# PERIODIC REVIEW REPORT

# 353 MCKIBBIN STREET
# BROOKLYN, NEW YORK
# NYSDEC BCP SITE NO. C224102

*Submitted To*
New York State Department of Environmental Conservation
41-40 21st Street
Long Island City, New York 11101

*Prepared For:*
Bogart Plaza, LLC
589 Johnson Avenue
Brooklyn, NY 11237

*Prepared By:*
John A. Rhodes, P.E.
5 Bedford Place
Morristown, NJ 07960
(646) 465-2494

**May 31, 2019**

**CERTIFICATION**

For each institutional or engineering control identified for the site, I John A. Rhodes, P.E., certify that all of the following statements are true:

(a) The institutional control and/or engineering control employed at this site is unchanged from the date the control was put in place, or last approved by DER;

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

(c) Nothing has occurred that would constitute a violation or failure to comply with any Site Management Plan for this control;

(d) Access to the site will continue to be provided to DER to evaluate the remedy, including access to evaluate the continued maintenance of this control; and

(e) If a financial assurance mechanism is required under the oversight document for the site, the mechanism remains valid and sufficient for their intended purpose under the document.

| 84423 | 5/31/2019 | |
|---|---|---|
| NYS Professional License # | Date | Signature |

## CONTENTS



### FIGURES



### TABLES (Appendix B unles Otherwise Noted)



### APPENDICES

## 1.0 EXECUTIVE SUMMARY

John Rhodes P.E. prepared this Periodic Review Report and IC/EC Certification for the May 2018 through April 2019 certification year on behalf of Bogart Plaza, LLC, (Bogart Plaza), an affiliated company of Adam's European Contracting Inc., and in accordance with the approved December 2011 Site Management Plan (SMP) as modified by the Corrective Measures Work Plan (CMWP) dated December 15, 2014; the New York State Department of Environmental Conservation (NYSDEC) CMWP approval dated December 19, 2014; the NYSDEC Site Management and PRR Response Letter dated June 1, 2015; the Proposal to Evaluate Modifications to AS/SVE System dated November 15, 2016; the NYSDEC approval letter dated January 25, 2017; the McKibbin Street Briefing, Evaluation of AS/SVE Shutdown dated February 7, 2018, phone conferences with the NYSDEC and NYSDOH on May 16, 2018; and a meeting with the NYSDEC and NYSDOH on August 1, 2018. A periodic review and certification of all institutional and engineering controls (IC/EC) and monitoring results is a requirement for fulfillment of the remedial action at 353 McKibbin Street (Tax Block 3083, Lots 16 and 30, the "Site") under the New York State (NYS) Brownfield Cleanup Program (BCP), administered by the NYSDEC. Bogart Plaza currently owns the Site.

*Remedy Performance, Effectiveness, and Protectiveness*

The performance, effectiveness and protectiveness of the remedy is confirmed to be acceptable. In summary:

- Groundwater and vapor sampling and testing indicate that the excavation of soil/fill exceeding 6 NYCRR Part 375 Commercial Use SCOs was effective.
- The soil cover system is undamaged and continues to perform as intended.
- The soil vapor extraction (SVE) system was turned off for a period of testing. With a rebound in vapors, the SVE has been turned back on. The SVE is operational, performing adequately, and is effective and protective. With the approval of the NYSDEC, the air sparging (AS) system remains off.
- The Environmental Easement to restrict land use remains in place and continues to perform as intended.
- Monitoring, operation and maintenance of the IC/ECs, and reporting are performing adequately and are effective and protective.

*Compliance*

All components of the IC/EC and Monitoring Plans were in substantial compliance with the SMP in this reporting period.

*Recommendations/Proposals*

The paving of the property discussed with the NYSDEC in 2018 was delayed while the owner entertained a proposal for the purchase of the property. With the withdrawal of this proposal, the owner is again preparing to pave the property. A site engineer has been engaged to design the paving and drainage systems and a discharge permit from the NYCDEP is being sought. Once received, a proposal for this

repaving and improve drainage including modifications/upgrades to the monitoring well network and SVE system will be submitted to the NYSDEC for approval.

## 2.0 SITE OVERVIEW

The Site occupies a 43,495-square-foot (SF) parcel in the Bushwick neighborhood of Brooklyn, New York. The Site is comprised of Tax Block 3083, Lots 16 and 30 and is bordered by McKibbin Street to the south, Bogart Street to the east, Boerum Street to the north, and a cement mixing facility (United Transit Mix) to the west (see Figure 1). A city park is located south of the Site opposite McKibbin Street, and commercial and light manufacturing facilities are located farther north and east of the Site opposite the bordering streets. Bogart Plaza, LLC (Bogart Plaza) currently owns the Site. The property is graded and covered with imported backfill meeting 6 NYCRR Part 375 Commercial Use Soil Cleanup Objectives (SCO). Adam's European Contracting Inc., an affiliated company of Bogart Plaza, operates the Site as a storage yard for construction materials.

A 2007 Remedial Investigation (RI) identified elevated concentrations of volatile organic compounds (VOCs), including tetrachloroethene (PCE), trichloroethene (TCE), and non-chlorinated petroleum compounds in soil, soil vapor and groundwater. Remediation under the BCP was conducted between June 2010 and June 2011. Remediation included removal of soil exceeding 6 NYCRR Part 375 Commercial Use Soil Cleanup Objectives (SCO) from four hotspot locations, construction of a soil cover system consisting of 18 inches of imported fill, and installation of an air sparging/soil vapor extraction (AS/SVE) system. The previous Site owner and affiliates received a BCP Certificate of Completion (COC) for cleanup of the Site on December 30, 2011. The COC was transferred to Bogart Plaza on March 14, 2012.

A Site Management Plan ("SMP") required the operation, maintenance and monitoring of the AS/SVE system, groundwater and soil vapor. In the 2012/2013 Periodic Review Report ("PRR"), dated May 13, 2013, the AS/SVE system was reported to be fully operational. A draft PRR dated June, 2014, by Langan Environmental Services reported that the AS/SVE system had failed due to mechanical difficulties by at least February 2014.

In the fall of 2014, a Corrective Measures Work Plan was submitted and approved by the NYSDEC leading to the refurbishing and implementation of the AS/SVE system in late December 2014 (for the SVE portion) and early January 2015 (for the AS portion). The AS/SVE system has been operated in substantial compliance with the SMP since then through the AS system failure in March 2016, and the planned SVE shutdown in March 2017. The SVE was reimplemented in May 2018 and operated through the remainder of the 2018/2019 review period.

Submitted previously were PRRs covering the periods up to April 2015, and annually up to April 2018.

## 3.0 REMEDY PERFORMANCE, EFFECTIVENESS, AND PROTECTIVENESS

The performance, effectiveness and protectiveness of the remedy was evaluated and is summarized as follows:

- **Excavation of soil/fill exceeding 6 NYCRR Part 375 Commercial Use SCOs:** groundwater and vapor sampling and testing continue to indicate that this portion of the remedy was effective.
- **Construction and maintenance of a soil cover system**: the soil cover system is undamaged and continues to perform as intended; however, the increased infiltration from the cover system as designed may be affecting contaminant migration. Additionally, the poor drainage and dirt cover create muddy conditions that can and have damaged monitoring wells and vapor probes.
- **Installation and operation of an air sparging/soil vapor extraction (AS/SVE) system**: the AS/SVE system was returned to an effective operating status in late 2014/early 2015 and performed as originally intended into March 2016. In March 2016 the AS component of the system failed. Evaluation of conditions before and after AS failure demonstrated that the AS portion of the system was no longer needed. With the approval of the NYSDEC, the AS component of the system has remained off. The SVE portion of the AS/SVE system continued to operate until March 8, 2017, when with the NYSDEC approval it was intentionally shut down for the purposes of evaluating potential discontinuation of the system. Due to a rebound in vapor concentrations, the SVE system was returned to service on May 17, 2018.
- **Execution of an Environmental Easement to restrict land use**: this portion of the remedy remains in place and continues to perform as intended.
- **Development and implementation of a SMP**: The SMP included specifications for managing the Institutional and Engineering Controls (IC/ECs), monitoring, operation and maintenance of the IC/ECs, and reporting. Current performance, effectiveness and protectiveness are adequate, as summarized below.

The AS/SVE system was to

- Remediate groundwater contamination,
- Prevent off-site migration of contaminated soil vapor, and,
- To mitigate soil vapor impacts to future on-site buildings (based on construction plans by the former Site owner).

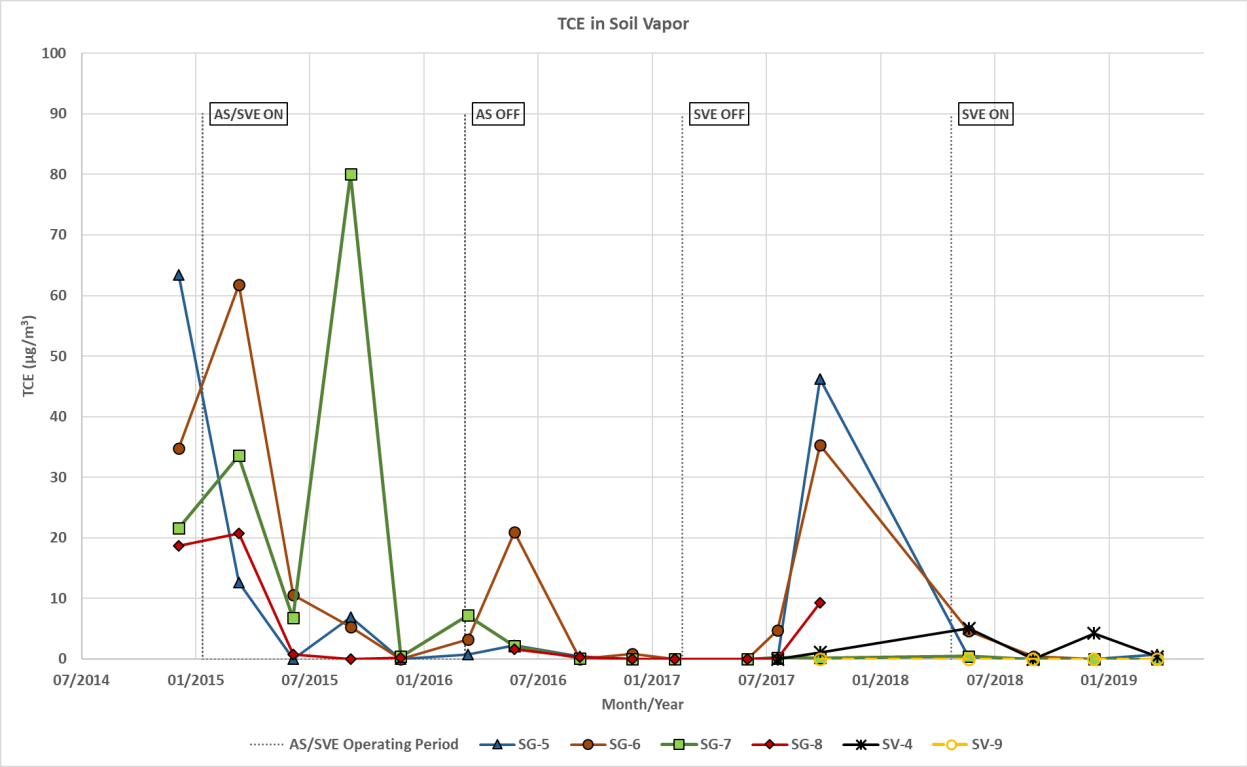



**Figure 1 TCE in Soil Vapor**

The AS/SVE system has met the objective of preventing soil vapor contaminants from leaving the property. Pneumatic testing demonstrated capture of soil vapors throughout the period of operation between December 2014 and the planned shut-down of the SVE in March 2017. Due to the rebound in concentrations; the SVE system was returned to service in May 2018. Since its return to service, the SVE has prevented off-site migration of soil vapors. Figure 1 is a chart of TCE concentrations in soil vapor probes of which SV-4 and SV-9 are located off-Site. Figure 5 is a spider map of soil vapor testing results for the reporting period. Vapor sample and testing results for key compounds are tabulated in Table 2 in Appendix B. Appendix C contains system performance logs in which off-Site influence of the SVE system was periodically checked.

Groundwater flow and contaminant migration is to the north toward Boerum Street. Currently the Site is depressed below the level of the adjacent streets. There is no drainage in the depression, so no storm water run-off. All water falling on the Site infiltrates into the ground creating differential groundwater flow potentials that are resolved in the deeper groundwater zones. The resultant flow is to the north. Figure 7 provides groundwater contours for September 27, 2018 that show the general flow toward the north and the sink in shallow groundwater and related mounding in deep groundwater in the middle of the Site.

The remaining contaminants of concern are TCE and its degradation products. With the cessation of the air sparging the highest concentrations of TCE have shifted toward MW-10D which is a deep well in the vicinity but down gradient of the original TCE hotspot defined in the RI. Figure 6 is a spider map showing the 2018 and 2019 groundwater sampling and testing results for the key remaining contaminants.

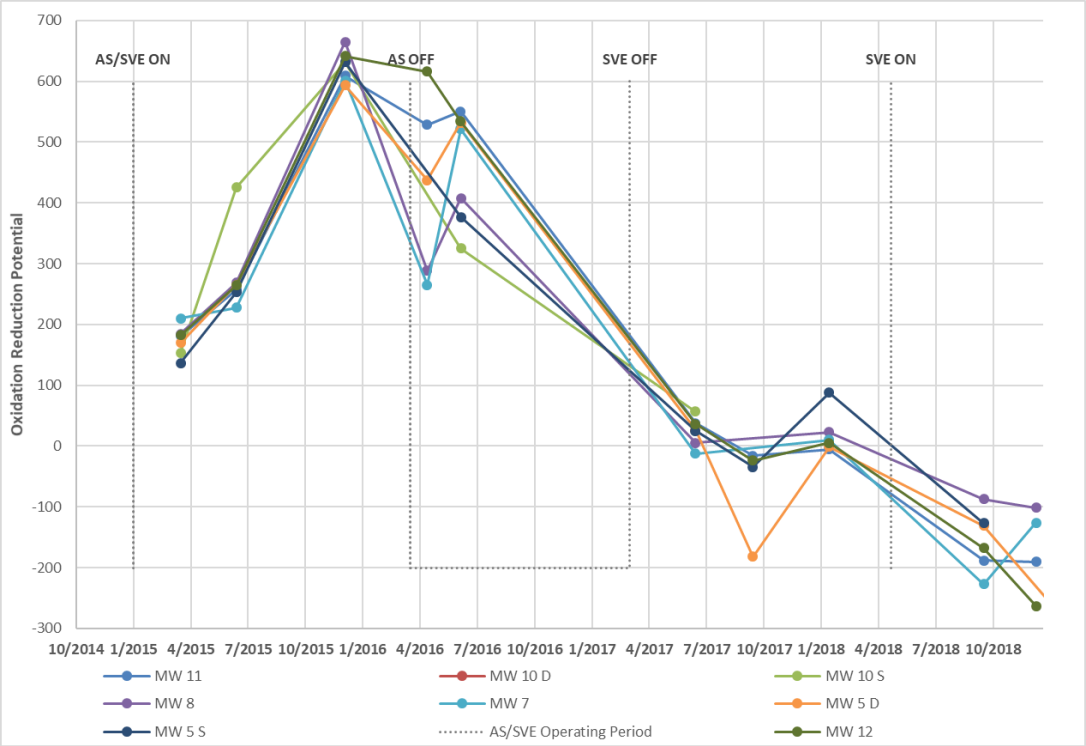



**Figure 2 Oxidation Reduction Potential**

The air sparging system effectively introduce dissolved oxygen into the groundwater which was enough to eliminate or reduce below standards the non-chlorinated contaminants. The non-chlorinated contaminants readily degrade with elevated dissolved oxygen at this site. Figure 2 shows the increase in the oxidation potential (reflecting dissolved oxygen) during the operation of the AS system, and the return to low oxygen potential after the AS system was off. As a result, no non-chlorinated VOCs have been detected during 2017 and 2018 sampling and testing events above Class 2 Groundwater Quality Standards, and no rebound in non-chlorinated contaminants has occurred with the discontinuation of the AS system.

By increasing the dissolved oxygen in the groundwater; however, the AS system also reduced the degradation of chlorinated contaminants by dehalogenation that requires an anaerobic environment at this Site. Figure 6 also shows the increase in cis-DCE, a compound produced by the degradation of TCE, above the concentrations detected during operation of the air sparging system.

<u>Contaminant Migration</u>

The AS system appears to have mobilized the TCE and degradation products in groundwater in the vicinity of MW-11. This is most likely the result of hydrodynamic dispersion that was increased by the bubbling of air through the groundwater and thereby increasing the mixing of the otherwise relatively stagnant groundwater. The other variable affecting groundwater contaminant migration is the topographically depressed nature of the site, its bowl shape that allows the capture and infiltration of nearly 100% of precipitation and snow melt. This infiltration then alters the gradients that drive the flow of contaminated groundwater. With the discontinuation of the AS, only well 10-D consistently contains elevated levels of TCE.

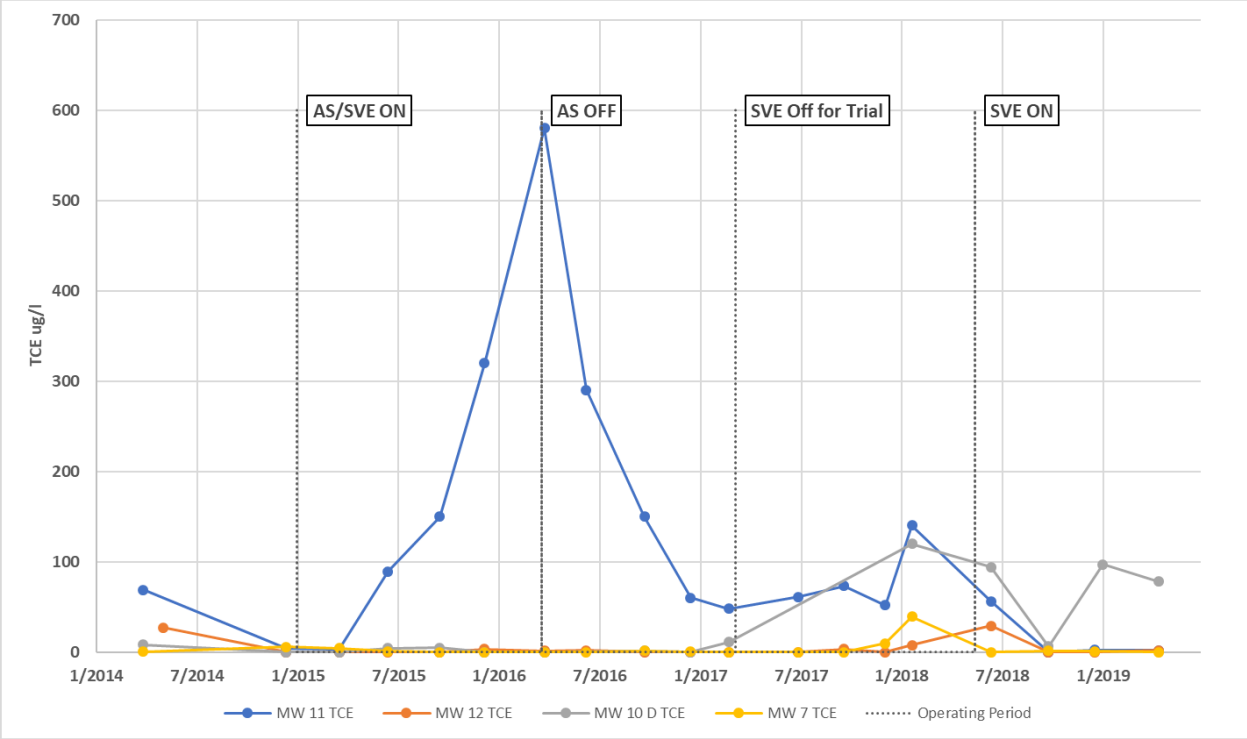



**Figure 3 TCE in Groundwater**

As demonstrated by Figure 3, TCE has decreased substantially in source area wells MW-11 and MW-12. Additionally, TCE has been within acceptable levels in the key Sentinel well MW-7 throughout the reporting period.

## 4.0 IC/EC PLAN COMPLIANCE REPORT

### 4.1 IC/EC Requirements and Compliance

A summary of the IC/ECs implemented at the site, the goals and status of each IC/EC to reach that goal, and related conclusions and recommendations follow. The locations of the ECs are shown on Figure 4 in Appendix A.

<u>Cover system consisting of 18 inches of clean imported fill</u>
The cover system remains intact. There are no signs of penetration of the cover by the current occupant of the Site.

<u>AS/SVE system</u>
The AS/SVE system operated from late December 2014 through:

- March 25, 2016 for the AS, at which time the AS portion of the system mechanically failed. An evaluation of conditions after this failure compared to conditions before demonstrated that the AS system was no longer needed. The AS system remains off with NYSDEC approval.
- March 8, 2017 for the SVE, at which time the system was shut-down to evaluate conditions after shut-down. Due to a rebound in contaminated vapors, the SVE system was returned to service on May 17, 2018. Operating data were obtained for the SVE

system on May 18, 2018, and again on May 24, 2018. The SVE was then operted and monitored for the remainder of the reporting period.

Operation and maintenance of the above ECs
Operation and maintenance of the above ECs have been done on an acceptable schedule. A certification for the ECs is being provided in this Periodic Review Report, (see Appendix E).

Groundwater, soil vapor, and other environmental or public health monitoring as defined in the SMP
Groundwater, soil vapor, and other environmental or public health monitoring were done this reporting period in substantial compliance with the SMP as modified the NYSDEC.

Reporting of data and information pertinent to Site management at a frequency and in a manner defined in the SMP
Monitoring has been in substantial compliance with the SMP as modified by the NYSDEC.

Protection of on-site environmental monitoring devices
Monitoring devices included groundwater monitoring wells and soil vapor probes have been maintained in compliance with the SMP as modified by the NYSDEC; however, difficulties continued due to the depressed nature of the Site and related sedimentation in the vicinity of monitoring wells.

The McKibbin Street site is topographically depressed causing the collection of precipitation and snow melt and related sediment in the interior of the site, and most troubling in the vicinity of wells MW-5S, MW-5D, MW-10S and MW-10D. The result has been the loss or damage of wells in this interior area, including replacement and repair of the above-named wells as part of the CMWP in 2014, and by Langan in prior periods. Additionally, at times well identities have been obscured by the collection of sediment on top of the well protective casings resulting in misidentification of monitoring wells by the sampling crews.

These difficulties have led to the loss of well MW-10S that was last gauged on June 21, 2017. With the concurrence of the NYSDEC, well MW-10S has not been replaced. New this reporting period, we have had difficulty locating MW-5s during the winter months, in part, due to blockage by snow or equipment that could not be removed. The well was last gauged and sampled on September 27, 2018. Vapor probe SG-8 was similarly inaccessible over the winter but was recently located.

Adherence to the Site use restrictions specified in the Environmental Easement
These restrictions included prohibitions on groundwater usage, gardening, Site use other than restricted commercial or industrial, and implementation of an Excavation Work Plan in the event of disturbance of contaminated material. These restrictions have been met to in this reporting period.

### 4.2 Conclusions and Recommendations

The paving of the property discussed with the NYSDEC in 2018 was delayed while the owner entertained a proposal for the purchase of the property. With the withdrawal of this proposal, the owner is again preparing to pave the property. A site engineer has been engaged to design the paving and drainage systems and a discharge permit from the NYCDEP is being sought. Once received, a proposal for this repaving and improve drainage including modifications/upgrades to the monitoring well network and SVE system will be submitted to the NYSDEC for approval.

### 4.3 IC/EC Certification

The completed IC/EC Certification Form is provided in Appendix E.

## 5.0 MONITORING PLAN COMPLIANCE REPORT

### 5.1 Monitoring Plan Components and Compliance

In summary, the components of the Monitoring Plan in the SMP as modified by later documents are:

- Annual Site-wide inspection and inspection of the composite cover system;
- Quarterly groundwater sampling of monitoring wells: MW-5S, MW-7, MW-8, MW-10D, MW-11 and MW-12;
- Installation of a vapor barrier prior to placement of concrete or other materials for the foundation of future building(s); and,
- Quarterly sampling and testing of four on-Site vapor probes. Additionally, off site probes SV-9 and SV-4 were located, refurbished and sampled during the SVE evaluation in 2017/2018 and have been included in the soil vapor monitoring program on a voluntary basis.

### 5.2 Summary of Monitoring Completed

Composite Cover System Inspection
As described in the NYSDEC-approved December 2011 FER and SMP, the composite cover system consists of a demarcation barrier overlain by 18 inches of New York State Department of Transportation (NYSDOT) Item 4 (subbase) material imported from Pebble Lane Associates in Maspeth, New York. The material complied with the 6 NYCRR Part 375-6.8(b) SCOs, based on the December 2011 FER. There was no damage and/or breach of the composite cover system based on the inspections made this reporting period. The inspection reports and photographs are provided in Appendices C and D, respectively. However, the dirt protective layer placed on top of the cover system and poor drainage remain a problem that has and continues to damage groundwater monitoring wells and soil vapor probes.

AS/SVE System Inspection
The AS/SVE system was off during the last reporting period to enable the evaluation of the potential system shut down. The SVE was restarted on May 17, 2018, inspected and performance measured on May 18 and 24, 2018. Thereafter, it continued to be operated and monitored throughout this reporting period.

Soil Vapor Monitoring
Soil vapor monitoring has continued throughout this reporting period. Data tabulations are in Appendix B. Laboratory summary sheets are attached to the email transmitting this PRR.

Groundwater Elevation Monitoring
Groundwater flow is to the north which is consistent with prior measurements. Several groundwater elevation measurement events yielded inconsistent results due to differential infiltration rates. Non-uniform infiltration was caused by the Site's porous cover and lack of drainage. Therefore, groundwater levels within the confines of the Site are sensitive to rain events and associated infiltration. However, evaluation of the numerous measurements and comparisons with infiltration data demonstrate resultant flow to the north. Figure 7 provides groundwater contours for September 27, 2018 that show

the general flow toward the north, the sink in shallow groundwater and related mounding in deep groundwater in the middle of the Site.

Groundwater Sampling and Testing

The McKibbin Street site is topographically depressed causing the collection of precipitation and snow melt and related sediment in the interior of the site, and most troubling in the vicinity of wells MW-5S, MW-5D, MW-10S and MW-10D. The result has been the loss or damage of wells in this interior area, including replacement, repair and misidentification of the above-named wells during this reporting period, as part of the CMWP in 2014, and by Langan in prior periods.

These difficulties have led to the loss of well MW-10S that was last gauged on June 21, 2017. With the concurrence of the NYSDEC, well MW-10S has not been replaced. New this reporting period, we have had difficulty locating MW-5s during the winter months due to blockage by snow and equipment unable to be moved during the winter. The well was last gauged and sampled on September 27, 2018. Similarly, soil vapor probe SG-8 has been inaccessible; however, it was recently relocated.

*Sample Results*

Laboratory analytical results are compared to NYSDEC TOGS 1.1.1 AWQS for Class GA water. The tabulated analytical results summaries for key compounds are presented in Appendix B. A summary of the results is provided on Figure 6. Laboratory ASP Category B results are provided under separate cover.

We are preparing and will provide the following reports for all sampling and testing events for this reporting period:

DUSR (Data Usability Summary Report)
EDD (Electronic Data Deliverables)

### 5.3 Conclusions and Comparison with Remedial Objectives

The AS/SVE system has met the objective of preventing soil vapor contaminants from leaving the property. Pneumatic testing demonstrated capture of soil vapors throughout the period of operation between December 2014 and March 2017 when the SVE was shut down for evaluation, then again after the SVE was returned to service in May 2018 and operated throughout this reporting period.

The AS system mobilized the TCE and degradation products in groundwater in the vicinity of MW-11. This is most likely the result of hydrodynamic dispersion that was increased by the bubbling of air through the groundwater and thereby increasing the mixing of the otherwise relatively stagnant groundwater. With NYSDEC approval, the AS system has remained off.

Another variable affecting groundwater contaminant migration is the topographically depressed nature of the site, its bowl shape that allows the capture and infiltration of nearly 100% of precipitation and snow melt. This infiltration then alters the gradients that drive the flow of contaminated groundwater. The owner is working toward paving the property and managing stormwater; this will improve the consistency of the monitoring program and efficiency of the SVE system.

### 5.5 Recommendations/Proposals

The paving of the property discussed with the NYSDEC in 2018 was delayed while the owner entertained a proposal for the purchase of the property. With the withdrawal of this proposal, the owner is again preparing to pave the property. A site engineer has been engaged to design the paving and drainage systems and a discharge permit from the NYCDEP is being sought. Once received, a proposal for this repaving and improve drainage including modifications/upgrades to the monitoring well network and SVE system will be submitted to the NYSDEC for approval.

## 6.0 OPERATIONS & MANAGEMENT PLAN COMPLIANCE REPORT

The SVE was restarted on May 17, 2018, inspected and performance measured on May 18, 2018, and again on May 24, 2018. It continued to operate throughout this reporting period. Through the system check on May 14, 2019 the SVE had an uptime of 91%. It continued to prevent vapors from leaving the site by extending its zone of capture beyond the boundaries of the site as demonstrated by negative differential pressures (induced vacuums) in off-site vapor probe SV-4 of 0.080 IWC ("inches of water column") and in monitoring well MW-7 of 0.025 IWC.

## 7.0 OVERALL CONCLUSIONS AND RECOMMENDATIONS

### 7.1 SMP Compliance

All components of the IC/EC and Monitoring Plans were in substantial compliance with the SMP in this reporting period. As described above, the AS portion of the AS/SVE system failed in March 2017. With NYSDEC permission, the AS system has remained off. After the shut-down evaluation, the SVE system was returned to service on May 17, 2018. It has operated adequately to prevent off-site migration of remaining contaminated soil vapors.

Monitoring problems continue due to the depressed nature of the site and dirt cover. These problems will be eliminated once the site can be repaved and proper drainage implemented.

### 7.2 Performance and Effectiveness of the Remedy

The remedy is performing as designed, effective in achieving the remediation goals, and protective of the public health and environment.

### 7.3 Recommendations, Proposals and Future Submittals

The paving of the property discussed with the NYSDEC in 2018 was delayed while the owner entertained a proposal for the purchase of the property. After the withdrawal of this purchase proposal by the potential buyer, the owner is again preparing to pave the property. A site engineer has been engaged to design the paving and drainage systems and a discharge permit from the NYCDEP is being sought. Once received, a proposal for this repaving and improve drainage including modifications/upgrades to the monitoring well network and SVE system will be submitted to the NYSDEC for approval.

# APPENDIX A

# FIGURES

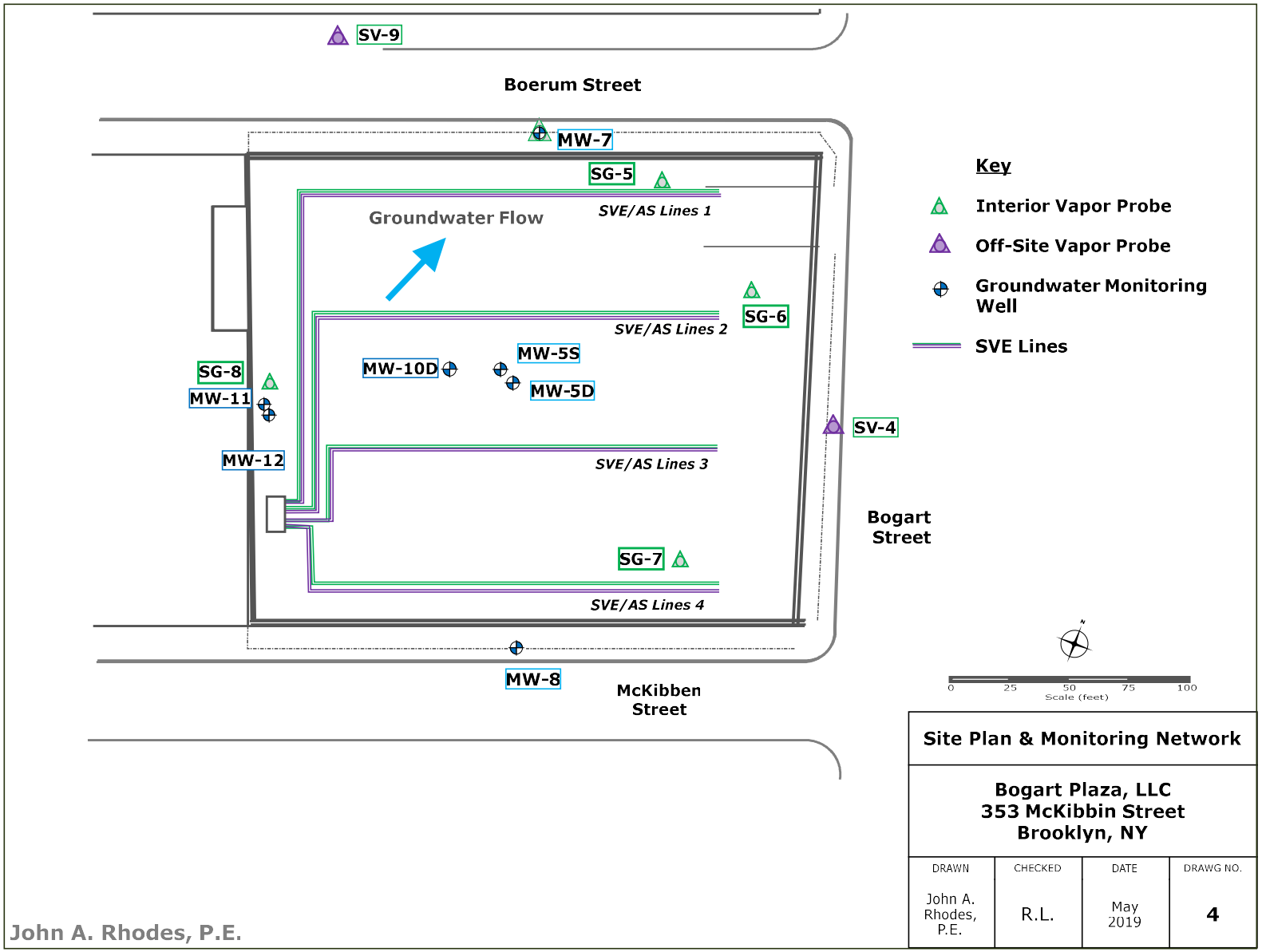
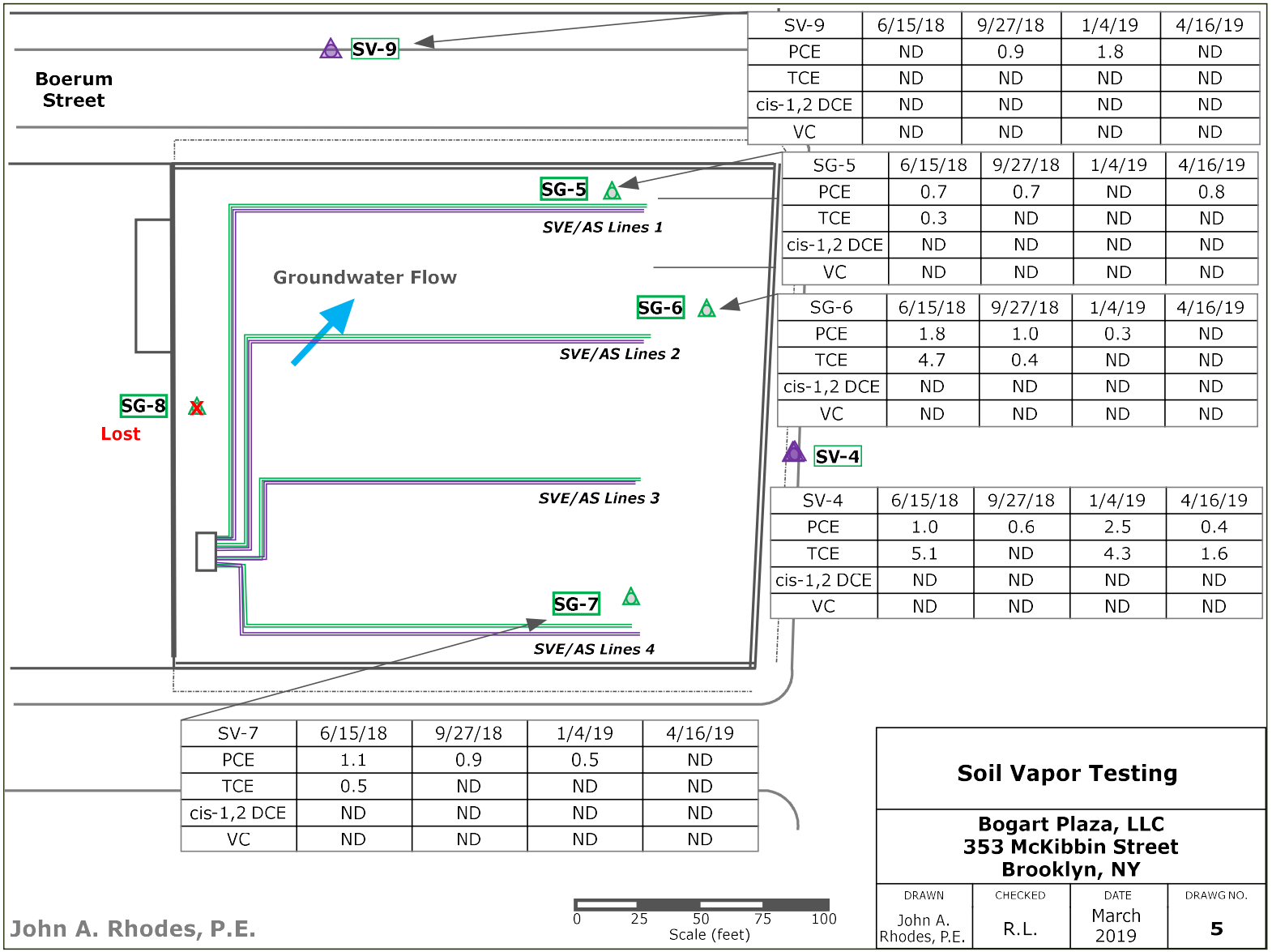



**Figure 4 Site Plan & Monitoring Network**




| SV-9 | 6/15/18 | 9/27/18 | 1/4/19 | 4/16/19 |
|---|---|---|---|---|
| PCE | ND | 0.9 | 1.8 | ND |
| TCE | ND | ND | ND | ND |
| cis-1,2 DCE | ND | ND | ND | ND |
| VC | ND | ND | ND | ND |

| SG-5 | 6/15/18 | 9/27/18 | 1/4/19 | 4/16/19 |
|---|---|---|---|---|
| PCE | 0.7 | 0.7 | ND | 0.8 |
| TCE | 0.3 | ND | ND | ND |
| cis-1,2 DCE | ND | ND | ND | ND |
| VC | ND | ND | ND | ND |

| SG-6 | 6/15/18 | 9/27/18 | 1/4/19 | 4/16/19 |
|---|---|---|---|---|
| PCE | 1.8 | 1.0 | 0.3 | ND |
| TCE | 4.7 | 0.4 | ND | ND |
| cis-1,2 DCE | ND | ND | ND | ND |
| VC | ND | ND | ND | ND |

| SV-4 | 6/15/18 | 9/27/18 | 1/4/19 | 4/16/19 |
|---|---|---|---|---|
| PCE | 1.0 | 0.6 | 2.5 | 0.4 |
| TCE | 5.1 | ND | 4.3 | 1.6 |
| cis-1,2 DCE | ND | ND | ND | ND |
| VC | ND | ND | ND | ND |

| SV-7 | 6/15/18 | 9/27/18 | 1/4/19 | 4/16/19 |
|---|---|---|---|---|
| PCE | 1.1 | 0.9 | 0.5 | ND |
| TCE | 0.5 | ND | ND | ND |
| cis-1,2 DCE | ND | ND | ND | ND |
| VC | ND | ND | ND | ND |

**Figure 5 Soil Vapor Analytical Results 2018/2019**

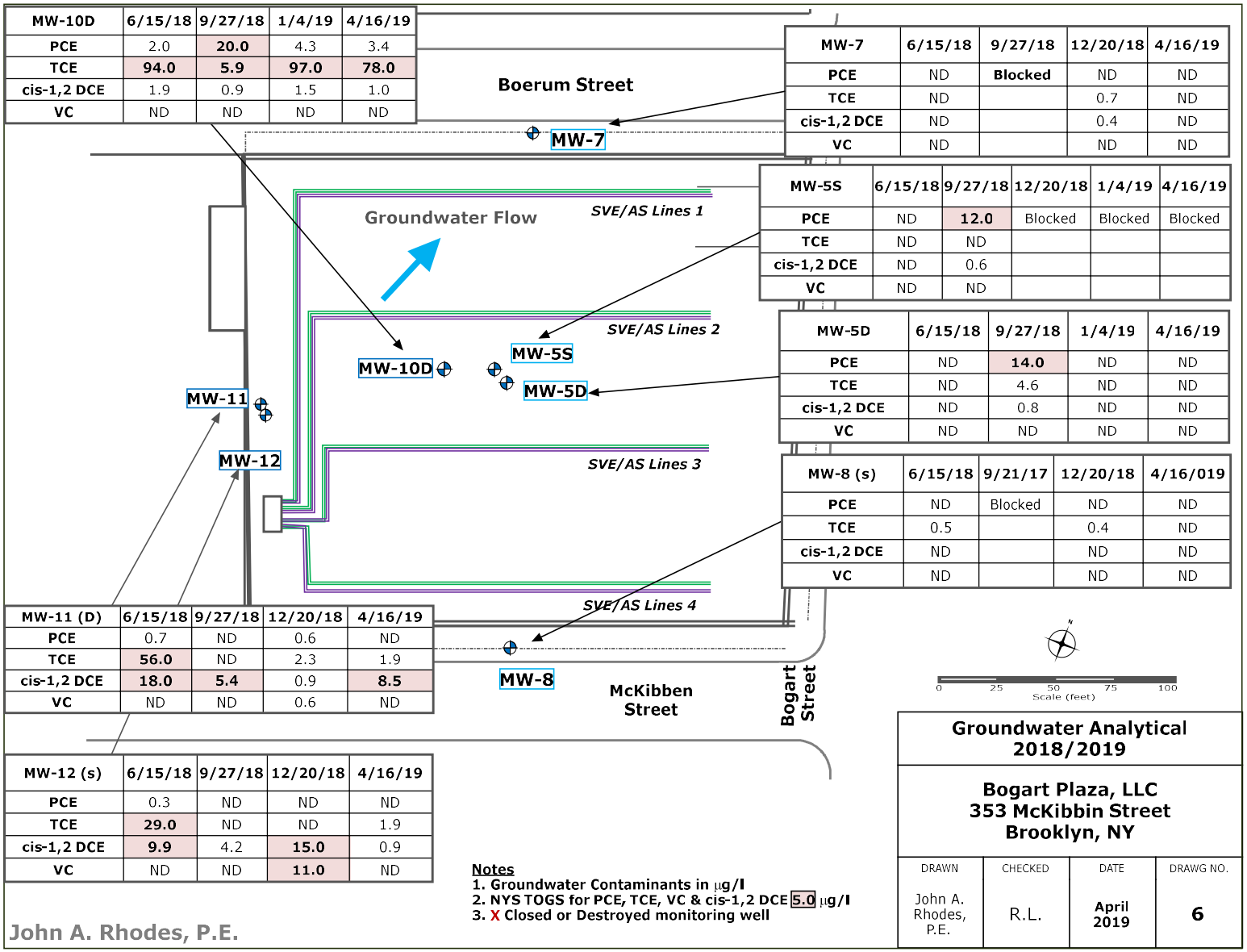



Figure 6 Groundwater Analytical Results 2018/2019

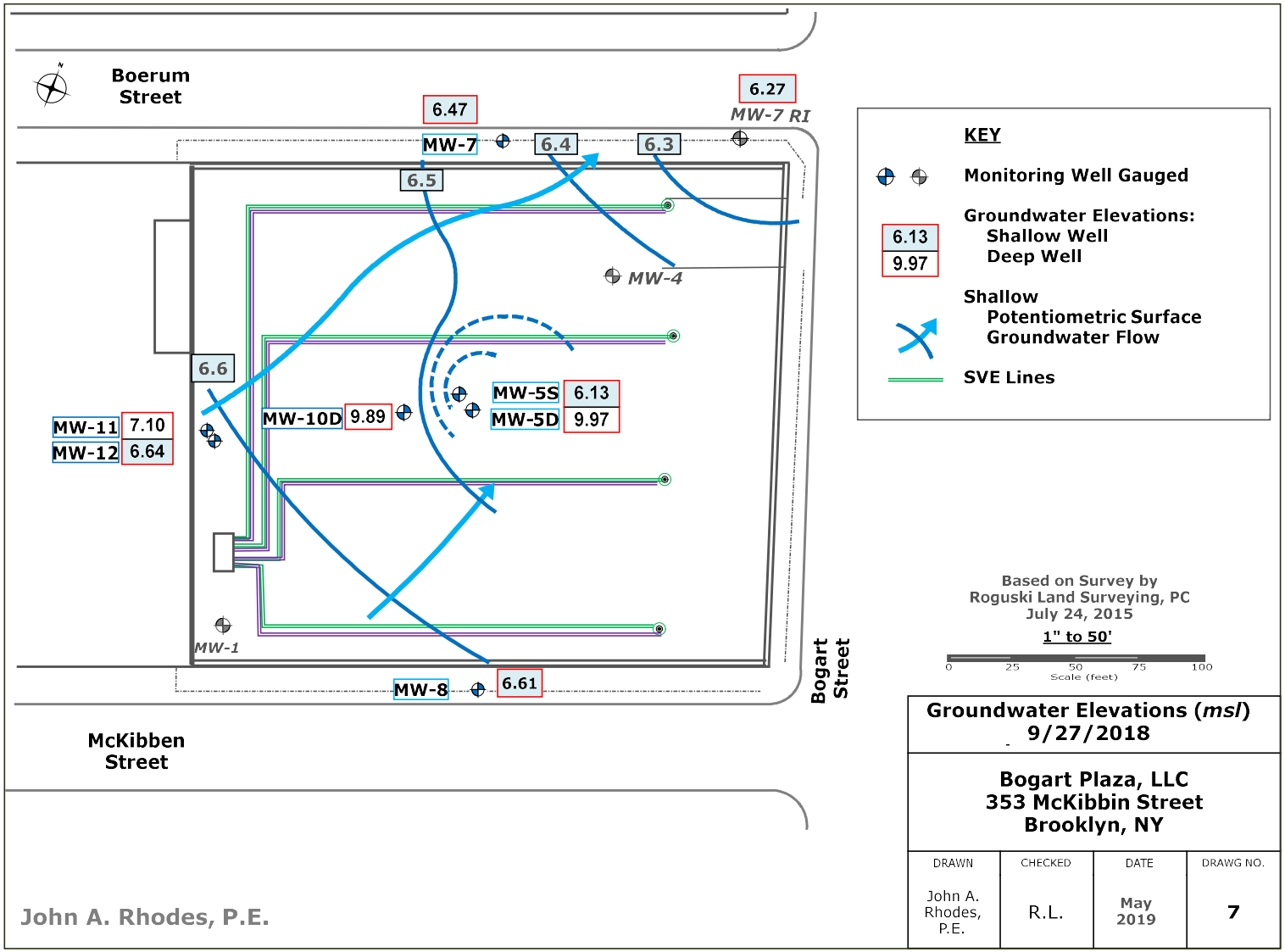



**Figure 7 Groundwater Contours September 2018**

# APPENDIX B

# Data Tabulations

**Table 1 Groundwater Gauging**

| Well | No. | | Date | Reference Elevation (ft MSL) | Depth to GW (ft) | GW Elevation (ft MSL) | Field Technician's Notes |
|---|---|---|---|---|---|---|---|
| MW | 5 | D | 4/16/2019 | 15.67 | 9.95 | 5.72 | |
| MW | 7 | | 4/16/2019 | 18.49 | 12.13 | 6.36 | |
| MW | 8 | | 4/16/2019 | 18.80 | 12.12 | 6.68 | |
| MW | 10 | D | 4/16/2019 | 15.50 | 8.58 | 6.92 | |
| MW | 11 | | 4/16/2019 | 18.15 | 11.59 | 6.56 | |
| MW | 12 | | 4/16/2019 | 17.67 | 11.53 | 6.14 | |
| MW | 5 | D | 1/4/2019 | 15.67 | 8.69 | 6.98 | |
| MW | 10 | D | 1/4/2019 | 15.50 | 8.49 | 7.01 | |
| MW | 7 | | 12/20/2018 | 18.49 | 11.99 | 6.50 | |
| MW | 8 | | 12/20/2018 | 18.80 | 12.00 | 6.80 | |
| MW | 11 | | 12/20/2018 | 18.15 | 11.30 | 6.85 | |
| MW | 12 | | 12/20/2018 | 17.67 | 11.84 | 5.83 | |
| MW | 5 | S | 9/27/2018 | 16.08 | 5.70 | 10.38 | |
| MW | 5 | D | 9/27/2018 | 15.67 | 9.95 | 5.72 | |
| MW | 7 | RI | 9/27/2018 | 19.27 | 13.00 | 6.27 | |
| MW | 7 | | 9/27/2018 | 18.49 | 12.02 | 6.47 | |
| MW | 8 | | 9/27/2018 | 18.80 | 12.19 | 6.61 | |
| MW | 10 | D | 9/27/2018 | 15.50 | 5.61 | 9.89 | |
| MW | 11 | | 9/27/2018 | 18.15 | 11.05 | 7.10 | |
| MW | 12 | | 9/27/2018 | 17.67 | 11.03 | 6.64 | |

**Table 2 PCE, TCE, cis-1,2 DCE, VC & Total VOCs in Soil Vapor Samples (µg/m$^3$)**

| Probe | No. | Date | PCE | TCE | cis-1,2 DCE | VC | Total VOCs |
|---|---|---|---|---|---|---|---|
| SG | 5 | 6/15/2018 | 0.7 | 0.3 | *ND* | *ND* | 219.2 |
| SG | 6 | 6/15/2018 | 1.8 | 4.7 | *ND* | *ND* | 187.6 |
| SG | 7 | 6/15/2018 | 1.1 | 0.5 | *ND* | *ND* | 71.7 |
| SV | 4 | 6/15/2018 | 1.0 | 5.1 | *ND* | *ND* | 62.7 |
| SV | 9 | 6/15/2018 | *ND* | *ND* | *ND* | *ND* | 964.1 |
| SG | 5 | 9/27/2018 | 0.7 | ND | *ND* | *ND* | 98.9 |
| SG | 6 | 9/27/2018 | 1.0 | 0.4 | *ND* | *ND* | 50.2 |
| SG | 7 | 9/27/2018 | 0.9 | ND | *ND* | *ND* | 38.2 |
| SV | 4 | 9/27/2018 | 0.6 | ND | *ND* | *ND* | 45.3 |
| SV | 9 | 9/27/2018 | *0.9* | *ND* | *ND* | *ND* | 46.9 |
| SG | 5 | 1/4/2019 | ND | ND | *ND* | *ND* | 77.2 |
| SG | 6 | 1/4/2019 | 0.3 | ND | *ND* | *ND* | 52.3 |
| SG | 7 | 1/4/2019 | 0.5 | ND | *ND* | *ND* | 27.4 |
| SV | 4 | 1/4/2019 | 2.5 | 4.3 | *ND* | *ND* | 44.5 |
| SV | 9 | 1/4/2019 | *1.8* | *ND* | *ND* | *ND* | 14.5 |
| SG | 5 | 4/16/2019 | 0.8 | *ND* | *ND* | *ND* | 131.1 |
| SG | 6 | 4/16/2019 | *ND* | *ND* | *ND* | *ND* | 62.6 |
| SG | 7 | 4/16/2019 | *ND* | *ND* | *ND* | *ND* | 29.3 |
| SV | 4 | 4/16/2019 | 0.4 | 1.6 | *ND* | *ND* | 64.7 |
| SV | 9 | 4/16/2019 | *ND* | *ND* | *ND* | *ND* | 28.7 |

**Table 3 Groundwater Concentrations of Key Compounds (µg/l)**

| MW | # | S/D | Date | PCE | TCE | cis-1,2 DCE | VC | BTEX | Total VOCs |
|---|---|---|---|---|---|---|---|---|---|
| MW | 5 | D | 4/16/2019 | ND | ND | ND | ND | ND | ND |
| MW | 7 | | 4/16/2019 | ND | ND | ND | ND | ND | ND |
| MW | 8 | | 4/16/2019 | ND | ND | ND | ND | ND | ND |
| MW | 10 | D | 4/16/2019 | 3.4 | 78.0 | 1.0 | ND | ND | 82.4 |
| MW | 11 | | 4/16/2019 | ND | 1.9 | 8.5 | ND | ND | 12.1 |
| MW | 12 | | 4/16/2019 | ND | 1.9 | 0.9 | ND | ND | 4.1 |
| MW | 5 | D | 1/4/2019 | ND | ND | ND | ND | ND | 3.5 |
| MW | 10 | D | 1/4/2019 | 4.3 | 97.0 | 1.5 | ND | ND | 104.6 |
| MW | 7 | | 12/20/2018 | ND | 0.7 | 0.4 | ND | ND | 1.1 |
| MW | 8 | | 12/20/2018 | ND | 0.4 | ND | ND | ND | 0.4 |
| MW | 11 | | 12/20/2018 | 0.6 | 2.3 | 0.9 | 0.6 | ND | 5.4 |
| MW | 12 | | 12/20/2018 | ND | ND | 15.0 | 11.0 | 2.3 | 37.0 |
| MW | 5 | S | 9/27/2018 | 12.0 | ND | 0.6 | ND | ND | 3.9 |
| MW | 5 | D | 9/27/2018 | 14.0 | 4.6 | 0.8 | ND | ND | 19.7 |
| MW | 7 | | 9/27/2018 | ND | 1.3 | 0.6 | ND | ND | 1.9 |
| MW | 8 | | 9/27/2018 | ND | 0.5 | ND | ND | ND | 1.5 |
| MW | 10 | D | 9/27/2018 | 20.0 | 5.9 | 0.9 | ND | ND | 27.2 |
| MW | 11 | | 9/27/2018 | ND | ND | 5.4 | ND | 0.5 | 8.5 |
| MW | 12 | | 9/27/2018 | ND | ND | 4.2 | ND | 0.4 | 8.4 |
| MW5S | 5 | S | 6/15/2018 | ND | ND | ND | ND | ND | 0.0 |
| MW5D | 5 | D | 6/15/2018 | ND | ND | ND | ND | ND | 4.1 |
| MW7 | 7 | | 6/15/2018 | ND | ND | ND | ND | ND | 3.7 |
| MW8 | 8 | | 6/15/2018 | ND | 0.5 | ND | ND | ND | 1.1 |
| MW10D | 10 | D | 6/15/2018 | 2.0 | 94.0 | 1.9 | ND | ND | 97.9 |
| MW11 | 11 | | 6/15/2018 | 0.7 | 56.0 | 18.0 | ND | 0.7 | 76.3 |
| MW12 | 12 | | 6/15/2018 | 0.3 | 29.0 | 9.9 | ND | 0.4 | 39.7 |

# Appendix C

# Inspection Reports and AS/SVE Operations Log

| Date: | 5/18/2018 | Technician: | Levato | Recent Weather: | | Overcast 60 degrees | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **SVE System Line Readings** | **Static Pressure on Gauge (iwc)** | **Differential Pressure from Pitot Tube (iwc)** | **Adjusted Line Flow (scfm)** | **Valve Position (% Open)** | **Air Sparge System Line Readings** | **Valve Position (% Open)** | **Flow (scfm)** | **SVE Flow Adjustment to Discharge Flow Rate** | | **Vapor Probe** | **Vapor Probe Reading (iwc)** |
| **SVE Line 1A** | 20.3 | 0.5 | 57.6 | 50% | **AS Line 1** | Closed | | **87.9** | | **MW-7** | |
| **SVE Line 1B** | 0 | 0 | 0.0 | 50% | **AS Line 2** | 75% | 0 | **0.0** | | **MW-4** | |
| **SVE Line 2A** | 20.3 | 0.5 | 57.6 | 75% | **AS Line 3** | 100% | 0 | **87.9** | | **SG-5** | |
| **SVE Line 2B** | 17.59 | 0.3 | 44.8 | 50% | **AS Line 4** | 10% | 0 | **68.4** | | **SG-7** | |
| **SVE Line 3A** | 13.53 | 0.1 | 26.0 | 100% | **AS Line 5** | 100% | 0 | **39.7** | | **SV-4** | |
| **SVE Line 3B** | 13.53 | 0.1 | 26.0 | 100% | **AS Line 6** | 10% | 0 | **39.7** | | | |
| **SVE Line 4A** | 0.0 | 0 | | Closed | **AS Line 7** | Closed | | | | | |
| **SVE Line 4B** | 0.0 | 0 | | Closed | **AS Line 8** | Closed | | | | | |
| **Discharge Line** | 19.0 | 1.0 | **212.1** | | **AS Total Flow** | | **0** | **Total Line Flow** | **Ratio for Flow Adj** | | |
| **Blower 1 ON/OFF:** | ON | **Line A/B Valve:** | | Both | **Operating Hours AS:** | | 20029.6 | | | | |
| **Blower 2 ON/OFF:** | ON | **Operating Hours SVE-1:** | | 30284 | **Operating Hours SVE-2:** | | 31286 | **323.7** | **0.66** | | |
| **Notes:** | One day after restart | | | | | | | | | | |

| Date: | 5/24/2018 | Technician: | Rhodes | Recent Weather: | | Clear, 75 degrees | |
|---|---|---|---|---|---|---|---|
| **SVE System Line Readings** | **Static Pressure on Gauge (neg. iwc)** | **Differential Pressure from Pitot Tube (neg. iwc)** | **Adjusted Line Flow (scfm)** | **Valve Position (% Open)** | **Air Sparge System Line Readings** | **Valve Position (% Open)** | **Flow (scfm)** |
| **SVE Line 1A** | 18 | 0.2 | 44.3 | 50% | **AS Line 1** | Closed | |
| **SVE Line 1B** | 0 | 0.3 | 55.7 | 50% | **AS Line 2** | 75% | 0 |
| **SVE Line 2A** | 16 | 0.15 | 38.5 | 75% | **AS Line 3** | 100% | 0 |
| **SVE Line 2B** | 18 | 0.1 | 31.3 | 50% | **AS Line 4** | 10% | 0 |
| **SVE Line 3A** | 12 | 0.65 | 80.6 | 100% | **AS Line 5** | 100% | 0 |
| **SVE Line 3B** | 12 | 0.4 | 63.2 | 100% | **AS Line 6** | 10% | 0 |
| **SVE Line 4A** | 0.0 | 0 | | Closed | **AS Line 7** | Closed | |
| **SVE Line 4B** | 0.0 | 0 | | Closed | **AS Line 8** | Closed | |
| **Discharge Line** | 30.0 | 2.1 | **313.6** | | **AS Total Flow** | | **0** |
| **Blower 1 ON/OFF:** | ON | **Line A/B Valve:** | | Both | **Operating Hours AS:** | | 20029.6 |
| **Blower 2 ON/OFF:** | ON | **Operating Hours SVE-1:** | | 30335.7 | **Operating Hours SVE-2:** | | 31337.6 |
| **Notes:** | SVE off on arrival, reset and started, MW-7 @ 0.038 iwc | | | | | | |

| SVE Flow Adjustment to Discharge Flow Rate | | Vapor Probe | Vapor Probe Reading (neg. iwc) |
|---|---|---|---|
| **55.8** | | **MW-7** | 0.038 |
| **70.2** | | **MW-4** | |
| **48.5** | | **SG-5** | |
| **39.5** | | **SG-7** | |
| **101.5** | | **SV-4** | |
| **79.6** | | | |
| **Total Line Flow** | **Ratio for Flow Adj** | | |
| **395.2** | **0.79** | | |

| Date: | 12/20/2018 | Technician: | Levato | Recent Weather: | | Clear, 39 deg | |
|---|---|---|---|---|---|---|---|
| **SVE System Line Readings** | **Static Pressure on Gauge (neg. iwc)** | **Differential Pressure from Pitot Tube (neg. iwc)** | **Adjusted Line Flow (scfm)** | **Valve Position (% Open)** | **Air Sparge System Line Readings** | **Valve Position (% Open)** | **Flow (scfm)** |
| **SVE Line 1A** | 20 | 0.5 | 57.4 | 100% | **AS Line 1** | Closed | |
| **SVE Line 1B** | 1 | 0.5 | 59.1 | 100% | **AS Line 2** | 75% | 0 |
| **SVE Line 2A** | 18 | 0.1 | 25.7 | 100% | **AS Line 3** | 100% | 0 |
| **SVE Line 2B** | 18 | 0.1 | 25.7 | 100% | **AS Line 4** | 10% | 0 |
| **SVE Line 3A** | 10 | 0.8 | 73.7 | 100% | **AS Line 5** | 100% | 0 |
| **SVE Line 3B** | 10 | 0.8 | 73.7 | 100% | **AS Line 6** | 10% | 0 |
| **SVE Line 4A** | 0.0 | 0 | | Closed | **AS Line 7** | Closed | |
| **SVE Line 4B** | 0.0 | 0 | | Closed | **AS Line 8** | Closed | |
| **Discharge Line** | 20.0 | 2.2 | **315.2** | | **AS Total Flow** | | **0** |
| **Blower 1 ON/OFF:** | ON | **Line A/B Valve:** | | Both | **Operating Hours AS:** | | |
| **Blower 2 ON/OFF:** | ON | **Operating Hours SVE-1:** | | 34964.2 | **Operating Hours SVE-2:** | | 35966.1 |
| **Notes:** | | | | | | | |

| SVE Flow Adjustment to Discharge Flow Rate | | Vapor Probe | Vapor Probe Reading (neg. iwc) |
|---|---|---|---|
| **88.0** | | **MW-7** | |
| **90.6** | | **MW-4** | |
| **39.5** | | **SG-5** | |
| **39.5** | | **SG-7** | |
| **113.0** | | **SV-4** | |
| **113.0** | | | |
| **Total Line Flow** | **Ratio for Flow Adj** | | |
| **483.4** | **0.65** | | |

| Date: | 4/16/2019 | Technician: | Levato | Recent Weather: | 50 eeg, Sunny Windy | | |
|---|---|---|---|---|---|---|---|
| **SVE System Line Readings** | **Static Pressure on Gauge (neg. iwc)** | **Differential Pressure from Pitot Tube (neg. iwc)** | **Adjusted Line Flow (scfm)** | **Valve Position (% Open)** | **Air Sparge System Line Readings** | **Valve Position (% Open)** | **Flow (scfm)** |
| **SVE Line 1A** | 5 | 0.6 | 66.2 | 100% | **AS Line 1** | | |
| **SVE Line 1B** | 1 | 0.4 | 54.4 | 100% | **AS Line 2** | | |
| **SVE Line 2A** | 18 | 0.2 | 37.5 | 100% | **AS Line 3** | | |
| **SVE Line 2B** | 15 | 0.4 | 53.2 | 100% | **AS Line 4** | | |
| **SVE Line 3A** | 15 | 0.5 | 59.5 | 100% | **AS Line 5** | | |
| **SVE Line 3B** | 15 | 0.6 | 65.2 | 100% | **AS Line 6** | | |
| **SVE Line 4A** | 0.0 | 0 | | Closed | **AS Line 7** | | |
| **SVE Line 4B** | 0.0 | 0 | | Closed | **AS Line 8** | | |
| **Discharge Line** | 20.0 | 2.5 | **336.0** | | **AS Total Flow** | | |
| **Blower 1 ON/OFF:** | ON | **Line A/B Valve:** | | Both | **Operating Hours AS:** | | |
| **Blower 2 ON/OFF:** | ON | **Operating Hours SVE-1:** | | 37534 | **Operating Hours SVE-2:** | | ~~36270.7~~ |
| **Notes:** | **SVE-2 Hr reading suspect** | | | | | | |

| **SVE Flow Adjustment to Discharge Flow Rate** | | **Vapor Probe** | **Vapor Probe Reading (iwc)** |
|---|---|---|---|
| **98.6** | | **MW-7** | |
| **81.0** | | **MW-4** | |
| **55.8** | | **SG-5** | |
| **79.3** | | **SG-7** | |
| **88.6** | | **SV-4** | |
| **97.1** | | | |
| **Total Line Flow** | **Ratio for Flow Adj** | | |
| **500.4** | **0.67** | | |

| Date: | 5/14/2019 | Technician: | Rhodes | Recent Weather: | | Sunny, 70 deg. | |
|---|---|---|---|---|---|---|---|
| **SVE System Line Readings** | **Static Pressure on Gauge (neg. iwc)** | **Differential Pressure from Pitot Tube (neg. iwc)** | **Adjusted Line Flow (scfm)** | **Valve Position (% Open)** | **Air Sparge System Line Readings** | **Valve Position (% Open)** | **Flow (scfm)** |
| **SVE Line 1A** | 20 | 0.2 | 39.4 | 100% | **AS Line 1** | | |
| **SVE Line 1B** | 20 | 0.4 | 55.7 | 100% | **AS Line 2** | | |
| **SVE Line 2A** | 20 | 0.2 | 39.4 | 100% | **AS Line 3** | | |
| **SVE Line 2B** | 19 | 0.15 | 34.1 | 100% | **AS Line 4** | | |
| **SVE Line 3A** | 18 | 0.7 | 73.9 | 100% | **AS Line 5** | | |
| **SVE Line 3B** | 17 | 0.6 | 68.5 | 100% | **AS Line 6** | | |
| **SVE Line 4A** | 0.0 | 0 | | Closed | **AS Line 7** | | |
| **SVE Line 4B** | 0.0 | 0 | | Closed | **AS Line 8** | | |
| **Discharge Line** | 39.0 | 2.0 | **310.9** | | **AS Total Flow** | | |
| **Blower 1 ON/OFF:** | ON | **Line A/B Valve:** | | Both | **Operating Hours AS:** | | |
| **Blower 2 ON/OFF:** | ON | **Operating Hours SVE-1:** | | 38206 | **Operating Hours SVE-2:** | | ~~36270.7~~ |
| **Notes:** | **SVE-2 Hr meter failed Neg Pressure before blowers 37 iwc; 18 iwc individually** | | | | | | |

| SVE Flow Adjustment to Discharge Flow Rate | | Vapor Probe | Vapor Probe Reading (neg. iwc) |
|---|---|---|---|
| **55.6** | | **MW-7** | 0.025 |
| **78.7** | | **MW-4** | |
| **55.6** | | **SG-5** | |
| **48.3** | | **SG-7** | |
| **104.4** | | **SV-4** | 0.080 |
| **96.8** | | **SV-9** | 0.000 |
| **Total Line Flow** | **Ratio for Flow Adj** | | |
| **439.4** | **0.71** | | |

# Annual Site Inspection
## 353 McKibbin Street
## Brooklyn, New York

**Date:** 5/14/2019 **Weather:** 78 degrees and Clear

**Inspector(s):** John Rhodes **Signature(s):** 

**Site Perimeter:**

**Fence** Good
**Leaks:** None
**Sidewalk** Bogart is in good condition, McKibbin is in fair condition with trash piles, and Boerum is in poor condition although improved from last year. Heavy construction continuing across the street.

**Cover System:**

Cover remains at original placed thickness and has not been penetrated. However, site is depressed so rainwater and snow melt infiltrate through the cover.

**Ponding:**

Ponding water was evident. Sediment deposition from past ponding was readily apparent.

**Monitoring wells:**

Wells located outside the fenced lot were in good condition. MW-7 needs minor repair to secure the access cover. Wells in the center of the site were covered by equipment or sediment and could not be located, (see photographs)

**AS/SVE System:**

Air Sparging is off.

SVE System was operating. Negative pressures (vacuum) were measured at off-site well MW-7 and vapor probe VG-4 indicating that the SVE is pulling vapors toward the site and preventing off-site migration. SVE lines were measured with relevant pressures and flows reported in the system log. Drop out tank was empty. System was well maintained.

The hour totalizing meter for SVE-2 has failed and needs to be replaced. The meter for SVE-1 was functioning properly. The static pressure gauge for SVE line 1B is reading zero and may need to be replaced.

The equipment shed is in reasonable condition.

**Blower No. 1** Operating, pulls 18-19 iwc when isolated, Time: 38,206 hours
**Blower No. 2** Operating, pulls 18-19 iwc when isolated, totalizer has failed
**Discharge:** 39 iwc static, 2.0 iwc differential

**See Operations Log for operational details**

# Appendix D
# Site Photographs

MW-7 in Boerum Street

SG-9 Opened for Inspection; Boerum Street

MW-8 in Bogart Street

MW-8 Close Up

SG-4 in McKibbin Street; Former MW-9 in background (closed well)

SV-5 under car

Condition of yard near MW-10D

Condition of yard near SV-6; entrance ramp in background

# Appendix E

# IC/EC Certification

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

**Site Details** **Box 1**

**Site No.** **C224102**

**Site Name 353 McKibbin Street**

Site Address: 353 McKibbin Street Zip Code: 11206
City/Town: Brooklyn
County: Kings
Site Acreage: 1.1

Reporting Period: May 01, 2018 to May 01, 2019

| | YES | NO |
|---|---|---|
| 1. Is the information above correct? | ☒ | ☐ |
| If NO, include handwritten above or on a separate sheet. | | |
| 2. Has some or all of the site property been sold, subdivided, merged, or undergone a tax map amendment during this Reporting Period? | ☐ | ☒ |
| 3. Has there been any change of use at the site during this Reporting Period (see 6NYCRR 375-1.11(d))? | ☐ | ☒ |
| 4. Have any federal, state, and/or local permits (e.g., building, discharge) been issued for or at the property during this Reporting Period? | ☐ | ☒ |
| **If you answered YES to questions 2 thru 4, include documentation or evidence that documentation has been previously submitted with this certification form.** | | |
| 5. Is the site currently undergoing development? | ☒ | ☐ |

**Box 2**

| | YES | NO |
|---|---|---|
| 6. Is the current site use consistent with the use(s) listed below? Commercial and Industrial | ☒ | ☐ |
| 7. Are all ICs/ECs in place and functioning as designed? | ☒ | ☐ |

**IF THE ANSWER TO EITHER QUESTION 6 OR 7 IS NO, sign and date below and DO NOT COMPLETE THE REST OF THIS FORM. Otherwise continue.**

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

_____ _____
Signature of Owner, Remedial Party or Designated Representative Date

**Box 2A**

| | YES | NO |
|---|---|---|
| 8. Has any new information revealed that assumptions made in the Qualitative Exposure Assessment regarding offsite contamination are no longer valid? | ☐ | ☒ |

**If you answered YES to question 8, include documentation or evidence that documentation has been previously submitted with this certification form.**

| | | |
|---|---|---|
| 9. Are the assumptions in the Qualitative Exposure Assessment still valid? (The Qualitative Exposure Assessment must be certified every five years) | ☒ | ☐ |

**If you answered NO to question 9, the Periodic Review Report must include an updated Qualitative Exposure Assessment based on the new assumptions.**

**SITE NO. C224102** **Box 3**

**Description of Institutional Controls**

| Parcel | Owner | Institutional Control |
|---|---|---|
| **3083-16** | Bogart Plaza LLC | Ground Water Use Restriction<br>Soil Management Plan<br>Landuse Restriction<br>Monitoring Plan<br>Site Management Plan<br>IC/EC Plan<br><br>O&M Plan |

Institutional Controls

- Compliance with the Environmental Easement by the Grantor and the Grantor's successors and assigns with all elements of this SMP;

- All Engineering Controls must be operated and maintained as specified in this SMP;

- All Engineering Controls on the Site must be inspected and certified at a frequency and in a manner defined in the SMP;

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

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

- On-Site environmental monitoring devices, including but not limited to, groundwater monitoring wells, must be protected and replaced as necessary to ensure the devices function in the manner specified in this SMP;

- Vegetable gardens and farming on the Site are prohibited;

- The use of the groundwater underlying the Site is prohibited without treatment rendering it safe for intended purpose;

- All future activities on the property that will disturb remaining contaminated material are prohibited unless they are conducted in accordance with this SMP;

- The potential for vapor intrusion must be evaluated for any buildings developed on the Site, and any potential impacts that are identified must be mitigated;

- The Site may only be used for commercial or industrial use provided that the long-term Engineering and Institutional Controls included in this SMP are employed;

- The Site may not be used for a higher level of use, such as unrestricted or restricted residential use, without additional remediation and amendment of the Environmental Easement, as approved by the NYSDEC; and

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

| | | |
|---|---|---|
| **3083-30** | Bogart Plaza LLC | O&M Plan<br>Ground Water Use Restriction<br>Soil Management Plan<br>Landuse Restriction<br>Monitoring Plan<br>Site Management Plan<br>IC/EC Plan |

Institutional Controls

- Compliance with the Environmental Easement by the Grantor and the Grantor's successors and assigns with all elements of this SMP;

- All Engineering Controls must be operated and maintained as specified in this SMP;

- All Engineering Controls on the Site must be inspected and certified at a frequency and in a manner defined in the SMP;

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

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

- On-Site environmental monitoring devices, including but not limited to, groundwater monitoring wells, must be protected and replaced as necessary to ensure the devices function in the manner specified in this SMP;

- Vegetable gardens and farming on the Site are prohibited;

- The use of the groundwater underlying the Site is prohibited without treatment rendering it safe for intended purpose;

- All future activities on the property that will disturb remaining contaminated material are prohibited unless they are conducted in accordance with this SMP;

- The potential for vapor intrusion must be evaluated for any buildings developed on the Site, and any potential impacts that are identified must be mitigated;

- The Site may only be used for commercial or industrial use provided that the long-term Engineering and Institutional Controls included in this SMP are employed;

- The Site may not be used for a higher level of use, such as unrestricted or restricted residential use, without additional remediation and amendment of the Environmental Easement, as approved by the NYSDEC; and

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

**Box 4**

**Description of Engineering Controls**

| Parcel | Engineering Control |
|---|---|
| **3083-16** | Vapor Mitigation<br>Cover System |

Engineering Controls

- A cover system was installed throughout the entire Site consisting of twelve inches of clean fill (NYSDOT Subbase) and tested as required by the RAWP to ensure chemical concentrations are below 6NYCRR Part 375-6.8(b). The cover system was compacted to 95% as per the NYC 2008 Construction Code. An additional six inches of clean fill was placed above the cover as a protective barrier to erosion and inclement weather conditions. The additional clean fill also complies with Part 375-6.8(b);

- The Soil Vapor Extraction System was installed in four trenches covering the entire Site. Each trench contains two 3-inch perforated PVC pipes wrapped in filter fabric. Each pipe was placed within two feet of

Parcel | Engineering Control

clean ¾ inch stone. The top of the trench was also covered with filter fabric. An eighteen inch layer of compacted clean fill (NYSDOT Subbase) was then placed over the trench. Each pipe was then connected to the equipment room consisting of a knockout tank, two blowers, and associated piping, electrical and monitoring elements;

- The Air Sparging System was designed to volatilize the solvents (particularly TCE and PCE) identified in groundwater. The AS system consists of twenty-two wells, twelve shallow and ten deep wells at the hot spot areas. Each one-inch diameter well is connected to two inch PVC solid pipes leading to the equipment room. The two inch piping was placed within the same trenches as the SVES system; and

- Future buildings constructed on the Site will include the installation of a vapor barrier. Once installed, such vapor barrier will be inspected prior to the placement of concrete or other materials for the building foundation.

**3083-30**

Vapor Mitigation
Cover System

Engineering Controls

- A cover system was installed throughout the entire Site consisting of twelve inches of clean fill (NYSDOT Subbase) and tested as required by the RAWP to ensure chemical concentrations are below 6NYCRR Part 375-6.8(b). The cover system was compacted to 95% as per the NYC 2008 Construction Code. An additional six inches of clean fill was placed above the cover as a protective barrier to erosion and inclement weather conditions. The additional clean fill also complies with Part 375-6.8(b);

- The Soil Vapor Extraction System was installed in four trenches covering the entire Site. Each trench contains two 3-inch perforated PVC pipes wrapped in filter fabric. Each pipe was placed within two feet of clean ¾ inch stone. The top of the trench was also covered with filter fabric. An eighteen inch layer of compacted clean fill (NYSDOT Subbase) was then placed over the trench. Each pipe was then connected to the equipment room consisting of a knockout tank, two blowers, and associated piping, electrical and monitoring elements;

- The Air Sparging System was designed to volatilize the solvents (particularly TCE and PCE) identified in groundwater. The AS system consists of twenty-two wells, twelve shallow and ten deep wells at the hot spot areas. Each one-inch diameter well is connected to two inch PVC solid pipes leading to the equipment room. The two inch piping was placed within the same trenches as the SVES system; and

- Future buildings constructed on the Site will include the installation of a vapor barrier. Once installed, such vapor barrier will be inspected prior to the placement of concrete or other materials for the building foundation.

**Box 5**

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

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

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

   b) to the best of my knowledge and belief, the work and conclusions described in this certification are in accordance with the requirements of the site remedial program, and generally accepted engineering practices; and the information presented is accurate and compete.

| YES | NO |
|---|---|
| ☒ | ☐ |

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

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

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

   (c) access to the site will continue to be provided to the Department, to evaluate the remedy, including access to evaluate the continued maintenance of this Control;

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

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

| YES | NO |
|---|---|
| ☒ | ☐ |

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

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

_____ _____

Signature of Owner, Remedial Party or Designated Representative Date

IC CERTIFICATIONS
SITE NO. C224102

Box 6

SITE OWNER OR DESIGNATED REPRESENTATIVE SIGNATURE

I certify that all information and statements in Boxes 1,2, and 3 are true. I understand that a false statement made herein is punishable as a Class "A" misdemeanor, pursuant to Section 210.45 of the Penal Law.

I Jacek Skarzynski at 589 Johnson Avenue, Brooklyn, NY 11237,
print name print business address

am certifying as Owner, Bogart Plaza LLC (Owner or Remedial Party)

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

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

5/31/2019
Date

## IC/EC CERTIFICATIONS

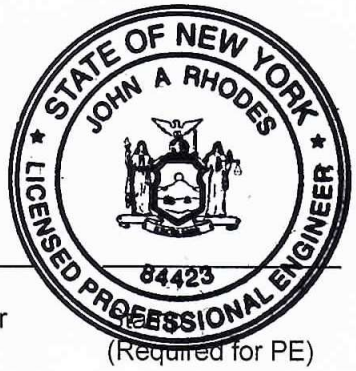
**Box 7**

**Professional Engineer Signature**

I certify that all information in Boxes 4 and 5 are true. I understand that a false statement made herein is punishable as a Class "A" misdemeanor, pursuant to Section 210.45 of the Penal Law.

I John A. Rhodes, PE (print name) at 5 Bedford Place, Morristown, NJ 07960 (print business address),

am certifying as a Professional Engineer for the Bogart Plaza LLC (Owner or Remedial Party)




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

(Required for PE)

5/31/2019

Date