Periodic Review Report (January 1, 2016 – December 31, 2016)

STANTON CLEANERS

NYSDEC Site Number 130072

Work Assignment # D007625-06

Prepared for
New York State Department of Environmental Conservation

625 Broadway
Albany, NY 12233

NEW YORK STATE OF OPPORTUNITY | Department of Environmental Conservation

Enclosure 1
Engineering Controls - Standby Consultant/Contractor Certification Form

Site Details **Box 1**

Site No. **130072**

Site Name Stanton Cleaners

Site Address: 110 Cutter Mill Road Zip Code: 11021
City/Town: Great Neck
County: Nassau
Site Acreage: 0.4

Reporting Period: December 31, 2015 to December 31, 2016

	YES	NO
1. Is the information above correct?	☒	☐
If NO, include handwritten above or on a separate sheet.		
2. To your knowledge has some or all of the site property been sold, subdivided, merged, or undergone a tax map amendment during this Reporting Period?	☒	☐
3. To your knowledge has there been any change of use at the site during this Reporting Period (see 6NYCRR 375-1.11(d))?	☐	☒
4. To your knowledge 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. To your knowledge is the site currently undergoing development?	☐	☒

Box 2

	YES	NO
6. Is the current site use consistent with the use(s) listed below? 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 contact the DEC PM regarding the development of a Corrective Measures Work Plan to address these issues.

Signature of Standby Consultant/Contractor Date

SITE NO. 130072

Box 3

Description of Institutional Controls

Parcel	Owner	Institutional Control
2-376-8	~~Alan Greenburg~~ Samuel Habibian *See site details - Question 2 documentation	Monitoring Plan Site Management Plan O&M Plan

EPA ROD calls for groundwater use restrictions.

Box 4

Description of Engineering Controls

Parcel	Engineering Control
2-376-8	Groundwater Treatment System Vapor Mitigation Air Sparging/Soil Vapor Extraction

-Groundwater Extraction and Treatment System
-Operation of the Source Control SVE System, including vapor-phase discharge treatment as necessary
-A groundwater monitoring well network currently includes fifteen (15) observation wells.

Site Details – Question 2 Documentation

Based on an email communication from the NYSDEC PM it is HDR's understanding that Mr. Samuel Habibian is the current title holder for 110 Cuttermill Road. We are not aware of when and how he obtained title and we have not been in contact with him other than to notify him of onsite activities to take place during the current ongoing investigation.

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, including data and material prepared by previous contractors for the current certifying period, if any;

   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) nothing has occurred that would constitute a failure to comply with the Site Management Plan, or equivalent if no Site Management Plan exists.

YES	NO
☒	☐

IF THE ANSWER TO QUESTION 2 IS NO, sign and date below and contact the DEC PM regarding the development of a Corrective Measures Work Plan to address these issues.

Signature of Standby Consultant/Contractor

Date

Box 6

IC/EC CERTIFICATIONS

Professional Engineer Signature

I certify that all information in Boxes 2 through 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 Erich Zimmerman at HDR
print name

One International BLVD., 10th Floor

Mahwah, NJ 07495
(print business address)

am certifying as a Professional Engineer.

Signature of Professional Engineer

(Required for PE)

4/6/17
Date

STANTON CLEANERS

(NYSDEC Site Number 130072)

January 1, 2016 – December 31, 2016

NYSDEC STANDBY ENGINEERING CONTRACT

Work Assignment #D007625-06

PREPARED FOR

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

625 BROADWAY

ALBANY, NEW YORK 12233

Prepared by

16 Corporate Woods

Albany, NY 12211

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ACRONYMS AND ABBREVIATIONS

1,1,1-TCA	1,1,1-trichloroethane
1,1-DCE	1,1-dichloroethene
AS/SVE	air sparge/soil vapor extraction
Bgs	below ground surface
cVOC	chlorinated volatile organic compound
EDD	electronic data deliverable
GAC	granular activated carbon
GPM	gallons per minute
GWE&TS	groundwater extraction and treatment system
HDR	Henningson, Durham & Richardson Architecture and Engineering, PC.
MW	monitoring well
NPL	National Priorities List
NYSDEC	New York State Department of Environmental Conservation
NYSDOH	New York State Department of Health
O&M	operation and maintenance
PCE	tetrachloroethene
ppb	parts per billion
PRP	potentially responsible party
RI	remedial investigation
ROD	record of decision
SG	soil gas
SPDES	State Pollution Detection and Elimination System
SVE	soil vapor extraction
SVI	soil vapor intrusion
TCL	target compound list
UGA	upper glacial aquifer
USEPA	United States Environmental Protection Agency
VOC	volatile organic compound
WAGNN	Water Authority of Great Neck North
µg/l	micrograms per liter
$\mu g/m^3$	micrograms per cubic meter

1.0 Executive Summary

The Stanton Cleaners Area Groundwater Contamination Site (the Site) in Great Neck, NY is currently listed on the New York State Registry of Inactive Hazardous Waste Sites as a Class 4 (NYSDEC Site#130072). This designation is for sites that are properly closed but require continued site management until the remedial objectives are achieved. As a result of the dry cleaning operations on the site, tetrachloroethene (PCE) migrated from the site's subsurface soils into the indoor air environments of the surrounding buildings and into the groundwater beneath the site. In 1983 approximately 20 cubic yards of contaminated soil were removed from the site. In 1986 NYSDEC funded the construction of an air stripper treatment system for the Water Authority of Great Neck North (WAGNN) water supply wells located ~1000 feet down gradient of the site. In 2001 EPA installed an active sub slab depressurization system (SSDS) on a school adjacent to the site, and completed construction of the currently operating air sparge/soil vapor extraction (AS/SVE) system and the groundwater extract and treat system (GWE&TS). The air stripper treatment system on the WAGNN water supply wells still operates today, the sub slab depressurization system on the Long Island Hebrew Academy was removed by EPA prior to NYSDEC assuming operations in November 2012. The air sparge system is still in place, but does not currently operate, an oil leak caused the air sparge to be shut down in December of 2014. The currently active remedial systems at the site consists of a GWE&TS and an SVE system.

The remedial program at the Site is effective in reducing contamination in the groundwater on and off site and in the soil vapor on and off site. Samples from the GWE&TS groundwater Influent and effluent were collected in January, February, March, April, June, August, September, October and December of 2016. The concentrations of PCE from the influent samples ranged between 4.4 µg/l (August 2016) to 8.7 µg/l (June 2016), 3.7 µg/l above to 0.6 µg/l below the groundwater standard of 5 µg/l. An influent sample collected from the SVE system during September 2016 showed the concentration of PCE to be approximately 57,640 $\mu g/m^3$ after the SVE system had been down for maintenance from January 4th through September 30, 2016. The SVE and GWE&T systems were both shut down on October 31st in advance of the soil gas sampling event which was being conducted as part of the Remedial System Optimization (RSO) investigation, and both systems were restarted on November 22nd at the completion of sampling activities. The RSO investigation, which includes soil, groundwater, and soil gas and SVI sampling, in addition to an aquifer test is currently ongoing and the data collected will serve to inform what system modifications should be implemented to improve the systems effectiveness, especially in regard to the elevated soil vapor concentrations.

At this time, the on-going activities at the Site are in compliance with the major elements of the Site Management Plan including the on-going monitoring program and system operation and maintenance. The SVE system experienced extended down time during the 2016 reporting period as additional administrative time was required to execute the required maintenance, in total it operated for 11% or 39 of the 365 days. The system was restarted on September 30th 2016 and is currently operational, therefore no corrective action is required for this element at this time. The institutional and engineering controls are in place and unchanged since the

NYSDEC assumed responsibility for the Site and the existing controls remain protective of public health and the environment. During the reporting period the title for the Site was apparently transferred to a new owner but this did not result in any changes in use at the site and the new owner has not been involved with the site management program to date.

HDR recommends continuation of the current site management program. The noted concentrations of PCE in the groundwater and soil vapor samples collected as part of the monitoring program indicate that it is not appropriate at this time to modify or discontinue the site management activities. The next PRR will be submitted in January 2018.

2.0 Site Overview

2.1 Site Location and Current Use

The Stanton Cleaners Area Groundwater Contamination Site is located at 110 Cutter Mill Road in Great Neck, Nassau County, New York (Figure 1). The Stanton Cleaners property is approximately ¼ acre in size and includes a two-story building in which a dry-cleaning business operates and an adjacent one-story boiler/storage building as well as a two-story treatment building. During an inspection in 2014 the DEC verified that the facility terminated the use of a fourth generation PCE dry cleaning machine and had surrendered their Air Facility Registration. The Site is bordered by an adjacent empty lot which formerly contained an indoor tennis facility, as well as by a synagogue and school facility. The surrounding area is largely urbanized with various mixed uses with residential areas on the side streets and commercial buildings along the main roadways. The entire area is serviced by public water and sewer with WAGNN being the primary water supplier. Three WAGNN public water supply wells are located approximately 1,000 feet west (downgradient) of the Site. Two of these wells are approximately 145 ft deep and the third well is 434 ft deep. The two 145 ft deep wells are designated as PW-2A (N-12796) and PW-9 (N-4388) and both are completed in the deeper portion of the upper glacial aquifer (UGA). The third deep well (currently out of service) is designated as PW-11 and is completed in the Lloyd Aquifer which is not believed to be impacted by the Site. This well was taken out of service in October 2015 and a new well (PW-11A) was drilled. The shafting and pump were pulled from PW-11 on October 19, 2016 to be used for PW-11A, the expected date of operation for the new well is not yet known. The treatment system on the WAGNN supply wells is currently in operation and VOC contamination has been reduced to below federal and state drinking water standards. Raw untreated groundwater pumped from well 2A regularly exceeded drinking water standards for PCE and associated breakdown products based on analytical sampling data provided by WAGNN during 2016.

2.2 Remedial Program

Improper handling and disposal of spent dry cleaning solvents, including PCE, resulted in the release of hazardous substances at the Site. PCE migrated from the Site's subsurface soils into the indoor air environments of the surrounding buildings and into groundwater beneath the Site, resulting in a significant threat to human health. Remedial measures at the Site began as early as 1983 and a brief chronological summary of the activities is outlined below.

- 1983: Approximately 20 cubic yards of PCE-contaminated soil was removed from behind the Stanton Cleaners property
- 1989: A GWE&TS was installed by the potentially responsible party (PRP). The system performed poorly and was abandoned shortly after.
- 1993: The Site was listed on the New York State Registry of Inactive Hazardous Waste Sites as a Class 2 site.
- 1998: A new air stripper treatment system for the Site-impacted WAGNN water supply wells was installed at the WAGNN wellfield.
- 1998/1999: USEPA assistance was requested, the Site was proposed for addition to the Nation Priorities List (NPL), a Record of Decision (ROD) was finalized, and Site formally added to the NPL in May 1999.
- 2001: The USEPA completed the construction and installation of a SVE system and a GWE&TS on the property to address and contain the on-site source of contamination.
- 2002: Two 500 gallon underground PCE storage tanks were removed.
- 2008: The first five year review of the Site was conducted by the USEPA. The review concluded that the remedy was in place and functioning as intended. The review did not identify any significant issues that required attention.
- 2011: Stanton Cleaners was reclassified from a Class 2 to a Class 4 Inactive Hazardous Waste Site.
- 2012: The USEPA completed construction and installation of a complementary groundwater air sparge system and began its operation in March 2012.
- 2013: The second five year USEPA review was initiated in December 2013 and Finalized in 2014.
- 2014: The air sparge component of the groundwater system was removed from service such that the remaining active remedial system at the site consists of the GWE&TS and the SVE system.
- 2015: USEPA representatives met with NYSDEC representatives in July to review RAO progress and to discuss future plans associated with the site management program.
- 2016: NYSDEC initiated a RSO investigation during November 2016 to evaluate the current site conditions.

2.3 Site Cleanup Objectives

Media	Standards, Criteria, & Guidance	Results
Groundwater	NYSDEC Technical and Operational Guidance Series (TOGS) 1.1.1. Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations	PCE was detected in the influent GW samples at levels ranging between 4.4 µg/l to 8.7 µg/l. 8 of the 9 samples collected during 2016 exceed the 5 µg/l groundwater standard. PCE in the

		groundwater appears to have decreased over the reporting period, Remedial Action Objectives (RAO's) are to decrease concentrations below GW standards. A remedial system optimization investigation is underway to address progress toward RAOs.
Soil	Environmental Conservation Law (ECL) 6 NYCRR Part 375-6: Remedial Program Soil Cleanup Objectives	No soil samples collected during this period.
Soil Vapor	New York State Department of Heath Final Guidance for Evaluating Soil Vapor Intrusion in the State of New York.	PCE was detected at greater than 845,000 µg/M^3 in a subslab sample collected at the Stanton Cleaners facility and elevated PCE levels were detected in the shallow soil vapor in the vicinity of the site, as well as in the SVE system influent during the startup in September 2016 (57,640 µg/M^3). A RSO investigation is therefore underway to address the on-going elevated soil vapor concentrations and to evaluate ways to optimize the SVE system.

The cleanup goal for the remedy is to restore the Site to pre-disposal conditions to the extent feasible. At a minimum, the remedy shall eliminate or mitigate all significant threats to public health and the environment presented by the contamination identified at the Site through the proper application of scientific and engineering principles. The criteria for Site closure will be determined by the NYSDEC based on the future monitoring data.

3.0 Remedy Performance, Effectiveness, and Protectiveness

3.1 Groundwater Extraction and Treatment System Performance, Effectiveness and Protectiveness

The GWE&TS treated and discharged 26,585,666.8 gallons from January 1, 2016 through December 31, 2016. The system was operational for most of the operating period, with the exception of a brief 8 day shutdown in May due to a power outage, and an intentional shut down in advance of RSO soil gas sampling, during which the system was turned off from October 31, 2016 through November 22nd, 2016. The average flow rate during the operational periods was approximately 59.8 GPM. The system has treated a total of 369,457,680 gallons since startup in November 2001 through December 31, 2016.

Currently EPA-EXT-02 is the only extraction well pumping at the Site; it is located at the corner of Cutter Mill Road and Ascot Road (Figure 2). Four other extraction wells still exist onsite (EPA-EXT-01, EPA-EXT-03, EPA-EXT-04R, and ST-IW-01), however they are not operational and are considered part of the on-going groundwater monitoring network.

Figure 3 is a graph of the PCE detected in the influent samples collected during this period. The system appears to have slightly decreased the PCE concentration in the groundwater over the reporting period. The concentration of PCE ranged from 4.4 µg/l to 8.7 µg/l over the reporting period, with the lowest concentration occurring in the August sample. Samples collected in the early part of the year have a higher average concentration than those collected in the later half of the year. The monitoring data also indicates that the effluent values are slightly lower than in 2015. Although a majority of the samples still exceed the applicable standard 2016 is the first year all of the effluent results have been consistently less than 10 µg/l.

The system appears to be protective of human health by decreasing the concentration of PCE in the groundwater on and off site. Table 1, below, shows the approximate cumulative mass of PCE removed by the system based on average pumping rate data and influent concentrations. The average flow rate is multiplied by the number of days and the cVOC concentration (from monthly O&M samples) in order to obtain the mass of cVOC which is removed each month. The cumulative total is tracked in the rightmost column. During 2016 1.52 lbs of cVOCs were calculated to have been recovered by GWE&TS operation.

Table 1

Summary of GWE&TS Mass Removal

Date	Average Monthly Flow Rate (GPM)	CVOC Concentration in Influent	Monthly CVOC Mass	Cumulative Mass Removed
January-16	60.72	8.6	0.19	4.49
February-16	60.63	7	0.08	4.57
March-16	59.59	5.8	0.12	4.69
April-16	59.64	7.8	0.16	4.86
May-16	59.65	8.25	0.10	4.96
June-16	59.67	8.7	0.18	5.14
July-16	59.56	6.55	0.14	5.28
August-16	59.54	4.4	0.10	5.38
September-16	59.84	6.5	0.14	5.52
October-16	59.33	6.3	0.13	5.64
November-16	60.04	6.3	0.04	5.68
December-16	59.16	6.3	0.14	5.82

Note: No O&M visit occurred during May, July, or November of 2016. An average of the cVOC values in the monthly samples taken in the months before and after these months are used to determine an average cVOC value which is used to estimate the approximate Mass removed during those periods.

3.2 Soil Vapor Extraction System Performance, Effectiveness, and Protectiveness.

Air monitoring of the AS/SVE is performed on a monthly basis when the system is running. It includes monitoring for VOCs, carbon monoxide, oxygen, lower explosive limit (LEL), hydrogen sulfide, air velocity in cubic feet per minute (CFM), temperature, relative humidity, dew point, and vacuum pressure as specified in the O&M Manual. Air monitoring is performed at the following locations:

- Combined SVE – influent (pre-treatment);
- Post vapor phase carbon vessel – SVE air discharge, effluent (post treatment);
- SVE wells EPA-SVE-1 through EPA-SVE-3.

The system was not operable during the period from January 4, 2016 through September 30th, 2016. Administrative delays relating to funding and performing necessary repairs prevented timely repair and resulted in the extended downtime. Funding and administrative issues were resolved and the system was returned to regular operation, and no further corrective action is required relating to this issue at this time.

VOC readings at the influent port were uncharacteristically low in comparison to past influent readings taken at the site and in comparison to the concentration detected in sub slab soil vapor, therefore, mass removal calculations were not prepared for this reporting period, and a RSO investigation is underway to address soil vapor contamination at the site, which will include SVE modifications. The system, when operational, appears to be performing its function effectively and is protective of human health by decreasing the concentration of site related cVOCs in the soil and soil vapor.

4.0 IC/EC Plan Compliance Report

4.1 IC/EC Requirements and Compliance

The institutional controls required for this site include a groundwater use restriction to insure that exposure to potentially contaminated groundwater is avoided. Although a specific deed restriction or easement regarding groundwater use is not in place for this site, the local regulations, Nassau County DOH Article IV prohibits the use of any private water system to be used for drinking water, and the NYS ECL Section 15-1527 prohibit drilling, digging, or tapping into the local aquifer without having first obtained a permit for wells yielding greater than 45 gallons per minute. The USEPA has determined that this is adequate groundwater use restriction and no further ICs are necessary to safeguard public health.

The engineering controls at the site include the following:

- Groundwater extraction and treatment system- This system captures and treats the most contaminated groundwater associated at the Site. The groundwater concentrations have been significantly reduced by its continued operation.
- Vapor mitigation- Soil vapor is being mitigated onsite via the SVE.

4.2 IC/EC Certification

The NYSDEC approved IC/EC certification form certified by a New York State licensed professional engineer is being submitted along with this report. The certification notes that the title of the property has been transferred to a new owner based on a communication from the NYSDEC. No change in use has occurred at the site and the new owner has not contacted HDR in regard to the site management activities.

5.0 MONITORING PLAN COMPLIANCE REPORT

5.1 Components of the Monitoring Plan

The following table summarizes the components of the monitoring plan (results of all monitoring activities are summarized in the quarterly reports and submitted under separate cover to the NYSDEC).

Monitoring Plan		
Frequency	**Groundwater**	**Soil Vapor**
Monthly	GWE&TS influent and effluent is sampled and tested for VOCs A network of 16 wells are monitored for water level	SVE influent is monitored using a PID at multiple SVE monitoring ports located on the system
Quarterly	None – see monthly monitoring	SVE influent and effluent are sampled and tested for VOCs
Semi-Annually	Fifteen wells in the monitoring well network are sampled and tested for VOCs	Neighboring property Long Island Hebrew Academy (LIHA) is sampled and tested, as directed, for contaminants in indoor air via Compendium Method TO-15
Annually	The system discharge point into the city sewer is sampled and tested for compliance with SPDES Equivalency Parameters	None

5.2 Monitoring Completed During Reporting Period

The following table shows actual sampling completed at the Site between January 2016 and December 2016.

Monitoring Completed during January 2015-December 2015 period								
	GW Influent	GW Effluent	SVE Influent	SVE Effluent	Water Level Gauge	Process Air Stream Monitor	SVI Sampling	MW Sampling
January	X	X			X			
February	X	X			X			
March	X	X			X			
April	X	X			X			
May								
June	X	X			X		X	X
July								
August	X	X			X			
September	X	X	X	X	X	X		
October	X	X		X	X	X		
November						X	X	X
December	X	x			X	X	X	

5.3 Comparison with Remedial Objectives:

5.3.1 Groundwater

PCE is detected in the influent groundwater samples taken at the Site. Detected concentrations range from 4.4 to 8.7 µg/l. Eight of the nine monthly samples collected during the reporting period exceed the standard of 5 µg/l. Figure 3 shows the concentration of PCE in influent samples between January 2016 and December 2016. During the 2016 period, an overall slight decrease in PCE concentration appears to occur. A RSO investigation is currently ongoing to address progress toward the NYSDEC Technical and Operational Guidance Series (TOGS) 1.1.1 Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations. The remedial objective is to treat the groundwater and remove contaminants to below the water quality standard.

During the June 2016 semiannual groundwater sampling event PCE was detected above the standard in the groundwater sample collected in only one monitoring well (ST-MW-19) located south and west of the site. Two other wells exhibited PCE detections below the groundwater standard during this event, EPA-MW-23 located onsite at Stanton Cleaners had a detection of 1.5 µg/l and ST-MW-18, located 930 feet to the southwest of the site had a detection of 4.8 µg/l. The system outfall in the stormwater drain at the synagogue parking lot was sampled for SPDES equivalency and toluene was detected above effluent limitations, however this

compound is not found in the effluent and its detection in the sample is likely from cross contamination during sampling.

During the November 2016 semiannual groundwater sampling event PCE was detected above the standard in the groundwater sample collected from only one monitoring well (ST-MW-16) located east of the site where a concentration of 17 µg/l was found. Only two other wells sampled during the sampling event also had detection of PCE, but the detections were reported below the 5 µg/l standard, the sample collected at ST-MW-15, located 550 feet to the west of the site had a detection of 3.3 and EPA-CL-1S (900 feet south) had a detection of 3 µg/l.

5.3.2 Soil

No soil samples were collected during this period. Clean up objectives at the site would be to ensure that soil contamination is at or below Environmental Conservation Law (ECL) 6 NYCRR Part 375-6: Remedial Program Soil Cleanup Objectives. A number of additional soil samples will be collected during the RSO investigation in early 2017 to determine if significant concentrations remain in the site soils. A follow-up round of confirmatory soil sampling would be required once the active remedial measures are deemed complete.

5.3.3 Vapor

When the system is operational, the SVE influent is screened during each monthly visit using a handheld PID which measures VOC concentrations in parts per million (ppm). These readings are used under the assumption that the bulk of VOCs entering the system is PCE (this assumption is supported by analytical data). During this reporting period the SVE system was inoperable for nine months while awaiting system maintenance, and shut down temporarily for 22 days during November to accommodate the RSO investigation sampling schedule. System screening was not performed during system downtime during this monitoring period and therefore data during this certification period is limited. However soil gas samples collected as part of the RSO investigation revealed an area of elevated PCE in shallow soil vapor (15 ft bgs) located in the vicinity of the site (Figure 4).

Quarterly influent and effluent samples are collected from the SVE system and analyzed using USEPA TO-15. Samples were collected for only one quarter this year due to system downtime interfering with the sampling schedule. The influent sample collected in September 2016 contained 57,640 µg/m^3. The SVE influent sample obtained illustrates that the SVE system is working to mitigate potential exposure to soil vapor on and offsite when it is operational.

New York State does not currently have any standards, criteria, or guidance specifically for subsurface vapors; however, the matrices in Section 3.4.2 of the Final Guidance for Evaluating Soil Vapor Intrusion in the State of New York, October 2006 can be used to determine when mitigation would be appropriate to lower possible exposure to elevated concentration that may be found within sub-slab vapor and indoor air. Three SVI sampling events were conducted during this reporting period. In June 2016 one indoor air sample was collected at the LIHA and PCE was detected at 0.95 µg/m^3 in the sample. In November a second SVI sampling event was conducted as part of the RSO sampling activities. An indoor air sample collected at LIHA detected 153 µg/m^3 in the indoor air. An indoor air sample collected at the Stanton cleaners building indicated 1,152 µg/m^3 in the indoor air and three subslab samples collected at Stanton

Cleaners detected 9,493 – 845,614 µg/m^3 of PCE in the vapor beneath the slab at Stanton Cleaners. NYSDOH requested a third indoor air sampling event at LIHA due to the apparent increased PCE concentration detected in the November 2016 sample. On December 28, 2016 three additional indoor air samples were collected (two on the lower floor and one on the upper floor) in the LIHA. These samples indicated indoor air concentration of 2.24 µg/m^3 of PCE in the samples taken on the lower floor, and 0.2 µg/m^3 of PCE in the sample collected on the upper floor of the school. In comparing these values to the existing guidance the on-going mitigation should continue and additional reasonable and practical actions should be conducted to identify the source of the contamination and reduce possible exposures.

5.4 Monitoring Deficiencies

During the review and certification period associated with this report deficiencies in the Monitoring Program have been encountered. These deficiencies are largely associated with administrative delays, and are not anticipated to be repeated. These deficiencies did not have a significant impact on the system's ability to perform as designed or expected. A significant period (approximately 10 months) of system downtime was experienced with the SVE system only during this reporting period due to system repair requirements. During this certification period, GWE&TS performance has improved relative to 2015. During the times where the SVE system was down some monitoring activities could not be performed.

Three of the four quarterly SVE influent and effluent samples were not collected in 2016 because the system was down and the SVE monitoring program was suspended during those times that is was down. The GWE&T system continued to operate while the SVE system was down.

The GWE&T did not have any major downtime during this reporting period. No groundwater influent and effluent samples were collected for May, July, and November, primarily because sample scheduling would have occurred too close to the event for the previous or future month and would have been redundant. The November samples were not collected because the system was down for most of the month to accommodate the RSO sampling event. Instead, samples were collected in the early part of December, after the system was restarted.

5.5 Conclusions and Recommendations for Changes

The monitoring plan is effective and provides for an adequate amount of data collection to evaluate the system performance, no changes are recommended. Should the future in-door air sampling at the LIHA indicate that the SVE system is not eliminating that potential exposure route additional investigations maybe required to identify the source of the noted PCE in soil vapor.

The remedial effectiveness is adequate in controlling the remaining contamination on-site, some of the down gradient monitoring wells still exhibit elevated levels of PCE but the overall trend since 2011 has been toward slowly decreasing concentrations. Recommend continuing operation of the remedial systems to prevent further offsite migration, as well as system optimization based on the 2016-2017 investigation results.

6.0 O&M PLAN COMPLIANCE REPORT

The on-going O&M program at the Stanton site includes the following:

- Monthly system checks of the GWE&TS, and the AS/SVE system;
- Semi-annual granular activated carbon (GAC) change out on GWE&TS and SVE systems (if necessary);
- Annual SPDES sampling event; and
- A Periodic Review Report will be issued annually.

During the review and certification period associated with this report, the GWE&T system ran for much of the year without interruption. Significant improvement was noted from previous years in system operation. Significant downtime (ten months) of the SVE system occurred during this certification period. During the times when the system was down certain O&M activities and system performance readings were not conducted as outlined in the O&M Plan.

7.0 CONCLUSIONS & RECOMMENDATIONS

7.1 Compliance with SMP

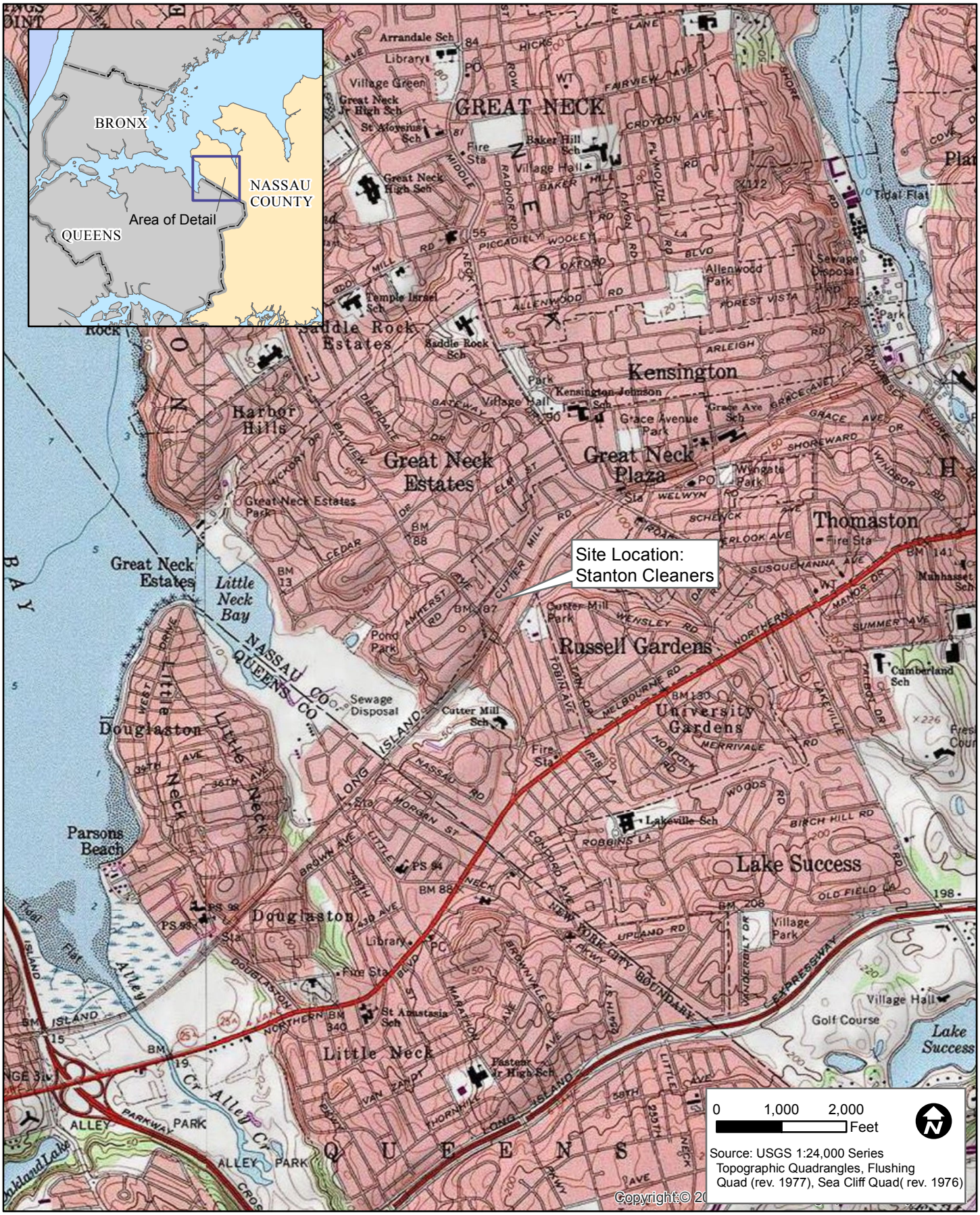
Based on the activities associated with the SMP the major elements of the plan were met during the reporting period. The engineering controls at the site include a groundwater treatment system and an SVE system. These systems are designed to contain the off-site migration of VOC-contaminated vapors and groundwater. The GWE&TS's primary responsibilities include the pumping and treatment of groundwater. The SVE system's responsibilities include the treatment of high VOC source areas, the containment of off-site migration of contaminated soil vapors, and the extraction and treatment of the contaminants of concern contained in the soil vapor. When these systems are operational the contamination is contained to within the immediate vicinity of the Site.

7.2 Effectiveness of the Remedy

Data collected during the reporting period indicates that the remedy is effective for both remediating the source of the contamination and protecting human health by reducing the amount of contamination in the environment surrounding the site.

7.3 Future PRR Submittals

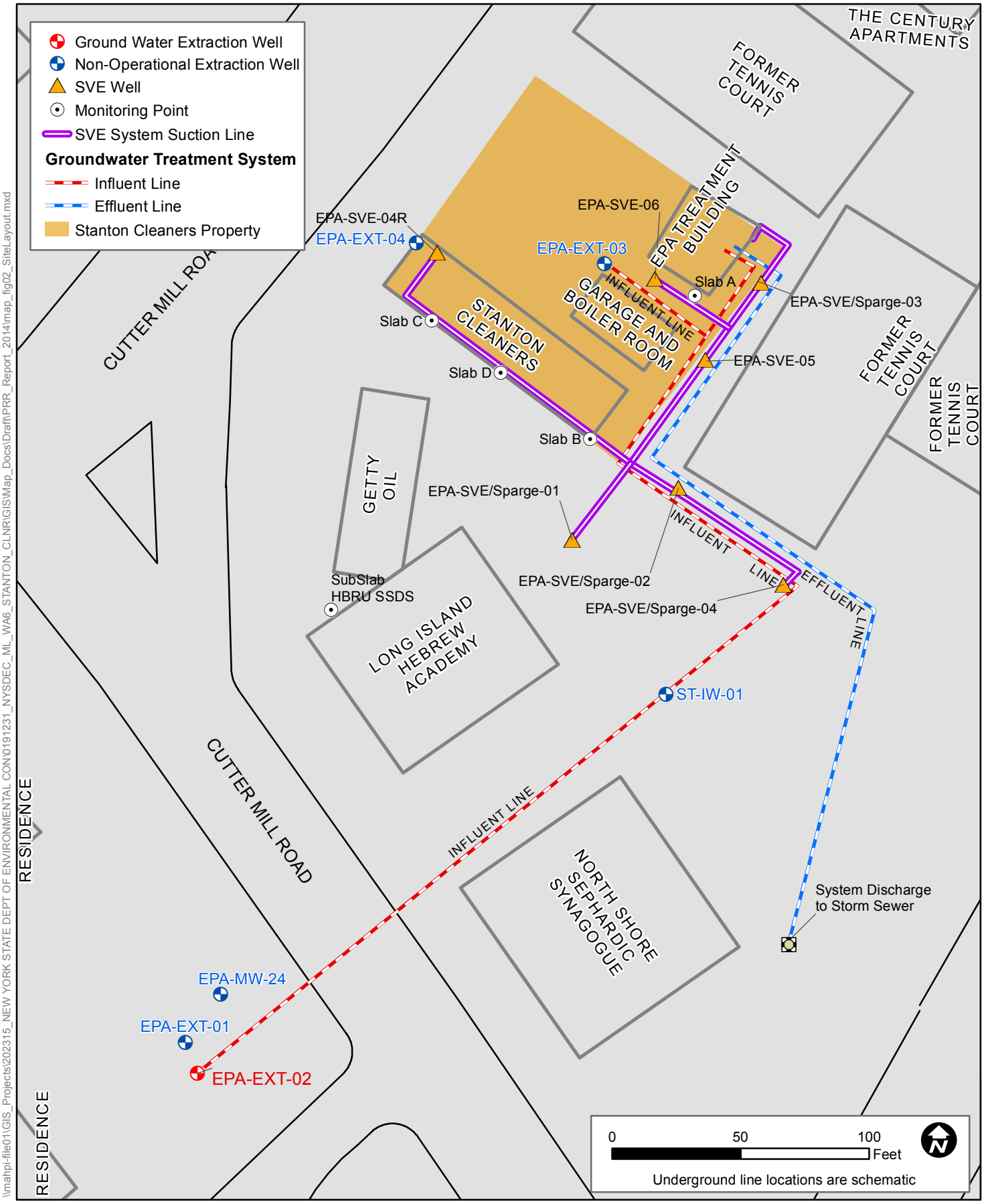
The next Periodic Review Report covering the reporting period from January 1, 2017 to December 31, 2017 will be submitted by January 30, 2018.



Site Location
Stanton Cleaners
NYSDEC Site # 130072
Great Neck-North Hempstead, New York

Figure 1

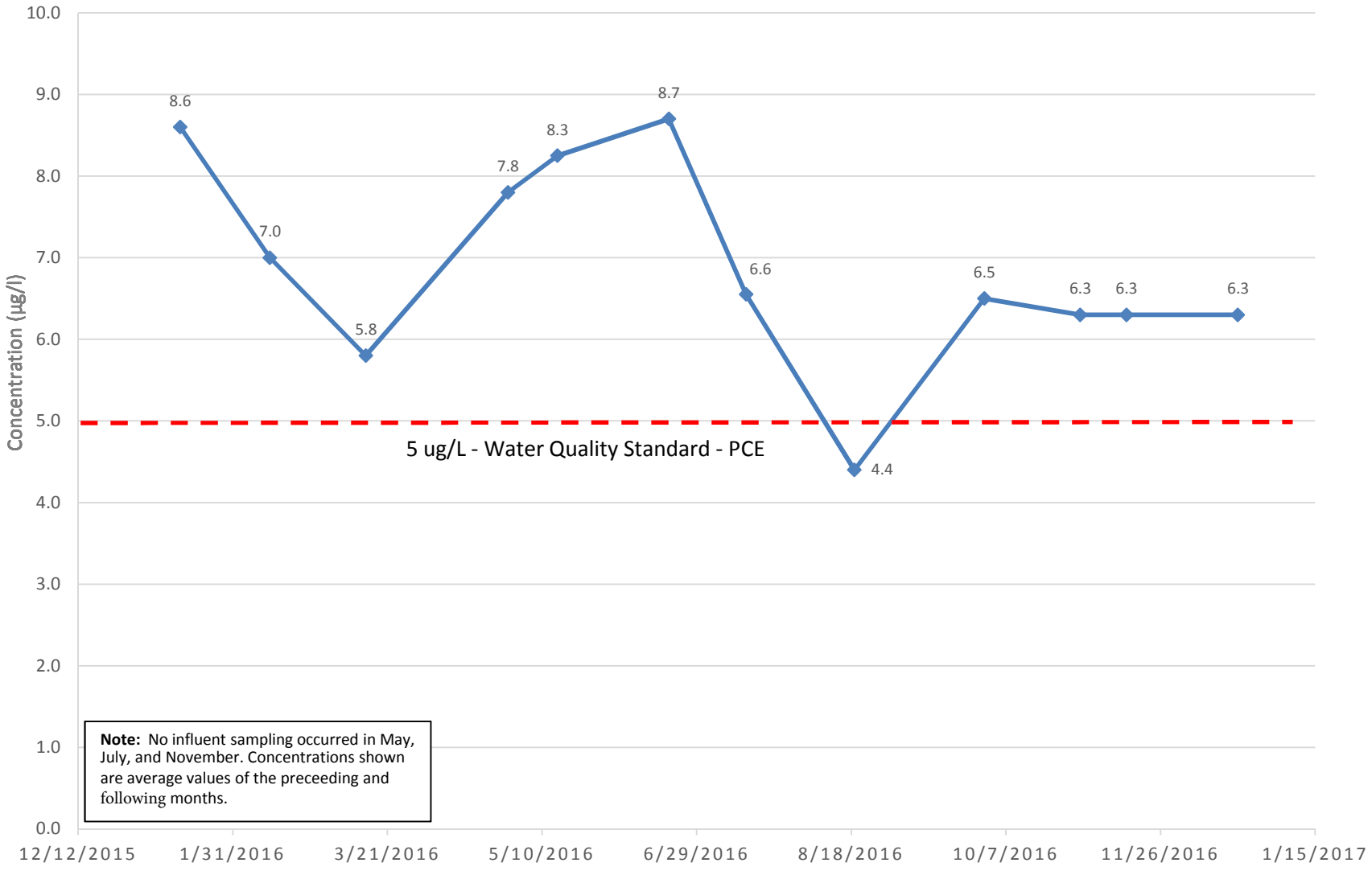
February 18, 2016



\\mahpi-file01\GIS_Projects\202315_NEW YORK STATE DEPT OF ENVIRONMENTAL CON\0191231_NYSDEC_ML_WA6_STANTON_CLNR\GIS\Map_Docs\Draft\PRR_Report_2014\map_fig02_SiteLayout.mxd

Site Layout
Stanton Cleaners
NYSDEC Site # 130072
Great Neck-North Hempstead, New York

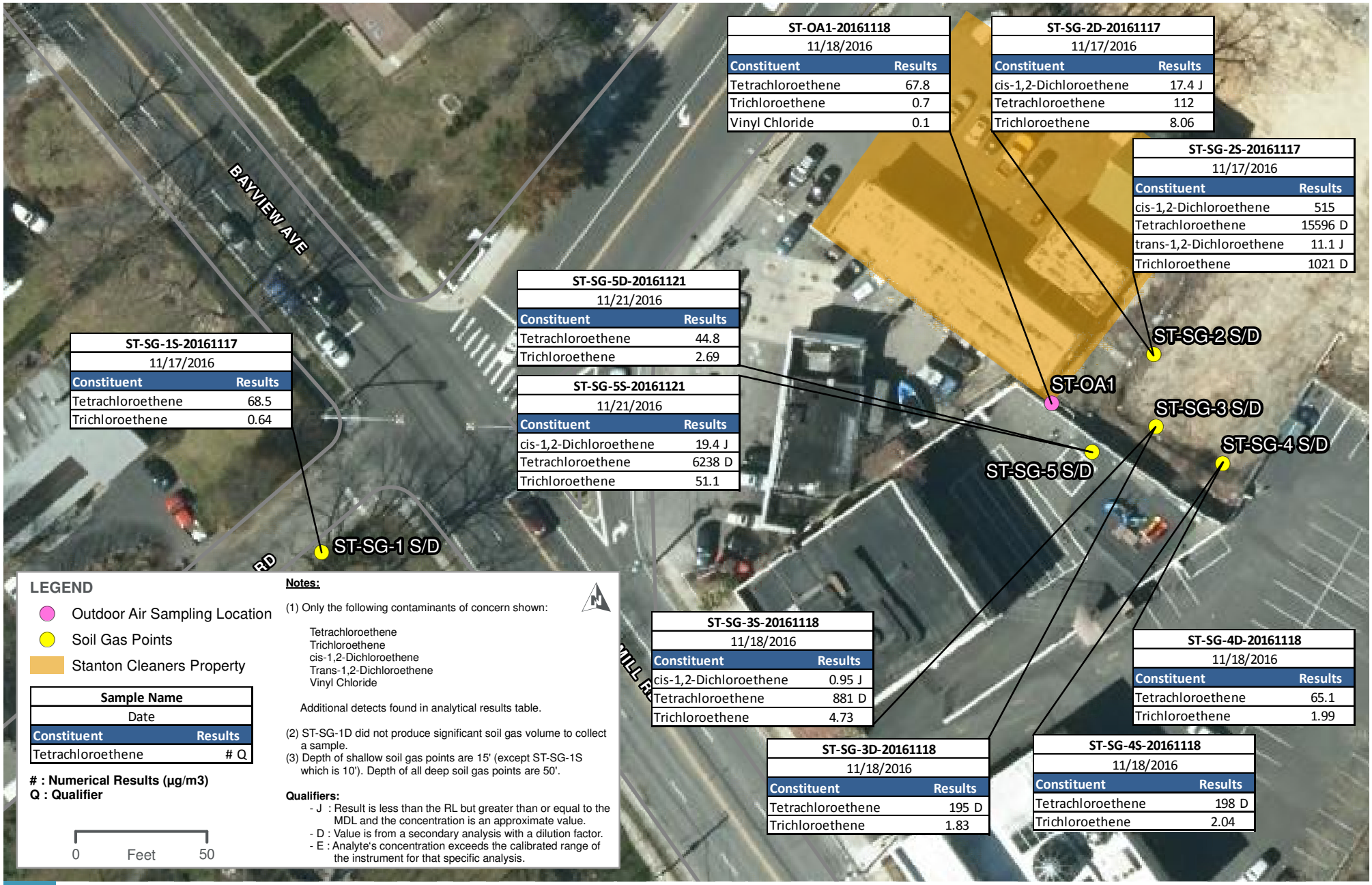
Figure 2



PCE Concentration in Influent of GWE&T System 2016

Stanton Cleaners, NYSDEC Site # 130072, Great Neck, NY

Figure 3



ST-OA1-20161118	
11/18/2016	
Constituent	**Results**
Tetrachloroethene	67.8
Trichloroethene	0.7
Vinyl Chloride	0.1

ST-SG-2D-20161117	
11/17/2016	
Constituent	**Results**
cis-1,2-Dichloroethene	17.4 J
Tetrachloroethene	112
Trichloroethene	8.06

ST-SG-2S-20161117	
11/17/2016	
Constituent	**Results**
cis-1,2-Dichloroethene	515
Tetrachloroethene	15596 D
trans-1,2-Dichloroethene	11.1 J
Trichloroethene	1021 D

ST-SG-5D-20161121	
11/21/2016	
Constituent	**Results**
Tetrachloroethene	44.8
Trichloroethene	2.69

ST-SG-1S-20161117	
11/17/2016	
Constituent	**Results**
Tetrachloroethene	68.5
Trichloroethene	0.64

ST-SG-5S-20161121	
11/21/2016	
Constituent	**Results**
cis-1,2-Dichloroethene	19.4 J
Tetrachloroethene	6238 D
Trichloroethene	51.1

ST-SG-3S-20161118	
11/18/2016	
Constituent	**Results**
cis-1,2-Dichloroethene	0.95 J
Tetrachloroethene	881 D
Trichloroethene	4.73

ST-SG-4D-20161118	
11/18/2016	
Constituent	**Results**
Tetrachloroethene	65.1
Trichloroethene	1.99

ST-SG-3D-20161118	
11/18/2016	
Constituent	**Results**
Tetrachloroethene	195 D
Trichloroethene	1.83

ST-SG-4S-20161118	
11/18/2016	
Constituent	**Results**
Tetrachloroethene	198 D
Trichloroethene	2.04

LEGEND

- Outdoor Air Sampling Location
- Soil Gas Points
- Stanton Cleaners Property

Sample Name	
Date	
Constituent	**Results**
Tetrachloroethene	# Q

 # : Numerical Results (µg/m3)
Q : Qualifier

0 Feet 50

Notes:

(1) Only the following contaminants of concern shown:

Tetrachloroethene
Trichloroethene
cis-1,2-Dichloroethene
Trans-1,2-Dichloroethene
Vinyl Chloride

Additional detects found in analytical results table.

(2) ST-SG-1D did not produce significant soil gas volume to collect a sample.
(3) Depth of shallow soil gas points are 15' (except ST-SG-1S which is 10'). Depth of all deep soil gas points are 50'.

Qualifiers:

- J : Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
- D : Value is from a secondary analysis with a dilution factor.
- E : Analyte's concentration exceeds the calibrated range of the instrument for that specific analysis.

SOIL GAS ANALYTICAL RESULTS - NOVEMBER 2016

STANTON CLEANERS (NYSDEC SITE #130072)

FIGURE 4