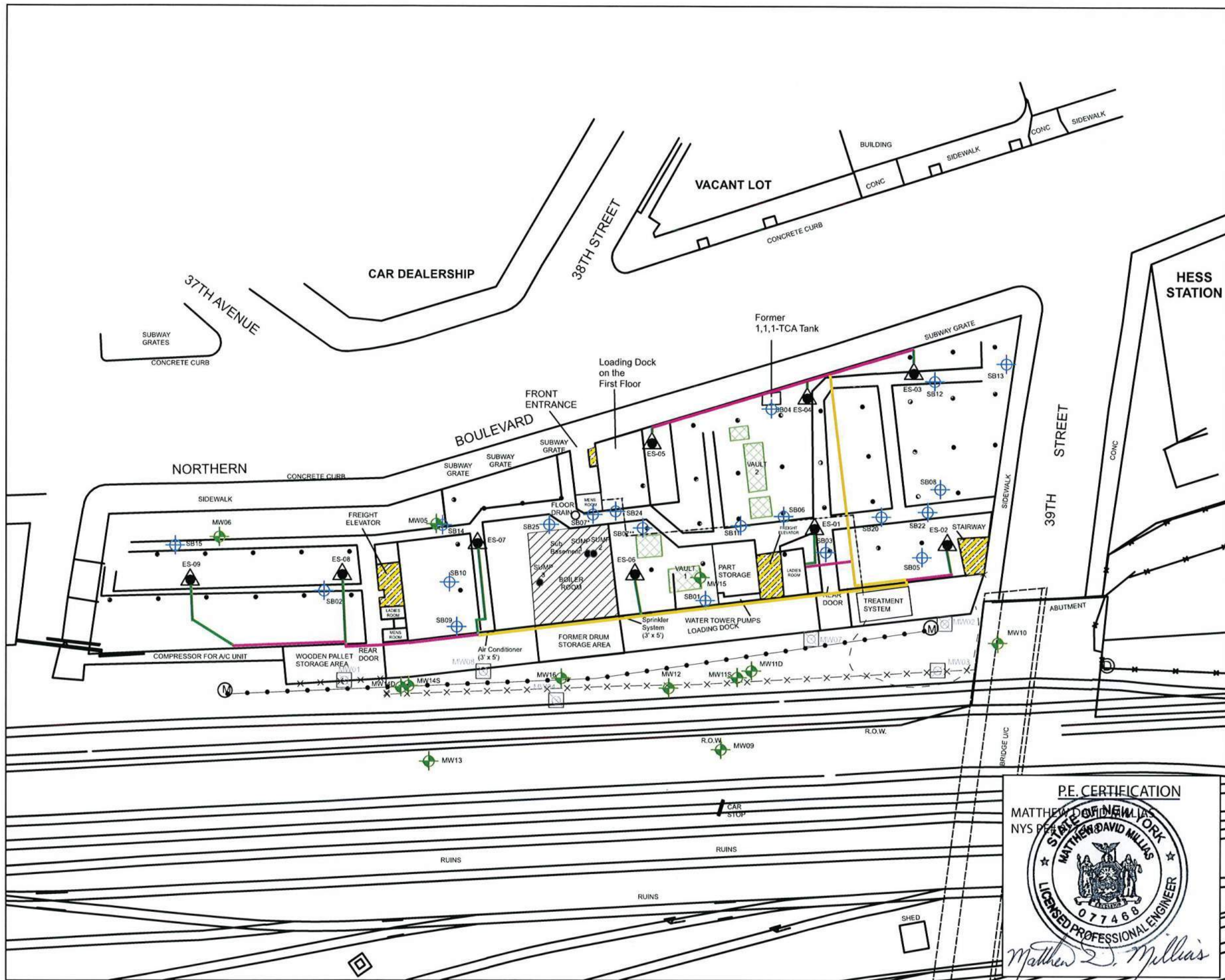
**REMEDIAL DESIGN**  
**AIR SPARGE/SOIL VAPOR EXTRACTION SYSTEM**

**MECHANICAL PLAN**

|             |             |
|-------------|-------------|
| PROJECT NO. | 34433-46200 |
| FILE NAME:  | MBRPL001    |
| SHEET NO.   | M-1         |



## **Appendix B – As-Built Layout for SSDS Collection and Treatment System**



- DESTROYED MONITORING WELLS (MW)
- MONITORING WELL (MW)
- SUB-SLAB (SB) SAMPLE LOCATION
- SEWER MANHOLE (APPROX 12' DEEP)
- APPROX LOCATION OF DRAIN SPOUT
- R.O.W. RIGHT OF WAY
- SUPPORT COLUMN
- FENCE LINE
- UNDERGROUND STORM SEWER
- APPROX. VICINITY OF PREVIOUSLY EXCAVATED SOILS
- RECESS EQUIPMENT PAD/VAULT
- ELECTRICAL CONDUIT
- 8 INCH OVERHEAD PIPING
- 6 INCH OVERHEAD PIPING
- 4 INCH UNDERGROUND PIPING
- EXTRACTION POINT

NOTES:  
SB07\* - AIR SAMPLE  
SB07\*\* - SOIL/GW SAMPLE  
EXTRACTION POINTS, SB20, SB22,  
SB24, AND SB25 LOCATIONS  
ARE NOT SURVEYED

P.E. CERTIFICATION  
MATTHEW D. MILLIAS  
NYS REG. NO. 077468  
STATE OF NEW YORK  
LICENSED PROFESSIONAL ENGINEER  
Matthew D. Millias

|                    |                                                                  |                 |             |
|--------------------|------------------------------------------------------------------|-----------------|-------------|
| DRAFTED BY:<br>JL  | SSDS PIPING LAYOUT (AS-BUILT)                                    |                 |             |
| CHECKED BY:<br>JVB | STANDARD MOTOR PRODUCTS, INC. SITE<br>LONG ISLAND CITY, NEW YORK |                 |             |
| REVIEWED BY:<br>MW | CDM                                                              |                 |             |
| NORTH              | SCALE IN FEET<br>0 50                                            | DATE<br>2-17-10 | FIGURE<br>1 |



## **Appendix C – Historical Groundwater and Air Sample Analytical Results**



| Sample ID                      |             |        |                                                                                                                  | MW-10     | MW-10     | MW-10     | MW-10     | MW-10-DUP | MW-10     | MW-10-DUP | MW-10     | MW-10    | MW-10     | MW-11S    | MW-11S    | MW-11S    | MW-11S    | MW-11S    | MW-11S    | MW-11S   |
|--------------------------------|-------------|--------|------------------------------------------------------------------------------------------------------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|----------|
| Lab Sample Number              |             |        |                                                                                                                  | E3071-01  | F1793-01  | G1728-01  | H2077-10  | H2077-11  | I2509-02  | I2509-03  | I5497-01  | J2190-01 | J5032-01  | E3071-02  | F1793-02  | G1728-02  | H2077-02  | I2509-04  | I5497-02  | J2190-08 |
| Sampling Date                  |             |        |                                                                                                                  | 7/24/2013 | 3/26/2014 | 3/30/2015 | 3/29/2016 | 3/29/2016 | 3/30/2017 | 3/30/2017 | 9/27/2017 | 4/2/2018 | 9/20/2018 | 7/24/2013 | 3/26/2014 | 3/30/2015 | 3/29/2016 | 3/30/2017 | 9/27/2017 | 4/2/2018 |
| Matrix                         |             |        |                                                                                                                  | Water     | Water     | Water     | Water     | Water     | Water     | Water     | Water     | Water    | Water     | Water     | Water     | Water     | Water     | Water     | Water     | Water    |
| Dilution Factor                |             |        |                                                                                                                  | 1         |           |           |           |           |           |           |           |          |           | 1         |           |           |           |           |           |          |
| Units                          |             |        |                                                                                                                  | ug/L      | ug/L      | ug/L      | ug/L      | ug/L      | ug/L      | ug/L      | ug/L      | ug/L     | ug/L      | ug/L      | ug/L      | ug/L      | ug/L      | ug/L      | ug/L      | ug/L     |
| COMPOUND                       | CAS #       |        | 20X NYSDEC Ambient<br>Water Quality Standards<br>and Guidance Values<br>for Class GA<br>Groundwater <sup>1</sup> |           |           |           |           |           |           |           |           |          |           |           |           |           |           |           |           |          |
| 1,1,1-Trichloroethane          | 71-55-6     | 5      | 100                                                                                                              | 0.5 U     | 1 U       | 1 U       | 1 U       | 1 U       | 1 U       | 1 U       | 1 U       | 1 U      | 1 U       | 180 D     | 0.76 J    | 1 U       | 1 U       | 1 U       | 1 U       | 1 U      |
| 1,1,2,2-Tetrachloroethane      | 79-34-5     | 5      | 100                                                                                                              | 0.5 U     | 1 U       | 1 U       | 1 U       | 1 U       | 1 U       | 1 U       | 1 U       | 1 U      | 1 U       | 0.5 U     | 1 U       | 1 U       | 1 U       | 1 U       | 1 U       | 1 U      |
| 1,1,2-Trichloroethane          | 79-00-5     | 5      | 100                                                                                                              | 0.5 U     | 1 U       | 1 U       | 1 U       | 1 U       | 1 U       | 1 U       | 1 U       | 1 U      | 1 U       | 1.6       | 1 U       | 1 U       | 1 U       | 1 U       | 1 U       | 1 U      |
| 1,1,2-Trichlorotrifluoroethane | 76-13-1     | 1      | 20                                                                                                               | 0.5 U     | 1 U       | 1 U       | 1 U       | 1 U       | 1 U       | 1 U       | 1 U       | 1 U      | 1 U       | 0.5 U     | 1 U       | 1 U       | 1 U       | 1 U       | 1 U       | 1 U      |
| 1,1-Dichloroethane             | 75-34-3     | 5      | 100                                                                                                              | 0.5 U     | 1 U       | 1 U       | 0.85 J    | 0.88 J    | 2.4       | 2.3       | 1.1       | 1 U      | 1 U       | 110 D     | 0.88 J    | 1 U       | 1 U       | 1 U       | 1 U       | 1 U      |
| 1,1-Dichloroethene             | 75-35-4     | 5      | 100                                                                                                              | 0.5 U     | 1 U       | 1 U       | 1 U       | 1 U       | 1 U       | 1 U       | 1 U       | 1 U      | 1 U       | 5.3       | 1 U       | 1 U       | 1 U       | 1 U       | 1 U       | 1 U      |
| 1,2,3-Trichlorobenzene         | 87-61-6     |        |                                                                                                                  | 0.5 U     | 1 U       | 1 U       | 1 U       | 1 U       | 1 U       | 1 U       | 1 U       | 1 U      | 1 U       | 0.5 U     | 1 U       | 1 U       | 1 U       | 1 U       | 1 U       | 1 U      |
| 1,2,4-Trichlorobenzene         | 120-82-1    | 5      | 100                                                                                                              | 0.5 U     | 1 U       | 1 U       | 1 U       | 1 U       | 1 U       | 1 U       | 1 U       | 1 U      | 1 U       | 0.5 U     | 1 U       | 1 U       | 1 U       | 1 U       | 1 U       | 1 U      |
| 1,2-Dibromo-3-Chloropropane    | 96-12-8     | 0.04   | 0.8                                                                                                              | 0.5 U     | 1 U       | 1 U       | 1 U       | 1 U       | 1 U       | 1 U       | 1 U       | 1 U      | 1 U       | 0.5 U     | 1 U       | 1 U       | 1 U       | 1 U       | 1 U       | 1 U      |
| 1,2-Dibromoethane              | 106-93-4    | 0.0006 | 0.012                                                                                                            | 0.5 U     | 1 U       | 1 U       | 1 U       | 1 U       | 1 U       | 1 U       | 1 U       | 1 U      | 1 U       | 0.5 U     | 1 U       | 1 U       | 1 U       | 1 U       | 1 U       | 1 U      |
| 1,2-Dichlorobenzene            | 95-50-1     | 3      | 60                                                                                                               | 0.5 U     | 1 U       | 1 U       | 1 U       | 1 U       | 1 U       | 1 U       | 1 U       | 1 U      | 1 U       | 0.5 U     | 1 U       | 1 U       | 1 U       | 1 U       | 1 U       | 1 U      |
| 1,2-Dichloroethane             | 107-06-2    | 0.6    | 12                                                                                                               | 0.5 U     | 1 U       | 1 U       | 1 U       | 1 U       | 1 U       | 1 U       | 1 U       | 1 U      | 1 U       | 0.5 U     | 1 U       | 1 U       | 1 U       | 1 U       | 1 U       | 1 U      |
| 1,2-Dichloropropane            | 78-87-5     | 1      | 20                                                                                                               | 0.5 U     | 1 U       | 1 U       | 1 U       | 1 U       | 1 U       | 1 U       | 1 U       | 1 U      | 1 U       | 0.5 U     | 1 U       | 1 U       | 1 U       | 1 U       | 1 U       | 1 U      |
| 1,3-Dichlorobenzene            | 541-73-1    | 3      | 60                                                                                                               | 0.5 U     | 1 U       | 1 U       | 1 U       | 1 U       | 1 U       | 1 U       | 1 U       | 1 U      | 1 U       | 0.5 U     | 1 U       | 1 U       | 1 U       | 1 U       | 1 U       | 1 U      |
| 1,4-Dichlorobenzene            | 106-46-7    | 3      | 60                                                                                                               | 0.5 U     | 1 U       | 1 U       | 1 U       | 1 U       | 1 U       | 1 U       | 1 U       | 1 U      | 1 U       | 0.5 U     | 1 U       | 1 U       | 1 U       | 1 U       | 1 U       | 1 U      |
| 1,4-Dioxane                    | 123-91-1    | 0.35   | 7                                                                                                                | 100 U     | 100 U     | 100 U     | NA        | NA        | NA        | NA        | NA        | 0.096    | 0.076     | 100 U     | 100 U     | 100 U     | NA        | NA        | 0.15      | 0.27     |
| 2-Butanone                     | 78-93-3     | 50     | 1000                                                                                                             | 2.5 U     | 5 U       | 3 J       | 5 U       | 5 U       | 5 U       | 5 U       | 5 U       | 5 U      | 5 U       | 2.5 U     | 5 U       | 5 U       | 5 U       | 5 U       | 5 U       | 5 U      |
| 2-Hexanone                     | 591-78-6    | 50     | 1000                                                                                                             | 2.5 U     | 5 U       | 5 U       | 5 U       | 5 U       | 5 U       | 5 U       | 5 U       | 5 U      | 5 U       | 2.5 U     | 5 U       | 5 U       | 5 U       | 5 U       | 5 U       | 5 U      |
| 4-Methyl-2-Pentanone           | 108-10-1    |        |                                                                                                                  | 2.5 U     | 5 U       | 5 U       | 5 U       | 5 U       | 5 U       | 5 U       | 5 U       | 5 U      | 5 U       | 2.5 U     | 5 U       | 5 U       | 5 U       | 5 U       | 5 U       | 5 U      |
| Acetone                        | 67-64-1     | 50     | 1000                                                                                                             | 2.5 U     | 37.3      | 9.8       | 5 U       | 5 U       | 5 U       | 5 U       | 5 U       | 5.4      | 5 U       | 2.5 U     | 11.9      | 7.6       | 4.7 J     | 13.3      | 5 U       | 5.4      |
| Benzene                        | 71-43-2     | 1      | 20                                                                                                               | 29.3      | 0.51 J    | 2.9       | 2.2       | 2.2       | 1.5       | 1.5       | 1 U       | 2.5      | 20.2      | 2.6       | 1 U       | 1 U       | 1 U       | 1 U       | 1 U       | 1 U      |
| Bromochloromethane             | 74-97-5     |        |                                                                                                                  | 0.5 U     | 1 U       | 1 U       | 1 U       | 1 U       | 1 U       | 1 U       | 1 U       | 1 U      | 1 U       | 0.5 U     | 1 U       | 1 U       | 1 U       | 1 U       | 1 U       | 1 U      |
| Bromodichloromethane           | 75-27-4     | 50     | 1000                                                                                                             | 0.5 U     | 1 U       | 1 U       | 1 U       | 1 U       | 1 U       | 1 U       | 1 U       | 1 U      | 1 U       | 0.5 U     | 1 U       | 1 U       | 1 U       | 1 U       | 1 U       | 1 U      |
| Bromoform                      | 75-25-2     | 50     | 1000                                                                                                             | 0.5 U     | 1 U       | 1 U       | 1 U       | 1 U       | 1 U       | 1 U       | 1 U       | 1 U      | 1 U       | 0.5 U     | 1 U       | 1 U       | 1 U       | 1 U       | 1 U       | 1 U      |
| Bromomethane                   | 74-83-9     | 5      | 100                                                                                                              | 0.5 U     | 1 U       | 1 U       | 1 U       | 1 U       | 1 U       | 1 U       | 1 U       | 1 U      | 1 U       | 0.5 U     | 1 U       | 1 U       | 1 U       | 1 U       | 1 U       | 1 U      |
| Carbon Disulfide               | 75-15-0     | 60     | 1200                                                                                                             | 0.5 U     | 1 U       | 1 U       | 1 U       | 1 U       | 1 U       | 1 U       | 1 U       | 1 U      | 1 U       | 0.5 U     | 1 U       | 1 U       | 1 U       | 1 U       | 1 U       | 1 U      |
| Carbon Tetrachloride           | 56-23-5     | 5      | 100                                                                                                              | 0.5 U     | 1 U       | 1 U       | 1 U       | 1 U       | 1 U       | 1 U       | 1 U       | 1 U      | 1 U       | 0.5 U     | 1 U       | 1 U       | 1 U       | 1 U       | 1 U       | 1 U      |
| Chlorobenzene                  | 108-90-7    | 5      | 100                                                                                                              | 0.5 U     | 1 U       | 1 U       | 1 U       | 1 U       | 1 U       | 1 U       | 1 U       | 1 U      | 1 U       | 0.5 U     | 1 U       | 1 U       | 1 U       | 1 U       | 1 U       | 1 U      |
| Chloroethane                   | 75-00-3     | 5      | 100                                                                                                              | 0.5 U     | 1 U       | 1 U       | 1 U       | 1 U       | 1 U       | 1 U       | 1 U       | 1 U      | 1 U       | 0.5 U     | 1 U       | 1 U       | 1 U       | 1 U       | 1 U       | 1 U      |
| Chloroform                     | 67-66-3     | 7      | 140                                                                                                              | 0.5 U     | 1 U       | 1 U       | 1 U       | 1 U       | 1 U       | 1 U       | 1 U       | 1 U      | 1 U       | 1.2       | 1 U       | 1 U       | 1 U       | 1 U       | 1 U       | 1 U      |
| Chloromethane                  | 74-87-3     | 5      | 100                                                                                                              | 0.5 U     | 1 U       | 1 U       | 1 U       | 1 U       | 1 U       | 1 U       | 1 U       | 1 U      | 1 U       | 0.5 U     | 1 U       | 1 U       | 1 U       | 1 U       | 1 U       | 1 U      |
| cis-1,2-Dichloroethene         | 156-59-2    | 5      | 100                                                                                                              | 0.5 U     | 1 U       | 1 U       | 1 U       | 1 U       | 1 U       | 1 U       | 1 U       | 1 U      | 1 U       | 150 D     | 1.3       | 1 U       | 1 U       | 0.28 J    | 1 U       | 1.9      |
| cis-1,3-Dichloropropene        | 10061-01-5  | 0.4    | 8                                                                                                                | 0.5 U     | 1 U       | 1 U       | 1 U       | 1 U       | 1 U       | 1 U       | 1 U       | 1 U      | 1 U       | 0.5 U     | 1 U       | 1 U       | 1 U       | 1 U       | 1 U       | 1 U      |
| Cyclohexane                    | 110-82-7    |        |                                                                                                                  | 77.8      | 58.5      | 92.5      | 48.5      | 48.3      | 120       | 120       | 1 U       | 36.8     | 23.7      | 0.5 U     | 1 U       | 1 U       | 1 U       | 1 U       | 1 U       | 1 U      |
| Dibromochloromethane           | 124-48-1    | 50     | 1000                                                                                                             | 0.5 U     | 1 U       | 1 U       | 1 U       | 1 U       | 1 U       | 1 U       | 1 U       | 1 U      | 1 U       | 0.5 U     | 1 U       | 1 U       | 1 U       | 1 U       | 1 U       | 1 U      |
| Dichlorodifluoromethane        | 75-71-8     | 5      | 100                                                                                                              | 0.5 U     | 1 U       | 1 U       | 1 U       | 1 U       | 1 U       | 1 U       | 1 U       | 1 U      | 1 U       | 0.5 U     | 1 U       | 1 U       | 1 U       | 1 U       | 1 U       | 1 U      |
| Ethyl Benzene                  | 100-41-4    | 5      | 100                                                                                                              | 120 D     | 49.5      | 110 D     | 67.8      | 68        | 190 D     | 200 D     | 1 U       | 10.2     | 0.75 J    | 0.5 U     | 1 U       | 1 U       | 1 U       | 0.33 J    | 1 U       | 1 U      |
| Isopropylbenzene               | 98-82-8     | 5      | 100                                                                                                              | 28.6      | 14.4      | 23.6      | 15.8      | 16.4      | 30.4      | 29.6      | 1.6       | 2.7      | 5.5       | 0.5 U     | 1 U       | 1 U       | 1 U       | 1 U       | 1 U       | 1 U      |
| m/p-Xylenes                    | 179601-23-1 |        |                                                                                                                  | 76.7      | 25.2      | 67.6      | 9.2       | 9.3       | 20.8      | 20        | 2 U       | 5.2      | 7.9       | 1 U       | 2 U       | 2 U       | 2 U       | 2 U       | 2 U       | 2 U      |
| Methyl Acetate                 | 79-20-9     |        |                                                                                                                  | 0.5 U     | 1 U       | 1 U       | 1 U       | 1 U       | 1 U       | 1 U       | 1 U       | 1 U      | 1 U       | 0.5 U     | 1 U       | 1 U       | 1 U       | 1 U       | 1 U       | 1 U      |
| Methyl tert-butyl Ether        | 1634-04-4   | 10     | 200                                                                                                              | 0.5 U     | 1 U       | 1 U       | 1 U       | 1 U       | 1 U       | 1 U       | 1 U       | 1 U      | 1 U       | 0.5 U     | 1 U       | 1 U       | 1 U       | 1 U       | 1 U       | 1 U      |
| Methylcyclohexane              | 108-87-2    |        |                                                                                                                  | 23.5      | 8.2       | 10.5      | 3.1       | 3.2       | 9         | 8.6       | 1 U       | 1 U      | 1.4       | 0.5 U     | 1 U       | 1 U       | 1 U       | 1 U       | 1 U       | 1 U      |
| Methylene Chloride             | 75-09-2     | 5      | 100                                                                                                              | 0.5 U     | 1 U       | 1 U       | 1 U       | 1 U       | 1 U       | 1 U       | 1 U       | 1 U      | 1 U       | 0.5 U     | 1 U       | 1 U       | 1 U       | 1 U       | 1 U       | 1 U      |
| o-Xylene                       | 95-47-6     |        |                                                                                                                  | 6.4       | 3         | 5.6       | 2.8       | 2.8       | 6.9       | 6.6       | 1 U       | 1        | 0.79 J    | 0.5 U     | 1 U       | 1 U       | 1 U       | 1 U       | 1 U       | 1 U      |
| Styrene                        | 100-42-5    | 5      | 100                                                                                                              | 0.5 U     | 1 U       | 1 U       | 1 U       | 1 U       | 1 U       | 1 U       | 1 U       | 1 U      | 1 U       | 0.5 U     | 1 U       | 1 U       | 1 U       | 1 U       | 1 U       | 1 U      |
| t-1,3-Dichloropropene          | 10061-02-6  |        |                                                                                                                  | 0.5 U     | 1 U       | 1 U       | 1 U       | 1 U       | 1 U       | 1 U       | 1 U       | 1 U      | 1 U       | 0.5 U     | 1 U       | 1 U       | 1 U       | 1 U       | 1 U       | 1 U      |
| Tetrachloroethene              | 127-18-4    | 5      | 100                                                                                                              | 0.5 U     | 1 U       | 1 U       | 0.65 J    | 0.54 J    | 1 U       | 1 U       | 1 U       | 1 U      | 1 U       | 3.4       | 1 U       | 1 U       | 0.37 J    | 2 U       | 1 U       | 1 U      |
| Toluene                        | 108-88-3    | 5      | 100                                                                                                              | 19.6      | 8.2       | 21.2      | 8.1       | 8         | 15.4      | 15.1      | 1 U       | 7.1      | 7.4       | 0.5 U     | 1 U       | 1 U       | 1 U       | 1 U       | 1 U       | 1 U      |
| trans-1,2-Dichloroethene       | 156-60-5    | 5      | 100                                                                                                              | 0.5 U     | 1 U       | 1 U       | 1 U       | 1 U       | 1 U       | 1 U       | 1 U       | 1 U      | 1 U       | 0.5 U     | 1 U       | 1 U       | 1 U       | 1 U       | 1 U       | 1 U      |
| Trichloroethene                | 79-01-6     | 5      | 100                                                                                                              | 0.5 U     | 1 U       | 1 U       | 1 U       | 1 U       | 1 U       | 1 U       | 1 U       | 1 U      | 1 U       | 110 D     | 6.6       | 1 U       | 1 U       | 1.9       | 1 U       | 1 U      |
| Trichlorofluoromethane         | 75-69-4     | 5      | 100                                                                                                              | 0.5 U     | 1 U       | 1 U       | 1 U       | 1 U       | 1 U       | 1 U       | 1 U       | 1 U      | 1 U       | 0.5 U     | 1 U       | 1 U       | 1 U       | 1 U       | 1 U       | 1 U      |
| Vinyl Chloride                 | 75-01-4     | 2      | 40                                                                                                               | 0.5 U     | 1 U       | 1 U       | 1 U       | 1 U       | 1 U       | 1 U       | 1 U 1     | U        | 1 U       | 16.1      | 1 U       | 1 U       | 1 U       | 1 U       | 1 U       | 1 U      |

Notes

NA - not analyzed                      D - dilution required

J - estimated value                    U - non-detect

= Exceeds water quality standard

**BOLDED** = detection

1 - NYSDEC Ambient Water Quality Standards and Guidance Values  
for Class GA Groundwater









## **Appendix D – Groundwater Analytical Results Versus Time Plots**

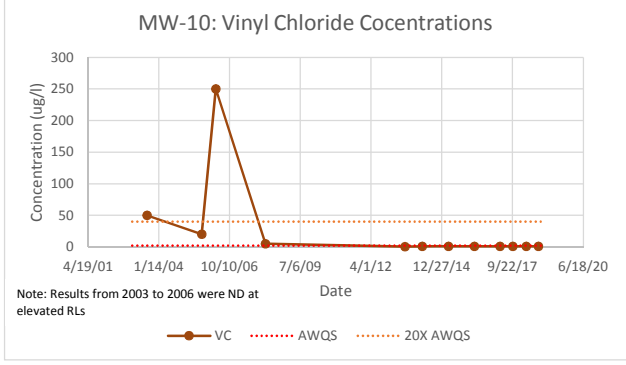
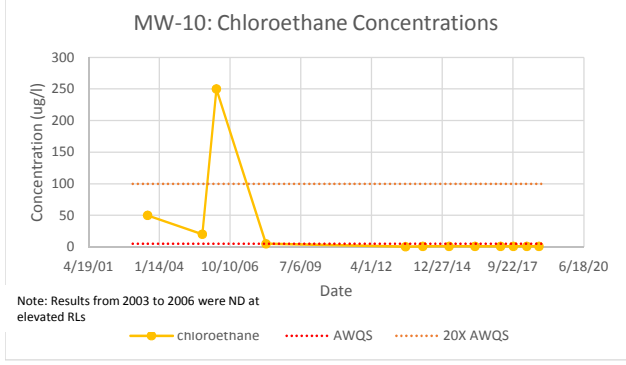
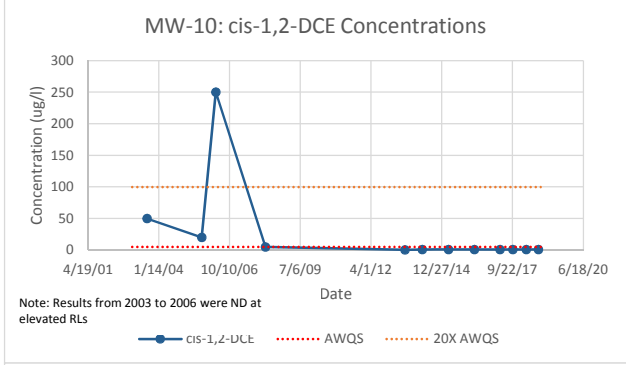
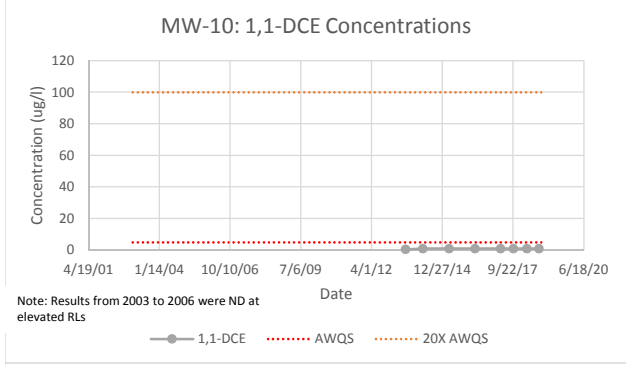
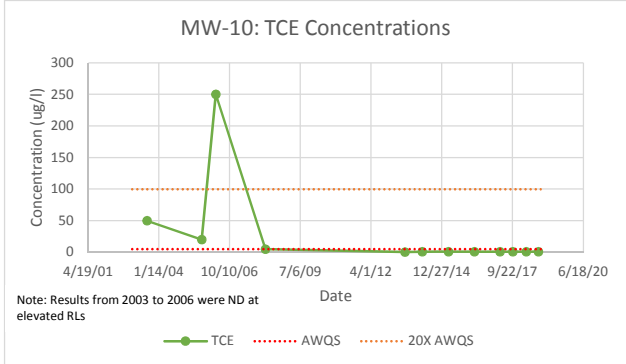
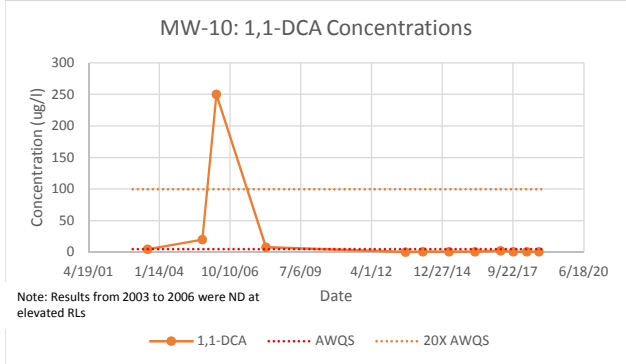
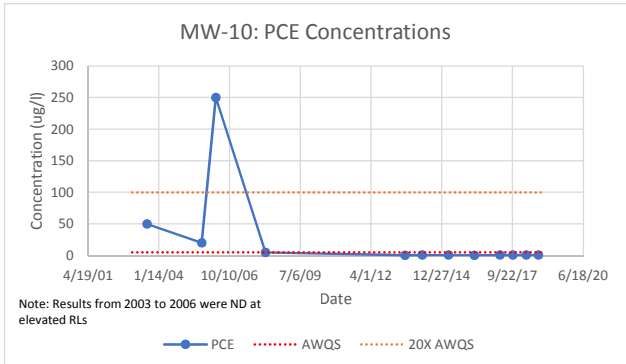
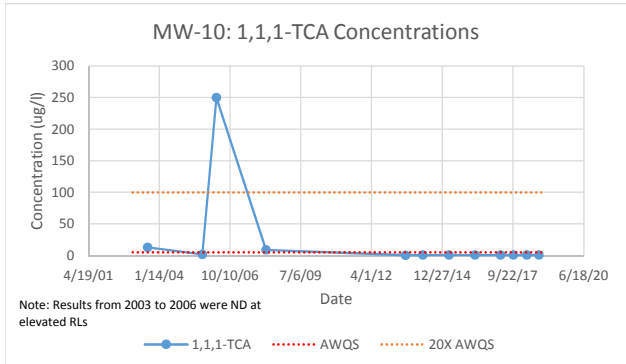


Table X-X  
MW-10  
Historic Concentration Plots

| MW-10                        |                   |                    |                 |                      |                 |                      |                      |                       |             |              |             |              |                     |                      |                        |                         |
|------------------------------|-------------------|--------------------|-----------------|----------------------|-----------------|----------------------|----------------------|-----------------------|-------------|--------------|-------------|--------------|---------------------|----------------------|------------------------|-------------------------|
| Date                         | 1,1,1-TCA<br>µg/L | 1,1,1-TCA<br>signs | 1,1-DCA<br>µg/L | 1,1-DCA<br>signs     | 1,1-DCE<br>µg/L | 1,1-DCE<br>signs     | chloroethane<br>µg/L | chloroethane<br>signs | PCE<br>µg/L | PCE<br>signs | TCE<br>µg/L | TCE<br>signs | cis-1,2-DCE<br>µg/L | cis-1,2-DCE<br>signs | vinyl chloride<br>µg/L | vinyl chloride<br>signs |
| 7/28/2003                    | 13                |                    | 5               |                      |                 |                      | 25                   |                       | 25          |              | 25          |              | 25                  |                      | 25                     |                         |
| 9/12/2005                    | 10                | -1                 | 10              | 1                    |                 |                      | 10                   | -1                    | 10          | -1           | 10          | -1           | 10                  | -1                   | 10                     | -1                      |
| 3/29/2006                    | 125               | 2                  | 125             | 2                    |                 |                      | 125                  | 2                     | 125         | 2            | 125         | 2            | 125                 | 2                    | 125                    | 2                       |
| 2/26/2008                    | 9.2               | -3                 | 8.2             | -1                   |                 |                      | 2.5                  | -3                    | 2.5         | -3           | 2.5         | -3           | 2.5                 | -3                   | 2.5                    | -3                      |
| 7/24/2013                    | 0.25              | -4                 | 0.25            | -4                   | 0.25            |                      | 0.25                 | -4                    | 0.25        | -4           | 0.25        | -4           | 0.25                | -4                   | 0.25                   | -4                      |
| 3/26/2014                    | 0.5               | -3                 | 0.5             | -3                   | 0.5             | 1                    | 0.5                  | -3                    | 0.5         | -3           | 0.5         | -3           | 0.5                 | -3                   | 0.5                    | -3                      |
| 3/30/2015                    | 0.5               | -3                 | 0.5             | -3                   | 0.5             | 1                    | 0.5                  | -3                    | 0.5         | -3           | 0.5         | -3           | 0.5                 | -3                   | 0.5                    | -3                      |
| 3/29/2016                    | 0.5               | -3                 | 0.85            | -1                   | 0.5             | 1                    | 0.5                  | -3                    | 0.65        | -1           | 0.5         | -3           | 0.5                 | -3                   | 0.5                    | -3                      |
| 3/30/2017                    | 0.5               | -3                 | 2.3             | 0                    | 0.5             | 1                    | 0.5                  | -3                    | 0.5         | -4           | 0.5         | -3           | 0.5                 | -3                   | 0.5                    | -3                      |
| 9/27/2017                    | 0.5               | -3                 | 1.1             | -1                   | 0.5             | 1                    | 0.5                  | -3                    | 0.5         | -4           | 0.5         | -3           | 0.5                 | -3                   | 0.5                    | -3                      |
| 4/2/2018                     | 0.5               | -3                 | 0.5             | -6                   | 0.5             | 1                    | 0.5                  | -3                    | 0.5         | -4           | 0.5         | -3           | 0.5                 | -3                   | 0.5                    | -3                      |
| 9/20/2018                    | 0.5               | -3                 | 0.5             | -6                   | 0.5             | 1                    | 0.5                  | -3                    | 0.5         | -4           | 0.5         | -3           | 0.5                 | -3                   | 0.5                    | -3                      |
| <b>S</b>                     | -27               |                    |                 | -22                  |                 | 7                    |                      | -27                   |             | -29          |             | -27          |                     | -27                  |                        | -27                     |
| <b>count (n)</b>             | 12                |                    |                 | 12                   |                 | 8                    |                      | 12                    |             | 12           |             | 12           |                     | 12                   |                        | 12                      |
| <b>g</b>                     | 1                 |                    |                 | 1                    |                 | 1                    |                      | 1                     |             | 1            |             | 1            |                     | 1                    |                        | 1                       |
| <b>t<sub>1</sub></b>         | 7                 |                    |                 | 4                    |                 | 7                    |                      | 7                     |             | 6            |             | 7            |                     | 7                    |                        | 7                       |
| <b>t<sub>2</sub></b>         | 0                 |                    |                 | 0                    |                 | 0                    |                      | 0                     |             | 0            |             | 0            |                     | 0                    |                        | 0                       |
| <b>t<sub>3</sub></b>         | 0                 |                    |                 | 0                    |                 | 0                    |                      | 0                     |             | 0            |             | 0            |                     | 0                    |                        | 0                       |
| <b>VAR(S) :</b>              | 168.33            |                    |                 | 204.00               |                 | 21.00                |                      | 168.33                |             | 184.33       |             | 168.33       |                     | 168.33               |                        | 168.33                  |
| <b>Z</b>                     | 2.00              |                    |                 | 1.47                 |                 | 1.31                 |                      | 2.00                  |             | 2.06         |             | 2.00         |                     | 2.00                 |                        | 2.00                    |
| <b>a/2(normal dist.)</b>     | 1.96              |                    |                 | 1.96                 |                 | 1.96                 |                      | 1.96                  |             | 1.96         |             | 1.96         |                     | 1.96                 |                        | 1.96                    |
| <b>Null hypothesis</b>       | Reject            |                    |                 | Accept               |                 | Accept               |                      | Reject                |             | Reject       |             | Reject       |                     | Reject               |                        | Reject                  |
| <b>Trend Analysis Result</b> | Trend exists      |                    |                 | Trend does not exist |                 | Trend does not exist |                      | Trend exists          |             | Trend exists |             | Trend exists |                     | Trend exists         |                        | Trend exists            |
| <b>Slope of Data</b>         | Decreasing        |                    |                 | Decreasing           |                 | Increasing           |                      | Decreasing            |             | Decreasing   |             | Decreasing   |                     | Decreasing           |                        | Decreasing              |

#### Mann-Kendall Test

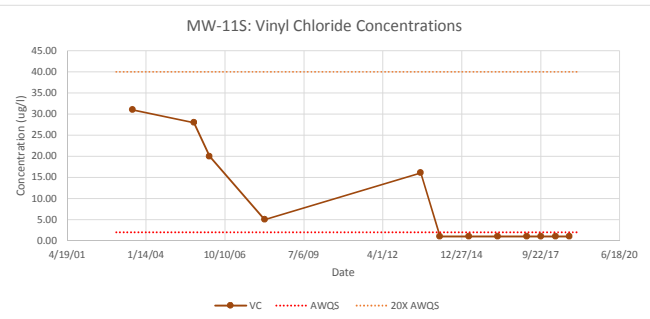
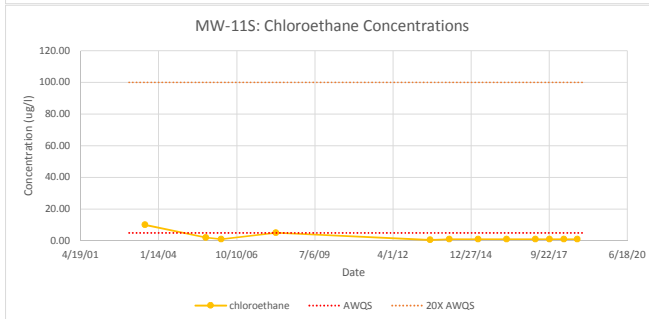
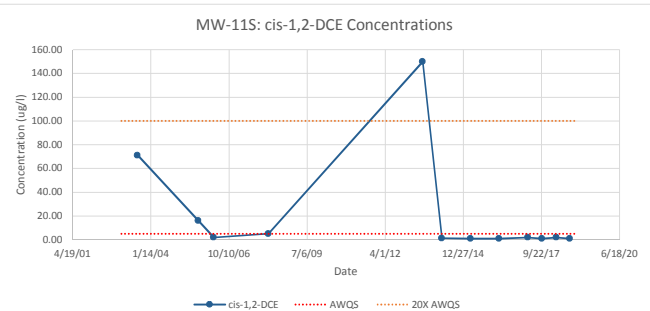
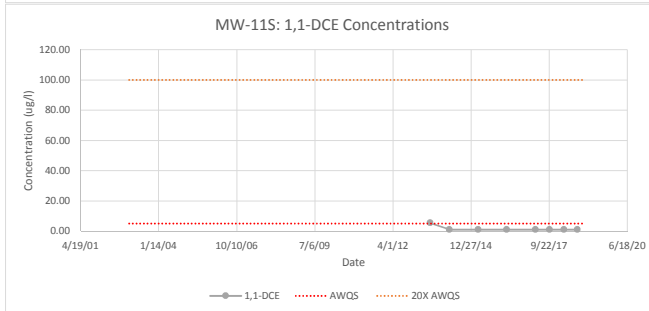
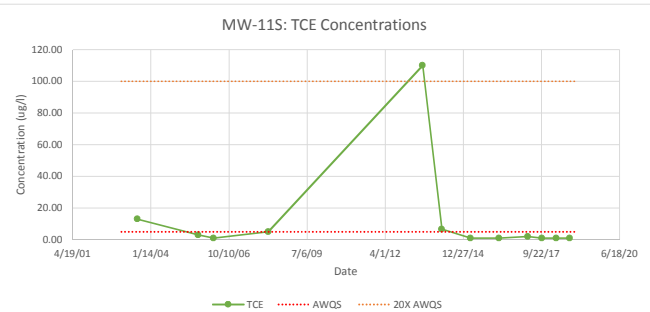
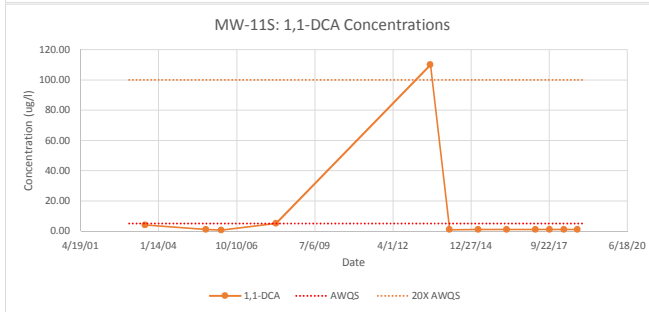
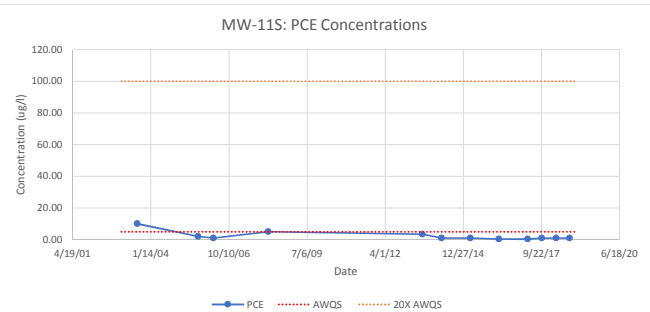
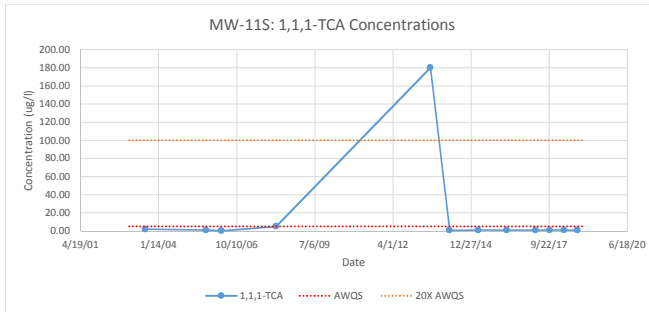
Null hypothesis: no trend currently exists. The null hypothesis is rejected if the probability value (Z) is greater than a/2 .

Sample Variance must be modified if ties are present using the equation:

$$VAR (S) = \frac{1}{18} \left[ n(n-1)(2n+5) - \sum_{p=1}^g t_p(t_p-1)(2t_p+5) \right]$$

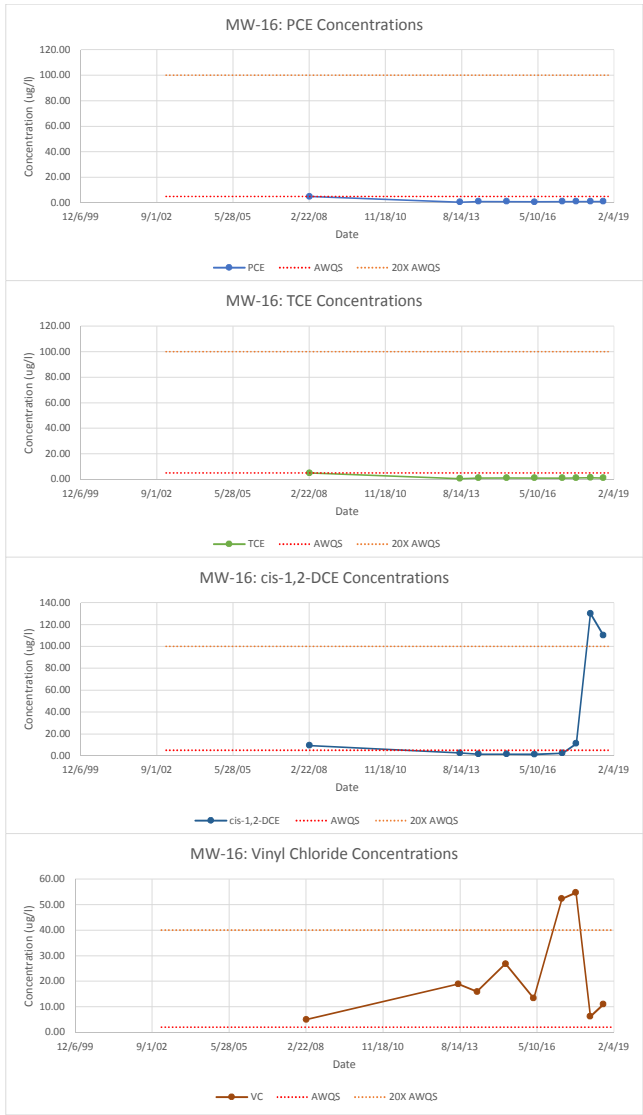
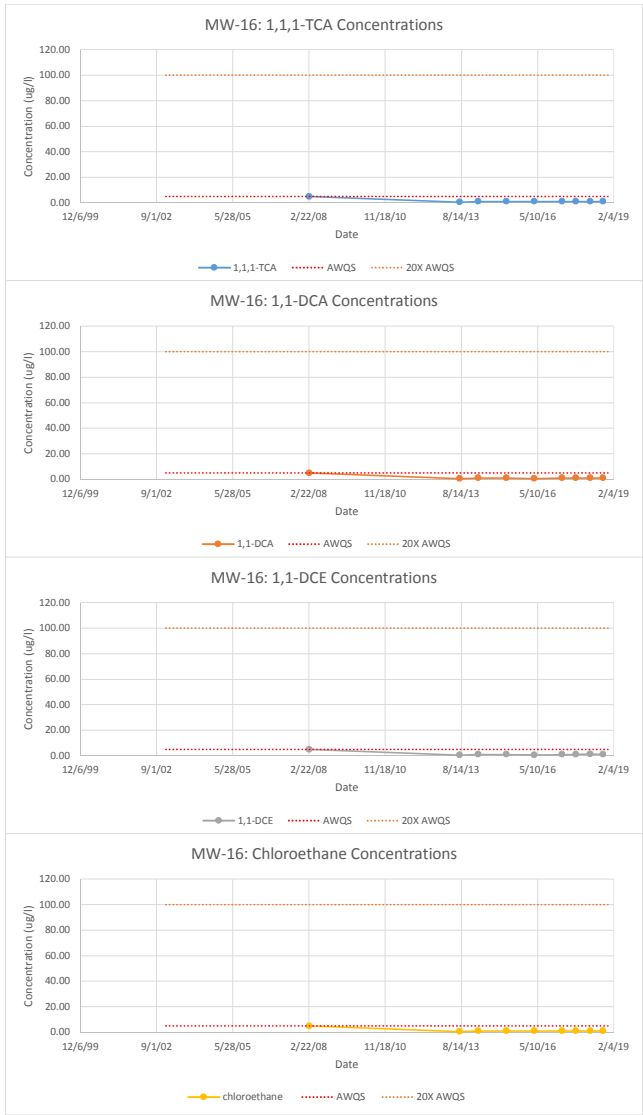
where  $g$  is the quantity of tied groups and  $t_p$  is the quantity of data in the  $p$ th group

Note: Non-detect value; if a result was nondetect, then half of the detection limit is shown and used in the calculations.



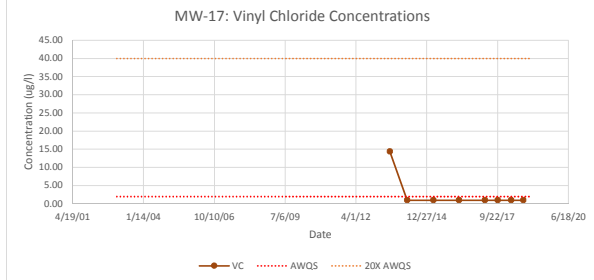
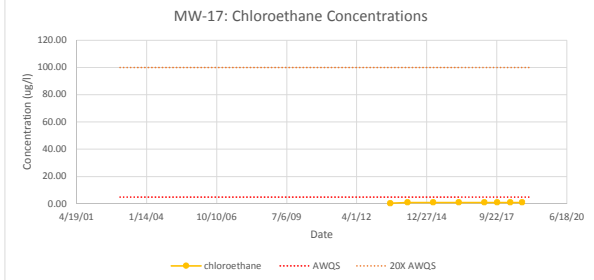
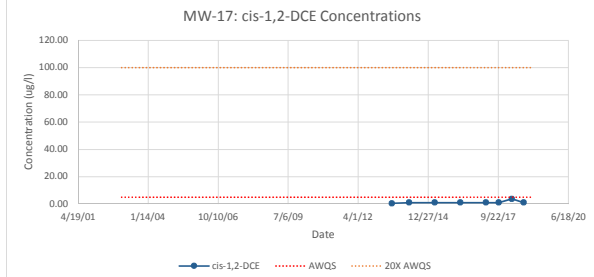
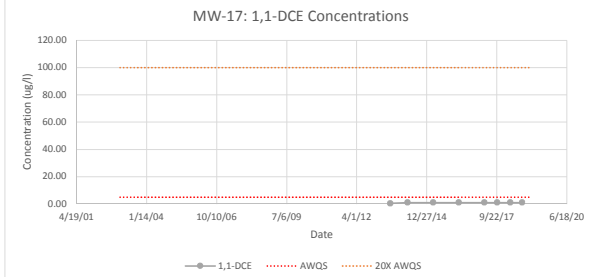
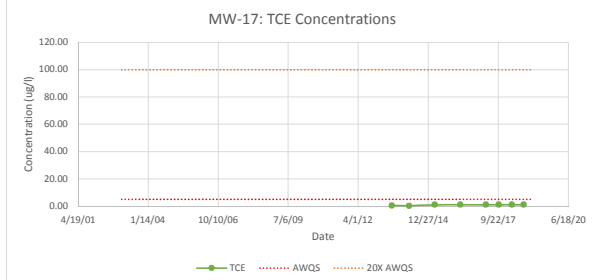
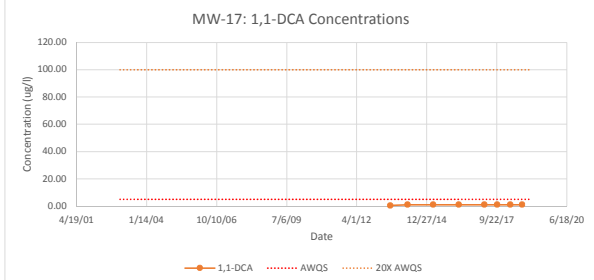
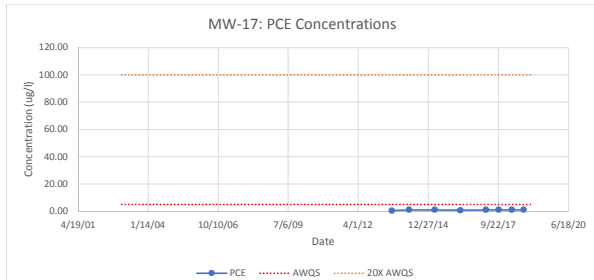
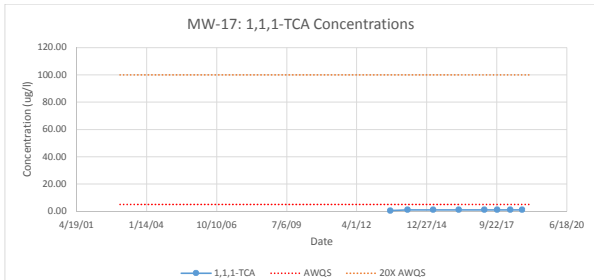
**MW-11:**

[illegible]



**MW-16**

| Date                         | 1,1,1-TCA<br>µg/L    | 1,1,1-TCA<br>signs | 1,1-DCA<br>µg/L      | 1,1-DCA<br>signs | 1,1-DCE<br>µg/L      | 1,1-DCE<br>signs | chloroethane<br>µg/L | chloroethane<br>signs | PCE<br>µg/L          | PCE<br>signs | TCE<br>µg/L          | TCE<br>signs | cis-1,2-DCE<br>µg/L  | cis-1,2-DCE<br>signs | vinyl chloride<br>µg/L | vinyl chloride<br>signs |
|------------------------------|----------------------|--------------------|----------------------|------------------|----------------------|------------------|----------------------|-----------------------|----------------------|--------------|----------------------|--------------|----------------------|----------------------|------------------------|-------------------------|
| 2/27/2008                    | 2.50                 |                    | 2.50                 |                  |                      |                  | 2.50                 |                       | 2.50                 |              | 2.50                 |              | 9.40                 |                      | 2.50                   |                         |
| 7/24/2013                    | 0.25                 | -1                 | 0.25                 | -1               | 0.25                 | 0                | 0.25                 | -1                    | 0.25                 | -1           | 0.25                 | -1           | 2.50                 | -1                   | 18.90                  | 1                       |
| 3/26/2014                    | 0.50                 | 0                  | 0.50                 | 0                | 0.50                 | 1                | 0.50                 | 0                     | 0.50                 | 0            | 0.50                 | 0            | 1.50                 | -2                   | 15.90                  | 0                       |
| 3/30/2015                    | 0.50                 | 0                  | 0.50                 | 0                | 0.50                 | 1                | 0.50                 | 0                     | 0.50                 | 0            | 0.50                 | 0            | 1.50                 | -2                   | 26.80                  | 3                       |
| 3/29/2016                    | 0.50                 | 0                  | 0.52                 | 2                | 0.50                 | 1                | 0.50                 | 0                     | 0.67                 | 2            | 0.50                 | 0            | 1.20                 | -4                   | 13.30                  | -2                      |
| 3/30/2017                    | 0.5                  | 0                  | 0.5                  | -1               | 0.5                  | 1                | 0.5                  | 0                     | 0.5                  | -1           | 0.5                  | 0            | 2.4                  | 1                    | 52.3                   | 5                       |
| 9/27/2017                    | 0.5                  | 0                  | 0.5                  | -1               | 0.5                  | 1                | 0.5                  | 0                     | 0.5                  | -1           | 0.5                  | 0            | 11.2                 | 6                    | 54.7                   | 6                       |
| 4/2/2018                     | 0.5                  | 0                  | 0.5                  | -1               | 1.4                  | 6                | 0.5                  | 0                     | 0.5                  | -1           | 1.3                  | 5            | 130                  | 7                    | 6.2                    | -5                      |
| 9/20/2018                    | 0.5                  | 0                  | 0.5                  | -1               | 0.5                  | 0                | 0.5                  | 0                     | 0.5                  | -1           | 0.5                  | -1           | 110                  | 6                    | 10.9                   | -4                      |
| <b>S</b>                     | -1                   |                    | -3                   |                  | 11                   |                  | -1                   |                       | -3                   |              | 3                    |              | 11                   |                      | 4                      |                         |
| <b>count (n)</b>             | 9                    |                    | 9                    |                  | 9                    |                  | 9                    |                       | 9                    |              | 9                    |              | 9                    |                      | 9                      |                         |
| <b>g</b>                     | 1                    |                    | 1                    |                  | 1                    |                  | 1                    |                       | 1                    |              | 1                    |              | 0                    |                      | 0                      |                         |
| <b>t<sub>1</sub></b>         | 7                    |                    | 6                    |                  | 6                    |                  | 7                    |                       | 6                    |              | 6                    |              | 0                    |                      | 0                      |                         |
| <b>t<sub>2</sub></b>         | 0                    |                    | 0                    |                  | 0                    |                  | 0                    |                       | 0                    |              | 0                    |              | 0                    |                      | 0                      |                         |
| <b>t<sub>3</sub></b>         | 0                    |                    | 0                    |                  | 0                    |                  | 0                    |                       | 0                    |              | 0                    |              | 0                    |                      | 0                      |                         |
| <b>VAR(S) :</b>              | 47.67                |                    | 63.67                |                  | 63.67                |                  | 47.67                |                       | 63.67                |              | 63.67                |              | 92.00                |                      | 92.00                  |                         |
| <b>Z</b>                     | 0.00                 |                    | 0.25                 |                  | 1.25                 |                  | 0.00                 |                       | 0.25                 |              | 0.25                 |              | 1.04                 |                      | 0.31                   |                         |
| <b>a/2(normal dist.)</b>     | 1.96                 |                    | 1.96                 |                  | 1.96                 |                  | 1.96                 |                       | 1.96                 |              | 1.96                 |              | 1.96                 |                      | 1.96                   |                         |
| <b>Null hypothesis</b>       | Accept               |                    | Accept               |                  | Accept               |                  | Accept               |                       | Accept               |              | Accept               |              | Accept               |                      | Accept                 |                         |
| <b>Trend Analysis Result</b> | Trend does not exist |                    | Trend does not exist |                  | Trend does not exist |                  | Trend does not exist |                       | Trend does not exist |              | Trend does not exist |              | Trend does not exist |                      | Trend does not exist   |                         |
| <b>Slope of Data</b>         | Decreasing           |                    | Decreasing           |                  | Increasing           |                  | Decreasing           |                       | Decreasing           |              | Increasing           |              | Increasing           |                      | Increasing             |                         |



## MW-17

| Date                  | 1,1,1-TCA<br>µg/L  | 1,1,1-TCA<br>signs | 1,1-DCA<br>µg/L      | 1,1-DCA<br>signs | 1,1-DCE<br>µg/L      | 1,1-DCE<br>signs | chloroethane<br>µg/L | chloroethane<br>signs | PCE<br>µg/L | PCE<br>signs         | TCE<br>µg/L | TCE<br>signs         | cis-1,2-DCE<br>µg/L | cis-1,2-DCE<br>signs | vinyl chloride<br>µg/L | vinyl chloride<br>signs |
|-----------------------|--------------------|--------------------|----------------------|------------------|----------------------|------------------|----------------------|-----------------------|-------------|----------------------|-------------|----------------------|---------------------|----------------------|------------------------|-------------------------|
| 7/24/2013             | 0.25               |                    | 0.25                 |                  | 0.25                 |                  | 0.25                 |                       | 0.25        |                      | 0.25        |                      | 0.25                |                      | 14.40                  |                         |
| 3/26/2014             | 0.50               | 1                  | 0.50                 | 1                | 0.50                 | 1                | 0.50                 | 1                     | 0.50        | 1                    | 0.24        | -1                   | 0.50                | 1                    | 0.50                   | -1                      |
| 3/30/2015             | 0.50               | 1                  | 0.50                 | 1                | 0.50                 | 1                | 0.50                 | 1                     | 0.50        | 1                    | 0.50        | 2                    | 0.50                | 1                    | 0.50                   | -1                      |
| 3/29/2016             | 0.50               | 1                  | 0.50                 | 1                | 0.50                 | 1                | 0.50                 | 1                     | 0.70        | 3                    | 0.50        | 2                    | 0.50                | 1                    | 0.50                   | -1                      |
| 3/30/2017             | 0.50               | 1                  | 0.50                 | 1                | 0.50                 | 1                | 0.50                 | 1                     | 0.50        | 0                    | 0.50        | 2                    | 0.50                | 1                    | 0.50                   | -1                      |
| 9/27/2017             | 0.50               | 1                  | 0.50                 | 1                | 0.50                 | 1                | 0.50                 | 1                     | 0.50        | 0                    | 0.50        | 2                    | 0.50                | 1                    | 0.50                   | -1                      |
| 4/2/2018              | 0.50               | 1                  | 0.50                 | 1                | 0.50                 | 1                | 0.50                 | 1                     | 0.50        | 0                    | 0.50        | 2                    | 3.80                | 6                    | 0.50                   | -1                      |
| 9/20/2018             | 0.50               | 1                  | 0.50                 | 1                | 0.50                 | 1                | 0.50                 | 1                     | 0.50        | 0                    | 0.50        | 2                    | 0.50                | 0                    | 0.50                   | -1                      |
| S                     | 7                  |                    | 7                    |                  | 7                    |                  | 7                    |                       |             | 5                    |             | 11                   |                     | 11                   |                        | -7                      |
| count (n)             | 8                  |                    | 8                    |                  | 8                    |                  | 8                    |                       |             | 8                    |             | 8                    |                     | 8                    |                        | 8                       |
| g                     | 1                  |                    | 1                    |                  | 1                    |                  | 1                    |                       |             | 1                    |             | 1                    |                     | 1                    |                        | 1                       |
| t <sub>1</sub>        | 7                  |                    | 7                    |                  | 7                    |                  | 7                    |                       |             | 6                    |             | 6                    |                     | 6                    |                        | 7                       |
| t <sub>2</sub>        | 0                  |                    | 0                    |                  | 0                    |                  | 0                    |                       |             | 0                    |             | 0                    |                     | 0                    |                        | 0                       |
| t <sub>3</sub>        | 0                  |                    | 0                    |                  | 0                    |                  | 0                    |                       |             | 0                    |             | 0                    |                     | 0                    |                        | 0                       |
| VARS(S) :             | 21.00              |                    | 21.00                |                  | 21.00                |                  | 21.00                |                       |             | 37.00                |             | 37.00                |                     | 37.00                |                        | 21.00                   |
| Z                     | 1.31               |                    | 1.31                 |                  | 1.31                 |                  | 1.31                 |                       |             | 0.66                 |             | 1.64                 |                     | 1.64                 |                        | 1.31                    |
| a/2(normal dist.)     | 1.96               |                    | 1.96                 |                  | 1.96                 |                  | 1.96                 |                       |             | 1.96                 |             | 1.96                 |                     | 1.96                 |                        | 1.96                    |
| Null hypothesis       | Accept             |                    | Accept               |                  | Accept               |                  | Accept               |                       |             | Accept               |             | Accept               |                     | Accept               |                        | Accept                  |
| Trend Analysis Result | and does not exist |                    | Trend does not exist |                  | Trend does not exist |                  | Trend does not exist |                       |             | Trend does not exist |             | Trend does not exist |                     | Trend does not exist |                        | Trend does not exist    |
| Slope of Data         | Increasing         |                    | Increasing           |                  | Increasing           |                  | Increasing           |                       |             | Increasing           |             | Increasing           |                     | Increasing           |                        | Decreasing              |

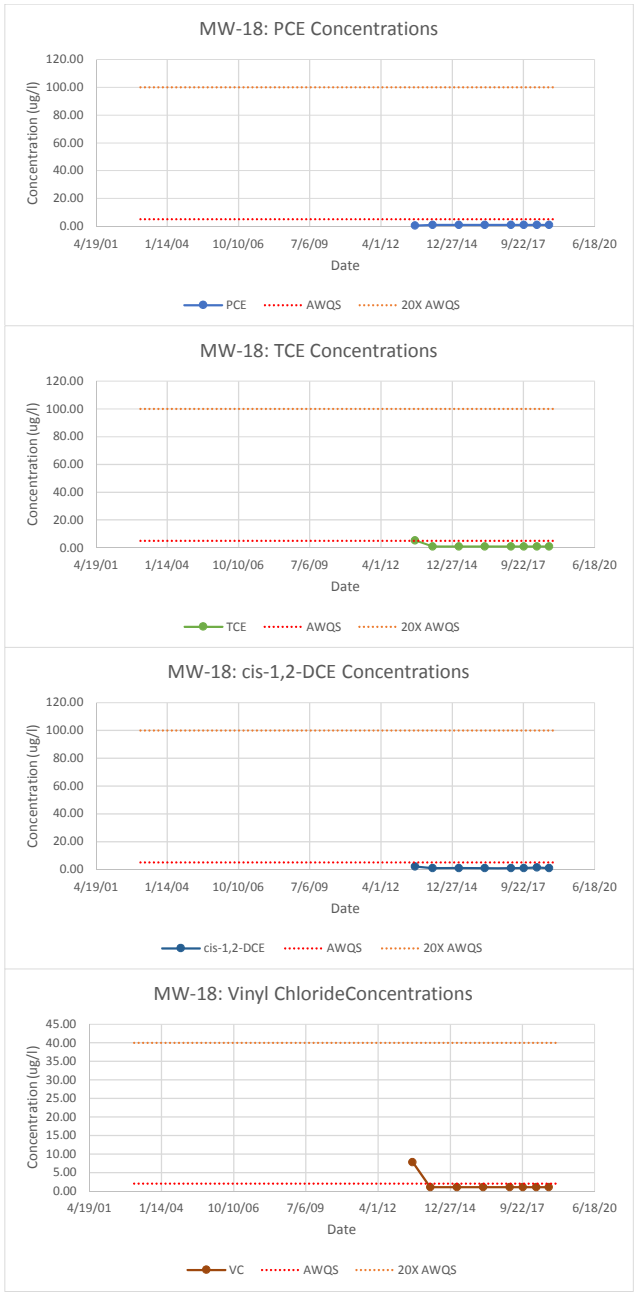
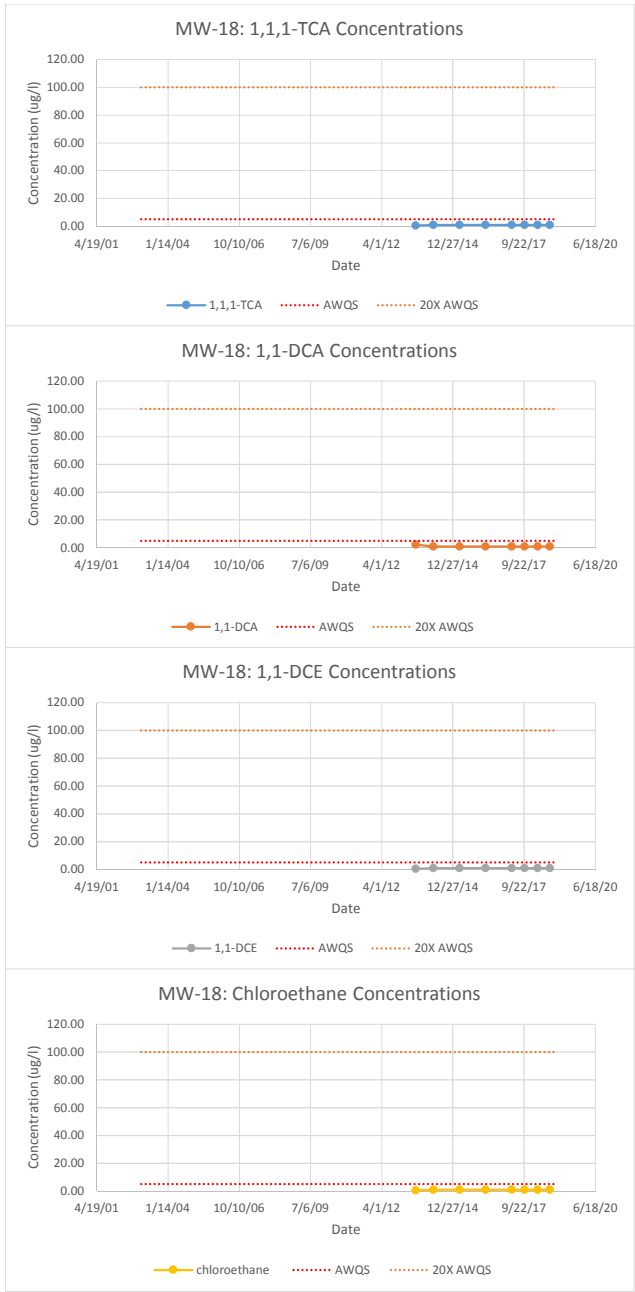


Table X-X  
MW-18  
Historic Concentration Plots

**MW-18**

| Date                         | 1,1,1-TCA<br>µg/L | 1,1,1-TCA<br>signs | 1,1-DCA<br>µg/L      | 1,1-DCA<br>signs | 1,1-DCE<br>µg/L      | 1,1-DCE<br>signs | chloroethane<br>µg/L | chloroethane<br>signs | PCE<br>µg/L          | PCE<br>signs | TCE<br>µg/L          | TCE<br>signs | cis-1,2-DCE<br>µg/L  | cis-1,2-DCE<br>signs | vinyl chloride<br>µg/L | vinyl chloride<br>signs |
|------------------------------|-------------------|--------------------|----------------------|------------------|----------------------|------------------|----------------------|-----------------------|----------------------|--------------|----------------------|--------------|----------------------|----------------------|------------------------|-------------------------|
| 7/24/2013                    | 0.25              |                    | 2.40                 |                  | 0.25                 |                  | 0.25                 |                       | 0.25                 |              | 5.40                 |              | 2.10                 |                      | 7.80                   |                         |
| 3/26/2014                    | 0.50              | 1                  | 0.50                 | -1               | 0.50                 | 1                | 0.50                 | 1                     | 0.50                 | 1            | 0.50                 | -1           | 0.50                 | -1                   | 0.50                   | -1                      |
| 3/30/2015                    | 0.50              | 1                  | 0.50                 | -1               | 0.50                 | 1                | 0.50                 | 1                     | 0.50                 | 1            | 0.50                 | -1           | 0.50                 | -1                   | 0.50                   | -1                      |
| 3/29/2016                    | 0.50              | 1                  | 0.50                 | -1               | 0.50                 | 1                | 0.50                 | 1                     | 0.90                 | 3            | 0.50                 | -1           | 0.50                 | -1                   | 0.50                   | -1                      |
| 3/30/2017                    | 0.50              | 1                  | 0.50                 | -1               | 0.50                 | 1                | 0.50                 | 1                     | 0.50                 | 0            | 0.50                 | -1           | 0.50                 | -1                   | 0.50                   | -1                      |
| 9/27/2017                    | 0.50              | 1                  | 0.50                 | -1               | 0.50                 | 1                | 0.50                 | 1                     | 0.50                 | 0            | 0.50                 | -1           | 0.50                 | -1                   | 0.50                   | -1                      |
| 4/2/2018                     | 0.50              | 1                  | 0.50                 | -1               | 0.50                 | 1                | 0.50                 | 1                     | 0.50                 | 0            | 0.50                 | -1           | 1.40                 | 4                    | 0.50                   | -1                      |
| 9/20/2018                    | 0.50              | 1                  | 0.50                 | -1               | 0.50                 | 1                | 0.50                 | 1                     | 0.50                 | 0            | 0.50                 | -1           | 0.50                 | -2                   | 0.50                   | -1                      |
| <b>S</b>                     |                   | 7                  |                      | -7               |                      | 7                |                      | 7                     |                      | 5            |                      | -7           |                      | -3                   |                        | -7                      |
| <b>count (n)</b>             |                   | 8                  |                      | 8                |                      | 8                |                      | 8                     |                      | 8            |                      | 8            |                      | 8                    |                        | 8                       |
| <b>g</b>                     |                   | 1                  |                      | 1                |                      | 1                |                      | 1                     |                      | 1            |                      | 1            |                      | 1                    |                        | 1                       |
| <b>t<sub>1</sub></b>         |                   | 7                  |                      | 7                |                      | 7                |                      | 7                     |                      | 6            |                      | 7            |                      | 6                    |                        | 7                       |
| <b>t<sub>2</sub></b>         |                   | 0                  |                      | 0                |                      | 0                |                      | 0                     |                      | 0            |                      | 0            |                      | 0                    |                        | 0                       |
| <b>t<sub>3</sub></b>         |                   | 0                  |                      | 0                |                      | 0                |                      | 0                     |                      | 0            |                      | 0            |                      | 0                    |                        | 0                       |
| <b>VAR(S) :</b>              |                   | 21.00              |                      | 21.00            |                      | 21.00            |                      | 21.00                 |                      | 37.00        |                      | 21.00        |                      | 37.00                |                        | 21.00                   |
| <b>Z</b>                     |                   | 1.31               |                      | 1.31             |                      | 1.31             |                      | 1.31                  |                      | 0.66         |                      | 1.31         |                      | 0.33                 |                        | 1.31                    |
| <b>a/2(normal dist.)</b>     |                   | 1.96               |                      | 1.96             |                      | 1.96             |                      | 1.96                  |                      | 1.96         |                      | 1.96         |                      | 1.96                 |                        | 1.96                    |
| <b>Null hypothesis</b>       |                   | Accept             |                      | Accept           |                      | Accept           |                      | Accept                |                      | Accept       |                      | Accept       |                      | Accept               |                        | Accept                  |
| <b>Trend Analysis Result</b> | nd does not exist |                    | Trend does not exist |                  | Trend does not exist |                  | Trend does not exist |                       | Trend does not exist |              | Trend does not exist |              | Trend does not exist |                      | Trend does not exist   |                         |
| <b>Slope of Data</b>         | Increasing        |                    | Decreasing           |                  | Increasing           |                  | Increasing           |                       | Increasing           |              | Decreasing           |              | Decreasing           |                      | Decreasing             |                         |

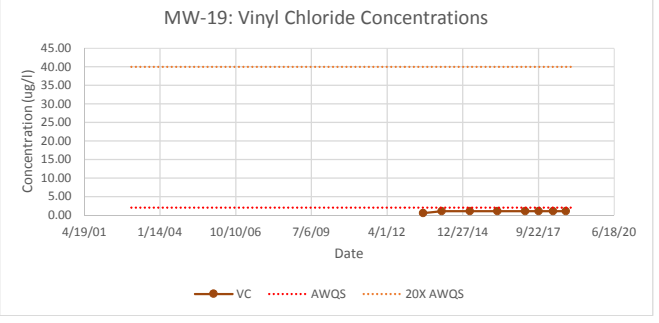
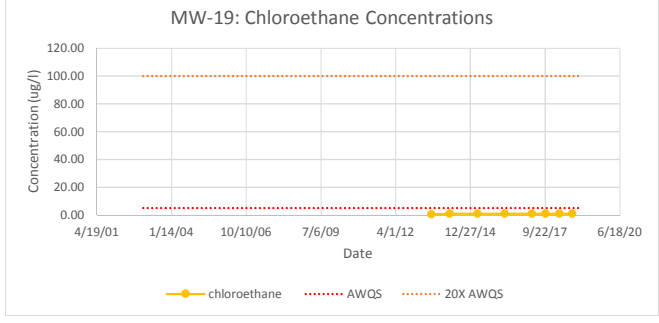
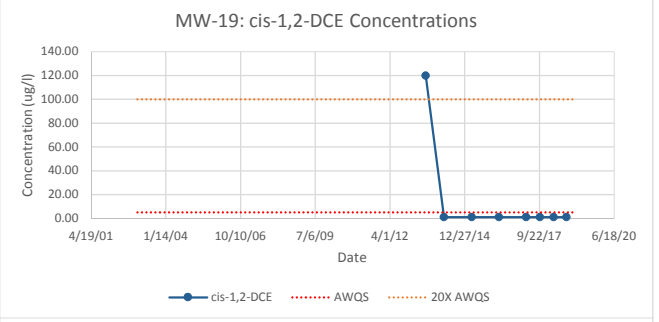
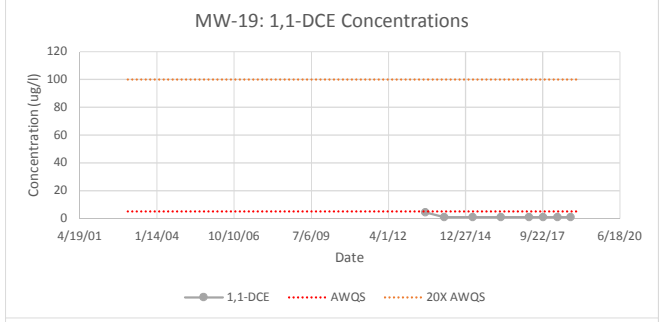
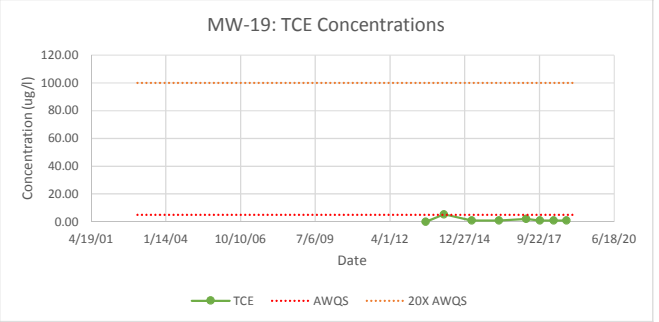
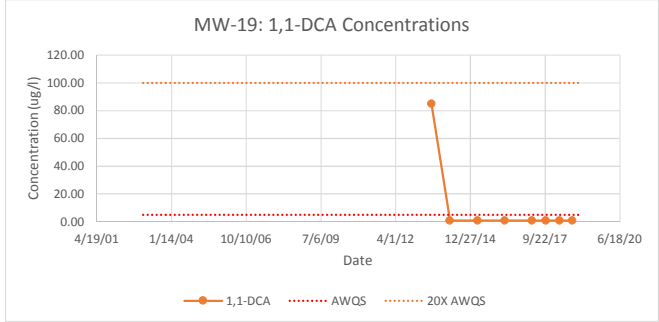
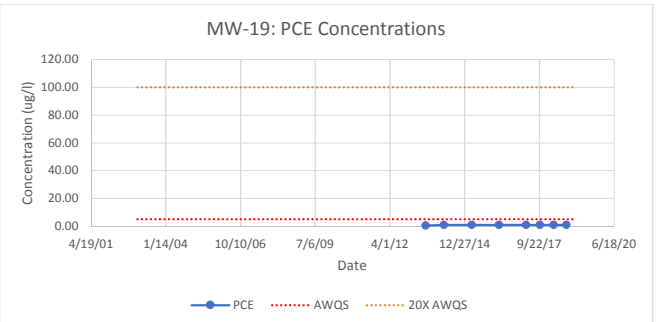
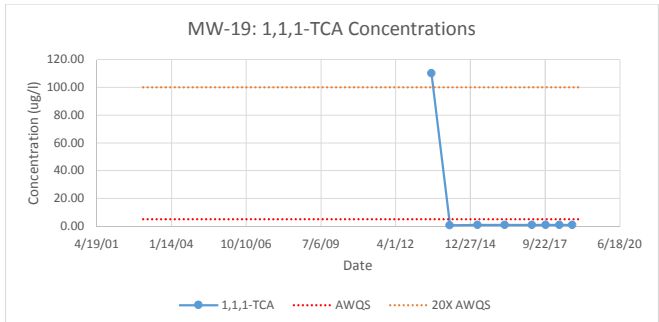


Table X-X  
MW-19  
Historic Concentration Plots

**MW-19**

| Date                         | 1,1,1-TCA<br>µg/L | 1,1,1-TCA<br>signs | 1,1-DCA<br>µg/L      | 1,1-DCA<br>signs | 1,1-DCE<br>µg/L      | 1,1-DCE<br>signs | chloroethane<br>µg/L | chloroethane<br>signs | PCE<br>µg/L          | PCE<br>signs | TCE<br>µg/L          | TCE<br>signs | cis-1,2-DCE<br>µg/L  | cis-1,2-DCE<br>signs | vinyl chloride<br>µg/L | vinyl chloride<br>signs |
|------------------------------|-------------------|--------------------|----------------------|------------------|----------------------|------------------|----------------------|-----------------------|----------------------|--------------|----------------------|--------------|----------------------|----------------------|------------------------|-------------------------|
| 7/24/2013                    | 110.00            |                    | 84.90                |                  | 4.4                  |                  | 0.25                 |                       | 0.48                 |              | 53.60                |              | 120.00               |                      | 0.25                   |                         |
| 3/26/2014                    | 0.68              | -1                 | 0.50                 | -1               | 0.50                 | -1               | 0.50                 | 1                     | 0.50                 | 1            | 5.40                 | -1           | 0.50                 | -1                   | 0.50                   | 1                       |
| 3/30/2015                    | 0.50              | -2                 | 0.50                 | -1               | 0.50                 | -1               | 0.50                 | 1                     | 0.50                 | 1            | 0.50                 | -2           | 0.50                 | -1                   | 0.50                   | 1                       |
| 3/29/2016                    | 0.50              | -2                 | 0.50                 | -1               | 0.50                 | -1               | 0.50                 | 1                     | 0.50                 | 1            | 0.50                 | -2           | 0.50                 | -1                   | 0.50                   | 1                       |
| 3/30/2017                    | 0.50              | -2                 | 0.50                 | -1               | 0.50                 | -1               | 0.50                 | 1                     | 0.50                 | 1            | 2.10                 | 0            | 0.50                 | -1                   | 0.50                   | 1                       |
| 9/27/2017                    | 0.50              | -2                 | 0.50                 | -1               | 0.50                 | -1               | 0.50                 | 1                     | 0.50                 | 1            | 0.50                 | -3           | 0.50                 | -1                   | 0.50                   | 1                       |
| 4/2/2018                     | 0.50              | -2                 | 0.50                 | -1               | 0.50                 | -1               | 0.50                 | 1                     | 0.50                 | 1            | 0.50                 | -3           | 0.50                 | -1                   | 0.50                   | 1                       |
| 9/20/2018                    | 0.50              | -2                 | 0.50                 | -1               | 0.50                 | -1               | 0.50                 | 1                     | 0.50                 | 1            | 0.50                 | -3           | 0.50                 | -1                   | 0.50                   | 1                       |
| <b>S</b>                     | -13               |                    | -7                   |                  | -7                   |                  | 7                    |                       | 7                    |              | -14                  |              | -7                   |                      | 7                      |                         |
| <b>count (n)</b>             | 8                 |                    | 8                    |                  | 8                    |                  | 8                    |                       | 8                    |              | 8                    |              | 8                    |                      | 8                      |                         |
| <b>g</b>                     | 1                 |                    | 1                    |                  | 1                    |                  | 1                    |                       | 1                    |              | 1                    |              | 1                    |                      | 1                      |                         |
| <b>t<sub>1</sub></b>         | 6                 |                    | 7                    |                  | 7                    |                  | 7                    |                       | 7                    |              | 5                    |              | 7                    |                      | 7                      |                         |
| <b>t<sub>2</sub></b>         | 0                 |                    | 0                    |                  | 0                    |                  | 0                    |                       | 0                    |              | 0                    |              | 0                    |                      | 0                      |                         |
| <b>t<sub>3</sub></b>         | 0                 |                    | 0                    |                  | 0                    |                  | 0                    |                       | 0                    |              | 0                    |              | 0                    |                      | 0                      |                         |
| <b>VAR(S) :</b>              | 37.00             |                    | 21.00                |                  | 21.00                |                  | 21.00                |                       | 21.00                |              | 48.67                |              | 21.00                |                      | 21.00                  |                         |
| <b>Z</b>                     | 1.97              |                    | 1.31                 |                  | 1.31                 |                  | 1.31                 |                       | 1.31                 |              | 1.86                 |              | 1.31                 |                      | 1.31                   |                         |
| <b>a/2(normal dist.)</b>     | 1.96              |                    | 1.96                 |                  | 1.96                 |                  | 1.96                 |                       | 1.96                 |              | 1.96                 |              | 1.96                 |                      | 1.96                   |                         |
| <b>Null hypothesis</b>       | Reject            |                    | Accept               |                  | Accept               |                  | Accept               |                       | Accept               |              | Accept               |              | Accept               |                      | Accept                 |                         |
| <b>Trend Analysis Result</b> | Trend exists      |                    | Trend does not exist |                  | Trend does not exist |                  | Trend does not exist |                       | Trend does not exist |              | Trend does not exist |              | Trend does not exist |                      | Trend does not exist   |                         |
| <b>Slope of Data</b>         | Decreasing        |                    | Decreasing           |                  | Decreasing           |                  | Increasing           |                       | Increasing           |              | Decreasing           |              | Decreasing           |                      | Increasing             |                         |

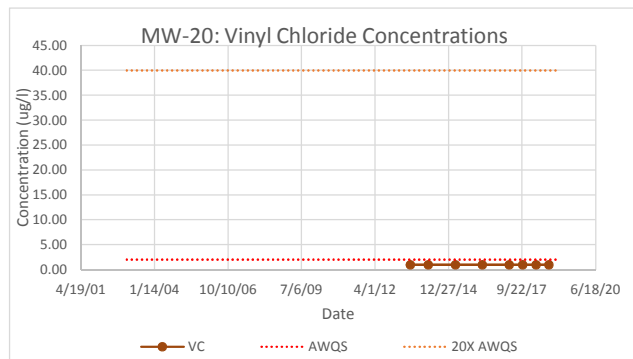
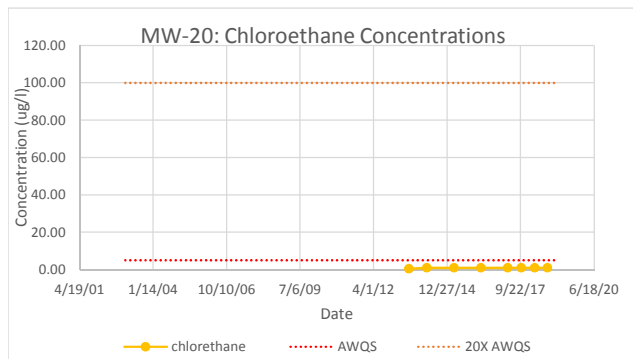
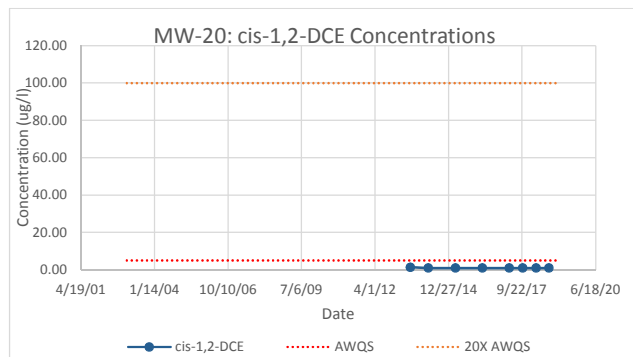
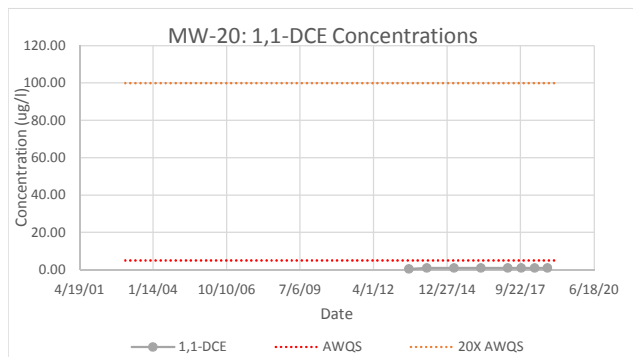
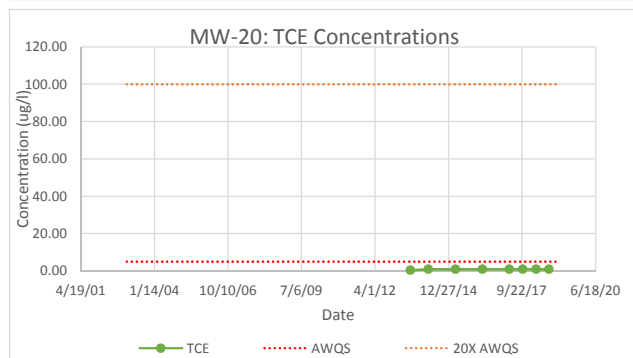
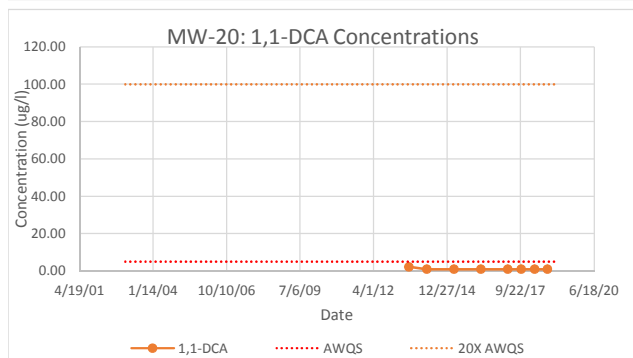
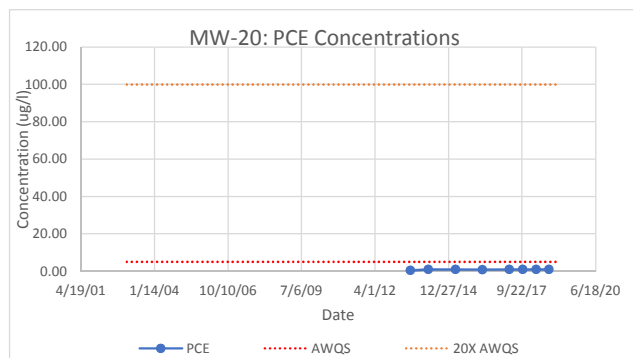
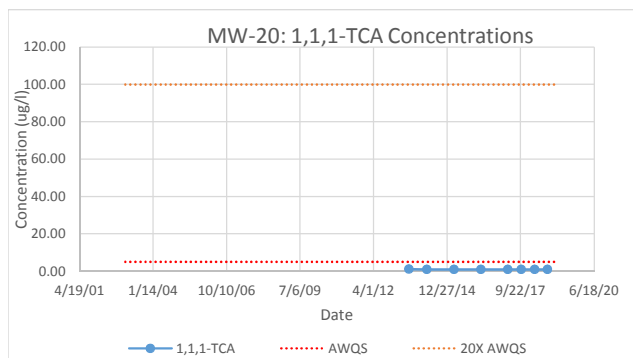


Table X-X  
MW-20  
Historic Concentration Plots

MW-20

| Date                         | 1,1,1-TCA<br>µg/L | 1,1,1-TCA<br>signs   | 1,1-DCA<br>µg/L | 1,1-DCA<br>signs     | 1,1-DCE<br>µg/L | 1,1-DCE<br>signs     | chloroethane<br>µg/L | chloroethane<br>signs | PCE<br>µg/L | PCE<br>signs         | TCE<br>µg/L | TCE<br>signs         | cis-1,2-DCE<br>µg/L | cis-1,2-DCE<br>signs | vinyl chloride<br>µg/L | vinyl chloride<br>signs |
|------------------------------|-------------------|----------------------|-----------------|----------------------|-----------------|----------------------|----------------------|-----------------------|-------------|----------------------|-------------|----------------------|---------------------|----------------------|------------------------|-------------------------|
| 7/24/2013                    | 1.20              |                      | 2.30            |                      | 0.25            |                      | 0.25                 |                       | 0.25        |                      | 0.25        |                      | 1.40                |                      | 0.99                   |                         |
| 3/26/2014                    | 0.50              | -1                   | 0.50            | -1                   | 0.50            | 1                    | 0.50                 | 1                     | 0.50        | 1                    | 0.50        | 1                    | 0.50                | -1                   | 0.50                   | -1                      |
| 3/30/2015                    | 0.50              | -1                   | 0.50            | -1                   | 0.50            | 1                    | 0.50                 | 1                     | 0.50        | 1                    | 0.50        | 1                    | 0.50                | -1                   | 0.50                   | -1                      |
| 3/29/2016                    | 0.50              | -1                   | 0.50            | -1                   | 0.50            | 1                    | 0.50                 | 1                     | 0.80        | 3                    | 0.50        | 1                    | 0.50                | -1                   | 0.50                   | -1                      |
| 3/30/2017                    | 0.50              | -1                   | 0.50            | -1                   | 0.50            | 1                    | 0.50                 | 1                     | 0.50        | 0                    | 0.50        | 1                    | 0.50                | -1                   | 0.50                   | -1                      |
| 9/27/2017                    | 0.50              | -1                   | 0.50            | -1                   | 0.50            | 1                    | 0.50                 | 1                     | 0.50        | 0                    | 0.50        | 1                    | 0.50                | -1                   | 0.50                   | -1                      |
| 4/2/2018                     | 0.50              | -1                   | 0.50            | -1                   | 0.50            | 1                    | 0.50                 | 1                     | 0.50        | 0                    | 0.50        | 1                    | 0.50                | -1                   | 0.50                   | -1                      |
| 9/20/2018                    | 0.50              | -1                   | 0.50            | -1                   | 0.50            | 1                    | 0.50                 | 1                     | 0.50        | 0                    | 0.50        | 1                    | 0.50                | -1                   | 0.50                   | -1                      |
| <b>S</b>                     |                   | -7                   |                 | -7                   |                 | 7                    |                      | 7                     |             | 5                    |             | 7                    |                     | -7                   |                        | -7                      |
| <b>count (n)</b>             |                   | 8                    |                 | 8                    |                 | 8                    |                      | 8                     |             | 8                    |             | 8                    |                     | 8                    |                        | 8                       |
| <b>g</b>                     |                   | 1                    |                 | 1                    |                 | 1                    |                      | 1                     |             | 1                    |             | 1                    |                     | 1                    |                        | 1                       |
| <b>t<sub>1</sub></b>         |                   | 7                    |                 | 7                    |                 | 7                    |                      | 7                     |             | 6                    |             | 7                    |                     | 7                    |                        | 7                       |
| <b>t<sub>2</sub></b>         |                   | 0                    |                 | 0                    |                 | 0                    |                      | 0                     |             | 0                    |             | 0                    |                     | 0                    |                        | 0                       |
| <b>t<sub>3</sub></b>         |                   | 0                    |                 | 0                    |                 | 0                    |                      | 0                     |             | 0                    |             | 0                    |                     | 0                    |                        | 0                       |
| <b>VAR(S) :</b>              |                   | 21.00                |                 | 21.00                |                 | 21.00                |                      | 21.00                 |             | 37.00                |             | 21.00                |                     | 21.00                |                        | 21.00                   |
| <b>Z</b>                     |                   | 1.31                 |                 | 1.31                 |                 | 1.31                 |                      | 1.31                  |             | 0.66                 |             | 1.31                 |                     | 1.31                 |                        | 1.31                    |
| <b>a/2(normal dist.)</b>     |                   | 1.96                 |                 | 1.96                 |                 | 1.96                 |                      | 1.96                  |             | 1.96                 |             | 1.96                 |                     | 1.96                 |                        | 1.96                    |
| <b>Null hypothesis</b>       |                   | Accept               |                 | Accept               |                 | Accept               |                      | Accept                |             | Accept               |             | Accept               |                     | Accept               |                        | Accept                  |
| <b>Trend Analysis Result</b> |                   | Trend does not exist |                 | Trend does not exist |                 | Trend does not exist |                      | Trend does not exist  |             | Trend does not exist |             | Trend does not exist |                     | Trend does not exist |                        | Trend does not exist    |
| <b>Slope of Data</b>         |                   | Decreasing           |                 | Decreasing           |                 | Increasing           |                      | Increasing            |             | Increasing           |             | Increasing           |                     | Decreasing           |                        | Decreasing              |



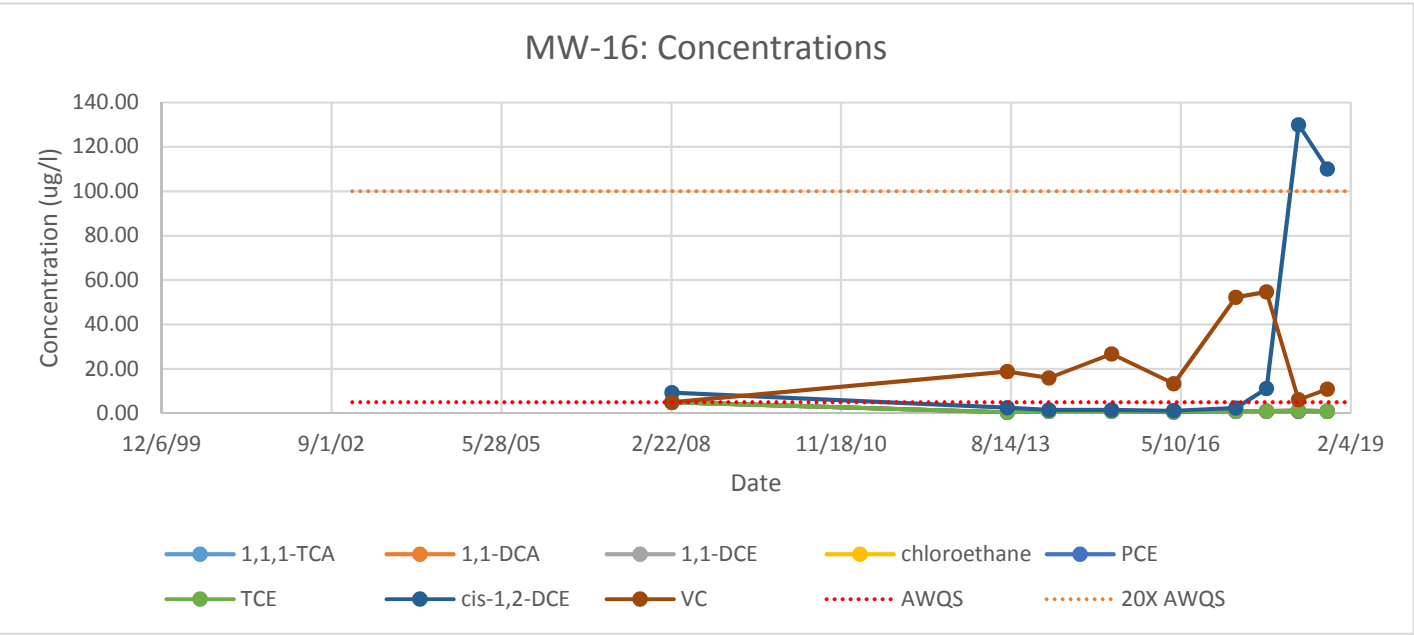


|             | 2/27/2008 | 7/24/2013 | 3/26/2014 | 3/30/2015 | 3/29/2016 | 3/30/2017 | 9/27/2017 | 4/2/2018 | 9/20/2018 |
|-------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|----------|-----------|
| 1,1,1-TCA   | 5 UJ      | 0.5 U     | 1.00 U    | 1.00 U    | 1 U       | 1 U       | 1 U       | 1 U      | 1 U       |
| 1,1-DCA     | 5 UJ      | 0.5 U     | 1.00 U    | 1.00 U    | 0.52 J    | 1 U       | 1 U       | 1 U      | 1 U       |
| 1,1-DCE     |           | 0.5 U     | 1.00 U    | 1.00 U    | 1 U       | 1 U       | 1 U       | 1.4      | 1 U       |
| chlorethane | 5 UJ      | 0.5 U     | 1.00 U    | 1.00 U    | 1 U       | 1 U       | 1 U       | 1 U      | 1 U       |
| PCE         | 5 UJ      | 0.5 U     | 1.00 U    | 1.00 U    | 0.67 J    | 1 U       | 1 U       | 1 U      | 1 U       |
| TCE         | 5 UJ      | 0.5 U     | 1.00 U    | 1.00 U    | 1 U       | 1 U       | 1 U       | 1.3      | 1 U       |
| cis-1,2-DCE | 9.4 J     | 2.5       | 1.5       | 1.5       | 1.2       | 2.4       | 11.2      | 130 D    | 110       |
| VC          | 5 UJ      | 18.9      | 15.9      | 26.8      | 13.3      | 52.3      | 54.7      | 6.2      | 10.9      |

REMOVED QUALIFIERS SO NON-DETECTS ARE NOW DETECTS

|             | 2/27/2008 | 7/24/2013 | 3/26/2014 | 3/30/2015 | 3/29/2016 | 3/30/2017 | 9/27/2017 | 4/2/2018 | 9/20/2018 |
|-------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|----------|-----------|
| 1,1,1-TCA   | 5         | 0.5       | 1         | 1         | 1         | 1         | 1         | 1        | 1         |
| 1,1-DCA     | 5         | 0.5       | 1         | 1         | 0.52      | 1         | 1         | 1        | 1         |
| 1,1-DCA     |           | 0.5       | 1         | 1         | 1         | 1         | 1         | 1.4      | 1         |
| chlorethane | 5         | 0.5       | 1         | 1         | 1         | 1         | 1         | 1        | 1         |
| PCE         | 5         | 0.5       | 1         | 1         | 0.67      | 1         | 1         | 1        | 1         |
| TCE         | 5         | 0.5       | 1         | 1         | 1         | 1         | 1         | 1.3      | 1         |
| cis-1,2-DCE | 9.4       | 2.5       | 1.5       | 1.5       | 1.2       | 2.4       | 11.2      | 130      | 110       |
| VC          | 5         | 18.9      | 15.9      | 26.8      | 13.3      | 52.3      | 54.7      | 6.2      | 10.9      |

|           | 1,1,1-TCA | 1,1-DCA | 1,1-DCE | chloroetha | PCE  | TCE  | cis-1,2-DCE | VC    |
|-----------|-----------|---------|---------|------------|------|------|-------------|-------|
| 2/27/2008 | 5.00      | 5.00    | 5.00    | 5.00       | 5.00 | 5.00 | 9.40        | 5.00  |
| 7/24/2013 | 0.50      | 0.50    | 0.50    | 0.50       | 0.50 | 0.50 | 2.50        | 18.90 |
| 3/26/2014 | 1.00      | 1.00    | 1.00    | 1.00       | 1.00 | 1.00 | 1.50        | 15.90 |
| 3/30/2015 | 1.00      | 1.00    | 1.00    | 1.00       | 1.00 | 1.00 | 1.50        | 26.80 |
| 3/29/2016 | 1.00      | 0.52    | 0.52    | 1.00       | 0.67 | 1.00 | 1.20        | 13.30 |
| 3/30/2017 | 1         | 1       | 1       | 1          | 1    | 1    | 2.4         | 52.3  |
| 9/27/2017 | 1         | 1       | 1       | 1          | 1    | 1    | 11.2        | 54.7  |
| 4/2/2018  | 1         | 1       | 1.4     | 1          | 1    | 1.3  | 130         | 6.2   |
| 9/20/2018 | 1         | 1       | 1       | 1          | 1    | 1    | 110         | 10.9  |



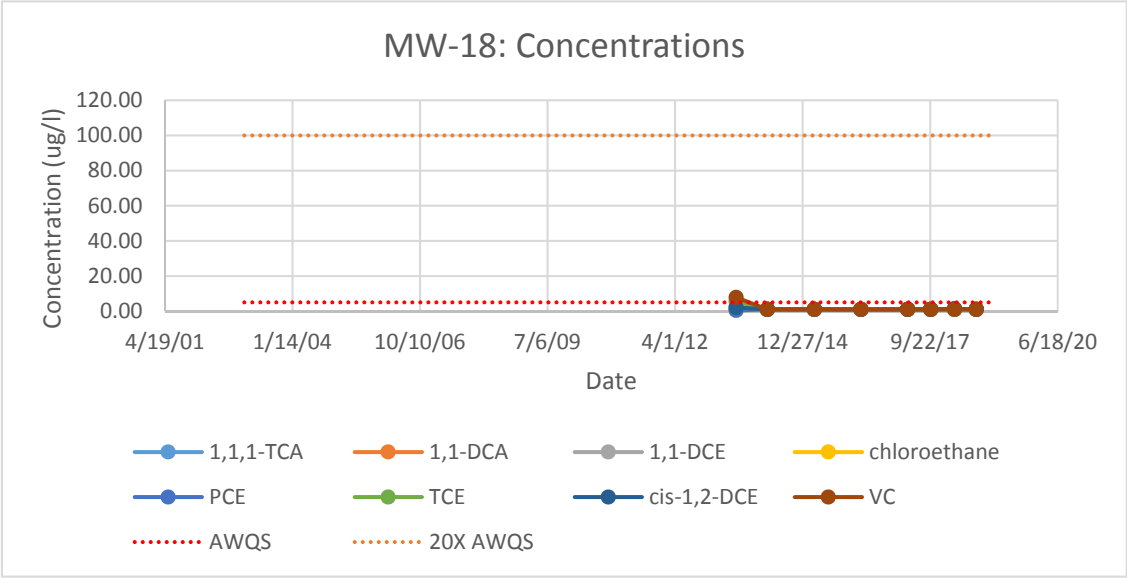


|             | 7/24/2013 | 3/26/2014 | 3/30/2015 | 3/29/2016 | 3/30/2017 | 9/27/2017 | 4/2/2018 | 9/20/2018 |
|-------------|-----------|-----------|-----------|-----------|-----------|-----------|----------|-----------|
| 1,1,1-TCA   | 0.5 U     | 1.00 U    | 1.00 U    | 1 U       | 1.00 U    | 1 U       | 1 U      | 1 U       |
| 1,1-DCA     | 2.4       | 1.00 U    | 1.00 U    | 1 U       | 1.00 U    | 1 U       | 1 U      | 1 U       |
| 1,1-DCE     | 0.5 U     | 1.00 U    | 1.00 U    | 1 U       | 1.00 U    | 1 U       | 1 U      | 1 U       |
| chlorethane | 0.5 U     | 1.00 U    | 1.00 U    | 1 U       | 1.00 U    | 1 U       | 1 U      | 1 U       |
| PCE         | 0.5 U     | 1.00 U    | 1.00 U    | 0.9 J     | 1.00 U    | 1 U       | 1 U      | 1 U       |
| TCE         | 5.4       | 1.00 U    | 1.00 U    | 1 U       | 1.00 U    | 1 U       | 1 U      | 1 U       |
| cis-1,2-DCE | 2.1       | 1.00 U    | 1.00 U    | 1 U       | 1.00 U    | 1 U       | 1.4      | 1 U       |
| VC          | 7.8       | 1.00 U    | 1.00 U    | 1 U       | 1.00 U    | 1 U       | 1 U      | 1 U       |

REMOVED QUALIFIERS SO NON-DETECTS ARE NOW DETECTS

|             | 7/24/2013 | 3/26/2014 | 3/30/2015 | 3/29/2016 | 3/30/2017 | 9/27/2017 | 4/2/2018 | 9/20/2018 |
|-------------|-----------|-----------|-----------|-----------|-----------|-----------|----------|-----------|
| 1,1,1-TCA   | 0.5       | 1         | 1         | 1         | 1         | 1         | 1        | 1         |
| 1,1-DCA     | 2.4       | 1         | 1         | 1         | 1         | 1         | 1        | 1         |
| 1,1-Dce     | 0.5       | 1         | 1         | 1         | 1         | 1         | 1        | 1         |
| chlorethane | 0.5       | 1         | 1         | 1         | 1         | 1         | 1        | 1         |
| PCE         | 0.5       | 1         | 1         | 0.9       | 1         | 1         | 1        | 1         |
| TCE         | 5.4       | 1         | 1         | 1         | 1         | 1         | 1        | 1         |
| cis-1,2-DCE | 2.1       | 1         | 1         | 1         | 1         | 1         | 1.4      | 1         |
| VC          | 7.8       | 1         | 1         | 1         | 1         | 1         | 1        | 1         |

|           | 1,1,1-TCA | 1,1-DCA | 1,1-DCE | chloroetha | PCE  | TCE  | cis-1,2-DCE | VC   |
|-----------|-----------|---------|---------|------------|------|------|-------------|------|
| 7/24/2013 | 0.50      | 2.40    | 0.50    | 0.50       | 0.50 | 5.40 | 2.10        | 7.80 |
| 3/26/2014 | 1.00      | 1.00    | 1.00    | 1.00       | 1.00 | 1.00 | 1.00        | 1.00 |
| 3/30/2015 | 1.00      | 1.00    | 1.00    | 1.00       | 1.00 | 1.00 | 1.00        | 1.00 |
| 3/29/2016 | 1.00      | 1.00    | 1.00    | 1.00       | 0.90 | 1.00 | 1.00        | 1.00 |
| 3/30/2017 | 1.00      | 1.00    | 1.00    | 1.00       | 1.00 | 1.00 | 1.00        | 1.00 |
| 9/27/2017 | 1.00      | 1.00    | 1.00    | 1.00       | 1.00 | 1.00 | 1.00        | 1.00 |
| 4/2/2018  | 1.00      | 1.00    | 1.00    | 1.00       | 1.00 | 1.00 | 1.40        | 1.00 |
| 9/20/2018 | 1.00      | 1.00    | 1.00    | 1.00       | 1.00 | 1.00 | 1.00        | 1.00 |



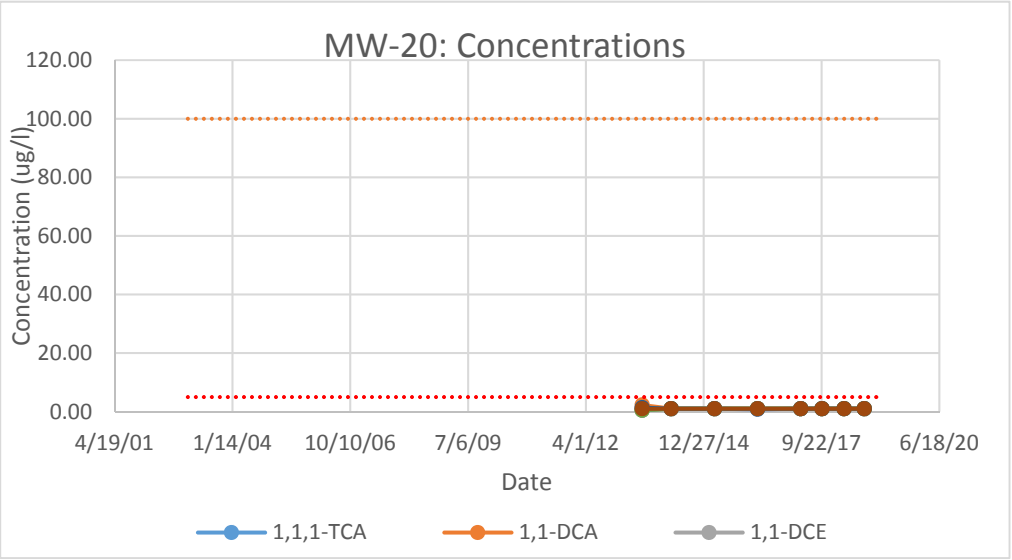


|             | 7/24/2013 | 3/26/2014 | 3/30/2015 | 3/29/2016 | 3/30/2017 | 9/27/2017 | 4/2/2018 | 9/20/2018 |
|-------------|-----------|-----------|-----------|-----------|-----------|-----------|----------|-----------|
| 1,1,1-TCA   | 1.2       | 1.00 U    | 1.00 U    | 1 U       | 1.00 U    | 1.00 U    | 1.00 U   | 1.00 U    |
| 1,1-DCA     | 2.3       | 1.00 U    | 1.00 U    | 1 U       | 1.00 U    | 1.00 U    | 1.00 U   | 1.00 U    |
| 1,1-DCE     | 0.5 U     | 1.00 U    | 1.00 U    | 1.00 U    | 1.00 U    | 1.00 U    | 1.00 U   | 1.00 U    |
| chlorethane | 0.5 U     | 1.00 U    | 1.00 U    | 1 U       | 1.00 U    | 1.00 U    | 1.00 U   | 1.00 U    |
| PCE         | 0.5 U     | 1.00 U    | 1.00 U    | 0.8 J     | 1.00 U    | 1.00 U    | 1.00 U   | 1.00 U    |
| TCE         | 0.5 U     | 1.00 U    | 1.00 U    | 1 U       | 1.00 U    | 1.00 U    | 1.00 U   | 1.00 U    |
| cis-1,2-DCE | 1.4       | 1.00 U    | 1.00 U    | 1 U       | 1.00 U    | 1.00 U    | 1.00 U   | 1.00 U    |
| VC          | 0.99 J    | 1.00 U    | 1.00 U    | 1 U       | 1.00 U    | 1.00 U    | 1.00 U   | 1.00 U    |

REMOVED QUALIFIERS SO NON-DETECTS ARE NOW DETECTS

|             | 7/24/2013 | 3/26/2014 | 3/30/2015 | 3/29/2016 | 3/30/2017 | 9/27/2017 | 4/2/2018 | 9/20/2018 |
|-------------|-----------|-----------|-----------|-----------|-----------|-----------|----------|-----------|
| 1,1,1-TCA   | 1.2       | 1         | 1         | 1         | 1         | 1         | 1        | 1         |
| 1,1-DCA     | 2.3       | 1         | 1         | 1         | 1         | 1         | 1        | 1         |
| 1,1-DCE     | 0.5       | 1         | 1         | 1         | 1         | 1         | 1        | 1         |
| chlorethane | 0.5       | 1         | 1         | 1         | 1         | 1         | 1        | 1         |
| PCE         | 0.5       | 1         | 1         | 0.8       | 1         | 1         | 1        | 1         |
| TCE         | 0.5       | 1         | 1         | 1         | 1         | 1         | 1        | 1         |
| cis-1,2-DCE | 1.4       | 1         | 1         | 1         | 1         | 1         | 1        | 1         |
| VC          | 0.99      | 1         | 1         | 1         | 1         | 1         | 1        | 1         |

|           | 1,1,1-TCA | 1,1-DCA | 1,1-DCE | chlorethan | PCE  | TCE  | cis-1,2-DCE | VC   |
|-----------|-----------|---------|---------|------------|------|------|-------------|------|
| 7/24/2013 | 1.20      | 2.30    | 0.50    | 0.50       | 0.50 | 0.50 | 1.40        | 0.99 |
| 3/26/2014 | 1.00      | 1.00    | 1.00    | 1.00       | 1.00 | 1.00 | 1.00        | 1.00 |
| 3/30/2015 | 1.00      | 1.00    | 1.00    | 1.00       | 1.00 | 1.00 | 1.00        | 1.00 |
| 3/29/2016 | 1.00      | 1.00    | 1.00    | 1.00       | 0.80 | 1.00 | 1.00        | 1.00 |
| 3/30/2017 | 1.00      | 1.00    | 1.00    | 1.00       | 1.00 | 1.00 | 1.00        | 1.00 |
| 9/27/2017 | 1.00      | 1.00    | 1.00    | 1.00       | 1.00 | 1.00 | 1.00        | 1.00 |
| 4/2/2018  | 1.00      | 1.00    | 1.00    | 1.00       | 1.00 | 1.00 | 1.00        | 1.00 |
| 9/20/2018 | 1.00      | 1.00    | 1.00    | 1.00       | 1.00 | 1.00 | 1.00        | 1.00 |





## **Appendix E – SSDS System Testing Results – March 2019, September 2019 and March 2020**

**Table 2 SSDS System Testing Results**  
**Former Standard Motor Products**  
**37-18 Northern Boulevard, Long Island City, NY**

|                                                        |        |                                         |      |                   |
|--------------------------------------------------------|--------|-----------------------------------------|------|-------------------|
| Date:3/15/2019                                         |        | Field Personnel: Philip Bosco, Zhan Shu |      |                   |
|                                                        |        | Reading (in. WC)                        | Time | PID Reading (ppb) |
| Influent Header Vac (in. WC)                           |        |                                         |      |                   |
| Blower Influent Vac (in. WC)                           |        | 23                                      | 830  |                   |
| Blower Effluent Pressure (in. WC)                      |        |                                         |      |                   |
| Blower Effluent Temperature (°F)                       |        |                                         |      |                   |
| Total Flowrate (cfm)                                   |        | 886                                     | 840  |                   |
|                                                        |        |                                         |      |                   |
| Sub-Slab Monitoring<br>Point Vacuum (in.<br>WC)        | SB01   | 0.19                                    | 932  |                   |
|                                                        | SB02   | N/A*                                    |      |                   |
|                                                        | SB03   | 0.075                                   | 1405 |                   |
|                                                        | SB04   | 1                                       | 1515 |                   |
|                                                        | SB05   | 0.165                                   | 1410 |                   |
|                                                        | SB06   | 1.2                                     | 1506 |                   |
|                                                        | SB07   | N/A*                                    |      |                   |
|                                                        | SB09   | 0.05                                    | 845  |                   |
|                                                        | SB10   | 0.065                                   | 900  |                   |
|                                                        | SB12   | 0.06                                    | 1525 |                   |
|                                                        | SB13   | 0.27                                    | 1530 |                   |
|                                                        | SB15   | 0.015                                   | 915  |                   |
|                                                        | SB22   | 0.29                                    | 1600 |                   |
|                                                        | SB24   | 0.13                                    | 930  |                   |
|                                                        | SB25   | 0.005                                   | 1550 |                   |
|                                                        |        |                                         |      |                   |
| Extraction Sump<br>Vacuum Monitoring<br>Guage (in. WC) | ES01   | 11.5                                    | 1420 | 135               |
|                                                        | ES02   | 11                                      | 1600 | 0                 |
|                                                        | ES03   | 9.5                                     | 1522 | 0                 |
|                                                        | ES04   | 9.5                                     | 1520 | 0                 |
|                                                        | ES05   | 9.5                                     | 1558 | 0                 |
|                                                        | ES06   | 9.5                                     | 1544 | 0                 |
|                                                        | ES07   | 10                                      | 913  | 0                 |
|                                                        | ES08   | 7                                       | 954  | 16.23             |
|                                                        | ES09   | 13                                      | N/A* | 0                 |
|                                                        |        |                                         |      |                   |
| SVE Vadose Zone<br>Vacuum Monitoring<br>Point (in. WC) | SV-1   | 0                                       | 1319 | 518               |
|                                                        | SV-2   | 0.65                                    | 1322 | 0                 |
|                                                        | SV-3** | 0.32                                    | 1326 | 0                 |
|                                                        | SV-4   | 0.38                                    | 1330 | 0                 |
|                                                        | SV-5   | 0.12                                    | 1145 | 720               |
|                                                        | SV-6   | 0                                       | 1336 | 0                 |

**Notes:**

PID Readings measured with ppbRae

Sub-slab and SVE vadose zone vacuum readings measured with Magnehelic manometers.

Extraction sump vacuum readings recorded from fixed gauge on extraction piping.

\* - No measurement taken; sampling point either damaged or unaccessible.

\*\* - SVE Vadose Zone Vacuum Monitoring Point SV-3 was replaced on 3/3/2014

**Table 2 SSDS System Testing Results**  
**Former Standard Motor Products**  
**37-18 Northern Boulevard, Long Island City, NY**

|                                                        |        |                                         |       |                   |
|--------------------------------------------------------|--------|-----------------------------------------|-------|-------------------|
| Date: 9/12/2019                                        |        | Field Personnel: Philip Bosco, Zhan Shu |       |                   |
|                                                        |        | Reading (in. WC)                        | Time  | PID Reading (ppb) |
| Influent Header Vac (in. WC)                           |        | 8.6                                     | 10:13 | 78                |
| Blower Influent Vac (in. WC)                           |        | 10                                      | 10:13 | 200               |
| Blower Effluent Pressure (in. WC)                      |        | 3                                       | 11:13 | 100               |
| Blower Effluent Temperature (°F)                       |        | 93.9                                    | 12:13 | -                 |
| Total Flowrate (cfm)                                   |        | 870                                     | 13:13 | -                 |
|                                                        |        |                                         |       |                   |
| Sub-Slab Monitoring<br>Point Vacuum (in.<br>WC)        | SB01   | 0.29                                    | 9:41  |                   |
|                                                        | SB02   | N/A*                                    | N/A*  |                   |
|                                                        | SB03   | 0.07                                    | 10:13 |                   |
|                                                        | SB04   | 1.6                                     | 9:51  |                   |
|                                                        | SB05   | 0.3                                     | 10:18 |                   |
|                                                        | SB06   | 1.45                                    | 9:58  |                   |
|                                                        | SB07   | N/A*                                    | N/A*  |                   |
|                                                        | SB09   | N/A*                                    | 16:15 |                   |
|                                                        | SB10   | 0.1                                     | 16:09 |                   |
|                                                        | SB12   | N/A*                                    | 10:21 |                   |
|                                                        | SB13   | 0.145                                   | 10:29 |                   |
|                                                        | SB15   | N/A*                                    | 10:50 |                   |
|                                                        | SB22   | 0.44                                    | 10:24 |                   |
|                                                        | SB24   | N/A*                                    | N/A*  |                   |
|                                                        | SB25   | 0.01                                    | 9:36  |                   |
|                                                        |        |                                         |       |                   |
| Extraction Sump<br>Vacuum Monitoring<br>Gauge (in. WC) | ES01   | 7.8                                     | 10:05 | 374               |
|                                                        | ES02   | 7.8                                     | 10:20 | 47                |
|                                                        | ES03   | 7.4                                     | 10:22 | 0.0               |
|                                                        | ES04   | 7.4                                     | 9:50  | 0.0               |
|                                                        | ES05   | 7.2                                     | 10:40 | 301               |
|                                                        | ES06   | 7.8                                     | 9:45  | 0.0               |
|                                                        | ES07   | 7.2                                     | 16:17 | 0.6               |
|                                                        | ES08   | 7.0                                     | 9:06  | 0.0               |
|                                                        | ES09   | 7.6                                     | 9:20  | 0.0               |
|                                                        |        |                                         |       |                   |
| SVE Vadose Zone<br>Vacuum Monitoring<br>Point (in. WC) | SV-1   | N/A*                                    | 11:55 | 6224              |
|                                                        | SV-2   | 3.0 - 5.0                               | 11:50 | 0.0               |
|                                                        | SV-3** | N/A*                                    | N/A*  | N/A*              |
|                                                        | SV-4   | 0.9                                     | 14:15 | 0.0               |
|                                                        | SV-5   | 0.14                                    | 11:22 | 5734              |
|                                                        | SV-6   | N/A*                                    | 11:45 | N/A*              |

**Notes:**

PID Readings measured with ppbRae

Sub-slab and SVE vadose zone vacuum readings measured with Magnehelic manometers.

Extraction sump vacuum readings recorded from fixed gauge on extraction piping.

\* - No measurement taken; sampling point either damaged or unaccessible.

\*\* - SVE Vadose Zone Vacuum Monitoring Point SV-3 was replaced on 3/3/2014

**TABLE 2**  
 UPDATED SSDS SYSTEM TESTING RESULTS  
 Former Standard Motor Products  
 37-18 Northern Boulevard, Long Island City, NY

12.0076761.10  
 5/14/2020  
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|                                                        |                   |                                                 |       |                   |
|--------------------------------------------------------|-------------------|-------------------------------------------------|-------|-------------------|
| Date: 3/16/2020; 5/12/2020                             |                   | Field Personnel: Paul Benya, Nicolette Albanese |       |                   |
|                                                        |                   | Reading (in. WC)                                | Time  | PID Reading (ppb) |
| Influent Header Vac (in. WC)                           |                   | -8.4                                            | 8:50  | 0                 |
| Blower Influent Vac (in. WC)                           |                   | -24                                             | 8:52  | 23                |
| Blower Effluent Pressure (in. WC)                      |                   | 3                                               | 8:53  | 57                |
| Blower Effluent Temperature (°F)                       |                   | 74.7                                            | 8:59  | -                 |
| Total Flowrate (cfm)                                   |                   | 946.5                                           | 9:00  | -                 |
|                                                        |                   |                                                 |       |                   |
| Sub-Slab Monitoring<br>Point Vacuum (in.<br>WC)        | SB01              | -0.33                                           | 14:30 |                   |
|                                                        | SB02              | N/A**                                           | N/A** |                   |
|                                                        | SB03              | -0.12                                           | 15:23 |                   |
|                                                        | SB04              | -2.0                                            | 15:00 |                   |
|                                                        | SB05              | -0.4                                            | 12:35 |                   |
|                                                        | SB06 <sup>2</sup> | -1.5                                            | 14:44 |                   |
|                                                        | SB07              | N/A**                                           | N/A** |                   |
|                                                        | SB09 <sup>2</sup> | -0.06                                           | 13:32 |                   |
|                                                        | SB10 <sup>2</sup> | -0.06                                           | 13:41 |                   |
|                                                        | SB12              | -0.90                                           | 15:15 |                   |
|                                                        | SB13              | -0.20                                           | 15:11 |                   |
|                                                        | SB15 <sup>2</sup> | -0.025                                          | 13:57 |                   |
|                                                        | SB22              | -0.30                                           | 15:04 |                   |
|                                                        | SB24 <sup>2</sup> | -0.10                                           | 14:50 |                   |
|                                                        | SB25              | -0.015                                          | 14:49 |                   |
|                                                        |                   |                                                 |       |                   |
| Extraction Sump<br>Vacuum Monitoring<br>Guage (in. WC) | ES01              | -8.2                                            | 15:20 | 273               |
|                                                        | ES02              | -9.4                                            | 15:06 | 478               |
|                                                        | ES03              | -7.9                                            | 15:08 | 524               |
|                                                        | ES04              | -8.2                                            | 14:58 | 561               |
|                                                        | ES05              | -8.0                                            | 14:54 | 357               |
|                                                        | ES06              | -7.6                                            | 14:36 | 18                |
|                                                        | ES07              | -8.4                                            | 15:43 | 42                |
|                                                        | ES08 <sup>2</sup> | -8.5                                            | 14:56 | 12                |
|                                                        | ES09 <sup>2</sup> | -10.0                                           | 14:37 | 19                |
|                                                        |                   |                                                 |       |                   |
| SVE Vadose Zone<br>Vacuum Monitoring<br>Point (in. WC) | SV-1 <sup>2</sup> | 0                                               | 14:16 | 1704              |
|                                                        | SV-2              | -2.9                                            | 14:22 | 0.0               |
|                                                        | SV-3 <sup>2</sup> | -0.41                                           | 14:10 | 38                |
|                                                        | SV-4              | -0.95                                           | 13:39 | 220               |
|                                                        | SV-5 <sup>2</sup> | -0.22                                           | 14:21 | 643               |
|                                                        | SV-6              | N/A*                                            | N/A*  | N/A*              |

**Notes:**

PID Readings measured with ppbRae

Sub-slab and SVE vadose zone vacuum readings measured with Magnehelic manometers.

Extraction sump vacuum readings recorded from fixed gauge on extraction piping.

\* - No measurement taken; sampling point inaccessible due to staged equipment.

\*\* - No measurement taken; sampling point could not be located, believed to be damaged.

<sup>1</sup> - Unless noted by Footnote #2, measurements collected on March 16, 2020 by Paul Benya and Nicolette Albanese

<sup>2</sup> - Measurement collected on May 13, 2020 by Paul Benya, based on comments received from NYSDEC on May 11, 2020



GZA GeoEnvironmental, Inc.